

Final Report

THE
CADMUS
GROUP, INC.

Assessment of Long-Term, System-Wide Potential for Demand-Side and Other Supplemental Resources Volume II: Appendices

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Appendix A. Capacity-Focused Resource Materials: Detailed Assumptions by Program Option

Appendix A: Capacity-Focused Resource Materials: Assumptions Varying by Market Segment

Table A-1. Residential DLC AC: Inputs Varying By Market Segment

State	Program Participation (%)
California	20%
Idaho	25%
Oregon	20%
Utah	35%
Washington	20%
Wyoming	20%

Table A-2. Residential DLC Water Heat: Inputs Varying By Market Segment

State/Market Segment	End Use	Program Participation (%)
California		
Single_Family	Water Heating	5%
Multi_Family	Water Heating	3%
Manufactured	Water Heating	7%
Idaho		
Single_Family	Water Heating	3%
Multi_Family	Water Heating	1%
Manufactured	Water Heating	7%
Oregon		
Single_Family	Water Heating	6%
Multi_Family	Water Heating	3%
Manufactured	Water Heating	10%
Utah		
Single_Family	Water Heating	16%
Multi_Family	Water Heating	16%
Manufactured	Water Heating	0%
Washington		
Single_Family	Water Heating	11%
Multi_Family	Water Heating	7%
Manufactured	Water Heating	15%
Wyoming		
Single_Family	Water Heating	7%
Multi_Family	Water Heating	4%
Manufactured	Water Heating	12%

Table A-3. Irrigation Load Control: Inputs Varying By Market Segment

State	Program Participation (%)
California	15%
Idaho	85%
Oregon	15%
Utah	80%
Washington	25%
Wyoming	25%

Table A-4. Thermal Energy Storage: Inputs Varying By Market Segment

State	Market Segment	Eligible Load (% Load >100kW)	Tech Pot Savings (max reduction in load)
CA	Grocery	87%	100%
ID	Grocery	89%	100%
OR	Grocery	90%	100%
UT	Grocery	95%	100%
WA	Grocery	90%	100%
WY	Grocery	90%	100%
OR	Large_Office	77%	100%
UT	Large_Office	77%	100%
WA	Large_Office	48%	100%
WY	Large_Office	56%	100%
ID	Large_Retail	26%	100%
OR	Large_Retail	30%	100%
UT	Large_Retail	57%	100%
WA	Large_Retail	42%	100%
WY	Large_Retail	39%	100%
CA	School	88%	100%
ID	School	95%	100%
OR	School	95%	100%
UT	School	98%	100%
WA	School	94%	100%
WY	School	96%	100%

Table A-5. Load Curtailment: Inputs Varying By Market Segment

Sector	Market Segment	End Use	Eligible Load (% Load >100kW)	Technical Potential as % of Load Basis	Program Participation (%)
CA	Grocery	Segment Total	22%	5%	13%
ID	Grocery	Segment Total	51%	5%	13%
OR	Grocery	Segment Total	45%	5%	33%
UT	Grocery	Segment Total	80%	5%	13%
WA	Grocery	Segment Total	54%	5%	13%
WY	Grocery	Segment Total	46%	5%	13%
CA	Health	Segment Total	31%	12%	0%
ID	Health	Segment Total	16%	12%	0%
OR	Health	Segment Total	44%	12%	0%
UT	Health	Segment Total	31%	12%	0%
WA	Health	Segment Total	47%	12%	0%
WY	Health	Segment Total	55%	12%	0%
ID	Large_Office	Segment Total	0%	16%	21%
OR	Large_Office	Segment Total	51%	16%	41%
UT	Large_Office	Segment Total	84%	16%	21%
WA	Large_Office	Segment Total	17%	16%	21%
WY	Large_Office	Segment Total	13%	16%	21%
ID	Large_Retail	Segment Total	0%	16%	8%
OR	Large_Retail	Segment Total	6%	16%	28%
UT	Large_Retail	Segment Total	90%	16%	8%
WA	Large_Retail	Segment Total	3%	16%	8%
WY	Large_Retail	Segment Total	0%	16%	8%
CA	Lodging	Segment Total	14%	17%	0%
ID	Lodging	Segment Total	0%	17%	0%
OR	Lodging	Segment Total	29%	17%	0%
UT	Lodging	Segment Total	40%	17%	0%
WA	Lodging	Segment Total	32%	17%	0%
WY	Lodging	Segment Total	13%	17%	0%
CA	Miscellaneous	Segment Total	24%	17%	13%
ID	Miscellaneous	Segment Total	26%	17%	13%
OR	Miscellaneous	Segment Total	31%	17%	33%

UT	Miscellaneous	Segment Total	70%	17%	13%
WA	Miscellaneous	Segment Total	37%	17%	13%
WY	Miscellaneous	Segment Total	40%	17%	13%
CA	Restaurant	Segment Total	0%	17%	25%
ID	Restaurant	Segment Total	0%	17%	25%
OR	Restaurant	Segment Total	1%	17%	45%
UT	Restaurant	Segment Total	70%	17%	25%
WA	Restaurant	Segment Total	8%	17%	25%
WY	Restaurant	Segment Total	0%	17%	25%
CA	School	Segment Total	15%	17%	23%
ID	School	Segment Total	45%	17%	23%
OR	School	Segment Total	48%	17%	43%
UT	School	Segment Total	60%	17%	23%
WA	School	Segment Total	59%	17%	23%
WY	School	Segment Total	59%	17%	23%
CA	Warehouse	Segment Total	13%	16%	13%
ID	Warehouse	Segment Total	13%	16%	13%
OR	Warehouse	Segment Total	39%	16%	33%
UT	Warehouse	Segment Total	70%	16%	13%
WA	Warehouse	Segment Total	76%	16%	13%
WY	Warehouse	Segment Total	0%	16%	13%
ID	Chemical_Mfg	Segment Total	100%	17%	3%
UT	Chemical_Mfg	Segment Total	5%	17%	6%
WY	Chemical_Mfg	Segment Total	99%	17%	3%
UT	Electronic_Equipment_Mfg	Segment Total	81%	17%	6%
ID	Food_Mfg	Segment Total	86%	17%	3%
OR	Food_Mfg	Segment Total	87%	17%	26%
UT	Food_Mfg	Segment Total	90%	17%	6%
WA	Food_Mfg	Segment Total	81%	17%	6%
UT	Industrial_Machinery	Segment Total	98%	17%	6%
CA	Lumber_Wood_Products	Segment Total	92%	17%	6%
OR	Lumber_Wood_Products	Segment Total	94%	17%	26%
WA	Lumber_Wood_Products	Segment Total	79%	17%	6%
UT	Mining	Segment Total	83%	17%	6%
WY	Mining	Segment Total	97%	17%	3%
CA	Miscellaneous_Mfg	Segment Total	42%	17%	6%

ID	Miscellaneous_Mfg	Segment Total	84%	17%	3%
OR	Miscellaneous_Mfg	Segment Total	75%	17%	26%
UT	Miscellaneous_Mfg	Segment Total	0%	17%	6%
WA	Miscellaneous_Mfg	Segment Total	71%	17%	6%
WY	Miscellaneous_Mfg	Segment Total	91%	17%	3%
OR	Paper_Mfg	Segment Total	100%	17%	26%
UT	Petroleum_Refining	Segment Total	83%	17%	0%
WY	Petroleum_Refining	Segment Total	97%	17%	0%
OR	Primary_Metal_Mfg	Segment Total	96%	17%	26%
UT	Primary_Metal_Mfg	Segment Total	37%	17%	6%
UT	Stone_Clay_Glass_Products	Segment Total	74%	17%	6%
UT	Transportation_Equipment_Mfg	Segment Total	80%	17%	6%

Table A-6. Demand Buyback: Inputs Varying By Market Segment

Sector	Market Segment	End Use	Eligible Load (% Load >100 kW)	Technical Potential as % of Load Basis	Program Participation (%)
CA	Grocery	Segment Total	22%	5%	20%
ID	Grocery	Segment Total	51%	5%	20%
OR	Grocery	Segment Total	45%	5%	20%
UT	Grocery	Segment Total	64%	5%	20%
WA	Grocery	Segment Total	54%	5%	20%
WY	Grocery	Segment Total	46%	5%	20%
CA	Health	Segment Total	31%	12%	0%
ID	Health	Segment Total	16%	12%	0%
OR	Health	Segment Total	44%	12%	0%
UT	Health	Segment Total	62%	12%	0%
WA	Health	Segment Total	47%	12%	0%
WY	Health	Segment Total	55%	12%	0%
ID	Large_Office	Segment Total	0%	16%	20%
OR	Large_Office	Segment Total	51%	16%	20%
UT	Large_Office	Segment Total	23%	16%	20%
WA	Large_Office	Segment Total	17%	16%	20%

WY	Large_Office	Segment Total	13%	16%	20%
ID	Large_Retail	Segment Total	0%	16%	20%
OR	Large_Retail	Segment Total	6%	16%	20%
UT	Large_Retail	Segment Total	13%	16%	20%
WA	Large_Retail	Segment Total	3%	16%	20%
WY	Large_Retail	Segment Total	0%	16%	20%
CA	Lodging	Segment Total	14%	17%	0%
ID	Lodging	Segment Total	0%	17%	0%
OR	Lodging	Segment Total	29%	17%	0%
UT	Lodging	Segment Total	43%	17%	0%
WA	Lodging	Segment Total	32%	17%	0%
WY	Lodging	Segment Total	31%	17%	0%
CA	Miscellaneous	Segment Total	24%	17%	20%
ID	Miscellaneous	Segment Total	26%	17%	20%
OR	Miscellaneous	Segment Total	31%	17%	20%
UT	Miscellaneous	Segment Total	49%	17%	20%
WA	Miscellaneous	Segment Total	37%	17%	20%
WY	Miscellaneous	Segment Total	40%	17%	20%
CA	Restaurant	Segment Total	0%	17%	15%
ID	Restaurant	Segment Total	0%	17%	15%
OR	Restaurant	Segment Total	1%	17%	15%
UT	Restaurant	Segment Total	1%	17%	15%
WA	Restaurant	Segment Total	8%	17%	15%
WY	Restaurant	Segment Total	0%	17%	15%
CA	School	Segment Total	15%	17%	0%
ID	School	Segment Total	45%	17%	0%
OR	School	Segment Total	48%	17%	0%
UT	School	Segment Total	67%	17%	0%
WA	School	Segment Total	59%	17%	0%
WY	School	Segment Total	59%	17%	0%
CA	Warehouse	Segment Total	13%	16%	20%
ID	Warehouse	Segment Total	13%	16%	20%
OR	Warehouse	Segment Total	39%	16%	20%
UT	Warehouse	Segment Total	35%	16%	20%
WA	Warehouse	Segment Total	76%	16%	20%
WY	Warehouse	Segment Total	0%	16%	20%

ID	Chemical_Mfg	Segment Total	100%	17%	20%
UT	Chemical_Mfg	Segment Total	94%	17%	20%
WY	Chemical_Mfg	Segment Total	99%	17%	20%
UT	Electronic_Equipment_Mfg	Segment Total	84%	17%	20%
ID	Food_Mfg	Segment Total	92%	17%	20%
OR	Food_Mfg	Segment Total	87%	17%	20%
UT	Food_Mfg	Segment Total	90%	17%	20%
WA	Food_Mfg	Segment Total	81%	17%	20%
UT	Industrial_Machinery	Segment Total	59%	17%	20%
CA	Lumber_Wood_Products	Segment Total	92%	17%	20%
OR	Lumber_Wood_Products	Segment Total	94%	17%	20%
WA	Lumber_Wood_Products	Segment Total	79%	17%	20%
UT	Mining	Segment Total	95%	17%	20%
WY	Mining	Segment Total	97%	17%	20%
CA	Miscellaneous_Mfg	Segment Total	42%	17%	20%
ID	Miscellaneous_Mfg	Segment Total	84%	17%	20%
OR	Miscellaneous_Mfg	Segment Total	75%	17%	20%
UT	Miscellaneous_Mfg	Segment Total	82%	17%	20%
WA	Miscellaneous_Mfg	Segment Total	71%	17%	20%
WY	Miscellaneous_Mfg	Segment Total	91%	17%	20%
OR	Paper_Mfg	Segment Total	100%	17%	20%
WA	Paper_Mfg	Segment Total	99%	17%	20%
UT	Petroleum_Refining	Segment Total	97%	5%	0%
WY	Petroleum_Refining	Segment Total	97%	5%	0%
OR	Primary_Metal_Mfg	Segment Total	96%	17%	20%
UT	Primary_Metal_Mfg	Segment Total	99%	17%	20%
UT	Stone_Clay_Glass_Products	Segment Total	92%	17%	20%
UT	Transportation_Equipment_Mfg	Segment Total	93%	17%	20%

Table A-7. CPP: Inputs Varying By Market Segment

Sector	Market Segment	Tech Pot Savings as % of Gross	Program Participation (%)
CA	Grocery	5%	12%

ID	Grocery	5%	12%
OR	Grocery	5%	12%
UT	Grocery	5%	12%
WA	Grocery	5%	12%
WY	Grocery	5%	12%
CA	Health	12%	0%
ID	Health	12%	0%
OR	Health	12%	0%
UT	Health	12%	0%
WA	Health	12%	0%
WY	Health	12%	0%
ID	Large_Office	16%	8%
OR	Large_Office	16%	8%
UT	Large_Office	16%	8%
WA	Large_Office	16%	8%
WY	Large_Office	16%	8%
ID	Large_Retail	16%	16%
OR	Large_Retail	16%	16%
UT	Large_Retail	16%	16%
WA	Large_Retail	16%	16%
WY	Large_Retail	16%	16%
CA	Lodging	17%	0%
ID	Lodging	17%	0%
OR	Lodging	17%	0%
UT	Lodging	17%	0%
WA	Lodging	17%	0%
WY	Lodging	17%	0%
CA	Miscellaneous	17%	12%
ID	Miscellaneous	17%	12%
OR	Miscellaneous	17%	12%
UT	Miscellaneous	17%	12%
WA	Miscellaneous	17%	12%
WY	Miscellaneous	17%	12%
CA	Restaurant	17%	25%
ID	Restaurant	17%	25%
OR	Restaurant	17%	25%

UT	Restaurant	17%	25%
WA	Restaurant	17%	25%
WY	Restaurant	17%	25%
CA	School	17%	18%
ID	School	17%	18%
OR	School	17%	18%
UT	School	17%	18%
WA	School	17%	18%
WY	School	17%	18%
CA	Warehouse	16%	12%
ID	Warehouse	16%	12%
OR	Warehouse	16%	12%
UT	Warehouse	16%	12%
WA	Warehouse	16%	12%
WY	Warehouse	16%	12%
ID	Chemical_Mfg	17%	24%
UT	Chemical_Mfg	17%	24%
WY	Chemical_Mfg	17%	24%
UT	Electronic_Equipment_Mfg	17%	24%
ID	Food_Mfg	17%	24%
OR	Food_Mfg	17%	24%
UT	Food_Mfg	17%	24%
WA	Food_Mfg	17%	24%
UT	Industrial_Machinery	17%	24%
CA	Lumber_Wood_Products	17%	24%
OR	Lumber_Wood_Products	17%	24%
WA	Lumber_Wood_Products	17%	24%
UT	Mining	17%	24%
WY	Mining	17%	24%
CA	Miscellaneous_Mfg	17%	24%
ID	Miscellaneous_Mfg	17%	24%
OR	Miscellaneous_Mfg	17%	24%
UT	Miscellaneous_Mfg	17%	24%
WA	Miscellaneous_Mfg	17%	24%
WY	Miscellaneous_Mfg	17%	24%
OR	Paper_Mfg	17%	24%

WA	Paper_Mfg	17%	24%
UT	Petroleum_Refining	17%	0%
WY	Petroleum_Refining	17%	0%
OR	Primary_Metal_Mfg	17%	24%
UT	Primary_Metal_Mfg	17%	24%
UT	Stone_Clay_Glass_Products	17%	24%
UT	Transportation_Equipment_Mfg	17%	24%
CA	Wastewater	17%	24%
CA	Water	17%	24%
ID	Wastewater	17%	24%
ID	Water	17%	24%
UT	Wastewater	17%	24%
UT	Water	17%	24%
WA	Wastewater	17%	24%
WA	Water	17%	24%
WY	Wastewater	17%	24%
WY	Water	17%	24%

Table A-8. RTP: Inputs Varying By Market Segment

Sector/Market Segment	Eligible Load (% of Load >100 kW)	Tech Pot Savings as % of Gross	Program Participation (%)
California			
Restaurant	0%	17%	0%
Grocery	22%	5%	2%
Warehouse	13%	16%	2%
School	15%	17%	5%
Health	31%	12%	0%
Lodging	14%	17%	0%
Miscellaneous	24%	17%	2%
Lumber_Wood_Products	92%	17%	0%
Miscellaneous_Mfg	42%	17%	4%
Idaho			
Large_Office	0%	16%	0%
Restaurant	0%	17%	0%

Large_Retail	0%	16%	0%
Grocery	51%	5%	2%
Warehouse	13%	16%	2%
School	45%	17%	5%
Health	16%	12%	0%
Lodging	0%	17%	0%
Miscellaneous	26%	17%	2%
Food_Mfg	92%	17%	4%
Chemical_Mfg	100%	17%	4%
Miscellaneous_Mfg	84%	17%	4%
Oregon			
Large_Office	51%	16%	0%
Restaurant	1%	17%	0%
Large_Retail	6%	16%	0%
Grocery	45%	5%	2%
Warehouse	39%	16%	2%
School	48%	17%	5%
Health	44%	12%	0%
Lodging	29%	17%	0%
Miscellaneous	31%	17%	2%
Food_Mfg	87%	17%	4%
Lumber_Wood_Products	94%	17%	0%
Paper_Mfg	100%	17%	0%
Primary_Metal_Mfg	96%	17%	4%
Miscellaneous_Mfg	75%	17%	4%
Utah			
Large_Office	23%	16%	0%
Restaurant	1%	17%	0%
Large_Retail	13%	16%	0%
Grocery	64%	5%	2%
Warehouse	35%	16%	2%
School	67%	17%	5%
Health	62%	12%	0%
Lodging	43%	17%	0%
Miscellaneous	49%	17%	2%
Food_Mfg	90%	17%	4%

Chemical_Mfg	94%	17%	4%
Petroleum_Refining	97%	17%	4%
Stone_Clay_Glass_Products	92%	17%	4%
Primary_Metal_Mfg	99%	17%	4%
Industrial_Machinery	59%	17%	4%
Electronic_Equipment_Mfg	84%	17%	4%
Transportation_Equipment_Mfg	93%	17%	4%
Mining	95%	17%	4%
Miscellaneous_Mfg	82%	17%	4%
Wyoming			
Large_Office	13%	16%	0%
Restaurant	0%	17%	0%
Large_Retail	0%	16%	0%
Grocery	46%	5%	2%
Warehouse	0%	16%	2%
School	59%	17%	5%
Health	55%	12%	0%
Lodging	31%	17%	0%
Miscellaneous	40%	17%	2%
Chemical_Mfg	99%	17%	4%
Petroleum_Refining	97%	17%	0%
Mining	97%	17%	4%
Miscellaneous_Mfg	91%	17%	4%

Appendix B. Technical Supplements: Energy Efficiency Resources, Measure Descriptions

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Commercial Electric Retrofit Measure Descriptions

HVAC (and Envelope)

Automated Ventilation VFD Control (Occupancy/CO₂ sensors). This measure is also known as Demand Control Ventilation (DCV) where the ventilation system automatically adjusts air flow when CO₂ levels are above a specified level. When using CO₂ control, a minimum ventilation rate is maintained at all times to control non-occupant contaminants like off-gassing from furniture, equipment and building components. Without it, as a baseline, the ventilation system would run constantly.

Chilled Water / Condenser Water Settings-Optimization. Adjustments made to the chilled and condenser water system settings to better match the building load and reduce unnecessary use of the compressor and pumps.

Chilled Water Piping Loop with Variable speed drive (VSD) Control. A VSD controller, with two-way valves at the cooling coils, controls the chilled water pump to vary pump speed and chilled water flow to match the varying cooling load, thus reducing pumping energy requirements. The baseline is a constant speed pump with three-way valves.

Chiller Water-Side Economizer. Consists of a heat exchanger attached to a condenser water piping loop that operates when outdoor conditions can produce condenser water colder than the mixed air temperature. A water side economizer is used if an outdoor-air economizer is not practical. The baseline measure is no economizer.

Convert Constant Volume Air System to VAV. The variable air volume (VAV) allows the airflow volume of a HVAC system to vary the heating or cooling load rather than over-conditioning and short-cycling. The baseline in this case is a constant volume system.

Cool Roof. ENERGY STAR-qualified cool roofs can lower roof surface temperature by up to 100°F, thereby decreasing the amount of heat transferred into a building. Cool roofs can help reduce the amount of air conditioning needed in buildings, and can reduce peak cooling demand by 10%–15%.¹ This measure could be considered as a passive measure.

Cooling Tower – Decrease Approach Temperature. An oversized cooling tower allows a reduced approach temperature, which saves energy. The approach temperature is the difference between the tower water leaving and the wet-bulb temperature. This measure assumes a 6 degree delta compared to the baseline of a 10 degree temperature delta.

Cooling Tower – Two-Speed Fan Motor. A two-speed fan cycles between off, low, and high speed to maintain the tower set point. The low-speed setting option uses less energy than a single, high speed fan. The baseline measure is a single-speed fan motor.

Cooling Tower – VSD Fan Control. One step more sophisticated than the two-speed fan motor is the variable speed drive (VSD). A VSD drive modulates the air flow so that the heat rejection exactly matches the load at the desired set point. The baseline measure is a two-speed fan motor.

Direct/Indirect Evaporative Cooling, Pre-Cooling. A direct evaporative cooler is a low-energy system that evaporates water into the air stream, thus reducing the temperature of the air, but

¹ ENERGY STAR

increasing the humidity. An indirect evaporative cooler uses a secondary air stream that is cooled by water and goes through a heat exchanger with the primary air stream, cooling the air but not affecting the humidity. A direct/indirect system cools the air stream first through an indirect cooler, and then cools it further through a direct cooler. Including an evaporative cooler before the DX system will reduce the overall cooling load.

Direct Digital Control System – Optimization. Direct digital control (DDC) is also known as an energy management system (EMS). This system allows for digital monitoring and control of HVAC and lighting systems. The optimization of the control system is upgrading a high-efficiency energy management system to a premium efficiency system.

Duct Repair and Sealing. The repair and sealing of leaky ducts creates significant energy savings by ensuring conditioned air only goes to occupied spaces, thereby reducing an excessive runtime/load on the HVAC system.

DX Package Air-Side Economizer. An air-side economizer uses already cooled air (return air) mixed with a proportion of outside air to cool indoor spaces. Using the return air results in energy savings, as less air needs to be cooled.

DX Tune-Up/Diagnostics. Regular maintenance of direct expansion (DX) air-conditioning systems including activities such as checking controls, replacing filters, cleaning coils and blowers, and checking refrigerant levels.

Exhaust Air to Ventilation Air Heat Recovery. Captures air that is exhausted out of a building during the heating season, which is warmer than the air outside. Transferring this heat to the incoming air lowers the overall heating load.

Green Roof. A green roof is a living roof that supports soil and plant growth. A series of carefully engineered layers are applied to the roof deck. These layers are watertight, lightweight, and long lasting. Green roofs can be incorporated into new buildings as long as load requirements are met. They are suited for roofs that have slopes ranging up to 20° and are most successful when sufficient attention has been paid to selecting plants that will thrive in the local climate and conditions. One of the most significant advantages is that a green roof can last up to three times longer than a standard roof. A green roof can also buffer temperature extremes, which improves a building's energy performance by dropping the temperatures on the roof.

Hotel Key Card Energy Control System. This is a key card system used to control room HVAC and lighting during non-occupied periods. Occupancy is determined by the presence of a key card and/or additional sensors. The central system sets heating and cooling to a minimum, and turns off lighting when the key card is removed. Once the guest returns and inserts the key card, the guest has full control of the room systems.

Infiltration Reduction (Caulking, Weather Stripping, etc.). Sealing air leaks in windows, doors, roof, crawlspaces, and outside walls decreases overall heating and cooling losses. Baseline and measure values are presented in Table B.1.

Table B.1. Infiltration Reduction Measures

Measure (ACH)	Baseline (ACH)
0.65	1.00

Insulation – Ceiling. These measures represent an increase in R-value from existing building conditions to current state code and current state code to better than code R-value improvements. Baseline and measure values are presented in Table B.2.

Table B.2. Ceiling Insulation Measures

Measure	Baseline
R-25 (CA & WY State Code)	Average Existing Conditions
R-30 (ID & UT State Code)	Average Existing Conditions
R-30	R-25 (CA & WY State Code)
R-38 (WA State Code)	Average Existing Conditions
R-38	R-30 (ID & UT State Code)
R-49	R-38 (WA State Code)

Insulation – Duct. Packaged Direct Expansion (DX) and heat-pump equipment are generally coupled with a ducting system inside the building. Insulating the ducts reduces energy loss in the unoccupied plenum space. This measure assumes that R-7 insulation will be installed where no insulation exists.

Insulation – Floor (Non-Slab). These measures represent an increase in R-value from existing building conditions to current state code and current state code to better than code R-value improvements for the floor space (non-slab). Baseline and measure values are presented in Table B.3.

Table B.3. Floor Insulation Measures

Measure	Baseline
R-19 (UT State Code)	Average Existing Conditions
R-25 (CA & WY State Code)	Average Existing Conditions
R-30 (ID & WA State Code)	Average Existing Conditions
R-30	R-19 (UT State Code)
R-30	R-25 (CA & WY State Code)
R-38	R-30 (ID & WA State Code)

Insulation – Wall. These measures represent an increase in R-value to current state code values of R-13 – R-16 (state dependent) or better. Baseline and measure values are presented in Table B.4.

Table B.4. Wall Insulation Measures

Measure	Baseline
R-13 (ID & UT State Code)	Average Existing Conditions
R-13 + 3 (WY State Code)	Average Existing Conditions
R-13 + 7.5 (WA State Code)	Average Existing Conditions
R-16 (CA State Code)	Average Existing Conditions
R-21	R-13 (ID & UT State Code)
R-21	R-13 + 3 (WY State Code)
R-21	R-16 (CA State Code)

Leak Proof Duct Fittings. The majority of duct leakage in commercial HVAC systems is due to improperly sealed connections between ductwork and fittings. Even when duct connections are initially well-sealed, leakage may increase over time. Although the use of mastics and

mechanical fasteners is becoming more widespread, a low-cost, leak-proof system will help to transform the market.

Natural Ventilation. Natural ventilation systems rely on pressure differences to move fresh air through buildings. Natural ventilation, unlike fan-forced ventilation, uses the natural forces of wind and buoyancy to deliver fresh air into buildings. The specific approach and design of natural ventilation systems varies based on building type and local climate. However, the amount of ventilation depends on the careful design of internal spaces and the size and placement of openings in the building. Natural ventilation offsets the energy required to run forced air ventilation systems.²

Pipe Insulation. Adding 1.5 inches of R-6 insulation around the pipes decreases temperature losses, thereby reducing demand on chilled water systems.

Programmable Thermostat. A programmable thermostat controls the set point temperature automatically, ensuring the HVAC system is not running during low-occupancy hours.

Re-Commissioning. Commissioning ensures that energy-using systems that have been installed are operating in an optimal fashion in order to maximize energy efficiency. The commissioning process can be applied to existing buildings to restore them to optimal performance. Retro-commissioning is a systematic, documented process that identifies low-cost operational and maintenance improvements in existing buildings and brings the buildings up to the design intentions of its current operation.^{3,4} The baseline measure is no commissioning.

Window Film. Solar control window films applied to existing windows reduce peak demand during hot months and conserve energy when air conditioning might be required. In addition to the energy management benefits, the use of these films also reduces exposure to ultraviolet radiation and glare.⁵

Windows – High-Efficiency. This measure represents an increase in building performance by reducing the U-value in existing construction and new construction windows, as shown in Table B.5.

² Description source: National Renewable Energy Laboratory

³ <http://www.green.ca.gov/CommissioningGuidelines/default.htm>

⁴ <http://cbs.lbl.gov/BPA/cct.html>

⁵ http://www.iwfa.com/iwfa/Consumer_Info/windowfilmbenefits.html

Table B.5. High-efficiency Window Measures

Measure U-Value	Baseline U-Value
0.50 (WY State Code)	Average Existing Condition
0.47 (CA State Code)	Average Existing Condition
0.40 (WA State Code)	Average Existing Condition
0.35 (ID & UT State Code)	Average Existing Condition
0.32	0.35 (ID & UT State Code)
0.32	0.40 (WA State Code)
0.32	0.47 (CA State Code)
0.32	0.50 (WY State Code)

Lighting

CA - Fruit Storage- Upgrade Package. Controlled atmosphere (CA) warehouses upgrade packages include efficient lighting, high-bay lighting, and lighting controls. Lighting reduction packages include standard and high bay applications, as well as lighting controls to reduce the overall lighting load.

Cold Cathode Lighting. A cold cathode light is a tubular light or bulb that works by passing an electrical current through a gas or vapor, much like neon lighting. A cold cathode light is up to five times brighter than neon lighting, and it has one of the longest lives of any lighting fixture at about 50,000 hours.⁶ Cold cathode lighting uses 5 watts compared to 30 W for an incandescent bulb.

Covered Parking Lighting. By replacing inefficient metal halide lamps with LED and high pressure sodium lamps with LED Low Bay lighting, the energy use of covered parking garages will be reduced.

Daylighting Controls, Outdoors (Photocell). Exterior lighting controls via photocell turn on and off exterior light fixtures when sunlight levels reach the desired set points. The measure achieves savings over time-clock or manual controls through changes in seasonal and site conditions by improving night time durations.

Dimming-Continuous, Fluorescent Fixtures. A dimming switch allows light levels to vary from 0% – 100% brightness. A continuously dimming switch permits variation throughout the range, increasing electricity savings. The baseline measure is operating fluorescent fixtures at full power.

Dimming-Stepped, Fluorescent Fixtures. Allows the user to vary the light level by a number of specified tiers to adjust for the amount of outside daylight. The baseline measure is operating fluorescent fixtures at full power.

Exit Sign - LED. LED exit signs use only 2 watts of power and last over 50,000 hours while CFL exit signs use 9 watts of power and have a shorter life.

Exit Sign - Photoluminescent or Tritium. Photoluminescent or Tritium use zero energy while providing bright lighting suitable for exit signage. Even when replacing the already efficient LED exit signs, due to this measure's zero energy consumption the 2 watts consumed by LED signs can be eliminated.

⁶ Description source: Conjecture Corporation of wisegeek.com

Exterior Building Lighting - Package. Exterior lighting package results in a 30% decrease in lighting power density. The baseline lighting technology is representative of all available technologies that make up the total Watts per square foot.

LED Refrigeration Case Lights. Light-emitting diodes (LEDs) are highly efficient bulbs that can be used for refrigeration case lights, a 55% energy savings over a standard 60 W fluorescent refrigeration case light.

Lighting Package, High Efficiency. This measure results in a 15% decrease in lighting power density. The baseline lighting technology is representative of all available technologies that make up the total Watts per square foot for that particular building type. This includes all overhead lighting such as T12, T8, T5 tubes, canned CFLs, etc. The lighting reduction package measures reduce the lighting power density (W/sqft) by installing higher efficiency technologies such as high performance T8 or T5 tubes, high-efficiency ballasts, reflective lighting fixtures, etc.

Lighting Package, Premium Efficiency. This measure results in a 25% decrease in lighting power density. The baseline lighting technology is representative of all available technologies that make up the total Watts per square foot for that particular building type. This includes all overhead lighting such as T12, T8, T5 tubes, canned CFLs, etc. The lighting reduction package measures reduce the lighting power density (W/sqft) by installing higher efficiency technologies such as high performance T8 or T5 tubes, high-efficiency ballasts, reflective lighting fixtures, etc.

Lighting Package, Premium High Bay. Lighting reduction packages such as T5HO (High Output) for high bay applications, in warehouse and grocery, can reduce the power density by 35%. The baseline lighting technology is representative of all available technologies that make up the total Watts per square foot for that particular building type.

Occupancy Sensor, Fluorescent. Turns off lighting in areas where activity is not detected. Occupancy measures can control single or multiple lighting zones. The controlled lighting wattage varies depending on application. This measure applies to fluorescent lighting. The baseline assumes no lighting controls.

Solid State LED White Lighting. Light emitting diodes (LEDs) are solid-state devices that convert electricity to light, with very high efficiency and long life. Recently, lighting manufacturers have been able to produce "cool" white LED lighting indirectly, using ultraviolet LEDs to excite phosphors that emit a white-appearing light. This measure applies to exterior lighting and includes: landscape, merchandise, signage, and structure lighting. The baseline for this measure is 50 watts, 10 hrs/day, 365 days/yr.

Surface Parking Lighting. By replacing inefficient metal halide lamps that consume between 100-150 watts with LED lighting that consumes 60-111 watts, the energy use of surface parking lots can be reduced.

Time Clock. Includes an integrated time-clock that automatically switches lighting and other loads on and off on a time schedule, or in response to an occupancy sensor or a building automation system.

Water Heating

Clothes Washer Commercial. ENERGY STAR[®] qualified commercial washers have more capacity than conventional top-load models with an agitator. Some front-loaders can wash over 20 pounds of laundry at once, compared to 10–15 pounds for a standard top-loader. This means residents can do fewer loads and avoid having to bring big, bulky items to the Laundromat.⁷

Clothes Washer Residential. ENERGY STAR qualified clothes washers use less energy and water than regular washers.⁸ This measure replaces a clothes washer with a Modified Energy Factor (MEF) of 1.66 with an Energy Star - CEE Tier 1 model with a MEF value of 2.0 - 2.19.

Demand-Controlled Circulating Systems. A demand-controlled circulating system only circulates hot water when required. The baseline measure is a continuously circulating hot water system, resulting in energy loss through pipes.

Dishwasher Residential. Residential sized ENERGY STAR[®] dishwashing systems are often more appropriate for smaller commercial buildings. The smaller size leads to energy savings. ENERGY STAR[®] residential dishwashers are 10% more efficient than the federal minimum standard used as the baseline.⁹

Dishwashing - Commercial - High Temp. ENERGY STAR[®] high temp commercial dishwashers with a minimal idle rate as well as a minimal amount of water consumption per rack of loaded dishes depending upon size and are on average 25% more efficient than standard high temp commercial dishwashers.¹⁰

Dishwashing - Commercial - Low Temp. ENERGY STAR[®] low temp commercial dishwashers use chemicals combined with low temperatures to save energy when compared to standard high temp commercial dishwashers.

Hot Water (SHW) Pipe Insulation. One inch of R-4 insulation added around hot water pipes decreases heat loss. Only for existing construction. The baseline measure is no insulation.

Low-Flow Faucet Aerators. Faucet aerators, by mixing water and air, reduce the amount of water that flows through the faucet. The faucet aerator creates a fine water spray through an inserted screen in the faucet head. Flow rate requirements for this measure are presented in Table B.6.

Table B.6. Faucet Aerator Flow Rates

Measure Flow Rate (GPM*)	Baseline Flow Rate (GPM)
2.2	3.0
1.5	2.2

* Gallons per minute

Low-Flow Pre-Rinse Spray Valves. Low-flow spray valves mix water and air to reduce the amount of water that flows through the spray head. The spray head creates a fine water spray through an inserted screen in the spray head, achieving a flow reduction of over 50%, from a flow rate of 1.6 GPM (code) to 0.6 GPM.

⁷ http://www.energystar.gov/index.cfm?c=clotheswash.pr_clothes_washers_comm

⁸ http://www.energystar.gov/index.cfm?fuseaction=find_a_product.showProductGroup&pgw_code=CW

⁹ http://www.energystar.gov/index.cfm?fuseaction=find_a_product.showProductGroup&pgw_code=DW

¹⁰ http://www.energystar.gov/index.cfm?fuseaction=find_a_product.showProductGroup&pgw_code=COH

Low-Flow Showerheads. Low-flow showerheads mix water and air to reduce the amount of water that flows through the showerhead. The showerhead creates a fine water spray through an inserted screen in the showerhead. Flow rate requirements for this measure are presented in Table B.7.

Table B.8. Low-Flow Showerhead Flow Rates

Measure Flow Rate (GPM)	Baseline Flow Rate (GPM)
2.5	4.5
2.0	2.5

Water Cooled Refrigeration with Heat Recovery. Heat recovery is gathering and using thermal energy that normally would be rejected from the system to the ambient environment, in this case the rejected heat is utilized by the water heater.

Water Heater Temperature Setback. This measure generates savings by reducing the set point temperature from 130°F to 120°F.

Refrigeration

Anti-Sweat (Humidistat) Controls. Enables the user to turn refrigeration display case anti-sweat heaters off when ambient relative humidity is low enough that sweating will not occur. Without the control, the heaters generally run continuously.

CA - Fruit Storage-CA Retrofit - CO₂ Scrub. A carbon dioxide scrubber is a device which absorbs carbon dioxide (CO₂). CO₂ scrubbers are used in CA storage in order to maintain a specified level of carbon dioxide.

CA - Fruit Storage-CA Retrofit - Membrane. Membrane technology units feature a quality air pre-treatment filtration system. Fruit storage depends on a very controlled environment which slows the ripening process until the product is ready to be removed from the controlled atmosphere storage room. This makes the membrane generator an extremely low-cost and reliable source for infusing nitrogen into the rooms.

CA - Fruit Storage-Fruit Storage Refrigeration Retrofit. This measure for CA storage is designed as a combined package of other refrigeration measures. The system upgrade includes a premium efficiency EMS system, VSD compressor, VSD condenser, VSD evaporator fan, and floating condenser head pressure controls.

CA - Fruit Storage-Fruit Storage Refrigeration Tuneup. Refrigeration tuneup includes procedures such as checking the setpoints, keeping supply and return air grilles clean, checking and adjusting the setting of the thermostatic expansion valves (TXV), adjusting head pressure controls and reviewing suction pressure setpoints. Tune-up of the refrigeration system in controlled atmosphere storages extends their lifetime and increases the overall energy efficiency of the system.

Case Electronically Commutated Motor (ECM). The case fan is one of the components of the refrigeration system. ECM are smaller variable speed motors that operate from a single-phase power source with an electronic controller mounted in or on the motor. The baseline measure is a standard efficiency motor.

Compressor VSD Retrofit. Modulates motor speed in response to changes in load. When low-load conditions exist, the current to the compressor motor is decreased, slowing the compressor motor down. Baseline is a constant-speed compressor.

Demand Control Defrost – Hot Gas. When frost collects on the evaporator, it reduces coil capacity by acting as a layer of insulation and reducing the airflow between the fins. In hot gas defrost, refrigerant vapor from either the compressor discharge or the high pressure receiver is used to warm the evaporator coil and melt the frost that has collected there.¹¹

Floating Condenser Head Pressure Controls. This measure adds controls to float the head pressure down to a lower temperature during periods of low load. The base case is a standard multiplex system having a fixed condensing setpoint.

Glass Door ENERGY STAR[®] Refrigerators/Freezers. “Low-E,” double pane thermal glass doors reduce cooling losses in refrigerated reach-in cases.

Night Covers for Display Cases. Night covers help to eliminate wasted refrigeration cooling by insulating display cases. In addition, they reduce the heating load of buildings through less escaped refrigerated air needing to be reheated.

Refrigeration Commissioning or Re-Commissioning. Commissioning ensures that refrigeration systems that have been installed are operating in an optimal fashion in order to maximize energy efficiency. Retro-commissioning is checking previously commissioned equipment to ensure that it is continuing to run efficiently. The baseline measure is no commissioning.¹²

Solid Door ENERGY STAR[®] Refrigerators/Freezers. ENERGY STAR labeled commercial solid door refrigerators and freezers are designed with high efficiency components such as ECM evaporator and condenser fan motors, hot gas anti-sweat heaters, or high-efficiency compressors. Compared to standard models, ENERGY STAR labeled commercial solid door refrigerators and freezers save energy.¹³

Standalone to Multiplex Compressor. A multiplex-compressor system consists of multiple compressors drawing from a common suction header, serving any number of refrigerated display fixtures. The suction group is controlled to satisfy the lowest temperature required by any of the attached display fixtures and for this reason, the fixtures served by a given suction group usually have similar temperature requirements (low versus medium temperature groups). Baseline is a single dedicated compressor system for each refrigeration load.

Strip Curtains for Walk-Ins. Strip curtains on walk-in refrigerators reduce the infiltration of warm air into the refrigerated space by improving the barrier between the cold space and the ambient air.

Walk-In Electronically Commutated Motor (ECM). The walk-in fan is one of the components of the refrigeration system. ECM are smaller variable speed motors that operate from a single-phase power source with an electronic controller mounted in or on the motor. The baseline measure is a standard efficiency motor.

¹¹ Parker Refrigeration Specialists

¹² <http://cbs.lbl.gov/BPA/cct.html>

¹³ ENERGY STAR

Other

Combination Oven. Commercial combination ovens use both dry heat and steam, which is injected into the oven when the food being cooked needs it. High efficiency combination ovens having 60% efficiency use about half as much energy as standard combination ovens.¹⁴

Convection Oven - High Efficiency. Commercial ENERGY STAR® electric convection ovens must meet the specification requirements of 70% cooking energy efficiency and an idle energy rate of 1.6 kW whereas standard electric convection ovens have a 65% cooking energy efficiency and an idle energy rate of 2 kW.¹⁵

Cooking Hood Controls. Utilizing sensors and two-speed or variable speed fans, hood controls reduce exhaust (and makeup) airflow when appliances are not at capacity (or have been turned off). The baseline for this measure is no hood controls.

ENERGY STAR® - Battery Charging System. Used to recharge a wide variety of cordless products, including power tools, small household appliances, and personal care products like electric shavers. An ENERGY STAR® charging system uses 35% less energy than the baseline, non-ENERGY STAR battery charger.¹⁶

ENERGY STAR® - Copiers. ENERGY STAR® copiers deliver the same performance as conventional equipment and are, on average, 40% more efficient. They power down when not in use. The baseline measure is non-ENERGY STAR copiers.¹⁷

ENERGY STAR® - Fax. ENERGY STAR® fax machines enter sleep mode after inactivity. This reduces their total power consumption by 40%.¹⁸

ENERGY STAR® - Monitors. ENERGY STAR® monitors enter in “sleep” mode, the monitor consumes less than 2 Watts. The “sleep” mode needs to be enabled in order to de-energize the monitor when not in use.

ENERGY STAR® - Printers. ENERGY STAR® printers deploy a maximum time delay to sleep depending upon the size of the equipment. This reduces power consumption during periods of inactivity.¹⁹

ENERGY STAR® - Scanners. ENERGY STAR® enabled scanners enter a low power “sleep” mode after inactivity.²⁰

ENERGY STAR® - Water Cooler. ENERGY STAR® coolers providing only cold water consume less than 0.16 kWh per day; a unit providing both hot and cold water consumes less than 1.20 kWh per day. ENERGY STAR® qualified water cooler consume 45% less energy than standard models.²¹

¹⁴ <http://www.energystar.gov/ia/partners/publications/pubdocs/restaurant%20guide%20508%20-%20Dec%202009.pdf>

¹⁵ http://www.energystar.gov/index.cfm?c=ovens.pr_comm_ovens

¹⁶ http://www.energystar.gov/index.cfm?c=battery_chargers.pr_battery_chargers

¹⁷ http://www.energystar.gov/index.cfm?fuseaction=find_a_product.showProductGroup&pgw_code=CP

¹⁸ http://www.energystar.gov/ia/products/fap/IE_Prog_Req.pdf

¹⁹ http://www.energystar.gov/ia/products/fap/IE_Prog_Req.pdf

²⁰ <http://www.energystar.gov.au/products/scanners.html>

²¹ http://www.energystar.gov/index.cfm?c=water_coolers.pr_water_coolers

Fryers - New CEE Efficient Electric Deep Fat Fryers. Commercial 15 inch width CEE rated electric fryers have a heavy load cooking efficiency of 80% or better, and when idle, use less than 1,000 Watt.²² The baseline is standard electric deep fat fryer.

Griddle. Electric ENERGY STAR[®] griddles are at least 70% efficient. The baseline measure is a standard grill at 32% efficiency.²³

Hot Food Holding Cabinet. ENERGY STAR[®] hot food-holding cabinets use a maximum of 40Watts/cubic foot, less than the baseline measure, a conventional holding cabinet.²⁴

Ice Maker. High efficiency commercial ice makers use high efficiency compressors and fan motors, thicker insulation, and other measures to achieve 15% more efficiency than the baseline measure, which is a conventional automatic commercial ice maker.²⁵

Low Pressure Distribution Complex HVAC. Low pressure, under-floor air distribution systems introduce air into the occupancy zones at relatively low velocities. The decrease in pressure differentials and, therefore, air velocity requires results in lower energy consumption by the air handlers. The baseline for this measure is a variable air volume or constant volume HVAC system.

Motor - CEE Premium-Efficiency Plus. CEE premium efficiency motors are more efficient than standard NEMA efficiency motors.²⁶ This measure specifically relates to HVAC motors, ranging from 1 HP to 200 HP, depending on the building size.

Motor Rewind. When a motor fails, the user or owner faces three choices: to rewind to a lower efficiency; to rewind and maintain the original efficiency; or to replace it with a new motor. Motor rewind follows the Green Motors Practices Group recommendations of best practices to maintain its original efficiency, it is commonly called a Green Rewind.^{27, 28}

Motor – Variable Air Volume (VAV) Box High Efficiency (ECM). High efficiency fan-powered boxes prevent hot and cold spots by maintaining room air circulation while supply-air temperature is modulated to match load. This measure applies to the motor efficiency as an upgrade. An electronically commutated motor (ECM) powers the fan in each VAV box. An ECM is a brushless DC motor with all of its speed and torque controls built in electronically, which allows the motor to adjust its speed to ensure the optimal airflow at all times. The baseline assumes a standard VAV with induction motors including silicon controlled rectifier (SCR) speed control.²⁹

Network PC Power Management. This software tool intelligently power manages computers across a network remotely and automatically overnight, on weekends and when not in use. This significantly lowers energy consumption without ever impacting user productivity. Workstations operating on a local area network (LAN) or a wide area network (WAN) can implement PC

²² http://www.energystar.gov/index.cfm?c=fryers.pr_fryers

²³ http://www.energystar.gov/index.cfm?fuseaction=find_a_product.showProductGroup&pgw_code=COG

²⁴ http://www.energystar.gov/index.cfm?c=hfhc.pr_hfhc

²⁵ Consortium for Energy Efficiency (CEE)

²⁶ CEE (Consortium for Energy Efficiency) motor nominal efficiencies are higher than the NEMA federal minimum efficiency levels that became effective in December 2010.

²⁷ http://www.bpa.gov/energy/n/industrial/Green_motors/

²⁸ http://www.greenmotors.org/downloads/RTFSubmittalMay_08%20_2_.pdf

²⁹ LEED qualified Justice Center reported by DCJ.com and Minnesota Power Incentive Program

power-management policies across a LAN to maximize energy savings by placing machines into a lower power states without interfering with end-user productivity, desktop maintenance or upgrades.

Optimized Variable Volume Lab Hood Design. Allows the volumetric flow rate to vary, which causes a constant speed through the duct, regardless of sash opening. For buildings such as universities, schools, and hospitals that use lab hoods, savings can be obtained by using a variable, rather than constant, volume lab hood. The baseline measure is a constant volume lab hood.

Power Supply Transformer/Converter. Applies to the 80 PLUS performance specification requirements for power supplies in computers and servers. 80 PLUS specifies 80% or greater efficiency at 20%, 50% and 100% of rated load with a true power factor of 0.9 or greater.³⁰ The baseline assumes an 85% efficient power supply (>51W).

Residential Refrigerator. ENERGY STAR[®] residential grade refrigerators use at least 20% less energy than required by current federal standards.³¹

Residential Refrigerator/Freezer Recycling. This refers to the environmentally-friendly disposal of unneeded appliances such as secondary refrigerators or stand-alone freezers.

Server Virtualization. Virtualization involves the replacement of multiple under-utilized servers with one server operating at a higher level of utility. Many data center servers operate at 10% of capacity or less, allowing their functions to be consolidated into “virtual” servers on one unit that will operate in the range of 85% of capacity. This measure applies to plug load, although it has a savings effect on the cooling load by reducing power and, therefore, the heat generated by equipment.

Smart Strips. Energy-saving products such as power strips with an occupancy sensor are found in workstations where power strips are commonly used. The sensor will turn on and off the power to all devices such as computers, desk lights, and audio equipment that are plugged into the power strip based on occupancy within the work area.

Steam Cooker. Commercial ENERGY STAR[®] electric steam cookers have a cooking efficiency of 50%, with idle energy rates that vary depending upon pan size.³² The baseline efficiency is 35% for a standard commercial steam cooker.

Vending Machines – High Efficiency. ENERGY STAR[®] new and rebuilt refrigerated beverage vending machines are 50% more energy efficient than the standard model, through more efficient compressors, fan motors, lighting systems, and low-power mode options during non-use periods.³³

³⁰ www.80PLUS.org

³¹ http://www.energystar.gov/index.cfm?fuseaction=find_a_product.showProductGroup&pgw_code=RF

³² http://www.energystar.gov/index.cfm?c=steamcookers.pr_steamcookers

³³ http://www.energystar.gov/index.cfm?fuseaction=find_a_product.showProductGroup&pgw_code=VMC³⁴
http://www.energysavers.gov/your_home/space_heating_cooling/index.cfm/mytopic=12360

Commercial Electric Equipment Measure Descriptions

HVAC

Air or Ground Source Heat Pump (ASHP or GSHP). Electric heat pumps move heat to or from either the air or ground to cool and heat the home. Air and ground source heat pumps use a Coefficient of Performance (COP) ratio of the cooling effect produced (expressed in Btu/hr), divided by the energy input (expressed on the same basis and as an EER Ratio). Table 9 displays the different efficiency levels compared in this measure.

Table B.8 Heat Pump COP/EER Comparisons

kBTU / hr	Measure COP & EER	Baseline COP & EER
ASHP 65 – 135	11.5 EER, 3.4 COP	11.0 EER, 3.3 COP
ASHP 65 – 135	12.0 EER, 3.8 COP	11.0 EER, 3.3 COP
GSHP 65 – 135	16.2 EER, 4.0 COP	11.0 EER, 3.3 COP
ASHP 135 – 240	11.5 EER, 3.4 COP	10.6 EER, 3.2 COP

Centrifugal Chiller. A centrifugal chiller utilizes the vapor compression cycle to chill water and reject the heat collected from the chilled water plus the heat from the compressor to a second water loop cooled by a cooling tower. The advantage of centrifugal compressors is their high flow rates capability and good efficiency characteristics. This measure compares different efficiencies greater than 300 tons, rated in kW/ton in Table B.8.

Table B.9 Centrifugal Chiller kW/ton Comparison

Measure kW / ton	Baseline kW / ton
0.55	0.576 (State Code)
0.52	0.576 (State Code)
0.47	0.576 (State Code)

Screw chiller. Screw compressors are positive displacement devices. The refrigerant chamber is actively compressed to a smaller volume by the twisting motion of two interlocking, rotating screws. Refrigerant trapped in the space enclosed between the two rotating screws is compressed as it makes its way from the inlet to the outlet of the compressor. A slide valve is used to adjust the compression effect by varying the amount of compression that occurs before the refrigerant is discharged. Screw chillers are generally used for small- to medium-sized buildings. This measure compares different efficiencies, rated in kW/ton in Table B.8.

Table B.10 Screw Chiller kW/ton Comparison

Tons	Measure kW / ton	Baseline kW / ton
<150	0.71	0.79 (State Code)
<150	0.63	0.79 (State Code)
<150	0.58	0.79 (State Code)
150-300	0.65	0.68 (State Code)
150-300	0.57	0.68 (State Code)
150-300	0.50	0.68 (State Code)

Direct Expansion (DX) Package. Direct Expansion (DX) system use a refrigerant piping circuit, compressor, and refrigerant coils to transfer heat. All components are in a single package typically installed on the building roof. As a measurement of efficiency, commercial sized units

are normally rated as Energy Efficient Ratio (EER). Table B.9 displays the different models compared in this measure.

Table 9. DX AC Unit EER / Advanced Technology Comparisons

kBTU / hr	Measure EER	Baseline EER
65 – 135	11.5	11.2 (State Code)
65 – 135	12.0	11.2 (State Code)
135 – 240	11.5	11.0 (State Code)
135 – 240	12.0	11.0 (State Code)
240 – 760	10.5	10.0 (State Code)
240 – 760	10.8	10.0 (State Code)

Evaporative Cooler, Replaces DX Package. Evaporative cooler, also known as swamp cooler, is a device that cools air through the simple evaporation of water. Evaporative cooling differs from air conditioning by refrigeration and absorptive refrigeration, which use vapor-compression or absorption refrigeration cycles.³⁴ This measure replaces a DX package.

Room Air Conditioner (AC) (10,000 BTU/HR). Replace existing models with one that has a minimum efficiency level of 10.8 EER. High efficiency Room AC units often include controls for minimizing the amount of energy used to cool the room, larger coils and/or smaller fans, and more efficient motors. Table 1 summarizes the baselines and efficient measures.

Packaged Terminal Air Conditioner (PTAC) (10,000 BTU/HR). Replace existing models with one that has a minimum efficiency level of 11.4 EER. Also known as PTAC units, package terminal air conditioning equipment houses all of the components — compressor; condenser and evaporator coils; expansion device; condenser and evaporator fans; and associated operating and control devices—within a single cabinet. In most cases, this package unit is installed within a space, through the wall, as in the lodging building sector. Table 2 summarizes the baselines and efficient measures.

Table 3. Room AC / PTAC EER Comparisons

Measure EER	Baseline EER
Room AC 10.8	9.8
PTAC 11.4	9.8

Water Heating

Electric and Heat Pump Water Heater. High efficiency water heaters are more efficient than standard electric water heaters due to reduced standby losses. Baseline and efficient measure EF values are given in Table 9.

Table 9. Water Heater EF Comparisons

Water Heater Type	Measure EF	Baseline EF
Electric	0.95	0.92
Heat Pump	2.2	0.92

³⁴ http://www.energysavers.gov/your_home/space_heating_cooling/index.cfm/mytopic=12360

Other

Computer, ENERGY STAR. ENERGY STAR[®] computers consume less than 2 W in “sleep” and “off” mode and are more efficient than conventional units in “idle” mode, resulting in 30% - 65% energy savings.

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Industrial Electric Measure Descriptions

Industrial Improvements

Air Compressor Improvements (*Demand Reduction, Optimization, Equipment*). These measures involve the overall improvement of the compressed air system including improved system design, leak repair, usage practices, more efficient dryer and storage systems, and compressor upgrades.

Building Improvements. Any improvements to the physical plant that result in improved efficiency, productivity, or equipment usage.

Chillers (*Process Cooling, Solidstate Chiller*). This measure involves the upgrade of chilling systems providing process cooling. Savings are due to improved chiller efficiencies.

Clean Room Improvements (*Change Filter Strategy, Chiller Optimize, HVAC*). These measures aim to saving energy through improved clean room equipment and practices. Savings are attributable to optimization of chiller operating parameters, upgrading to more efficient equipment, and improving filter replacement strategies.

Efficiency Centrifugal Fan. Efficient centrifugal fans achieve energy savings through improved fan design.

Electric Chip Fab Improvements (*Eliminate Exhaust, Exhaust Injector, Reduce Gas Pressure*). General improvements to increase efficiency in the electric chip fabrication process.

Equipment Upgrades (*HVAC*). Any changes to HVAC equipment involving upgrades of equipment efficiency or performance that result in a reduction of energy usage. Includes upgrades such as packaged air conditioners or heat pumps, chiller plants, condensing units, or other related HVAC equipment.

Fan System Optimization. This measure involves the overall optimization of the fan system including improved system design, enhanced flow design, better maintenance practices, and adjustments to system parameters.

General Process Improvements (*Premium Fan, Large Material Handling, Material Handling, Premium Control Large Material, Efficient Pulp Screen, Kraft: Efficient Agitator, Kraft: Effluent Treatment System, Mech Pulp: Premium Process, Mech Pulp: Refine Plate Improvement, Mech Pulp: Refiner Replacement, Wood: Replace Pneumatic Conveyor, Metal: New Arc Furnace*). Generic process improvements/O&M include upgrading equipment, replacing hydraulic/pneumatic equipment with electrical equipment and using optimum size and capacity equipment.

High Efficiency Motors (*Fans, Motors Other, Process_AirComp, Pumps, Irrigation*). This measure involves upgrading motors to higher name plate efficiency values. Since NEMA Premium motors are becoming the baseline code requirement in 2010, this measure is based off of Super Premium motors. Super Premium motors have efficiency levels at least one efficiency band above NEMA Premium.

Improved Controls (*Fans, HVAC, Motors_Other, Process_AirComp, Process_Cool, Process Heat, Pumps, Adjustable Speed Drives on Compressors, Optimization of Operating Parameters*). This measure includes savings from equipment upgrades (such as variable speed drives) as well

as energy improvements from enhanced monitoring, data collection, and load matching for each system.

Lighting Improvements (*Efficient Lighting 1,2 and 3 Shift, HighBay Lighting 1,2 and 3 Shift, Lighting Controls*). Any changes to overall illumination levels, use of natural lighting, or technology improvements to use more efficient bulbs or ballasts that will decrease the overall lighting energy consumption. Includes upgrades from T12 to T8 systems, T8 to high-performance T8 systems, HID to fluorescent conversions, as well as standard HID to high-efficiency HID systems. Occupancy and daylighting controls are also including.

Material Handling (*Material Handling VFD, Material Handling*). This measure includes savings from equipment upgrades (such as variable speed drives) as well as energy improvements from enhanced system design or practices.

Motor Management Plan. This measure savings energy through a number of practices associated with maintaining and operating motors through their entire life cycle. These steps include developing a repair/replace policy, regularly schedule maintenance, motor standardization, rewind criteria, and design optimization parameters.

Motor Rewinds (*Rewind 20-500+*). This measure involves the rewinding to motors in a controlled environment to minimize or eliminate efficiency losses. Motor rewinds assume rewind techniques consistent with the Green Motors Practices Group™.

Motors Other. This includes upgrades not specific pumps or fans, and results in savings from improved motor usage. Motor practice improvements include improved system design, lubrication, and maintenance strategies.

Process Heat O&M. Generic O&M practices on process heating equipment including equipment maintenance, using optimum size and capacity equipment, and developing best-practices guidelines.

Properly Sized Fans. This measure achieves energy savings through improved matching of fan size to system load. This eliminates over- and under-sized fans to allow the system to operate at its peak efficiency.

Pump Equipment Upgrade. Efficient pumps achieve energy savings through improved pump design and sizing.

Pump Improvements (*Pump Energy Management, Pump System Optimization*). This measure involves the overall optimization of the pump system including improved system design, enhanced flow design, better maintenance practices, and adjustments to system parameters.

Recommissioning This measure achieves energy savings through improved monitoring and verification of building systems. Measurements of operating parameters, analysis of systems, and performance monitoring all lead to energy and demand savings opportunities.

Refrigeration Retrofit (*Cold Storage, Food Storage, Fruit Storage*). Upgrading mechanical equipment responsible for providing cooling to each facility type. Retrofits may include compressors, heat rejection equipment, evaporators and fans, or other equipment resulting in greater system efficiency.

Refrigeration Tune-up (*Cold Storage, Food Storage, Fruit Storage*). Maintaining and enhancing equipment responsible for providing cooling to each facility type. Tune-up may include refrigerant charge, equipment cleaning, general maintenance, and improved practices.

Switch From Belt Drive to Direct Drive. This measure improves efficiency through reduction of losses associated with belt drive systems.

Synchronous Belts (*Fans, Motors_Other, Process_Refrig, Pumps*). Synchronous belts contain grooves that mate with corresponding grooves in the drive sprocket, preventing slip and thus reducing energy losses.

Transformers. Energy efficient transformers that provide improved power quality while minimizing losses.

Whole Plant Improvements (*Plant Energy Management, Integrated Plant Energy Management, Energy Project Management*). Includes the synergistic savings opportunities of plant-wide energy management and improvements across multiple systems such as compressed air, pumping and fan systems.

Irrigation Improvements

Irrigation System Improvements. These improvements include replacing worn equipment, fixing leaks, adopting low pressure irrigation system, and other general irrigation maintenance and upgrades.

Scientific Irrigation Scheduling. SIS allows irrigators to use a scientific approach to their irrigation practices including timing and volume.

Street Lighting Upgrades

Street Lighting LED Upgrades. LED street lighting products will offer energy savings, lighting quality, and lifetime benefits. LED fixtures are a viable fixture substitute for HPS cobra head fixtures.

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Residential Electric Retrofit Measure Descriptions

Heating and Cooling

Air-to-Air Heat Exchangers. An air-to-air heat exchanger mechanically ventilates and dehumidifies homes in colder climates. During the winter it transfers heat from the air being exhausted, to the fresh, outside air entering the home. Fifty to eighty percent of the heat normally lost in exhausted air is returned to the house. Air-to-air heat exchangers can be installed as part of a central heating and cooling system or in walls or windows. Wall and window-mounted units resemble air conditioners and will ventilate one room or area.¹

Canned Lighting Air-Tight Sealing. Proper sealing around recessed lighting fixtures prevents unwanted heat loss through these air spaces due to air pressure differentials in conditioned and unconditioned spaces in homes. The baseline is no sealing.

Ceiling Fan. ENERGY STAR[®] qualified ceiling fans use improved motors and blade designs, allowing the user to increase the thermostat set-point a couple of degrees, decreasing AC cooling runtime, yet still feel at least 5° cooler. The fans do not create cooler temperatures. The kit does not include light fixtures; all savings are associated with installation of a ceiling fan with improved fan design where no prior fan is present.

Ceiling Insulation. This measure represents an increase in R-value. Adding insulation in existing buildings increases the thermal performance and brings the resistance value up to and past code, depending on vintage. Table 1 summarizes the different resistance values compared in the measure.

Table 1. Ceiling R-Value Comparison

Measure Insulation	Baseline Insulation
R-38	R-0
R-49	R-0
R-49	R-10
R-49	R-12
R-38	R-15
R-49	R-15
R-49	R-38
R-60	R-49

Check Me! O&M Tune-up. Proper system tune-up/maintenance ensures that both refrigerant charge and airflow through the evaporator coil are properly tested and correctly adjusted – two factors that affect system efficiency. Maintenance includes changing filters and cleaning coils to maintain the overall performance and efficiency of the unit.

Construction – ICF. Building a concrete home with insulating concrete forms (ICFs) saves energy. The greater insulation, tighter construction, and temperature-moderating mass of the walls conserve heating and cooling energy much better than conventional wood-frame walls.

¹ <http://cipco.apogee.net/res/reevhex.asp>

Construction – SIP. Structural insulated panels use continuous foam insulation throughout the panel that provides excellent energy efficiency and low levels of air infiltration. Baseline is standard wood framing.

Cool Roof. ENERGY STAR-qualified cool roofs are light colored and can lower roof surface temperature by up to 100°F, thereby decreasing the amount of heat transferred into a building. Cool roofs can help reduce the amount of air conditioning needed in buildings, and can reduce peak cooling demand by 10-15%.² This measure could be considered as a passive measure.

Doors. Composite or steel doors with a foam core increase overall insulation, slowing heat loss. This measure includes adding a thermal door with a resistance value of R-5 or R-11 to houses with neither thermal nor storm doors (R-2.5).

Doors – Weatherization. To minimize infiltration door sweep, weather stripping mounts to the bottom of the door. It consists of an extruded aluminum strip that holds a flexible vinyl strip to block the air space between the door frame and the door. The baseline for this measure is no weather stripping.

Duct Insulation. Adding insulation around the ducts in the heating system reduces heat loss to unconditioned spaces. This measure improves existing duct insulation from R-4 to R-8.

Duct Location. In many homes, ducts are run through unconditioned areas such as attics, garages, crawlspaces, and basements for convenience and practical reasons. Ducts in unconditioned areas lose energy because of large temperature differences between conditioned air in the ducts and the surrounding space. Locating ducts in conditioned spaces helps to reduce wasted heat loss.³

Duct Sealing. Duct sealing cost-effectively saves energy, improves air and thermal distribution (comfort and ventilation), and reduces cross contamination between different zones in the building (i.e., smoking vs. non-smoking, bio-aerosols, localized indoor air pollutants).

Duct Sealing – Aerosol Based. A significant amount of energy use in residential buildings is associated with duct losses due to leakage. This is an aerosol duct-sealing technology that seals holes in ducts up to ¼” in diameter from the inside by spraying atomized latex aerosol into a pressurized duct system.

Floor Insulation. Adding insulation to the floor increases the overall resistance value and slow heat transfer from the basement to the upper levels. Table 2 summarizes the different resistance values compared in the measure.

Table 2. Floor R-Value Comparison

Measure Insulation	Baseline Insulation
R-21	R-0
R-30	R-0
R-38	R-21
R-38	R-30

Green Roof. The added mass and thermal resistance of green roofs reduces the heating and cooling loads of the building. These systems reduce the ambient temperature around the roof,

² <http://www.aceee.org/consumer/cooling>

³ http://www.toolbase.org/pdf/techinv/ductsinconditionedspace_techspec.pdf

decreasing the building's urban heat island effect; reduce the ambient temperature of the roof's surface; and slow the transfer of heat into the building, reducing cooling costs. They also provide added insulation to the roof structure, reducing heating requirements in the winter.⁴

Infiltration Control (Caulk, Weather Strip, etc.) Blower – Door Test. Sealing air leaks in windows, doors, roof, crawlspaces, and outside walls decreases overall heating and cooling losses. Filling gaps in windows with synthetic filler prevents drafts and heating/cooling loss.

Leak Proof Duct Fittings. The majority of duct leakage in residential HVAC systems is due to improperly sealed connections between ductwork and fittings. Even when duct connections are initially well-sealed, leakage may increase over time. Although the use of mastics and mechanical fasteners is becoming more widespread, a low-cost, leak-proof system will help to transform the market.

Proper Sizing – HVAC Unit. By properly sizing HVAC equipment rather than using rules of thumb, a right-sized system will operate for long periods of time (rather than frequently cycling on and off), resulting in optimum equipment operating efficiency and better control.⁵

Radiant Barrier (ceiling). Radiant barriers generally consist of a thin piece of aluminum that are installed in buildings to help reduce the solar heat gain from the sun during the summer, as well as helping to trap heat in during winter. They work by reducing heat transfer between the air space of the roof deck and the attic floor.

Smart Siting. For new construction only, this measure optimizes building orientation to minimize the heating and cooling load on the HVAC system.

Thermal Shell - Infiltration @ 0.2 ACH w/HRV. Heat recovery ventilation (HRV) provides fresh air and improved climate control, while also saving energy by reducing the heating (or cooling) requirements. Combining this feature with better infiltration control (0.2 air changes per hour), minimizes the energy needed to maintain a healthy level of fresh air and reduces heat loss due to air leakage.

Thermostat - Multi-Zone. A multi-zone programmable thermostat controls the set point temperatures automatically for multiple areas (rooms or zones), ensuring the HVAC system is not running during low-occupancy hours. The baseline for this measure is a programmable thermostat with central control only.

Wall Insulation - 2x4 and 2x6. Wall insulation slows the transfer of heat and reduces both the heating and cooling loads in houses. Table 3 compares the different insulation levels for 2x4 and 2x6 framing.

⁴ <http://www.toolbase.org/Technology-Inventory/Roofs/green-roofs>

⁵ <http://www.toolbase.org/Technology-Inventory/HVAC/hvac-sizing-practice>

Table 3. Wall Insulation Measures

Construction Type	Measure Insulation	Baseline Insulation
2x4	R-13	R-0
	R-19	R-0
	R-21	R-0
2x6	R-21	R-19
	R-21 + R-5 Sheathing	R-19
	R-21 + R-5 Sheathing	R-21

Whole-House Fan. Draws cool outdoor air inside through open windows and exhausts hot indoor air through the attic to the outside. A whole house fan is a simple and inexpensive method of cooling a house when outdoor temperatures are lower than indoor temperatures.

Windows. This measure represents an increase in building performance by reducing the U-value in existing construction and new construction windows, as shown in Table 4.

Table 4. High Efficiency Window Measures

Measure U-Value	Baseline U-Value
0.30	Single Pane
0.30	Double Pane
0.25	0.30
0.22	0.30

Lighting

Daylighting Controls (Photocell) – Indoor/Outdoors. Photocells are used to adjust lighting levels according to the level of daylight the room is receiving. Baseline is no daylighting controls.

Occupancy Sensors. If a space is unoccupied for a designated amount of time, an occupancy sensor will turn off the lights. The lights will turn on again once the sensor detects a person has entered the space.

Time Clocks (Exterior Lighting). Allows the user to program times to automatically turn lights on and off outside the residence. Programmed exterior lighting saves energy by ensuring that lights are not accidentally left on during the daytime.

Water Heat

Clothes Washer. ENERGY STAR qualified clothes washers use less energy and water than regular washers.⁶ Three levels of efficiency (Modified Energy Factor) were compared in this measure, as shown in Table 5.

Table 5. Clothes Washer Modified Energy Factor Comparisons

⁶ http://www.energystar.gov/index.cfm?fuseaction=find_a_product.showProductGroup&pgw_code=CW

Measure MEF	Baseline MEF
2.0-2.19 (ENERGY STAR Tier 1)	1.66
2.2-2.45 (ENERGY STAR Tier 2)	1.66
2.46 + (ENERGY STAR Tier 3)	1.66

Dishwasher. ENERGY STAR qualified dishwashers use advanced technology to clean dishes while using less water and energy. The efficient model uses less than 307 kWh/year (including standby consumption) and less than 5 gallons of water per cycle. The baseline model consumes 340 kWh/year.

Drain Water Heat Recovery. Also called gravity film heat exchanges, these drain water heat recovery devices recover energy from domestic drain water and are used to pre-heat cold water entering the hot water tank. This minimizes the temperature difference between the heating set point and the entering water temperature.

Faucet Aerators. Faucet aerators, by mixing water and air, reduce the amount of water that flows through the faucet. The faucet aerator creates a fine water spray with a screen that is inserted in the faucet head. Flow rate requirements for this measure are presented in Table 6.

Table 6. Faucet Aerator Flow Rates

Measure Flow Rate (GPM*)	Baseline Flow Rate (GPM)
2.2	3.0 (existing)
1.5	2.2
0.5	2.2

* Gallons per minute

Hot Water Pipe Insulation. Adding R-4 insulation around the pipes will decrease heat loss. The baseline is a hot water pipe without insulation.

Low-Flow Showerheads. Low-flow showerheads mix water and air to reduce the amount of water that flows through the showerhead. The showerhead creates a fine water spray through an inserted screen in the showerhead. This measure represents a showerhead flow rate reduction from 2.5 gallons per minute to 2.0 gallons per minute.

Water Heater Tank Blanket. Install R-5 insulation on older models with no insulation, which helps reduce stand-by losses.

Water Heater Thermostat Setback. This measure generates savings by reducing the set point temperature from 135° to 120°F. Often, the set point temperature on a hot water system is set higher than necessary.

Appliances

Refrigerator//Freezer – Removal of Secondary. This refers to the environmentally friendly disposal of unneeded or non-efficient appliances such as secondary refrigerators or stand-alone freezers.

Stand-Alone Freezer – Removal. Removal of stand-alone freezers is beneficial due to their inefficient use of energy. Proper disposal is required, as they use hazardous materials such as Freon & CFCs.

Plug Load

1-Watt Standby Power. Standby power is the electricity used by small electrical equipment or appliances when it is switched off, or not performing its main function. Minimizing this loss to one watt or less can reduce this standby energy consumption by more than 50%.

ENERGY STAR Battery Chargers. Battery charging systems recharge a wide variety of cordless products, including power tools, small household appliances, and personal care products like electric shavers. Conventional battery chargers — even when not actively charging a product — draw as much as 5 to 20 times more energy than actually stored in the battery. ENERGY STAR battery chargers, on average, use 35 percent less energy. The baseline is a standard battery charger.⁷

ENERGY STAR Office Copier. ENERGY STAR copy machines are 40% more efficient than standard office copy machines.⁸

ENERGY STAR Office Printers. ENERGY STAR printers are 40% more efficient than standard printers.

Smart Strip/Powerstrip with Occupancy Sensor. Energy-saving products such as power strips with an occupancy sensor are found in workstations where power strips are commonly used. The sensor will turn on and off the power to all devices such as computers, desk lights, and audio equipment that are plugged into the power strip based on occupancy within the work area.

Other (Pool)

Pool Pump Timers. Setting a pool pump to run during off-peak times (starting after 8 p.m. and cycling off before 10 a.m.) reduces energy costs. Cycling pumps further reduces monthly costs. Baseline is a continuously running pump.

⁷ http://www.energystar.gov/index.cfm?c=battery_chargers.pr_battery_chargers

⁸ http://www.energystar.gov/index.cfm?fuseaction=find_a_product.showProductGroup&pgw_code=IEQ

Residential Electric Equipment Measure Descriptions

Heating and Cooling

Air or Ground Source Heat Pump (ASHP or GSHP). Electric heat pumps move heat to or from either the air or ground to cool and heat the home. Table 9 displays the different efficiency levels compared in this measure. The baseline size is the same as the measure size.

Table 9. Heat Pump SEER/HSPF Comparisons

Measure Efficiency	Baseline SEER & HSPF
14 SEER, 8.5 HSPF	
16 SEER, 8.8 HSPF	13 SEER, 7.7 HSPF
16.2 EER, 3.6 COP	

Central Cooling. This measure consists of several different air conditioner technology/efficiency levels, as summarized below in Table 7. The baseline size is the same as the measure size.

Table 7. Central AC SEER Comparison

Measure	Baseline SEER
14 SEER	
16 SEER	13 SEER (federal code)
Evaporative Cooler	

Conversion Electric Furnace to Air Source Heat Pump (ASHP). Air source heat pumps move heat to or from the air to cool and heat the home. This method of heating has a HSPF value of 7.7 consuming less energy than an electric furnace having a HSPF value of 1.

Conversion Baseboard Heating to Ductless Heat Pump (DHP). Ductless heat pumps move heat to or from the air to cool and heat the home without the need for costly ductwork. This method of heating has a HSPF value of 7.7 consuming less energy than baseboard heating having a HSPF value of 1.

Motor – ECM and ECM-VFD. Electronically commutated motors (ECM) and ECM with variable frequency drives (VFD) consume less power than a standard motor that is used in the ventilation and circulation system.

Room Air Conditioner (Room AC) – (10,000 BTU/HR). ENERGY STAR[®] qualified room air conditioners use less energy than conventional models through improved energy performance as well as timers for better temperature control. ENERGY STAR[®] qualified room air conditioners have a 10.8 EER value compared to a standard model that has 9.8 EER.

Room AC Conversion to Ductless Heat Pump. Ductless heat pumps (DHP) use less energy than room AC while also producing less noise and requiring no costly ductwork.

Lighting

CFL – 17 W Flood Light. Exterior compact fluorescent light bulbs use 62% less energy than an EISA – 45 W incandescent bulb. The baseline for this measure reflects the changes over 2012-2014 to accommodate the Energy Independence and Security Act of 2007, reaching a baseline value of 45 W.

CFL – 13 W, 20 W, 25 W. Specialty compact fluorescent 3-way light bulbs use between 73% - 83% less energy and have a longer life than incandescent 3-way, 60, 75, 150 W light bulbs.

CFL – 15 W. Standard compact fluorescent light bulbs use 62% less energy than an EISA – 43 W incandescent bulb. The baseline for this measure reflects the changes over 2012-2014 to accommodate the Energy Independence and Security Act of 2007, reaching a baseline value of 43 W.

LED 7 W. Light emitting diodes (LEDs) are solid-state devices that convert electricity to light, with very high efficiency using 80% less energy and long life. The baseline for this measure reflects the changes over 2012-2014 to accommodate the Energy Independence and Security Act of 2007, reaching a baseline value of 43 W.

Water Heat

Water Heat, Heat Pump. The heat pump moves heat from a warm reservoir (such as air) and transfers this heat into the hot water system.⁹ This measure assumes an energy factor (EF) of 2.2, an increase from a standard EF of 0.92.

Water Heater, Storage. High efficiency water heaters are more efficient than standard electric water heaters due to reduced standby losses. This measure assumes an energy factor (EF) for the high efficiency water heaters of 0.95, an increase from a standard EF of 0.92.

Appliances

Cooking Oven, High Efficiency. A high efficiency convection oven operates at lower temperatures and achieves quicker cook times than a standard oven, due to fans that circulate heat evenly throughout the oven by moving hot air past the food. The baseline is a standard oven.

Dryer, High Efficiency. High efficiency dryers have features, such as moisture sensors, that minimize energy usage while retaining performance. The efficiency levels for this measure are shown in Table 8.

Table 8. Dryer EF Comparison

Measure EF	Baseline EF
3.08	3.01
3.19	3.01
3.30	3.01

Freezer, ENERGY STAR. ENERGY STAR qualified freezers use 10% less energy than standard models due to improvements in insulation and compressors.

⁹ Description source: U.S. Department of Energy

Microwave, High Efficiency. High efficiency microwaves with more efficient power supplies, fans, magnetron, and reflective surfaces provide energy savings when compared to conventional microwaves.

Refrigerator, ENERGY STAR. ENERGY STAR qualified refrigerators use 20% less energy than standard models due to improvements in insulation and compressors.

Plug Load

Computer, ENERGY STAR. ENERGY STAR[®] computers consume less than 2 W in “sleep” and “off” mode and are more efficient than conventional units in “idle” mode, resulting in 30% - 65% energy savings.

Monitor, ENERGY STAR. ENERGY STAR[®] monitors feature: (1) “on” mode, where the maximum allowed power varies based on the computer monitor’s resolution; (2) “sleep” mode, where computer monitor models must consume 2 Watts or less; and, (3) “off” mode, where computer monitor models must consume 1 Watt or less. The baseline equipment does not include these features.¹⁰

Set Top Box, ENERGY STAR. Set-top boxes that have earned the ENERGY STAR are at 15% more efficient than conventional models¹¹. The baseline measure is a standard receiver.

TV ENERGY STAR – all types. ENERGY STAR qualified TVs can use about 40% less energy than standard units¹². ENERGY STAR models are required to consume no more than 1 Watt while in Sleep Mode. The baseline is a standard television, generally consuming more than 3 Watts when off.

Other (Pool)

Pool Pumps – 2 speed motor. Enables the pool pump motor to run at high and low speeds as opposed to constantly running at full power.

Pool Pumps – VSD. Enables the pool pump motor to run at variable speeds as opposed to constantly running at full power.

¹⁰ http://www.energystar.gov/index.cfm?fuseaction=find_a_product.ShowProductGroup&pgw_code=MO

¹¹ http://www.energystar.gov/index.cfm?c=settop_boxes.settop_boxes

¹² http://www.energystar.gov/index.cfm?fuseaction=find_a_product.showProductGroup&pgw_code=TV

Appendix C-1. Technical Supplements: Energy Efficiency Resources, Market Segmentation

Table C.1.1. Commercial Measure Details

Segment	Computers	Cooking	Evaporative Cooler	Cooling Room	Heat Pump	HVAC Aux	Lighting Exterior	Lighting Interior	Other Office Equipment	Other Plug Load	Refrigeration	Space Heat	Water Heat	Cooling Chillers
Grocery	CA, ID, UT, WA, WY	CA, ID, UT, WA, WY	CA, ID, UT, WA, WY	CA, ID, UT, WA, WY	CA, ID, UT, WA, WY									
Health	CA, ID, UT, WA, WY	CA, ID, UT, WA, WY	CA, ID, UT, WA, WY	CA, ID, UT, WA, WY	CA, ID, UT, WA, WY	CA, ID, UT, WA, WY								
Large Office	ID, UT, WA, WY		ID, UT, WA, WY		ID, UT, WA, WY	ID, UT, WA, WY		ID, UT, WA, WY	ID, UT, WA, WY	ID, UT, WA, WY				
Large Retail	ID, UT, WA, WY		ID, UT, WA, WY	ID, UT, WA, WY		ID, UT, WA, WY	ID, UT, WA, WY							
Lodging	CA, ID, UT, WA, WY	CA, ID, UT, WA, WY		CA, ID, UT, WA, WY	CA, ID, UT, WA, WY	CA, ID, UT, WA, WY								
Miscellaneous	CA, ID, UT, WA, WY	CA, ID, UT, WA, WY	CA, ID, UT, WA, WY	CA, ID, UT, WA, WY	CA, ID, UT, WA, WY	CA, ID, UT, WA, WY								
Restaurant	CA, ID, UT, WA, WY	CA, ID, UT, WA, WY	CA, ID, UT, WA, WY	CA, ID, UT, WA, WY	CA, ID, UT, WA, WY									
School	CA, ID, UT, WA, WY	CA, ID, UT, WA, WY	CA, ID, UT, WA, WY	CA, ID, UT, WA, WY	CA, ID, UT, WA, WY	CA, ID, UT, WA, WY								
Small Office	CA, ID, UT, WA, WY		CA, ID, UT, WA, WY	CA, ID, UT, WA, WY		CA, ID, UT, WA, WY	CA, ID, UT, WA, WY							
Small Retail	CA, ID, UT, WA, WY		CA, ID, UT, WA, WY	CA, ID, UT, WA, WY		CA, ID, UT, WA, WY	CA, ID, UT, WA, WY							
Warehouse	CA, ID, UT, WA, WY		CA, ID, UT, WA, WY	CA, ID, UT, WA, WY	CA, ID, UT, WA, WY	CA, ID, UT, WA, WY	CA, ID, UT, WA, WY	CA, ID, UT, WA, WY						
Warehouse CA							WA	WA		WA	WA			

Table C.1.2. Industrial Measure Details

Segment	Fans	HVAC	Indirect Boiler	Lighting	Motors Other	Other	Process Aircomp	Process Cool	Process Electro Chemical	Process Heat	Process Other	Process Refrigeration	Pumps
Chemical Mfg	ID, UT, WY	ID, UT, WY	ID, UT, WY	ID, UT, WY	ID, UT, WY								
Electronic Equipment Mfg	UT	UT	UT	UT	UT								
Food Mfg	ID, UT, WA	ID, UT, WA	ID, UT, WA	ID, UT, WA	ID, UT, WA								
Industrial Machinery	UT	UT	UT	UT	UT								
Irrigation						CA, ID, UT, WA, WY							CA, ID, UT, WA, WY
Lumber Wood Products	CA, WA	CA, WA	CA, WA	CA, WA	CA, WA								
Mining	UT, WY	UT, WY	UT, WY	UT, WY	UT, WY								
Miscellaneous Mfg	CA, ID, UT, WA, WY	CA, ID, UT, WA, WY	CA, ID, UT, WA, WY	CA, ID, UT, WA, WY	CA, ID, UT, WA, WY								
Paper Mfg	WA	WA	WA	WA	WA								
Petroleum Refining	UT, WY	UT, WY	UT, WY	UT, WY	UT, WY								
Primary Metal Mfg	UT	UT	UT	UT	UT								
Stone Clay Glass Products	UT	UT	UT	UT	UT								
Street Lighting				CA, ID, UT, WA, WY									
Transportation Equipment Mfg	UT	UT	UT	UT	UT								
Wastewater				CA, ID, UT, WA, WY		CA, ID, UT, WA, WY	CA, ID, UT, WA, WY						CA, ID, UT, WA, WY
Water	CA, ID, UT, WA, WY			CA, ID, UT, WA, WY	CA, ID, UT, WA, WY	CA, ID, UT, WA, WY							CA, ID, UT, WA, WY

Table C.1.3. California Residential Saturations, Fuel Shares, and UECs

Segment	End Use	Saturation	Electric Fuel Share	Weighted Average UEC - Existing	Weighted Average UEC - New
Manufactured	Computer	81%	100%	155.1	155.1
Manufactured	Cooking Oven	100%	77%	153.6	153.6
Manufactured	Cooking Range	100%	86%	128.2	128.2
Manufactured	Cool Central	31%	100%	1,017.0	826.7
Manufactured	Cool Room	5%	100%	721.4	577.2
Manufactured	Dehumidifier	0%	100%	710.1	710.1
Manufactured	Dryer	96%	95%	534.8	434.9
Manufactured	Dvd	72%	100%	101.2	101.2
Manufactured	Freezer	54%	100%	696.6	533.8
Manufactured	Heat Central	57%	85%	9,544.2	6,389.0
Manufactured	Heat Pump	9%	100%	10,477.5	6,869.5
Manufactured	Heat Room	21%	16%	7,349.0	4,919.6
Manufactured	Home Audio System	79%	100%	61.9	61.9
Manufactured	Lighting Exterior	100%	100%	247.1	247.1
Manufactured	Lighting Interior Specialty	100%	100%	221.7	221.7
Manufactured	Lighting Interior Standard	100%	100%	1,074.5	1,074.5
Manufactured	Microwave	98%	100%	148.2	148.2
Manufactured	Monitor	69%	100%	76.4	76.4
Manufactured	Plug Load Other	100%	100%	618.0	618.0
Manufactured	Refrigerator	107%	100%	618.8	557.5
Manufactured	Set Top Box	53%	100%	262.8	262.8
Manufactured	Tv	121%	100%	165.4	134.9
Manufactured	Tv Bigscreen	22%	100%	352.4	287.9
Manufactured	Ventilation And Circulation	57%	100%	302.7	225.9
Manufactured	Water Heat	100%	91%	2,334.3	2,321.7
Multi Family	Computer	55%	100%	158.9	158.9
Multi Family	Cooking Oven	100%	73%	153.6	153.6
Multi Family	Cooking Range	100%	88%	128.2	128.2
Multi Family	Cool Central	3%	100%	1,091.4	916.1
Multi Family	Cool Room	24%	100%	590.9	464.6
Multi Family	Dehumidifier	1%	100%	710.1	710.1
Multi Family	Dryer	39%	100%	534.8	434.9
Multi Family	Dvd	45%	100%	101.2	101.2
Multi Family	Freezer	3%	100%	696.6	533.8
Multi Family	Heat Central	12%	25%	6,534.9	4,177.2
Multi Family	Heat Pump	18%	100%	4,528.9	3,721.5
Multi Family	Heat Room	67%	77%	5,031.9	3,216.4
Multi Family	Home Audio System	64%	100%	61.9	61.9
Multi Family	Lighting Exterior	33%	100%	225.7	225.7
Multi Family	Lighting Interior Specialty	100%	100%	202.5	202.5
Multi Family	Lighting Interior Standard	100%	100%	981.6	981.6
Multi Family	Microwave	85%	100%	148.2	148.2
Multi Family	Monitor	48%	100%	76.4	76.4
Multi Family	Plug Load Other	100%	100%	318.4	318.4

Segment	End Use	Saturation	Electric Fuel Share	Weighted Average UEC - Existing	Weighted Average UEC - New
Multi Family	Refrigerator	103%	100%	634.7	566.3
Multi Family	Set Top Box	57%	100%	262.8	262.8
Multi Family	Tv	112%	100%	165.4	134.9
Multi Family	Tv Bigscreen	24%	100%	352.4	287.9
Multi Family	Ventilation And Circulation	12%	100%	187.4	123.1
Multi Family	Water Heat	100%	81%	1,530.7	1,522.5
Single Family	Computer	102%	100%	143.0	143.0
Single Family	Cooking Oven	100%	77%	153.6	153.6
Single Family	Cooking Range	100%	81%	128.2	128.2
Single Family	Cool Central	22%	100%	1,400.3	1,227.3
Single Family	Cool Room	13%	100%	794.4	704.9
Single Family	Dehumidifier	2%	100%	710.1	710.1
Single Family	Dryer	94%	94%	709.9	577.2
Single Family	Dvd	99%	100%	101.2	101.2
Single Family	Freezer	63%	100%	696.6	533.8
Single Family	Heat Central	32%	22%	9,480.0	6,553.7
Single Family	Heat Pump	11%	100%	9,051.7	6,401.9
Single Family	Heat Room	38%	24%	7,299.6	5,046.3
Single Family	Home Audio System	79%	100%	61.9	61.9
Single Family	Lighting Exterior	100%	100%	298.6	298.6
Single Family	Lighting Interior Specialty	100%	100%	267.9	267.9
Single Family	Lighting Interior Standard	100%	100%	1,298.8	1,298.8
Single Family	Microwave	94%	100%	148.2	148.2
Single Family	Monitor	77%	100%	76.4	76.4
Single Family	Plug Load Other	100%	100%	865.6	865.6
Single Family	Pool Pump	0%	100%	1,470.0	1,470.0
Single Family	Refrigerator	112%	100%	629.8	563.6
Single Family	Set Top Box	55%	100%	262.8	262.8
Single Family	Tv	145%	100%	165.4	134.9
Single Family	Tv Bigscreen	34%	100%	352.4	287.9
Single Family	Ventilation And Circulation	32%	100%	548.5	383.0
Single Family	Water Heat	100%	83%	2,387.4	2,374.6

Table C.1.4. Idaho Residential Saturations, Fuel Shares, and UECs

Segment	End Use	Saturation	Electric Fuel Share	Weighted Average UEC - Existing	Weighted Average UEC - New
Manufactured	Computer	71%	100%	155.2	155.2
Manufactured	Cooking Oven	100%	62%	153.6	153.6
Manufactured	Cooking Range	100%	60%	128.2	128.2
Manufactured	Cool Central	30%	100%	574.8	592.1
Manufactured	Cool Room	24%	100%	510.0	423.8
Manufactured	Dehumidifier	0%	100%	710.1	710.1
Manufactured	Dryer	96%	87%	534.8	434.9
Manufactured	Dvd	109%	100%	101.2	101.2
Manufactured	Freezer	74%	100%	696.6	533.8
Manufactured	Heat Central	80%	58%	13,513.4	11,499.3
Manufactured	Heat Pump	0%	100%	10,786.1	11,258.6
Manufactured	Heat Room	7%	67%	10,405.3	8,854.4
Manufactured	Home Audio System	79%	100%	61.9	61.9
Manufactured	Lighting Exterior	100%	100%	241.3	241.3
Manufactured	Lighting Interior Specialty	100%	100%	216.5	216.5
Manufactured	Lighting Interior Standard	100%	100%	1,049.6	1,049.6
Manufactured	Microwave	98%	100%	148.2	148.2
Manufactured	Monitor	61%	100%	76.4	76.4
Manufactured	Plug Load Other	100%	100%	738.6	738.6
Manufactured	Refrigerator	103%	100%	600.7	547.5
Manufactured	Set Top Box	28%	100%	262.8	262.8
Manufactured	Tv	148%	100%	195.9	195.9
Manufactured	Tv Bigscreen	28%	100%	417.0	417.0
Manufactured	Ventilation And Circulation	80%	100%	335.8	318.0
Manufactured	Water Heat	100%	58%	2,280.2	2,267.9
Multi Family	Computer	65%	100%	137.6	137.6
Multi Family	Cooking Oven	100%	77%	153.6	153.6
Multi Family	Cooking Range	100%	85%	128.2	128.2
Multi Family	Cool Central	42%	100%	972.3	752.3
Multi Family	Cool Room	4%	100%	435.7	369.9
Multi Family	Dehumidifier	5%	100%	710.1	710.1
Multi Family	Dryer	69%	89%	534.8	434.9
Multi Family	Dvd	69%	100%	101.2	101.2
Multi Family	Freezer	31%	100%	696.6	533.8
Multi Family	Heat Central	63%	20%	11,545.4	6,333.5
Multi Family	Heat Pump	0%	100%	7,477.8	5,427.1
Multi Family	Heat Room	38%	89%	8,890.0	4,876.8
Multi Family	Home Audio System	74%	100%	61.9	61.9
Multi Family	Lighting Exterior	38%	100%	225.7	225.7
Multi Family	Lighting Interior Specialty	100%	100%	202.5	202.5
Multi Family	Lighting Interior Standard	100%	100%	981.6	981.6
Multi Family	Microwave	100%	100%	148.2	148.2
Multi Family	Monitor	46%	100%	76.4	76.4

Segment	End Use	Saturation	Electric Fuel Share	Weighted Average UEC - Existing	Weighted Average UEC - New
Multi Family	Plug Load Other	100%	100%	320.4	320.4
Multi Family	Refrigerator	108%	100%	634.7	566.3
Multi Family	Set Top Box	36%	100%	262.8	262.8
Multi Family	Tv	115%	100%	195.9	195.9
Multi Family	Tv Bigscreen	12%	100%	417.0	417.0
Multi Family	Ventilation And Circulation	63%	100%	194.7	156.9
Multi Family	Water Heat	100%	50%	1,530.7	1,522.5
Single Family	Computer	120%	100%	144.2	144.2
Single Family	Cooking Oven	100%	73%	153.6	153.6
Single Family	Cooking Range	100%	77%	128.2	128.2
Single Family	Cool Central	21%	100%	1,260.0	1,282.9
Single Family	Cool Room	15%	100%	644.3	655.4
Single Family	Dehumidifier	0%	100%	710.1	710.1
Single Family	Dryer	96%	83%	709.9	577.2
Single Family	Dvd	123%	100%	101.2	101.2
Single Family	Freezer	84%	100%	696.6	533.8
Single Family	Heat Central	59%	10%	16,516.5	12,673.4
Single Family	Heat Pump	1%	100%	14,021.5	11,126.1
Single Family	Heat Room	29%	71%	12,717.7	9,758.5
Single Family	Home Audio System	79%	100%	61.9	61.9
Single Family	Lighting Exterior	100%	100%	357.7	357.7
Single Family	Lighting Interior Specialty	100%	100%	320.9	320.9
Single Family	Lighting Interior Standard	100%	100%	1,555.5	1,555.5
Single Family	Microwave	95%	100%	148.2	148.2
Single Family	Monitor	92%	100%	76.4	76.4
Single Family	Plug Load Other	100%	100%	743.8	743.8
Single Family	Pool Pump	1%	100%	1,470.0	1,470.0
Single Family	Refrigerator	111%	100%	605.2	550.0
Single Family	Set Top Box	46%	100%	262.8	262.8
Single Family	Tv	169%	100%	195.9	195.9
Single Family	Tv Bigscreen	31%	100%	417.0	417.0
Single Family	Ventilation And Circulation	59%	100%	597.5	516.8
Single Family	Water Heat	100%	49%	2,859.2	2,843.9

Table C.1.5. Utah Residential Saturations, Fuel Shares, and UECs

Segment	End Use	Saturation	Electric Fuel Share	Weighted Average UEC - Existing	Weighted Average UEC - New
Manufactured	Computer	100%	100%	157.3	157.3
Manufactured	Cooking Oven	100%	38%	153.6	153.6
Manufactured	Cooking Range	100%	31%	128.2	128.2
Manufactured	Cool Central	93%	100%	901.9	880.4
Manufactured	Cool Room	0%	100%	949.0	768.1
Manufactured	Dehumidifier	0%	100%	710.1	710.1
Manufactured	Dryer	81%	92%	534.8	434.9
Manufactured	Dvd	100%	100%	101.2	101.2
Manufactured	Freezer	31%	100%	696.6	533.8
Manufactured	Heat Central	92%	6%	10,306.2	8,219.8
Manufactured	Heat Pump	0%	100%	9,509.3	9,040.1
Manufactured	Heat Room	8%	0%	7,935.8	6,329.2
Manufactured	Home Audio System	79%	100%	61.9	61.9
Manufactured	Lighting Exterior	100%	100%	241.3	241.3
Manufactured	Lighting Interior Specialty	100%	100%	216.5	216.5
Manufactured	Lighting Interior Standard	100%	100%	1,049.6	1,049.6
Manufactured	Microwave	94%	100%	148.2	148.2
Manufactured	Monitor	88%	100%	76.4	76.4
Manufactured	Plug Load Other	100%	100%	391.8	391.8
Manufactured	Refrigerator	100%	100%	620.7	558.6
Manufactured	Set Top Box	28%	100%	262.8	262.8
Manufactured	Tv	175%	100%	195.9	195.9
Manufactured	Tv Bigscreen	6%	100%	417.0	417.0
Manufactured	Ventilation And Circulation	92%	100%	296.1	252.9
Manufactured	Water Heat	100%	20%	2,280.2	2,267.9
Multi Family	Computer	90%	100%	145.3	145.3
Multi Family	Cooking Oven	100%	85%	153.6	153.6
Multi Family	Cooking Range	100%	85%	128.2	128.2
Multi Family	Cool Central	81%	100%	1,411.0	1,084.9
Multi Family	Cool Room	16%	100%	724.7	521.2
Multi Family	Dehumidifier	5%	100%	710.1	710.1
Multi Family	Dryer	82%	91%	534.8	434.9
Multi Family	Dvd	115%	100%	101.2	101.2
Multi Family	Freezer	23%	100%	696.6	533.8
Multi Family	Heat Central	78%	9%	9,292.8	4,743.5
Multi Family	Heat Pump	0%	100%	6,756.9	3,764.6
Multi Family	Heat Room	17%	67%	7,155.4	3,652.5
Multi Family	Home Audio System	74%	100%	61.9	61.9
Multi Family	Lighting Exterior	31%	100%	225.7	225.7
Multi Family	Lighting Interior Specialty	100%	100%	202.5	202.5
Multi Family	Lighting Interior Standard	100%	100%	981.6	981.6
Multi Family	Microwave	92%	100%	148.2	148.2
Multi Family	Monitor	69%	100%	76.4	76.4

Segment	End Use	Saturation	Electric Fuel Share	Weighted Average UEC - Existing	Weighted Average UEC - New
Multi Family	Plug Load Other	100%	100%	419.0	419.0
Multi Family	Refrigerator	103%	100%	634.7	566.3
Multi Family	Set Top Box	36%	100%	262.8	262.8
Multi Family	Tv	141%	100%	195.9	195.9
Multi Family	Tv Bigscreen	44%	100%	417.0	417.0
Multi Family	Ventilation And Circulation	78%	100%	160.9	130.9
Multi Family	Water Heat	100%	27%	1,530.7	1,522.5
Single Family	Computer	138%	100%	138.5	138.5
Single Family	Cooking Oven	100%	67%	153.6	153.6
Single Family	Cooking Range	100%	66%	128.2	128.2
Single Family	Cool Central	90%	100%	2,069.4	1,980.7
Single Family	Cool Room	3%	100%	1,150.8	1,146.8
Single Family	Dehumidifier	0%	100%	710.1	710.1
Single Family	Dryer	97%	76%	709.9	577.2
Single Family	Dvd	134%	100%	101.2	101.2
Single Family	Freezer	59%	100%	696.6	533.8
Single Family	Heat Central	87%	7%	12,236.9	8,940.6
Single Family	Heat Pump	1%	100%	12,230.7	11,740.9
Single Family	Heat Room	9%	39%	9,422.4	6,884.2
Single Family	Home Audio System	79%	100%	61.9	61.9
Single Family	Lighting Exterior	100%	100%	357.7	357.7
Single Family	Lighting Interior Specialty	100%	100%	320.9	320.9
Single Family	Lighting Interior Standard	100%	100%	1,555.5	1,555.5
Single Family	Microwave	95%	100%	148.2	148.2
Single Family	Monitor	98%	100%	76.4	76.4
Single Family	Plug Load Other	100%	100%	559.0	559.0
Single Family	Pool Pump	1%	100%	1,470.0	1,470.0
Single Family	Refrigerator	110%	100%	587.7	540.3
Single Family	Set Top Box	46%	100%	262.8	262.8
Single Family	Tv	172%	100%	195.9	195.9
Single Family	Tv Bigscreen	46%	100%	417.0	417.0
Single Family	Ventilation And Circulation	87%	100%	640.6	441.4
Single Family	Water Heat	100%	11%	2,859.2	2,843.9

Table C.1.6. Washington Residential Saturations, Fuel Shares, and UECs

Segment	End Use	Saturation	Electric Fuel Share	Weighted Average UEC - Existing	Weighted Average UEC - New
Manufactured	Computer	72%	100%	156.7	156.7
Manufactured	Cooking Oven	100%	73%	153.6	153.6
Manufactured	Cooking Range	100%	89%	128.2	128.2
Manufactured	Cool Central	61%	100%	1,135.7	1,023.8
Manufactured	Cool Room	16%	100%	604.9	498.8
Manufactured	Dehumidifier	0%	100%	710.1	710.1
Manufactured	Dryer	95%	98%	534.8	434.9
Manufactured	Dvd	83%	100%	101.2	101.2
Manufactured	Freezer	72%	100%	696.6	533.8
Manufactured	Heat Central	64%	100%	11,513.9	8,072.3
Manufactured	Heat Pump	24%	100%	9,572.9	8,096.9
Manufactured	Heat Room	12%	29%	8,865.7	6,215.7
Manufactured	Home Audio System	79%	100%	61.9	61.9
Manufactured	Lighting Exterior	100%	100%	272.6	272.6
Manufactured	Lighting Interior Specialty	100%	100%	244.6	244.6
Manufactured	Lighting Interior Standard	100%	100%	1,185.5	1,185.5
Manufactured	Microwave	94%	100%	148.2	148.2
Manufactured	Monitor	65%	100%	76.4	76.4
Manufactured	Plug Load Other	100%	100%	715.7	715.7
Manufactured	Refrigerator	123%	100%	626.9	562.0
Manufactured	Set Top Box	53%	100%	262.8	262.8
Manufactured	Tv	146%	100%	195.9	195.9
Manufactured	Tv Bigscreen	37%	100%	417.0	417.0
Manufactured	Ventilation And Circulation	64%	100%	372.4	277.2
Manufactured	Water Heat	100%	98%	2,575.4	2,561.5
Multi Family	Computer	61%	100%	155.9	155.9
Multi Family	Cooking Oven	100%	83%	153.6	153.6
Multi Family	Cooking Range	100%	83%	128.2	128.2
Multi Family	Cool Central	48%	100%	976.1	814.9
Multi Family	Cool Room	48%	100%	470.3	392.2
Multi Family	Dehumidifier	1%	100%	710.1	710.1
Multi Family	Dryer	74%	100%	534.8	434.9
Multi Family	Dvd	86%	100%	101.2	101.2
Multi Family	Freezer	22%	100%	696.6	533.8
Multi Family	Heat Central	50%	18%	9,315.3	5,770.2
Multi Family	Heat Pump	5%	100%	6,006.6	3,833.2
Multi Family	Heat Room	45%	90%	7,172.7	4,443.0
Multi Family	Home Audio System	64%	100%	61.9	61.9
Multi Family	Lighting Exterior	57%	100%	225.7	225.7
Multi Family	Lighting Interior Specialty	100%	100%	202.5	202.5
Multi Family	Lighting Interior Standard	100%	100%	981.6	981.6
Multi Family	Microwave	96%	100%	148.2	148.2
Multi Family	Monitor	57%	100%	76.4	76.4

Segment	End Use	Saturation	Electric Fuel Share	Weighted Average UEC - Existing	Weighted Average UEC - New
Multi Family	Plug Load Other	100%	100%	319.3	319.3
Multi Family	Refrigerator	126%	100%	634.7	566.3
Multi Family	Set Top Box	57%	100%	262.8	262.8
Multi Family	Tv	176%	100%	195.9	195.9
Multi Family	Tv Bigscreen	9%	100%	417.0	417.0
Multi Family	Ventilation And Circulation	50%	100%	192.3	141.8
Multi Family	Water Heat	100%	83%	1,530.7	1,522.5
Single Family	Computer	115%	100%	148.3	148.3
Single Family	Cooking Oven	100%	77%	153.6	153.6
Single Family	Cooking Range	100%	79%	128.2	128.2
Single Family	Cool Central	56%	100%	1,527.3	1,361.4
Single Family	Cool Room	20%	100%	682.3	607.1
Single Family	Dehumidifier	2%	100%	710.1	710.1
Single Family	Dryer	97%	95%	709.9	577.2
Single Family	Dvd	113%	100%	101.2	101.2
Single Family	Freezer	85%	100%	696.6	533.8
Single Family	Heat Central	64%	18%	12,843.8	9,203.1
Single Family	Heat Pump	14%	100%	10,930.9	8,275.8
Single Family	Heat Room	18%	53%	9,889.7	7,086.4
Single Family	Home Audio System	79%	100%	61.9	61.9
Single Family	Lighting Exterior	100%	100%	333.4	333.4
Single Family	Lighting Interior Specialty	100%	100%	299.1	299.1
Single Family	Lighting Interior Standard	100%	100%	1,449.8	1,449.8
Single Family	Microwave	95%	100%	148.2	148.2
Single Family	Monitor	95%	100%	76.4	76.4
Single Family	Plug Load Other	100%	100%	760.1	760.1
Single Family	Pool Pump	5%	100%	1,470.0	1,470.0
Single Family	Refrigerator	138%	100%	623.4	560.1
Single Family	Set Top Box	55%	100%	262.8	262.8
Single Family	Tv	169%	100%	195.9	195.9
Single Family	Tv Bigscreen	33%	100%	417.0	417.0
Single Family	Ventilation And Circulation	64%	100%	623.9	442.6
Single Family	Water Heat	100%	69%	2,664.6	2,650.3

Table C.1.7. Wyoming Residential Saturations, Fuel Shares, and UECs

Segment	End Use	Saturation	Electric Fuel Share	Weighted Average UEC - Existing	Weighted Average UEC - New
Manufactured	Computer	75%	100%	155.2	155.2
Manufactured	Cooking Oven	100%	38%	153.6	153.6
Manufactured	Cooking Range	100%	27%	128.2	128.2
Manufactured	Cool Central	71%	100%	394.5	411.8
Manufactured	Cool Room	16%	100%	329.9	334.7
Manufactured	Dehumidifier	0%	100%	710.1	710.1
Manufactured	Dryer	93%	94%	534.8	434.9
Manufactured	Dvd	95%	100%	101.2	101.2
Manufactured	Freezer	57%	100%	696.6	533.8
Manufactured	Heat Central	84%	21%	17,821.3	12,705.8
Manufactured	Heat Pump	0%	100%	11,937.6	11,095.2
Manufactured	Heat Room	12%	33%	13,722.4	9,783.4
Manufactured	Home Audio System	79%	100%	61.9	61.9
Manufactured	Lighting Exterior	100%	100%	241.3	241.3
Manufactured	Lighting Interior Specialty	100%	100%	216.5	216.5
Manufactured	Lighting Interior Standard	100%	100%	1,049.6	1,049.6
Manufactured	Microwave	93%	100%	148.2	148.2
Manufactured	Monitor	64%	100%	76.4	76.4
Manufactured	Plug Load Other	100%	100%	591.9	591.9
Manufactured	Refrigerator	105%	100%	622.1	559.4
Manufactured	Set Top Box	28%	100%	262.8	262.8
Manufactured	Tv	145%	100%	195.9	195.9
Manufactured	Tv Bigscreen	27%	100%	417.0	417.0
Manufactured	Ventilation And Circulation	84%	100%	412.0	377.3
Manufactured	Water Heat	100%	30%	2,280.2	2,267.9
Multi Family	Computer	70%	100%	142.8	142.8
Multi Family	Cooking Oven	100%	78%	153.6	153.6
Multi Family	Cooking Range	100%	74%	128.2	128.2
Multi Family	Cool Central	33%	100%	406.6	330.6
Multi Family	Cool Room	14%	100%	297.0	244.2
Multi Family	Dehumidifier	5%	100%	710.1	710.1
Multi Family	Dryer	70%	88%	534.8	434.9
Multi Family	Dvd	57%	100%	101.2	101.2
Multi Family	Freezer	39%	100%	696.6	533.8
Multi Family	Heat Central	48%	0%	11,643.8	7,767.3
Multi Family	Heat Pump	0%	100%	6,739.2	4,473.8
Multi Family	Heat Room	52%	83%	8,965.7	5,980.8
Multi Family	Home Audio System	74%	100%	61.9	61.9
Multi Family	Lighting Exterior	26%	100%	225.7	225.7
Multi Family	Lighting Interior Specialty	100%	100%	202.5	202.5
Multi Family	Lighting Interior Standard	100%	100%	981.6	981.6
Multi Family	Microwave	96%	100%	148.2	148.2
Multi Family	Monitor	52%	100%	76.4	76.4

Segment	End Use	Saturation	Electric Fuel Share	Weighted Average UEC - Existing	Weighted Average UEC - New
Multi Family	Plug Load Other	100%	100%	519.6	519.6
Multi Family	Refrigerator	104%	100%	634.7	566.3
Multi Family	Set Top Box	36%	100%	262.8	262.8
Multi Family	Tv	130%	100%	195.9	195.9
Multi Family	Tv Bigscreen	14%	100%	417.0	417.0
Multi Family	Ventilation And Circulation	48%	100%	221.4	177.1
Multi Family	Water Heat	100%	52%	1,530.7	1,522.5
Single Family	Computer	107%	100%	143.3	143.3
Single Family	Cooking Oven	100%	74%	153.6	153.6
Single Family	Cooking Range	100%	80%	128.2	128.2
Single Family	Cool Central	56%	100%	644.1	587.8
Single Family	Cool Room	12%	100%	381.0	353.0
Single Family	Dehumidifier	0%	100%	710.1	710.1
Single Family	Dryer	95%	95%	709.9	577.2
Single Family	Dvd	98%	100%	101.2	101.2
Single Family	Freezer	77%	100%	696.6	533.8
Single Family	Heat Central	67%	7%	16,878.9	12,748.5
Single Family	Heat Pump	2%	100%	11,949.9	8,696.4
Single Family	Heat Room	18%	48%	12,996.8	9,816.4
Single Family	Home Audio System	79%	100%	61.9	61.9
Single Family	Lighting Exterior	100%	100%	357.7	357.7
Single Family	Lighting Interior Specialty	100%	100%	320.9	320.9
Single Family	Lighting Interior Standard	100%	100%	1,555.5	1,555.5
Single Family	Microwave	94%	100%	148.2	148.2
Single Family	Monitor	81%	100%	76.4	76.4
Single Family	Plug Load Other	100%	100%	600.5	600.5
Single Family	Pool Pump	0%	100%	1,470.0	1,470.0
Single Family	Refrigerator	112%	100%	581.3	536.7
Single Family	Set Top Box	46%	100%	262.8	262.8
Single Family	Tv	165%	100%	195.9	195.9
Single Family	Tv Bigscreen	32%	100%	417.0	417.0
Single Family	Ventilation And Circulation	67%	100%	736.7	613.3
Single Family	Water Heat	100%	23%	2,859.2	2,843.9

Table C.1.8. California Commercial Saturations, Fuel Shares, and EUIs

Segment	End Use	Saturation	Electric Fuel Share	Weighted Average EUI - Existing	Weighted Average EUI - New
Grocery	Computers	100%	100%	0.2	0.2
Grocery	Cooking	59%	22%	2.2	2.2
Grocery	Cooling Dx Evap	56%	100%	3.8	2.2
Grocery	Cooling Room	1%	100%	5.2	3.1
Grocery	Heat Pump	7%	100%	8.6	4.2
Grocery	Hvac Aux	100%	100%	4.5	4.3
Grocery	Lighting Exterior	100%	100%	1.1	1.1
Grocery	Lighting Interior	100%	100%	7.2	6.3
Grocery	Other Office Equipment	100%	100%	0.1	0.1
Grocery	Other Plug Load	100%	100%	1.0	1.0
Grocery	Refrigeration	72%	100%	22.4	22.4
Grocery	Space Heat	82%	27%	4.7	1.8
Grocery	Water Heat	97%	60%	0.4	0.3
Health	Computers	100%	100%	0.6	0.6
Health	Cooking	18%	5%	0.4	0.4
Health	Cooling Chillers	7%	100%	1.7	1.0
Health	Cooling Dx Evap	63%	100%	2.5	1.4
Health	Cooling Room	1%	100%	3.3	2.0
Health	Heat Pump	11%	100%	8.0	5.1
Health	Hvac Aux	100%	100%	6.7	5.7
Health	Lighting Exterior	100%	100%	0.6	0.6
Health	Lighting Interior	100%	100%	6.7	4.2
Health	Other Office Equipment	100%	100%	0.6	0.6
Health	Other Plug Load	100%	100%	2.5	2.5
Health	Refrigeration	24%	100%	0.7	0.7
Health	Space Heat	87%	21%	9.1	6.3
Health	Water Heat	93%	34%	1.7	1.7
Lodging	Computers	100%	100%	0.1	0.1
Lodging	Cooking	62%	1%	0.7	0.7
Lodging	Cooling Chillers	5%	100%	1.7	1.0
Lodging	Cooling Dx Evap	21%	100%	1.9	1.2
Lodging	Cooling Room	20%	100%	2.6	1.7
Lodging	Heat Pump	13%	100%	5.9	3.8
Lodging	Hvac Aux	100%	100%	2.6	2.5
Lodging	Lighting Exterior	100%	100%	0.7	0.7
Lodging	Lighting Interior	100%	100%	3.9	3.1
Lodging	Other Office Equipment	100%	100%	0.1	0.1
Lodging	Other Plug Load	100%	100%	1.1	1.1
Lodging	Space Heat	84%	43%	6.1	4.0
Lodging	Water Heat	96%	34%	1.6	1.6
Miscellaneous	Computers	100%	100%	0.3	0.3
Miscellaneous	Cooking	26%	2%	0.3	0.3
Miscellaneous	Cooling Chillers	2%	100%	2.5	1.4

Segment	End Use	Saturation	Electric Fuel Share	Weighted Average EUI - Existing	Weighted Average EUI - New
Miscellaneous	Cooling Dx Evap	11%	100%	2.8	1.7
Miscellaneous	Cooling Room	1%	100%	3.8	2.5
Miscellaneous	Heat Pump	8%	100%	5.5	3.1
Miscellaneous	Hvac Aux	100%	100%	3.1	2.6
Miscellaneous	Lighting Exterior	100%	100%	1.2	1.2
Miscellaneous	Lighting Interior	100%	100%	7.0	5.0
Miscellaneous	Other Office Equipment	100%	100%	0.3	0.3
Miscellaneous	Other Plug Load	100%	100%	1.1	1.1
Miscellaneous	Refrigeration	12%	100%	1.0	1.0
Miscellaneous	Space Heat	62%	33%	3.1	1.7
Miscellaneous	Water Heat	70%	90%	0.4	0.4
Restaurant	Computers	100%	100%	0.1	0.1
Restaurant	Cooking	87%	27%	10.4	10.4
Restaurant	Cooling Dx Evap	40%	100%	4.4	2.5
Restaurant	Cooling Room	3%	100%	6.0	3.5
Restaurant	Heat Pump	9%	100%	8.1	4.5
Restaurant	Hvac Aux	100%	100%	4.5	4.1
Restaurant	Lighting Exterior	100%	100%	2.4	2.4
Restaurant	Lighting Interior	100%	100%	7.4	5.1
Restaurant	Other Office Equipment	100%	100%	0.2	0.2
Restaurant	Other Plug Load	100%	100%	1.4	1.4
Restaurant	Refrigeration	60%	100%	9.9	9.9
Restaurant	Space Heat	58%	50%	3.9	2.1
Restaurant	Water Heat	79%	70%	8.3	8.0
School	Computers	100%	100%	0.5	0.5
School	Cooking	54%	28%	0.4	0.4
School	Cooling Chillers	6%	100%	0.9	0.6
School	Cooling Dx Evap	30%	100%	1.0	0.7
School	Cooling Room	4%	100%	1.3	1.0
School	Heat Pump	5%	100%	7.6	4.4
School	Hvac Aux	100%	100%	2.7	2.1
School	Lighting Exterior	100%	100%	0.8	0.8
School	Lighting Interior	100%	100%	6.5	4.2
School	Other Office Equipment	100%	100%	0.3	0.3
School	Other Plug Load	100%	100%	0.3	0.3
School	Refrigeration	42%	100%	0.5	0.5
School	Space Heat	92%	13%	12.5	7.5
School	Water Heat	93%	41%	1.7	1.7
Small Office	Computers	100%	100%	0.7	0.7
Small Office	Cooling Dx Evap	18%	100%	2.6	1.6
Small Office	Cooling Room	6%	100%	3.6	2.3
Small Office	Heat Pump	22%	100%	5.2	2.8
Small Office	Hvac Aux	100%	100%	2.6	2.3
Small Office	Lighting Exterior	100%	100%	1.3	1.3
Small Office	Lighting Interior	100%	100%	5.9	3.6

Segment	End Use	Saturation	Electric Fuel Share	Weighted Average EUI - Existing	Weighted Average EUI - New
Small Office	Other Office Equipment	100%	100%	0.8	0.8
Small Office	Other Plug Load	100%	100%	1.0	1.0
Small Office	Space Heat	69%	38%	4.0	2.1
Small Office	Water Heat	93%	96%	0.5	0.5
Small Retail	Computers	100%	100%	0.2	0.2
Small Retail	Cooling Dx Evap	30%	100%	3.0	1.9
Small Retail	Cooling Room	0%	100%	3.9	2.6
Small Retail	Heat Pump	5%	100%	5.2	3.2
Small Retail	Hvac Aux	100%	100%	3.5	2.9
Small Retail	Lighting Exterior	100%	100%	1.1	1.1
Small Retail	Lighting Interior	100%	100%	8.2	6.3
Small Retail	Other Office Equipment	100%	100%	0.3	0.3
Small Retail	Other Plug Load	100%	100%	0.8	0.8
Small Retail	Space Heat	64%	20%	2.3	1.2
Small Retail	Water Heat	69%	94%	0.3	0.3
Warehouse	Computers	100%	100%	0.1	0.1
Warehouse	Cooling Chillers	4%	100%	0.8	0.5
Warehouse	Cooling Dx Evap	24%	100%	0.9	0.6
Warehouse	Cooling Room	2%	100%	1.2	0.8
Warehouse	Heat Pump	4%	100%	2.8	2.1
Warehouse	Hvac Aux	100%	100%	1.0	0.8
Warehouse	Lighting Exterior	100%	100%	0.3	0.3
Warehouse	Lighting Interior	100%	100%	4.0	2.7
Warehouse	Other Office Equipment	100%	100%	0.0	0.0
Warehouse	Other Plug Load	100%	100%	0.4	0.4
Warehouse	Refrigeration	26%	100%	13.4	13.4
Warehouse	Space Heat	59%	16%	2.3	1.7
Warehouse	Water Heat	88%	52%	0.3	0.3

Table C.1.9. Idaho Commercial Saturations, Fuel Shares, and EUIs

Segment	End Use	Saturation	Electric Fuel Share	Weighted Average EUI - Existing	Weighted Average EUI - New
Grocery	Computers	100%	100%	0.2	0.2
Grocery	Cooking	59%	22%	2.2	2.2
Grocery	Cooling Dx Evap	56%	100%	3.4	2.0
Grocery	Cooling Room	1%	100%	4.4	2.7
Grocery	Heat Pump	7%	100%	8.5	4.3
Grocery	Hvac Aux	100%	100%	4.4	4.3
Grocery	Lighting Exterior	100%	100%	1.1	1.1
Grocery	Lighting Interior	100%	100%	7.2	6.3
Grocery	Other Office Equipment	100%	100%	0.1	0.1
Grocery	Other Plug Load	100%	100%	1.0	1.0
Grocery	Refrigeration	72%	100%	22.4	22.4
Grocery	Space Heat	82%	27%	6.0	2.2
Grocery	Water Heat	97%	60%	0.3	0.3
Health	Computers	100%	100%	0.5	0.5
Health	Cooking	18%	5%	0.4	0.4
Health	Cooling Chillers	7%	100%	1.3	0.6
Health	Cooling Dx Evap	63%	100%	1.5	0.8
Health	Cooling Room	1%	100%	2.0	1.1
Health	Heat Pump	11%	100%	7.6	4.9
Health	Hvac Aux	100%	100%	6.4	5.5
Health	Lighting Exterior	100%	100%	0.6	0.6
Health	Lighting Interior	100%	100%	6.7	4.2
Health	Other Office Equipment	100%	100%	0.6	0.6
Health	Other Plug Load	100%	100%	2.5	2.5
Health	Refrigeration	24%	100%	0.7	0.7
Health	Space Heat	87%	21%	9.3	6.6
Health	Water Heat	93%	34%	1.7	1.7
Large Office	Computers	100%	100%	0.5	0.5
Large Office	Cooling Chillers	20%	100%	1.1	0.7
Large Office	Cooling Dx Evap	16%	100%	1.8	1.2
Large Office	Heat Pump	8%	100%	6.5	3.3
Large Office	Hvac Aux	100%	100%	3.2	2.8
Large Office	Lighting Exterior	100%	100%	0.5	0.5
Large Office	Lighting Interior	100%	100%	5.9	3.6
Large Office	Other Office Equipment	100%	100%	0.4	0.4
Large Office	Other Plug Load	100%	100%	0.7	0.7
Large Office	Space Heat	84%	20%	7.6	3.4
Large Office	Water Heat	83%	30%	0.5	0.5
Large Retail	Computers	100%	100%	0.0	0.0
Large Retail	Cooling Dx Evap	33%	100%	2.1	1.5
Large Retail	Cooling Room	0%	100%	2.7	2.0
Large Retail	Heat Pump	7%	100%	6.2	3.7
Large Retail	Hvac Aux	100%	100%	2.8	2.2

Segment	End Use	Saturation	Electric Fuel Share	Weighted Average EUI - Existing	Weighted Average EUI - New
Large Retail	Lighting Exterior	100%	100%	1.1	1.1
Large Retail	Lighting Interior	100%	100%	8.2	6.3
Large Retail	Other Office Equipment	100%	100%	0.0	0.0
Large Retail	Other Plug Load	100%	100%	0.8	0.8
Large Retail	Space Heat	55%	14%	5.5	2.8
Large Retail	Water Heat	87%	42%	0.3	0.3
Lodging	Computers	100%	100%	0.1	0.1
Lodging	Cooking	62%	1%	0.7	0.7
Lodging	Cooling Chillers	5%	100%	1.9	1.0
Lodging	Cooling Dx Evap	21%	100%	2.2	1.3
Lodging	Cooling Room	20%	100%	2.9	1.7
Lodging	Heat Pump	13%	100%	8.6	5.6
Lodging	Hvac Aux	100%	100%	3.3	3.3
Lodging	Lighting Exterior	100%	100%	0.7	0.7
Lodging	Lighting Interior	100%	100%	4.0	3.2
Lodging	Other Office Equipment	100%	100%	0.1	0.1
Lodging	Other Plug Load	100%	100%	1.1	1.1
Lodging	Space Heat	84%	43%	7.5	5.2
Lodging	Water Heat	96%	34%	1.8	1.8
Miscellaneous	Computers	100%	100%	0.3	0.3
Miscellaneous	Cooking	17%	1%	0.3	0.3
Miscellaneous	Cooling Chillers	0%	100%	1.6	0.9
Miscellaneous	Cooling Dx Evap	21%	100%	1.8	1.2
Miscellaneous	Cooling Room	0%	100%	2.4	1.6
Miscellaneous	Heat Pump	1%	100%	6.5	3.5
Miscellaneous	Hvac Aux	100%	100%	2.5	2.1
Miscellaneous	Lighting Exterior	100%	100%	1.2	1.2
Miscellaneous	Lighting Interior	100%	100%	7.0	5.0
Miscellaneous	Other Office Equipment	100%	100%	0.2	0.2
Miscellaneous	Other Plug Load	100%	100%	1.1	1.1
Miscellaneous	Refrigeration	6%	100%	1.0	1.0
Miscellaneous	Space Heat	81%	10%	6.6	3.1
Miscellaneous	Water Heat	81%	58%	0.4	0.4
Restaurant	Computers	100%	100%	0.1	0.1
Restaurant	Cooking	80%	25%	10.4	10.4
Restaurant	Cooling Dx Evap	81%	100%	3.3	1.9
Restaurant	Cooling Room	0%	100%	4.8	2.9
Restaurant	Heat Pump	0%	100%	8.0	3.9
Restaurant	Hvac Aux	100%	100%	4.2	3.9
Restaurant	Lighting Exterior	100%	100%	2.4	2.4
Restaurant	Lighting Interior	100%	100%	7.4	5.1
Restaurant	Other Office Equipment	100%	100%	0.3	0.3
Restaurant	Other Plug Load	100%	100%	1.4	1.4
Restaurant	Refrigeration	70%	100%	9.9	9.9

Segment	End Use	Saturation	Electric Fuel Share	Weighted Average EUI - Existing	Weighted Average EUI - New
Restaurant	Space Heat	94%	10%	4.4	1.7
Restaurant	Water Heat	89%	29%	8.6	8.2
School	Computers	100%	100%	0.4	0.4
School	Cooking	54%	28%	0.4	0.4
School	Cooling Chillers	6%	100%	0.3	0.2
School	Cooling Dx Evap	30%	100%	0.4	0.3
School	Cooling Room	4%	100%	0.5	0.4
School	Heat Pump	5%	100%	2.0	2.0
School	Hvac Aux	100%	100%	2.1	1.7
School	Lighting Exterior	100%	100%	0.8	0.8
School	Lighting Interior	100%	100%	6.5	4.2
School	Other Office Equipment	100%	100%	0.3	0.3
School	Other Plug Load	100%	100%	0.3	0.3
School	Refrigeration	42%	100%	0.5	0.5
School	Space Heat	92%	13%	17.0	10.2
School	Water Heat	93%	41%	1.6	1.6
Small Office	Computers	100%	100%	0.8	0.8
Small Office	Cooling Dx Evap	65%	100%	1.8	1.1
Small Office	Cooling Room	1%	100%	2.2	1.5
Small Office	Heat Pump	3%	100%	6.5	3.3
Small Office	Hvac Aux	100%	100%	2.3	2.0
Small Office	Lighting Exterior	100%	100%	1.3	1.3
Small Office	Lighting Interior	100%	100%	5.9	3.6
Small Office	Other Office Equipment	100%	100%	0.8	0.8
Small Office	Other Plug Load	100%	100%	1.0	1.0
Small Office	Space Heat	92%	28%	7.6	3.4
Small Office	Water Heat	87%	44%	0.5	0.5
Small Retail	Computers	100%	100%	0.2	0.2
Small Retail	Cooling Dx Evap	27%	100%	2.0	1.4
Small Retail	Cooling Room	5%	100%	2.6	1.8
Small Retail	Heat Pump	0%	100%	6.1	3.5
Small Retail	Hvac Aux	100%	100%	2.8	2.2
Small Retail	Lighting Exterior	100%	100%	1.1	1.1
Small Retail	Lighting Interior	100%	100%	8.2	6.3
Small Retail	Other Office Equipment	100%	100%	0.2	0.2
Small Retail	Other Plug Load	100%	100%	0.8	0.8
Small Retail	Space Heat	80%	24%	5.5	2.8
Small Retail	Water Heat	63%	43%	0.3	0.3
Warehouse	Computers	100%	100%	0.1	0.1
Warehouse	Cooling Chillers	4%	100%	0.4	0.3
Warehouse	Cooling Dx Evap	24%	100%	0.5	0.3
Warehouse	Cooling Room	2%	100%	0.7	0.5
Warehouse	Heat Pump	4%	100%	2.6	2.2
Warehouse	Hvac Aux	100%	100%	1.0	0.7
Warehouse	Lighting Exterior	100%	100%	0.3	0.3

Segment	End Use	Saturation	Electric Fuel Share	Weighted Average EUI - Existing	Weighted Average EUI - New
Warehouse	Lighting Interior	100%	100%	4.5	3.1
Warehouse	Other Office Equipment	100%	100%	0.0	0.0
Warehouse	Other Plug Load	100%	100%	0.4	0.4
Warehouse	Refrigeration	26%	100%	13.4	13.4
Warehouse	Space Heat	59%	16%	4.1	3.2
Warehouse	Water Heat	88%	52%	0.2	0.2

Table C.1.10. Utah Commercial Saturations, Fuel Shares, and EUIs

Segment	End Use	Saturation	Electric Fuel Share	Weighted Average EUI - Existing	Weighted Average EUI - New
Grocery	Computers	100%	100%	0.0	0.0
Grocery	Cooking	56%	21%	2.2	2.2
Grocery	Cooling Dx Evap	73%	100%	4.4	2.8
Grocery	Cooling Room	0%	100%	5.7	3.8
Grocery	Heat Pump	5%	100%	8.0	4.6
Grocery	Hvac Aux	100%	100%	4.0	3.9
Grocery	Lighting Exterior	100%	100%	1.1	1.1
Grocery	Lighting Interior	100%	100%	7.2	6.3
Grocery	Other Office Equipment	100%	100%	0.1	0.1
Grocery	Other Plug Load	100%	100%	1.0	1.0
Grocery	Refrigeration	72%	100%	22.4	22.4
Grocery	Space Heat	83%	24%	4.1	1.5
Grocery	Water Heat	100%	27%	0.3	0.3
Health	Computers	100%	100%	0.4	0.4
Health	Cooking	26%	5%	0.4	0.4
Health	Cooling Chillers	13%	100%	1.9	1.0
Health	Cooling Dx Evap	75%	100%	2.6	1.4
Health	Cooling Room	0%	100%	2.8	1.6
Health	Heat Pump	4%	100%	5.8	3.8
Health	Hvac Aux	100%	100%	6.1	5.3
Health	Lighting Exterior	100%	100%	0.6	0.6
Health	Lighting Interior	100%	100%	6.7	4.2
Health	Other Office Equipment	100%	100%	0.6	0.6
Health	Other Plug Load	100%	100%	2.5	2.5
Health	Refrigeration	30%	100%	0.7	0.7
Health	Space Heat	91%	20%	5.4	4.2
Health	Water Heat	95%	11%	1.3	1.3
Large Office	Computers	100%	100%	0.5	0.5
Large Office	Cooling Chillers	20%	100%	2.4	1.5
Large Office	Cooling Dx Evap	16%	100%	3.0	2.0
Large Office	Heat Pump	8%	100%	5.2	2.7
Large Office	Hvac Aux	100%	100%	3.2	2.9
Large Office	Lighting Exterior	100%	100%	0.5	0.5
Large Office	Lighting Interior	100%	100%	5.9	3.6
Large Office	Other Office Equipment	100%	100%	0.4	0.4
Large Office	Other Plug Load	100%	100%	0.7	0.7
Large Office	Space Heat	84%	20%	2.6	0.8
Large Office	Water Heat	83%	30%	0.4	0.4
Large Retail	Computers	100%	100%	0.0	0.0
Large Retail	Cooling Dx Evap	33%	100%	3.1	2.3
Large Retail	Cooling Room	0%	100%	3.9	2.9
Large Retail	Heat Pump	7%	100%	6.2	3.9
Large Retail	Hvac Aux	100%	100%	2.9	2.3

Segment	End Use	Saturation	Electric Fuel Share	Weighted Average EUI - Existing	Weighted Average EUI - New
Large Retail	Lighting Exterior	100%	100%	1.1	1.1
Large Retail	Lighting Interior	100%	100%	8.2	6.3
Large Retail	Other Office Equipment	100%	100%	0.0	0.0
Large Retail	Other Plug Load	100%	100%	0.8	0.8
Large Retail	Space Heat	55%	14%	3.2	1.5
Large Retail	Water Heat	87%	42%	0.3	0.3
Lodging	Computers	100%	100%	0.0	0.0
Lodging	Cooking	60%	3%	0.7	0.7
Lodging	Cooling Chillers	15%	100%	1.9	1.1
Lodging	Cooling Dx Evap	29%	100%	2.2	1.4
Lodging	Cooling Room	22%	100%	2.7	1.7
Lodging	Heat Pump	15%	100%	4.9	3.0
Lodging	Hvac Aux	100%	100%	2.6	2.6
Lodging	Lighting Exterior	100%	100%	0.7	0.7
Lodging	Lighting Interior	100%	100%	4.0	3.2
Lodging	Other Office Equipment	100%	100%	0.0	0.0
Lodging	Other Plug Load	100%	100%	1.1	1.1
Lodging	Space Heat	78%	38%	3.8	2.2
Lodging	Water Heat	95%	17%	1.7	1.6
Miscellaneous	Computers	100%	100%	0.1	0.1
Miscellaneous	Cooking	31%	1%	0.3	0.3
Miscellaneous	Cooling Chillers	1%	100%	2.4	1.4
Miscellaneous	Cooling Dx Evap	38%	100%	2.9	1.9
Miscellaneous	Cooling Room	0%	100%	3.6	2.5
Miscellaneous	Heat Pump	2%	100%	5.7	3.1
Miscellaneous	Hvac Aux	100%	100%	2.6	2.1
Miscellaneous	Lighting Exterior	100%	100%	1.2	1.2
Miscellaneous	Lighting Interior	100%	100%	7.0	4.9
Miscellaneous	Other Office Equipment	100%	100%	0.1	0.1
Miscellaneous	Other Plug Load	100%	100%	1.1	1.1
Miscellaneous	Refrigeration	11%	100%	1.0	1.0
Miscellaneous	Space Heat	72%	23%	2.9	1.1
Miscellaneous	Water Heat	76%	26%	0.3	0.3
Restaurant	Computers	100%	100%	0.1	0.1
Restaurant	Cooking	81%	6%	10.4	10.4
Restaurant	Cooling Dx Evap	70%	100%	5.5	3.1
Restaurant	Cooling Room	0%	100%	6.5	3.9
Restaurant	Heat Pump	0%	100%	8.8	4.9
Restaurant	Hvac Aux	100%	100%	4.2	4.1
Restaurant	Lighting Exterior	100%	100%	2.4	2.4
Restaurant	Lighting Interior	100%	100%	7.4	5.1
Restaurant	Other Office Equipment	100%	100%	0.2	0.2
Restaurant	Other Plug Load	100%	100%	1.4	1.4
Restaurant	Refrigeration	77%	100%	9.9	9.9

Segment	End Use	Saturation	Electric Fuel Share	Weighted Average EUI - Existing	Weighted Average EUI - New
Restaurant	Space Heat	93%	29%	3.7	1.8
Restaurant	Water Heat	92%	17%	8.3	8.0
School	Computers	100%	100%	0.3	0.3
School	Cooking	60%	23%	0.4	0.4
School	Cooling Chillers	23%	100%	0.6	0.4
School	Cooling Dx Evap	40%	100%	0.8	0.6
School	Cooling Room	0%	100%	1.0	0.7
School	Heat Pump	0%	100%	2.0	1.8
School	Hvac Aux	100%	100%	1.9	1.5
School	Lighting Exterior	100%	100%	0.8	0.8
School	Lighting Interior	100%	100%	5.8	4.2
School	Other Office Equipment	100%	100%	0.2	0.2
School	Other Plug Load	100%	100%	0.3	0.3
School	Refrigeration	35%	100%	0.5	0.5
School	Space Heat	97%	0%	10.9	6.4
School	Water Heat	90%	18%	1.4	1.4
Small Office	Computers	100%	100%	1.1	1.1
Small Office	Cooling Dx Evap	69%	100%	3.3	2.0
Small Office	Cooling Room	0%	100%	3.5	2.3
Small Office	Heat Pump	0%	100%	5.0	2.5
Small Office	Hvac Aux	100%	100%	2.2	2.0
Small Office	Lighting Exterior	100%	100%	1.3	1.3
Small Office	Lighting Interior	100%	100%	5.9	3.6
Small Office	Other Office Equipment	100%	100%	1.1	1.1
Small Office	Other Plug Load	100%	100%	1.0	1.0
Small Office	Space Heat	93%	26%	2.6	0.8
Small Office	Water Heat	91%	19%	0.4	0.4
Small Retail	Computers	100%	100%	0.3	0.3
Small Retail	Cooling Dx Evap	52%	100%	2.3	1.6
Small Retail	Cooling Room	4%	100%	3.7	2.6
Small Retail	Heat Pump	0%	100%	6.0	3.5
Small Retail	Hvac Aux	100%	100%	2.9	2.3
Small Retail	Lighting Exterior	100%	100%	1.1	1.1
Small Retail	Lighting Interior	100%	100%	8.2	6.3
Small Retail	Other Office Equipment	100%	100%	0.3	0.3
Small Retail	Other Plug Load	100%	100%	0.8	0.8
Small Retail	Space Heat	84%	9%	3.2	1.5
Small Retail	Water Heat	61%	41%	0.3	0.3
Warehouse	Computers	100%	100%	0.1	0.1
Warehouse	Cooling Chillers	4%	100%	0.7	0.4
Warehouse	Cooling Dx Evap	24%	100%	0.9	0.6
Warehouse	Cooling Room	2%	100%	1.1	0.8
Warehouse	Heat Pump	4%	100%	2.2	1.8
Warehouse	Hvac Aux	100%	100%	0.8	0.7
Warehouse	Lighting Exterior	100%	100%	0.3	0.3

Segment	End Use	Saturation	Electric Fuel Share	Weighted Average EUI - Existing	Weighted Average EUI - New
Warehouse	Lighting Interior	100%	100%	4.5	3.1
Warehouse	Other Office Equipment	100%	100%	0.0	0.0
Warehouse	Other Plug Load	100%	100%	0.4	0.4
Warehouse	Refrigeration	26%	100%	13.4	13.4
Warehouse	Space Heat	59%	16%	2.2	1.7
Warehouse	Water Heat	88%	52%	0.2	0.2

Table C.1.11. Washington Commercial Saturations, Fuel Shares, and EUIs

Segment	End Use	Saturation	Electric Fuel Share	Weighted Average EUI - Existing	Weighted Average EUI - New
Grocery	Computers	100%	100%	0.2	0.2
Grocery	Cooking	59%	22%	2.2	2.2
Grocery	Cooling Dx Evap	56%	100%	4.1	2.4
Grocery	Cooling Room	1%	100%	4.6	2.8
Grocery	Heat Pump	7%	100%	7.2	3.8
Grocery	Hvac Aux	100%	100%	4.0	3.9
Grocery	Lighting Exterior	100%	100%	1.1	1.1
Grocery	Lighting Interior	100%	100%	7.2	6.3
Grocery	Other Office Equipment	100%	100%	0.1	0.1
Grocery	Other Plug Load	100%	100%	1.0	1.0
Grocery	Refrigeration	72%	100%	22.4	22.4
Grocery	Space Heat	82%	27%	4.5	2.7
Grocery	Water Heat	97%	60%	0.3	0.3
Health	Computers	100%	100%	1.0	1.0
Health	Cooking	29%	12%	0.4	0.4
Health	Cooling Chillers	6%	100%	1.7	0.8
Health	Cooling Dx Evap	76%	100%	2.2	1.0
Health	Cooling Room	0%	100%	2.4	1.2
Health	Heat Pump	6%	100%	5.4	3.0
Health	Hvac Aux	100%	100%	6.0	5.0
Health	Lighting Exterior	100%	100%	0.6	0.6
Health	Lighting Interior	100%	100%	6.7	4.2
Health	Other Office Equipment	100%	100%	0.9	0.9
Health	Other Plug Load	100%	100%	2.5	2.5
Health	Refrigeration	35%	100%	0.7	0.7
Health	Space Heat	94%	19%	5.4	3.4
Health	Water Heat	82%	50%	1.4	1.4
Large Office	Computers	100%	100%	0.5	0.5
Large Office	Cooling Chillers	20%	100%	1.7	1.0
Large Office	Cooling Dx Evap	16%	100%	2.3	1.5
Large Office	Heat Pump	8%	100%	4.9	2.6
Large Office	Hvac Aux	100%	100%	3.2	2.8
Large Office	Lighting Exterior	100%	100%	0.5	0.5
Large Office	Lighting Interior	100%	100%	5.9	3.6
Large Office	Other Office Equipment	100%	100%	0.4	0.4
Large Office	Other Plug Load	100%	100%	0.7	0.7
Large Office	Space Heat	84%	20%	5.1	2.5
Large Office	Water Heat	83%	30%	0.5	0.4
Large Retail	Computers	100%	100%	0.0	0.0
Large Retail	Cooling Dx Evap	33%	100%	2.8	1.9
Large Retail	Cooling Room	0%	100%	3.1	2.3
Large Retail	Heat Pump	7%	100%	5.0	3.2
Large Retail	Hvac Aux	100%	100%	3.0	2.4

Segment	End Use	Saturation	Electric Fuel Share	Weighted Average EUI - Existing	Weighted Average EUI - New
Large Retail	Lighting Exterior	100%	100%	1.1	1.1
Large Retail	Lighting Interior	100%	100%	8.2	6.3
Large Retail	Other Office Equipment	100%	100%	0.0	0.0
Large Retail	Other Plug Load	100%	100%	0.8	0.8
Large Retail	Space Heat	55%	14%	3.6	2.0
Large Retail	Water Heat	87%	42%	0.3	0.3
Lodging	Computers	100%	100%	0.1	0.1
Lodging	Cooking	62%	1%	0.7	0.7
Lodging	Cooling Chillers	5%	100%	1.7	1.1
Lodging	Cooling Dx Evap	21%	100%	2.2	1.4
Lodging	Cooling Room	20%	100%	2.5	1.6
Lodging	Heat Pump	13%	100%	5.9	3.4
Lodging	Hvac Aux	100%	100%	2.5	2.5
Lodging	Lighting Exterior	100%	100%	0.7	0.7
Lodging	Lighting Interior	100%	100%	4.0	3.6
Lodging	Other Office Equipment	100%	100%	0.1	0.1
Lodging	Other Plug Load	100%	100%	1.1	1.1
Lodging	Space Heat	84%	43%	6.2	3.5
Lodging	Water Heat	96%	34%	1.7	1.7
Miscellaneous	Computers	100%	100%	0.2	0.2
Miscellaneous	Cooking	24%	2%	0.3	0.3
Miscellaneous	Cooling Chillers	2%	100%	1.8	1.1
Miscellaneous	Cooling Dx Evap	23%	100%	2.4	1.6
Miscellaneous	Cooling Room	2%	100%	2.7	1.8
Miscellaneous	Heat Pump	5%	100%	5.1	2.9
Miscellaneous	Hvac Aux	100%	100%	2.5	2.1
Miscellaneous	Lighting Exterior	100%	100%	1.2	1.2
Miscellaneous	Lighting Interior	100%	100%	7.0	4.9
Miscellaneous	Other Office Equipment	100%	100%	0.2	0.2
Miscellaneous	Other Plug Load	100%	100%	1.1	1.1
Miscellaneous	Refrigeration	14%	100%	1.0	1.0
Miscellaneous	Space Heat	84%	43%	4.4	2.2
Miscellaneous	Water Heat	82%	81%	0.4	0.4
Restaurant	Computers	100%	100%	0.1	0.1
Restaurant	Cooking	72%	14%	10.4	10.4
Restaurant	Cooling Dx Evap	72%	100%	4.3	2.5
Restaurant	Cooling Room	3%	100%	5.0	3.0
Restaurant	Heat Pump	3%	100%	7.4	4.3
Restaurant	Hvac Aux	100%	100%	4.3	4.1
Restaurant	Lighting Exterior	100%	100%	2.4	2.4
Restaurant	Lighting Interior	100%	100%	7.4	4.3
Restaurant	Other Office Equipment	100%	100%	0.2	0.2
Restaurant	Other Plug Load	100%	100%	1.4	1.4
Restaurant	Refrigeration	79%	100%	9.9	9.9

Segment	End Use	Saturation	Electric Fuel Share	Weighted Average EUI - Existing	Weighted Average EUI - New
Restaurant	Space Heat	86%	54%	4.2	2.0
Restaurant	Water Heat	93%	50%	8.6	8.2
School	Computers	100%	100%	0.5	0.5
School	Cooking	54%	28%	0.4	0.4
School	Cooling Chillers	6%	100%	0.4	0.3
School	Cooling Dx Evap	30%	100%	0.6	0.5
School	Cooling Room	4%	100%	0.7	0.6
School	Heat Pump	5%	100%	5.6	2.6
School	Hvac Aux	100%	100%	1.6	1.2
School	Lighting Exterior	100%	100%	0.8	0.8
School	Lighting Interior	100%	100%	5.8	4.7
School	Other Office Equipment	100%	100%	0.3	0.3
School	Other Plug Load	100%	100%	0.3	0.3
School	Refrigeration	42%	100%	0.5	0.5
School	Space Heat	92%	13%	8.5	3.7
School	Water Heat	93%	41%	1.4	1.4
Small Office	Computers	100%	100%	1.1	1.1
Small Office	Cooling Dx Evap	61%	100%	2.2	1.4
Small Office	Cooling Room	5%	100%	2.4	1.6
Small Office	Heat Pump	11%	100%	4.8	2.5
Small Office	Hvac Aux	100%	100%	2.1	1.8
Small Office	Lighting Exterior	100%	100%	1.3	1.3
Small Office	Lighting Interior	100%	100%	5.9	3.6
Small Office	Other Office Equipment	100%	100%	0.9	0.9
Small Office	Other Plug Load	100%	100%	1.0	1.0
Small Office	Space Heat	80%	30%	5.1	2.5
Small Office	Water Heat	92%	74%	0.5	0.4
Small Retail	Computers	100%	100%	0.3	0.3
Small Retail	Cooling Dx Evap	27%	100%	2.3	1.5
Small Retail	Cooling Room	4%	100%	3.0	2.1
Small Retail	Heat Pump	2%	100%	4.9	3.1
Small Retail	Hvac Aux	100%	100%	3.0	2.4
Small Retail	Lighting Exterior	100%	100%	1.1	1.1
Small Retail	Lighting Interior	100%	100%	8.2	6.3
Small Retail	Other Office Equipment	100%	100%	0.3	0.3
Small Retail	Other Plug Load	100%	100%	0.8	0.8
Small Retail	Space Heat	73%	32%	3.6	2.0
Small Retail	Water Heat	78%	87%	0.3	0.3
Warehouse	Computers	100%	100%	0.1	0.1
Warehouse	Cooling Chillers	4%	100%	0.3	0.2
Warehouse	Cooling Dx Evap	24%	100%	0.4	0.3
Warehouse	Cooling Room	2%	100%	0.5	0.4
Warehouse	Heat Pump	4%	100%	1.1	0.9
Warehouse	Hvac Aux	100%	100%	0.5	0.5
Warehouse	Lighting Exterior	100%	100%	0.3	0.3

Segment	End Use	Saturation	Electric Fuel Share	Weighted Average EUI - Existing	Weighted Average EUI - New
Warehouse	Lighting Interior	100%	100%	2.8	1.9
Warehouse	Other Office Equipment	100%	100%	0.0	0.0
Warehouse	Other Plug Load	100%	100%	0.4	0.4
Warehouse	Refrigeration	26%	100%	13.4	13.4
Warehouse	Space Heat	59%	16%	2.1	1.8
Warehouse	Water Heat	88%	52%	0.2	0.2
Warehouse Ca	Lighting Exterior	100%	100%	0.4	0.4
Warehouse Ca	Lighting Interior	100%	100%	2.8	1.9
Warehouse Ca	Other Plug Load	100%	100%	0.0	0.0
Warehouse Ca	Refrigeration	26%	100%	92.2	92.2

Table C.1.12. Wyoming Commercial Saturations, Fuel Shares, and EUIs

Segment	End Use	Saturation	Electric Fuel Share	Weighted Average EUI - Existing	Weighted Average EUI - New
Grocery	Computers	100%	100%	0.2	0.2
Grocery	Cooking	59%	22%	2.2	2.2
Grocery	Cooling Dx Evap	56%	100%	3.4	1.8
Grocery	Cooling Room	1%	100%	4.2	2.4
Grocery	Heat Pump	7%	100%	8.5	4.3
Grocery	Hvac Aux	100%	100%	4.2	4.4
Grocery	Lighting Exterior	100%	100%	1.1	1.1
Grocery	Lighting Interior	100%	100%	7.2	6.3
Grocery	Other Office Equipment	100%	100%	0.1	0.1
Grocery	Other Plug Load	100%	100%	1.0	1.0
Grocery	Refrigeration	72%	100%	22.4	22.4
Grocery	Space Heat	82%	27%	5.9	2.6
Grocery	Water Heat	97%	60%	0.4	0.4
Health	Computers	100%	100%	0.4	0.4
Health	Cooking	10%	2%	0.4	0.4
Health	Cooling Chillers	6%	100%	1.1	0.6
Health	Cooling Dx Evap	63%	100%	1.4	0.7
Health	Cooling Room	0%	100%	1.6	0.9
Health	Heat Pump	9%	100%	9.4	6.0
Health	Hvac Aux	100%	100%	6.8	5.7
Health	Lighting Exterior	100%	100%	0.6	0.6
Health	Lighting Interior	100%	100%	6.7	4.2
Health	Other Office Equipment	100%	100%	0.4	0.4
Health	Other Plug Load	100%	100%	2.5	2.5
Health	Refrigeration	20%	100%	0.7	0.7
Health	Space Heat	89%	12%	12.4	8.4
Health	Water Heat	97%	30%	2.1	2.1
Large Office	Computers	100%	100%	0.5	0.5
Large Office	Cooling Chillers	20%	100%	1.2	0.7
Large Office	Cooling Dx Evap	16%	100%	1.5	1.0
Large Office	Heat Pump	8%	100%	7.5	3.5
Large Office	Hvac Aux	100%	100%	3.2	2.8
Large Office	Lighting Exterior	100%	100%	0.5	0.5
Large Office	Lighting Interior	100%	100%	5.9	3.6
Large Office	Other Office Equipment	100%	100%	0.4	0.4
Large Office	Other Plug Load	100%	100%	0.7	0.7
Large Office	Space Heat	84%	20%	9.1	4.0
Large Office	Water Heat	83%	30%	0.5	0.5
Large Retail	Computers	100%	100%	0.0	0.0
Large Retail	Cooling Dx Evap	33%	100%	1.6	1.2
Large Retail	Cooling Room	0%	100%	2.0	1.5
Large Retail	Heat Pump	7%	100%	6.1	3.5
Large Retail	Hvac Aux	100%	100%	2.3	1.9

Segment	End Use	Saturation	Electric Fuel Share	Weighted Average EUI - Existing	Weighted Average EUI - New
Large Retail	Lighting Exterior	100%	100%	1.1	1.1
Large Retail	Lighting Interior	100%	100%	8.2	6.3
Large Retail	Other Office Equipment	100%	100%	0.0	0.0
Large Retail	Other Plug Load	100%	100%	0.8	0.8
Large Retail	Space Heat	55%	14%	6.1	3.3
Large Retail	Water Heat	87%	42%	0.2	0.2
Lodging	Computers	100%	100%	0.2	0.2
Lodging	Cooking	74%	0%	0.7	0.7
Lodging	Cooling Chillers	3%	100%	1.3	0.7
Lodging	Cooling Dx Evap	21%	100%	1.6	0.8
Lodging	Cooling Room	27%	100%	1.9	1.1
Lodging	Heat Pump	3%	100%	6.9	4.4
Lodging	Hvac Aux	100%	100%	2.6	2.6
Lodging	Lighting Exterior	100%	100%	0.7	0.7
Lodging	Lighting Interior	100%	100%	4.0	3.2
Lodging	Other Office Equipment	100%	100%	0.2	0.2
Lodging	Other Plug Load	100%	100%	1.1	1.1
Lodging	Space Heat	96%	28%	7.7	5.7
Lodging	Water Heat	94%	19%	1.9	1.8
Miscellaneous	Computers	100%	100%	0.2	0.2
Miscellaneous	Cooking	20%	2%	0.3	0.3
Miscellaneous	Cooling Chillers	1%	100%	1.2	0.7
Miscellaneous	Cooling Dx Evap	25%	100%	1.4	0.9
Miscellaneous	Cooling Room	1%	100%	1.8	1.3
Miscellaneous	Heat Pump	0%	100%	7.0	3.5
Miscellaneous	Hvac Aux	100%	100%	2.3	1.9
Miscellaneous	Lighting Exterior	100%	100%	1.2	1.2
Miscellaneous	Lighting Interior	100%	100%	7.0	5.0
Miscellaneous	Other Office Equipment	100%	100%	0.2	0.2
Miscellaneous	Other Plug Load	100%	100%	1.1	1.1
Miscellaneous	Refrigeration	9%	100%	1.0	1.0
Miscellaneous	Space Heat	90%	19%	7.6	3.6
Miscellaneous	Water Heat	75%	26%	0.4	0.4
Restaurant	Computers	100%	100%	0.1	0.1
Restaurant	Cooking	88%	20%	10.4	10.4
Restaurant	Cooling Dx Evap	76%	100%	3.7	2.1
Restaurant	Cooling Room	0%	100%	4.2	2.5
Restaurant	Heat Pump	0%	100%	7.7	4.0
Restaurant	Hvac Aux	100%	100%	4.0	4.0
Restaurant	Lighting Exterior	100%	100%	2.4	2.4
Restaurant	Lighting Interior	100%	100%	7.3	5.1
Restaurant	Other Office Equipment	100%	100%	0.3	0.3
Restaurant	Other Plug Load	100%	100%	1.4	1.4
Restaurant	Refrigeration	84%	100%	9.9	9.9

Segment	End Use	Saturation	Electric Fuel Share	Weighted Average EUI - Existing	Weighted Average EUI - New
Restaurant	Space Heat	97%	16%	4.7	2.2
Restaurant	Water Heat	92%	9%	9.3	8.9
School	Computers	100%	100%	0.4	0.4
School	Cooking	54%	28%	0.4	0.4
School	Cooling Chillers	6%	100%	0.2	0.2
School	Cooling Dx Evap	30%	100%	0.3	0.2
School	Cooling Room	4%	100%	0.3	0.3
School	Heat Pump	5%	100%	1.8	1.9
School	Hvac Aux	100%	100%	2.2	1.7
School	Lighting Exterior	100%	100%	0.8	0.8
School	Lighting Interior	100%	100%	6.1	4.2
School	Other Office Equipment	100%	100%	0.3	0.3
School	Other Plug Load	100%	100%	0.3	0.3
School	Refrigeration	42%	100%	0.5	0.5
School	Space Heat	92%	13%	19.6	11.6
School	Water Heat	93%	41%	1.6	1.6
Small Office	Computers	100%	100%	0.7	0.7
Small Office	Cooling Dx Evap	58%	100%	1.6	1.0
Small Office	Cooling Room	3%	100%	1.8	1.1
Small Office	Heat Pump	2%	100%	7.4	3.4
Small Office	Hvac Aux	100%	100%	2.2	1.9
Small Office	Lighting Exterior	100%	100%	1.3	1.3
Small Office	Lighting Interior	100%	100%	5.9	3.6
Small Office	Other Office Equipment	100%	100%	0.7	0.7
Small Office	Other Plug Load	100%	100%	1.0	1.0
Small Office	Space Heat	96%	23%	9.1	4.0
Small Office	Water Heat	82%	38%	0.5	0.5
Small Retail	Computers	100%	100%	0.2	0.2
Small Retail	Cooling Dx Evap	34%	100%	1.4	1.0
Small Retail	Cooling Room	2%	100%	1.9	1.4
Small Retail	Heat Pump	0%	100%	6.0	3.4
Small Retail	Hvac Aux	100%	100%	2.3	1.9
Small Retail	Lighting Exterior	100%	100%	1.1	1.1
Small Retail	Lighting Interior	100%	100%	8.2	6.3
Small Retail	Other Office Equipment	100%	100%	0.2	0.2
Small Retail	Other Plug Load	100%	100%	0.8	0.8
Small Retail	Space Heat	91%	17%	6.1	3.3
Small Retail	Water Heat	77%	34%	0.2	0.2
Warehouse	Computers	100%	100%	0.1	0.1
Warehouse	Cooling Chillers	4%	100%	0.4	0.2
Warehouse	Cooling Dx Evap	24%	100%	0.5	0.3
Warehouse	Cooling Room	2%	100%	0.6	0.4
Warehouse	Heat Pump	4%	100%	3.6	2.8
Warehouse	Hvac Aux	100%	100%	1.5	1.0
Warehouse	Lighting Exterior	100%	100%	0.3	0.3

Segment	End Use	Saturation	Electric Fuel Share	Weighted Average EUI - Existing	Weighted Average EUI - New
Warehouse	Lighting Interior	100%	100%	4.5	3.1
Warehouse	Other Office Equipment	100%	100%	0.0	0.0
Warehouse	Other Plug Load	100%	100%	0.4	0.4
Warehouse	Refrigeration	26%	100%	13.4	13.4
Warehouse	Space Heat	59%	16%	7.7	5.7
Warehouse	Water Heat	88%	52%	0.3	0.3

Table C.1.13. Industrial End Use Percents by Segment

End Use	Chemical Mfg	Electronic Equipment Mfg	Food Mfg	Industrial Machinery	Irrigation	Lumber Wood Products	Mining: Utah	Mining: Wyoming	Miscellaneous Mfg	Paper Mfg	Petroleum Refining	Primary Metal Mfg	Stone Clay Glass Products	Transportation Equipment Mfg	Wastewater	Water
Fans	7%	4%	4%	7%	0%	10%	0%	0%	6%	16%	11%	5%	8%	5%	0%	10%
Hvac	6%	17%	7%	18%	0%	7%	0%	0%	20%	4%	3%	4%	6%	19%	0%	0%
Indirect Boiler	1%	0%	1%	0%	0%	1%	0%	0%	9%	3%	1%	0%	0%	0%	0%	0%
Lighting	4%	13%	7%	14%	0%	7%	0%	0%	15%	4%	2%	3%	5%	15%	2%	2%
Motors Other	15%	10%	19%	19%	0%	28%	88%	77%	22%	32%	31%	20%	23%	12%	0%	10%
Other	2%	8%	7%	7%	10%	8%	0%	0%	4%	2%	1%	1%	4%	4%	14%	14%
Process Aircomp	16%	10%	4%	8%	0%	11%	0%	0%	5%	4%	13%	5%	9%	12%	66%	0%
Process Cool	9%	4%	25%	3%	0%	1%	0%	0%	6%	1%	6%	1%	3%	5%	0%	0%
Process Electro Chemical	18%	3%	0%	1%	0%	0%	0%	0%	0%	2%	0%	31%	0%	1%	0%	0%
Process Heat	3%	19%	3%	7%	0%	5%	6%	0%	9%	2%	6%	28%	20%	10%	0%	0%
Process Other	0%	1%	0%	1%	0%	0%	5%	22%	0%	0%	0%	0%	1%	1%	0%	0%
Process Refrig	4%	3%	15%	3%	0%	5%	0%	0%	0%	4%	5%	0%	4%	3%	0%	0%
Pumps	15%	9%	8%	12%	90%	18%	1%	1%	3%	25%	20%	3%	15%	11%	18%	64%

Appendix C-2. Technical Supplements: Energy Efficiency Resources, Measure Inputs

Table C.2.1. Residential Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
California	Manufactured	Computer	Computer, Energy Star	Energy Star Computer	Standard Computer	Per installation	Existing	50	5	\$23	100%	N/A	\$0.13	217
California	Manufactured	Computer	Computer, Energy Star	Energy Star Computer	Standard Computer	Per installation	New	50	5	\$23	100%	N/A	\$0.13	11
California	Manufactured	Cooking Oven	Cooking Oven, High Efficiency	High Efficiency Oven	Standard Oven	Per installation	Existing	58	20	\$282	100%	N/A	\$0.55	93
California	Manufactured	Cooking Oven	Cooking Oven, High Efficiency	High Efficiency Oven	Standard Oven	Per installation	New	58	20	\$282	100%	N/A	\$0.55	24
California	Manufactured	Cool Central	Air-to-Air Heat Exchangers	Air-to-Air Heat Exchangers	No Air to Air Heat Exchangers	Per installation	Existing	102	5	\$588	25%	95%	\$1.63	47
California	Manufactured	Cool Central	Canned Lighting Air Tight Sealing	Canned Lighting Air Tight Sealing	No Air tight Sealing	Per installation	Existing	3	30	\$26	95%	50%	\$0.73	14
California	Manufactured	Cool Central	Ceiling Fan	Ceiling Fan (no lighting kit)	No Ceiling Fan	Per installation	Existing	41	10	\$97	85%	35%	\$0.39	47
California	Manufactured	Cool Central	Ceiling Insulation (CA) above code	R-60	R-49	Per installation	Existing	13	25	\$405	40%	95%	\$2.96	6
California	Manufactured	Cool Central	Ceiling Insulation (CA) ave to code	R-49	R-10	Per installation	Existing	211	25	\$1,872	75%	35%	\$0.90	75
California	Manufactured	Cool Central	Ceiling Insulation (CA) zero to code	R-49	R-0	Per installation	Existing	424	25	\$1,872	75%	1%	\$0.45	5
California	Manufactured	Cool Central	Central Cooling, SEER 15	SEER 15	SEER 13	Per installation	Existing	183	15	\$595	100%	N/A	\$0.42	7
California	Manufactured	Cool Central	Central Cooling, SEER 18	SEER 18	SEER 13	Per installation	Existing	458	15	\$1,490	100%	N/A	\$0.42	202
California	Manufactured	Cool Central	Check Me! O&M Tune-up	Tune-up/Maintenance	No Tune-up Maintenance	Per installation	Existing	32	5	\$218	95%	75%	\$1.93	44
California	Manufactured	Cool Central	Cool Roofs	Lighter Colored Shingles (White)	Standard Roof Shingles	Per installation	Existing	15	20	\$336	85%	90%	\$2.44	14
California	Manufactured	Cool Central	Doors	R-11 (Steel Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	Existing	11	20	\$171	95%	80%	\$1.72	10
California	Manufactured	Cool Central	Doors	R-5 (Composite Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	Existing	7	20	\$200	95%	60%	\$3.01	4
California	Manufactured	Cool Central	Doors - Weatherization	Weatherstripping And Adding Door Sweeps	Existing Non-Efficient door	Per installation	Existing	4	6	\$47	95%	50%	\$2.37	5
California	Manufactured	Cool Central	Duct Insulation Upgrade	R-8 (code)	R-4	Per installation	Existing	29	20	\$709	75%	75%	\$2.66	19
California	Manufactured	Cool Central	Duct Sealing	Duct Sealing	No Duct Sealing	Per installation	Existing	102	18	\$630	75%	60%	\$0.72	41
California	Manufactured	Cool Central	Duct Sealing - Aerosol-Based	Spray-in ductwork sealant to minimize duct leaks	No Duct Sealing	Per installation	Existing	153	18	\$872	75%	60%	\$0.67	32
California	Manufactured	Cool Central	Floor Insulation (CA) above code	R-38	R-30	Per installation	Existing	20	25	\$521	25%	85%	\$2.59	5
California	Manufactured	Cool Central	Floor Insulation (CA) zero to code	R-30	R-0	Per installation	Existing	404	25	\$2,000	25%	20%	\$0.51	32
California	Manufactured	Cool Central	Infiltration Control (Caulk, Weather Strip, etc.) Blower-Door test	Install Caulking And Weatherstripping	Existing Infiltration Conditions	Per installation	Existing	102	11	\$506	75%	50%	\$0.77	56
California	Manufactured	Cool Central	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands (5 per unit)	13 SEER	Per installation	Existing	156	30	\$622	50%	95%	\$0.38	12
California	Manufactured	Cool Central	Proper Sizing - HVAC Unit	Proper Sizing - HVAC Unit	Oversized HVAC Unit	Per installation	Existing	96	15	\$20	95%	65%	\$0.03	116
California	Manufactured	Cool Central	Radiant Barrier (Ceiling)	Install Radiant Barrier	No Radiant Barrier	Per installation	Existing	61	25	\$707	25%	90%	\$1.18	17
California	Manufactured	Cool Central	Thermostat - Multi-Zone	Individual Room Temperature Control for Major Occupied Rooms	Programmable Thermostat - Central Control Only	Per installation	Existing	69	11	\$1,094	50%	95%	\$2.45	40
California	Manufactured	Cool Central	Wall Insulation 2'4 (CA) zero to max feasible	R-13	R-0	Per installation	Existing	241	25	\$1,880	85%	25%	\$0.80	53
California	Manufactured	Cool Central	Wall Insulation 2'6 (CA) zero to max feasible	R-21	R-0	Per installation	Existing	411	25	\$2,144	85%	25%	\$0.53	34
California	Manufactured	Cool Central	Whole-House Fan	Whole-House Fan	No Whole-House Fan	Per installation	Existing	153	20	\$1,712	50%	95%	\$1.25	71
California	Manufactured	Cool Central	Windows (Same for all Building Types)	CL25	CL30	Per installation	Existing	1	25	\$372	65%	85%	\$21.89	1
California	Manufactured	Cool Central	Windows (Same for all Building Types)	CL30	Double Pane	Per installation	Existing	18	25	\$3,835	65%	50%	\$21.10	6
California	Manufactured	Cool Central	Windows (Same for all Building Types)	CL30	Single Pane	Per installation	Existing	29	25	\$3,835	65%	15%	\$13.47	3
California	Manufactured	Cool Central	Air-to-Air Heat Exchangers	Air-to-Air Heat Exchangers	No Air to Air Heat Exchangers	Per installation	New	84	5	\$588	25%	95%	\$1.98	8
California	Manufactured	Cool Central	Ceiling Fan	Ceiling Fan (no lighting kit)	No Ceiling Fan	Per installation	New	33	10	\$97	85%	35%	\$0.48	8

Table C.2.1. Residential Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
California	Manufactured	Cool Central	Ceiling Insulation (CA) above code	R-60	R-49	Per installation	New	15	25	\$405	60%	95%	\$2.60	2
California	Manufactured	Cool Central	Central Cooling, SEER 15	SEER 15	SEER 13	Per installation	New	172	15	\$595	100%	N/A	\$0.45	1
California	Manufactured	Cool Central	Central Cooling, SEER 18	SEER 18	SEER 13	Per installation	New	431	15	\$1,490	100%	N/A	\$0.45	42
California	Manufactured	Cool Central	Check Me! O&M Tune-up	Tune-up/Maintenance	No Tune-up Maintenance	Per installation	New	26	5	\$218	95%	75%	\$2.35	8
California	Manufactured	Cool Central	Cool Roofs	Lighter Colored Shingles (White)	Standard Roof Shingles	Per installation	New	12	20	\$336	85%	90%	\$2.98	2
California	Manufactured	Cool Central	Doors	R-11 (Steel Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	New	9	20	\$25	95%	80%	\$0.31	2
California	Manufactured	Cool Central	Doors	R-5 (Composite Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	New	6	20	\$54	95%	60%	\$0.99	1
California	Manufactured	Cool Central	Duct Location	Conditioned Space Design - Duct Loss Is Not A Concern	Ducts in Unconditioned Space (Duct loss)	Per installation	New	67	30	\$233	95%	30%	\$0.33	1
California	Manufactured	Cool Central	Duct Sealing	Duct Sealing	No Duct Sealing	Per installation	New	84	18	\$305	75%	60%	\$0.43	4
California	Manufactured	Cool Central	Duct Sealing - Aerosol-Based	Spray-in ductwork sealant to minimize duct leaks	No Duct Sealing	Per installation	New	126	18	\$872	75%	60%	\$0.81	3
California	Manufactured	Cool Central	Floor Insulation (CA) above code	R-38	R-30	Per installation	New	16	25	\$521	75%	85%	\$3.16	3
California	Manufactured	Cool Central	Green Roof	ecorof	Standard Roof	Per installation	New	42	40	\$17,341	20%	95%	\$36.60	0.49
California	Manufactured	Cool Central	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands (5 per unit)	13 SEER	Per installation	New	128	30	\$622	50%	95%	\$0.47	5
California	Manufactured	Cool Central	Proper Sizing - HVAC Unit	Proper Sizing - HVAC Unit	Oversized HVAC Unit	Per installation	New	79	15	\$20	95%	65%	\$0.03	21
California	Manufactured	Cool Central	Radiant Barrier (Ceiling)	Install Radiant Barrier	No Radiant Barrier	Per installation	New	50	25	\$707	50%	90%	\$1.44	7
California	Manufactured	Cool Central	Smart Siting	Siting house to minimize heating/cooling costs	No smart siting	Per installation	New	46	25	\$850	75%	75%	\$1.88	8
California	Manufactured	Cool Central	Thermostat - Multi-Zone	Individual Room Temperature Control for Major Occupied Rooms	Programmable Thermostat - Central Control Only	Per installation	New	57	11	\$1,094	50%	95%	\$2.99	8
California	Manufactured	Cool Central	Whole-House Fan	Whole-House Fan	No Whole-House Fan	Per installation	New	126	20	\$1,712	50%	95%	\$1.52	13
California	Manufactured	Cool Central	Windows (Same for all Building Types)	CL22	CL30	Per installation	New	2	25	\$431	95%	75%	\$15.07	0.64
California	Manufactured	Cool Central	Windows (Same for all Building Types)	CL25	CL30	Per installation	New	1	25	\$372	95%	75%	\$19.25	0.43
California	Manufactured	Cool Room	Canned Lighting Air Tight Sealing	Canned Lighting Air Tight Sealing	No Air tight Sealing	Per installation	Existing	2	30	\$26	95%	50%	\$1.04	2
California	Manufactured	Cool Room	Ceiling Fan	Ceiling Fan (no lighting kit)	No Ceiling Fan	Per installation	Existing	28	10	\$97	85%	35%	\$0.56	5
California	Manufactured	Cool Room	Ceiling Insulation (CA) above code	R-60	R-49	Per installation	Existing	10	25	\$405	40%	95%	\$4.08	0.99
California	Manufactured	Cool Room	Ceiling Insulation (CA) ave to code	R-49	R-10	Per installation	Existing	153	25	\$1,872	75%	35%	\$1.25	11
California	Manufactured	Cool Room	Ceiling Insulation (CA) zero to code	R-49	R-0	Per installation	Existing	306	25	\$1,872	75%	1%	\$0.62	0.74
California	Manufactured	Cool Room	Cool Roofs	Lighter Colored Shingles (White)	Standard Roof Shingles	Per installation	Existing	10	20	\$336	85%	90%	\$3.46	2
California	Manufactured	Cool Room	Doors	R-11 (Steel Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	Existing	7	20	\$171	95%	80%	\$2.43	1
California	Manufactured	Cool Room	Doors	R-5 (Composite Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	Existing	5	20	\$200	95%	60%	\$4.27	0.77
California	Manufactured	Cool Room	Doors - Weatherization	Weatherstripping And Adding Door Sweeps	Existing Non-Efficient door	Per installation	Existing	3	6	\$47	95%	50%	\$3.36	0.85
California	Manufactured	Cool Room	Floor Insulation (CA) above code	R-38	R-30	Per installation	Existing	14	25	\$521	25%	85%	\$3.64	0.80
California	Manufactured	Cool Room	Floor Insulation (CA) zero to code	R-30	R-0	Per installation	Existing	287	25	\$2,000	25%	20%	\$0.71	4
California	Manufactured	Cool Room	Infiltration Control (Caulk, Weather Strip, etc.) Blower-Door test	Install Caulking And Weatherstripping	Existing Infiltration Conditions	Per installation	Existing	72	11	\$506	75%	50%	\$1.10	8
California	Manufactured	Cool Room	Radiant Barrier (Ceiling)	Install Radiant Barrier	No Radiant Barrier	Per installation	Existing	43	25	\$707	25%	90%	\$1.67	2

Table C.2.1. Residential Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
California	Manufactured	Cool Room	Room AC conversion to Ductless Heat Pump	SEER 13	EER 9.8	Per installation	Existing	43	20	\$2,698	75%	N/A	\$6.87	16
California	Manufactured	Cool Room	Room AC, EER 10.8	EER 10.8	EER 9.8	Per installation	Existing	35	9	\$7	100%	N/A	\$0.04	3
California	Manufactured	Cool Room	Wall Insulation 2*4 (CA) zero to max feasible	R-13	R-0	Per installation	Existing	173	25	\$1,880	85%	25%	\$1.11	8
California	Manufactured	Cool Room	Wall Insulation 2*6 (CA) zero to max feasible	R-21	R-0	Per installation	Existing	297	25	\$2,144	85%	25%	\$0.74	5
California	Manufactured	Cool Room	Windows (Same for all Building Types)	CL25	CL30	Per installation	Existing	1	25	\$372	65%	85%	\$30.05	0.17
California	Manufactured	Cool Room	Windows (Same for all Building Types)	CL30	Double Pane	Per installation	Existing	13	25	\$3,835	65%	50%	\$28.96	1
California	Manufactured	Cool Room	Windows (Same for all Building Types)	CL30	Single Pane	Per installation	Existing	21	25	\$3,835	65%	20%	\$18.48	0.70
California	Manufactured	Cool Room	Ceiling Fan	Ceiling Fan (no lighting kit)	No Ceiling Fan	Per installation	New	23	10	\$97	85%	35%	\$0.69	1
California	Manufactured	Cool Room	Ceiling Insulation (CA) above code	R-60	R-49	Per installation	New	11	25	\$405	60%	95%	\$3.62	0.45
California	Manufactured	Cool Room	Cool Roofs	Lighter Colored Shingles (White)	Standard Roof Shingles	Per installation	New	8	20	\$336	85%	90%	\$4.27	0.36
California	Manufactured	Cool Room	Doors	R-11 (Steel Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	New	6	20	\$25	95%	80%	\$0.44	0.36
California	Manufactured	Cool Room	Doors	R-5 (Composite Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	New	4	20	\$54	95%	60%	\$1.42	0.17
California	Manufactured	Cool Room	Floor Insulation (CA) above code	R-38	R-30	Per installation	New	11	25	\$521	75%	85%	\$4.49	0.51
California	Manufactured	Cool Room	Green Roof	ecorroof	Standard Roof	Per installation	New	29	40	\$17,341	20%	95%	\$52.41	0.07
California	Manufactured	Cool Room	Radiant Barrier (Ceiling)	Install Radiant Barrier	No Radiant Barrier	Per installation	New	35	25	\$707	50%	90%	\$2.06	1
California	Manufactured	Cool Room	Room AC conversion to Ductless Heat Pump	SEER 13	EER 9.8	Per installation	New	37	20	\$2,698	75%	N/A	\$8.15	1
California	Manufactured	Cool Room	Room AC, EER 10.8	EER 10.8	EER 9.8	Per installation	New	29	9	\$7	100%	N/A	\$0.04	0.58
California	Manufactured	Cool Room	Smart Siting	Siting house to minimize heating/cooling costs	No smart siting	Per installation	New	32	25	\$850	75%	75%	\$2.69	1
California	Manufactured	Cool Room	Windows (Same for all Building Types)	CL22	CL30	Per installation	New	2	25	\$431	95%	75%	\$20.71	0.10
California	Manufactured	Cool Room	Windows (Same for all Building Types)	CL25	CL30	Per installation	New	1	25	\$372	95%	75%	\$26.71	0.06
California	Manufactured	Dryer	Dryer, Advanced Efficiency EF 3.30	Advanced Efficiency Dryer 3.30	Standard Dryer EF 3.01	Per installation	Existing	38	14	\$224	100%	N/A	\$0.79	138
California	Manufactured	Dryer	Dryer, High Efficiency EF 3.08	High Efficiency Dryer EF 3.08	Standard Dryer EF 3.01	Per installation	Existing	9	14	\$54	100%	N/A	\$0.74	3
California	Manufactured	Dryer	Dryer, Premium Efficiency EF 3.19	Premium Efficiency Dryer 3.19	Standard Dryer EF 3.01	Per installation	Existing	24	14	\$139	100%	N/A	\$0.76	19
California	Manufactured	Dryer	Dryer, Advanced Efficiency EF 3.30	Advanced Efficiency Dryer 3.30	Standard Dryer EF 3.01	Per installation	New	38	14	\$224	100%	N/A	\$0.79	23
California	Manufactured	Dryer	Dryer, High Efficiency EF 3.08	High Efficiency Dryer EF 3.08	Standard Dryer EF 3.01	Per installation	New	9	14	\$54	100%	N/A	\$0.74	0.62
California	Manufactured	Dryer	Dryer, Premium Efficiency EF 3.19	Premium Efficiency Dryer 3.19	Standard Dryer EF 3.01	Per installation	New	24	14	\$139	100%	N/A	\$0.76	4
California	Manufactured	Freezer	Freezer, Energy Star	Energy Star Freezer	Standard Freezer	Per installation	Existing	46	20	\$22	76%	N/A	\$0.05	16
California	Manufactured	Freezer	Stand-Alone Freezer - Removal	Proper Disposal of Freezer	Existing Non-Efficient Freezer	Per installation	Existing	1,376	8	\$106	17%	99%	\$0.02	89
California	Manufactured	Freezer	Freezer, Energy Star	Energy Star Freezer	Standard Freezer	Per installation	New	46	20	\$22	76%	N/A	\$0.05	7
California	Manufactured	Heat Central	Air-to-Air Heat Exchangers	Air-to-Air Heat Exchangers	No Air to Air Heat Exchangers	Per installation	Existing	951	5	\$588	25%	95%	\$0.18	587
California	Manufactured	Heat Central	Canned Lighting Air Tight Sealing	Canned Lighting Air Tight Sealing	No Air tight Sealing	Per installation	Existing	43	30	\$26	95%	50%	\$0.06	293
California	Manufactured	Heat Central	Ceiling Insulation (CA) above code	R-60	R-49	Per installation	Existing	178	25	\$405	40%	95%	\$0.23	125
California	Manufactured	Heat Central	Ceiling Insulation (CA) ave to code	R-49	R-10	Per installation	Existing	2,701	25	\$1,872	75%	35%	\$0.07	1,566
California	Manufactured	Heat Central	Ceiling Insulation (CA) zero to code	R-49	R-0	Per installation	Existing	5,411	25	\$1,872	75%	1%	\$0.04	101

Table C.2.1. Residential Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
California	Manufactured	Heat Central	Conversion Electric Furnace to ASHP	Air Source Heat Pump Seer 13 HSPF 7.7	Electric Furnace HSPF 1	Per installation	Existing	5,153	20	\$2,957	100%	N/A	\$0.06	3,822
California	Manufactured	Heat Central	Doors	R-11 (Steel Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	Existing	142	20	\$171	95%	80%	\$0.13	210
California	Manufactured	Heat Central	Doors	R-5 (Composite Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	Existing	95	20	\$200	95%	60%	\$0.24	99
California	Manufactured	Heat Central	Doors - Weatherization	Weatherstripping And Adding Door Sweeps	Existing Non-Efficient door	Per installation	Existing	61	6	\$47	95%	50%	\$0.19	112
California	Manufactured	Heat Central	Duct Insulation Upgrade	R-8 (code)	R-4	Per installation	Existing	380	20	\$709	75%	75%	\$0.21	406
California	Manufactured	Heat Central	Duct Sealing	Duct Sealing	No Duct Sealing	Per installation	Existing	951	18	\$630	75%	15%	\$0.08	130
California	Manufactured	Heat Central	Duct Sealing - Aerosol-Based	Spray-in ductwork sealant to minimize duct leaks	No Duct Sealing	Per installation	Existing	1,426	18	\$872	75%	15%	\$0.07	98
California	Manufactured	Heat Central	Floor Insulation (CA) above code	R-38	R-30	Per installation	Existing	262	25	\$521	25%	85%	\$0.20	106
California	Manufactured	Heat Central	Floor Insulation (CA) zero to code	R-30	R-0	Per installation	Existing	5,155	25	\$2,000	25%	20%	\$0.04	644
California	Manufactured	Heat Central	Infiltration Control (Caulk, Weather Strip, etc.) Blower-Door test	Install Caulking And Weatherstripping	Existing Infiltration Conditions	Per installation	Existing	951	11	\$506	75%	50%	\$0.08	720
California	Manufactured	Heat Central	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands (5 per unit)	13 SEER	Per installation	Existing	1,997	30	\$622	50%	15%	\$0.03	37
California	Manufactured	Heat Central	Proper Sizing - HVAC Unit	Proper Sizing - HVAC Unit	Oversized HVAC Unit	Per installation	Existing	896	15	\$20	15%	65%	\$0.00	227
California	Manufactured	Heat Central	Radiant Barrier (Ceiling)	Install Radiant Barrier	No Radiant Barrier	Per installation	Existing	190	25	\$707	25%	90%	\$0.38	75
California	Manufactured	Heat Central	Thermostat - Multi-Zone	Individual Room Temperature Control for Major Occupied Rooms	Programmable Thermostat - Central Control Only	Per installation	Existing	646	11	\$1,094	50%	95%	\$0.26	563
California	Manufactured	Heat Central	Wall Insulation 2'4 (CA) zero to max feasible	R-13	R-0	Per installation	Existing	3,075	25	\$1,880	85%	25%	\$0.06	1,141
California	Manufactured	Heat Central	Wall Insulation 2'6 (CA) zero to max feasible	R-21	R-0	Per installation	Existing	5,252	25	\$2,144	85%	25%	\$0.04	678
California	Manufactured	Heat Central	Windows (Same for all Building Types)	CL25	CL30	Per installation	Existing	22	25	\$372	65%	85%	\$1.72	21
California	Manufactured	Heat Central	Windows (Same for all Building Types)	CL30	Double Pane	Per installation	Existing	236	25	\$3,835	65%	50%	\$1.66	135
California	Manufactured	Heat Central	Windows (Same for all Building Types)	CL30	Single Pane	Per installation	Existing	371	25	\$3,835	65%	20%	\$1.06	85
California	Manufactured	Heat Central	Air-to-Air Heat Exchangers	Air-to-Air Heat Exchangers	No Air to Air Heat Exchangers	Per installation	New	636	5	\$588	25%	95%	\$0.26	86
California	Manufactured	Heat Central	Ceiling Insulation (CA) above code	R-60	R-49	Per installation	New	165	25	\$405	60%	95%	\$0.25	50
California	Manufactured	Heat Central	Conversion Electric Furnace to ASHP	Air Source Heat Pump Seer 13 HSPF 7.7	Electric Furnace HSPF 1	Per installation	New	3,450	20	\$2,824	100%	N/A	\$0.09	818
California	Manufactured	Heat Central	Doors	R-11 (Steel Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	New	95	20	\$25	95%	80%	\$0.03	39
California	Manufactured	Heat Central	Doors	R-5 (Composite Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	New	63	20	\$54	95%	60%	\$0.09	19
California	Manufactured	Heat Central	Duct Location	Conditioned Space Design - Duct Loss Is Not A Concern	Ducts in Unconditioned Space (Duct loss)	Per installation	New	509	30	\$233	95%	15%	\$0.04	9
California	Manufactured	Heat Central	Duct Sealing	Duct Sealing	No Duct Sealing	Per installation	New	636	18	\$305	75%	15%	\$0.06	13
California	Manufactured	Heat Central	Duct Sealing - Aerosol-Based	Spray-in ductwork sealant to minimize duct leaks	No Duct Sealing	Per installation	New	955	18	\$872	75%	15%	\$0.11	8
California	Manufactured	Heat Central	Floor Insulation (CA) above code	R-38	R-30	Per installation	New	175	25	\$521	75%	85%	\$0.30	58
California	Manufactured	Heat Central	Green Roof	ecorroof	Standard Roof	Per installation	New	445	40	\$17,341	20%	95%	\$3.51	8
California	Manufactured	Heat Central	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands (5 per unit)	13 SEER	Per installation	New	1,337	30	\$622	50%	15%	\$0.04	13
California	Manufactured	Heat Central	Proper Sizing - HVAC Unit	Proper Sizing - HVAC Unit	Oversized HVAC Unit	Per installation	New	600	15	\$20	15%	65%	\$0.00	33
California	Manufactured	Heat Central	Radiant Barrier (Ceiling)	Install Radiant Barrier	No Radiant Barrier	Per installation	New	127	25	\$707	50%	90%	\$0.57	28

Table C.2.1. Residential Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
California	Manufactured	Heat Central	Smart Siting	Siting house to minimize heating/cooling costs	No smart siting	Per installation	New	19	25	\$850	75%	75%	\$4.40	5
California	Manufactured	Heat Central	Thermostat - Multi-Zone	Individual Room Temperature Control for Major Occupied Rooms	Programmable Thermostat - Central Control Only	Per installation	New	432	11	\$1,094	50%	95%	\$0.40	106
California	Manufactured	Heat Central	Windows (Same for all Building Types)	CL22	CL30	Per installation	New	30	25	\$431	95%	75%	\$1.45	10
California	Manufactured	Heat Central	Windows (Same for all Building Types)	CL25	CL30	Per installation	New	20	25	\$372	95%	75%	\$1.85	7
California	Manufactured	Heat Pump	Air-to-Air Heat Exchangers	Air-to-Air Heat Exchangers	No Air to Air Heat Exchangers	Per installation	Existing	1,018	5	\$588	25%	95%	\$0.16	97
California	Manufactured	Heat Pump	Canned Lighting Air Tight Sealing	Canned Lighting Air Tight Sealing	No Air tight Sealing	Per installation	Existing	45	30	\$26	95%	50%	\$0.06	45
California	Manufactured	Heat Pump	Ceiling Fan	Ceiling Fan (no lighting kit)	No Ceiling Fan	Per installation	Existing	39	10	\$97	85%	35%	\$0.41	9
California	Manufactured	Heat Pump	Ceiling Insulation (CA) above code	R-60	R-49	Per installation	Existing	76	25	\$405	40%	95%	\$0.54	7
California	Manufactured	Heat Pump	Ceiling Insulation (CA) ave to code	R-49	R-10	Per installation	Existing	1,211	25	\$1,872	75%	35%	\$0.16	96
California	Manufactured	Heat Pump	Ceiling Insulation (CA) zero to code	R-49	R-0	Per installation	Existing	2,425	25	\$1,872	75%	1%	\$0.08	5
California	Manufactured	Heat Pump	Check Me! O&M Tune-up	Tune-up/Maintenance	No Tune-up Maintenance	Per installation	Existing	29	5	\$218	95%	75%	\$2.08	8
California	Manufactured	Heat Pump	Cool Roofs	Lighter Colored Shingles (White)	Standard Roof Shingles	Per installation	Existing	14	20	\$336	85%	90%	\$2.53	3
California	Manufactured	Heat Pump	Doors	R-11 (Steel Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	Existing	148	20	\$171	95%	80%	\$0.13	35
California	Manufactured	Heat Pump	Doors	R-5 (Composite Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	Existing	99	20	\$200	95%	60%	\$0.23	16
California	Manufactured	Heat Pump	Doors - Weatherization	Weathersstripping And Adding Door Sweeps	Existing Non-Efficient door	Per installation	Existing	66	6	\$47	95%	50%	\$0.17	18
California	Manufactured	Heat Pump	Duct Insulation Upgrade	R-8 (code)	R-4	Per installation	Existing	396	20	\$709	75%	75%	\$0.20	65
California	Manufactured	Heat Pump	Duct Sealing	Duct Sealing	No Duct Sealing	Per installation	Existing	1,018	18	\$630	75%	60%	\$0.07	93
California	Manufactured	Heat Pump	Duct Sealing - Aerosol-Based	Spray-in ductwork sealant to minimize duct leaks	No Duct Sealing	Per installation	Existing	1,527	18	\$872	75%	60%	\$0.07	71
California	Manufactured	Heat Pump	Floor Insulation (CA) above code	R-38	R-30	Per installation	Existing	281	25	\$521	25%	85%	\$0.19	17
California	Manufactured	Heat Pump	Floor Insulation (CA) zero to code	R-30	R-0	Per installation	Existing	5,516	25	\$2,000	25%	20%	\$0.04	100
California	Manufactured	Heat Pump	Heat Pump High Efficiency, SEER 14, HSPF 8.5	ASHP SEER 14, HSPF 8.5	ASHP SEER 13, HSPF 7.7	Per installation	Existing	722	20	\$411	100%	N/A	\$0.06	28
California	Manufactured	Heat Pump	Heat Pump Premium Efficiency, SEER 16, HSPF 8.8	ASHP SEER 16, HSPF 8.8	ASHP SEER 13, HSPF 7.7	Per installation	Existing	1,069	20	\$1,233	100%	N/A	\$0.13	139
California	Manufactured	Heat Pump	Infiltration Control (Caulk, Weather Strip, etc.) Blower-Door test	Install Caulking And Weathersstripping	Existing Infiltration Conditions	Per installation	Existing	1,018	11	\$506	75%	50%	\$0.08	126
California	Manufactured	Heat Pump	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands (5 per unit)	13 SEER	Per installation	Existing	2,137	30	\$622	50%	95%	\$0.03	37
California	Manufactured	Heat Pump	Proper Sizing - HVAC Unit	Proper Sizing - HVAC Unit	Oversized HVAC Unit	Per installation	Existing	959	15	\$20	95%	65%	\$0.00	238
California	Manufactured	Heat Pump	Radiant Barrier (Ceiling)	Install Radiant Barrier	No Radiant Barrier	Per installation	Existing	253	25	\$707	25%	90%	\$0.29	15
California	Manufactured	Heat Pump	Thermostat - Multi-Zone	Individual Room Temperature Control for Major Occupied Rooms	Programmable Thermostat - Central Control Only	Per installation	Existing	692	11	\$1,094	50%	95%	\$0.25	93
California	Manufactured	Heat Pump	Wall Insulation 2'4 (CA) zero to max feasible	R-13	R-0	Per installation	Existing	1,371	25	\$1,880	85%	25%	\$0.14	68
California	Manufactured	Heat Pump	Wall Insulation 2'6 (CA) zero to max feasible	R-21	R-0	Per installation	Existing	2,341	25	\$2,144	85%	25%	\$0.09	39
California	Manufactured	Heat Pump	Whole-House Fan	Whole-House Fan	No Whole-House Fan	Per installation	Existing	148	20	\$1,712	50%	95%	\$1.29	14
California	Manufactured	Heat Pump	Windows (Same for all Building Types)	CL25	CL30	Per installation	Existing	9	25	\$372	65%	85%	\$3.88	1

Table C.2.1. Residential Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
California	Manufactured	Heat Pump	Windows (Same for all Building Types)	CL30	Double Pane	Per installation	Existing	104	25	\$3,835	65%	50%	\$3.74	9
California	Manufactured	Heat Pump	Windows (Same for all Building Types)	CL30	Single Pane	Per installation	Existing	164	25	\$3,835	65%	20%	\$2.38	5
California	Manufactured	Heat Pump	Air-to-Air Heat Exchangers	Air-to-Air Heat Exchangers	No Air to Air Heat Exchangers	Per installation	New	684	5	\$588	25%	95%	\$0.24	16
California	Manufactured	Heat Pump	Ceiling Fan	Ceiling Fan (no lighting kit)	No Ceiling Fan	Per installation	New	26	10	\$97	85%	35%	\$0.61	1
California	Manufactured	Heat Pump	Ceiling Insulation (CA) above code	R-60	R-49	Per installation	New	67	25	\$405	60%	95%	\$0.61	3
California	Manufactured	Heat Pump	Check Me! O&M Tune-up	Tune-up/Maintenance	No Tune-up Maintenance	Per installation	New	19	5	\$218	95%	75%	\$3.10	1
California	Manufactured	Heat Pump	Cool Roofs	Lighter Colored Shingles (White)	Standard Roof Shingles	Per installation	New	10	20	\$336	85%	90%	\$3.77	0.49
California	Manufactured	Heat Pump	Doors	R-11 (Steel Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	New	100	20	\$25	95%	80%	\$0.03	7
California	Manufactured	Heat Pump	Doors	R-5 (Composite Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	New	66	20	\$54	95%	60%	\$0.09	3
California	Manufactured	Heat Pump	Duct Location	Conditioned Space Design - Duct Loss Is Not A Concern	Ducts in Unconditioned Space (Duct loss)	Per installation	New	547	30	\$233	95%	30%	\$0.04	3
California	Manufactured	Heat Pump	Duct Sealing	Duct Sealing	No Duct Sealing	Per installation	New	684	18	\$305	75%	60%	\$0.05	9
California	Manufactured	Heat Pump	Duct Sealing - Aerosol-Based	Spray-in ductwork sealant to minimize duct leaks	No Duct Sealing	Per installation	New	1,026	18	\$872	75%	60%	\$0.10	6
California	Manufactured	Heat Pump	Floor Insulation (CA) above code	R-38	R-30	Per installation	New	189	25	\$521	75%	85%	\$0.28	10
California	Manufactured	Heat Pump	Green Roof	ecorooF	Standard Roof	Per installation	New	465	40	\$17,341	20%	95%	\$3.36	1
California	Manufactured	Heat Pump	Heat Pump High Efficiency, SEER 14, HSPF 8.5	ASHP SEER 14, HSPF 8.5	ASHP SEER 13, HSPF 7.7	Per installation	New	628	20	\$411	100%	N/A	\$0.07	10
California	Manufactured	Heat Pump	Heat Pump Premium Efficiency, SEER 16, HSPF 8.8	ASHP SEER 16, HSPF 8.8	ASHP SEER 13, HSPF 7.7	Per installation	New	938	20	\$1,233	100%	N/A	\$0.15	35
California	Manufactured	Heat Pump	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands (5 per unit)	13 SEER	Per installation	New	1,437	30	\$622	50%	95%	\$0.04	15
California	Manufactured	Heat Pump	Proper Sizing - HVAC Unit	Proper Sizing - HVAC Unit	Oversized HVAC Unit	Per installation	New	645	15	\$20	95%	65%	\$0.00	41
California	Manufactured	Heat Pump	Radiant Barrier (Ceiling)	Install Radiant Barrier	No Radiant Barrier	Per installation	New	170	25	\$707	50%	90%	\$0.43	6
California	Manufactured	Heat Pump	Smart Siling	Siting house to minimize heating/cooling costs	No smart siling	Per installation	New	41	25	\$850	75%	75%	\$2.12	1
California	Manufactured	Heat Pump	Thermostat - Multi-Zone	Individual Room Temperature Control for Major Occupied Rooms	Programmable Thermostat - Central Control Only	Per installation	New	465	11	\$1,094	50%	95%	\$0.37	18
California	Manufactured	Heat Pump	Whole-House Fan	Whole-House Fan	No Whole-House Fan	Per installation	New	99	20	\$1,712	50%	95%	\$1.92	2
California	Manufactured	Heat Pump	Windows (Same for all Building Types)	CL22	CL30	Per installation	New	12	25	\$431	95%	75%	\$3.57	0.71
California	Manufactured	Heat Pump	Windows (Same for all Building Types)	CL25	CL30	Per installation	New	8	25	\$372	95%	75%	\$4.39	0.50
California	Manufactured	Heat Room	Canned Lighting Air Tight Sealing	Canned Lighting Air Tight Sealing	No Air tight Sealing	Per installation	Existing	33	30	\$26	95%	50%	\$0.07	15
California	Manufactured	Heat Room	Ceiling Insulation (CA) above code	R-60	R-49	Per installation	Existing	141	25	\$405	40%	95%	\$0.29	7
California	Manufactured	Heat Room	Ceiling Insulation (CA) ave to code	R-49	R-10	Per installation	Existing	2,128	25	\$1,872	75%	35%	\$0.09	86
California	Manufactured	Heat Room	Ceiling Insulation (CA) zero to code	R-49	R-0	Per installation	Existing	4,263	25	\$1,872	75%	1%	\$0.04	5
California	Manufactured	Heat Room	Conversion Baseboard Heating to DHP	Ductless Heat Pump HSPF 7.7	HSPF = 1	Per installation	Existing	1,053	20	\$2,470	33%	N/A	\$0.26	58
California	Manufactured	Heat Room	Doors	R-11 (Steel Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	Existing	109	20	\$171	95%	80%	\$0.18	11
California	Manufactured	Heat Room	Doors	R-5 (Composite Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	Existing	73	20	\$200	95%	60%	\$0.31	5
California	Manufactured	Heat Room	Doors - Weatherization	Weatherstripping And Adding Door Sweeps	Existing Non-Efficient door	Per installation	Existing	47	6	\$47	95%	50%	\$0.24	6

Table C.2.1. Residential Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
California	Manufactured	Heat Room	Floor Insulation (CA) above code	R-38	R-30	Per installation	Existing	203	25	\$521	25%	85%	\$0.26	5
California	Manufactured	Heat Room	Floor Insulation (CA) zero to code	R-30	R-0	Per installation	Existing	4,004	25	\$2,000	25%	20%	\$0.05	35
California	Manufactured	Heat Room	Infiltration Control (Caulk, Weather Strip, etc.) Blower-Door test	Install Caulking And Weatherstripping	Existing Infiltration Conditions	Per installation	Existing	732	11	\$506	75%	50%	\$0.11	39
California	Manufactured	Heat Room	Radiant Barrier (Ceiling)	Install Radiant Barrier	No Radiant Barrier	Per installation	Existing	146	25	\$707	25%	90%	\$0.49	4
California	Manufactured	Heat Room	Wall Insulation 2'4 (CA) zero to max feasible	R-13	R-0	Per installation	Existing	2,419	25	\$1,880	85%	25%	\$0.08	63
California	Manufactured	Heat Room	Wall Insulation 2'6 (CA) zero to max feasible	R-21	R-0	Per installation	Existing	4,131	25	\$2,144	85%	25%	\$0.05	37
California	Manufactured	Heat Room	Windows (Same for all Building Types)	CL25	CL30	Per installation	Existing	17	25	\$372	65%	85%	\$2.16	1
California	Manufactured	Heat Room	Windows (Same for all Building Types)	CL30	Double Pane	Per installation	Existing	188	25	\$3,835	65%	50%	\$2.08	8
California	Manufactured	Heat Room	Windows (Same for all Building Types)	CL30	Single Pane	Per installation	Existing	295	25	\$3,835	65%	20%	\$1.33	5
California	Manufactured	Heat Room	Ceiling Insulation (CA) above code	R-60	R-49	Per installation	New	131	25	\$405	60%	95%	\$0.32	2
California	Manufactured	Heat Room	Conversion Baseboard Heating to DHP	Ductless Heat Pump HSPF 7.7	HSPF = 1	Per installation	New	705	20	\$2,470	33%	N/A	\$0.39	12
California	Manufactured	Heat Room	Doors	R-11 (Steel Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	New	73	20	\$25	95%	80%	\$0.04	2
California	Manufactured	Heat Room	Doors	R-5 (Composite Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	New	49	20	\$54	95%	60%	\$0.12	1
California	Manufactured	Heat Room	Floor Insulation (CA) above code	R-38	R-30	Per installation	New	136	25	\$521	75%	85%	\$0.39	3
California	Manufactured	Heat Room	Green Roof	ecorooF	Standard Roof	Per installation	New	343	40	\$17,341	20%	95%	\$4.56	0.47
California	Manufactured	Heat Room	Radiant Barrier (Ceiling)	Install Radiant Barrier	No Radiant Barrier	Per installation	New	98	25	\$707	50%	90%	\$0.74	1
California	Manufactured	Heat Room	Smart Siting	Siting house to minimize heating/cooling costs	No smart siting	Per installation	New	15	25	\$850	75%	75%	\$5.71	0.31
California	Manufactured	Heat Room	Windows (Same for all Building Types)	CL22	CL30	Per installation	New	24	25	\$431	95%	75%	\$1.80	0.63
California	Manufactured	Heat Room	Windows (Same for all Building Types)	CL25	CL30	Per installation	New	16	25	\$372	95%	75%	\$2.33	0.42
California	Manufactured	Lighting Exterior	CFL, Flood (17 W)	CFL, Flood	Standard Incandescent Flood	Per installation	Existing	53	5	\$0.91	100%	N/A	\$0.00	37
California	Manufactured	Lighting Exterior	Time Clocks (Exterior Lighting)	Exterior Lighting on a Time Clock	Exterior Lighting (Manual Control)	Per installation	Existing	13	10	\$16	80%	85%	\$0.20	39
California	Manufactured	Lighting Exterior	CFL, Flood (17 W)	CFL, Flood	Standard Incandescent Flood	Per installation	New	53	5	\$0.91	100%	N/A	\$0.00	1
California	Manufactured	Lighting Exterior	Time Clocks (Exterior Lighting)	Exterior Lighting on a Time Clock	Exterior Lighting (Manual Control)	Per installation	New	13	10	\$16	80%	85%	\$0.20	9
California	Manufactured	Lighting Interior Specialty	CFL (13 W, 20 W, 25 W)	CFL (3-Way)	Standard Incandescent (3-Way)	Per installation	Existing	43	5	\$3	100%	N/A	\$0.02	357
California	Manufactured	Lighting Interior Specialty	CFL (13 W, 20 W, 25 W)	CFL (3-Way)	Standard Incandescent (3-Way)	Per installation	New	43	5	\$3	100%	N/A	\$0.02	7
California	Manufactured	Lighting Interior Standard	Daylighting Controls (Photocell) - Indoor/Outdoors	Install Photocell	No Daylighting Controls	Per installation	Existing	8	20	\$151	40%	95%	\$2.00	4
California	Manufactured	Lighting Interior Standard	Lighting CFL 15 W	15 W CFL	Standard 60 W Incandescent	Per installation	Existing	40	5	\$2	100%	N/A	\$0.02	154
California	Manufactured	Lighting Interior Standard	Lighting LED 7 W	7 W LED	Standard 60 W Incandescent	Per installation	Existing	51	20	\$36	50%	N/A	\$0.08	1,284
California	Manufactured	Lighting Interior Standard	Occupancy Sensors	Wall-Switch Occupancy Sensors	No Occupancy Sensor	Per installation	Existing	4	10	\$32	85%	95%	\$1.15	53
California	Manufactured	Lighting Interior Standard	Daylighting Controls (Photocell) - Indoor/Outdoors	Install Photocell	No Daylighting Controls	Per installation	New	8	20	\$151	40%	95%	\$2.00	1

Table C.2.1. Residential Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
California	Manufactured	Lighting Interior Standard	Lighting CFL 15 W	15 W CFL	Standard 60 W Incandescent	Per installation	New	40	5	\$2	100%	N/A	\$0.02	5
California	Manufactured	Lighting Interior Standard	Lighting LED 7 W	7 W LED	Standard 60 W Incandescent	Per installation	New	51	20	\$36	50%	N/A	\$0.08	31
California	Manufactured	Lighting Interior Standard	Occupancy Sensors	Wall-Switch Occupancy Sensors	No Occupancy Sensor	Per installation	New	4	10	\$32	85%	95%	\$1.15	13
California	Manufactured	Microwave	Microwave, High Efficiency	High Efficiency Microwave	Standard Microwave	Per installation	Existing	9	15	\$79	100%	N/A	\$1.05	35
California	Manufactured	Microwave	Microwave, High Efficiency	High Efficiency Microwave	Standard Microwave	Per installation	New	9	15	\$79	100%	N/A	\$1.05	6
California	Manufactured	Monitor	Monitor, Energy Star	Energy Star Monitor	Standard Monitor	Per installation	Existing	36	5	\$3	100%	N/A	\$0.03	128
California	Manufactured	Monitor	Monitor, Energy Star	Energy Star Monitor	Standard Monitor	Per installation	New	36	5	\$3	100%	N/A	\$0.03	6
California	Manufactured	Plug Load Other	1-Watt Standby Power	1W or less standby power use for small appliances	Standard plug load appliance.	Per installation	Existing	17	7	\$30	50%	50%	\$0.37	134
California	Manufactured	Plug Load Other	Energy Star Battery Chargers	Energy Star Battery Chargers	Standard Battery Chargers	Per installation	Existing	1	7	\$33	50%	80%	\$6.82	28
California	Manufactured	Plug Load Other	Office Copier	Office Copier	Standard Copier	Per installation	Existing	38	6	\$5	10%	50%	\$0.03	12
California	Manufactured	Plug Load Other	Office Printer	Office Printer	Standard Printer	Per installation	Existing	4	5	\$5	20%	50%	\$0.28	3
California	Manufactured	Plug Load Other	Smart Strip	Smart Strip	Standard PowerStrip	Per installation	Existing	102	5	\$22	50%	85%	\$0.06	284
California	Manufactured	Plug Load Other	1-Watt Standby Power	1W or less standby power use for small appliances	Standard plug load appliance.	Per installation	New	17	7	\$30	50%	50%	\$0.37	29
California	Manufactured	Plug Load Other	Energy Star Battery Chargers	Energy Star Battery Chargers	Standard Battery Chargers	Per installation	New	1	7	\$2	50%	80%	\$0.52	6
California	Manufactured	Plug Load Other	Office Copier	Office Copier	Standard Copier	Per installation	New	39	6	\$5	10%	50%	\$0.03	2
California	Manufactured	Plug Load Other	Office Printer	Office Printer	Standard Printer	Per installation	New	5	5	\$5	20%	50%	\$0.28	0.72
California	Manufactured	Plug Load Other	Smart Strip	Smart Strip	Standard PowerStrip	Per installation	New	102	5	\$22	50%	85%	\$0.06	62
California	Manufactured	Refrigerator	Refrigerator, Energy Star	Energy Star Refrigerator	Standard Refrigerator	Per installation	Existing	122	20	\$15	93%	N/A	\$0.01	135
California	Manufactured	Refrigerator	Refrigerator/Freezer - Removal of Secondary	Proper Disposal of Refrigerator/Freezer	Existing Non-Efficient Refrigerator/Freezer	Per installation	Existing	1,390	9	\$109	5%	99%	\$0.01	56
California	Manufactured	Refrigerator	Refrigerator, Energy Star	Energy Star Refrigerator	Standard Refrigerator	Per installation	New	122	20	\$15	100%	N/A	\$0.01	42
California	Manufactured	Set Top Box	Set Top Box, Energy Star	Energy Star Set Top Box	Standard Set Top Box	Per installation	Existing	164	5	\$12	100%	N/A	\$0.02	560
California	Manufactured	Set Top Box	Set Top Box, Energy Star	Energy Star Set Top Box	Standard Set Top Box	Per installation	New	164	5	\$12	100%	N/A	\$0.02	27
California	Manufactured	Tv	TV CRT, Energy Star	Energy Star CRT TV	Standard CRT TV	Per installation	Existing	43	10	\$19	100%	N/A	\$0.07	6
California	Manufactured	Tv	TV CRT, Energy Star	Energy Star CRT TV	Standard CRT TV	Per installation	New	43	10	\$19	100%	N/A	\$0.07	0.89
California	Manufactured	Tv Bigscreen	TV LCD, Energy Star	Energy Star LCD TV	Standard LCD TV	Per installation	Existing	77	10	\$19	100%	N/A	\$0.04	2
California	Manufactured	Tv Bigscreen	TV LCD, Energy Star	Energy Star LCD TV	Standard LCD TV	Per installation	New	77	10	\$19	100%	N/A	\$0.04	0.29
California	Manufactured	Ventilation And Circulation	Motor, ECM	ECM Motor	Standard Motor	Per installation	Existing	77	20	\$172	50%	N/A	\$0.25	45
California	Manufactured	Ventilation And Circulation	Motor, ECM - VFD	ECMVFD Motor	Standard Motor	Per installation	Existing	232	20	\$194	50%	N/A	\$0.09	136
California	Manufactured	Ventilation And Circulation	Motor, ECM	ECM Motor	Standard Motor	Per installation	New	57	20	\$172	50%	N/A	\$0.33	8
California	Manufactured	Ventilation And Circulation	Motor, ECM - VFD	ECMVFD Motor	Standard Motor	Per installation	New	173	20	\$194	50%	N/A	\$0.13	26
California	Manufactured	Water Heat	Clothes Washer	Energy Star - Tier 1 (MEF 2.0 - 2.19) - Electric DHW & Dryer	MEF = 1.66 - Electric DHW & Dryer	Per installation	Existing	111	14	\$227	98%	89%	\$-0.27	163
California	Manufactured	Water Heat	Clothes Washer	Energy Star - Tier 2 (MEF 2.2 - 2.45) - Electric DHW & Dryer	MEF = 1.66 - Electric DHW & Dryer	Per installation	Existing	148	14	\$296	98%	95%	\$-0.25	232
California	Manufactured	Water Heat	Clothes Washer	Energy Star - Tier 3 (MEF 2.46 or higher) Top 10% of Energy Star Model - Electric DHW & Dryer	MEF = 1.66 - Electric DHW & Dryer	Per installation	Existing	169	14	\$317	98%	99%	\$-0.23	275

Table C.2.1. Residential Measure Details

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California	Manufactured	Water Heat	Dishwasher	Energy Star, July 1st 2011, <= 307 kWh/year , <= 5.0 gallons/cycle	Energy Star - EF65 (6th Plan Baseline)	Per installation	Existing	32	12	\$42	69%	50%	\$0.17	56
California	Manufactured	Water Heat	Drain Water Heat Recovery (GFX)	Gravity Film Heat Exchanger	No Heat Exchanger	Per installation	Existing	336	40	\$551	29%	90%	\$0.15	374
California	Manufactured	Water Heat	Faucet Aerators	0.5 GPM	2.2 GPM	Per installation	Existing	81	9	\$0.71	95%	95%	\$-0.08	372
California	Manufactured	Water Heat	Faucet Aerators	1.5 GPM	2.2 GPM	Per installation	Existing	33	9	\$0.46	95%	65%	\$-0.08	105
California	Manufactured	Water Heat	Faucet Aerators	2.2 GPM	Existing Faucet Aerator (3.0 GPM)	Per installation	Existing	37	9	\$1	95%	25%	\$-0.08	90
California	Manufactured	Water Heat	Hot Water Pipe Insulation	R-4 Wrap	No insulation	Per installation	Existing	39	5	\$24	95%	75%	\$0.18	114
California	Manufactured	Water Heat	Low-Flow Showerheads	2.0 GPM	2.5 GPM	Per installation	Existing	111	10	\$16	95%	65%	\$-0.06	347
California	Manufactured	Water Heat	Water Heater, Heat Pump EF 2.2	Heat Pump Water Heater EF = 2.2	Standard Storage Water Heater EF = 0.92	Per installation	Existing	1,349	15	\$1,387	59%	N/A	\$0.14	1,849
California	Manufactured	Water Heat	Water Heater, Storage EF 0.95	Standard Storage Water Heater EF = 0.95	Standard Storage Water Heater EF = 0.92	Per installation	Existing	75	15	\$48	100%	N/A	\$0.08	17
California	Manufactured	Water Heat	Water_Heater Tank Blanket/Insulation	Install Insulation (R-5)	No Tank Insulation	Per installation	Existing	151	10	\$11	50%	20%	\$0.01	65
California	Manufactured	Water Heat	Water_Heater Thermostat Setback	120 degrees	135 degrees	Per installation	Existing	139	5	\$9	95%	45%	\$0.02	257
California	Manufactured	Water Heat	Clothes Washer	Energy Star - Tier 1 (MEF 2.0 - 2.19) - Electric DHW & Dryer	MEF = 1.66 - Electric DHW & Dryer	Per installation	New	112	14	\$227	98%	89%	\$-0.27	36
California	Manufactured	Water Heat	Clothes Washer	Energy Star - Tier 2 (MEF 2.2 - 2.45) - Electric DHW & Dryer	MEF = 1.66 - Electric DHW & Dryer	Per installation	New	149	14	\$296	98%	95%	\$-0.25	51
California	Manufactured	Water Heat	Clothes Washer	Energy Star - Tier 3 (MEF 2.46 or higher) Top 10% of Energy Star Model - Electric DHW & Dryer	MEF = 1.66 - Electric DHW & Dryer	Per installation	New	170	14	\$317	98%	99%	\$-0.23	61
California	Manufactured	Water Heat	Dishwasher	Energy Star, July 1st 2011, <= 307 kWh/year , <= 5.0 gallons/cycle	Energy Star - EF65 (6th Plan Baseline)	Per installation	New	33	12	\$42	69%	50%	\$0.17	12
California	Manufactured	Water Heat	Drain Water Heat Recovery (GFX)	Gravity Film Heat Exchanger	No Heat Exchanger	Per installation	New	335	40	\$465	59%	90%	\$0.13	167
California	Manufactured	Water Heat	Faucet Aerators	0.5 GPM	2.2 GPM	Per installation	New	82	9	\$0.71	95%	95%	\$-0.08	83
California	Manufactured	Water Heat	Faucet Aerators	1.5 GPM	2.2 GPM	Per installation	New	34	9	\$0.46	95%	65%	\$-0.08	23
California	Manufactured	Water Heat	Hot Water Pipe Insulation	R-4 Wrap	No insulation	Per installation	New	40	5	\$24	95%	75%	\$0.18	24
California	Manufactured	Water Heat	Low-Flow Showerheads	2.0 GPM	2.5 GPM	Per installation	New	112	10	\$9	95%	65%	\$-0.07	77
California	Manufactured	Water Heat	Water Heater, Heat Pump EF 2.2	Heat Pump Water Heater EF = 2.2	Standard Storage Water Heater EF = 0.92	Per installation	New	1,349	15	\$1,387	59%	N/A	\$0.14	333
California	Manufactured	Water Heat	Water Heater, Storage EF 0.95	Standard Storage Water Heater EF = 0.95	Standard Storage Water Heater EF = 0.92	Per installation	New	75	15	\$48	100%	N/A	\$0.08	3
California	Manufactured	Water Heat	Water_Heater Thermostat Setback	120 degrees	135 degrees	Per installation	New	138	5	\$9	95%	45%	\$0.02	57
California	Multi Family	Computer	Computer, Energy Star	Energy Star Computer	Standard Computer	Per installation	Existing	52	5	\$24	100%	N/A	\$0.14	113
California	Multi Family	Computer	Computer, Energy Star	Energy Star Computer	Standard Computer	Per installation	New	52	5	\$24	100%	N/A	\$0.14	5
California	Multi Family	Cooking Oven	Cooking Oven, High Efficiency	High Efficiency Oven	Standard Oven	Per installation	Existing	58	20	\$282	100%	N/A	\$0.55	67
California	Multi Family	Cooking Oven	Cooking Oven, High Efficiency	High Efficiency Oven	Standard Oven	Per installation	New	58	20	\$282	100%	N/A	\$0.55	15
California	Multi Family	Cool Central	Air-to-Air Heat Exchangers	Air-to-Air Heat Exchangers	No Air to Air Heat Exchangers	Per installation	Existing	109	5	\$588	25%	95%	\$1.52	3
California	Multi Family	Cool Central	Canned Lighting Air Tight Sealing	Canned Lighting Air Tight Sealing	No Air tight Sealing	Per installation	Existing	7	30	\$26	95%	50%	\$0.34	1
California	Multi Family	Cool Central	Ceiling Fan	Ceiling Fan (no lighting kit)	No Ceiling Fan	Per installation	Existing	43	10	\$97	85%	50%	\$0.37	5
California	Multi Family	Cool Central	Ceiling Insulation (CA) above code	R-60	R-49	Per installation	Existing	14	30	\$185	75%	95%	\$1.19	0.93
California	Multi Family	Cool Central	Ceiling Insulation (CA) ave to code	R-49	R-10	Per installation	Existing	226	30	\$855	75%	35%	\$0.36	6
California	Multi Family	Cool Central	Ceiling Insulation (CA) zero to code	R-49	R-0	Per installation	Existing	454	30	\$855	95%	1%	\$0.18	0.50
California	Multi Family	Cool Central	Central Cooling, SEER 15	SEER 15	SEER 13	Per installation	Existing	135	15	\$595	100%	N/A	\$0.57	1
California	Multi Family	Cool Central	Central Cooling, SEER 18	SEER 18	SEER 13	Per installation	Existing	339	15	\$1,490	100%	N/A	\$0.57	20

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California	Multi Family	Cool Central	Check Me! O&M Tune-up	Tune-up/Maintenance	No Tune-up Maintenance	Per installation	Existing	34	5	\$218	95%	75%	\$1.80	3
California	Multi Family	Cool Central	Cool Roofs	Lighter Colored Shingles (White)	Standard Roof Shingles	Per installation	Existing	16	20	\$159	85%	90%	\$1.08	1
California	Multi Family	Cool Central	Doors	R-11 (Steel Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	Existing	23	20	\$171	95%	80%	\$0.80	0.81
California	Multi Family	Cool Central	Doors	R-5 (Composite Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	Existing	15	20	\$200	95%	60%	\$1.41	0.39
California	Multi Family	Cool Central	Doors - Weatherization	Weatherstripping And Adding Door Sweeps	Existing Non-Efficient door	Per installation	Existing	10	6	\$47	95%	50%	\$1.11	0.43
California	Multi Family	Cool Central	Duct Insulation Upgrade	R-8 (code)	R-4	Per installation	Existing	31	20	\$709	75%	75%	\$2.49	1
California	Multi Family	Cool Central	Duct Sealing	Duct Sealing	No Duct Sealing	Per installation	Existing	109	18	\$630	75%	60%	\$0.68	2
California	Multi Family	Cool Central	Duct Sealing - Aerosol-Based	Spray-in ductwork sealant to minimize duct leaks	No Duct Sealing	Per installation	Existing	164	18	\$872	75%	60%	\$0.62	2
California	Multi Family	Cool Central	Floor Insulation (CA) above code	R-38	R-30	Per installation	Existing	22	30	\$238	25%	85%	\$1.04	0.41
California	Multi Family	Cool Central	Floor Insulation (CA) zero to code	R-30	R-0	Per installation	Existing	432	30	\$913	25%	20%	\$0.20	2
California	Multi Family	Cool Central	Infiltration Control (Caulk, Weather Strip, etc.) Blower-Door test	Install Caulking And Weatherstripping	Existing Infiltration Conditions	Per installation	Existing	109	11	\$455	75%	50%	\$0.65	3
California	Multi Family	Cool Central	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands (5 per unit)	13 SEER	Per installation	Existing	167	30	\$622	50%	95%	\$0.36	0.88
California	Multi Family	Cool Central	Proper Sizing - HVAC Unit	Proper Sizing - HVAC Unit	Oversized HVAC Unit	Per installation	Existing	103	15	\$20	95%	65%	\$0.03	9
California	Multi Family	Cool Central	Radiant Barrier (Ceiling)	Install Radiant Barrier	No Radiant Barrier	Per installation	Existing	65	30	\$323	50%	90%	\$0.47	3
California	Multi Family	Cool Central	Thermostat - Multi-Zone	Individual Room Temperature Control for Major Occupied Rooms	Programmable Thermostat - Central Control Only	Per installation	Existing	74	11	\$1,094	50%	95%	\$2.29	3
California	Multi Family	Cool Central	Wall Insulation 2*4 (CA) zero to max feasible	R-13	R-0	Per installation	Existing	258	30	\$1,271	85%	25%	\$0.47	4
California	Multi Family	Cool Central	Wall Insulation 2*6 (CA) zero to max feasible	R-21	R-0	Per installation	Existing	440	30	\$1,449	85%	25%	\$0.32	2
California	Multi Family	Cool Central	Whole-House Fan	Whole-House Fan	No Whole-House Fan	Per installation	Existing	164	20	\$1,712	50%	95%	\$1.16	5
California	Multi Family	Cool Central	Windows (Same for all Building Types)	CL25	CL30	Per installation	Existing	1	30	\$251	51%	85%	\$13.04	0.06
California	Multi Family	Cool Central	Windows (Same for all Building Types)	CL30	Double Pane	Per installation	Existing	19	30	\$2,592	51%	50%	\$12.57	0.41
California	Multi Family	Cool Central	Windows (Same for all Building Types)	CL30	Single Pane	Per installation	Existing	31	30	\$2,592	51%	20%	\$8.02	0.25
California	Multi Family	Cool Central	Air-to-Air Heat Exchangers	Air-to-Air Heat Exchangers	No Air to Air Heat Exchangers	Per installation	New	93	5	\$588	25%	95%	\$1.79	0.64
California	Multi Family	Cool Central	Ceiling Fan	Ceiling Fan (no lighting kit)	No Ceiling Fan	Per installation	New	37	10	\$97	85%	50%	\$0.43	0.92
California	Multi Family	Cool Central	Ceiling Insulation (CA) above code	R-60	R-49	Per installation	New	17	30	\$185	90%	95%	\$1.01	0.32
California	Multi Family	Cool Central	Central Cooling, SEER 15	SEER 15	SEER 13	Per installation	New	130	15	\$595	100%	N/A	\$0.59	0.32
California	Multi Family	Cool Central	Central Cooling, SEER 18	SEER 18	SEER 13	Per installation	New	325	15	\$1,490	100%	N/A	\$0.59	3
California	Multi Family	Cool Central	Check Me! O&M Tune-up	Tune-up/Maintenance	No Tune-up Maintenance	Per installation	New	29	5	\$218	95%	75%	\$2.12	0.60
California	Multi Family	Cool Central	Construction - ICF	Concrete Framing	Standard Wood Framing	Per installation	New	298	45	\$3,802	50%	95%	\$1.13	0.15
California	Multi Family	Cool Central	Construction - SIP	Specialty Framing	Standard Wood Framing	Per installation	New	111	45	\$1,415	50%	95%	\$1.12	0.05
California	Multi Family	Cool Central	Cool Roofs	Lighter Colored Shingles (White)	Standard Roof Shingles	Per installation	New	14	20	\$159	85%	90%	\$1.27	0.17
California	Multi Family	Cool Central	Doors	R-11 (Steel Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	New	20	20	\$25	95%	80%	\$0.14	0.18
California	Multi Family	Cool Central	Doors	R-5 (Composite Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	New	13	20	\$54	95%	60%	\$0.45	0.08
California	Multi Family	Cool Central	Duct Location	Conditioned Space Design - Duct Loss Is Not A Concern	Ducts in Unconditioned Space (Duct loss)	Per installation	New	74	30	\$213	95%	30%	\$0.28	0.12
California	Multi Family	Cool Central	Duct Sealing	Duct Sealing	No Duct Sealing	Per installation	New	93	18	\$278	75%	60%	\$0.35	0.34

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California	Multi Family	Cool Central	Duct Sealing - Aerosol-Based	Spray-in ductwork sealant to minimize duct leaks	No Duct Sealing	Per installation	New	139	18	\$872	75%	60%	\$0.73	0.20
California	Multi Family	Cool Central	Floor Insulation (CA) above code	R-38	R-30	Per installation	New	18	30	\$238	75%	85%	\$1.23	0.25
California	Multi Family	Cool Central	Green Roof	ecorooF	Standard Roof	Per installation	New	47	40	\$8,198	50%	95%	\$15.61	0.08
California	Multi Family	Cool Central	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands (5 per unit)	13 SEER	Per installation	New	142	30	\$622	50%	95%	\$0.42	0.39
California	Multi Family	Cool Central	Proper Sizing - HVAC Unit	Proper Sizing - HVAC Unit	Oversized HVAC Unit	Per installation	New	87	15	\$20	95%	65%	\$0.03	1
California	Multi Family	Cool Central	Radiant Barrier (Ceiling)	Install Radiant Barrier	No Radiant Barrier	Per installation	New	55	30	\$323	75%	90%	\$0.56	0.86
California	Multi Family	Cool Central	Smart Siting	Siting house to minimize heating/cooling costs	No smart siting	Per installation	New	51	45	\$850	40%	75%	\$1.47	0.31
California	Multi Family	Cool Central	Thermostat - Multi-Zone	Individual Room Temperature Control for Major Occupied Rooms	Programmable Thermostat - Central Control Only	Per installation	New	63	11	\$1,094	50%	95%	\$2.70	0.61
California	Multi Family	Cool Central	Whole-House Fan	Whole-House Fan	No Whole-House Fan	Per installation	New	139	20	\$1,712	50%	95%	\$1.37	0.96
California	Multi Family	Cool Central	Windows (Same for all Building Types)	CL22	CL30	Per installation	New	3	30	\$291	95%	75%	\$8.66	0.04
California	Multi Family	Cool Central	Windows (Same for all Building Types)	CL25	CL30	Per installation	New	2	30	\$251	95%	75%	\$11.07	0.03
California	Multi Family	Cool Room	Canned Lighting Air Tight Sealing	Canned Lighting Air Tight Sealing	No Air tight Sealing	Per installation	Existing	3	30	\$26	95%	50%	\$0.64	6
California	Multi Family	Cool Room	Ceiling Fan	Ceiling Fan (no lighting kit)	No Ceiling Fan	Per installation	Existing	23	10	\$97	85%	50%	\$0.68	23
California	Multi Family	Cool Room	Ceiling Insulation (CA) above code	R-60	R-49	Per installation	Existing	8	30	\$185	75%	95%	\$2.14	5
California	Multi Family	Cool Room	Ceiling Insulation (CA) ave to code	R-49	R-10	Per installation	Existing	125	30	\$855	75%	35%	\$0.66	34
California	Multi Family	Cool Room	Ceiling Insulation (CA) zero to code	R-49	R-0	Per installation	Existing	251	30	\$855	95%	1%	\$0.33	2
California	Multi Family	Cool Room	Cool Roofs	Lighter Colored Shingles (White)	Standard Roof Shingles	Per installation	Existing	8	20	\$159	85%	90%	\$2.00	6
California	Multi Family	Cool Room	Doors	R-11 (Steel Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	Existing	12	20	\$171	95%	80%	\$1.48	4
California	Multi Family	Cool Room	Doors	R-5 (Composite Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	Existing	8	20	\$200	95%	60%	\$2.60	2
California	Multi Family	Cool Room	Doors - Weatherization	Weatherstripping And Adding Door Sweeps	Existing Non-Efficient door	Per installation	Existing	5	6	\$47	95%	50%	\$2.05	2
California	Multi Family	Cool Room	Floor Insulation (CA) above code	R-38	R-30	Per installation	Existing	7	30	\$238	25%	85%	\$3.26	1
California	Multi Family	Cool Room	Floor Insulation (CA) zero to code	R-30	R-0	Per installation	Existing	235	30	\$913	25%	20%	\$0.37	13
California	Multi Family	Cool Room	Infiltration Control (Caulk, Weather Strip, etc.) Blower-Door test	Install Caulking And Weatherstripping	Existing Infiltration Conditions	Per installation	Existing	59	11	\$455	75%	50%	\$1.20	20
California	Multi Family	Cool Room	Radiant Barrier (Ceiling)	Install Radiant Barrier	No Radiant Barrier	Per installation	Existing	35	30	\$323	50%	90%	\$0.88	15
California	Multi Family	Cool Room	Room AC conversion to Ductless Heat Pump	SEER 13	EER 9.8	Per installation	Existing	36	20	\$2,698	75%	N/A	\$8.38	45
California	Multi Family	Cool Room	Room AC, EER 10.8	EER 10.8	EER 9.8	Per installation	Existing	28	9	\$7	100%	N/A	\$0.04	9
California	Multi Family	Cool Room	Wall Insulation 2"4 (CA) zero to max feasible	R-13	R-0	Per installation	Existing	142	30	\$1,271	85%	25%	\$0.86	22
California	Multi Family	Cool Room	Wall Insulation 2"6 (CA) zero to max feasible	R-21	R-0	Per installation	Existing	243	30	\$1,449	85%	25%	\$0.57	14
California	Multi Family	Cool Room	Windows (Same for all Building Types)	CL25	CL30	Per installation	Existing	1	30	\$251	51%	85%	\$23.37	0.38
California	Multi Family	Cool Room	Windows (Same for all Building Types)	CL30	Double Pane	Per installation	Existing	11	30	\$2,592	51%	50%	\$22.52	2
California	Multi Family	Cool Room	Windows (Same for all Building Types)	CL30	Single Pane	Per installation	Existing	17	30	\$2,592	51%	20%	\$14.37	1
California	Multi Family	Cool Room	Ceiling Fan	Ceiling Fan (no lighting kit)	No Ceiling Fan	Per installation	New	18	10	\$97	85%	50%	\$0.86	3

Table C.2.1. Residential Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
California	Multi Family	Cool Room	Ceiling Insulation (CA) above code	R-60	R-49	Per installation	New	9	30	\$185	90%	95%	\$1.94	1
California	Multi Family	Cool Room	Construction - ICF	Concrete Framing	Standard Wood Framing	Per installation	New	151	45	\$3,802	50%	95%	\$2.23	0.74
California	Multi Family	Cool Room	Construction - SIP	Specialty Framing	Standard Wood Framing	Per installation	New	56	45	\$1,415	50%	95%	\$2.21	0.28
California	Multi Family	Cool Room	Cool Roofs	Lighter Colored Shingles (White)	Standard Roof Shingles	Per installation	New	7	20	\$159	85%	90%	\$2.51	0.89
California	Multi Family	Cool Room	Doors	R-11 (Steel Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	New	10	20	\$25	95%	80%	\$0.27	0.87
California	Multi Family	Cool Room	Doors	R-5 (Composite Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	New	6	20	\$54	95%	60%	\$0.88	0.43
California	Multi Family	Cool Room	Floor Insulation (CA) above code	R-38	R-30	Per installation	New	5	30	\$238	75%	85%	\$4.10	0.71
California	Multi Family	Cool Room	Green Roof	ecorroof	Standard Roof	Per installation	New	24	40	\$8,198	50%	95%	\$30.77	0.45
California	Multi Family	Cool Room	Radiant Barrier (Ceiling)	Install Radiant Barrier	No Radiant Barrier	Per installation	New	28	30	\$323	75%	90%	\$1.10	4
California	Multi Family	Cool Room	Room AC conversion to Ductless Heat Pump	SEER 13	EER 9.8	Per installation	New	29	20	\$2,698	75%	N/A	\$10.12	3
California	Multi Family	Cool Room	Room AC, EER 10.8	EER 10.8	EER 9.8	Per installation	New	23	9	\$7	100%	N/A	\$0.05	1
California	Multi Family	Cool Room	Smart Siting	Siting house to minimize heating/cooling costs	No smart siting	Per installation	New	26	45	\$850	40%	75%	\$2.90	1
California	Multi Family	Cool Room	Windows (Same for all Building Types)	CL22	CL30	Per installation	New	1	30	\$291	95%	75%	\$16.39	0.24
California	Multi Family	Cool Room	Windows (Same for all Building Types)	CL25	CL30	Per installation	New	1	30	\$251	95%	75%	\$21.14	0.16
California	Multi Family	Dryer	Dryer, Advanced Efficiency EF 3.30	Advanced Efficiency Dryer 3.30	Standard Dryer EF 3.01	Per installation	Existing	38	14	\$224	100%	N/A	\$0.79	53
California	Multi Family	Dryer	Dryer, High Efficiency EF 3.08	High Efficiency Dryer EF 3.08	Standard Dryer EF 3.01	Per installation	Existing	9	14	\$54	100%	N/A	\$0.74	1
California	Multi Family	Dryer	Dryer, Premium Efficiency EF 3.19	Premium Efficiency Dryer 3.19	Standard Dryer EF 3.01	Per installation	Existing	24	14	\$139	100%	N/A	\$0.76	7
California	Multi Family	Dryer	Dryer, Advanced Efficiency EF 3.30	Advanced Efficiency Dryer 3.30	Standard Dryer EF 3.01	Per installation	New	38	14	\$224	100%	N/A	\$0.79	7
California	Multi Family	Dryer	Dryer, High Efficiency EF 3.08	High Efficiency Dryer EF 3.08	Standard Dryer EF 3.01	Per installation	New	9	14	\$54	100%	N/A	\$0.74	0.18
California	Multi Family	Dryer	Dryer, Premium Efficiency EF 3.19	Premium Efficiency Dryer 3.19	Standard Dryer EF 3.01	Per installation	New	24	14	\$139	100%	N/A	\$0.76	1
California	Multi Family	Freezer	Freezer, Energy Star	Energy Star Freezer	Standard Freezer	Per installation	Existing	46	20	\$22	76%	N/A	\$0.05	0.70
California	Multi Family	Freezer	Stand-Alone Freezer - Removal	Proper Disposal of Freezer	Existing Non-Efficient Freezer	Per installation	Existing	1,377	8	\$106	17%	99%	\$0.02	3
California	Multi Family	Freezer	Freezer, Energy Star	Energy Star Freezer	Standard Freezer	Per installation	New	46	20	\$22	76%	N/A	\$0.05	0.30
California	Multi Family	Heat Central	Air-to-Air Heat Exchangers	Air-to-Air Heat Exchangers	No Air to Air Heat Exchangers	Per installation	Existing	651	5	\$588	25%	95%	\$0.26	19
California	Multi Family	Heat Central	Canned Lighting Air Tight Sealing	Canned Lighting Air Tight Sealing	No Air tight Sealing	Per installation	Existing	59	30	\$26	95%	50%	\$0.04	9
California	Multi Family	Heat Central	Ceiling Insulation (CA) above code	R-60	R-49	Per installation	Existing	122	30	\$185	75%	95%	\$0.15	7
California	Multi Family	Heat Central	Ceiling Insulation (CA) ave to code	R-49	R-10	Per installation	Existing	1,850	30	\$855	75%	35%	\$0.04	54
California	Multi Family	Heat Central	Ceiling Insulation (CA) zero to code	R-49	R-0	Per installation	Existing	3,706	30	\$855	95%	1%	\$0.02	4
California	Multi Family	Heat Central	Doors	R-11 (Steel Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	Existing	195	20	\$171	95%	80%	\$0.10	7
California	Multi Family	Heat Central	Doors	R-5 (Composite Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	Existing	130	20	\$200	95%	60%	\$0.17	3
California	Multi Family	Heat Central	Doors - Weatherization	Weatherstripping And Adding Door Sweeps	Existing Non-Efficient door	Per installation	Existing	84	6	\$47	95%	50%	\$0.14	3
California	Multi Family	Heat Central	Duct Insulation Upgrade	R-8 (code)	R-4	Per installation	Existing	260	20	\$709	75%	75%	\$0.30	12
California	Multi Family	Heat Central	Duct Sealing	Duct Sealing	No Duct Sealing	Per installation	Existing	651	18	\$630	75%	15%	\$0.11	4
California	Multi Family	Heat Central	Duct Sealing - Aerosol-Based	Spray-in ductwork sealant to minimize duct leaks	No Duct Sealing	Per installation	Existing	977	18	\$872	75%	15%	\$0.11	3
California	Multi Family	Heat Central	Floor Insulation (CA) above code	R-38	R-30	Per installation	Existing	179	30	\$238	25%	85%	\$0.13	3

Table C.2.1. Residential Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
California	Multi Family	Heat Central	Floor Insulation (CA) zero to code	R-30	R-0	Per installation	Existing	3,531	30	\$913	25%	20%	\$0.03	21
California	Multi Family	Heat Central	Infiltration Control (Caulk, Weather Strip, etc.) Blower-Door test	Install Caulking And Weatherstripping	Existing Infiltration Conditions	Per installation	Existing	651	11	\$455	75%	50%	\$0.11	23
California	Multi Family	Heat Central	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands (5 per unit)	13 SEER	Per installation	Existing	1,368	30	\$622	50%	15%	\$0.04	1
California	Multi Family	Heat Central	Proper Sizing - HVAC Unit	Proper Sizing - HVAC Unit	Oversized HVAC Unit	Per installation	Existing	614	15	\$20	15%	65%	\$0.00	7
California	Multi Family	Heat Central	Radiant Barrier (Ceiling)	Install Radiant Barrier	No Radiant Barrier	Per installation	Existing	130	30	\$323	50%	90%	\$0.24	5
California	Multi Family	Heat Central	Thermostat - Multi-Zone	Individual Room Temperature Control for Major Occupied Rooms	Programmable Thermostat - Central Control Only	Per installation	Existing	443	11	\$1,094	50%	95%	\$0.39	18
California	Multi Family	Heat Central	Wall Insulation 2*4 (CA) zero to max feasible	R-13	R-0	Per installation	Existing	2,106	30	\$1,271	85%	25%	\$0.06	34
California	Multi Family	Heat Central	Wall Insulation 2*6 (CA) zero to max feasible	R-21	R-0	Per installation	Existing	3,597	30	\$1,449	85%	25%	\$0.04	22
California	Multi Family	Heat Central	Windows (Same for all Building Types)	CL25	CL30	Per installation	Existing	15	30	\$251	51%	85%	\$1.60	0.54
California	Multi Family	Heat Central	Windows (Same for all Building Types)	CL30	Double Pane	Per installation	Existing	162	30	\$2,592	51%	50%	\$1.54	3
California	Multi Family	Heat Central	Windows (Same for all Building Types)	CL30	Single Pane	Per installation	Existing	254	30	\$2,592	51%	20%	\$0.98	2
California	Multi Family	Heat Central	Air-to-Air Heat Exchangers	Air-to-Air Heat Exchangers	No Air to Air Heat Exchangers	Per installation	New	416	5	\$588	25%	95%	\$0.40	2
California	Multi Family	Heat Central	Ceiling Insulation (CA) above code	R-60	R-49	Per installation	New	108	30	\$185	90%	95%	\$0.16	2
California	Multi Family	Heat Central	Construction - ICF	Concrete Framing	Standard Wood Framing	Per installation	New	1,832	45	\$3,802	50%	95%	\$0.18	0.96
California	Multi Family	Heat Central	Construction - SIP	Specialty Framing	Standard Wood Framing	Per installation	New	499	45	\$1,415	50%	95%	\$0.25	0.25
California	Multi Family	Heat Central	Doors	R-11 (Steel Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	New	124	20	\$25	95%	80%	\$0.02	1
California	Multi Family	Heat Central	Doors	R-5 (Composite Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	New	83	20	\$54	95%	60%	\$0.07	0.54
California	Multi Family	Heat Central	Duct Location	Conditioned Space Design - Duct Loss Is Not A Concern	Ducts in Unconditioned Space (Duct loss)	Per installation	New	333	30	\$213	95%	15%	\$0.06	0.27
California	Multi Family	Heat Central	Duct Sealing	Duct Sealing	No Duct Sealing	Per installation	New	416	18	\$278	75%	15%	\$0.08	0.37
California	Multi Family	Heat Central	Duct Sealing - Aerosol-Based	Spray-in ductwork sealant to minimize duct leaks	No Duct Sealing	Per installation	New	624	18	\$872	75%	15%	\$0.16	0.23
California	Multi Family	Heat Central	Floor Insulation (CA) above code	R-38	R-30	Per installation	New	114	30	\$238	75%	85%	\$0.20	1
California	Multi Family	Heat Central	Green Roof	ecorooF	Standard Roof	Per installation	New	291	40	\$8,198	50%	95%	\$2.54	0.56
California	Multi Family	Heat Central	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands (5 per unit)	13 SEER	Per installation	New	874	30	\$622	50%	15%	\$0.07	0.37
California	Multi Family	Heat Central	Proper Sizing - HVAC Unit	Proper Sizing - HVAC Unit	Oversized HVAC Unit	Per installation	New	392	15	\$20	15%	65%	\$0.01	0.92
California	Multi Family	Heat Central	Radiant Barrier (Ceiling)	Install Radiant Barrier	No Radiant Barrier	Per installation	New	83	30	\$323	75%	90%	\$0.37	1
California	Multi Family	Heat Central	Smart Siting	Siting house to minimize heating/cooling costs	No smart siting	Per installation	New	12	45	\$850	40%	75%	\$5.83	0.07
California	Multi Family	Heat Central	Thermostat - Multi-Zone	Individual Room Temperature Control for Major Occupied Rooms	Programmable Thermostat - Central Control Only	Per installation	New	283	11	\$1,094	50%	95%	\$0.60	2
California	Multi Family	Heat Central	Windows (Same for all Building Types)	CL22	CL30	Per installation	New	19	30	\$291	95%	75%	\$1.41	0.29
California	Multi Family	Heat Central	Windows (Same for all Building Types)	CL25	CL30	Per installation	New	13	30	\$251	95%	75%	\$1.80	0.19
California	Multi Family	Heat Pump	Air-to-Air Heat Exchangers	Air-to-Air Heat Exchangers	No Air to Air Heat Exchangers	Per installation	Existing	449	5	\$588	25%	95%	\$0.37	77
California	Multi Family	Heat Pump	Canned Lighting Air Tight Sealing	Canned Lighting Air Tight Sealing	No Air tight Sealing	Per installation	Existing	38	30	\$26	95%	50%	\$0.07	34
California	Multi Family	Heat Pump	Ceiling Fan	Ceiling Fan (no lighting kit)	No Ceiling Fan	Per installation	Existing	43	10	\$97	85%	50%	\$0.37	26

Table C.2.1. Residential Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
California	Multi Family	Heat Pump	Ceiling Insulation (CA) above code	R-60	R-49	Per installation	Existing	33	30	\$185	75%	95%	\$0.53	12
California	Multi Family	Heat Pump	Ceiling Insulation (CA) ave to code	R-49	R-10	Per installation	Existing	534	30	\$855	75%	35%	\$0.15	83
California	Multi Family	Heat Pump	Ceiling Insulation (CA) zero to code	R-49	R-0	Per installation	Existing	1,070	30	\$855	95%	1%	\$0.08	6
California	Multi Family	Heat Pump	Check Me! O&M Tune-up	Tune-up/Maintenance	No Tune-up Maintenance	Per installation	Existing	32	5	\$218	95%	75%	\$1.90	16
California	Multi Family	Heat Pump	Cool Roofs	Lighter Colored Shingles (White)	Standard Roof Shingles	Per installation	Existing	16	20	\$159	85%	90%	\$1.09	5
California	Multi Family	Heat Pump	Doors	R-11 (Steel Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	Existing	126	20	\$171	95%	80%	\$0.15	28
California	Multi Family	Heat Pump	Doors	R-5 (Composite Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	Existing	84	20	\$200	95%	60%	\$0.27	12
California	Multi Family	Heat Pump	Doors - Weatherization	Weatherstripping And Adding Door Sweeps	Existing Non-Efficient door	Per installation	Existing	58	6	\$47	95%	50%	\$0.20	14
California	Multi Family	Heat Pump	Duct Insulation Upgrade	R-8 (code)	R-4	Per installation	Existing	167	20	\$709	75%	75%	\$0.47	48
California	Multi Family	Heat Pump	Duct Sealing	Duct Sealing	No Duct Sealing	Per installation	Existing	449	18	\$630	75%	60%	\$0.17	67
California	Multi Family	Heat Pump	Duct Sealing - Aerosol-Based	Spray-in ductwork sealant to minimize duct leaks	No Duct Sealing	Per installation	Existing	674	18	\$872	75%	60%	\$0.15	55
California	Multi Family	Heat Pump	Floor Insulation (CA) above code	R-38	R-30	Per installation	Existing	124	30	\$238	25%	85%	\$0.19	14
California	Multi Family	Heat Pump	Floor Insulation (CA) zero to code	R-30	R-0	Per installation	Existing	2,435	30	\$913	25%	20%	\$0.04	79
California	Multi Family	Heat Pump	Ground Source Heat Pump, EER 16.2, COP 3.6	GSHP EER 16.2, HSPF 8.8	ASHP SEER 13, HSPF 7.7	Per installation	Existing	1,594	20	\$10,248	25%	N/A	\$0.72	80
California	Multi Family	Heat Pump	Heat Pump High Efficiency, SEER 14, HSPF 8.5	ASHP SEER 14, HSPF 8.5	ASHP SEER 13, HSPF 7.7	Per installation	Existing	394	20	\$411	100%	N/A	\$0.12	19
California	Multi Family	Heat Pump	Heat Pump Premium Efficiency, SEER 16, HSPF 8.8	ASHP SEER 16, HSPF 8.8	ASHP SEER 13, HSPF 7.7	Per installation	Existing	605	20	\$1,233	100%	N/A	\$0.23	111
California	Multi Family	Heat Pump	Infiltration Control (Caulk, Weather Strip, etc.) Blower-Door test	Install Caulking And Weatherstripping	Existing Infiltration Conditions	Per installation	Existing	449	11	\$455	75%	50%	\$0.16	96
California	Multi Family	Heat Pump	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands (5 per unit)	13 SEER	Per installation	Existing	943	30	\$622	50%	95%	\$0.06	28
California	Multi Family	Heat Pump	Proper Sizing - HVAC Unit	Proper Sizing - HVAC Unit	Oversized HVAC Unit	Per installation	Existing	423	15	\$20	95%	65%	\$0.01	190
California	Multi Family	Heat Pump	Radiant Barrier (Ceiling)	Install Radiant Barrier	No Radiant Barrier	Per installation	Existing	144	30	\$323	50%	90%	\$0.22	33
California	Multi Family	Heat Pump	Thermostat - Multi-Zone	Individual Room Temperature Control for Major Occupied Rooms	Programmable Thermostat - Central Control Only	Per installation	Existing	305	11	\$1,094	50%	95%	\$0.56	72
California	Multi Family	Heat Pump	Wall Insulation 2*4 (CA) zero to max feasible	R-13	R-0	Per installation	Existing	605	30	\$1,271	85%	25%	\$0.20	51
California	Multi Family	Heat Pump	Wall Insulation 2*6 (CA) zero to max feasible	R-21	R-0	Per installation	Existing	1,033	30	\$1,449	85%	25%	\$0.14	34
California	Multi Family	Heat Pump	Whole-House Fan	Whole-House Fan	No Whole-House Fan	Per installation	Existing	162	20	\$1,712	50%	95%	\$1.18	28
California	Multi Family	Heat Pump	Windows (Same for all Building Types)	CL25	CL30	Per installation	Existing	4	30	\$251	51%	85%	\$5.60	0.89
California	Multi Family	Heat Pump	Windows (Same for all Building Types)	CL30	Double Pane	Per installation	Existing	46	30	\$2,592	51%	50%	\$5.40	5
California	Multi Family	Heat Pump	Windows (Same for all Building Types)	CL30	Single Pane	Per installation	Existing	72	30	\$2,592	51%	20%	\$3.44	3
California	Multi Family	Heat Pump	Air-to-Air Heat Exchangers	Air-to-Air Heat Exchangers	No Air to Air Heat Exchangers	Per installation	New	371	5	\$588	25%	95%	\$0.45	12
California	Multi Family	Heat Pump	Ceiling Fan	Ceiling Fan (no lighting kit)	No Ceiling Fan	Per installation	New	35	10	\$97	85%	50%	\$0.45	4
California	Multi Family	Heat Pump	Ceiling Insulation (CA) above code	R-60	R-49	Per installation	New	36	30	\$185	90%	95%	\$0.49	3
California	Multi Family	Heat Pump	Check Me! O&M Tune-up	Tune-up/Maintenance	No Tune-up Maintenance	Per installation	New	26	5	\$218	95%	75%	\$2.30	2
California	Multi Family	Heat Pump	Construction - ICF	Concrete Framing	Standard Wood Framing	Per installation	New	1,525	45	\$3,802	50%	95%	\$0.22	4
California	Multi Family	Heat Pump	Construction - SIP	Specialty Framing	Standard Wood Framing	Per installation	New	445	45	\$1,415	50%	95%	\$0.28	1

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California	Multi Family	Heat Pump	Cool Roofs	Lighter Colored Shingles (White)	Standard Roof Shingles	Per installation	New	13	20	\$159	85%	90%	\$1.32	0.90
California	Multi Family	Heat Pump	Doors	R-11 (Steel Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	New	104	20	\$25	95%	80%	\$0.03	5
California	Multi Family	Heat Pump	Doors	R-5 (Composite Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	New	69	20	\$54	95%	60%	\$0.09	2
California	Multi Family	Heat Pump	Duct Location	Conditioned Space Design - Duct Loss Is Not A Concern	Ducts in Unconditioned Space (Duct loss)	Per installation	New	296	30	\$213	95%	30%	\$0.07	2
California	Multi Family	Heat Pump	Duct Sealing	Duct Sealing	No Duct Sealing	Per installation	New	371	18	\$278	75%	60%	\$0.09	7
California	Multi Family	Heat Pump	Duct Sealing - Aerosol-Based	Spray-in ductwork sealant to minimize duct leaks	No Duct Sealing	Per installation	New	556	18	\$872	75%	60%	\$0.18	4
California	Multi Family	Heat Pump	Floor Insulation (CA) above code	R-38	R-30	Per installation	New	102	30	\$238	75%	85%	\$0.22	7
California	Multi Family	Heat Pump	Green Roof	ecorooft	Standard Roof	Per installation	New	241	40	\$8,198	50%	95%	\$3.06	2
California	Multi Family	Heat Pump	Ground Source Heat Pump, EER 16.2, COP 3.6	GSHP EER 16.2, HSPF 8.8	ASHP SEER 13, HSPF 7.7	Per installation	New	1,357	20	\$10,382	25%	N/A	\$0.86	17
California	Multi Family	Heat Pump	Heat Pump High Efficiency, SEER 14, HSPF 8.5	ASHP SEER 14, HSPF 8.5	ASHP SEER 13, HSPF 7.7	Per installation	New	334	20	\$411	100%	N/A	\$0.14	5
California	Multi Family	Heat Pump	Heat Pump Premium Efficiency, SEER 16, HSPF 8.8	ASHP SEER 16, HSPF 8.8	ASHP SEER 13, HSPF 7.7	Per installation	New	523	20	\$1,233	100%	N/A	\$0.26	25
California	Multi Family	Heat Pump	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands (5 per unit)	13 SEER	Per installation	New	779	30	\$622	50%	95%	\$0.08	11
California	Multi Family	Heat Pump	Proper Sizing - HVAC Unit	Proper Sizing - HVAC Unit	Oversized HVAC Unit	Per installation	New	349	15	\$20	95%	65%	\$0.01	31
California	Multi Family	Heat Pump	Radiant Barrier (Ceiling)	Install Radiant Barrier	No Radiant Barrier	Per installation	New	118	30	\$323	75%	90%	\$0.26	9
California	Multi Family	Heat Pump	Smart Siting	Siting house to minimize heating/cooling costs	No smart siting	Per installation	New	54	45	\$850	40%	75%	\$1.39	1
California	Multi Family	Heat Pump	Thermostat - Multi-Zone	Individual Room Temperature Control for Major Occupied Rooms	Programmable Thermostat - Central Control Only	Per installation	New	252	11	\$1,094	50%	95%	\$0.68	13
California	Multi Family	Heat Pump	Whole-House Fan	Whole-House Fan	No Whole-House Fan	Per installation	New	134	20	\$1,712	50%	95%	\$1.43	4
California	Multi Family	Heat Pump	Windows (Same for all Building Types)	CL22	CL30	Per installation	New	6	30	\$291	95%	75%	\$4.20	0.51
California	Multi Family	Heat Pump	Windows (Same for all Building Types)	CL25	CL30	Per installation	New	4	30	\$251	95%	75%	\$5.16	0.36
California	Multi Family	Heat Room	Canned Lighting Air Tight Sealing	Canned Lighting Air Tight Sealing	No Air tight Sealing	Per installation	Existing	45	30	\$26	95%	50%	\$0.05	130
California	Multi Family	Heat Room	Ceiling Insulation (CA) above code	R-60	R-49	Per installation	Existing	96	30	\$185	75%	95%	\$0.18	112
California	Multi Family	Heat Room	Ceiling Insulation (CA) ave to code	R-49	R-10	Per installation	Existing	1,458	30	\$855	75%	35%	\$0.06	752
California	Multi Family	Heat Room	Ceiling Insulation (CA) zero to code	R-49	R-0	Per installation	Existing	2,920	30	\$855	95%	1%	\$0.03	58
California	Multi Family	Heat Room	Conversion Baseboard Heating to DHP	Ductless Heat Pump HSPF 7.7	HSPF = 1	Per installation	Existing	721	20	\$2,470	65%	N/A	\$0.38	920
California	Multi Family	Heat Room	Doors	R-11 (Steel Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	Existing	150	20	\$171	95%	80%	\$0.13	98
California	Multi Family	Heat Room	Doors	R-5 (Composite Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	Existing	100	20	\$200	95%	60%	\$0.22	45
California	Multi Family	Heat Room	Doors - Weatherization	Weatherstripping And Adding Door Sweeps	Existing Non-Efficient door	Per installation	Existing	65	6	\$47	95%	50%	\$0.18	50
California	Multi Family	Heat Room	Floor Insulation (CA) above code	R-38	R-30	Per installation	Existing	81	30	\$238	25%	85%	\$0.28	27
California	Multi Family	Heat Room	Floor Insulation (CA) zero to code	R-30	R-0	Per installation	Existing	2,743	30	\$913	25%	20%	\$0.03	289
California	Multi Family	Heat Room	Infiltration Control (Cauk, Weather Strip, etc.) Blower-Door test	Install Caulking And Weatherstripping	Existing Infiltration Conditions	Per installation	Existing	501	11	\$455	75%	50%	\$0.14	320
California	Multi Family	Heat Room	Radiant Barrier (Ceiling)	Install Radiant Barrier	No Radiant Barrier	Per installation	Existing	100	30	\$323	50%	90%	\$0.31	71

Table C.2.1. Residential Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
California	Multi Family	Heat Room	Wall Insulation 2*4 (CA) zero to max feasible	R-13	R-0	Per installation	Existing	1,657	30	\$1,271	85%	25%	\$0.07	479
California	Multi Family	Heat Room	Wall Insulation 2*6 (CA) zero to max feasible	R-21	R-0	Per installation	Existing	2,830	30	\$1,449	85%	25%	\$0.05	308
California	Multi Family	Heat Room	Windows (Same for all Building Types)	CL25	CL30	Per installation	Existing	12	30	\$251	51%	85%	\$2.01	8
California	Multi Family	Heat Room	Windows (Same for all Building Types)	CL30	Double Pane	Per installation	Existing	129	30	\$2,592	51%	50%	\$1.94	51
California	Multi Family	Heat Room	Windows (Same for all Building Types)	CL30	Single Pane	Per installation	Existing	202	30	\$2,592	51%	20%	\$1.24	32
California	Multi Family	Heat Room	Ceiling Insulation (CA) above code	R-60	R-49	Per installation	New	85	30	\$185	90%	95%	\$0.21	29
California	Multi Family	Heat Room	Construction - ICF	Concrete Framing	Standard Wood Framing	Per installation	New	1,411	45	\$3,802	50%	95%	\$0.24	13
California	Multi Family	Heat Room	Construction - SIP	Specialty Framing	Standard Wood Framing	Per installation	New	384	45	\$1,415	50%	95%	\$0.33	3
California	Multi Family	Heat Room	Conversion Baseboard Heating to DHP	Ductless Heat Pump HSPF 7.7	HSPF = 1	Per installation	New	461	20	\$2,470	65%	N/A	\$0.60	162
California	Multi Family	Heat Room	Doors	R-11 (Steel Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	New	96	20	\$25	95%	80%	\$0.03	14
California	Multi Family	Heat Room	Doors	R-5 (Composite Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	New	64	20	\$54	95%	60%	\$0.09	7
California	Multi Family	Heat Room	Floor Insulation (CA) above code	R-38	R-30	Per installation	New	52	30	\$238	75%	85%	\$0.44	12
California	Multi Family	Heat Room	Green Roof	ecorooF	Standard Roof	Per installation	New	224	40	\$8,198	50%	95%	\$3.30	8
California	Multi Family	Heat Room	Radiant Barrier (Ceiling)	Install Radiant Barrier	No Radiant Barrier	Per installation	New	64	30	\$323	75%	90%	\$0.49	16
California	Multi Family	Heat Room	Smart Siting	Siting house to minimize heating/cooling costs	No smart siting	Per installation	New	9	45	\$850	40%	75%	\$7.57	1
California	Multi Family	Heat Room	Windows (Same for all Building Types)	CL22	CL30	Per installation	New	16	30	\$291	95%	75%	\$1.76	4
California	Multi Family	Heat Room	Windows (Same for all Building Types)	CL25	CL30	Per installation	New	10	30	\$251	95%	75%	\$2.27	2
California	Multi Family	Lighting Exterior	CFL, Flood (17 W)	CFL, Flood	Standard Incandescent Flood	Per installation	Existing	53	5	\$0.91	100%	N/A	\$0.00	8
California	Multi Family	Lighting Exterior	Time Clocks (Exterior Lighting)	Exterior Lighting on a Time Clock	Exterior Lighting (Manual Control)	Per installation	Existing	25	10	\$16	80%	85%	\$0.11	9
California	Multi Family	Lighting Exterior	CFL, Flood (17 W)	CFL, Flood	Standard Incandescent Flood	Per installation	New	53	5	\$0.91	100%	N/A	\$0.00	0.24
California	Multi Family	Lighting Exterior	Time Clocks (Exterior Lighting)	Exterior Lighting on a Time Clock	Exterior Lighting (Manual Control)	Per installation	New	25	10	\$16	80%	85%	\$0.11	2
California	Multi Family	Lighting Interior Specialty	CFL (13 W, 20 W, 25 W)	CFL (3-Way)	Standard Incandescent (3-Way)	Per installation	Existing	43	5	\$3	100%	N/A	\$0.02	245
California	Multi Family	Lighting Interior Specialty	CFL (13 W, 20 W, 25 W)	CFL (3-Way)	Standard Incandescent (3-Way)	Per installation	New	43	5	\$3	100%	N/A	\$0.02	4
California	Multi Family	Lighting Interior Standard	Daylighting Controls (Photocell) - Indoor/Outdoors	Install Photocell	No Daylighting Controls	Per installation	Existing	23	20	\$151	25%	95%	\$0.73	1
California	Multi Family	Lighting Interior Standard	Lighting CFL 15 W	15 W CFL	Standard 60 W Incandescent	Per installation	Existing	40	5	\$2	100%	N/A	\$0.02	106
California	Multi Family	Lighting Interior Standard	Lighting LED 7 W	7 W LED	Standard 60 W Incandescent	Per installation	Existing	51	20	\$36	50%	N/A	\$0.08	884
California	Multi Family	Lighting Interior Standard	Occupancy Sensors	Wall-Switch Occupancy Sensors	No Occupancy Sensor	Per installation	Existing	5	10	\$32	85%	95%	\$0.94	37
California	Multi Family	Lighting Interior Standard	Daylighting Controls (Photocell) - Indoor/Outdoors	Install Photocell	No Daylighting Controls	Per installation	New	23	20	\$151	25%	95%	\$0.73	0.39
California	Multi Family	Lighting Interior Standard	Lighting CFL 15 W	15 W CFL	Standard 60 W Incandescent	Per installation	New	40	5	\$2	100%	N/A	\$0.02	3
California	Multi Family	Lighting Interior Standard	Lighting LED 7 W	7 W LED	Standard 60 W Incandescent	Per installation	New	51	20	\$36	50%	N/A	\$0.08	19
California	Multi Family	Lighting Interior Standard	Occupancy Sensors	Wall-Switch Occupancy Sensors	No Occupancy Sensor	Per installation	New	5	10	\$32	85%	95%	\$0.94	8
California	Multi Family	Microwave	Microwave, High Efficiency	High Efficiency Microwave	Standard Microwave	Per installation	Existing	9	15	\$79	100%	N/A	\$1.05	28

Table C.2.1. Residential Measure Details

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California	Multi Family	Microwave	Microwave, High Efficiency	High Efficiency Microwave	Standard Microwave	Per installation	New	9	15	\$79	100%	N/A	\$1.05	4
California	Multi Family	Monitor	Monitor, Energy Star	Energy Star Monitor	Standard Monitor	Per installation	Existing	36	5	\$3	100%	N/A	\$0.03	67
California	Multi Family	Monitor	Monitor, Energy Star	Energy Star Monitor	Standard Monitor	Per installation	New	36	5	\$3	100%	N/A	\$0.03	3
California	Multi Family	Plug Load Other	1-Watt Standby Power	1W or less standby power use for small appliances	Standard plug load appliance.	Per installation	Existing	17	7	\$30	50%	50%	\$0.37	95
California	Multi Family	Plug Load Other	Energy Star Battery Chargers	Energy Star Battery Chargers	Standard Battery Chargers	Per installation	Existing	0.55	7	\$33	50%	80%	\$13.24	11
California	Multi Family	Plug Load Other	Office Copier	Office Copier	Standard Copier	Per installation	Existing	38	6	\$5	10%	50%	\$0.03	9
California	Multi Family	Plug Load Other	Office Printer	Office Printer	Standard Printer	Per installation	Existing	4	5	\$5	20%	50%	\$0.28	2
California	Multi Family	Plug Load Other	Smart Strip	Smart Strip	Standard PowerStrip	Per installation	Existing	102	5	\$22	50%	85%	\$0.06	217
California	Multi Family	Plug Load Other	1-Watt Standby Power	1W or less standby power use for small appliances	Standard plug load appliance.	Per installation	New	17	7	\$30	50%	50%	\$0.37	18
California	Multi Family	Plug Load Other	Energy Star Battery Chargers	Energy Star Battery Chargers	Standard Battery Chargers	Per installation	New	0.55	7	\$2	50%	80%	\$1.01	2
California	Multi Family	Plug Load Other	Office Copier	Office Copier	Standard Copier	Per installation	New	39	6	\$5	10%	50%	\$0.03	1
California	Multi Family	Plug Load Other	Office Printer	Office Printer	Standard Printer	Per installation	New	5	5	\$5	20%	50%	\$0.28	0.49
California	Multi Family	Plug Load Other	Smart Strip	Smart Strip	Standard PowerStrip	Per installation	New	102	5	\$22	50%	85%	\$0.06	42
California	Multi Family	Refrigerator	Refrigerator, Energy Star	Energy Star Refrigerator	Standard Refrigerator	Per installation	Existing	122	20	\$15	97%	N/A	\$0.01	130
California	Multi Family	Refrigerator	Refrigerator/Freezer - Removal of Secondary	Proper Disposal of Refrigerator/Freezer	Existing Non-Efficient Refrigerator/Freezer	Per installation	Existing	1,390	9	\$109	2%	99%	\$0.01	17
California	Multi Family	Refrigerator	Refrigerator, Energy Star	Energy Star Refrigerator	Standard Refrigerator	Per installation	New	122	20	\$15	100%	N/A	\$0.01	31
California	Multi Family	Set Top Box	Set Top Box, Energy Star	Energy Star Set Top Box	Standard Set Top Box	Per installation	Existing	164	5	\$12	100%	N/A	\$0.02	451
California	Multi Family	Set Top Box	Set Top Box, Energy Star	Energy Star Set Top Box	Standard Set Top Box	Per installation	New	164	5	\$12	100%	N/A	\$0.02	19
California	Multi Family	Tv	TV CRT, Energy Star	Energy Star CRT TV	Standard CRT TV	Per installation	Existing	43	10	\$19	100%	N/A	\$0.07	4
California	Multi Family	Tv	TV CRT, Energy Star	Energy Star CRT TV	Standard CRT TV	Per installation	New	43	10	\$19	100%	N/A	\$0.07	0.55
California	Multi Family	Tv Bigscreen	TV LCD, Energy Star	Energy Star LCD TV	Standard LCD TV	Per installation	Existing	77	10	\$19	100%	N/A	\$0.04	1
California	Multi Family	Tv Bigscreen	TV LCD, Energy Star	Energy Star LCD TV	Standard LCD TV	Per installation	New	77	10	\$19	100%	N/A	\$0.04	0.21
California	Multi Family	Ventilation And Circulation	Motor, ECM	ECM Motor	Standard Motor	Per installation	Existing	48	20	\$172	50%	N/A	\$0.40	4
California	Multi Family	Ventilation And Circulation	Motor, ECM - VFD	ECM/VFD Motor	Standard Motor	Per installation	Existing	144	20	\$194	50%	N/A	\$0.15	13
California	Multi Family	Ventilation And Circulation	Motor, ECM	ECM Motor	Standard Motor	Per installation	New	31	20	\$172	50%	N/A	\$0.61	0.70
California	Multi Family	Ventilation And Circulation	Motor, ECM - VFD	ECM/VFD Motor	Standard Motor	Per installation	New	94	20	\$194	50%	N/A	\$0.23	2
California	Multi Family	Water Heat	Clothes Washer	Energy Star - Tier 1 (MEF 2.0 - 2.19) - Electric DHW & Dryer	MEF = 1.66 - Electric DHW & Dryer	Per installation	Existing	111	14	\$227	50%	85%	\$-0.27	55
California	Multi Family	Water Heat	Clothes Washer	Energy Star - Tier 2 (MEF 2.2 - 2.45) - Electric DHW & Dryer	MEF = 1.66 - Electric DHW & Dryer	Per installation	Existing	148	14	\$296	50%	90%	\$-0.25	78
California	Multi Family	Water Heat	Clothes Washer	Energy Star - Tier 3 (MEF 2.46 or higher) Top 10% of Energy Star Model - Electric DHW & Dryer	MEF = 1.66 - Electric DHW & Dryer	Per installation	Existing	169	14	\$317	50%	95%	\$-0.23	94
California	Multi Family	Water Heat	Dishwasher	Energy Star, July 1st 2011, <= 307 kWh/year , <= 5.0 gallons/cycle	Energy Star - EF65 (6th Plan Baseline)	Per installation	Existing	32	12	\$42	27%	50%	\$0.17	15
California	Multi Family	Water Heat	Drain Water Heat Recovery (GFX)	Gravity Film Heat Exchanger	No Heat Exchanger	Per installation	Existing	371	40	\$551	29%	90%	\$0.13	280
California	Multi Family	Water Heat	Faucet Aerators	0.5 GPM	2.2 GPM	Per installation	Existing	81	9	\$0.71	95%	95%	\$-0.08	259
California	Multi Family	Water Heat	Faucet Aerators	1.5 GPM	2.2 GPM	Per installation	Existing	33	9	\$0.46	95%	65%	\$-0.08	73
California	Multi Family	Water Heat	Faucet Aerators	2.2 GPM	Existing Faucet Aerator (3.0 GPM)	Per installation	Existing	37	9	\$1	95%	25%	\$-0.08	63

Table C.2.1. Residential Measure Details

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California	Multi Family	Water Heat	Hot Water Pipe Insulation	R-4 Wrap	No insulation	Per installation	Existing	39	5	\$24	95%	75%	\$0.18	75
California	Multi Family	Water Heat	Low-Flow Showerheads	2.0 GPM	2.5 GPM	Per installation	Existing	111	10	\$16	95%	65%	-\$0.06	242
California	Multi Family	Water Heat	Water Heater, Storage EF 0.95	Standard Storage Water Heater EF = 0.95	Standard Storage Water Heater EF = 0.92	Per installation	Existing	49	15	\$48	100%	N/A	\$0.13	7
California	Multi Family	Water Heat	Water_Heater Tank Blanket/Insulation	Install Insulation (R-5)	No Tank Insulation	Per installation	Existing	99	10	\$11	50%	20%	\$0.02	29
California	Multi Family	Water Heat	Water_Heater Thermostat Setback	120 degrees	135 degrees	Per installation	Existing	91	5	\$9	95%	45%	\$0.03	114
California	Multi Family	Water Heat	Clothes Washer	Energy Star - Tier 1 (MEF 2.0 - 2.19) - Electric DHW & Dryer	MEF = 1.66 - Electric DHW & Dryer	Per installation	New	112	14	\$227	50%	85%	-\$0.27	11
California	Multi Family	Water Heat	Clothes Washer	Energy Star - Tier 2 (MEF 2.2 - 2.45) - Electric DHW & Dryer	MEF = 1.66 - Electric DHW & Dryer	Per installation	New	149	14	\$296	50%	90%	-\$0.25	15
California	Multi Family	Water Heat	Clothes Washer	Energy Star - Tier 3 (MEF 2.46 or higher) Top 10% of Energy Star Model - Electric DHW & Dryer	MEF = 1.66 - Electric DHW & Dryer	Per installation	New	170	14	\$317	50%	95%	-\$0.23	18
California	Multi Family	Water Heat	Dishwasher	Energy Star, July 1st 2011, <= 307 kWh/year, <= 5.0 gallons/cycle	Energy Star - EF65 (6th Plan Baseline)	Per installation	New	33	12	\$42	27%	50%	\$0.17	3
California	Multi Family	Water Heat	Drain Water Heat Recovery (GFX)	Gravity Film Heat Exchanger	No Heat Exchanger	Per installation	New	369	40	\$465	59%	90%	\$0.11	112
California	Multi Family	Water Heat	Faucet Aerators	0.5 GPM	2.2 GPM	Per installation	New	82	9	\$0.71	95%	95%	-\$0.08	51
California	Multi Family	Water Heat	Faucet Aerators	1.5 GPM	2.2 GPM	Per installation	New	34	9	\$0.46	95%	65%	-\$0.08	14
California	Multi Family	Water Heat	Hot Water Pipe Insulation	R-4 Wrap	No insulation	Per installation	New	40	5	\$24	95%	75%	\$0.18	14
California	Multi Family	Water Heat	Low-Flow Showerheads	2.0 GPM	2.5 GPM	Per installation	New	112	10	\$9	95%	65%	-\$0.07	48
California	Multi Family	Water Heat	Water Heater, Storage EF 0.95	Standard Storage Water Heater EF = 0.95	Standard Storage Water Heater EF = 0.92	Per installation	New	49	15	\$48	100%	N/A	\$0.13	1
California	Multi Family	Water Heat	Water_Heater Thermostat Setback	120 degrees	135 degrees	Per installation	New	91	5	\$9	95%	45%	\$0.03	22
California	Single Family	Computer	Computer, Energy Star	Energy Star Computer	Standard Computer	Per installation	Existing	46	5	\$21	100%	N/A	\$0.13	1,327
California	Single Family	Computer	Computer, Energy Star	Energy Star Computer	Standard Computer	Per installation	New	46	5	\$21	100%	N/A	\$0.13	62
California	Single Family	Cooking Oven	Cooking Oven, High Efficiency	High Efficiency Oven	Standard Oven	Per installation	Existing	58	20	\$282	100%	N/A	\$0.55	494
California	Single Family	Cooking Oven	Cooking Oven, High Efficiency	High Efficiency Oven	Standard Oven	Per installation	New	58	20	\$282	100%	N/A	\$0.55	113
California	Single Family	Cool Central	Air-to-Air Heat Exchangers	Air-to-Air Heat Exchangers	No Air to Air Heat Exchangers	Per installation	Existing	141	5	\$588	50%	95%	\$1.18	497
California	Single Family	Cool Central	Canned Lighting Air Tight Sealing	Canned Lighting Air Tight Sealing	No Air tight Sealing	Per installation	Existing	4	30	\$26	95%	50%	\$0.62	66
California	Single Family	Cool Central	Ceiling Fan	Ceiling Fan (no lighting kit)	No Ceiling Fan	Per installation	Existing	37	10	\$97	85%	50%	\$0.43	356
California	Single Family	Cool Central	Ceiling Insulation (CA) above code	R-60	R-49	Per installation	Existing	19	30	\$490	75%	95%	\$2.45	56
California	Single Family	Cool Central	Ceiling Insulation (CA) ave to code	R-49	R-10	Per installation	Existing	291	30	\$2,263	75%	35%	\$0.75	378
California	Single Family	Cool Central	Ceiling Insulation (CA) zero to code	R-49	R-0	Per installation	Existing	583	30	\$2,263	95%	1%	\$0.37	32
California	Single Family	Cool Central	Central Cooling, SEER 15	SEER 15	SEER 13	Per installation	Existing	205	15	\$595	100%	N/A	\$0.37	55
California	Single Family	Cool Central	Central Cooling, SEER 18	SEER 18	SEER 13	Per installation	Existing	513	15	\$1,490	100%	N/A	\$0.38	1,045
California	Single Family	Cool Central	Check Me! O&M Tune-up	Tune-up/Maintenance	No Tune-up Maintenance	Per installation	Existing	44	5	\$218	95%	75%	\$1.40	233
California	Single Family	Cool Central	Cool Roofs	Lighter Colored Shingles (White)	Standard Roof Shingles	Per installation	Existing	21	20	\$404	85%	90%	\$2.13	68
California	Single Family	Cool Central	Doors	R-11 (Steel Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	Existing	15	20	\$171	95%	80%	\$1.25	53
California	Single Family	Cool Central	Doors	R-5 (Composite Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	Existing	10	20	\$200	95%	60%	\$2.19	24
California	Single Family	Cool Central	Doors - Weatherization	Weatherstripping And Adding Door Sweeps	Existing Non-Efficient door	Per installation	Existing	6	6	\$47	95%	50%	\$1.73	28
California	Single Family	Cool Central	Duct Insulation Upgrade	R-8 (code)	R-4	Per installation	Existing	41	20	\$709	75%	75%	\$1.94	103
California	Single Family	Cool Central	Duct Sealing	Duct Sealing	No Duct Sealing	Per installation	Existing	141	18	\$711	75%	60%	\$0.59	211
California	Single Family	Cool Central	Duct Sealing - Aerosol-Based	Spray-in ductwork sealant to minimize duct leaks	No Duct Sealing	Per installation	Existing	211	18	\$872	75%	60%	\$0.48	161

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California	Single Family	Cool Central	Floor Insulation (CA) above code	R-38	R-30	Per installation	Existing	28	30	\$630	25%	85%	\$2.15	25
California	Single Family	Cool Central	Floor Insulation (CA) zero to code	R-30	R-0	Per installation	Existing	556	30	\$2,418	25%	20%	\$0.42	160
California	Single Family	Cool Central	Infiltration Control (Caulk, Weather Strip, etc.) Blower-Door test	Install Caulking And Weatherstripping	Existing Infiltration Conditions	Per installation	Existing	141	11	\$556	75%	50%	\$0.62	274
California	Single Family	Cool Central	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands (5 per unit)	13 SEER	Per installation	Existing	215	30	\$622	50%	95%	\$0.28	61
California	Single Family	Cool Central	Proper Sizing - HVAC Unit	Proper Sizing - HVAC Unit	Oversized HVAC Unit	Per installation	Existing	133	15	\$20	95%	65%	\$0.02	610
California	Single Family	Cool Central	Radiant Barrier (Ceiling)	Install Radiant Barrier	No Radiant Barrier	Per installation	Existing	84	30	\$855	50%	90%	\$0.97	178
California	Single Family	Cool Central	Thermostat - Multi-Zone	Individual Room Temperature Control for Major Occupied Rooms	Programmable Thermostat - Central Control Only	Per installation	Existing	95	11	\$1,282	75%	95%	\$2.09	302
California	Single Family	Cool Central	Wall Insulation 2*4 (CA) zero to max feasible	R-13	R-0	Per installation	Existing	331	30	\$2,067	85%	25%	\$0.60	285
California	Single Family	Cool Central	Wall Insulation 2*6 (CA) zero to max feasible	R-21	R-0	Per installation	Existing	566	30	\$2,358	85%	25%	\$0.40	177
California	Single Family	Cool Central	Whole-House Fan	Whole-House Fan	No Whole-House Fan	Per installation	Existing	211	20	\$1,712	50%	95%	\$0.91	373
California	Single Family	Cool Central	Windows (Same for all Building Types)	CL25	CL30	Per installation	Existing	2	30	\$409	65%	75%	\$16.50	4
California	Single Family	Cool Central	Windows (Same for all Building Types)	CL30	Double Pane	Per installation	Existing	25	30	\$4,216	65%	25%	\$15.90	16
California	Single Family	Cool Central	Windows (Same for all Building Types)	CL30	Single Pane	Per installation	Existing	40	30	\$4,216	65%	25%	\$10.15	26
California	Single Family	Cool Central	Air-to-Air Heat Exchangers	Air-to-Air Heat Exchangers	No Air to Air Heat Exchangers	Per installation	New	124	5	\$588	50%	95%	\$1.34	88
California	Single Family	Cool Central	Ceiling Fan	Ceiling Fan (no lighting kit)	No Ceiling Fan	Per installation	New	33	10	\$97	85%	50%	\$0.49	63
California	Single Family	Cool Central	Ceiling Insulation (CA) above code	R-60	R-49	Per installation	New	23	30	\$490	90%	95%	\$2.00	18
California	Single Family	Cool Central	Central Cooling, SEER 15	SEER 15	SEER 13	Per installation	New	214	15	\$595	100%	N/A	\$0.36	12
California	Single Family	Cool Central	Central Cooling, SEER 18	SEER 18	SEER 13	Per installation	New	535	15	\$1,490	100%	N/A	\$0.36	191
California	Single Family	Cool Central	Check Me! O&M Tune-up	Tune-up/Maintenance	No Tune-up Maintenance	Per installation	New	38	5	\$218	95%	75%	\$1.59	41
California	Single Family	Cool Central	Construction - ICF	Concrete Framing	Standard Wood Framing	Per installation	New	399	45	\$6,186	50%	95%	\$1.37	8
California	Single Family	Cool Central	Construction - SIP	Specialty Framing	Standard Wood Framing	Per installation	New	149	45	\$2,302	50%	95%	\$1.36	3
California	Single Family	Cool Central	Cool Roofs	Lighter Colored Shingles (White)	Standard Roof Shingles	Per installation	New	18	20	\$404	85%	90%	\$2.41	9
California	Single Family	Cool Central	Doors	R-11 (Steel Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	New	13	20	\$25	95%	80%	\$0.21	12
California	Single Family	Cool Central	Doors	R-5 (Composite Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	New	9	20	\$54	95%	60%	\$0.67	5
California	Single Family	Cool Central	Duct Location	Conditioned Space Design - Duct Loss Is Not A Concern	Ducts in Unconditioned Space (Duct loss)	Per installation	New	99	30	\$282	95%	30%	\$0.27	8
California	Single Family	Cool Central	Duct Sealing	Duct Sealing	No Duct Sealing	Per installation	New	124	18	\$368	75%	60%	\$0.35	22
California	Single Family	Cool Central	Duct Sealing - Aerosol-Based	Spray-in ductwork sealant to minimize duct leaks	No Duct Sealing	Per installation	New	187	18	\$872	75%	60%	\$0.55	12
California	Single Family	Cool Central	Floor Insulation (CA) above code	R-38	R-30	Per installation	New	25	30	\$630	75%	85%	\$2.43	13
California	Single Family	Cool Central	Green Roof	ecorof	Standard Roof	Per installation	New	63	40	\$20,824	50%	95%	\$29.60	5
California	Single Family	Cool Central	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands (5 per unit)	13 SEER	Per installation	New	190	30	\$622	50%	95%	\$0.32	26
California	Single Family	Cool Central	Proper Sizing - HVAC Unit	Proper Sizing - HVAC Unit	Oversized HVAC Unit	Per installation	New	117	15	\$20	95%	65%	\$0.02	108
California	Single Family	Cool Central	Radiant Barrier (Ceiling)	Install Radiant Barrier	No Radiant Barrier	Per installation	New	74	30	\$855	75%	90%	\$1.10	48
California	Single Family	Cool Central	Smart Siting	Siting house to minimize heating/cooling costs	No smart siting	Per installation	New	68	45	\$850	75%	75%	\$1.10	38
California	Single Family	Cool Central	Thermal Shell - Infiltration @0.2 ACH w/HRV	0.2 ACH w/HRV	Standard New Construction Home 0.35 ACH	Per installation	New	176	30	\$921	85%	95%	\$0.50	162

Table C.2.1. Residential Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
California	Single Family	Cool Central	Thermostat - Multi-Zone	Individual Room Temperature Control for Major Occupied Rooms	Programmable Thermostat - Central Control Only	Per installation	New	84	11	\$1,282	75%	95%	\$2.36	54
California	Single Family	Cool Central	Whole-House Fan	Whole-House Fan	No Whole-House Fan	Per installation	New	187	20	\$1,712	50%	95%	\$1.02	66
California	Single Family	Cool Central	Windows (Same for all Building Types)	CL22	CL30	Per installation	New	4	30	\$474	95%	75%	\$10.52	2
California	Single Family	Cool Central	Windows (Same for all Building Types)	CL25	CL30	Per installation	New	2	30	\$409	95%	75%	\$13.44	1
California	Single Family	Cool Room	Canned Lighting Air Tight Sealing	Canned Lighting Air Tight Sealing	No Air tight Sealing	Per installation	Existing	2	30	\$26	95%	50%	\$1.10	28
California	Single Family	Cool Room	Ceiling Fan	Ceiling Fan (no lighting kit)	No Ceiling Fan	Per installation	Existing	21	10	\$97	85%	50%	\$0.76	120
California	Single Family	Cool Room	Ceiling Insulation (CA) above code	R-60	R-49	Per installation	Existing	11	30	\$490	75%	95%	\$4.22	26
California	Single Family	Cool Room	Ceiling Insulation (CA) ave to code	R-49	R-10	Per installation	Existing	168	30	\$2,263	75%	35%	\$1.29	166
California	Single Family	Cool Room	Ceiling Insulation (CA) zero to code	R-49	R-0	Per installation	Existing	337	30	\$2,263	95%	1%	\$0.65	13
California	Single Family	Cool Room	Cool Roofs	Lighter Colored Shingles (White)	Standard Roof Shingles	Per installation	Existing	12	20	\$404	85%	90%	\$3.77	31
California	Single Family	Cool Room	Doors	R-11 (Steel Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	Existing	8	20	\$171	95%	80%	\$2.21	22
California	Single Family	Cool Room	Doors	R-5 (Composite Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	Existing	5	20	\$200	95%	60%	\$3.87	11
California	Single Family	Cool Room	Doors - Weatherization	Weatherstripping And Adding Door Sweeps	Existing Non-Efficient door	Per installation	Existing	3	6	\$47	95%	50%	\$3.05	12
California	Single Family	Cool Room	Floor Insulation (CA) above code	R-38	R-30	Per installation	Existing	16	30	\$630	25%	85%	\$3.76	11
California	Single Family	Cool Room	Floor Insulation (CA) zero to code	R-30	R-0	Per installation	Existing	317	30	\$2,418	25%	20%	\$0.74	66
California	Single Family	Cool Room	Infiltration Control (Caulk, Weather Strip, etc.) Blower-Door test	Install Caulking And Weatherstripping	Existing Infiltration Conditions	Per installation	Existing	79	11	\$556	75%	50%	\$1.09	117
California	Single Family	Cool Room	Radiant Barrier (Ceiling)	Install Radiant Barrier	No Radiant Barrier	Per installation	Existing	47	30	\$855	50%	90%	\$1.72	76
California	Single Family	Cool Room	Room AC conversion to Ductless Heat Pump	SEER 13	EER 9.8	Per installation	Existing	32	20	\$2,232	75%	N/A	\$7.74	235
California	Single Family	Cool Room	Room AC, EER 10.8	EER 10.8	EER 9.8	Per installation	Existing	25	9	\$7	100%	N/A	\$0.05	47
California	Single Family	Cool Room	Wall Insulation 2*4 (CA) zero to max feasible	R-13	R-0	Per installation	Existing	191	30	\$2,067	85%	25%	\$1.04	124
California	Single Family	Cool Room	Wall Insulation 2*6 (CA) zero to max feasible	R-21	R-0	Per installation	Existing	327	30	\$2,358	85%	25%	\$0.69	74
California	Single Family	Cool Room	Windows (Same for all Building Types)	CL25	CL30	Per installation	Existing	1	30	\$409	65%	75%	\$28.28	2
California	Single Family	Cool Room	Windows (Same for all Building Types)	CL30	Double Pane	Per installation	Existing	14	30	\$4,216	65%	25%	\$27.26	7
California	Single Family	Cool Room	Windows (Same for all Building Types)	CL30	Single Pane	Per installation	Existing	23	30	\$4,216	65%	25%	\$17.39	12
California	Single Family	Cool Room	Ceiling Fan	Ceiling Fan (no lighting kit)	No Ceiling Fan	Per installation	New	19	10	\$97	85%	50%	\$0.85	21
California	Single Family	Cool Room	Ceiling Insulation (CA) above code	R-60	R-49	Per installation	New	13	30	\$490	90%	95%	\$3.38	8
California	Single Family	Cool Room	Construction - ICF	Concrete Framing	Standard Wood Framing	Per installation	New	229	45	\$6,186	50%	95%	\$2.39	3
California	Single Family	Cool Room	Construction - SIP	Specialty Framing	Standard Wood Framing	Per installation	New	85	45	\$2,302	50%	95%	\$2.37	1
California	Single Family	Cool Room	Cool Roofs	Lighter Colored Shingles (White)	Standard Roof Shingles	Per installation	New	10	20	\$404	85%	90%	\$4.20	4
California	Single Family	Cool Room	Doors	R-11 (Steel Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	New	7	20	\$25	95%	80%	\$0.36	5
California	Single Family	Cool Room	Doors	R-5 (Composite Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	New	5	20	\$54	95%	60%	\$1.16	2
California	Single Family	Cool Room	Floor Insulation (CA) above code	R-38	R-30	Per installation	New	14	30	\$630	75%	85%	\$4.19	6

Table C.2.1. Residential Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
California	Single Family	Cool Room	Green Roof	ecorof	Standard Roof	Per installation	New	36	40	\$20,824	50%	95%	\$51.54	2
California	Single Family	Cool Room	Radiant Barrier (Ceiling)	Install Radiant Barrier	No Radiant Barrier	Per installation	New	42	30	\$855	75%	90%	\$1.92	20
California	Single Family	Cool Room	Room AC conversion to Ductless Heat Pump	SEER 13	EER 9.8	Per installation	New	30	20	\$2,232	75%	N/A	\$8.28	19
California	Single Family	Cool Room	Room AC, EER 10.8	EER 10.8	EER 9.8	Per installation	New	24	9	\$7	100%	N/A	\$0.05	7
California	Single Family	Cool Room	Smart Siting	Siting house to minimize heating/cooling costs	No smart siting	Per installation	New	39	45	\$850	75%	75%	\$1.91	16
California	Single Family	Cool Room	Thermal Shell - Infiltration @0.2 ACH w/HRV	0.2 ACH w/HRV	Standard New Construction Home 0.35 ACH	Per installation	New	106	30	\$921	85%	95%	\$0.83	73
California	Single Family	Cool Room	Windows (Same for all Building Types)	CL22	CL30	Per installation	New	2	30	\$474	95%	75%	\$17.58	1
California	Single Family	Cool Room	Windows (Same for all Building Types)	CL25	CL30	Per installation	New	1	30	\$409	95%	75%	\$22.68	0.81
California	Single Family	Dryer	Dryer, Advanced Efficiency EF 3.30	Advanced Efficiency Dryer 3.30	Standard Dryer EF 3.01	Per installation	Existing	50	14	\$224	100%	N/A	\$0.59	972
California	Single Family	Dryer	Dryer, High Efficiency EF 3.08	High Efficiency Dryer EF 3.08	Standard Dryer EF 3.01	Per installation	Existing	13	14	\$54	100%	N/A	\$0.56	21
California	Single Family	Dryer	Dryer, Premium Efficiency EF 3.19	Premium Efficiency Dryer 3.19	Standard Dryer EF 3.01	Per installation	Existing	32	14	\$139	100%	N/A	\$0.57	144
California	Single Family	Dryer	Dryer, Advanced Efficiency EF 3.30	Advanced Efficiency Dryer 3.30	Standard Dryer EF 3.01	Per installation	New	50	14	\$224	100%	N/A	\$0.59	145
California	Single Family	Dryer	Dryer, High Efficiency EF 3.08	High Efficiency Dryer EF 3.08	Standard Dryer EF 3.01	Per installation	New	13	14	\$54	100%	N/A	\$0.56	3
California	Single Family	Dryer	Dryer, Premium Efficiency EF 3.19	Premium Efficiency Dryer 3.19	Standard Dryer EF 3.01	Per installation	New	32	14	\$139	100%	N/A	\$0.57	27
California	Single Family	Freezer	Freezer, Energy Star	Energy Star Freezer	Standard Freezer	Per installation	Existing	46	20	\$22	76%	N/A	\$0.05	102
California	Single Family	Freezer	Stand-Alone Freezer - Removal	Proper Disposal of Freezer	Existing Non-Efficient Freezer	Per installation	Existing	1,376	8	\$106	17%	99%	\$0.02	562
California	Single Family	Freezer	Freezer, Energy Star	Energy Star Freezer	Standard Freezer	Per installation	New	46	20	\$22	76%	N/A	\$0.05	43
California	Single Family	Heat Central	Air-to-Air Heat Exchangers	Air-to-Air Heat Exchangers	No Air to Air Heat Exchangers	Per installation	Existing	944	5	\$588	50%	95%	\$0.18	925
California	Single Family	Heat Central	Canned Lighting Air Tight Sealing	Canned Lighting Air Tight Sealing	No Air tight Sealing	Per installation	Existing	37	30	\$26	95%	50%	\$0.07	213
California	Single Family	Heat Central	Ceiling Insulation (CA) above code	R-60	R-49	Per installation	Existing	177	30	\$490	75%	95%	\$0.27	180
California	Single Family	Heat Central	Ceiling Insulation (CA) ave to code	R-49	R-10	Per installation	Existing	2,683	30	\$2,263	75%	35%	\$0.08	1,196
California	Single Family	Heat Central	Ceiling Insulation (CA) zero to code	R-49	R-0	Per installation	Existing	5,375	30	\$2,263	95%	1%	\$0.04	99
California	Single Family	Heat Central	Conversion Electric Furnace to ASHP	Air Source Heat Pump Seer 13 HSPF 7.7	Electric Furnace HSPF 1	Per installation	Existing	5,119	20	\$2,957	100%	N/A	\$0.06	2,829
California	Single Family	Heat Central	Doors	R-11 (Steel Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	Existing	141	20	\$171	95%	80%	\$0.14	161
California	Single Family	Heat Central	Doors	R-5 (Composite Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	Existing	94	20	\$200	95%	60%	\$0.24	77
California	Single Family	Heat Central	Doors - Weatherization	Weatherstripping And Adding Door Sweeps	Existing Non-Efficient door	Per installation	Existing	61	6	\$47	95%	50%	\$0.19	86
California	Single Family	Heat Central	Duct Insulation Upgrade	R-8 (code)	R-4	Per installation	Existing	377	20	\$709	75%	75%	\$0.21	313
California	Single Family	Heat Central	Duct Sealing	Duct Sealing	No Duct Sealing	Per installation	Existing	944	18	\$711	75%	15%	\$0.09	100
California	Single Family	Heat Central	Duct Sealing - Aerosol-Based	Spray-in ductwork sealant to minimize duct leaks	No Duct Sealing	Per installation	Existing	1,417	18	\$872	75%	15%	\$0.07	81
California	Single Family	Heat Central	Floor Insulation (CA) above code	R-38	R-30	Per installation	Existing	260	30	\$630	25%	85%	\$0.23	79
California	Single Family	Heat Central	Floor Insulation (CA) zero to code	R-30	R-0	Per installation	Existing	5,120	30	\$2,418	25%	20%	\$0.05	480
California	Single Family	Heat Central	Infiltration Control (Caulk, Weather Strip, etc.) Blower-Door test	Install Caulking And Weatherstripping	Existing Infiltration Conditions	Per installation	Existing	944	11	\$556	75%	50%	\$0.09	553
California	Single Family	Heat Central	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands (5 per unit)	13 SEER	Per installation	Existing	1,984	30	\$622	50%	15%	\$0.03	28
California	Single Family	Heat Central	Proper Sizing - HVAC Unit	Proper Sizing - HVAC Unit	Oversized HVAC Unit	Per installation	Existing	890	15	\$20	15%	65%	\$0.00	179

Table C.2.1. Residential Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
California	Single Family	Heat Central	Radiant Barrier (Ceiling)	Install Radiant Barrier	No Radiant Barrier	Per installation	Existing	188	30	\$855	50%	90%	\$0.44	113
California	Single Family	Heat Central	Thermostat - Multi-Zone	Individual Room Temperature Control for Major Occupied Rooms	Programmable Thermostat - Central Control Only	Per installation	Existing	642	11	\$1,282	75%	95%	\$0.31	644
California	Single Family	Heat Central	Wall Insulation 2'4 (CA) zero to max feasible	R-13	R-0	Per installation	Existing	3,055	30	\$2,067	85%	25%	\$0.07	888
California	Single Family	Heat Central	Wall Insulation 2'6 (CA) zero to max feasible	R-21	R-0	Per installation	Existing	5,217	30	\$2,358	85%	25%	\$0.04	535
California	Single Family	Heat Central	Windows (Same for all Building Types)	CL25	CL30	Per installation	Existing	22	30	\$409	65%	75%	\$1.79	14
California	Single Family	Heat Central	Windows (Same for all Building Types)	CL30	Double Pane	Per installation	Existing	235	30	\$4,216	65%	25%	\$1.73	50
California	Single Family	Heat Central	Windows (Same for all Building Types)	CL30	Single Pane	Per installation	Existing	368	30	\$4,216	65%	25%	\$1.10	79
California	Single Family	Heat Central	Air-to-Air Heat Exchangers	Air-to-Air Heat Exchangers	No Air to Air Heat Exchangers	Per installation	New	653	5	\$588	50%	95%	\$0.26	123
California	Single Family	Heat Central	Ceiling Insulation (CA) above code	R-60	R-49	Per installation	New	170	30	\$490	90%	95%	\$0.28	43
California	Single Family	Heat Central	Construction - ICF	Concrete Framing	Standard Wood Framing	Per installation	New	2,874	45	\$6,186	50%	95%	\$0.19	20
California	Single Family	Heat Central	Construction - SIP	Specialty Framing	Standard Wood Framing	Per installation	New	783	45	\$2,302	50%	95%	\$0.26	5
California	Single Family	Heat Central	Conversion Electric Furnace to ASHP	Air Source Heat Pump Seer 13 HSPF 7.7	Electric Furnace HSPF 1	Per installation	New	3,538	20	\$2,824	100%	N/A	\$0.09	459
California	Single Family	Heat Central	Doors	R-11 (Steel Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	New	97	20	\$25	95%	80%	\$0.03	27
California	Single Family	Heat Central	Doors	R-5 (Composite Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	New	65	20	\$54	95%	60%	\$0.09	11
California	Single Family	Heat Central	Duct Location	Conditioned Space Design - Duct Loss Is Not A Concern	Ducts in Unconditioned Space (Duct loss)	Per installation	New	522	30	\$282	95%	15%	\$0.05	6
California	Single Family	Heat Central	Duct Sealing	Duct Sealing	No Duct Sealing	Per installation	New	653	18	\$368	75%	15%	\$0.07	9
California	Single Family	Heat Central	Duct Sealing - Aerosol-Based	Spray-in ductwork sealant to minimize duct leaks	No Duct Sealing	Per installation	New	979	18	\$872	75%	15%	\$0.10	5
California	Single Family	Heat Central	Floor Insulation (CA) above code	R-38	R-30	Per installation	New	180	30	\$630	75%	85%	\$0.34	33
California	Single Family	Heat Central	Green Roof	ecorroof	Standard Roof	Per installation	New	457	40	\$20,824	50%	95%	\$4.11	11
California	Single Family	Heat Central	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands (5 per unit)	13 SEER	Per installation	New	1,371	30	\$622	50%	15%	\$0.04	9
California	Single Family	Heat Central	Proper Sizing - HVAC Unit	Proper Sizing - HVAC Unit	Oversized HVAC Unit	Per installation	New	615	15	\$20	15%	65%	\$0.00	23
California	Single Family	Heat Central	Radiant Barrier (Ceiling)	Install Radiant Barrier	No Radiant Barrier	Per installation	New	130	30	\$855	75%	90%	\$0.63	24
California	Single Family	Heat Central	Smart Siting	Siting house to minimize heating/cooling costs	No smart siting	Per installation	New	20	45	\$850	75%	75%	\$3.71	3
California	Single Family	Heat Central	Thermal Shell - Infiltration @0.2 ACH w/HRV	0.2 ACH w/HRV	Standard New Construction Home 0.35 ACH	Per installation	New	1,271	30	\$921	85%	95%	\$0.07	376
California	Single Family	Heat Central	Thermostat - Multi-Zone	Individual Room Temperature Control for Major Occupied Rooms	Programmable Thermostat - Central Control Only	Per installation	New	444	11	\$1,282	75%	95%	\$0.45	91
California	Single Family	Heat Central	Windows (Same for all Building Types)	CL22	CL30	Per installation	New	31	30	\$474	95%	75%	\$1.46	6
California	Single Family	Heat Central	Windows (Same for all Building Types)	CL25	CL30	Per installation	New	21	30	\$409	95%	75%	\$1.87	4
California	Single Family	Heat Pump	Air-to-Air Heat Exchangers	Air-to-Air Heat Exchangers	No Air to Air Heat Exchangers	Per installation	Existing	895	5	\$588	50%	95%	\$0.19	1,247
California	Single Family	Heat Pump	Canned Lighting Air Tight Sealing	Canned Lighting Air Tight Sealing	No Air tight Sealing	Per installation	Existing	33	30	\$26	95%	50%	\$0.07	278
California	Single Family	Heat Pump	Ceiling Fan	Ceiling Fan (no lighting kit)	No Ceiling Fan	Per installation	Existing	36	10	\$97	85%	50%	\$0.44	138
California	Single Family	Heat Pump	Ceiling Insulation (CA) above code	R-60	R-49	Per installation	Existing	67	30	\$490	75%	95%	\$0.70	90
California	Single Family	Heat Pump	Ceiling Insulation (CA) ave to code	R-49	R-10	Per installation	Existing	1,065	30	\$2,263	75%	35%	\$0.20	597
California	Single Family	Heat Pump	Ceiling Insulation (CA) zero to code	R-49	R-0	Per installation	Existing	2,134	30	\$2,263	95%	1%	\$0.10	45

Table C.2.1. Residential Measure Details

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California	Single Family	Heat Pump	Check Me! O&M Tune-up	Tune-up/Maintenance	No Tune-up Maintenance	Per installation	Existing	41	5	\$218	95%	75%	\$1.49	86
California	Single Family	Heat Pump	Cool Roofs	Lighter Colored Shingles (White)	Standard Roof Shingles	Per installation	Existing	20	20	\$404	85%	90%	\$2.17	29
California	Single Family	Heat Pump	Doors	R-11 (Steel Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	Existing	128	20	\$171	95%	80%	\$0.15	217
California	Single Family	Heat Pump	Doors	R-5 (Composite Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	Existing	86	20	\$200	95%	60%	\$0.26	98
California	Single Family	Heat Pump	Doors - Weatherization	Weatherstripping And Adding Door Sweeps	Existing Non-Efficient door	Per installation	Existing	58	6	\$47	95%	50%	\$0.20	118
California	Single Family	Heat Pump	Duct Insulation Upgrade	R-8 (code)	R-4	Per installation	Existing	343	20	\$709	75%	75%	\$0.23	399
California	Single Family	Heat Pump	Duct Sealing	Duct Sealing	No Duct Sealing	Per installation	Existing	895	18	\$711	75%	60%	\$0.09	581
California	Single Family	Heat Pump	Duct Sealing - Aerosol-Based	Spray-in ductwork sealant to minimize duct leaks	No Duct Sealing	Per installation	Existing	1,343	18	\$872	75%	60%	\$0.08	445
California	Single Family	Heat Pump	Floor Insulation (CA) above code	R-38	R-30	Per installation	Existing	247	30	\$630	25%	85%	\$0.25	106
California	Single Family	Heat Pump	Floor Insulation (CA) zero to code	R-30	R-0	Per installation	Existing	4,855	30	\$2,418	25%	20%	\$0.05	620
California	Single Family	Heat Pump	Ground Source Heat Pump, EER 16.2, COP 3.6	GSHP EER 16.2, HSPF 8.8	ASHP SEER 13, HSPF 7.7	Per installation	Existing	3,136	20	\$10,248	40%	N/A	\$0.37	999
California	Single Family	Heat Pump	Heat Pump High Efficiency, SEER 14, HSPF 8.5	ASHP SEER 14, HSPF 8.5	ASHP SEER 13, HSPF 7.7	Per installation	Existing	779	20	\$411	100%	N/A	\$0.06	129
California	Single Family	Heat Pump	Heat Pump Premium Efficiency, SEER 16, HSPF 8.8	ASHP SEER 16, HSPF 8.8	ASHP SEER 13, HSPF 7.7	Per installation	Existing	1,158	20	\$1,233	100%	N/A	\$0.12	745
California	Single Family	Heat Pump	Infiltration Control (Caulk, Weather Strip, etc.) Blower-Door test	Install Caulking And Weatherstripping	Existing Infiltration Conditions	Per installation	Existing	895	11	\$556	75%	50%	\$0.10	785
California	Single Family	Heat Pump	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands (5 per unit)	13 SEER	Per installation	Existing	1,881	30	\$622	50%	95%	\$0.03	230
California	Single Family	Heat Pump	Proper Sizing - HVAC Unit	Proper Sizing - HVAC Unit	Oversized HVAC Unit	Per installation	Existing	844	15	\$20	95%	65%	\$0.00	1,528
California	Single Family	Heat Pump	Radiant Barrier (Ceiling)	Install Radiant Barrier	No Radiant Barrier	Per installation	Existing	248	30	\$855	50%	90%	\$0.33	212
California	Single Family	Heat Pump	Thermostat - Multi-Zone	Individual Room Temperature Control for Major Occupied Rooms	Programmable Thermostat - Central Control Only	Per installation	Existing	609	11	\$1,282	75%	95%	\$0.33	868
California	Single Family	Heat Pump	Wall Insulation 2*4 (CA) zero to max feasible	R-13	R-0	Per installation	Existing	1,206	30	\$2,067	85%	25%	\$0.17	422
California	Single Family	Heat Pump	Wall Insulation 2*6 (CA) zero to max feasible	R-21	R-0	Per installation	Existing	2,061	30	\$2,358	85%	25%	\$0.11	245
California	Single Family	Heat Pump	Whole-House Fan	Whole-House Fan	No Whole-House Fan	Per installation	Existing	207	20	\$1,712	50%	95%	\$0.92	144
California	Single Family	Heat Pump	Windows (Same for all Building Types)	CL25	CL30	Per installation	Existing	8	30	\$409	65%	75%	\$4.57	7
California	Single Family	Heat Pump	Windows (Same for all Building Types)	CL30	Double Pane	Per installation	Existing	92	30	\$4,216	65%	25%	\$4.40	27
California	Single Family	Heat Pump	Windows (Same for all Building Types)	CL30	Single Pane	Per installation	Existing	144	30	\$4,216	65%	25%	\$2.81	43
California	Single Family	Heat Pump	Air-to-Air Heat Exchangers	Air-to-Air Heat Exchangers	No Air to Air Heat Exchangers	Per installation	New	638	5	\$588	50%	95%	\$0.26	177
California	Single Family	Heat Pump	Ceiling Fan	Ceiling Fan (no lighting kit)	No Ceiling Fan	Per installation	New	26	10	\$97	85%	50%	\$0.62	19
California	Single Family	Heat Pump	Ceiling Insulation (CA) above code	R-60	R-49	Per installation	New	62	30	\$490	90%	95%	\$0.75	22
California	Single Family	Heat Pump	Check Me! O&M Tune-up	Tune-up/Maintenance	No Tune-up Maintenance	Per installation	New	29	5	\$218	95%	75%	\$2.09	12
California	Single Family	Heat Pump	Construction - ICF	Concrete Framing	Standard Wood Framing	Per installation	New	2,689	45	\$6,186	50%	95%	\$0.20	28
California	Single Family	Heat Pump	Construction - SIP	Specialty Framing	Standard Wood Framing	Per installation	New	765	45	\$2,302	50%	95%	\$0.27	8
California	Single Family	Heat Pump	Cool Roofs	Lighter Colored Shingles (White)	Standard Roof Shingles	Per installation	New	14	20	\$404	85%	90%	\$3.05	3
California	Single Family	Heat Pump	Doors	R-11 (Steel Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	New	91	20	\$25	95%	80%	\$0.03	36
California	Single Family	Heat Pump	Doors	R-5 (Composite Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	New	61	20	\$54	95%	60%	\$0.10	17

Table C.2.1. Residential Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
California	Single Family	Heat Pump	Duct Location	Conditioned Space Design - Duct Loss Is Not A Concern	Ducts in Unconditioned Space (Duct loss)	Per installation	New	510	30	\$282	95%	30%	\$0.05	18
California	Single Family	Heat Pump	Duct Sealing	Duct Sealing	No Duct Sealing	Per installation	New	638	18	\$368	75%	60%	\$0.07	49
California	Single Family	Heat Pump	Duct Sealing - Aerosol-Based	Spray-in ductwork sealant to minimize duct leaks	No Duct Sealing	Per installation	New	957	18	\$872	75%	60%	\$0.11	31
California	Single Family	Heat Pump	Floor Insulation (CA) above code	R-38	R-30	Per installation	New	176	30	\$630	75%	85%	\$0.35	50
California	Single Family	Heat Pump	Green Roof	ecorooft	Standard Roof	Per installation	New	426	40	\$20,824	50%	95%	\$4.40	16
California	Single Family	Heat Pump	Ground Source Heat Pump, EER 16.2, COP 3.6	GSHP EER 16.2, HSPF 8.8	ASHP SEER 13, HSPF 7.7	Per installation	New	2,337	20	\$10,382	40%	N/A	\$0.50	178
California	Single Family	Heat Pump	Heat Pump High Efficiency, SEER 14, HSPF 8.5	ASHP SEER 14, HSPF 8.5	ASHP SEER 13, HSPF 7.7	Per installation	New	577	20	\$411	100%	N/A	\$0.08	33
California	Single Family	Heat Pump	Heat Pump Premium Efficiency, SEER 16, HSPF 8.8	ASHP SEER 16, HSPF 8.8	ASHP SEER 13, HSPF 7.7	Per installation	New	895	20	\$1,233	100%	N/A	\$0.15	148
California	Single Family	Heat Pump	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands (5 per unit)	13 SEER	Per installation	New	1,339	30	\$622	50%	95%	\$0.04	81
California	Single Family	Heat Pump	Proper Sizing - HVAC Unit	Proper Sizing - HVAC Unit	Oversized HVAC Unit	Per installation	New	601	15	\$20	95%	65%	\$0.00	217
California	Single Family	Heat Pump	Radiant Barrier (Ceiling)	Install Radiant Barrier	No Radiant Barrier	Per installation	New	176	30	\$855	75%	90%	\$0.47	49
California	Single Family	Heat Pump	Smart Siting	Siting house to minimize heating/cooling costs	No smart siting	Per installation	New	60	45	\$850	75%	75%	\$1.25	13
California	Single Family	Heat Pump	Thermal Shell - Infiltration @0.2 ACH w/HRV	0.2 ACH w/HRV	Standard New Construction Home 0.35 ACH	Per installation	New	467	30	\$921	85%	95%	\$0.19	181
California	Single Family	Heat Pump	Thermostat - Multi-Zone	Individual Room Temperature Control for Major Occupied Rooms	Programmable Thermostat - Central Control Only	Per installation	New	433	11	\$1,282	75%	95%	\$0.46	135
California	Single Family	Heat Pump	Whole-House Fan	Whole-House Fan	No Whole-House Fan	Per installation	New	148	20	\$1,712	50%	95%	\$1.29	20
California	Single Family	Heat Pump	Windows (Same for all Building Types)	CL22	CL30	Per installation	New	11	30	\$474	95%	75%	\$3.97	3
California	Single Family	Heat Pump	Windows (Same for all Building Types)	CL25	CL30	Per installation	New	8	30	\$409	95%	75%	\$4.88	2
California	Single Family	Heat Room	Canned Lighting Air Tight Sealing	Canned Lighting Air Tight Sealing	No Air tight Sealing	Per installation	Existing	28	30	\$26	95%	50%	\$0.09	222
California	Single Family	Heat Room	Ceiling Insulation (CA) above code	R-60	R-49	Per installation	Existing	140	30	\$490	75%	95%	\$0.34	200
California	Single Family	Heat Room	Ceiling Insulation (CA) ave to code	R-49	R-10	Per installation	Existing	2,114	30	\$2,263	75%	35%	\$0.10	1,285
California	Single Family	Heat Room	Ceiling Insulation (CA) zero to code	R-49	R-0	Per installation	Existing	4,235	30	\$2,263	95%	1%	\$0.05	106
California	Single Family	Heat Room	Conversion Baseboard Heating to DHP	Ductless Heat Pump HSPF 7.7	HSPF = 1	Per installation	Existing	1,046	20	\$2,470	66%	N/A	\$0.26	1,672
California	Single Family	Heat Room	Doors	R-11 (Steel Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	Existing	109	20	\$171	95%	80%	\$0.18	170
California	Single Family	Heat Room	Doors	R-5 (Composite Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	Existing	72	20	\$200	95%	60%	\$0.31	83
California	Single Family	Heat Room	Doors - Weatherization	Weatherstripping And Adding Door Sweeps	Existing Non-Efficient door	Per installation	Existing	47	6	\$47	95%	50%	\$0.24	91
California	Single Family	Heat Room	Floor Insulation (CA) above code	R-38	R-30	Per installation	Existing	202	30	\$630	25%	85%	\$0.30	87
California	Single Family	Heat Room	Floor Insulation (CA) zero to code	R-30	R-0	Per installation	Existing	3,978	30	\$2,418	25%	20%	\$0.06	506
California	Single Family	Heat Room	Infiltration Control (Caulk, Weather Strip, etc.) Blower-Door test	Install Caulking And Weatherstripping	Existing Infiltration Conditions	Per installation	Existing	727	11	\$556	75%	50%	\$0.12	583
California	Single Family	Heat Room	Radiant Barrier (Ceiling)	Install Radiant Barrier	No Radiant Barrier	Per installation	Existing	145	30	\$855	50%	90%	\$0.57	129
California	Single Family	Heat Room	Wall Insulation 2"4 (CA) zero to max feasible	R-13	R-0	Per installation	Existing	2,403	30	\$2,067	85%	25%	\$0.08	948
California	Single Family	Heat Room	Wall Insulation 2"6 (CA) zero to max feasible	R-21	R-0	Per installation	Existing	4,104	30	\$2,358	85%	25%	\$0.06	572

Table C.2.1. Residential Measure Details

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California	Single Family	Heat Room	Windows (Same for all Building Types)	CL25	CL30	Per installation	Existing	17	30	\$409	65%	75%	\$2.25	16
California	Single Family	Heat Room	Windows (Same for all Building Types)	CL30	Double Pane	Per installation	Existing	187	30	\$4,216	65%	25%	\$2.17	59
California	Single Family	Heat Room	Windows (Same for all Building Types)	CL30	Single Pane	Per installation	Existing	293	30	\$4,216	65%	25%	\$1.39	93
California	Single Family	Heat Room	Ceiling Insulation (CA) above-code	R-60	R-49	Per installation	New	134	30	\$490	90%	95%	\$0.35	47
California	Single Family	Heat Room	Construction - ICF	Concrete Framing	Standard Wood Framing	Per installation	New	2,213	45	\$6,186	50%	95%	\$0.25	21
California	Single Family	Heat Room	Construction - SIP	Specialty Framing	Standard Wood Framing	Per installation	New	603	45	\$2,302	50%	95%	\$0.34	5
California	Single Family	Heat Room	Conversion Baseboard Heating to DHP	Ductless Heat Pump HSPF 7.7	HSPF = 1	Per installation	New	723	20	\$2,470	66%	N/A	\$0.38	264
California	Single Family	Heat Room	Doors	R-11 (Steel Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	New	75	20	\$25	95%	80%	\$0.04	29
California	Single Family	Heat Room	Doors	R-5 (Composite Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	New	50	20	\$54	95%	60%	\$0.12	12
California	Single Family	Heat Room	Floor Insulation (CA) above code	R-38	R-30	Per installation	New	139	30	\$630	75%	85%	\$0.43	35
California	Single Family	Heat Room	Green Roof	ecorroof	Standard Roof	Per installation	New	352	40	\$20,824	50%	95%	\$5.34	12
California	Single Family	Heat Room	Radiant Barrier (Ceiling)	Install Radiant Barrier	No Radiant Barrier	Per installation	New	100	30	\$855	75%	90%	\$0.82	26
California	Single Family	Heat Room	Smart Siting	Siting house to minimize heating/cooling costs	No smart siting	Per installation	New	15	45	\$850	75%	75%	\$4.82	3
California	Single Family	Heat Room	Thermal Shell - Infiltration @0.2 ACH w/HRV	0.2 ACH w/HRV	Standard New Construction Home 0.35 ACH	Per installation	New	1,027	30	\$921	85%	95%	\$0.09	417
California	Single Family	Heat Room	Windows (Same for all Building Types)	CL22	CL30	Per installation	New	25	30	\$474	95%	75%	\$1.82	6
California	Single Family	Heat Room	Windows (Same for all Building Types)	CL25	CL30	Per installation	New	16	30	\$409	95%	75%	\$2.35	4
California	Single Family	Lighting Exterior	CFL, Flood (17 W)	CFL, Flood	Standard Incandescent Flood	Per installation	Existing	53	5	\$0.91	100%	N/A	\$0.00	238
California	Single Family	Lighting Exterior	Time Clocks (Exterior Lighting)	Exterior Lighting on a Time Clock	Exterior Lighting (Manual Control)	Per installation	Existing	11	10	\$16	80%	85%	\$0.25	259
California	Single Family	Lighting Exterior	CFL, Flood (17 W)	CFL, Flood	Standard Incandescent Flood	Per installation	New	53	5	\$0.91	100%	N/A	\$0.00	6
California	Single Family	Lighting Exterior	Time Clocks (Exterior Lighting)	Exterior Lighting on a Time Clock	Exterior Lighting (Manual Control)	Per installation	New	11	10	\$16	80%	85%	\$0.25	56
California	Single Family	Lighting Interior Specialty	CFL (13 W, 20 W, 25 W)	CFL (3-Way)	Standard Incandescent (3-Way)	Per installation	Existing	43	5	\$3	100%	N/A	\$0.02	2,271
California	Single Family	Lighting Interior Specialty	CFL (13 W, 20 W, 25 W)	CFL (3-Way)	Standard Incandescent (3-Way)	Per installation	New	43	5	\$3	100%	N/A	\$0.02	43
California	Single Family	Lighting Interior Standard	Daylighting Controls (Photocell) - Indoor/Outdoors	Install Photocell	No Daylighting Controls	Per installation	Existing	7	20	\$151	60%	95%	\$2.20	39
California	Single Family	Lighting Interior Standard	Lighting CFL 15 W	15 W CFL	Standard 60 W Incandescent	Per installation	Existing	40	5	\$2	100%	N/A	\$0.02	983
California	Single Family	Lighting Interior Standard	Lighting LED 7 W	7 W LED	Standard 60 W Incandescent	Per installation	Existing	51	20	\$36	50%	N/A	\$0.08	8,166
California	Single Family	Lighting Interior Standard	Occupancy Sensors	Wall-Switch Occupancy Sensors	No Occupancy Sensor	Per installation	Existing	4	10	\$32	85%	95%	\$1.19	344
California	Single Family	Lighting Interior Standard	Daylighting Controls (Photocell) - Indoor/Outdoors	Install Photocell	No Daylighting Controls	Per installation	New	7	20	\$151	60%	95%	\$2.20	8
California	Single Family	Lighting Interior Standard	Lighting CFL 15 W	15 W CFL	Standard 60 W Incandescent	Per installation	New	40	5	\$2	100%	N/A	\$0.02	28
California	Single Family	Lighting Interior Standard	Lighting LED 7 W	7 W LED	Standard 60 W Incandescent	Per installation	New	51	20	\$36	50%	N/A	\$0.08	179
California	Single Family	Lighting Interior Standard	Occupancy Sensors	Wall-Switch Occupancy Sensors	No Occupancy Sensor	Per installation	New	4	10	\$32	85%	95%	\$1.19	74
California	Single Family	Microwave	Microwave, High Efficiency	High Efficiency Microwave	Standard Microwave	Per installation	Existing	9	15	\$79	100%	N/A	\$1.05	189
California	Single Family	Microwave	Microwave, High Efficiency	High Efficiency Microwave	Standard Microwave	Per installation	New	9	15	\$79	100%	N/A	\$1.05	32
California	Single Family	Monitor	Monitor, Energy Star	Energy Star Monitor	Standard Monitor	Per installation	Existing	36	5	\$3	100%	N/A	\$0.03	749

Table C.2.1. Residential Measure Details

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California	Single Family	Monitor	Monitor, Energy Star	Energy Star Monitor	Standard Monitor	Per installation	New	36	5	\$3	100%	N/A	\$0.03	36
California	Single Family	Plug Load Other	1-Watt Standby Power	1W or less standby power use for small appliances	Standard plug load appliance.	Per installation	Existing	17	7	\$30	50%	50%	\$0.37	1,174
California	Single Family	Plug Load Other	Energy Star Battery Chargers	Energy Star Battery Chargers	Standard Battery Chargers	Per installation	Existing	1	7	\$33	50%	80%	\$4.87	214
California	Single Family	Plug Load Other	Office Copier	Office Copier	Standard Copier	Per installation	Existing	38	6	\$5	20%	50%	\$0.03	138
California	Single Family	Plug Load Other	Office Printer	Office Printer	Standard Printer	Per installation	Existing	4	5	\$5	50%	50%	\$0.28	44
California	Single Family	Plug Load Other	Smart Strip	Smart Strip	Standard PowerStrip	Per installation	Existing	102	5	\$22	50%	85%	\$0.06	1,524
California	Single Family	Plug Load Other	1-Watt Standby Power	1W or less standby power use for small appliances	Standard plug load appliance.	Per installation	New	17	7	\$30	50%	50%	\$0.37	227
California	Single Family	Plug Load Other	Energy Star Battery Chargers	Energy Star Battery Chargers	Standard Battery Chargers	Per installation	New	1	7	\$2	50%	80%	\$0.37	41
California	Single Family	Plug Load Other	Office Copier	Office Copier	Standard Copier	Per installation	New	39	6	\$5	20%	50%	\$0.03	26
California	Single Family	Plug Load Other	Office Printer	Office Printer	Standard Printer	Per installation	New	5	5	\$5	50%	50%	\$0.28	8
California	Single Family	Plug Load Other	Smart Strip	Smart Strip	Standard PowerStrip	Per installation	New	102	5	\$22	50%	85%	\$0.06	295
California	Single Family	Pool Pump	Pool Pump Timers	Pool Pump Timers	Pool Pump No Timers	Per installation	Existing	291	10	\$45	95%	50%	\$0.03	20
California	Single Family	Pool Pump	Pool Pump, 2 Speed	2 Speed Pool Pump	Standard 1 Speed Pool Pump	Per installation	Existing	570	10	\$110	75%	N/A	\$0.03	20
California	Single Family	Pool Pump	Pool Pump, VSD	VSD Pool Pump	Standard 1 Speed Pool Pump	Per installation	Existing	630	10	\$819	75%	N/A	\$0.22	51
California	Single Family	Pool Pump	Pool Pump Timers	Pool Pump Timers	Pool Pump No Timers	Per installation	New	293	10	\$45	95%	50%	\$0.03	4
California	Single Family	Pool Pump	Pool Pump, 2 Speed	2 Speed Pool Pump	Standard 1 Speed Pool Pump	Per installation	New	570	10	\$110	75%	N/A	\$0.03	2
California	Single Family	Pool Pump	Pool Pump, VSD	VSD Pool Pump	Standard 1 Speed Pool Pump	Per installation	New	630	10	\$819	75%	N/A	\$0.22	4
California	Single Family	Refrigerator	Refrigerator, Energy Star	Energy Star Refrigerator	Standard Refrigerator	Per installation	Existing	122	20	\$15	89%	N/A	\$0.01	729
California	Single Family	Refrigerator	Refrigerator/Freezer - Removal of Secondary	Proper Disposal of Refrigerator/Freezer	Existing Non-Efficient Refrigerator/Freezer	Per installation	Existing	1,390	9	\$109	7%	99%	\$0.01	483
California	Single Family	Refrigerator	Refrigerator, Energy Star	Energy Star Refrigerator	Standard Refrigerator	Per installation	New	122	20	\$15	100%	N/A	\$0.01	227
California	Single Family	Set Top Box	Set Top Box, Energy Star	Energy Star Set Top Box	Standard Set Top Box	Per installation	Existing	164	5	\$12	100%	N/A	\$0.02	3,074
California	Single Family	Set Top Box	Set Top Box, Energy Star	Energy Star Set Top Box	Standard Set Top Box	Per installation	New	164	5	\$12	100%	N/A	\$0.02	134
California	Single Family	Tv	TV CRT, Energy Star	Energy Star CRT TV	Standard CRT TV	Per installation	Existing	43	10	\$19	100%	N/A	\$0.07	39
California	Single Family	Tv	TV CRT, Energy Star	Energy Star CRT TV	Standard CRT TV	Per installation	New	43	10	\$19	100%	N/A	\$0.07	4
California	Single Family	Tv Bigscreen	TV LCD, Energy Star	Energy Star LCD TV	Standard LCD TV	Per installation	Existing	77	10	\$19	100%	N/A	\$0.04	16
California	Single Family	Tv Bigscreen	TV LCD, Energy Star	Energy Star LCD TV	Standard LCD TV	Per installation	New	77	10	\$19	100%	N/A	\$0.04	2
California	Single Family	Ventilation And Circulation	Motor, ECM	ECM Motor	Standard Motor	Per installation	Existing	140	20	\$172	50%	N/A	\$0.14	248
California	Single Family	Ventilation And Circulation	Motor, ECM - VFD	ECM/VFD Motor	Standard Motor	Per installation	Existing	421	20	\$194	50%	N/A	\$0.05	746
California	Single Family	Ventilation And Circulation	Motor, ECM	ECM Motor	Standard Motor	Per installation	New	98	20	\$172	50%	N/A	\$0.20	40
California	Single Family	Ventilation And Circulation	Motor, ECM - VFD	ECM/VFD Motor	Standard Motor	Per installation	New	294	20	\$194	50%	N/A	\$0.07	121
California	Single Family	Water Heat	Clothes Washer	Energy Star - Tier 1 (MEF 2.0 - 2.19) - Electric DHW & Dryer	MEF = 1.66 - Electric DHW & Dryer	Per installation	Existing	111	14	\$227	95%	86%	\$-0.27	762
California	Single Family	Water Heat	Clothes Washer	Energy Star - Tier 2 (MEF 2.2 - 2.45) - Electric DHW & Dryer	MEF = 1.66 - Electric DHW & Dryer	Per installation	Existing	148	14	\$296	95%	90%	\$-0.25	1,063
California	Single Family	Water Heat	Clothes Washer	Energy Star - Tier 3 (MEF 2.46 or higher) Top 10% of Energy Star Model - Electric DHW & Dryer	MEF = 1.66 - Electric DHW & Dryer	Per installation	Existing	169	14	\$317	95%	95%	\$-0.23	1,279
California	Single Family	Water Heat	Dishwasher	Energy Star, July 1st 2011, <= 307 kWh/year, <= 5.0 gallons/cycle	Energy Star - EF65 (6th Plan Baseline)	Per installation	Existing	32	12	\$42	68%	50%	\$0.17	281
California	Single Family	Water Heat	Drain Water Heat Recovery (GFX)	Gravity Film Heat Exchanger	No Heat Exchanger	Per installation	Existing	332	40	\$551	29%	90%	\$0.15	1,749

Table C.2.1. Residential Measure Details

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California	Single Family	Water Heat	Faucet Aerators	0.5 GPM	2.2 GPM	Per installation	Existing	81	9	\$0.71	95%	95%	\$-0.08	2,783
California	Single Family	Water Heat	Faucet Aerators	1.5 GPM	2.2 GPM	Per installation	Existing	33	9	\$0.46	95%	65%	\$-0.08	789
California	Single Family	Water Heat	Faucet Aerators	2.2 GPM	Existing Faucet Aerator (3.0 GPM)	Per installation	Existing	37	9	\$1	95%	25%	\$-0.08	678
California	Single Family	Water Heat	Hot Water Pipe Insulation	R-4 Wrap	No insulation	Per installation	Existing	39	5	\$24	95%	75%	\$0.18	542
California	Single Family	Water Heat	Low-Flow Showerheads	2.0 GPM	2.5 GPM	Per installation	Existing	111	10	\$16	95%	65%	\$-0.06	3,467
California	Single Family	Water Heat	Water Heater, Heat Pump EF 2.2	Heat Pump Water Heater EF = 2.2	Standard Storage Water Heater EF = 0.92	Per installation	Existing	1,380	15	\$1,387	59%	N/A	\$0.13	8,930
California	Single Family	Water Heat	Water Heater, Storage EF 0.95	Standard Storage Water Heater EF = 0.95	Standard Storage Water Heater EF = 0.92	Per installation	Existing	77	15	\$48	100%	N/A	\$0.08	80
California	Single Family	Water Heat	Water_Heater Tank Blanket/Insulation	Install Insulation (R-5)	No Tank Insulation	Per installation	Existing	154	10	\$11	50%	20%	\$0.01	317
California	Single Family	Water Heat	Water_Heater Thermostat Setback	120 degrees	135 degrees	Per installation	Existing	142	5	\$9	95%	45%	\$0.02	1,243
California	Single Family	Water Heat	Clothes Washer	Energy Star - Tier 1 (MEF 2.0 - 2.19) - Electric DHW & Dryer	MEF = 1.66 - Electric DHW & Dryer	Per installation	New	112	14	\$227	95%	86%	\$-0.27	151
California	Single Family	Water Heat	Clothes Washer	Energy Star - Tier 2 (MEF 2.2 - 2.45) - Electric DHW & Dryer	MEF = 1.66 - Electric DHW & Dryer	Per installation	New	149	14	\$296	95%	90%	\$-0.25	211
California	Single Family	Water Heat	Clothes Washer	Energy Star - Tier 3 (MEF 2.46 or higher) Top 10% of Energy Star Model - Electric DHW & Dryer	MEF = 1.66 - Electric DHW & Dryer	Per installation	New	170	14	\$317	95%	95%	\$-0.23	254
California	Single Family	Water Heat	Dishwasher	Energy Star, July 1st 2011, <= 307 kWh/year , <= 5.0 gallons/cycle	Energy Star - EF65 (6th Plan Baseline)	Per installation	New	33	12	\$42	68%	50%	\$0.17	55
California	Single Family	Water Heat	Drain Water Heat Recovery (GFX)	Gravity Film Heat Exchanger	No Heat Exchanger	Per installation	New	331	40	\$537	59%	90%	\$0.15	698
California	Single Family	Water Heat	Faucet Aerators	0.5 GPM	2.2 GPM	Per installation	New	82	9	\$0.71	95%	95%	\$-0.08	552
California	Single Family	Water Heat	Faucet Aerators	1.5 GPM	2.2 GPM	Per installation	New	34	9	\$0.46	95%	65%	\$-0.08	156
California	Single Family	Water Heat	Hot Water Pipe Insulation	R-4 Wrap	No insulation	Per installation	New	40	5	\$24	95%	75%	\$0.18	105
California	Single Family	Water Heat	Low-Flow Showerheads	2.0 GPM	2.5 GPM	Per installation	New	112	10	\$9	95%	65%	\$-0.07	689
California	Single Family	Water Heat	Water Heater, Heat Pump EF 2.2	Heat Pump Water Heater EF = 2.2	Standard Storage Water Heater EF = 0.92	Per installation	New	1,380	15	\$1,387	59%	N/A	\$0.13	1,429
California	Single Family	Water Heat	Water Heater, Storage EF 0.95	Standard Storage Water Heater EF = 0.95	Standard Storage Water Heater EF = 0.92	Per installation	New	77	15	\$48	100%	N/A	\$0.08	16
California	Single Family	Water Heat	Water_Heater Thermostat Setback	120 degrees	135 degrees	Per installation	New	142	5	\$9	95%	45%	\$0.02	248
Idaho	Manufactured	Computer	Computer, Energy Star	Energy Star Computer	Standard Computer	Per installation	Existing	50	5	\$24	100%	N/A	\$0.13	179
Idaho	Manufactured	Computer	Computer, Energy Star	Energy Star Computer	Standard Computer	Per installation	New	50	5	\$24	100%	N/A	\$0.13	24
Idaho	Manufactured	Cooking Oven	Cooking Oven, High Efficiency	High Efficiency Oven	Standard Oven	Per installation	Existing	58	20	\$282	100%	N/A	\$0.55	60
Idaho	Manufactured	Cooking Oven	Cooking Oven, High Efficiency	High Efficiency Oven	Standard Oven	Per installation	New	58	20	\$282	100%	N/A	\$0.55	44
Idaho	Manufactured	Cool Central	Air-to-Air Heat Exchangers	Air-to-Air Heat Exchangers	No Air to Air Heat Exchangers	Per installation	Existing	58	5	\$527	25%	95%	\$2.54	19
Idaho	Manufactured	Cool Central	Canned Lighting Air Tight Sealing	Canned Lighting Air Tight Sealing	No Air tight Sealing	Per installation	Existing	1	30	\$23	95%	50%	\$1.14	5
Idaho	Manufactured	Cool Central	Ceiling Fan	Ceiling Fan (no lighting kit)	No Ceiling Fan	Per installation	Existing	23	10	\$80	85%	35%	\$0.57	19
Idaho	Manufactured	Cool Central	Ceiling Insulation (ID) above code	R-60	R-49	Per installation	Existing	8	25	\$342	40%	95%	\$4.36	2
Idaho	Manufactured	Cool Central	Ceiling Insulation (ID) ave to code	R-49	R-15	Per installation	Existing	74	25	\$1,569	75%	35%	\$2.15	18
Idaho	Manufactured	Cool Central	Ceiling Insulation (ID) zero to code	R-49	R-0	Per installation	Existing	243	25	\$1,569	75%	1%	\$0.66	2
Idaho	Manufactured	Cool Central	Central Cooling, SEER 15	SEER 15	SEER 13	Per installation	Existing	113	15	\$595	100%	N/A	\$0.68	1
Idaho	Manufactured	Cool Central	Central Cooling, SEER 18	SEER 18	SEER 13	Per installation	Existing	284	15	\$1,490	100%	N/A	\$0.68	74
Idaho	Manufactured	Cool Central	Check Me! O&M Tune-up	Tune-up/Maintenance	No Tune-up Maintenance	Per installation	Existing	18	5	\$148	95%	75%	\$2.28	18
Idaho	Manufactured	Cool Central	Cool Roofs	Lighter Colored Shingles (White)	Standard Roof Shingles	Per installation	Existing	6	20	\$283	85%	95%	\$4.66	4
Idaho	Manufactured	Cool Central	Doors	R-11 (Steel Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	Existing	6	20	\$161	95%	80%	\$2.81	4

Table C.2.1. Residential Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Idaho	Manufactured	Cool Central	Doors	R-5 (Composite Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	Existing	4	20	\$190	95%	60%	\$4.97	2
Idaho	Manufactured	Cool Central	Doors - Weatherization	Weatherstripping And Adding Door Sweeps	Existing Non-Efficient door	Per installation	Existing	2	6	\$43	95%	50%	\$3.83	2
Idaho	Manufactured	Cool Central	Duct Insulation Upgrade	R-8 (code)	R-4	Per installation	Existing	17	20	\$524	75%	75%	\$3.43	8
Idaho	Manufactured	Cool Central	Duct Sealing	Duct Sealing	No Duct Sealing	Per installation	Existing	58	18	\$449	75%	60%	\$0.90	17
Idaho	Manufactured	Cool Central	Duct Sealing - Aerosol-Based	Spray-in ductwork sealant to minimize duct leaks	No Duct Sealing	Per installation	Existing	88	18	\$644	75%	60%	\$0.86	13
Idaho	Manufactured	Cool Central	Floor Insulation (ID) above code	R-38	R-30	Per installation	Existing	11	25	\$502	25%	85%	\$4.35	2
Idaho	Manufactured	Cool Central	Floor Insulation (ID) zero to code	R-30	R-0	Per installation	Existing	232	25	\$1,754	25%	20%	\$0.77	13
Idaho	Manufactured	Cool Central	Infiltration Control (Caulk, Weather Strip, etc.) Blower-Door test	Install Caulking And Weatherstripping	Existing Infiltration Conditions	Per installation	Existing	58	11	\$375	75%	50%	\$1.00	23
Idaho	Manufactured	Cool Central	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands (5 per unit)	13 SEER	Per installation	Existing	89	30	\$535	50%	95%	\$0.57	4
Idaho	Manufactured	Cool Central	Proper Sizing - HVAC Unit	Proper Sizing - HVAC Unit	Oversized HVAC Unit	Per installation	Existing	55	15	\$-54.9	95%	65%	\$-0.13	47
Idaho	Manufactured	Cool Central	Radiant Barrier (Ceiling)	Install Radiant Barrier	No Radiant Barrier	Per installation	Existing	35	25	\$569	25%	90%	\$1.65	7
Idaho	Manufactured	Cool Central	Thermostat - Multi-Zone	Individual Room Temperature Control for Major Occupied Rooms	Programmable Thermostat - Central Control Only	Per installation	Existing	40	11	\$1,043	50%	95%	\$4.07	17
Idaho	Manufactured	Cool Central	Wall Insulation 2x4 (ID) zero to max feasible	R-13	R-0	Per installation	Existing	138	25	\$1,359	85%	25%	\$1.00	22
Idaho	Manufactured	Cool Central	Wall Insulation 2x6 (ID) above code	R-21	R-19	Per installation	Existing	12	25	\$75	75%	95%	\$0.60	1
Idaho	Manufactured	Cool Central	Wall Insulation 2x6 (ID) zero to code	R-19	R-0	Per installation	Existing	173	25	\$1,512	75%	25%	\$0.89	4
Idaho	Manufactured	Cool Central	Whole-House Fan	Whole-House Fan	No Whole-House Fan	Per installation	Existing	88	20	\$1,258	50%	95%	\$1.59	29
Idaho	Manufactured	Cool Central	Windows (Same for all Building Types)	CL25	CL30	Per installation	Existing	0.99	25	\$348	65%	85%	\$35.73	0.46
Idaho	Manufactured	Cool Central	Windows (Same for all Building Types)	CL30	Double Pane	Per installation	Existing	10	25	\$3,594	65%	50%	\$34.44	2
Idaho	Manufactured	Cool Central	Windows (Same for all Building Types)	CL30	Single Pane	Per installation	Existing	16	25	\$3,594	65%	20%	\$21.97	1
Idaho	Manufactured	Cool Central	Air-to-Air Heat Exchangers	Air-to-Air Heat Exchangers	No Air to Air Heat Exchangers	Per installation	New	61	5	\$527	25%	95%	\$2.45	12
Idaho	Manufactured	Cool Central	Ceiling Fan	Ceiling Fan (no lighting kit)	No Ceiling Fan	Per installation	New	24	10	\$80	85%	35%	\$0.55	12
Idaho	Manufactured	Cool Central	Ceiling Insulation (ID) above code	R-60	R-49	Per installation	New	11	25	\$342	60%	95%	\$3.03	4
Idaho	Manufactured	Cool Central	Central Cooling, SEER 15	SEER 15	SEER 13	Per installation	New	138	15	\$595	100%	N/A	\$0.55	0.96
Idaho	Manufactured	Cool Central	Central Cooling, SEER 18	SEER 18	SEER 13	Per installation	New	347	15	\$1,490	100%	N/A	\$0.56	49
Idaho	Manufactured	Cool Central	Check Me! O&M Tune-up	Tune-up/Maintenance	No Tune-up Maintenance	Per installation	New	19	5	\$148	95%	75%	\$2.20	12
Idaho	Manufactured	Cool Central	Cool Roofs	Lighter Colored Shingles (White)	Standard Roof Shingles	Per installation	New	7	20	\$283	85%	95%	\$4.50	2
Idaho	Manufactured	Cool Central	Doors	R-11 (Steel Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	New	6	20	\$25	95%	80%	\$0.42	3
Idaho	Manufactured	Cool Central	Doors	R-5 (Composite Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	New	4	20	\$54	95%	60%	\$1.36	1
Idaho	Manufactured	Cool Central	Duct Location	Conditioned Space Design - Duct Loss Is Not A Concern	Ducts in Unconditioned Space (Duct loss)	Per installation	New	48	30	\$179	95%	30%	\$0.35	2
Idaho	Manufactured	Cool Central	Duct Sealing	Duct Sealing	No Duct Sealing	Per installation	New	61	18	\$220	75%	60%	\$0.42	7
Idaho	Manufactured	Cool Central	Duct Sealing - Aerosol-Based	Spray-in ductwork sealant to minimize duct leaks	No Duct Sealing	Per installation	New	91	18	\$644	75%	60%	\$0.83	4
Idaho	Manufactured	Cool Central	Floor Insulation (ID) above code	R-38	R-30	Per installation	New	12	25	\$502	75%	85%	\$4.19	4
Idaho	Manufactured	Cool Central	Green Roof	ecorooF	Standard Roof	Per installation	New	31	40	\$13,495	20%	95%	\$39.22	0.71
Idaho	Manufactured	Cool Central	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands (5 per unit)	13 SEER	Per installation	New	93	30	\$535	50%	95%	\$0.55	8

Table C.2.1. Residential Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Idaho	Manufactured	Cool Central	Proper Sizing - HVAC Unit	Proper Sizing - HVAC Unit	Oversized HVAC Unit	Per installation	New	57	15	\$-54.9	95%	65%	\$-0.12	31
Idaho	Manufactured	Cool Central	Radiant Barrier (Ceiling)	Install Radiant Barrier	No Radiant Barrier	Per installation	New	36	25	\$569	50%	90%	\$1.59	11
Idaho	Manufactured	Cool Central	Smart Siting	Siting house to minimize heating/cooling costs	No smart siting	Per installation	New	33	25	\$577	75%	75%	\$1.76	12
Idaho	Manufactured	Cool Central	Thermostat - Multi-Zone	Individual Room Temperature Control for Major Occupied Rooms	Programmable Thermostat - Central Control Only	Per installation	New	41	11	\$1,043	50%	95%	\$3.93	12
Idaho	Manufactured	Cool Central	Wall Insulation 2x6 (ID) above code	R-21+R-5 sheathing	R-19	Per installation	New	23	25	\$921	50%	95%	\$3.98	7
Idaho	Manufactured	Cool Central	Whole-House Fan	Whole-House Fan	No Whole-House Fan	Per installation	New	91	20	\$1,258	50%	95%	\$1.54	19
Idaho	Manufactured	Cool Central	Windows (Same for all Building Types)	CL22	CL30	Per installation	New	2	25	\$404	95%	75%	\$19.45	0.92
Idaho	Manufactured	Cool Central	Windows (Same for all Building Types)	CL25	CL30	Per installation	New	1	25	\$348	95%	75%	\$24.85	0.62
Idaho	Manufactured	Cool Room	Canned Lighting Air Tight Sealing	Canned Lighting Air Tight Sealing	No Air tight Sealing	Per installation	Existing	1	30	\$23	95%	50%	\$1.29	4
Idaho	Manufactured	Cool Room	Ceiling Fan	Ceiling Fan (no lighting kit)	No Ceiling Fan	Per installation	Existing	20	10	\$80	85%	35%	\$0.65	13
Idaho	Manufactured	Cool Room	Ceiling Insulation (ID) above code	R-60	R-49	Per installation	Existing	7	25	\$342	40%	95%	\$4.80	2
Idaho	Manufactured	Cool Room	Ceiling Insulation (ID) ave to code	R-49	R-15	Per installation	Existing	67	25	\$1,569	75%	35%	\$2.39	16
Idaho	Manufactured	Cool Room	Ceiling Insulation (ID) zero to code	R-49	R-0	Per installation	Existing	219	25	\$1,569	75%	1%	\$0.73	1
Idaho	Manufactured	Cool Room	Cool Roofs	Lighter Colored Shingles (White)	Standard Roof Shingles	Per installation	Existing	6	20	\$283	85%	95%	\$5.29	4
Idaho	Manufactured	Cool Room	Doors	R-11 (Steel Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	Existing	5	20	\$161	95%	80%	\$3.19	3
Idaho	Manufactured	Cool Room	Doors	R-5 (Composite Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	Existing	3	20	\$190	95%	60%	\$5.64	1
Idaho	Manufactured	Cool Room	Doors - Weatherization	Weatherstripping And Adding Door Sweeps	Existing Non-Efficient door	Per installation	Existing	2	6	\$43	95%	50%	\$4.34	2
Idaho	Manufactured	Cool Room	Floor Insulation (ID) above code	R-38	R-30	Per installation	Existing	10	25	\$502	25%	85%	\$4.89	1
Idaho	Manufactured	Cool Room	Floor Insulation (ID) zero to code	R-30	R-0	Per installation	Existing	206	25	\$1,754	25%	20%	\$0.87	10
Idaho	Manufactured	Cool Room	Infiltration Control (Caulk, Weather Strip, etc.) Blower-Door test	Install Caulking And Weatherstripping	Existing Infiltration Conditions	Per installation	Existing	51	11	\$375	75%	50%	\$1.13	19
Idaho	Manufactured	Cool Room	Radiant Barrier (Ceiling)	Install Radiant Barrier	No Radiant Barrier	Per installation	Existing	31	25	\$569	25%	90%	\$1.87	6
Idaho	Manufactured	Cool Room	Room AC conversion to Ductless Heat Pump	SEER 13	EER 9.8	Per installation	Existing	31	20	\$2,503	75%	N/A	\$9.01	49
Idaho	Manufactured	Cool Room	Room AC, EER 10.8	EER 10.8	EER 9.8	Per installation	Existing	24	9	\$7	100%	N/A	\$0.05	8
Idaho	Manufactured	Cool Room	Wall Insulation 2x4 (ID) zero to max feasible	R-13	R-0	Per installation	Existing	124	25	\$1,359	85%	25%	\$1.11	20
Idaho	Manufactured	Cool Room	Wall Insulation 2x6 (ID) above code	R-21	R-19	Per installation	Existing	11	25	\$75	75%	95%	\$0.67	1
Idaho	Manufactured	Cool Room	Wall Insulation 2x6 (ID) zero to code	R-19	R-0	Per installation	Existing	155	25	\$1,512	75%	25%	\$0.99	3
Idaho	Manufactured	Cool Room	Windows (Same for all Building Types)	CL25	CL30	Per installation	Existing	0.90	25	\$348	65%	85%	\$39.28	0.43
Idaho	Manufactured	Cool Room	Windows (Same for all Building Types)	CL30	Double Pane	Per installation	Existing	9	25	\$3,594	65%	50%	\$37.87	2
Idaho	Manufactured	Cool Room	Windows (Same for all Building Types)	CL30	Single Pane	Per installation	Existing	15	25	\$3,594	65%	20%	\$24.16	1
Idaho	Manufactured	Cool Room	Ceiling Fan	Ceiling Fan (no lighting kit)	No Ceiling Fan	Per installation	New	17	10	\$80	85%	35%	\$0.77	7
Idaho	Manufactured	Cool Room	Ceiling Insulation (ID) above code	R-60	R-49	Per installation	New	8	25	\$342	60%	95%	\$4.11	3
Idaho	Manufactured	Cool Room	Cool Roofs	Lighter Colored Shingles (White)	Standard Roof Shingles	Per installation	New	5	20	\$283	85%	95%	\$6.28	2

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Idaho	Manufactured	Cool Room	Doors	R-11 (Steel Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	New	4	20	\$25	95%	80%	\$0.59	2
Idaho	Manufactured	Cool Room	Doors	R-5 (Composite Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	New	3	20	\$54	95%	60%	\$1.90	1
Idaho	Manufactured	Cool Room	Floor Insulation (ID) above code	R-38	R-30	Per installation	New	8	25	\$502	75%	85%	\$5.81	3
Idaho	Manufactured	Cool Room	Green Roof	ecorof	Standard Roof	Per installation	New	22	40	\$13,495	20%	95%	\$54.79	0.51
Idaho	Manufactured	Cool Room	Radiant Barrier (Ceiling)	Install Radiant Barrier	No Radiant Barrier	Per installation	New	26	25	\$569	50%	90%	\$2.22	8
Idaho	Manufactured	Cool Room	Room AC conversion to Ductless Heat Pump	SEER 13	EER 9.8	Per installation	New	27	20	\$2,503	75%	N/A	\$10.30	12
Idaho	Manufactured	Cool Room	Room AC, EER 10.8	EER 10.8	EER 9.8	Per installation	New	21	9	\$7	100%	N/A	\$0.06	3
Idaho	Manufactured	Cool Room	Smart Siting	Siting house to minimize heating/cooling costs	No smart siting	Per installation	New	24	25	\$577	75%	75%	\$2.46	9
Idaho	Manufactured	Cool Room	Wall Insulation 2x6 (ID) above code	R-21+R-5 sheathing	R-19	Per installation	New	17	25	\$921	50%	95%	\$5.45	5
Idaho	Manufactured	Cool Room	Windows (Same for all Building Types)	CL22	CL30	Per installation	New	1	25	\$404	95%	75%	\$26.07	0.69
Idaho	Manufactured	Cool Room	Windows (Same for all Building Types)	CL25	CL30	Per installation	New	1	25	\$348	95%	75%	\$33.63	0.46
Idaho	Manufactured	Dryer	Dryer, Advanced Efficiency EF 3.30	Advanced Efficiency Dryer 3.30	Standard Dryer EF 3.01	Per installation	Existing	38	14	\$224	100%	N/A	\$0.79	110
Idaho	Manufactured	Dryer	Dryer, High Efficiency EF 3.08	High Efficiency Dryer EF 3.08	Standard Dryer EF 3.01	Per installation	Existing	9	14	\$54	100%	N/A	\$0.74	2
Idaho	Manufactured	Dryer	Dryer, Premium Efficiency EF 3.19	Premium Efficiency Dryer 3.19	Standard Dryer EF 3.01	Per installation	Existing	24	14	\$139	100%	N/A	\$0.76	14
Idaho	Manufactured	Dryer	Dryer, Advanced Efficiency EF 3.30	Advanced Efficiency Dryer 3.30	Standard Dryer EF 3.01	Per installation	New	38	14	\$224	100%	N/A	\$0.79	50
Idaho	Manufactured	Dryer	Dryer, High Efficiency EF 3.08	High Efficiency Dryer EF 3.08	Standard Dryer EF 3.01	Per installation	New	9	14	\$54	100%	N/A	\$0.74	1
Idaho	Manufactured	Dryer	Dryer, Premium Efficiency EF 3.19	Premium Efficiency Dryer 3.19	Standard Dryer EF 3.01	Per installation	New	24	14	\$139	100%	N/A	\$0.76	8
Idaho	Manufactured	Freezer	Freezer, Energy Star	Energy Star Freezer	Standard Freezer	Per installation	Existing	46	20	\$22	76%	N/A	\$0.05	19
Idaho	Manufactured	Freezer	Stand-Alone Freezer - Removal	Proper Disposal of Freezer	Existing Non-Efficient Freezer	Per installation	Existing	1,436	8	\$72	17%	98%	\$0.01	159
Idaho	Manufactured	Freezer	Freezer, Energy Star	Energy Star Freezer	Standard Freezer	Per installation	New	46	20	\$22	76%	N/A	\$0.05	25
Idaho	Manufactured	Heat Central	Air-to-Air Heat Exchangers	Air-to-Air Heat Exchangers	No Air to Air Heat Exchangers	Per installation	Existing	1,365	5	\$527	25%	95%	\$0.11	596
Idaho	Manufactured	Heat Central	Canned Lighting Air Tight Sealing	Canned Lighting Air Tight Sealing	No Air tight Sealing	Per installation	Existing	62	30	\$23	95%	50%	\$0.04	287
Idaho	Manufactured	Heat Central	Ceiling Insulation (ID) above code	R-60	R-49	Per installation	Existing	256	25	\$342	40%	95%	\$0.14	134
Idaho	Manufactured	Heat Central	Ceiling Insulation (ID) ave to code	R-49	R-15	Per installation	Existing	2,378	25	\$1,569	75%	35%	\$0.07	945
Idaho	Manufactured	Heat Central	Ceiling Insulation (ID) zero to code	R-49	R-0	Per installation	Existing	7,768	25	\$1,569	75%	1%	\$0.02	103
Idaho	Manufactured	Heat Central	Conversion Electric Furnace to ASHP	Air Source Heat Pump Seer 13 HSPF 7.7	Electric Furnace HSPF 1	Per installation	Existing	7,297	20	\$2,588	100%	N/A	\$0.04	4,481
Idaho	Manufactured	Heat Central	Doors	R-11 (Steel Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	Existing	204	20	\$161	95%	80%	\$0.09	224
Idaho	Manufactured	Heat Central	Doors	R-5 (Composite Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	Existing	136	20	\$190	95%	60%	\$0.16	106
Idaho	Manufactured	Heat Central	Doors - Weatherization	Weatherstripping And Adding Door Sweeps	Existing Non-Efficient door	Per installation	Existing	88	6	\$43	95%	50%	\$0.12	117
Idaho	Manufactured	Heat Central	Duct Insulation Upgrade	R-8 (code)	R-4	Per installation	Existing	546	20	\$524	75%	75%	\$0.11	438
Idaho	Manufactured	Heat Central	Duct Sealing	Duct Sealing	No Duct Sealing	Per installation	Existing	1,365	18	\$449	75%	15%	\$0.04	145
Idaho	Manufactured	Heat Central	Duct Sealing - Aerosol-Based	Spray-in ductwork sealant to minimize duct leaks	No Duct Sealing	Per installation	Existing	2,048	18	\$644	75%	15%	\$0.04	110
Idaho	Manufactured	Heat Central	Floor Insulation (ID) above code	R-38	R-30	Per installation	Existing	376	25	\$502	25%	85%	\$0.14	111
Idaho	Manufactured	Heat Central	Floor Insulation (ID) zero to code	R-30	R-0	Per installation	Existing	7,400	25	\$1,754	25%	20%	\$0.02	652
Idaho	Manufactured	Heat Central	Infiltration Control (Caulk, Weather Strip, etc.) Blower-Door test	Install Caulking And Weatherstripping	Existing Infiltration Conditions	Per installation	Existing	1,365	11	\$375	75%	50%	\$0.04	805

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Idaho	Manufactured	Heat Central	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands (5 per unit)	13 SEER	Per installation	Existing	2,867	30	\$535	50%	15%	\$0.02	38
Idaho	Manufactured	Heat Central	Proper Sizing - HVAC Unit	Proper Sizing - HVAC Unit	Oversized HVAC Unit	Per installation	Existing	1,287	15	\$-54.9	15%	65%	\$-0.01	231
Idaho	Manufactured	Heat Central	Radiant Barrier (Ceiling)	Install Radiant Barrier	No Radiant Barrier	Per installation	Existing	273	25	\$569	25%	90%	\$0.21	80
Idaho	Manufactured	Heat Central	Thermostat - Multi-Zone	Individual Room Temperature Control for Major Occupied Rooms	Programmable Thermostat - Central Control Only	Per installation	Existing	928	11	\$1,043	50%	95%	\$0.18	600
Idaho	Manufactured	Heat Central	Wall Insulation 2x4 (ID) zero to max feasible	R-13	R-0	Per installation	Existing	4,415	25	\$1,359	85%	25%	\$0.03	1,196
Idaho	Manufactured	Heat Central	Wall Insulation 2x6 (ID) above code	R-21	R-19	Per installation	Existing	411	25	\$75	75%	95%	\$0.02	65
Idaho	Manufactured	Heat Central	Wall Insulation 2x6 (ID) zero to code	R-19	R-0	Per installation	Existing	5,514	25	\$1,512	75%	25%	\$0.03	221
Idaho	Manufactured	Heat Central	Windows (Same for all Building Types)	CL25	CL30	Per installation	Existing	31	25	\$348	65%	85%	\$1.12	22
Idaho	Manufactured	Heat Central	Windows (Same for all Building Types)	CL30	Double Pane	Per installation	Existing	340	25	\$3,594	65%	50%	\$1.08	144
Idaho	Manufactured	Heat Central	Windows (Same for all Building Types)	CL30	Single Pane	Per installation	Existing	533	25	\$3,594	65%	20%	\$0.69	90
Idaho	Manufactured	Heat Central	Air-to-Air Heat Exchangers	Air-to-Air Heat Exchangers	No Air to Air Heat Exchangers	Per installation	New	1,161	5	\$527	25%	95%	\$0.13	318
Idaho	Manufactured	Heat Central	Ceiling Insulation (ID) above code	R-60	R-49	Per installation	New	302	25	\$342	60%	95%	\$0.12	186
Idaho	Manufactured	Heat Central	Conversion Electric Furnace to ASHP	Air Source Heat Pump Seer 13 HSPF 7.7	Electric Furnace HSPF 1	Per installation	New	6,209	20	\$2,497	100%	N/A	\$0.05	3,169
Idaho	Manufactured	Heat Central	Doors	R-11 (Steel Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	New	174	20	\$25	95%	80%	\$0.02	147
Idaho	Manufactured	Heat Central	Doors	R-5 (Composite Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	New	116	20	\$54	95%	60%	\$0.05	72
Idaho	Manufactured	Heat Central	Duct Location	Conditioned Space Design - Duct Loss Is Not A Concern	Ducts in Unconditioned Space (Duct loss)	Per installation	New	929	30	\$179	95%	15%	\$0.02	36
Idaho	Manufactured	Heat Central	Duct Sealing	Duct Sealing	No Duct Sealing	Per installation	New	1,161	18	\$220	75%	15%	\$0.02	50
Idaho	Manufactured	Heat Central	Duct Sealing - Aerosol-Based	Spray-in ductwork sealant to minimize duct leaks	No Duct Sealing	Per installation	New	1,742	18	\$644	75%	15%	\$0.04	32
Idaho	Manufactured	Heat Central	Floor Insulation (ID) above code	R-38	R-30	Per installation	New	320	25	\$502	75%	85%	\$0.16	212
Idaho	Manufactured	Heat Central	Green Roof	ecorooF	Standard Roof	Per installation	New	813	40	\$13,495	20%	95%	\$1.50	30
Idaho	Manufactured	Heat Central	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands (5 per unit)	13 SEER	Per installation	New	2,440	30	\$535	50%	15%	\$0.02	50
Idaho	Manufactured	Heat Central	Proper Sizing - HVAC Unit	Proper Sizing - HVAC Unit	Oversized HVAC Unit	Per installation	New	1,095	15	\$-54.9	15%	65%	\$-0.01	123
Idaho	Manufactured	Heat Central	Radiant Barrier (Ceiling)	Install Radiant Barrier	No Radiant Barrier	Per installation	New	232	25	\$569	50%	90%	\$0.25	103
Idaho	Manufactured	Heat Central	Smart Siting	Siting house to minimize heating/cooling costs	No smart siting	Per installation	New	36	25	\$577	75%	75%	\$1.64	19
Idaho	Manufactured	Heat Central	Thermostat - Multi-Zone	Individual Room Temperature Control for Major Occupied Rooms	Programmable Thermostat - Central Control Only	Per installation	New	790	11	\$1,043	50%	95%	\$0.21	383
Idaho	Manufactured	Heat Central	Wall Insulation 2x6 (ID) above code	R-21+R-5 sheathing	R-19	Per installation	New	619	25	\$921	50%	95%	\$0.15	314
Idaho	Manufactured	Heat Central	Windows (Same for all Building Types)	CL22	CL30	Per installation	New	55	25	\$404	95%	75%	\$0.74	38
Idaho	Manufactured	Heat Central	Windows (Same for all Building Types)	CL25	CL30	Per installation	New	37	25	\$348	95%	75%	\$0.95	26
Idaho	Manufactured	Heat Room	Canned Lighting Air Tight Sealing	Canned Lighting Air Tight Sealing	No Air tight Sealing	Per installation	Existing	48	30	\$23	95%	50%	\$0.05	23
Idaho	Manufactured	Heat Room	Ceiling Insulation (ID) above code	R-60	R-49	Per installation	Existing	203	25	\$342	40%	95%	\$0.17	11
Idaho	Manufactured	Heat Room	Ceiling Insulation (ID) ave to code	R-49	R-15	Per installation	Existing	1,873	25	\$1,569	75%	35%	\$0.09	79

Table C.2.1. Residential Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Idaho	Manufactured	Heat Room	Ceiling Insulation (ID) zero to code	R-49	R-0	Per installation	Existing	6,121	25	\$1,569	75%	1%	\$0.03	8
Idaho	Manufactured	Heat Room	Conversion Baseboard Heating to DHP	Ductless Heat Pump HSPF 7.7	HSPF = 1	Per installation	Existing	1,491	20	\$2,318	100%	N/A	\$0.17	309
Idaho	Manufactured	Heat Room	Doors	R-11 (Steel Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	Existing	157	20	\$161	95%	80%	\$0.11	18
Idaho	Manufactured	Heat Room	Doors	R-5 (Composite Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	Existing	105	20	\$190	95%	60%	\$0.20	8
Idaho	Manufactured	Heat Room	Doors - Weatherization	Weatherstripping And Adding Door Sweeps	Existing Non-Efficient door	Per installation	Existing	68	6	\$43	95%	50%	\$0.16	9
Idaho	Manufactured	Heat Room	Floor Insulation (ID) above code	R-38	R-30	Per installation	Existing	292	25	\$502	25%	85%	\$0.18	9
Idaho	Manufactured	Heat Room	Floor Insulation (ID) zero to code	R-30	R-0	Per installation	Existing	5,749	25	\$1,754	25%	20%	\$0.03	53
Idaho	Manufactured	Heat Room	Infiltration Control (Caulk, Weather Strip, etc.) Blower-Door test	Install Caulking And Weatherstripping	Existing Infiltration Conditions	Per installation	Existing	1,051	11	\$375	75%	50%	\$0.06	66
Idaho	Manufactured	Heat Room	Radiant Barrier (Ceiling)	Install Radiant Barrier	No Radiant Barrier	Per installation	Existing	210	25	\$569	25%	90%	\$0.28	7
Idaho	Manufactured	Heat Room	Wall Insulation 2x4 (ID) zero to max feasible	R-13	R-0	Per installation	Existing	3,473	25	\$1,359	85%	25%	\$0.04	99
Idaho	Manufactured	Heat Room	Wall Insulation 2x6 (ID) above code	R-21	R-19	Per installation	Existing	323	25	\$75	75%	95%	\$0.02	5
Idaho	Manufactured	Heat Room	Wall Insulation 2x6 (ID) zero to code	R-19	R-0	Per installation	Existing	4,338	25	\$1,512	75%	25%	\$0.04	18
Idaho	Manufactured	Heat Room	Windows (Same for all Building Types)	CL25	CL30	Per installation	Existing	25	25	\$348	65%	85%	\$1.41	2
Idaho	Manufactured	Heat Room	Windows (Same for all Building Types)	CL30	Double Pane	Per installation	Existing	270	25	\$3,594	65%	50%	\$1.36	12
Idaho	Manufactured	Heat Room	Windows (Same for all Building Types)	CL30	Single Pane	Per installation	Existing	423	25	\$3,594	65%	20%	\$0.87	8
Idaho	Manufactured	Heat Room	Ceiling Insulation (ID) above code	R-60	R-49	Per installation	New	239	25	\$342	60%	95%	\$0.15	15
Idaho	Manufactured	Heat Room	Conversion Baseboard Heating to DHP	Ductless Heat Pump HSPF 7.7	HSPF = 1	Per installation	New	1,269	20	\$2,318	100%	N/A	\$0.20	215
Idaho	Manufactured	Heat Room	Doors	R-11 (Steel Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	New	134	20	\$25	95%	80%	\$0.02	12
Idaho	Manufactured	Heat Room	Doors	R-5 (Composite Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	New	89	20	\$54	95%	60%	\$0.07	5
Idaho	Manufactured	Heat Room	Floor Insulation (ID) above code	R-38	R-30	Per installation	New	249	25	\$502	75%	85%	\$0.21	17
Idaho	Manufactured	Heat Room	Green Roof	ecorooF	Standard Roof	Per installation	New	626	40	\$13,495	20%	95%	\$1.95	2
Idaho	Manufactured	Heat Room	Radiant Barrier (Ceiling)	Install Radiant Barrier	No Radiant Barrier	Per installation	New	178	25	\$569	50%	90%	\$0.33	8
Idaho	Manufactured	Heat Room	Smart Siting	Siting house to minimize heating/cooling costs	No smart siting	Per installation	New	27	25	\$577	75%	75%	\$2.12	1
Idaho	Manufactured	Heat Room	Wall Insulation 2x6 (ID) above code	R-21+R-5 sheathing	R-19	Per installation	New	487	25	\$921	50%	95%	\$0.19	26
Idaho	Manufactured	Heat Room	Windows (Same for all Building Types)	CL22	CL30	Per installation	New	44	25	\$404	95%	75%	\$0.93	3
Idaho	Manufactured	Heat Room	Windows (Same for all Building Types)	CL25	CL30	Per installation	New	29	25	\$348	95%	75%	\$1.19	2
Idaho	Manufactured	Lighting Exterior	CFL, Flood (17 W)	CFL, Flood	Standard Incandescent Flood	Per installation	Existing	53	5	\$0.91	100%	N/A	\$0.00	11
Idaho	Manufactured	Lighting Exterior	Time Clocks (Exterior Lighting)	Exterior Lighting on a Time Clock	Exterior Lighting (Manual Control)	Per installation	Existing	13	10	\$16	80%	85%	\$0.21	29
Idaho	Manufactured	Lighting Exterior	CFL, Flood (17 W)	CFL, Flood	Standard Incandescent Flood	Per installation	New	53	5	\$0.91	100%	N/A	\$0.00	0.90
Idaho	Manufactured	Lighting Exterior	Time Clocks (Exterior Lighting)	Exterior Lighting on a Time Clock	Exterior Lighting (Manual Control)	Per installation	New	13	10	\$16	80%	85%	\$0.21	20
Idaho	Manufactured	Lighting Interior Specialty	CFL (13 W, 20 W, 25 W)	CFL (3-Way)	Standard Incandescent (3-Way)	Per installation	Existing	43	5	\$3	100%	N/A	\$0.02	339

Table C.2.1. Residential Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Idaho	Manufactured	Lighting Interior Specialty	CFL (13 W, 20 W, 25 W)	CFL (3-Way)	Standard Incandescent (3-Way)	Per installation	New	43	5	\$3	100%	N/A	\$0.02	17
Idaho	Manufactured	Lighting Interior Standard	Daylighting Controls (Photocell) - Indoor/Outdoors	Install Photocell	No Daylighting Controls	Per installation	Existing	8	20	\$134	40%	95%	\$1.79	2
Idaho	Manufactured	Lighting Interior Standard	Lighting CFL 15 W	15 W CFL	Standard 60 W Incandescent	Per installation	Existing	40	5	\$2	100%	N/A	\$0.02	48
Idaho	Manufactured	Lighting Interior Standard	Lighting LED 7 W	7 W LED	Standard 60 W Incandescent	Per installation	Existing	51	20	\$36	50%	N/A	\$0.08	1,144
Idaho	Manufactured	Lighting Interior Standard	Occupancy Sensors	Wall-Switch Occupancy Sensors	No Occupancy Sensor	Per installation	Existing	4	10	\$29	85%	95%	\$1.04	38
Idaho	Manufactured	Lighting Interior Standard	Daylighting Controls (Photocell) - Indoor/Outdoors	Install Photocell	No Daylighting Controls	Per installation	New	8	20	\$134	40%	95%	\$1.79	2
Idaho	Manufactured	Lighting Interior Standard	Lighting CFL 15 W	15 W CFL	Standard 60 W Incandescent	Per installation	New	40	5	\$2	100%	N/A	\$0.02	3
Idaho	Manufactured	Lighting Interior Standard	Lighting LED 7 W	7 W LED	Standard 60 W Incandescent	Per installation	New	51	20	\$36	50%	N/A	\$0.08	70
Idaho	Manufactured	Lighting Interior Standard	Occupancy Sensors	Wall-Switch Occupancy Sensors	No Occupancy Sensor	Per installation	New	4	10	\$29	85%	95%	\$1.04	26
Idaho	Manufactured	Microwave	Microwave, High Efficiency	High Efficiency Microwave	Standard Microwave	Per installation	Existing	9	15	\$79	100%	N/A	\$1.05	30
Idaho	Manufactured	Microwave	Microwave, High Efficiency	High Efficiency Microwave	Standard Microwave	Per installation	New	9	15	\$79	100%	N/A	\$1.05	15
Idaho	Manufactured	Monitor	Monitor, Energy Star	Energy Star Monitor	Standard Monitor	Per installation	Existing	36	5	\$3	100%	N/A	\$0.03	106
Idaho	Manufactured	Monitor	Monitor, Energy Star	Energy Star Monitor	Standard Monitor	Per installation	New	36	5	\$3	100%	N/A	\$0.03	14
Idaho	Manufactured	Plug Load Other	1-Watt Standby Power	1W or less standby power use for small appliances	Standard plug load appliance.	Per installation	Existing	17	7	\$30	50%	50%	\$0.36	101
Idaho	Manufactured	Plug Load Other	Energy Star Battery Chargers	Energy Star Battery Chargers	Standard Battery Chargers	Per installation	Existing	1	7	\$33	50%	80%	\$5.63	25
Idaho	Manufactured	Plug Load Other	Office Copier	Office Copier	Standard Copier	Per installation	Existing	39	6	\$5	10%	50%	\$0.03	9
Idaho	Manufactured	Plug Load Other	Office Printer	Office Printer	Standard Printer	Per installation	Existing	5	5	\$5	20%	50%	\$0.28	2
Idaho	Manufactured	Plug Load Other	Smart Strip	Smart Strip	Standard PowerStrip	Per installation	Existing	103	5	\$22	50%	85%	\$0.06	212
Idaho	Manufactured	Plug Load Other	1-Watt Standby Power	1W or less standby power use for small appliances	Standard plug load appliance.	Per installation	New	17	7	\$30	50%	50%	\$0.37	62
Idaho	Manufactured	Plug Load Other	Energy Star Battery Chargers	Energy Star Battery Chargers	Standard Battery Chargers	Per installation	New	1	7	\$2	50%	80%	\$0.43	16
Idaho	Manufactured	Plug Load Other	Office Copier	Office Copier	Standard Copier	Per installation	New	38	6	\$5	10%	50%	\$0.03	5
Idaho	Manufactured	Plug Load Other	Office Printer	Office Printer	Standard Printer	Per installation	New	4	5	\$5	20%	50%	\$0.28	1
Idaho	Manufactured	Plug Load Other	Smart Strip	Smart Strip	Standard PowerStrip	Per installation	New	102	5	\$22	50%	85%	\$0.06	131
Idaho	Manufactured	Refrigerator	Refrigerator, Energy Star	Energy Star Refrigerator	Standard Refrigerator	Per installation	Existing	122	20	\$15	97%	N/A	\$0.01	101
Idaho	Manufactured	Refrigerator	Refrigerator/Freezer - Removal of Secondary	Proper Disposal of Refrigerator/Freezer	Existing Non-Efficient Refrigerator/Freezer	Per installation	Existing	1,416	9	\$74	2%	96%	\$0.01	31
Idaho	Manufactured	Refrigerator	Refrigerator, Energy Star	Energy Star Refrigerator	Standard Refrigerator	Per installation	New	122	20	\$15	100%	N/A	\$0.01	79
Idaho	Manufactured	Set Top Box	Set Top Box, Energy Star	Energy Star Set Top Box	Standard Set Top Box	Per installation	Existing	164	5	\$12	100%	N/A	\$0.02	279
Idaho	Manufactured	Set Top Box	Set Top Box, Energy Star	Energy Star Set Top Box	Standard Set Top Box	Per installation	New	164	5	\$12	100%	N/A	\$0.02	34
Idaho	Manufactured	Tv	TV CRT, Energy Star	Energy Star CRT TV	Standard CRT TV	Per installation	Existing	112	10	\$19	100%	N/A	\$0.03	689
Idaho	Manufactured	Tv	TV CRT, Energy Star	Energy Star CRT TV	Standard CRT TV	Per installation	New	112	10	\$19	100%	N/A	\$0.03	210
Idaho	Manufactured	Tv Bigscreen	TV LCD, Energy Star	Energy Star LCD TV	Standard LCD TV	Per installation	Existing	223	10	\$19	100%	N/A	\$0.01	261
Idaho	Manufactured	Tv Bigscreen	TV LCD, Energy Star	Energy Star LCD TV	Standard LCD TV	Per installation	New	223	10	\$19	100%	N/A	\$0.01	79
Idaho	Manufactured	Ventilation And Circulation	Motor, ECM	ECM Motor	Standard Motor	Per installation	Existing	86	20	\$172	50%	N/A	\$0.22	57
Idaho	Manufactured	Ventilation And Circulation	Motor, ECM - VFD	ECMVFD Motor	Standard Motor	Per installation	Existing	258	20	\$194	50%	N/A	\$0.08	173
Idaho	Manufactured	Ventilation And Circulation	Motor, ECM	ECM Motor	Standard Motor	Per installation	New	81	20	\$172	50%	N/A	\$0.24	40

Table C.2.1. Residential Measure Details

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Idaho	Manufactured	Ventilation And Circulation	Motor, ECM - VFD	ECMVFD Motor	Standard Motor	Per installation	New	244	20	\$194	50%	N/A	\$0.09	121
Idaho	Manufactured	Water Heat	Clothes Washer	Energy Star - Tier 1 (MEF 2.0 - 2.19) - Electric DHW & Dryer	MEF = 1.66 - Electric DHW & Dryer	Per installation	Existing	113	14	\$227	100%	85%	\$-0.27	78
Idaho	Manufactured	Water Heat	Clothes Washer	Energy Star - Tier 2 (MEF 2.2 - 2.45) - Electric DHW & Dryer	MEF = 1.66 - Electric DHW & Dryer	Per installation	Existing	150	14	\$296	100%	90%	\$-0.25	110
Idaho	Manufactured	Water Heat	Clothes Washer	Energy Star - Tier 3 (MEF 2.46 or higher) Top 10% of Energy Star Model - Electric DHW & Dryer	MEF = 1.66 - Electric DHW & Dryer	Per installation	Existing	171	14	\$317	100%	95%	\$-0.23	132
Idaho	Manufactured	Water Heat	Dishwasher	Energy Star, July 1st 2011, <= 307 kWh/year , <= 5.0 gallons/cycle	Energy Star - EF65 (6th Plan Baseline)	Per installation	Existing	33	12	\$42	75%	50%	\$0.17	30
Idaho	Manufactured	Water Heat	Drain Water Heat Recovery (GFX)	Gravity Film Heat Exchanger	No Heat Exchanger	Per installation	Existing	333	40	\$494	29%	90%	\$0.13	176
Idaho	Manufactured	Water Heat	Faucet Aerators	0.5 GPM	2.2 GPM	Per installation	Existing	82	9	\$0.71	95%	95%	\$-0.08	181
Idaho	Manufactured	Water Heat	Faucet Aerators	1.5 GPM	2.2 GPM	Per installation	Existing	34	9	\$0.46	95%	65%	\$-0.08	51
Idaho	Manufactured	Water Heat	Faucet Aerators	2.2 GPM	Existing Faucet Aerator (3.0 GPM)	Per installation	Existing	38	9	\$1	95%	25%	\$-0.07	44
Idaho	Manufactured	Water Heat	Hot Water Pipe Insulation	R-4 Wrap	No insulation	Per installation	Existing	40	5	\$17	95%	75%	\$0.12	58
Idaho	Manufactured	Water Heat	Low-Flow Showerheads	2.0 GPM	2.5 GPM	Per installation	Existing	113	10	\$16	95%	65%	\$-0.06	170
Idaho	Manufactured	Water Heat	Water Heater, Heat Pump EF 2.2	Heat Pump Water Heater EF = 2.2	Standard Storage Water Heater EF = 0.92	Per installation	Existing	1,318	15	\$1,280	59%	N/A	\$0.13	1,017
Idaho	Manufactured	Water Heat	Water Heater, Storage EF 0.95	Standard Storage Water Heater EF = 0.95	Standard Storage Water Heater EF = 0.92	Per installation	Existing	74	15	\$40	100%	N/A	\$0.07	8
Idaho	Manufactured	Water Heat	Water_Heater Tank Blanket/Insulation	Install Insulation (R-5)	No Tank Insulation	Per installation	Existing	149	10	\$11	50%	20%	\$0.01	30
Idaho	Manufactured	Water Heat	Water_Heater Thermostat Setback	120 degrees	135 degrees	Per installation	Existing	138	5	\$6	95%	45%	\$0.01	123
Idaho	Manufactured	Water Heat	Clothes Washer	Energy Star - Tier 1 (MEF 2.0 - 2.19) - Electric DHW & Dryer	MEF = 1.66 - Electric DHW & Dryer	Per installation	New	111	14	\$227	100%	85%	\$-0.27	49
Idaho	Manufactured	Water Heat	Clothes Washer	Energy Star - Tier 2 (MEF 2.2 - 2.45) - Electric DHW & Dryer	MEF = 1.66 - Electric DHW & Dryer	Per installation	New	148	14	\$296	100%	90%	\$-0.25	69
Idaho	Manufactured	Water Heat	Clothes Washer	Energy Star - Tier 3 (MEF 2.46 or higher) Top 10% of Energy Star Model - Electric DHW & Dryer	MEF = 1.66 - Electric DHW & Dryer	Per installation	New	169	14	\$317	100%	95%	\$-0.23	84
Idaho	Manufactured	Water Heat	Dishwasher	Energy Star, July 1st 2011, <= 307 kWh/year , <= 5.0 gallons/cycle	Energy Star - EF65 (6th Plan Baseline)	Per installation	New	32	12	\$42	75%	50%	\$0.17	19
Idaho	Manufactured	Water Heat	Drain Water Heat Recovery (GFX)	Gravity Film Heat Exchanger (GFX)	No Heat Exchanger	Per installation	New	331	40	\$436	59%	90%	\$0.12	232
Idaho	Manufactured	Water Heat	Faucet Aerators	0.5 GPM	2.2 GPM	Per installation	New	81	9	\$0.71	95%	95%	\$-0.08	115
Idaho	Manufactured	Water Heat	Faucet Aerators	1.5 GPM	2.2 GPM	Per installation	New	33	9	\$0.46	95%	65%	\$-0.08	32
Idaho	Manufactured	Water Heat	Hot Water Pipe Insulation	R-4 Wrap	No insulation	Per installation	New	39	5	\$17	95%	75%	\$0.12	34
Idaho	Manufactured	Water Heat	Low-Flow Showerheads	2.0 GPM	2.5 GPM	Per installation	New	111	10	\$9	95%	65%	\$-0.07	108
Idaho	Manufactured	Water Heat	Water Heater, Heat Pump EF 2.2	Heat Pump Water Heater EF = 2.2	Standard Storage Water Heater EF = 0.92	Per installation	New	1,318	15	\$1,280	59%	N/A	\$0.13	498
Idaho	Manufactured	Water Heat	Water Heater, Storage EF 0.95	Standard Storage Water Heater EF = 0.95	Standard Storage Water Heater EF = 0.92	Per installation	New	74	15	\$40	100%	N/A	\$0.07	4
Idaho	Manufactured	Water Heat	Water_Heater Thermostat Setback	120 degrees	135 degrees	Per installation	New	137	5	\$6	95%	45%	\$0.01	79
Idaho	Multi Family	Computer	Computer, Energy Star	Energy Star Computer	Standard Computer	Per installation	Existing	44	5	\$19	100%	N/A	\$0.12	142
Idaho	Multi Family	Computer	Computer, Energy Star	Energy Star Computer	Standard Computer	Per installation	New	44	5	\$19	100%	N/A	\$0.12	23
Idaho	Multi Family	Cooking Oven	Cooking Oven, High Efficiency	High Efficiency Oven	Standard Oven	Per installation	Existing	58	20	\$282	100%	N/A	\$0.55	68
Idaho	Multi Family	Cooking Oven	Cooking Oven, High Efficiency	High Efficiency Oven	Standard Oven	Per installation	New	58	20	\$282	100%	N/A	\$0.55	65
Idaho	Multi Family	Cool Central	Air-to-Air Heat Exchangers	Air-to-Air Heat Exchangers	No Air to Air Heat Exchangers	Per installation	Existing	98	5	\$527	25%	95%	\$1.52	38
Idaho	Multi Family	Cool Central	Canned Lighting Air Tight Sealing	Canned Lighting Air Tight Sealing	No Air tight Sealing	Per installation	Existing	6	30	\$23	95%	50%	\$0.34	12

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Idaho	Multi Family	Cool Central	Ceiling Fan	Ceiling Fan (no lighting kit)	No Ceiling Fan	Per installation	Existing	39	10	\$80	85%	50%	\$0.34	54
Idaho	Multi Family	Cool Central	Ceiling Insulation (ID) above code	R-60	R-49	Per installation	Existing	13	30	\$160	75%	95%	\$1.15	10
Idaho	Multi Family	Cool Central	Ceiling Insulation (ID) ave to code	R-49	R-15	Per installation	Existing	124	30	\$733	75%	35%	\$0.57	36
Idaho	Multi Family	Cool Central	Ceiling Insulation (ID) zero to code	R-49	R-0	Per installation	Existing	407	30	\$733	95%	1%	\$0.17	5
Idaho	Multi Family	Cool Central	Central Cooling, SEER 15	SEER 15	SEER 13	Per installation	Existing	121	15	\$595	100%	N/A	\$0.63	16
Idaho	Multi Family	Cool Central	Central Cooling, SEER 18	SEER 18	SEER 13	Per installation	Existing	303	15	\$1,490	100%	N/A	\$0.64	266
Idaho	Multi Family	Cool Central	Check Me! O&M Tune-up	Tune-up/Maintenance	No Tune-up Maintenance	Per installation	Existing	30	5	\$148	95%	75%	\$1.36	35
Idaho	Multi Family	Cool Central	Cool Roofs	Lighter Colored Shingles (White)	Standard Roof Shingles	Per installation	Existing	11	20	\$137	85%	95%	\$1.35	9
Idaho	Multi Family	Cool Central	Doors	R-11 (Steel Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	Existing	21	20	\$161	95%	80%	\$0.84	8
Idaho	Multi Family	Cool Central	Doors	R-5 (Composite Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	Existing	14	20	\$190	95%	60%	\$1.49	4
Idaho	Multi Family	Cool Central	Doors - Weatherization	Weatherstripping And Adding Door Sweeps	Existing Non-Efficient door	Per installation	Existing	9	6	\$43	95%	50%	\$1.14	4
Idaho	Multi Family	Cool Central	Duct Insulation Upgrade	R-8 (code)	R-4	Per installation	Existing	28	20	\$524	75%	75%	\$2.05	16
Idaho	Multi Family	Cool Central	Duct Sealing	Duct Sealing	No Duct Sealing	Per installation	Existing	98	18	\$449	75%	60%	\$0.54	30
Idaho	Multi Family	Cool Central	Duct Sealing - Aerosol-Based	Spray-in ductwork sealant to minimize duct leaks	No Duct Sealing	Per installation	Existing	147	18	\$644	75%	60%	\$0.51	23
Idaho	Multi Family	Cool Central	Floor Insulation (ID) above code	R-38	R-30	Per installation	Existing	19	30	\$234	25%	85%	\$1.15	4
Idaho	Multi Family	Cool Central	Floor Insulation (ID) zero to code	R-30	R-0	Per installation	Existing	388	30	\$820	25%	20%	\$0.20	26
Idaho	Multi Family	Cool Central	Infiltration Control (Caulk, Weather Strip, etc.) Blower-Door test	Install Caulking And Weatherstripping	Existing Infiltration Conditions	Per installation	Existing	98	11	\$332	75%	50%	\$0.53	43
Idaho	Multi Family	Cool Central	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands (5 per unit)	13 SEER	Per installation	Existing	150	30	\$535	50%	95%	\$0.34	9
Idaho	Multi Family	Cool Central	Proper Sizing - HVAC Unit	Proper Sizing - HVAC Unit	Oversized HVAC Unit	Per installation	Existing	92	15	\$-54.9	95%	65%	\$-0.08	93
Idaho	Multi Family	Cool Central	Radiant Barrier (Ceiling)	Install Radiant Barrier	No Radiant Barrier	Per installation	Existing	59	30	\$266	50%	90%	\$0.43	32
Idaho	Multi Family	Cool Central	Thermostat - Multi-Zone	Individual Room Temperature Control for Major Occupied Rooms	Programmable Thermostat - Central Control Only	Per installation	Existing	67	11	\$1,043	50%	95%	\$2.43	31
Idaho	Multi Family	Cool Central	Wall Insulation 2x4 (ID) zero to max feasible	R-13	R-0	Per installation	Existing	231	30	\$929	85%	25%	\$0.39	47
Idaho	Multi Family	Cool Central	Wall Insulation 2x6 (ID) above code	R-21	R-19	Per installation	Existing	21	30	\$51	75%	95%	\$0.23	2
Idaho	Multi Family	Cool Central	Wall Insulation 2x6 (ID) zero to code	R-19	R-0	Per installation	Existing	289	30	\$1,034	75%	25%	\$0.34	8
Idaho	Multi Family	Cool Central	Whole-House Fan	Whole-House Fan	No Whole-House Fan	Per installation	Existing	147	20	\$1,258	50%	95%	\$0.95	57
Idaho	Multi Family	Cool Central	Windows (Same for all Building Types)	CL25	CL30	Per installation	Existing	1	30	\$238	51%	85%	\$13.77	0.69
Idaho	Multi Family	Cool Central	Windows (Same for all Building Types)	CL30	Double Pane	Per installation	Existing	17	30	\$2,457	51%	50%	\$13.27	4
Idaho	Multi Family	Cool Central	Windows (Same for all Building Types)	CL30	Single Pane	Per installation	Existing	27	30	\$2,457	51%	20%	\$8.47	2
Idaho	Multi Family	Cool Central	Air-to-Air Heat Exchangers	Air-to-Air Heat Exchangers	No Air to Air Heat Exchangers	Per installation	New	77	5	\$527	25%	95%	\$1.94	27
Idaho	Multi Family	Cool Central	Ceiling Fan	Ceiling Fan (no lighting kit)	No Ceiling Fan	Per installation	New	30	10	\$80	85%	50%	\$0.43	39
Idaho	Multi Family	Cool Central	Ceiling Insulation (ID) above code	R-60	R-49	Per installation	New	14	30	\$160	90%	95%	\$1.06	13
Idaho	Multi Family	Cool Central	Central Cooling, SEER 15	SEER 15	SEER 13	Per installation	New	103	15	\$595	100%	N/A	\$0.74	12
Idaho	Multi Family	Cool Central	Central Cooling, SEER 18	SEER 18	SEER 13	Per installation	New	259	15	\$1,490	100%	N/A	\$0.74	166
Idaho	Multi Family	Cool Central	Check Me! O&M Tune-up	Tune-up/Maintenance	No Tune-up Maintenance	Per installation	New	24	5	\$148	95%	75%	\$1.74	25
Idaho	Multi Family	Cool Central	Construction - ICF	Concrete Framing	Standard Wood Framing	Per installation	New	246	45	\$3,365	50%	95%	\$1.21	6
Idaho	Multi Family	Cool Central	Construction - SIP	Specialty Framing	Standard Wood Framing	Per installation	New	92	45	\$1,558	50%	95%	\$1.49	2

Table C.2.1. Residential Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Idaho	Multi Family	Cool Central	Cool Roofs	Lighter Colored Shingles (White)	Standard Roof Shingles	Per installation	New	8	20	\$137	85%	95%	\$1.72	6
Idaho	Multi Family	Cool Central	Doors	R-11 (Steel Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	New	16	20	\$25	95%	80%	\$0.17	7
Idaho	Multi Family	Cool Central	Doors	R-5 (Composite Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	New	11	20	\$54	95%	60%	\$0.54	3
Idaho	Multi Family	Cool Central	Duct Location	Conditioned Space Design - Duct Loss Is Not A Concern	Ducts in Unconditioned Space (Duct loss)	Per installation	New	61	30	\$167	95%	30%	\$0.26	5
Idaho	Multi Family	Cool Central	Duct Sealing	Duct Sealing	No Duct Sealing	Per installation	New	77	18	\$205	75%	60%	\$0.31	14
Idaho	Multi Family	Cool Central	Duct Sealing - Aerosol-Based	Spray-in ductwork sealant to minimize duct leaks	No Duct Sealing	Per installation	New	115	18	\$644	75%	60%	\$0.66	8
Idaho	Multi Family	Cool Central	Floor Insulation (ID) above code	R-38	R-30	Per installation	New	15	30	\$234	75%	85%	\$1.46	10
Idaho	Multi Family	Cool Central	Green Roof	ecorooF	Standard Roof	Per installation	New	39	40	\$6,526	50%	95%	\$15.01	3
Idaho	Multi Family	Cool Central	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands (5 per unit)	13 SEER	Per installation	New	117	30	\$535	50%	95%	\$0.44	16
Idaho	Multi Family	Cool Central	Proper Sizing - HVAC Unit	Proper Sizing - HVAC Unit	Oversized HVAC Unit	Per installation	New	72	15	\$-54.9	95%	65%	\$-0.10	67
Idaho	Multi Family	Cool Central	Radiant Barrier (Ceiling)	Install Radiant Barrier	No Radiant Barrier	Per installation	New	46	30	\$266	75%	90%	\$0.56	36
Idaho	Multi Family	Cool Central	Smart Siting	Siting house to minimize heating/cooling costs	No smart siting	Per installation	New	42	45	\$577	40%	75%	\$1.21	13
Idaho	Multi Family	Cool Central	Thermostat - Multi-Zone	Individual Room Temperature Control for Major Occupied Rooms	Programmable Thermostat - Central Control Only	Per installation	New	52	11	\$1,043	50%	95%	\$3.11	25
Idaho	Multi Family	Cool Central	Wall Insulation 2x6 (ID) above code	R-21+R-5 sheathing	R-19	Per installation	New	29	30	\$630	50%	95%	\$2.03	13
Idaho	Multi Family	Cool Central	Whole-House Fan	Whole-House Fan	No Whole-House Fan	Per installation	New	115	20	\$1,258	50%	95%	\$1.22	41
Idaho	Multi Family	Cool Central	Windows (Same for all Building Types)	CL22	CL30	Per installation	New	2	30	\$276	95%	75%	\$9.92	1
Idaho	Multi Family	Cool Central	Windows (Same for all Building Types)	CL25	CL30	Per installation	New	1	30	\$238	95%	75%	\$12.68	1
Idaho	Multi Family	Cool Room	Canned Lighting Air Tight Sealing	Canned Lighting Air Tight Sealing	No Air tight Sealing	Per installation	Existing	2	30	\$23	95%	50%	\$0.76	0.64
Idaho	Multi Family	Cool Room	Ceiling Fan	Ceiling Fan (no lighting kit)	No Ceiling Fan	Per installation	Existing	17	10	\$80	85%	50%	\$0.76	2
Idaho	Multi Family	Cool Room	Ceiling Insulation (ID) above code	R-60	R-49	Per installation	Existing	6	30	\$160	75%	95%	\$2.49	0.58
Idaho	Multi Family	Cool Room	Ceiling Insulation (ID) ave to code	R-49	R-15	Per installation	Existing	57	30	\$733	75%	35%	\$1.24	2
Idaho	Multi Family	Cool Room	Ceiling Insulation (ID) zero to code	R-49	R-0	Per installation	Existing	186	30	\$733	95%	1%	\$0.38	0.28
Idaho	Multi Family	Cool Room	Cool Roofs	Lighter Colored Shingles (White)	Standard Roof Shingles	Per installation	Existing	5	20	\$137	85%	95%	\$3.01	0.53
Idaho	Multi Family	Cool Room	Doors	R-11 (Steel Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	Existing	9	20	\$161	95%	80%	\$1.88	0.48
Idaho	Multi Family	Cool Room	Doors	R-5 (Composite Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	Existing	6	20	\$190	95%	60%	\$3.32	0.23
Idaho	Multi Family	Cool Room	Doors - Weatherization	Weatherstripping And Adding Door Sweeps	Existing Non-Efficient door	Per installation	Existing	4	6	\$43	95%	50%	\$2.56	0.25
Idaho	Multi Family	Cool Room	Floor Insulation (ID) above code	R-38	R-30	Per installation	Existing	5	30	\$234	25%	85%	\$4.33	0.14
Idaho	Multi Family	Cool Room	Floor Insulation (ID) zero to code	R-30	R-0	Per installation	Existing	175	30	\$820	25%	20%	\$0.45	1
Idaho	Multi Family	Cool Room	Infiltration Control (Caulk, Weather Strip, etc.) Blower-Door test	Install Caulking And Weatherstripping	Existing Infiltration Conditions	Per installation	Existing	44	11	\$332	75%	50%	\$1.18	2
Idaho	Multi Family	Cool Room	Radiant Barrier (Ceiling)	Install Radiant Barrier	No Radiant Barrier	Per installation	Existing	26	30	\$266	50%	90%	\$0.97	1
Idaho	Multi Family	Cool Room	Room AC conversion to Ductless Heat Pump	SEER 13	EER 9.8	Per installation	Existing	26	20	\$2,503	75%	N/A	\$10.55	6
Idaho	Multi Family	Cool Room	Room AC, EER 10.8	EER 10.8	EER 9.8	Per installation	Existing	21	9	\$7	100%	N/A	\$0.06	1
Idaho	Multi Family	Cool Room	Wall Insulation 2x4 (ID) zero to max feasible	R-13	R-0	Per installation	Existing	105	30	\$929	85%	25%	\$0.85	2

Table C.2.1. Residential Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Idaho	Multi Family	Cool Room	Wall Insulation 2x6 (ID) above code	R-21	R-19	Per installation	Existing	9	30	\$51	75%	95%	\$0.51	0.13
Idaho	Multi Family	Cool Room	Wall Insulation 2x6 (ID) zero to code	R-19	R-0	Per installation	Existing	132	30	\$1,034	75%	25%	\$0.75	0.48
Idaho	Multi Family	Cool Room	Windows (Same for all Building Types)	CL25	CL30	Per installation	Existing	0.77	30	\$238	51%	85%	\$29.81	0.04
Idaho	Multi Family	Cool Room	Windows (Same for all Building Types)	CL30	Double Pane	Per installation	Existing	8	30	\$2,457	51%	50%	\$28.73	0.26
Idaho	Multi Family	Cool Room	Windows (Same for all Building Types)	CL30	Single Pane	Per installation	Existing	12	30	\$2,457	51%	20%	\$18.33	0.16
Idaho	Multi Family	Cool Room	Ceiling Fan	Ceiling Fan (no lighting kit)	No Ceiling Fan	Per installation	New	15	10	\$80	85%	50%	\$0.88	1
Idaho	Multi Family	Cool Room	Ceiling Insulation (ID) above code	R-60	R-49	Per installation	New	7	30	\$160	90%	95%	\$2.09	0.86
Idaho	Multi Family	Cool Room	Construction - ICF	Concrete Framing	Standard Wood Framing	Per installation	New	121	45	\$3,365	50%	95%	\$2.46	0.37
Idaho	Multi Family	Cool Room	Construction - SIP	Specialty Framing	Standard Wood Framing	Per installation	New	45	45	\$1,558	50%	95%	\$3.04	0.14
Idaho	Multi Family	Cool Room	Cool Roofs	Lighter Colored Shingles (White)	Standard Roof Shingles	Per installation	New	4	20	\$137	85%	95%	\$3.50	0.36
Idaho	Multi Family	Cool Room	Doors	R-11 (Steel Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	New	8	20	\$25	95%	80%	\$0.34	0.45
Idaho	Multi Family	Cool Room	Doors	R-5 (Composite Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	New	5	20	\$54	95%	60%	\$1.10	0.22
Idaho	Multi Family	Cool Room	Floor Insulation (ID) above code	R-38	R-30	Per installation	New	4	30	\$234	75%	85%	\$5.04	0.36
Idaho	Multi Family	Cool Room	Green Roof	ecorooF	Standard Roof	Per installation	New	19	40	\$6,526	50%	95%	\$30.52	0.23
Idaho	Multi Family	Cool Room	Radiant Barrier (Ceiling)	Install Radiant Barrier	No Radiant Barrier	Per installation	New	22	30	\$266	75%	90%	\$1.13	2
Idaho	Multi Family	Cool Room	Room AC conversion to Ductless Heat Pump	SEER 13	EER 9.8	Per installation	New	23	20	\$2,503	75%	N/A	\$11.80	2
Idaho	Multi Family	Cool Room	Room AC, EER 10.8	EER 10.8	EER 9.8	Per installation	New	19	9	\$7	100%	N/A	\$0.07	0.69
Idaho	Multi Family	Cool Room	Smart Siting	Siting house to minimize heating/cooling costs	No smart siting	Per installation	New	20	45	\$577	40%	75%	\$2.45	0.83
Idaho	Multi Family	Cool Room	Wall Insulation 2x6 (ID) above code	R-21+R-5 sheathing	R-19	Per installation	New	15	30	\$630	50%	95%	\$4.05	0.83
Idaho	Multi Family	Cool Room	Windows (Same for all Building Types)	CL22	CL30	Per installation	New	1	30	\$276	95%	75%	\$19.36	0.12
Idaho	Multi Family	Cool Room	Windows (Same for all Building Types)	CL25	CL30	Per installation	New	0.92	30	\$238	95%	75%	\$24.98	0.08
Idaho	Multi Family	Dryer	Dryer, Advanced Efficiency EF 3.30	Advanced Efficiency Dryer 3.30	Standard Dryer EF 3.01	Per installation	Existing	38	14	\$224	100%	N/A	\$0.79	89
Idaho	Multi Family	Dryer	Dryer, High Efficiency EF 3.08	High Efficiency Dryer EF 3.08	Standard Dryer EF 3.01	Per installation	Existing	9	14	\$54	100%	N/A	\$0.74	1
Idaho	Multi Family	Dryer	Dryer, Premium Efficiency EF 3.19	Premium Efficiency Dryer 3.19	Standard Dryer EF 3.01	Per installation	Existing	24	14	\$139	100%	N/A	\$0.76	9
Idaho	Multi Family	Dryer	Dryer, Advanced Efficiency EF 3.30	Advanced Efficiency Dryer 3.30	Standard Dryer EF 3.01	Per installation	New	38	14	\$224	100%	N/A	\$0.79	46
Idaho	Multi Family	Dryer	Dryer, High Efficiency EF 3.08	High Efficiency Dryer EF 3.08	Standard Dryer EF 3.01	Per installation	New	9	14	\$54	100%	N/A	\$0.74	0.95
Idaho	Multi Family	Dryer	Dryer, Premium Efficiency EF 3.19	Premium Efficiency Dryer 3.19	Standard Dryer EF 3.01	Per installation	New	24	14	\$139	100%	N/A	\$0.76	7
Idaho	Multi Family	Freezer	Freezer, Energy Star	Energy Star Freezer	Standard Freezer	Per installation	Existing	46	20	\$22	76%	N/A	\$0.05	7
Idaho	Multi Family	Freezer	Stand-Alone Freezer - Removal	Proper Disposal of Freezer	Existing Non-Efficient Freezer	Per installation	Existing	1,428	8	\$72	17%	98%	\$0.01	57
Idaho	Multi Family	Freezer	Freezer, Energy Star	Energy Star Freezer	Standard Freezer	Per installation	New	46	20	\$22	76%	N/A	\$0.05	12
Idaho	Multi Family	Heat Central	Air-to-Air Heat Exchangers	Air-to-Air Heat Exchangers	No Air to Air Heat Exchangers	Per installation	Existing	1,160	5	\$527	25%	95%	\$0.13	118
Idaho	Multi Family	Heat Central	Canned Lighting Air Tight Sealing	Canned Lighting Air Tight Sealing	No Air tight Sealing	Per installation	Existing	106	30	\$23	95%	50%	\$0.02	60
Idaho	Multi Family	Heat Central	Ceiling Insulation (ID) above code	R-60	R-49	Per installation	Existing	217	30	\$160	75%	95%	\$0.07	50
Idaho	Multi Family	Heat Central	Ceiling Insulation (ID) ave to code	R-49	R-15	Per installation	Existing	2,020	30	\$733	75%	35%	\$0.04	196
Idaho	Multi Family	Heat Central	Ceiling Insulation (ID) zero to code	R-49	R-0	Per installation	Existing	6,601	30	\$733	95%	1%	\$0.01	25

Table C.2.1. Residential Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Idaho	Multi Family	Heat Central	Doors	R-11 (Steel Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	Existing	348	20	\$161	95%	80%	\$0.05	44
Idaho	Multi Family	Heat Central	Doors	R-5 (Composite Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	Existing	232	20	\$190	95%	60%	\$0.09	21
Idaho	Multi Family	Heat Central	Doors - Weatherization	Weatherstripping And Adding Door Sweeps	Existing Non-Efficient door	Per installation	Existing	150	6	\$43	95%	50%	\$0.07	23
Idaho	Multi Family	Heat Central	Duct Insulation Upgrade	R-8 (code)	R-4	Per installation	Existing	464	20	\$524	75%	75%	\$0.13	83
Idaho	Multi Family	Heat Central	Duct Sealing	Duct Sealing	No Duct Sealing	Per installation	Existing	1,160	18	\$449	75%	15%	\$0.05	26
Idaho	Multi Family	Heat Central	Duct Sealing - Aerosol-Based	Spray-in ductwork sealant to minimize duct leaks	No Duct Sealing	Per installation	Existing	1,740	18	\$644	75%	15%	\$0.04	20
Idaho	Multi Family	Heat Central	Floor Insulation (ID) above code	R-38	R-30	Per installation	Existing	319	30	\$234	25%	85%	\$0.07	22
Idaho	Multi Family	Heat Central	Floor Insulation (ID) zero to code	R-30	R-0	Per installation	Existing	6,288	30	\$820	25%	20%	\$0.01	129
Idaho	Multi Family	Heat Central	Infiltration Control (Caulk, Weather Strip, etc.) Blower-Door test	Install Caulking And Weatherstripping	Existing Infiltration Conditions	Per installation	Existing	1,160	11	\$332	75%	50%	\$0.04	152
Idaho	Multi Family	Heat Central	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands (5 per unit)	13 SEER	Per installation	Existing	2,436	30	\$535	50%	15%	\$0.02	7
Idaho	Multi Family	Heat Central	Proper Sizing - HVAC Unit	Proper Sizing - HVAC Unit	Oversized HVAC Unit	Per installation	Existing	1,094	15	\$-54.9	15%	65%	\$-0.01	45
Idaho	Multi Family	Heat Central	Radiant Barrier (Ceiling)	Install Radiant Barrier	No Radiant Barrier	Per installation	Existing	232	30	\$266	50%	90%	\$0.11	33
Idaho	Multi Family	Heat Central	Thermostat - Multi-Zone	Individual Room Temperature Control for Major Occupied Rooms	Programmable Thermostat - Central Control Only	Per installation	Existing	789	11	\$1,043	50%	95%	\$0.21	116
Idaho	Multi Family	Heat Central	Wall Insulation 2x4 (ID) zero to max feasible	R-13	R-0	Per installation	Existing	3,751	30	\$929	85%	25%	\$0.02	233
Idaho	Multi Family	Heat Central	Wall Insulation 2x6 (ID) above code	R-21	R-19	Per installation	Existing	349	30	\$51	75%	95%	\$0.01	12
Idaho	Multi Family	Heat Central	Wall Insulation 2x6 (ID) zero to code	R-19	R-0	Per installation	Existing	4,686	30	\$1,034	75%	25%	\$0.02	43
Idaho	Multi Family	Heat Central	Windows (Same for all Building Types)	CL25	CL30	Per installation	Existing	27	30	\$238	51%	85%	\$0.85	3
Idaho	Multi Family	Heat Central	Windows (Same for all Building Types)	CL30	Double Pane	Per installation	Existing	289	30	\$2,457	51%	50%	\$0.82	21
Idaho	Multi Family	Heat Central	Windows (Same for all Building Types)	CL30	Single Pane	Per installation	Existing	453	30	\$2,457	51%	20%	\$0.52	13
Idaho	Multi Family	Heat Central	Air-to-Air Heat Exchangers	Air-to-Air Heat Exchangers	No Air to Air Heat Exchangers	Per installation	New	636	5	\$527	25%	95%	\$0.24	56
Idaho	Multi Family	Heat Central	Ceiling Insulation (ID) above code	R-60	R-49	Per installation	New	165	30	\$160	90%	95%	\$0.09	49
Idaho	Multi Family	Heat Central	Construction - ICF	Concrete Framing	Standard Wood Framing	Per installation	New	2,800	45	\$3,365	50%	95%	\$0.11	22
Idaho	Multi Family	Heat Central	Construction - SIP	Specialty Framing	Standard Wood Framing	Per installation	New	763	45	\$1,558	50%	95%	\$0.18	5
Idaho	Multi Family	Heat Central	Doors	R-11 (Steel Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	New	190	20	\$25	95%	80%	\$0.01	26
Idaho	Multi Family	Heat Central	Doors	R-5 (Composite Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	New	127	20	\$54	95%	60%	\$0.05	12
Idaho	Multi Family	Heat Central	Duct Location	Conditioned Space Design - Duct Loss Is Not A Concern	Ducts in Unconditioned Space (Duct loss)	Per installation	New	509	30	\$167	95%	15%	\$0.03	6
Idaho	Multi Family	Heat Central	Duct Sealing	Duct Sealing	No Duct Sealing	Per installation	New	636	18	\$205	75%	15%	\$0.04	8
Idaho	Multi Family	Heat Central	Duct Sealing - Aerosol-Based	Spray-in ductwork sealant to minimize duct leaks	No Duct Sealing	Per installation	New	954	18	\$644	75%	15%	\$0.08	5
Idaho	Multi Family	Heat Central	Floor Insulation (ID) above code	R-38	R-30	Per installation	New	175	30	\$234	75%	85%	\$0.13	37
Idaho	Multi Family	Heat Central	Green Roof	ecorooF	Standard Roof	Per installation	New	445	40	\$6,526	50%	95%	\$1.32	12
Idaho	Multi Family	Heat Central	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands (5 per unit)	13 SEER	Per installation	New	1,336	30	\$535	50%	15%	\$0.04	8
Idaho	Multi Family	Heat Central	Proper Sizing - HVAC Unit	Proper Sizing - HVAC Unit	Oversized HVAC Unit	Per installation	New	600	15	\$-54.9	15%	65%	\$-0.01	21
Idaho	Multi Family	Heat Central	Radiant Barrier (Ceiling)	Install Radiant Barrier	No Radiant Barrier	Per installation	New	127	30	\$266	75%	90%	\$0.20	27

Table C.2.1. Residential Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Idaho	Multi Family	Heat Central	Smart Siting	Siting house to minimize heating/cooling costs	No smart siting	Per installation	New	19	45	\$577	40%	75%	\$2.59	1
Idaho	Multi Family	Heat Central	Thermostat - Multi-Zone	Individual Room Temperature Control for Major Occupied Rooms	Programmable Thermostat - Central Control Only	Per installation	New	432	11	\$1,043	50%	95%	\$0.38	65
Idaho	Multi Family	Heat Central	Wall Insulation 2x6 (ID) above code	R-21+R-5 sheathing	R-19	Per installation	New	339	30	\$630	50%	95%	\$0.18	48
Idaho	Multi Family	Heat Central	Windows (Same for all Building Types)	CL22	CL30	Per installation	New	30	30	\$276	95%	75%	\$0.87	6
Idaho	Multi Family	Heat Central	Windows (Same for all Building Types)	CL25	CL30	Per installation	New	20	30	\$238	95%	75%	\$1.12	4
Idaho	Multi Family	Heat Room	Canned Lighting Air Tight Sealing	Canned Lighting Air Tight Sealing	No Air tight Sealing	Per installation	Existing	81	30	\$23	95%	50%	\$0.03	127
Idaho	Multi Family	Heat Room	Ceiling Insulation (ID) above code	R-60	R-49	Per installation	Existing	172	30	\$160	75%	95%	\$0.09	113
Idaho	Multi Family	Heat Room	Ceiling Insulation (ID) ave to code	R-49	R-15	Per installation	Existing	1,592	30	\$733	75%	35%	\$0.04	426
Idaho	Multi Family	Heat Room	Ceiling Insulation (ID) zero to code	R-49	R-0	Per installation	Existing	5,201	30	\$733	95%	1%	\$0.01	56
Idaho	Multi Family	Heat Room	Conversion Baseboard Heating to DHP	Ductless Heat Pump HSPF 7.7	HSPF = 1	Per installation	Existing	1,274	20	\$2,318	88%	N/A	\$0.20	1,363
Idaho	Multi Family	Heat Room	Doors	R-11 (Steel Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	Existing	268	20	\$161	95%	80%	\$0.07	95
Idaho	Multi Family	Heat Room	Doors	R-5 (Composite Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	Existing	178	20	\$190	95%	60%	\$0.12	46
Idaho	Multi Family	Heat Room	Doors - Weatherization	Weathersstripping And Adding Door Sweeps	Existing Non-Efficient door	Per installation	Existing	116	6	\$43	95%	50%	\$0.09	50
Idaho	Multi Family	Heat Room	Floor Insulation (ID) above code	R-38	R-30	Per installation	Existing	145	30	\$234	25%	85%	\$0.16	27
Idaho	Multi Family	Heat Room	Floor Insulation (ID) zero to code	R-30	R-0	Per installation	Existing	4,885	30	\$820	25%	20%	\$0.02	277
Idaho	Multi Family	Heat Room	Infiltration Control (Cauk, Weather Strip, etc.) Blower-Door test	Install Caulking And Weathersstripping	Existing Infiltration Conditions	Per installation	Existing	893	11	\$332	75%	50%	\$0.06	325
Idaho	Multi Family	Heat Room	Radiant Barrier (Ceiling)	Install Radiant Barrier	No Radiant Barrier	Per installation	Existing	178	30	\$266	50%	90%	\$0.14	72
Idaho	Multi Family	Heat Room	Wall Insulation 2x4 (ID) zero to max feasible	R-13	R-0	Per installation	Existing	2,951	30	\$929	85%	25%	\$0.03	506
Idaho	Multi Family	Heat Room	Wall Insulation 2x6 (ID) above code	R-21	R-19	Per installation	Existing	274	30	\$51	75%	95%	\$0.02	27
Idaho	Multi Family	Heat Room	Wall Insulation 2x6 (ID) zero to code	R-19	R-0	Per installation	Existing	3,686	30	\$1,034	75%	25%	\$0.03	95
Idaho	Multi Family	Heat Room	Windows (Same for all Building Types)	CL25	CL30	Per installation	Existing	21	30	\$238	51%	85%	\$1.07	8
Idaho	Multi Family	Heat Room	Windows (Same for all Building Types)	CL30	Double Pane	Per installation	Existing	229	30	\$2,457	51%	50%	\$1.03	51
Idaho	Multi Family	Heat Room	Windows (Same for all Building Types)	CL30	Single Pane	Per installation	Existing	360	30	\$2,457	51%	20%	\$0.66	32
Idaho	Multi Family	Heat Room	Ceiling Insulation (ID) above code	R-60	R-49	Per installation	New	131	30	\$160	90%	95%	\$0.12	109
Idaho	Multi Family	Heat Room	Construction - ICF	Concrete Framing	Standard Wood Framing	Per installation	New	2,156	45	\$3,365	50%	95%	\$0.14	48
Idaho	Multi Family	Heat Room	Construction - SIP	Specialty Framing	Standard Wood Framing	Per installation	New	588	45	\$1,558	50%	95%	\$0.24	12
Idaho	Multi Family	Heat Room	Conversion Baseboard Heating to DHP	Ductless Heat Pump HSPF 7.7	HSPF = 1	Per installation	New	699	20	\$2,318	88%	N/A	\$0.37	848
Idaho	Multi Family	Heat Room	Doors	R-11 (Steel Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	New	147	20	\$25	95%	80%	\$0.02	55
Idaho	Multi Family	Heat Room	Doors	R-5 (Composite Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	New	98	20	\$54	95%	60%	\$0.06	27
Idaho	Multi Family	Heat Room	Floor Insulation (ID) above code	R-38	R-30	Per installation	New	79	30	\$234	75%	85%	\$0.28	46
Idaho	Multi Family	Heat Room	Green Roof	ecorooF	Standard Roof	Per installation	New	343	40	\$6,526	50%	95%	\$1.72	29
Idaho	Multi Family	Heat Room	Radiant Barrier (Ceiling)	Install Radiant Barrier	No Radiant Barrier	Per installation	New	98	30	\$266	75%	90%	\$0.26	60

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Idaho	Multi Family	Heat Room	Smart Siting	Siting house to minimize heating/cooling costs	No smart siting	Per installation	New	15	45	\$577	40%	75%	\$3.36	4
Idaho	Multi Family	Heat Room	Wall Insulation 2x6 (ID) above code	R-21+R-5 sheathing	R-19	Per installation	New	266	30	\$630	50%	95%	\$0.23	107
Idaho	Multi Family	Heat Room	Windows (Same for all Building Types)	CL22	CL30	Per installation	New	24	30	\$276	95%	75%	\$1.09	15
Idaho	Multi Family	Heat Room	Windows (Same for all Building Types)	CL25	CL30	Per installation	New	16	30	\$238	95%	75%	\$1.41	10
Idaho	Multi Family	Lighting Exterior	CFL, Flood (17 W)	CFL, Flood	Standard Incandescent Flood	Per installation	Existing	53	5	\$0.91	100%	N/A	\$0.00	3
Idaho	Multi Family	Lighting Exterior	Time Clocks (Exterior Lighting)	Exterior Lighting on a Time Clock	Exterior Lighting (Manual Control)	Per installation	Existing	25	10	\$16	80%	85%	\$0.11	9
Idaho	Multi Family	Lighting Exterior	CFL, Flood (17 W)	CFL, Flood	Standard Incandescent Flood	Per installation	New	53	5	\$0.91	100%	N/A	\$0.00	0.40
Idaho	Multi Family	Lighting Exterior	Time Clocks (Exterior Lighting)	Exterior Lighting on a Time Clock	Exterior Lighting (Manual Control)	Per installation	New	25	10	\$16	80%	85%	\$0.11	8
Idaho	Multi Family	Lighting Interior Specialty	CFL (13 W, 20 W, 25 W)	CFL (3-Way)	Standard Incandescent (3-Way)	Per installation	Existing	43	5	\$3	100%	N/A	\$0.02	311
Idaho	Multi Family	Lighting Interior Specialty	CFL (13 W, 20 W, 25 W)	CFL (3-Way)	Standard Incandescent (3-Way)	Per installation	New	43	5	\$3	100%	N/A	\$0.02	19
Idaho	Multi Family	Lighting Interior Standard	Daylighting Controls (Photocell) - Indoor/Outdoors	Install Photocell	No Daylighting Controls	Per installation	Existing	23	20	\$134	25%	95%	\$0.64	1
Idaho	Multi Family	Lighting Interior Standard	Lighting CFL 15 W	15 W CFL	Standard 60 W Incandescent	Per installation	Existing	40	5	\$2	100%	N/A	\$0.02	40
Idaho	Multi Family	Lighting Interior Standard	Lighting LED 7 W	7 W LED	Standard 60 W Incandescent	Per installation	Existing	51	20	\$36	50%	N/A	\$0.08	1,029
Idaho	Multi Family	Lighting Interior Standard	Occupancy Sensors	Wall-Switch Occupancy Sensors	No Occupancy Sensor	Per installation	Existing	5	10	\$29	85%	95%	\$0.84	31
Idaho	Multi Family	Lighting Interior Standard	Daylighting Controls (Photocell) - Indoor/Outdoors	Install Photocell	No Daylighting Controls	Per installation	New	23	20	\$134	25%	95%	\$0.64	1
Idaho	Multi Family	Lighting Interior Standard	Lighting CFL 15 W	15 W CFL	Standard 60 W Incandescent	Per installation	New	40	5	\$2	100%	N/A	\$0.02	4
Idaho	Multi Family	Lighting Interior Standard	Lighting LED 7 W	7 W LED	Standard 60 W Incandescent	Per installation	New	51	20	\$36	50%	N/A	\$0.08	79
Idaho	Multi Family	Lighting Interior Standard	Occupancy Sensors	Wall-Switch Occupancy Sensors	No Occupancy Sensor	Per installation	New	5	10	\$29	85%	95%	\$0.84	29
Idaho	Multi Family	Microwave	Microwave, High Efficiency	High Efficiency Microwave	Standard Microwave	Per installation	Existing	9	15	\$79	100%	N/A	\$1.05	27
Idaho	Multi Family	Microwave	Microwave, High Efficiency	High Efficiency Microwave	Standard Microwave	Per installation	New	9	15	\$79	100%	N/A	\$1.05	18
Idaho	Multi Family	Monitor	Monitor, Energy Star	Energy Star Monitor	Standard Monitor	Per installation	Existing	36	5	\$3	100%	N/A	\$0.03	78
Idaho	Multi Family	Monitor	Monitor, Energy Star	Energy Star Monitor	Standard Monitor	Per installation	New	36	5	\$3	100%	N/A	\$0.03	13
Idaho	Multi Family	Plug Load Other	1-Watt Standby Power	1W or less standby power use for small appliances	Standard plug load appliance.	Per installation	Existing	17	7	\$30	50%	50%	\$0.37	79
Idaho	Multi Family	Plug Load Other	Energy Star Battery Chargers	Energy Star Battery Chargers	Standard Battery Chargers	Per installation	Existing	0.56	7	\$33	50%	80%	\$13.05	9
Idaho	Multi Family	Plug Load Other	Office Copier	Office Copier	Standard Copier	Per installation	Existing	39	6	\$5	10%	50%	\$0.03	8
Idaho	Multi Family	Plug Load Other	Office Printer	Office Printer	Standard Printer	Per installation	Existing	5	5	\$5	20%	50%	\$0.28	2
Idaho	Multi Family	Plug Load Other	Smart Strip	Smart Strip	Standard PowerStrip	Per installation	Existing	103	5	\$22	50%	85%	\$0.06	182
Idaho	Multi Family	Plug Load Other	1-Watt Standby Power	1W or less standby power use for small appliances	Standard plug load appliance.	Per installation	New	17	7	\$30	50%	50%	\$0.37	68
Idaho	Multi Family	Plug Load Other	Energy Star Battery Chargers	Energy Star Battery Chargers	Standard Battery Chargers	Per installation	New	0.56	7	\$2	50%	80%	\$0.99	8
Idaho	Multi Family	Plug Load Other	Office Copier	Office Copier	Standard Copier	Per installation	New	38	6	\$5	10%	50%	\$0.03	7
Idaho	Multi Family	Plug Load Other	Office Printer	Office Printer	Standard Printer	Per installation	New	4	5	\$5	20%	50%	\$0.29	1

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Idaho	Multi Family	Plug Load Other	Smart Strip	Smart Strip	Standard PowerStrip	Per installation	New	101	5	\$22	50%	85%	\$0.06	156
Idaho	Multi Family	Refrigerator	Refrigerator, Energy Star	Energy Star Refrigerator	Standard Refrigerator	Per installation	Existing	122	20	\$15	93%	N/A	\$0.01	116
Idaho	Multi Family	Refrigerator	Refrigerator/Freezer - Removal of Secondary	Proper Disposal of Refrigerator/Freezer	Existing Non-Efficient Refrigerator/Freezer	Per installation	Existing	1,406	9	\$74	5%	96%	\$0.01	61
Idaho	Multi Family	Refrigerator	Refrigerator, Energy Star	Energy Star Refrigerator	Standard Refrigerator	Per installation	New	122	20	\$15	100%	N/A	\$0.01	131
Idaho	Multi Family	Set Top Box	Set Top Box, Energy Star	Energy Star Set Top Box	Standard Set Top Box	Per installation	Existing	164	5	\$12	100%	N/A	\$0.02	343
Idaho	Multi Family	Set Top Box	Set Top Box, Energy Star	Energy Star Set Top Box	Standard Set Top Box	Per installation	New	164	5	\$12	100%	N/A	\$0.02	52
Idaho	Multi Family	Tv	TV CRT, Energy Star	Energy Star CRT TV	Standard CRT TV	Per installation	Existing	112	10	\$19	100%	N/A	\$0.03	511
Idaho	Multi Family	Tv	TV CRT, Energy Star	Energy Star CRT TV	Standard CRT TV	Per installation	New	112	10	\$19	100%	N/A	\$0.03	194
Idaho	Multi Family	Tv Bigscreen	TV LCD, Energy Star	Energy Star LCD TV	Standard LCD TV	Per installation	Existing	223	10	\$19	100%	N/A	\$0.01	105
Idaho	Multi Family	Tv Bigscreen	TV LCD, Energy Star	Energy Star LCD TV	Standard LCD TV	Per installation	New	223	10	\$19	100%	N/A	\$0.01	40
Idaho	Multi Family	Ventilation And Circulation	Motor, ECM	ECM Motor	Standard Motor	Per installation	Existing	49	20	\$172	50%	N/A	\$0.39	23
Idaho	Multi Family	Ventilation And Circulation	Motor, ECM - VFD	ECM/VFD Motor	Standard Motor	Per installation	Existing	149	20	\$194	50%	N/A	\$0.15	69
Idaho	Multi Family	Ventilation And Circulation	Motor, ECM	ECM Motor	Standard Motor	Per installation	New	40	20	\$172	50%	N/A	\$0.48	18
Idaho	Multi Family	Ventilation And Circulation	Motor, ECM - VFD	ECM/VFD Motor	Standard Motor	Per installation	New	120	20	\$194	50%	N/A	\$0.18	55
Idaho	Multi Family	Water Heat	Clothes Washer	Energy Star - Tier 1 (MEF 2.0 - 2.19) - Electric DHW & Dryer	MEF = 1.66 - Electric DHW & Dryer	Per installation	Existing	112	14	\$227	46%	90%	\$-0.27	28
Idaho	Multi Family	Water Heat	Clothes Washer	Energy Star - Tier 2 (MEF 2.2 - 2.45) - Electric DHW & Dryer	MEF = 1.66 - Electric DHW & Dryer	Per installation	Existing	149	14	\$296	46%	95%	\$-0.25	39
Idaho	Multi Family	Water Heat	Clothes Washer	Energy Star - Tier 3 (MEF 2.46 or higher) Top 10% of Energy Star Model - Electric DHW & Dryer	MEF = 1.66 - Electric DHW & Dryer	Per installation	Existing	170	14	\$317	46%	99%	\$-0.23	46
Idaho	Multi Family	Water Heat	Dishwasher	Energy Star, July 1st 2011, <= 307 kWh/year, <= 5.0 gallons/cycle	Energy Star - EF65 (6th Plan Baseline)	Per installation	Existing	33	12	\$42	31%	50%	\$0.17	9
Idaho	Multi Family	Water Heat	Drain Water Heat Recovery (GFX)	Gravity Film Heat Exchanger	No Heat Exchanger	Per installation	Existing	374	40	\$494	29%	90%	\$0.12	144
Idaho	Multi Family	Water Heat	Faucet Aerators	0.5 GPM	2.2 GPM	Per installation	Existing	82	9	\$0.71	95%	95%	\$-0.08	133
Idaho	Multi Family	Water Heat	Faucet Aerators	1.5 GPM	2.2 GPM	Per installation	Existing	34	9	\$0.46	95%	65%	\$-0.08	37
Idaho	Multi Family	Water Heat	Faucet Aerators	2.2 GPM	Existing Faucet Aerator (3.0 GPM)	Per installation	Existing	38	9	\$1	95%	25%	\$-0.07	32
Idaho	Multi Family	Water Heat	Hot Water Pipe Insulation	R-4 Wrap	No insulation	Per installation	Existing	40	5	\$17	95%	75%	\$0.12	39
Idaho	Multi Family	Water Heat	Low-Flow Showerheads	2.0 GPM	2.5 GPM	Per installation	Existing	112	10	\$16	95%	65%	\$-0.06	125
Idaho	Multi Family	Water Heat	Water Heater, Storage EF 0.95	Standard Storage Water Heater EF = 0.95	Standard Storage Water Heater EF = 0.92	Per installation	Existing	49	15	\$40	100%	N/A	\$0.11	3
Idaho	Multi Family	Water Heat	Water_Heater Tank Blanket/Insulation	Install Insulation (R-5)	No Tank Insulation	Per installation	Existing	99	10	\$11	50%	20%	\$0.02	14
Idaho	Multi Family	Water Heat	Water_Heater Thermostat Setback	120 degrees	135 degrees	Per installation	Existing	92	5	\$6	95%	45%	\$0.02	59
Idaho	Multi Family	Water Heat	Clothes Washer	Energy Star - Tier 1 (MEF 2.0 - 2.19) - Electric DHW & Dryer	MEF = 1.66 - Electric DHW & Dryer	Per installation	New	111	14	\$227	46%	90%	\$-0.27	24
Idaho	Multi Family	Water Heat	Clothes Washer	Energy Star - Tier 2 (MEF 2.2 - 2.45) - Electric DHW & Dryer	MEF = 1.66 - Electric DHW & Dryer	Per installation	New	148	14	\$296	46%	95%	\$-0.25	34
Idaho	Multi Family	Water Heat	Clothes Washer	Energy Star - Tier 3 (MEF 2.46 or higher) Top 10% of Energy Star Model - Electric DHW & Dryer	MEF = 1.66 - Electric DHW & Dryer	Per installation	New	169	14	\$317	46%	99%	\$-0.23	41
Idaho	Multi Family	Water Heat	Dishwasher	Energy Star, July 1st 2011, <= 307 kWh/year, <= 5.0 gallons/cycle	Energy Star - EF65 (6th Plan Baseline)	Per installation	New	32	12	\$42	31%	50%	\$0.17	8
Idaho	Multi Family	Water Heat	Drain Water Heat Recovery (GFX)	Gravity Film Heat Exchanger	No Heat Exchanger	Per installation	New	372	40	\$436	59%	90%	\$0.11	261
Idaho	Multi Family	Water Heat	Faucet Aerators	0.5 GPM	2.2 GPM	Per installation	New	81	9	\$0.71	95%	95%	\$-0.08	117

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Idaho	Multi Family	Water Heat	Faucet Aerators	1.5 GPM	2.2 GPM	Per installation	New	33	9	\$0.46	95%	65%	\$-0.08	33
Idaho	Multi Family	Water Heat	Hot Water Pipe Insulation	R-4 Wrap	No insulation	Per installation	New	39	5	\$17	95%	75%	\$0.12	32
Idaho	Multi Family	Water Heat	Low-Flow Showerheads	2.0 GPM	2.5 GPM	Per installation	New	111	10	\$9	95%	65%	\$-0.07	110
Idaho	Multi Family	Water Heat	Water Heater, Storage EF 0.95	Standard Storage Water Heater EF = 0.95	Standard Storage Water Heater EF = 0.92	Per installation	New	49	15	\$40	100%	N/A	\$0.11	3
Idaho	Multi Family	Water Heat	Water Heater Thermostat Setback	120 degrees	135 degrees	Per installation	New	91	5	\$6	95%	45%	\$0.02	53
Idaho	Single Family	Computer	Computer, Energy Star	Energy Star Computer	Standard Computer	Per installation	Existing	47	5	\$21	100%	N/A	\$0.13	3,838
Idaho	Single Family	Computer	Computer, Energy Star	Energy Star Computer	Standard Computer	Per installation	New	47	5	\$21	100%	N/A	\$0.13	514
Idaho	Single Family	Cooking Oven	Cooking Oven, High Efficiency	High Efficiency Oven	Standard Oven	Per installation	Existing	58	20	\$282	100%	N/A	\$0.55	979
Idaho	Single Family	Cooking Oven	Cooking Oven, High Efficiency	High Efficiency Oven	Standard Oven	Per installation	New	58	20	\$282	100%	N/A	\$0.55	718
Idaho	Single Family	Cool Central	Air-to-Air Heat Exchangers	Air-to-Air Heat Exchangers	No Air to Air Heat Exchangers	Per installation	Existing	128	5	\$527	50%	95%	\$1.16	808
Idaho	Single Family	Cool Central	Canned Lighting Air Tight Sealing	Canned Lighting Air Tight Sealing	No Air tight Sealing	Per installation	Existing	3	30	\$23	95%	50%	\$0.69	110
Idaho	Single Family	Cool Central	Ceiling Fan	Ceiling Fan (no lighting kit)	No Ceiling Fan	Per installation	Existing	34	10	\$80	85%	50%	\$0.39	578
Idaho	Single Family	Cool Central	Ceiling Insulation (ID) above code	R-60	R-49	Per installation	Existing	17	30	\$507	75%	95%	\$2.78	96
Idaho	Single Family	Cool Central	Ceiling Insulation (ID) ave to code	R-49	R-15	Per installation	Existing	163	30	\$2,326	75%	35%	\$1.37	368
Idaho	Single Family	Cool Central	Ceiling Insulation (ID) zero to code	R-49	R-0	Per installation	Existing	532	30	\$2,326	95%	1%	\$0.42	52
Idaho	Single Family	Cool Central	Central Cooling, SEER 15	SEER 15	SEER 13	Per installation	Existing	166	15	\$595	100%	N/A	\$0.46	102
Idaho	Single Family	Cool Central	Central Cooling, SEER 18	SEER 18	SEER 13	Per installation	Existing	416	15	\$1,490	100%	N/A	\$0.46	2,093
Idaho	Single Family	Cool Central	Check Me! O&M Tune-up	Tune-up/Maintenance	No Tune-up Maintenance	Per installation	Existing	40	5	\$148	95%	75%	\$1.04	378
Idaho	Single Family	Cool Central	Cool Roofs	Lighter Colored Shingles (White)	Standard Roof Shingles	Per installation	Existing	14	20	\$415	85%	95%	\$3.12	91
Idaho	Single Family	Cool Central	Doors	R-11 (Steel Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	Existing	14	20	\$161	95%	80%	\$1.28	92
Idaho	Single Family	Cool Central	Doors	R-5 (Composite Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	Existing	9	20	\$190	95%	60%	\$2.27	41
Idaho	Single Family	Cool Central	Doors - Weatherization	Weatherstripping And Adding Door Sweeps	Existing Non-Efficient door	Per installation	Existing	6	6	\$43	95%	50%	\$1.75	47
Idaho	Single Family	Cool Central	Duct Insulation Upgrade	R-8 (code)	R-4	Per installation	Existing	37	20	\$524	75%	75%	\$1.57	175
Idaho	Single Family	Cool Central	Duct Sealing	Duct Sealing	No Duct Sealing	Per installation	Existing	128	18	\$567	75%	60%	\$0.52	347
Idaho	Single Family	Cool Central	Duct Sealing - Aerosol-Based	Spray-in ductwork sealant to minimize duct leaks	No Duct Sealing	Per installation	Existing	193	18	\$644	75%	60%	\$0.39	274
Idaho	Single Family	Cool Central	Floor Insulation (ID) above code	R-38	R-30	Per installation	Existing	25	30	\$744	25%	85%	\$2.78	42
Idaho	Single Family	Cool Central	Floor Insulation (ID) zero to code	R-30	R-0	Per installation	Existing	507	30	\$2,600	25%	20%	\$0.49	258
Idaho	Single Family	Cool Central	Infiltration Control (Caulk, Weather Strip, etc.) Blower-Door test	Install Caulking And Weatherstripping	Existing Infiltration Conditions	Per installation	Existing	128	11	\$456	75%	50%	\$0.55	451
Idaho	Single Family	Cool Central	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands (5 per unit)	13 SEER	Per installation	Existing	196	30	\$535	50%	95%	\$0.26	99
Idaho	Single Family	Cool Central	Proper Sizing - HVAC Unit	Proper Sizing - HVAC Unit	Oversized HVAC Unit	Per installation	Existing	121	15	\$-54.9	95%	65%	\$-0.06	991
Idaho	Single Family	Cool Central	Radiant Barrier (Ceiling)	Install Radiant Barrier	No Radiant Barrier	Per installation	Existing	77	30	\$844	50%	90%	\$1.05	310
Idaho	Single Family	Cool Central	Thermostat - Multi-Zone	Individual Room Temperature Control for Major Occupied Rooms	Programmable Thermostat - Central Control Only	Per installation	Existing	87	11	\$1,231	75%	95%	\$2.20	508
Idaho	Single Family	Cool Central	Wall Insulation 2x4 (ID) zero to max feasible	R-13	R-0	Per installation	Existing	302	30	\$1,654	85%	25%	\$0.53	468
Idaho	Single Family	Cool Central	Wall Insulation 2x6 (ID) above code	R-21	R-19	Per installation	Existing	28	30	\$92	75%	95%	\$0.32	26
Idaho	Single Family	Cool Central	Wall Insulation 2x6 (ID) zero to code	R-19	R-0	Per installation	Existing	378	30	\$1,841	75%	25%	\$0.47	90
Idaho	Single Family	Cool Central	Whole-House Fan	Whole-House Fan	No Whole-House Fan	Per installation	Existing	193	20	\$1,258	50%	95%	\$0.73	606

Table C.2.1. Residential Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Idaho	Single Family	Cool Central	Windows (Same for all Building Types)	CL25	CL30	Per installation	Existing	2	30	\$424	65%	75%	\$18.75	7
Idaho	Single Family	Cool Central	Windows (Same for all Building Types)	CL30	Double Pane	Per installation	Existing	23	30	\$4,375	65%	25%	\$18.08	28
Idaho	Single Family	Cool Central	Windows (Same for all Building Types)	CL30	Single Pane	Per installation	Existing	36	30	\$4,375	65%	25%	\$11.53	44
Idaho	Single Family	Cool Central	Air-to-Air Heat Exchangers	Air-to-Air Heat Exchangers	No Air to Air Heat Exchangers	Per installation	New	132	5	\$527	50%	95%	\$1.13	545
Idaho	Single Family	Cool Central	Ceiling Fan	Ceiling Fan (no lighting kit)	No Ceiling Fan	Per installation	New	35	10	\$80	85%	50%	\$0.38	390
Idaho	Single Family	Cool Central	Ceiling Insulation (ID) above code	R-60	R-49	Per installation	New	25	30	\$507	90%	95%	\$1.95	114
Idaho	Single Family	Cool Central	Central Cooling, SEER 15	SEER 15	SEER 13	Per installation	New	199	15	\$595	100%	N/A	\$0.39	68
Idaho	Single Family	Cool Central	Central Cooling, SEER 18	SEER 18	SEER 13	Per installation	New	497	15	\$1,490	100%	N/A	\$0.39	1,211
Idaho	Single Family	Cool Central	Check Me! O&M Tune-up	Tune-up/Maintenance	No Tune-up Maintenance	Per installation	New	41	5	\$148	95%	75%	\$1.02	255
Idaho	Single Family	Cool Central	Construction - ICF	Concrete Framing	Standard Wood Framing	Per installation	New	423	45	\$5,991	50%	95%	\$1.25	54
Idaho	Single Family	Cool Central	Construction - SIP	Specialty Framing	Standard Wood Framing	Per installation	New	158	45	\$2,774	50%	95%	\$1.55	20
Idaho	Single Family	Cool Central	Cool Roofs	Lighter Colored Shingles (White)	Standard Roof Shingles	Per installation	New	15	20	\$415	85%	95%	\$3.03	47
Idaho	Single Family	Cool Central	Doors	R-11 (Steel Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	New	14	20	\$25	95%	80%	\$0.19	76
Idaho	Single Family	Cool Central	Doors	R-5 (Composite Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	New	9	20	\$54	95%	60%	\$0.63	31
Idaho	Single Family	Cool Central	Duct Location	Conditioned Space Design - Duct Loss Is Not A Concern	Ducts in Unconditioned Space (Duct loss)	Per installation	New	105	30	\$265	95%	30%	\$0.24	52
Idaho	Single Family	Cool Central	Duct Sealing	Duct Sealing	No Duct Sealing	Per installation	New	132	18	\$326	75%	60%	\$0.29	140
Idaho	Single Family	Cool Central	Duct Sealing - Aerosol-Based	Spray-in ductwork sealant to minimize duct leaks	No Duct Sealing	Per installation	New	198	18	\$644	75%	60%	\$0.38	88
Idaho	Single Family	Cool Central	Floor Insulation (ID) above code	R-38	R-30	Per installation	New	26	30	\$744	75%	85%	\$2.70	82
Idaho	Single Family	Cool Central	Green Roof	ecorooF	Standard Roof	Per installation	New	67	40	\$19,740	50%	95%	\$26.46	30
Idaho	Single Family	Cool Central	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands (5 per unit)	13 SEER	Per installation	New	202	30	\$535	50%	95%	\$0.26	164
Idaho	Single Family	Cool Central	Proper Sizing - HVAC Unit	Proper Sizing - HVAC Unit	Oversized HVAC Unit	Per installation	New	124	15	\$-54.9	95%	65%	\$-0.06	668
Idaho	Single Family	Cool Central	Radiant Barrier (Ceiling)	Install Radiant Barrier	No Radiant Barrier	Per installation	New	79	30	\$844	75%	90%	\$1.03	300
Idaho	Single Family	Cool Central	Smart Siting	Siting house to minimize heating/cooling costs	No smart siting	Per installation	New	72	45	\$577	75%	75%	\$0.70	237
Idaho	Single Family	Cool Central	Thermal Shell - Infiltration @0.2 ACH w/HRV	0.2 ACH w/HRV	Standard New Construction Home 0.35 ACH	Per installation	New	187	30	\$815	85%	95%	\$0.42	993
Idaho	Single Family	Cool Central	Thermostat - Multi-Zone	Individual Room Temperature Control for Major Occupied Rooms	Programmable Thermostat - Central Control Only	Per installation	New	89	11	\$1,231	75%	95%	\$2.14	330
Idaho	Single Family	Cool Central	Wall Insulation 2x6 (ID) above code	R-21+R-5 sheathing	R-19	Per installation	New	51	30	\$1,122	50%	95%	\$2.11	114
Idaho	Single Family	Cool Central	Whole-House Fan	Whole-House Fan	No Whole-House Fan	Per installation	New	198	20	\$1,258	50%	95%	\$0.71	408
Idaho	Single Family	Cool Central	Windows (Same for all Building Types)	CL22	CL30	Per installation	New	4	30	\$492	95%	75%	\$10.30	15
Idaho	Single Family	Cool Central	Windows (Same for all Building Types)	CL25	CL30	Per installation	New	3	30	\$424	95%	75%	\$13.16	10
Idaho	Single Family	Cool Room	Canned Lighting Air Tight Sealing	Canned Lighting Air Tight Sealing	No Air tight Sealing	Per installation	Existing	1	30	\$23	95%	50%	\$1.36	51
Idaho	Single Family	Cool Room	Ceiling Fan	Ceiling Fan (no lighting kit)	No Ceiling Fan	Per installation	Existing	17	10	\$80	85%	50%	\$0.77	211
Idaho	Single Family	Cool Room	Ceiling Insulation (ID) above code	R-60	R-49	Per installation	Existing	9	30	\$507	75%	95%	\$5.31	49
Idaho	Single Family	Cool Room	Ceiling Insulation (ID) ave to code	R-49	R-15	Per installation	Existing	85	30	\$2,326	75%	35%	\$2.64	174
Idaho	Single Family	Cool Room	Ceiling Insulation (ID) zero to code	R-49	R-0	Per installation	Existing	277	30	\$2,326	95%	1%	\$0.81	24
Idaho	Single Family	Cool Room	Cool Roofs	Lighter Colored Shingles (White)	Standard Roof Shingles	Per installation	Existing	7	20	\$415	85%	95%	\$6.12	45

Table C.2.1. Residential Measure Details

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Idaho	Single Family	Cool Room	Doors	R-11 (Steel Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	Existing	7	20	\$161	95%	80%	\$2.52	43
Idaho	Single Family	Cool Room	Doors	R-5 (Composite Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	Existing	4	20	\$190	95%	60%	\$4.46	20
Idaho	Single Family	Cool Room	Doors - Weatherization	Weatherstripping And Adding Door Sweeps	Existing Non-Efficient door	Per installation	Existing	3	6	\$43	95%	50%	\$3.44	22
Idaho	Single Family	Cool Room	Floor Insulation (ID) above code	R-38	R-30	Per installation	Existing	13	30	\$744	25%	85%	\$5.40	20
Idaho	Single Family	Cool Room	Floor Insulation (ID) zero to code	R-30	R-0	Per installation	Existing	260	30	\$2,600	25%	20%	\$0.96	117
Idaho	Single Family	Cool Room	Infiltration Control (Caulk, Weather Strip, etc.) Blower-Door test	Install Caulking And Weatherstripping	Existing Infiltration Conditions	Per installation	Existing	65	11	\$456	75%	50%	\$1.09	209
Idaho	Single Family	Cool Room	Radiant Barrier (Ceiling)	Install Radiant Barrier	No Radiant Barrier	Per installation	Existing	39	30	\$844	50%	90%	\$2.07	143
Idaho	Single Family	Cool Room	Room AC conversion to Ductless Heat Pump	SEER 13	EER 9.8	Per installation	Existing	26	20	\$2,069	75%	N/A	\$8.84	538
Idaho	Single Family	Cool Room	Room AC, EER 10.8	EER 10.8	EER 9.8	Per installation	Existing	20	9	\$7	100%	N/A	\$0.06	89
Idaho	Single Family	Cool Room	Wall Insulation 2x4 (ID) zero to max feasible	R-13	R-0	Per installation	Existing	157	30	\$1,654	85%	25%	\$1.01	222
Idaho	Single Family	Cool Room	Wall Insulation 2x6 (ID) above code	R-21	R-19	Per installation	Existing	14	30	\$92	75%	95%	\$0.61	11
Idaho	Single Family	Cool Room	Wall Insulation 2x6 (ID) zero to code	R-19	R-0	Per installation	Existing	196	30	\$1,841	75%	25%	\$0.90	42
Idaho	Single Family	Cool Room	Windows (Same for all Building Types)	CL25	CL30	Per installation	Existing	1	30	\$424	65%	75%	\$35.67	4
Idaho	Single Family	Cool Room	Windows (Same for all Building Types)	CL30	Double Pane	Per installation	Existing	12	30	\$4,375	65%	25%	\$34.38	14
Idaho	Single Family	Cool Room	Windows (Same for all Building Types)	CL30	Single Pane	Per installation	Existing	19	30	\$4,375	65%	25%	\$21.94	22
Idaho	Single Family	Cool Room	Ceiling Fan	Ceiling Fan (no lighting kit)	No Ceiling Fan	Per installation	New	18	10	\$80	85%	50%	\$0.74	142
Idaho	Single Family	Cool Room	Ceiling Insulation (ID) above code	R-60	R-49	Per installation	New	13	30	\$507	90%	95%	\$3.71	53
Idaho	Single Family	Cool Room	Construction - ICF	Concrete Framing	Standard Wood Framing	Per installation	New	216	45	\$5,991	50%	95%	\$2.46	24
Idaho	Single Family	Cool Room	Construction - SIP	Specialty Framing	Standard Wood Framing	Per installation	New	81	45	\$2,774	50%	95%	\$3.03	9
Idaho	Single Family	Cool Room	Cool Roofs	Lighter Colored Shingles (White)	Standard Roof Shingles	Per installation	New	7	20	\$415	85%	95%	\$5.94	23
Idaho	Single Family	Cool Room	Doors	R-11 (Steel Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	New	7	20	\$25	95%	80%	\$0.38	33
Idaho	Single Family	Cool Room	Doors	R-5 (Composite Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	New	4	20	\$54	95%	60%	\$1.23	14
Idaho	Single Family	Cool Room	Floor Insulation (ID) above code	R-38	R-30	Per installation	New	13	30	\$744	75%	85%	\$5.24	40
Idaho	Single Family	Cool Room	Green Roof	ecorof	Standard Roof	Per installation	New	34	40	\$19,740	50%	95%	\$51.79	14
Idaho	Single Family	Cool Room	Radiant Barrier (Ceiling)	Install Radiant Barrier	No Radiant Barrier	Per installation	New	40	30	\$844	75%	90%	\$2.01	137
Idaho	Single Family	Cool Room	Room AC conversion to Ductless Heat Pump	SEER 13	EER 9.8	Per installation	New	28	20	\$2,069	75%	N/A	\$8.25	136
Idaho	Single Family	Cool Room	Room AC, EER 10.8	EER 10.8	EER 9.8	Per installation	New	22	9	\$7	100%	N/A	\$0.06	46
Idaho	Single Family	Cool Room	Smart Siting	Siting house to minimize heating/cooling costs	No smart siting	Per installation	New	37	45	\$577	75%	75%	\$1.38	108
Idaho	Single Family	Cool Room	Thermal Shell - Infiltration @0.2 ACH w/HRV	0.2 ACH w/HRV	Standard New Construction Home 0.35 ACH	Per installation	New	100	30	\$815	85%	95%	\$0.78	480
Idaho	Single Family	Cool Room	Wall Insulation 2x6 (ID) above code	R-21+R-5 sheathing	R-19	Per installation	New	26	30	\$1,122	50%	95%	\$4.04	53
Idaho	Single Family	Cool Room	Windows (Same for all Building Types)	CL22	CL30	Per installation	New	2	30	\$492	95%	75%	\$19.34	7
Idaho	Single Family	Cool Room	Windows (Same for all Building Types)	CL25	CL30	Per installation	New	1	30	\$424	95%	75%	\$24.94	5
Idaho	Single Family	Dryer	Dryer, Advanced Efficiency EF 3.30	Advanced Efficiency Dryer 3.30	Standard Dryer EF 3.01	Per installation	Existing	50	14	\$224	100%	N/A	\$0.59	1,893
Idaho	Single Family	Dryer	Dryer, High Efficiency EF 3.08	High Efficiency Dryer EF 3.08	Standard Dryer EF 3.01	Per installation	Existing	13	14	\$54	100%	N/A	\$0.56	36

Table C.2.1. Residential Measure Details

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Idaho	Single Family	Dryer	Dryer, Premium Efficiency EF 3.19	Premium Efficiency Dryer 3.19	Standard Dryer EF 3.01	Per installation	Existing	32	14	\$139	100%	N/A	\$0.57	236
Idaho	Single Family	Dryer	Dryer, Advanced Efficiency EF 3.30	Advanced Efficiency Dryer 3.30	Standard Dryer EF 3.01	Per installation	New	50	14	\$224	100%	N/A	\$0.59	864
Idaho	Single Family	Dryer	Dryer, High Efficiency EF 3.08	High Efficiency Dryer EF 3.08	Standard Dryer EF 3.01	Per installation	New	13	14	\$54	100%	N/A	\$0.56	17
Idaho	Single Family	Dryer	Dryer, Premium Efficiency EF 3.19	Premium Efficiency Dryer 3.19	Standard Dryer EF 3.01	Per installation	New	32	14	\$139	100%	N/A	\$0.57	139
Idaho	Single Family	Freezer	Freezer, Energy Star	Energy Star Freezer	Standard Freezer	Per installation	Existing	46	20	\$22	76%	N/A	\$0.05	293
Idaho	Single Family	Freezer	Stand-Alone Freezer - Removal	Proper Disposal of Freezer	Existing Non-Efficient Freezer	Per installation	Existing	1,437	8	\$72	17%	98%	\$0.01	2,449
Idaho	Single Family	Freezer	Freezer, Energy Star	Energy Star Freezer	Standard Freezer	Per installation	New	46	20	\$22	76%	N/A	\$0.05	383
Idaho	Single Family	Heat Central	Air-to-Air Heat Exchangers	Air-to-Air Heat Exchangers	No Air to Air Heat Exchangers	Per installation	Existing	1,670	5	\$527	50%	95%	\$0.09	2,550
Idaho	Single Family	Heat Central	Canned Lighting Air Tight Sealing	Canned Lighting Air Tight Sealing	No Air tight Sealing	Per installation	Existing	57	30	\$23	95%	50%	\$0.04	595
Idaho	Single Family	Heat Central	Ceiling Insulation (ID) above code	R-60	R-49	Per installation	Existing	313	30	\$507	75%	95%	\$0.16	521
Idaho	Single Family	Heat Central	Ceiling Insulation (ID) ave to code	R-49	R-15	Per installation	Existing	2,908	30	\$2,326	75%	35%	\$0.08	1,945
Idaho	Single Family	Heat Central	Ceiling Insulation (ID) zero to code	R-49	R-0	Per installation	Existing	9,500	30	\$2,326	95%	1%	\$0.02	272
Idaho	Single Family	Heat Central	Conversion Electric Furnace to ASHP	Air Source Heat Pump Seer 13 HSPF 7.7	Electric Furnace HSPF 1	Per installation	Existing	8,918	20	\$2,588	100%	N/A	\$0.03	8,808
Idaho	Single Family	Heat Central	Doors	R-11 (Steel Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	Existing	250	20	\$161	95%	80%	\$0.07	490
Idaho	Single Family	Heat Central	Doors	R-5 (Composite Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	Existing	167	20	\$190	95%	60%	\$0.13	224
Idaho	Single Family	Heat Central	Doors - Weatherization	Weatherstripping And Adding Door Sweeps	Existing Non-Efficient door	Per installation	Existing	108	6	\$43	95%	50%	\$0.10	245
Idaho	Single Family	Heat Central	Duct Insulation Upgrade	R-8 (code)	R-4	Per installation	Existing	668	20	\$524	75%	75%	\$0.09	913
Idaho	Single Family	Heat Central	Duct Sealing	Duct Sealing	No Duct Sealing	Per installation	Existing	1,670	18	\$567	75%	15%	\$0.04	303
Idaho	Single Family	Heat Central	Duct Sealing - Aerosol-Based	Spray-in ductwork sealant to minimize duct leaks	No Duct Sealing	Per installation	Existing	2,505	18	\$644	75%	15%	\$0.03	232
Idaho	Single Family	Heat Central	Floor Insulation (ID) above code	R-38	R-30	Per installation	Existing	460	30	\$744	25%	85%	\$0.16	229
Idaho	Single Family	Heat Central	Floor Insulation (ID) zero to code	R-30	R-0	Per installation	Existing	9,051	30	\$2,600	25%	20%	\$0.03	1,346
Idaho	Single Family	Heat Central	Infiltration Control (Caulk, Weather Strip, etc.) Blower-Door test	Install Caulking And Weatherstripping	Existing Infiltration Conditions	Per installation	Existing	1,670	11	\$456	75%	50%	\$0.04	1,676
Idaho	Single Family	Heat Central	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands (5 per unit)	13 SEER	Per installation	Existing	3,507	30	\$535	50%	15%	\$0.01	79
Idaho	Single Family	Heat Central	Proper Sizing - HVAC Unit	Proper Sizing - HVAC Unit	Oversized HVAC Unit	Per installation	Existing	1,574	15	\$-54.9	15%	65%	\$-0.00	493
Idaho	Single Family	Heat Central	Radiant Barrier (Ceiling)	Install Radiant Barrier	No Radiant Barrier	Per installation	Existing	334	30	\$844	50%	90%	\$0.24	329
Idaho	Single Family	Heat Central	Thermostat - Multi-Zone	Individual Room Temperature Control for Major Occupied Rooms	Programmable Thermostat - Central Control Only	Per installation	Existing	1,135	11	\$1,231	75%	95%	\$0.17	1,863
Idaho	Single Family	Heat Central	Wall Insulation 2x4 (ID) zero to max feasible	R-13	R-0	Per installation	Existing	5,399	30	\$1,654	85%	25%	\$0.03	2,491
Idaho	Single Family	Heat Central	Wall Insulation 2x6 (ID) above code	R-21	R-19	Per installation	Existing	503	30	\$92	75%	95%	\$0.02	135
Idaho	Single Family	Heat Central	Wall Insulation 2x6 (ID) zero to code	R-19	R-0	Per installation	Existing	6,744	30	\$1,841	75%	25%	\$0.03	474
Idaho	Single Family	Heat Central	Windows (Same for all Building Types)	CL25	CL30	Per installation	Existing	38	30	\$424	65%	75%	\$1.05	40
Idaho	Single Family	Heat Central	Windows (Same for all Building Types)	CL30	Double Pane	Per installation	Existing	416	30	\$4,375	65%	25%	\$1.01	145
Idaho	Single Family	Heat Central	Windows (Same for all Building Types)	CL30	Single Pane	Per installation	Existing	652	30	\$4,375	65%	25%	\$0.65	230
Idaho	Single Family	Heat Central	Air-to-Air Heat Exchangers	Air-to-Air Heat Exchangers	No Air to Air Heat Exchangers	Per installation	New	1,281	5	\$527	50%	95%	\$0.12	1,227

Table C.2.1. Residential Measure Details

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Idaho	Single Family	Heat Central	Ceiling Insulation (ID) above code	R-60	R-49	Per installation	New	333	30	\$507	90%	95%	\$0.15	439
Idaho	Single Family	Heat Central	Construction - ICF	Concrete Framing	Standard Wood Framing	Per installation	New	5,638	45	\$5,991	50%	95%	\$0.09	208
Idaho	Single Family	Heat Central	Construction - SIP	Specialty Framing	Standard Wood Framing	Per installation	New	1,537	45	\$2,774	50%	95%	\$0.16	53
Idaho	Single Family	Heat Central	Conversion Electric Furnace to ASHP	Air Source Heat Pump Seer 13 HSPF 7.7	Electric Furnace HSPF 1	Per installation	New	6,843	20	\$2,497	100%	N/A	\$0.04	4,806
Idaho	Single Family	Heat Central	Doors	R-11 (Steel Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	New	192	20	\$25	95%	80%	\$0.01	277
Idaho	Single Family	Heat Central	Doors	R-5 (Composite Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	New	128	20	\$54	95%	60%	\$0.05	114
Idaho	Single Family	Heat Central	Duct Location	Conditioned Space Design - Duct Loss Is Not A Concern	Ducts in Unconditioned Space (Duct loss)	Per installation	New	1,025	30	\$265	95%	15%	\$0.03	68
Idaho	Single Family	Heat Central	Duct Sealing	No Duct Sealing	No Duct Sealing	Per installation	New	1,281	18	\$326	75%	15%	\$0.03	94
Idaho	Single Family	Heat Central	Duct Sealing - Aerosol-Based	Spray-in ductwork sealant to minimize duct leaks	No Duct Sealing	Per installation	New	1,922	18	\$644	75%	15%	\$0.04	50
Idaho	Single Family	Heat Central	Floor Insulation (ID) above code	R-38	R-30	Per installation	New	353	30	\$744	75%	85%	\$0.20	330
Idaho	Single Family	Heat Central	Green Roof	ecorooF	Standard Roof	Per installation	New	897	40	\$19,740	50%	95%	\$1.99	114
Idaho	Single Family	Heat Central	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands (5 per unit)	13 SEER	Per installation	New	2,691	30	\$535	50%	15%	\$0.02	94
Idaho	Single Family	Heat Central	Proper Sizing - HVAC Unit	Proper Sizing - HVAC Unit	Oversized HVAC Unit	Per installation	New	1,208	15	\$-54.9	15%	65%	\$-0.01	237
Idaho	Single Family	Heat Central	Radiant Barrier (Ceiling)	Install Radiant Barrier	No Radiant Barrier	Per installation	New	256	30	\$844	75%	90%	\$0.32	237
Idaho	Single Family	Heat Central	Smart Siting	Siting house to minimize heating/cooling costs	No smart siting	Per installation	New	39	45	\$577	75%	75%	\$1.29	30
Idaho	Single Family	Heat Central	Thermal Shell - Infiltration @0.2 ACH w/HRV	0.2 ACH w/HRV	Standard New Construction Home 0.35 ACH	Per installation	New	2,494	30	\$815	85%	95%	\$0.03	3,748
Idaho	Single Family	Heat Central	Thermostat - Multi-Zone	Individual Room Temperature Control for Major Occupied Rooms	Programmable Thermostat - Central Control Only	Per installation	New	871	11	\$1,231	75%	95%	\$0.22	894
Idaho	Single Family	Heat Central	Wall Insulation 2x6 (ID) above code	R-21+R-5 sheathing	R-19	Per installation	New	683	30	\$1,122	50%	95%	\$0.16	439
Idaho	Single Family	Heat Central	Windows (Same for all Building Types)	CL22	CL30	Per installation	New	61	30	\$492	95%	75%	\$0.77	59
Idaho	Single Family	Heat Central	Windows (Same for all Building Types)	CL25	CL30	Per installation	New	41	30	\$424	95%	75%	\$0.99	39
Idaho	Single Family	Heat Pump	Air-to-Air Heat Exchangers	Air-to-Air Heat Exchangers	No Air to Air Heat Exchangers	Per installation	Existing	1,409	5	\$527	50%	95%	\$0.11	378
Idaho	Single Family	Heat Pump	Canned Lighting Air Tight Sealing	Canned Lighting Air Tight Sealing	No Air tight Sealing	Per installation	Existing	47	30	\$23	95%	50%	\$0.05	84
Idaho	Single Family	Heat Pump	Ceiling Fan	Ceiling Fan (no lighting kit)	No Ceiling Fan	Per installation	Existing	33	10	\$80	85%	50%	\$0.40	24
Idaho	Single Family	Heat Pump	Ceiling Insulation (ID) above code	R-60	R-49	Per installation	Existing	105	30	\$507	75%	95%	\$0.46	28
Idaho	Single Family	Heat Pump	Ceiling Insulation (ID) ave to code	R-49	R-15	Per installation	Existing	1,030	30	\$2,326	75%	35%	\$0.22	103
Idaho	Single Family	Heat Pump	Ceiling Insulation (ID) zero to code	R-49	R-0	Per installation	Existing	3,358	30	\$2,326	95%	1%	\$0.07	13
Idaho	Single Family	Heat Pump	Check Me! O&M Tune-up	Tune-up/Maintenance	No Tune-up Maintenance	Per installation	Existing	37	5	\$148	95%	75%	\$1.10	15
Idaho	Single Family	Heat Pump	Cool Roofs	Lighter Colored Shingles (White)	Standard Roof Shingles	Per installation	Existing	14	20	\$415	85%	95%	\$3.17	4
Idaho	Single Family	Heat Pump	Doors	R-11 (Steel Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	Existing	206	20	\$161	95%	80%	\$0.09	66
Idaho	Single Family	Heat Pump	Doors	R-5 (Composite Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	Existing	137	20	\$190	95%	60%	\$0.15	32
Idaho	Single Family	Heat Pump	Doors - Weatherization	Weatherstripping And Adding Door Sweeps	Existing Non-Efficient door	Per installation	Existing	91	6	\$43	95%	50%	\$0.12	35
Idaho	Single Family	Heat Pump	Duct Insulation Upgrade	R-8 (code)	R-4	Per installation	Existing	549	20	\$524	75%	75%	\$0.11	129
Idaho	Single Family	Heat Pump	Duct Sealing	Duct Sealing	No Duct Sealing	Per installation	Existing	1,409	18	\$567	75%	60%	\$0.05	177
Idaho	Single Family	Heat Pump	Duct Sealing - Aerosol-Based	Spray-in ductwork sealant to minimize duct leaks	No Duct Sealing	Per installation	Existing	2,114	18	\$644	75%	60%	\$0.04	137

Table C.2.1. Residential Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Idaho	Single Family	Heat Pump	Floor Insulation (ID) above code	R-38	R-30	Per installation	Existing	389	30	\$744	25%	85%	\$0.18	33
Idaho	Single Family	Heat Pump	Floor Insulation (ID) zero to code	R-30	R-0	Per installation	Existing	7,637	30	\$2,600	25%	20%	\$0.03	189
Idaho	Single Family	Heat Pump	Ground Source Heat Pump, EER 16.2, COP 3.6	GSHP EER 16.2, HSPF 8.8	ASHP SEER 13, HSPF 7.7	Per installation	Existing	4,966	20	\$9,230	40%	N/A	\$0.21	344
Idaho	Single Family	Heat Pump	Heat Pump High Efficiency, SEER 14, HSPF 8.5	ASHP SEER 14, HSPF 8.5	ASHP SEER 13, HSPF 7.7	Per installation	Existing	1,243	20	\$411	100%	N/A	\$0.04	40
Idaho	Single Family	Heat Pump	Heat Pump Premium Efficiency, SEER 16, HSPF 8.8	ASHP SEER 16, HSPF 8.8	ASHP SEER 13, HSPF 7.7	Per installation	Existing	1,751	20	\$1,233	100%	N/A	\$0.08	241
Idaho	Single Family	Heat Pump	Infiltration Control (Caulk, Weather Strip, etc.) Blower-Door test	Install Caulking And Weatherstripping	Existing Infiltration Conditions	Per installation	Existing	1,409	11	\$456	75%	50%	\$0.05	239
Idaho	Single Family	Heat Pump	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands (5 per unit)	13 SEER	Per installation	Existing	2,959	30	\$535	50%	95%	\$0.02	70
Idaho	Single Family	Heat Pump	Proper Sizing - HVAC Unit	Proper Sizing - HVAC Unit	Oversized HVAC Unit	Per installation	Existing	1,328	15	\$-54.9	95%	65%	\$-0.01	463
Idaho	Single Family	Heat Pump	Radiant Barrier (Ceiling)	Install Radiant Barrier	No Radiant Barrier	Per installation	Existing	345	30	\$844	50%	90%	\$0.24	58
Idaho	Single Family	Heat Pump	Thermostat - Multi-Zone	Individual Room Temperature Control for Major Occupied Rooms	Programmable Thermostat - Central Control Only	Per installation	Existing	958	11	\$1,231	75%	95%	\$0.20	275
Idaho	Single Family	Heat Pump	Wall Insulation 2x4 (ID) zero to max feasible	R-13	R-0	Per installation	Existing	1,898	30	\$1,654	85%	25%	\$0.08	131
Idaho	Single Family	Heat Pump	Wall Insulation 2x6 (ID) above code	R-21	R-19	Per installation	Existing	170	30	\$92	75%	95%	\$0.05	6
Idaho	Single Family	Heat Pump	Wall Insulation 2x6 (ID) zero to code	R-19	R-0	Per installation	Existing	2,377	30	\$1,841	75%	25%	\$0.07	24
Idaho	Single Family	Heat Pump	Whole-House Fan	Whole-House Fan	No Whole-House Fan	Per installation	Existing	189	20	\$1,258	50%	95%	\$0.74	25
Idaho	Single Family	Heat Pump	Windows (Same for all Building Types)	CL25	CL30	Per installation	Existing	13	30	\$424	65%	75%	\$3.01	2
Idaho	Single Family	Heat Pump	Windows (Same for all Building Types)	CL30	Double Pane	Per installation	Existing	145	30	\$4,375	65%	25%	\$2.90	8
Idaho	Single Family	Heat Pump	Windows (Same for all Building Types)	CL30	Single Pane	Per installation	Existing	227	30	\$4,375	65%	25%	\$1.85	13
Idaho	Single Family	Heat Pump	Air-to-Air Heat Exchangers	Air-to-Air Heat Exchangers	No Air to Air Heat Exchangers	Per installation	New	1,124	5	\$527	50%	95%	\$0.13	195
Idaho	Single Family	Heat Pump	Ceiling Fan	Ceiling Fan (no lighting kit)	No Ceiling Fan	Per installation	New	26	10	\$80	85%	50%	\$0.50	12
Idaho	Single Family	Heat Pump	Ceiling Insulation (ID) above code	R-60	R-49	Per installation	New	110	30	\$507	90%	95%	\$0.44	24
Idaho	Single Family	Heat Pump	Check Me! O&M Tune-up	Tune-up/Maintenance	No Tune-up Maintenance	Per installation	New	30	5	\$148	95%	75%	\$1.38	7
Idaho	Single Family	Heat Pump	Construction - ICF	Concrete Framing	Standard Wood Framing	Per installation	New	4,828	45	\$5,991	50%	95%	\$0.11	32
Idaho	Single Family	Heat Pump	Construction - SIP	Specialty Framing	Standard Wood Framing	Per installation	New	1,349	45	\$2,774	50%	95%	\$0.18	9
Idaho	Single Family	Heat Pump	Cool Roofs	Lighter Colored Shingles (White)	Standard Roof Shingles	Per installation	New	11	20	\$415	85%	95%	\$3.97	1
Idaho	Single Family	Heat Pump	Doors	R-11 (Steel Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	New	164	20	\$25	95%	80%	\$0.02	40
Idaho	Single Family	Heat Pump	Doors	R-5 (Composite Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	New	109	20	\$54	95%	60%	\$0.06	19
Idaho	Single Family	Heat Pump	Duct Location	Conditioned Space Design - Duct Loss Is Not A Concern	Ducts in Unconditioned Space (Duct loss)	Per installation	New	899	30	\$265	95%	30%	\$0.03	20
Idaho	Single Family	Heat Pump	Duct Sealing	Duct Sealing	No Duct Sealing	Per installation	New	1,124	18	\$326	75%	60%	\$0.03	55
Idaho	Single Family	Heat Pump	Duct Sealing - Aerosol-Based	Spray-in ductwork sealant to minimize duct leaks	No Duct Sealing	Per installation	New	1,687	18	\$644	75%	60%	\$0.04	34
Idaho	Single Family	Heat Pump	Floor Insulation (ID) above code	R-38	R-30	Per installation	New	310	30	\$744	75%	85%	\$0.23	55
Idaho	Single Family	Heat Pump	Green Roof	ecorooF	Standard Roof	Per installation	New	767	40	\$19,740	50%	95%	\$2.32	18
Idaho	Single Family	Heat Pump	Ground Source Heat Pump, EER 16.2, COP 3.6	GSHP EER 16.2, HSPF 8.8	ASHP SEER 13, HSPF 7.7	Per installation	New	4,125	20	\$9,320	40%	N/A	\$0.25	214
Idaho	Single Family	Heat Pump	Heat Pump High Efficiency, SEER 14, HSPF 8.5	ASHP SEER 14, HSPF 8.5	ASHP SEER 13, HSPF 7.7	Per installation	New	1,029	20	\$411	100%	N/A	\$0.04	35

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Idaho	Single Family	Heat Pump	Heat Pump Premium Efficiency, SEER 16, HSPF 8.8	ASHP SEER 16, HSPF 8.8	ASHP SEER 13, HSPF 7.7	Per installation	New	1,486	20	\$1,233	100%	N/A	\$0.09	165
Idaho	Single Family	Heat Pump	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands (5 per unit)	13 SEER	Per installation	New	2,362	30	\$535	50%	95%	\$0.02	90
Idaho	Single Family	Heat Pump	Proper Sizing - HVAC Unit	Proper Sizing - HVAC Unit	Oversized HVAC Unit	Per installation	New	1,060	15	\$-54.9	95%	65%	\$-0.01	239
Idaho	Single Family	Heat Pump	Radiant Barrier (Ceiling)	Install Radiant Barrier	No Radiant Barrier	Per installation	New	275	30	\$844	75%	90%	\$0.30	48
Idaho	Single Family	Heat Pump	Smart Siting	Siting house to minimize heating/cooling costs	No smart siting	Per installation	New	62	45	\$577	75%	75%	\$0.82	8
Idaho	Single Family	Heat Pump	Thermal Shell - Infiltration @0.2 ACH w/HRV	0.2 ACH w/HRV	Standard New Construction Home 0.35 ACH	Per installation	New	824	30	\$815	85%	95%	\$0.10	200
Idaho	Single Family	Heat Pump	Thermostat - Multi-Zone	Individual Room Temperature Control for Major Occupied Rooms	Programmable Thermostat - Central Control Only	Per installation	New	764	11	\$1,231	75%	95%	\$0.25	149
Idaho	Single Family	Heat Pump	Wall Insulation 2x6 (ID) above code	R-21+R-5 sheathing	R-19	Per installation	New	232	30	\$1,122	50%	95%	\$0.46	25
Idaho	Single Family	Heat Pump	Whole-House Fan	Whole-House Fan	No Whole-House Fan	Per installation	New	151	20	\$1,258	50%	95%	\$0.93	13
Idaho	Single Family	Heat Pump	Windows (Same for all Building Types)	CL22	CL30	Per installation	New	20	30	\$492	95%	75%	\$2.34	3
Idaho	Single Family	Heat Pump	Windows (Same for all Building Types)	CL25	CL30	Per installation	New	14	30	\$424	95%	75%	\$2.87	2
Idaho	Single Family	Heat Room	Canned Lighting Air Tight Sealing	Canned Lighting Air Tight Sealing	No Air tight Sealing	Per installation	Existing	44	30	\$23	95%	50%	\$0.05	1,658
Idaho	Single Family	Heat Room	Ceiling Insulation (ID) above code	R-60	R-49	Per installation	Existing	248	30	\$507	75%	95%	\$0.20	1,545
Idaho	Single Family	Heat Room	Ceiling Insulation (ID) ave to code	R-49	R-15	Per installation	Existing	2,291	30	\$2,326	75%	35%	\$0.10	5,579
Idaho	Single Family	Heat Room	Ceiling Insulation (ID) zero to code	R-49	R-0	Per installation	Existing	7,486	30	\$2,326	95%	1%	\$0.03	773
Idaho	Single Family	Heat Room	Conversion Baseboard Heating to DHP	Ductless Heat Pump HSPF 7.7	HSPF = 1	Per installation	Existing	1,822	20	\$2,318	36%	N/A	\$0.14	7,498
Idaho	Single Family	Heat Room	Doors	R-11 (Steel Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	Existing	192	20	\$161	95%	80%	\$0.09	1,375
Idaho	Single Family	Heat Room	Doors	R-5 (Composite Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	Existing	128	20	\$190	95%	60%	\$0.17	643
Idaho	Single Family	Heat Room	Doors - Weatherization	Weatherstripping And Adding Door Sweeps	Existing Non-Efficient door	Per installation	Existing	83	6	\$43	95%	50%	\$0.13	701
Idaho	Single Family	Heat Room	Floor Insulation (ID) above code	R-38	R-30	Per installation	Existing	357	30	\$744	25%	85%	\$0.20	655
Idaho	Single Family	Heat Room	Floor Insulation (ID) zero to code	R-30	R-0	Per installation	Existing	7,031	30	\$2,600	25%	20%	\$0.04	3,768
Idaho	Single Family	Heat Room	Infiltration Control (Caulk, Weather Strip, etc.) Blower-Door test	Install Caulking And Weatherstripping	Existing Infiltration Conditions	Per installation	Existing	1,285	11	\$456	75%	50%	\$0.06	4,700
Idaho	Single Family	Heat Room	Radiant Barrier (Ceiling)	Install Radiant Barrier	No Radiant Barrier	Per installation	Existing	257	30	\$844	50%	90%	\$0.32	991
Idaho	Single Family	Heat Room	Wall Insulation 2x4 (ID) zero to max feasible	R-13	R-0	Per installation	Existing	4,248	30	\$1,654	85%	25%	\$0.04	7,058
Idaho	Single Family	Heat Room	Wall Insulation 2x6 (ID) above code	R-21	R-19	Per installation	Existing	395	30	\$92	75%	95%	\$0.02	384
Idaho	Single Family	Heat Room	Wall Insulation 2x6 (ID) zero to code	R-19	R-0	Per installation	Existing	5,305	30	\$1,841	75%	25%	\$0.03	1,345
Idaho	Single Family	Heat Room	Windows (Same for all Building Types)	CL25	CL30	Per installation	Existing	30	30	\$424	65%	75%	\$1.32	126
Idaho	Single Family	Heat Room	Windows (Same for all Building Types)	CL30	Double Pane	Per installation	Existing	330	30	\$4,375	65%	25%	\$1.28	453
Idaho	Single Family	Heat Room	Windows (Same for all Building Types)	CL30	Single Pane	Per installation	Existing	518	30	\$4,375	65%	25%	\$0.81	714
Idaho	Single Family	Heat Room	Ceiling Insulation (ID) above code	R-60	R-49	Per installation	New	264	30	\$507	90%	95%	\$0.19	1,257
Idaho	Single Family	Heat Room	Construction - ICF	Concrete Framing	Standard Wood Framing	Per installation	New	4,341	45	\$5,991	50%	95%	\$0.12	579

Table C.2.1. Residential Measure Details

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Idaho	Single Family	Heat Room	Construction - SIP	Specialty Framing	Standard Wood Framing	Per installation	New	1,184	45	\$2,774	50%	95%	\$0.21	149
Idaho	Single Family	Heat Room	Conversion Baseboard Heating to DHP	Ductless Heat Pump HSPF 7.7	HSPF = 1	Per installation	New	1,398	20	\$2,318	36%	N/A	\$0.19	3,989
Idaho	Single Family	Heat Room	Doors	R-11 (Steel Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	New	148	20	\$25	95%	80%	\$0.02	770
Idaho	Single Family	Heat Room	Doors	R-5 (Composite Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	New	98	20	\$54	95%	60%	\$0.06	317
Idaho	Single Family	Heat Room	Floor Insulation (ID) above code	R-38	R-30	Per installation	New	274	30	\$744	75%	85%	\$0.26	926
Idaho	Single Family	Heat Room	Green Roof	ecorooF	Standard Roof	Per installation	New	690	40	\$19,740	50%	95%	\$2.58	333
Idaho	Single Family	Heat Room	Radiant Barrier (Ceiling)	Install Radiant Barrier	No Radiant Barrier	Per installation	New	197	30	\$844	75%	90%	\$0.41	692
Idaho	Single Family	Heat Room	Smart Siting	Siting house to minimize heating/cooling costs	No smart siting	Per installation	New	30	45	\$577	75%	75%	\$1.67	87
Idaho	Single Family	Heat Room	Thermal Shell - Infiltration @0.2 ACH w/HRV	0.2 ACH w/HRV	Standard New Construction Home 0.35 ACH	Per installation	New	2,016	30	\$815	85%	95%	\$0.04	11,021
Idaho	Single Family	Heat Room	Wall Insulation 2x6 (ID) above code	R-21+R-5 sheathing	R-19	Per installation	New	537	30	\$1,122	50%	95%	\$0.20	1,247
Idaho	Single Family	Heat Room	Windows (Same for all Building Types)	CL22	CL30	Per installation	New	49	30	\$492	95%	75%	\$0.96	180
Idaho	Single Family	Heat Room	Windows (Same for all Building Types)	CL25	CL30	Per installation	New	32	30	\$424	95%	75%	\$1.24	119
Idaho	Single Family	Lighting Exterior	CFL, Flood (17 W)	CFL, Flood	Standard Incandescent Flood	Per installation	Existing	53	5	\$0.91	100%	N/A	\$0.00	226
Idaho	Single Family	Lighting Exterior	Time Clocks (Exterior Lighting)	Exterior Lighting on a Time Clock	Exterior Lighting (Manual Control)	Per installation	Existing	13	10	\$16	80%	85%	\$0.21	587
Idaho	Single Family	Lighting Exterior	CFL, Flood (17 W)	CFL, Flood	Standard Incandescent Flood	Per installation	New	53	5	\$0.91	100%	N/A	\$0.00	17
Idaho	Single Family	Lighting Exterior	Time Clocks (Exterior Lighting)	Exterior Lighting on a Time Clock	Exterior Lighting (Manual Control)	Per installation	New	13	10	\$16	80%	85%	\$0.21	407
Idaho	Single Family	Lighting Interior Specialty	CFL (13 W, 20 W, 25 W)	CFL (3-Way)	Standard Incandescent (3-Way)	Per installation	Existing	43	5	\$3	100%	N/A	\$0.02	6,846
Idaho	Single Family	Lighting Interior Specialty	CFL (13 W, 20 W, 25 W)	CFL (3-Way)	Standard Incandescent (3-Way)	Per installation	New	43	5	\$3	100%	N/A	\$0.02	355
Idaho	Single Family	Lighting Interior Standard	Daylighting Controls (Photocell) - Indoor/Outdoors	Install Photocell	No Daylighting Controls	Per installation	Existing	9	20	\$134	60%	95%	\$1.61	89
Idaho	Single Family	Lighting Interior Standard	Lighting CFL 15 W	15 W CFL	Standard 60 W Incandescent	Per installation	Existing	40	5	\$2	100%	N/A	\$0.02	936
Idaho	Single Family	Lighting Interior Standard	Lighting LED 7 W	7 W LED	Standard 60 W Incandescent	Per installation	Existing	51	20	\$36	50%	N/A	\$0.08	22,779
Idaho	Single Family	Lighting Interior Standard	Occupancy Sensors	Wall-Switch Occupancy Sensors	No Occupancy Sensor	Per installation	Existing	5	10	\$29	85%	95%	\$0.88	781
Idaho	Single Family	Lighting Interior Standard	Daylighting Controls (Photocell) - Indoor/Outdoors	Install Photocell	No Daylighting Controls	Per installation	New	9	20	\$134	60%	95%	\$1.61	61
Idaho	Single Family	Lighting Interior Standard	Lighting CFL 15 W	15 W CFL	Standard 60 W Incandescent	Per installation	New	40	5	\$2	100%	N/A	\$0.02	72
Idaho	Single Family	Lighting Interior Standard	Lighting LED 7 W	7 W LED	Standard 60 W Incandescent	Per installation	New	51	20	\$36	50%	N/A	\$0.08	1,400
Idaho	Single Family	Lighting Interior Standard	Occupancy Sensors	Wall-Switch Occupancy Sensors	No Occupancy Sensor	Per installation	New	5	10	\$29	85%	95%	\$0.88	538
Idaho	Single Family	Microwave	Microwave, High Efficiency	High Efficiency Microwave	Standard Microwave	Per installation	Existing	9	15	\$79	100%	N/A	\$1.05	412
Idaho	Single Family	Microwave	Microwave, High Efficiency	High Efficiency Microwave	Standard Microwave	Per installation	New	9	15	\$79	100%	N/A	\$1.05	213
Idaho	Single Family	Monitor	Monitor, Energy Star	Energy Star Monitor	Standard Monitor	Per installation	Existing	36	5	\$3	100%	N/A	\$0.03	2,175
Idaho	Single Family	Monitor	Monitor, Energy Star	Energy Star Monitor	Standard Monitor	Per installation	New	36	5	\$3	100%	N/A	\$0.03	297
Idaho	Single Family	Plug Load Other	1-Watt Standby Power	1W or less standby power use for small appliances	Standard plug load appliance.	Per installation	Existing	17	7	\$30	50%	50%	\$0.36	2,202
Idaho	Single Family	Plug Load Other	Energy Star Battery Chargers	Energy Star Battery Chargers	Standard Battery Chargers	Per installation	Existing	1	7	\$33	50%	80%	\$5.59	349
Idaho	Single Family	Plug Load Other	Office Copier	Office Copier	Standard Copier	Per installation	Existing	39	6	\$5	20%	50%	\$0.03	261

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Idaho	Single Family	Plug Load Other	Office Printer	Office Printer	Standard Printer	Per installation	Existing	5	5	\$5	50%	50%	\$0.28	83
Idaho	Single Family	Plug Load Other	Smart Strip	Smart Strip	Standard PowerStrip	Per installation	Existing	103	5	\$22	50%	85%	\$0.06	2,884
Idaho	Single Family	Plug Load Other	1-Watt Standby Power	1W or less standby power use for small appliances	Standard plug load appliance.	Per installation	New	17	7	\$30	50%	50%	\$0.37	1,366
Idaho	Single Family	Plug Load Other	Energy Star Battery Chargers	Energy Star Battery Chargers	Standard Battery Chargers	Per installation	New	1	7	\$2	50%	80%	\$0.43	219
Idaho	Single Family	Plug Load Other	Office Copier	Office Copier	Standard Copier	Per installation	New	38	6	\$5	20%	50%	\$0.03	162
Idaho	Single Family	Plug Load Other	Office Printer	Office Printer	Standard Printer	Per installation	New	4	5	\$5	50%	50%	\$0.28	52
Idaho	Single Family	Plug Load Other	Smart Strip	Smart Strip	Standard PowerStrip	Per installation	New	102	5	\$22	50%	85%	\$0.06	1,787
Idaho	Single Family	Pool Pump	Pool Pump Timers	Pool Pump Timers	Pool Pump No Timers	Per installation	Existing	296	10	\$45	95%	50%	\$0.03	50
Idaho	Single Family	Pool Pump	Pool Pump, 2 Speed	2 Speed Pool Pump	Standard 1 Speed Pool Pump	Per installation	Existing	570	10	\$110	75%	N/A	\$0.03	59
Idaho	Single Family	Pool Pump	Pool Pump, VSD	VSD Pool Pump	Standard 1 Speed Pool Pump	Per installation	Existing	630	10	\$819	75%	N/A	\$0.22	153
Idaho	Single Family	Pool Pump	Pool Pump Timers	Pool Pump Timers	Pool Pump No Timers	Per installation	New	297	10	\$45	95%	50%	\$0.03	31
Idaho	Single Family	Pool Pump	Pool Pump, 2 Speed	2 Speed Pool Pump	Standard 1 Speed Pool Pump	Per installation	New	570	10	\$110	75%	N/A	\$0.03	19
Idaho	Single Family	Pool Pump	Pool Pump, VSD	VSD Pool Pump	Standard 1 Speed Pool Pump	Per installation	New	630	10	\$819	75%	N/A	\$0.22	41
Idaho	Single Family	Refrigerator	Refrigerator, Energy Star	Energy Star Refrigerator	Standard Refrigerator	Per installation	Existing	122	20	\$15	90%	N/A	\$0.01	1,210
Idaho	Single Family	Refrigerator	Refrigerator/Freezer - Removal of Secondary	Proper Disposal of Refrigerator/Freezer	Existing Non-Efficient Refrigerator/Freezer	Per installation	Existing	1,416	9	\$74	7%	96%	\$0.01	1,420
Idaho	Single Family	Refrigerator	Refrigerator, Energy Star	Energy Star Refrigerator	Standard Refrigerator	Per installation	New	122	20	\$15	100%	N/A	\$0.01	1,219
Idaho	Single Family	Set Top Box	Set Top Box, Energy Star	Energy Star Set Top Box	Standard Set Top Box	Per installation	Existing	164	5	\$12	100%	N/A	\$0.02	6,241
Idaho	Single Family	Set Top Box	Set Top Box, Energy Star	Energy Star Set Top Box	Standard Set Top Box	Per installation	New	164	5	\$12	100%	N/A	\$0.02	776
Idaho	Single Family	Tv	TV CRT, Energy Star	Energy Star CRT TV	Standard CRT TV	Per installation	Existing	112	10	\$19	100%	N/A	\$0.03	10,670
Idaho	Single Family	Tv	TV CRT, Energy Star	Energy Star CRT TV	Standard CRT TV	Per installation	New	112	10	\$19	100%	N/A	\$0.03	3,256
Idaho	Single Family	Tv Bigscreen	TV LCD, Energy Star	Energy Star LCD TV	Standard LCD TV	Per installation	Existing	223	10	\$19	100%	N/A	\$0.01	3,829
Idaho	Single Family	Tv Bigscreen	TV LCD, Energy Star	Energy Star LCD TV	Standard LCD TV	Per installation	New	223	10	\$19	100%	N/A	\$0.01	1,168
Idaho	Single Family	Ventilation And Circulation	Motor, ECM	ECM Motor	Standard Motor	Per installation	Existing	153	20	\$172	50%	N/A	\$0.13	1,025
Idaho	Single Family	Ventilation And Circulation	Motor, ECM - VFD	ECMVFD Motor	Standard Motor	Per installation	Existing	459	20	\$194	50%	N/A	\$0.05	3,077
Idaho	Single Family	Ventilation And Circulation	Motor, ECM	ECM Motor	Standard Motor	Per installation	New	132	20	\$172	50%	N/A	\$0.15	662
Idaho	Single Family	Ventilation And Circulation	Motor, ECM - VFD	ECMVFD Motor	Standard Motor	Per installation	New	397	20	\$194	50%	N/A	\$0.05	1,987
Idaho	Single Family	Water Heat	Clothes Washer	Energy Star - Tier 1 (MEF 2.0 - 2.19) - Electric DHW & Dryer	MEF = 1.66 - Electric DHW & Dryer	Per installation	Existing	113	14	\$227	95%	91%	\$-0.27	898
Idaho	Single Family	Water Heat	Clothes Washer	Energy Star - Tier 2 (MEF 2.2 - 2.45) - Electric DHW & Dryer	MEF = 1.66 - Electric DHW & Dryer	Per installation	Existing	150	14	\$296	95%	95%	\$-0.25	1,252
Idaho	Single Family	Water Heat	Clothes Washer	Energy Star - Tier 3 (MEF 2.46 or higher) Top 10% of Energy Star Model - Electric DHW & Dryer	MEF = 1.66 - Electric DHW & Dryer	Per installation	Existing	171	14	\$317	95%	99%	\$-0.23	1,487
Idaho	Single Family	Water Heat	Dishwasher	Energy Star, July 1st 2011, <= 307 kWh/year, <= 5.0 gallons/cycle	Energy Star - EF65 (6th Plan Baseline)	Per installation	Existing	33	12	\$42	65%	50%	\$0.17	299
Idaho	Single Family	Water Heat	Drain Water Heat Recovery (GFX)	Gravity Film Heat Exchanger	No Heat Exchanger	Per installation	Existing	404	40	\$494	29%	90%	\$0.11	2,414
Idaho	Single Family	Water Heat	Faucet Aerators	0.5 GPM	2.2 GPM	Per installation	Existing	82	9	\$0.71	95%	95%	\$-0.08	3,098
Idaho	Single Family	Water Heat	Faucet Aerators	1.5 GPM	2.2 GPM	Per installation	Existing	34	9	\$0.46	95%	65%	\$-0.08	878
Idaho	Single Family	Water Heat	Faucet Aerators	2.2 GPM	Existing Faucet Aerator (3.0 GPM)	Per installation	Existing	38	9	\$1	95%	25%	\$-0.07	755
Idaho	Single Family	Water Heat	Hot Water Pipe Insulation	R-4 Wrap	No insulation	Per installation	Existing	40	5	\$17	95%	75%	\$0.12	625
Idaho	Single Family	Water Heat	Low-Flow Showerheads	2.0 GPM	2.5 GPM	Per installation	Existing	113	10	\$16	95%	65%	\$-0.06	3,860

Table C.2.1. Residential Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Idaho	Single Family	Water Heat	Water Heater, Heat Pump EF 2.2	Heat Pump Water Heater EF = 2.2	Standard Storage Water Heater EF = 0.92	Per installation	Existing	1,653	15	\$1,280	59%	N/A	\$0.10	14,281
Idaho	Single Family	Water Heat	Water Heater, Storage EF 0.95	Standard Storage Water Heater EF = 0.95	Standard Storage Water Heater EF = 0.92	Per installation	Existing	92	15	\$40	100%	N/A	\$0.06	109
Idaho	Single Family	Water Heat	Water_Heater Tank Blanket/Insulation	Install Insulation (R-5)	No Tank Insulation	Per installation	Existing	187	10	\$11	50%	20%	\$0.01	426
Idaho	Single Family	Water Heat	Water_Heater Thermostat Setback	120 degrees	135 degrees	Per installation	Existing	173	5	\$6	95%	45%	\$0.01	1,726
Idaho	Single Family	Water Heat	Clothes Washer	Energy Star - Tier 1 (MEF 2.0 - 2.19) - Electric DHW & Dryer	MEF = 1.66 - Electric DHW & Dryer	Per installation	New	111	14	\$227	95%	91%	\$-0.27	571
Idaho	Single Family	Water Heat	Clothes Washer	Energy Star - Tier 2 (MEF 2.2 - 2.45) - Electric DHW & Dryer	MEF = 1.66 - Electric DHW & Dryer	Per installation	New	149	14	\$296	95%	95%	\$-0.25	796
Idaho	Single Family	Water Heat	Clothes Washer	Energy Star - Tier 3 (MEF 2.46 or higher) Top 10% of Energy Star Model - Electric DHW & Dryer	MEF = 1.66 - Electric DHW & Dryer	Per installation	New	169	14	\$317	95%	99%	\$-0.23	945
Idaho	Single Family	Water Heat	Dishwasher	Energy Star, July 1st 2011, <= 307 kWh/year, <= 5.0 gallons/cycle	Energy Star - EF65 (6th Plan Baseline)	Per installation	New	32	12	\$42	65%	50%	\$0.17	190
Idaho	Single Family	Water Heat	Drain Water Heat Recovery (GFX)	Gravity Film Heat Exchanger	No Heat Exchanger	Per installation	New	402	40	\$485	59%	90%	\$0.11	3,149
Idaho	Single Family	Water Heat	Faucet Aerators	0.5 GPM	2.2 GPM	Per installation	New	81	9	\$0.71	95%	95%	\$-0.08	1,969
Idaho	Single Family	Water Heat	Faucet Aerators	1.5 GPM	2.2 GPM	Per installation	New	33	9	\$0.46	95%	65%	\$-0.08	558
Idaho	Single Family	Water Heat	Hot Water Pipe Insulation	R-4 Wrap	No insulation	Per installation	New	39	5	\$17	95%	75%	\$0.12	389
Idaho	Single Family	Water Heat	Low-Flow Showerheads	2.0 GPM	2.5 GPM	Per installation	New	111	10	\$9	95%	65%	\$-0.07	2,453
Idaho	Single Family	Water Heat	Water Heater, Heat Pump EF 2.2	Heat Pump Water Heater EF = 2.2	Standard Storage Water Heater EF = 0.92	Per installation	New	1,653	15	\$1,280	59%	N/A	\$0.10	7,020
Idaho	Single Family	Water Heat	Water Heater, Storage EF 0.95	Standard Storage Water Heater EF = 0.95	Standard Storage Water Heater EF = 0.92	Per installation	New	92	15	\$40	100%	N/A	\$0.06	60
Idaho	Single Family	Water Heat	Water_Heater Thermostat Setback	120 degrees	135 degrees	Per installation	New	172	5	\$6	95%	45%	\$0.01	1,118
Utah	Manufactured	Computer	Computer, Energy Star	Energy Star Computer	Standard Computer	Per installation	Existing	51	5	\$24	100%	N/A	\$0.12	1,441
Utah	Manufactured	Computer	Computer, Energy Star	Energy Star Computer	Standard Computer	Per installation	New	51	5	\$24	100%	N/A	\$0.12	167
Utah	Manufactured	Cooking Oven	Cooking Oven, High Efficiency	High Efficiency Oven	Standard Oven	Per installation	Existing	58	20	\$282	100%	N/A	\$0.47	217
Utah	Manufactured	Cooking Oven	Cooking Oven, High Efficiency	High Efficiency Oven	Standard Oven	Per installation	New	58	20	\$282	100%	N/A	\$0.47	130
Utah	Manufactured	Cool Central	Air-to-Air Heat Exchangers	Air-to-Air Heat Exchangers	No Air to Air Heat Exchangers	Per installation	Existing	92	5	\$539	25%	95%	\$1.44	583
Utah	Manufactured	Cool Central	Canned Lighting Air Tight Sealing	Canned Lighting Air Tight Sealing	No Air tight Sealing	Per installation	Existing	3	30	\$23	95%	50%	\$0.65	165
Utah	Manufactured	Cool Central	Ceiling Fan	Ceiling Fan (no lighting kit)	No Ceiling Fan	Per installation	Existing	36	10	\$83	85%	35%	\$0.33	584
Utah	Manufactured	Cool Central	Ceiling Insulation (UT) above code	R-49	R-38	Per installation	Existing	25	25	\$353	75%	90%	\$1.23	305
Utah	Manufactured	Cool Central	Ceiling Insulation (UT) ave to code	R-38	R-15	Per installation	Existing	132	25	\$1,268	75%	35%	\$0.85	648
Utah	Manufactured	Cool Central	Ceiling Insulation (UT) zero to code	R-38	R-0	Per installation	Existing	404	25	\$1,268	75%	1%	\$0.28	67
Utah	Manufactured	Cool Central	Central Cooling, SEER 15	SEER 15	SEER 13	Per installation	Existing	211	15	\$595	100%	N/A	\$0.32	28
Utah	Manufactured	Cool Central	Central Cooling, SEER 18	SEER 18	SEER 13	Per installation	Existing	529	15	\$1,490	100%	N/A	\$0.32	1,644
Utah	Manufactured	Cool Central	Check Me! O&M Tune-up	Tune-up/Maintenance	No Tune-up Maintenance	Per installation	Existing	28	5	\$162	95%	75%	\$1.39	546
Utah	Manufactured	Cool Central	Cool Roofs	Lighter Colored Shingles (White)	Standard Roof Shingles	Per installation	Existing	10	20	\$292	85%	90%	\$2.69	131
Utah	Manufactured	Cool Central	Doors	R-11 (Steel Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	Existing	10	20	\$163	95%	80%	\$1.58	133
Utah	Manufactured	Cool Central	Doors	R-5 (Composite Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	Existing	6	20	\$192	95%	60%	\$2.79	61
Utah	Manufactured	Cool Central	Doors - Weatherization	Weatherstripping And Adding Door Sweeps	Existing Non-Efficient door	Per installation	Existing	4	6	\$44	95%	50%	\$2.16	70
Utah	Manufactured	Cool Central	Duct Insulation Upgrade	R-8 (code)	R-4	Per installation	Existing	26	20	\$561	75%	75%	\$2.04	260
Utah	Manufactured	Cool Central	Duct Sealing	Duct Sealing	No Duct Sealing	Per installation	Existing	92	18	\$485	75%	60%	\$0.54	520

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Utah	Manufactured	Cool Central	Duct Sealing - Aerosol-Based	Spray-in ductwork sealant to minimize duct leaks	No Duct Sealing	Per installation	Existing	138	18	\$690	75%	60%	\$0.51	398
Utah	Manufactured	Cool Central	Floor Insulation (UT) above code	R-38	R-30	Per installation	Existing	18	25	\$503	25%	85%	\$2.42	64
Utah	Manufactured	Cool Central	Floor Insulation (UT) zero to code	R-30	R-0	Per installation	Existing	363	25	\$1,794	25%	20%	\$0.44	395
Utah	Manufactured	Cool Central	Infiltration Control (Caulk, Weather Strip, etc.) Blower-Door test	Install Caulking And Weatherstripping	Existing Infiltration Conditions	Per installation	Existing	92	11	\$400	75%	50%	\$0.59	704
Utah	Manufactured	Cool Central	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands (5 per unit)	13 SEER	Per installation	Existing	140	30	\$552	50%	95%	\$0.33	148
Utah	Manufactured	Cool Central	Proper Sizing - HVAC Unit	Proper Sizing - HVAC Unit	Oversized HVAC Unit	Per installation	Existing	87	15	\$-39.85	95%	65%	\$0.00	1,430
Utah	Manufactured	Cool Central	Radiant Barrier (Ceiling)	Install Radiant Barrier	No Radiant Barrier	Per installation	Existing	55	25	\$594	25%	90%	\$0.95	223
Utah	Manufactured	Cool Central	Thermostat - Multi-Zone	Individual Room Temperature Control for Major Occupied Rooms	Programmable Thermostat - Central Control Only	Per installation	Existing	62	11	\$1,053	50%	95%	\$2.28	503
Utah	Manufactured	Cool Central	Wall Insulation 2x4 (UT) zero to max feasible	R-13	R-0	Per installation	Existing	217	25	\$1,459	85%	25%	\$0.60	677
Utah	Manufactured	Cool Central	Wall Insulation 2x6 (UT) above code	R-21	R-19	Per installation	Existing	27	25	\$77	75%	95%	\$0.25	54
Utah	Manufactured	Cool Central	Wall Insulation 2x6 (UT) zero to code	R-19	R-0	Per installation	Existing	365	25	\$1,616	75%	25%	\$0.39	188
Utah	Manufactured	Cool Central	Whole-House Fan	Whole-House Fan	No Whole-House Fan	Per installation	Existing	138	20	\$1,349	50%	95%	\$0.95	875
Utah	Manufactured	Cool Central	Windows (Same for all Building Types)	CL25	CL30	Per installation	Existing	1	25	\$352	65%	85%	\$20.05	13
Utah	Manufactured	Cool Central	Windows (Same for all Building Types)	CL30	Double Pane	Per installation	Existing	16	25	\$3,633	65%	50%	\$19.32	86
Utah	Manufactured	Cool Central	Windows (Same for all Building Types)	CL30	Single Pane	Per installation	Existing	26	25	\$3,633	65%	20%	\$12.33	54
Utah	Manufactured	Cool Central	Air-to-Air Heat Exchangers	Air-to-Air Heat Exchangers	No Air to Air Heat Exchangers	Per installation	New	90	5	\$539	25%	95%	\$1.47	282
Utah	Manufactured	Cool Central	Ceiling Fan	Ceiling Fan (no lighting kit)	No Ceiling Fan	Per installation	New	36	10	\$83	85%	35%	\$0.34	283
Utah	Manufactured	Cool Central	Ceiling Insulation (UT) above code	R-49	R-38	Per installation	New	68	25	\$353	95%	90%	\$0.46	614
Utah	Manufactured	Cool Central	Central Cooling, SEER 15	SEER 15	SEER 13	Per installation	New	251	15	\$595	100%	N/A	\$0.27	12
Utah	Manufactured	Cool Central	Central Cooling, SEER 18	SEER 18	SEER 13	Per installation	New	629	15	\$1,490	100%	N/A	\$0.27	836
Utah	Manufactured	Cool Central	Check Me! O&M Tune-up	Tune-up/Maintenance	No Tune-up Maintenance	Per installation	New	28	5	\$162	95%	75%	\$1.41	264
Utah	Manufactured	Cool Central	Cool Roofs	Lighter Colored Shingles (White)	Standard Roof Shingles	Per installation	New	10	20	\$292	85%	90%	\$2.75	53
Utah	Manufactured	Cool Central	Doors	R-11 (Steel Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	New	9	20	\$25	95%	80%	\$0.25	82
Utah	Manufactured	Cool Central	Doors	R-5 (Composite Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	New	6	20	\$54	95%	60%	\$0.80	36
Utah	Manufactured	Cool Central	Duct Location	Conditioned Space Design - Duct Loss Is Not A Concern	Ducts in Unconditioned Space (Duct loss)	Per installation	New	72	30	\$181	95%	30%	\$0.21	56
Utah	Manufactured	Cool Central	Duct Sealing	Duct Sealing	No Duct Sealing	Per installation	New	90	18	\$235	75%	60%	\$0.27	154
Utah	Manufactured	Cool Central	Duct Sealing - Aerosol-Based	Spray-in ductwork sealant to minimize duct leaks	No Duct Sealing	Per installation	New	135	18	\$690	75%	60%	\$0.52	89
Utah	Manufactured	Cool Central	Floor Insulation (UT) above code	R-38	R-30	Per installation	New	18	25	\$503	75%	85%	\$2.47	99
Utah	Manufactured	Cool Central	Green Roof	ecorooF	Standard Roof	Per installation	New	46	40	\$14,187	20%	95%	\$24.18	14
Utah	Manufactured	Cool Central	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands (5 per unit)	13 SEER	Per installation	New	138	30	\$552	50%	95%	\$0.34	175
Utah	Manufactured	Cool Central	Proper Sizing - HVAC Unit	Proper Sizing - HVAC Unit	Oversized HVAC Unit	Per installation	New	85	15	\$-39.85	95%	65%	\$0.00	693
Utah	Manufactured	Cool Central	Radiant Barrier (Ceiling)	Install Radiant Barrier	No Radiant Barrier	Per installation	New	54	25	\$594	50%	90%	\$0.97	236
Utah	Manufactured	Cool Central	Smart Siting	Siting house to minimize heating/cooling costs	No smart siting	Per installation	New	49	25	\$631	75%	75%	\$1.13	263

Table C.2.1. Residential Measure Details

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Utah	Manufactured	Cool Central	Thermostat - Multi-Zone	Individual Room Temperature Control for Major Occupied Rooms	Programmable Thermostat - Central Control Only	Per installation	New	61	11	\$1,053	50%	95%	\$2.33	259
Utah	Manufactured	Cool Central	Wall Insulation 2x6 (UT) above code	R-21+R-5 sheathing	R-19	Per installation	New	49	25	\$940	50%	95%	\$1.69	214
Utah	Manufactured	Cool Central	Whole-House Fan	Whole-House Fan	No Whole-House Fan	Per installation	New	135	20	\$1,349	50%	95%	\$0.97	424
Utah	Manufactured	Cool Central	Windows (Same for all Building Types)	CL22	CL30	Per installation	New	3	25	\$409	95%	75%	\$11.53	18
Utah	Manufactured	Cool Central	Windows (Same for all Building Types)	CL25	CL30	Per installation	New	2	25	\$352	95%	75%	\$14.73	12
Utah	Manufactured	Dryer	Dryer, Advanced Efficiency EF 3.30	Advanced Efficiency Dryer 3.30	Standard Dryer EF 3.01	Per installation	Existing	38	14	\$224	100%	N/A	\$0.69	667
Utah	Manufactured	Dryer	Dryer, High Efficiency EF 3.08	High Efficiency Dryer EF 3.08	Standard Dryer EF 3.01	Per installation	Existing	9	14	\$54	100%	N/A	\$0.64	12
Utah	Manufactured	Dryer	Dryer, Premium Efficiency EF 3.19	Premium Efficiency Dryer 3.19	Standard Dryer EF 3.01	Per installation	Existing	24	14	\$139	100%	N/A	\$0.66	84
Utah	Manufactured	Dryer	Dryer, Advanced Efficiency EF 3.30	Advanced Efficiency Dryer 3.30	Standard Dryer EF 3.01	Per installation	New	38	14	\$224	100%	N/A	\$0.69	230
Utah	Manufactured	Dryer	Dryer, High Efficiency EF 3.08	High Efficiency Dryer EF 3.08	Standard Dryer EF 3.01	Per installation	New	9	14	\$54	100%	N/A	\$0.64	4
Utah	Manufactured	Dryer	Dryer, Premium Efficiency EF 3.19	Premium Efficiency Dryer 3.19	Standard Dryer EF 3.01	Per installation	New	24	14	\$139	100%	N/A	\$0.66	34
Utah	Manufactured	Freezer	Freezer, Energy Star	Energy Star Freezer	Standard Freezer	Per installation	Existing	46	20	\$22	76%	N/A	\$0.05	48
Utah	Manufactured	Freezer	Stand-Alone Freezer - Removal	Proper Disposal of Freezer	Existing Non-Efficient Freezer	Per installation	Existing	1,322	8	\$79	17%	99%	\$0.01	382
Utah	Manufactured	Freezer	Freezer, Energy Star	Energy Star Freezer	Standard Freezer	Per installation	New	46	20	\$22	76%	N/A	\$0.05	50
Utah	Manufactured	Heat Central	Air-to-Air Heat Exchangers	Air-to-Air Heat Exchangers	No Air to Air Heat Exchangers	Per installation	Existing	1,038	5	\$539	25%	95%	\$0.13	335
Utah	Manufactured	Heat Central	Canned Lighting Air Tight Sealing	Canned Lighting Air Tight Sealing	No Air tight Sealing	Per installation	Existing	47	30	\$23	95%	50%	\$0.04	160
Utah	Manufactured	Heat Central	Ceiling Insulation (UT) above code	R-49	R-38	Per installation	Existing	394	25	\$353	75%	90%	\$0.08	281
Utah	Manufactured	Heat Central	Ceiling Insulation (UT) ave to code	R-38	R-15	Per installation	Existing	2,046	25	\$1,268	75%	35%	\$0.06	598
Utah	Manufactured	Heat Central	Ceiling Insulation (UT) zero to code	R-38	R-0	Per installation	Existing	6,258	25	\$1,268	75%	1%	\$0.02	61
Utah	Manufactured	Heat Central	Conversion Electric Furnace to ASHP	Air Source Heat Pump Seer 13 HSPF 7.7	Electric Furnace HSPF 1	Per installation	Existing	5,565	20	\$2,662	100%	N/A	\$0.05	2,349
Utah	Manufactured	Heat Central	Doors	R-11 (Steel Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	Existing	155	20	\$163	95%	80%	\$0.10	121
Utah	Manufactured	Heat Central	Doors	R-5 (Composite Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	Existing	103	20	\$192	95%	60%	\$0.18	58
Utah	Manufactured	Heat Central	Doors - Weatherization	Weatherstripping And Adding Door Sweeps	Existing Non-Efficient door	Per installation	Existing	67	6	\$44	95%	50%	\$0.14	63
Utah	Manufactured	Heat Central	Duct Insulation Upgrade	R-8 (code)	R-4	Per installation	Existing	415	20	\$561	75%	75%	\$0.13	237
Utah	Manufactured	Heat Central	Duct Sealing	Duct Sealing	No Duct Sealing	Per installation	Existing	1,038	18	\$485	75%	15%	\$0.05	81
Utah	Manufactured	Heat Central	Duct Sealing - Aerosol-Based	Spray-in ductwork sealant to minimize duct leaks	No Duct Sealing	Per installation	Existing	1,557	18	\$690	75%	15%	\$0.05	61
Utah	Manufactured	Heat Central	Floor Insulation (UT) above code	R-38	R-30	Per installation	Existing	286	25	\$503	25%	85%	\$0.16	60
Utah	Manufactured	Heat Central	Floor Insulation (UT) zero to code	R-30	R-0	Per installation	Existing	5,628	25	\$1,794	25%	20%	\$0.03	361
Utah	Manufactured	Heat Central	Infiltration Control (Caulk, Weather Strip, etc.) Blower-Door test	Install Caulking And Weatherstripping	Existing Infiltration Conditions	Per installation	Existing	1,038	11	\$400	75%	50%	\$0.05	450
Utah	Manufactured	Heat Central	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands (5 per unit)	13 SEER	Per installation	Existing	2,181	30	\$552	50%	15%	\$0.02	21
Utah	Manufactured	Heat Central	Proper Sizing - HVAC Unit	Proper Sizing - HVAC Unit	Oversized HVAC Unit	Per installation	Existing	979	15	\$-39.85	15%	65%	\$0.00	129
Utah	Manufactured	Heat Central	Radiant Barrier (Ceiling)	Install Radiant Barrier	No Radiant Barrier	Per installation	Existing	207	25	\$594	25%	90%	\$0.25	44
Utah	Manufactured	Heat Central	Thermostat - Multi-Zone	Individual Room Temperature Control for Major Occupied Rooms	Programmable Thermostat - Central Control Only	Per installation	Existing	706	11	\$1,053	50%	95%	\$0.20	327

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Utah	Manufactured	Heat Central	Wall Insulation 2x4 (UT) zero to max feasible	R-13	R-0	Per installation	Existing	3,358	25	\$1,459	85%	25%	\$0.04	669
Utah	Manufactured	Heat Central	Wall Insulation 2x6 (UT) above code	R-21	R-19	Per installation	Existing	422	25	\$77	75%	95%	\$0.02	49
Utah	Manufactured	Heat Central	Wall Insulation 2x6 (UT) zero to code	R-19	R-0	Per installation	Existing	5,661	25	\$1,616	75%	25%	\$0.03	172
Utah	Manufactured	Heat Central	Windows (Same for all Building Types)	CL25	CL30	Per installation	Existing	24	25	\$352	65%	85%	\$1.30	12
Utah	Manufactured	Heat Central	Windows (Same for all Building Types)	CL30	Double Pane	Per installation	Existing	258	25	\$3,633	65%	50%	\$1.25	78
Utah	Manufactured	Heat Central	Windows (Same for all Building Types)	CL30	Single Pane	Per installation	Existing	405	25	\$3,633	65%	20%	\$0.80	49
Utah	Manufactured	Heat Central	Air-to-Air Heat Exchangers	Air-to-Air Heat Exchangers	No Air to Air Heat Exchangers	Per installation	New	828	5	\$539	25%	95%	\$0.16	129
Utah	Manufactured	Heat Central	Ceiling Insulation (UT) above code	R-49	R-38	Per installation	New	863	25	\$353	95%	90%	\$0.04	458
Utah	Manufactured	Heat Central	Conversion Electric Furnace to ASHP	Air Source Heat Pump Seer 13 HSPF 7.7	Electric Furnace HSPF 1	Per installation	New	4,438	20	\$2,563	100%	N/A	\$0.06	1,209
Utah	Manufactured	Heat Central	Doors	R-11 (Steel Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	New	124	20	\$25	95%	80%	\$0.02	59
Utah	Manufactured	Heat Central	Doors	R-5 (Composite Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	New	82	20	\$54	95%	60%	\$0.06	26
Utah	Manufactured	Heat Central	Duct Location	Conditioned Space Design - Duct Loss Is Not A Concern	Ducts in Unconditioned Space (Duct loss)	Per installation	New	662	30	\$181	95%	15%	\$0.02	14
Utah	Manufactured	Heat Central	Duct Sealing	Duct Sealing	No Duct Sealing	Per installation	New	828	18	\$235	75%	15%	\$0.03	20
Utah	Manufactured	Heat Central	Duct Sealing - Aerosol-Based	Spray-in ductwork sealant to minimize duct leaks	No Duct Sealing	Per installation	New	1,242	18	\$690	75%	15%	\$0.06	11
Utah	Manufactured	Heat Central	Floor Insulation (UT) above code	R-38	R-30	Per installation	New	228	25	\$503	75%	85%	\$0.20	78
Utah	Manufactured	Heat Central	Green Roof	ecorooF	Standard Roof	Per installation	New	579	40	\$14,187	20%	95%	\$1.92	11
Utah	Manufactured	Heat Central	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands (5 per unit)	13 SEER	Per installation	New	1,739	30	\$552	50%	15%	\$0.03	20
Utah	Manufactured	Heat Central	Proper Sizing - HVAC Unit	Proper Sizing - HVAC Unit	Oversized HVAC Unit	Per installation	New	780	15	\$-39.85	15%	65%	\$0.00	50
Utah	Manufactured	Heat Central	Radiant Barrier (Ceiling)	Install Radiant Barrier	No Radiant Barrier	Per installation	New	165	25	\$594	50%	90%	\$0.32	38
Utah	Manufactured	Heat Central	Smart Siting	Siting house to minimize heating/cooling costs	No smart siting	Per installation	New	25	25	\$631	75%	75%	\$2.18	7
Utah	Manufactured	Heat Central	Thermostat - Multi-Zone	Individual Room Temperature Control for Major Occupied Rooms	Programmable Thermostat - Central Control Only	Per installation	New	563	11	\$1,053	50%	95%	\$0.25	142
Utah	Manufactured	Heat Central	Wall Insulation 2x6 (UT) above code	R-21+R-5 sheathing	R-19	Per installation	New	622	25	\$940	50%	95%	\$0.13	166
Utah	Manufactured	Heat Central	Windows (Same for all Building Types)	CL22	CL30	Per installation	New	39	25	\$409	95%	75%	\$0.92	14
Utah	Manufactured	Heat Central	Windows (Same for all Building Types)	CL25	CL30	Per installation	New	26	25	\$352	95%	75%	\$1.17	9
Utah	Manufactured	Lighting Exterior	CFL, Flood (17 W)	CFL, Flood	Standard Incandescent Flood	Per installation	Existing	53	5	\$0.91	100%	N/A	\$0.00	739
Utah	Manufactured	Lighting Exterior	Time Clocks (Exterior Lighting)	Exterior Lighting on a Time Clock	Exterior Lighting (Manual Control)	Per installation	Existing	13	10	\$16	80%	85%	\$0.18	177
Utah	Manufactured	Lighting Exterior	CFL, Flood (17 W)	CFL, Flood	Standard Incandescent Flood	Per installation	New	53	5	\$0.91	100%	N/A	\$0.00	42
Utah	Manufactured	Lighting Exterior	Time Clocks (Exterior Lighting)	Exterior Lighting on a Time Clock	Exterior Lighting (Manual Control)	Per installation	New	13	10	\$16	80%	85%	\$0.18	94
Utah	Manufactured	Lighting Interior Specialty	CFL (13 W, 20 W, 25 W)	CFL (3-Way)	Standard Incandescent (3-Way)	Per installation	Existing	43	5	\$3	100%	N/A	\$0.02	1,889
Utah	Manufactured	Lighting Interior Specialty	CFL (13 W, 20 W, 25 W)	CFL (3-Way)	Standard Incandescent (3-Way)	Per installation	New	43	5	\$3	100%	N/A	\$0.02	85
Utah	Manufactured	Lighting Interior Standard	Daylighting Controls (Photocell) - Indoor/Outdoors	Install Photocell	No Daylighting Controls	Per installation	Existing	8	20	\$137	40%	95%	\$1.60	18

Table C.2.1. Residential Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Utah	Manufactured	Lighting Interior Standard	Lighting CFL 15 W	15 W CFL	Standard 60 W Incandescent	Per installation	Existing	40	5	\$2	100%	N/A	\$0.02	3,054
Utah	Manufactured	Lighting Interior Standard	Lighting LED 7 W	7 W LED	Standard 60 W Incandescent	Per installation	Existing	51	20	\$36	50%	N/A	\$0.07	6,529
Utah	Manufactured	Lighting Interior Standard	Occupancy Sensors	Wall-Switch Occupancy Sensors	No Occupancy Sensor	Per installation	Existing	4	10	\$30	85%	95%	\$0.93	235
Utah	Manufactured	Lighting Interior Standard	Daylighting Controls (Photocell) - Indoor/Outdoors	Install Photocell	No Daylighting Controls	Per installation	New	8	20	\$137	40%	95%	\$1.60	9
Utah	Manufactured	Lighting Interior Standard	Lighting CFL 15 W	15 W CFL	Standard 60 W Incandescent	Per installation	New	40	5	\$2	100%	N/A	\$0.02	174
Utah	Manufactured	Lighting Interior Standard	Lighting LED 7 W	7 W LED	Standard 60 W Incandescent	Per installation	New	51	20	\$36	50%	N/A	\$0.07	335
Utah	Manufactured	Lighting Interior Standard	Occupancy Sensors	Wall-Switch Occupancy Sensors	No Occupancy Sensor	Per installation	New	4	10	\$30	85%	95%	\$0.93	124
Utah	Manufactured	Microwave	Microwave, High Efficiency	High Efficiency Microwave	Standard Microwave	Per installation	Existing	9	15	\$79	100%	N/A	\$0.92	176
Utah	Manufactured	Microwave	Microwave, High Efficiency	High Efficiency Microwave	Standard Microwave	Per installation	New	9	15	\$79	100%	N/A	\$0.92	75
Utah	Manufactured	Monitor	Monitor, Energy Star	Energy Star Monitor	Standard Monitor	Per installation	Existing	36	5	\$3	100%	N/A	\$0.03	857
Utah	Manufactured	Monitor	Monitor, Energy Star	Energy Star Monitor	Standard Monitor	Per installation	New	36	5	\$3	100%	N/A	\$0.03	101
Utah	Manufactured	Plug Load Other	1-Watt Standby Power	1W or less standby power use for small appliances	Standard plug load appliance.	Per installation	Existing	17	7	\$30	50%	50%	\$0.32	581
Utah	Manufactured	Plug Load Other	Energy Star Battery Chargers	Energy Star Battery Chargers	Standard Battery Chargers	Per installation	Existing	0.69	7	\$33	50%	80%	\$9.26	82
Utah	Manufactured	Plug Load Other	Office Copier	Office Copier	Standard Copier	Per installation	Existing	39	6	\$5	10%	50%	\$0.03	58
Utah	Manufactured	Plug Load Other	Office Printer	Office Printer	Standard Printer	Per installation	Existing	5	5	\$5	20%	50%	\$0.24	15
Utah	Manufactured	Plug Load Other	Smart Strip	Smart Strip	Standard PowerStrip	Per installation	Existing	103	5	\$22	50%	85%	\$0.05	1,289
Utah	Manufactured	Plug Load Other	1-Watt Standby Power	1W or less standby power use for small appliances	Standard plug load appliance.	Per installation	New	17	7	\$30	50%	50%	\$0.32	276
Utah	Manufactured	Plug Load Other	Energy Star Battery Chargers	Energy Star Battery Chargers	Standard Battery Chargers	Per installation	New	0.69	7	\$2	50%	80%	\$0.71	39
Utah	Manufactured	Plug Load Other	Office Copier	Office Copier	Standard Copier	Per installation	New	38	6	\$5	10%	50%	\$0.03	27
Utah	Manufactured	Plug Load Other	Office Printer	Office Printer	Standard Printer	Per installation	New	4	5	\$5	20%	50%	\$0.25	7
Utah	Manufactured	Plug Load Other	Smart Strip	Smart Strip	Standard PowerStrip	Per installation	New	101	5	\$22	50%	85%	\$0.05	613
Utah	Manufactured	Refrigerator	Refrigerator, Energy Star	Energy Star Refrigerator	Standard Refrigerator	Per installation	Existing	122	20	\$15	100%	N/A	\$0.01	780
Utah	Manufactured	Refrigerator	Refrigerator, Energy Star	Energy Star Refrigerator	Standard Refrigerator	Per installation	New	122	20	\$15	100%	N/A	\$0.01	443
Utah	Manufactured	Set Top Box	Set Top Box, Energy Star	Energy Star Set Top Box	Standard Set Top Box	Per installation	Existing	164	5	\$12	100%	N/A	\$0.02	1,566
Utah	Manufactured	Set Top Box	Set Top Box, Energy Star	Energy Star Set Top Box	Standard Set Top Box	Per installation	New	164	5	\$12	100%	N/A	\$0.02	170
Utah	Manufactured	Tv	TV CRT, Energy Star	Energy Star CRT TV	Standard CRT TV	Per installation	Existing	112	10	\$19	100%	N/A	\$0.02	4,610
Utah	Manufactured	Tv	TV CRT, Energy Star	Energy Star CRT TV	Standard CRT TV	Per installation	New	112	10	\$19	100%	N/A	\$0.02	1,205
Utah	Manufactured	Tv Bigscreen	TV LCD, Energy Star	Energy Star LCD TV	Standard LCD TV	Per installation	Existing	223	10	\$19	100%	N/A	\$0.01	326
Utah	Manufactured	Tv Bigscreen	TV LCD, Energy Star	Energy Star LCD TV	Standard LCD TV	Per installation	New	223	10	\$19	100%	N/A	\$0.01	85
Utah	Manufactured	Ventilation And Circulation	Motor, ECM	ECM Motor	Standard Motor	Per installation	Existing	75	20	\$172	50%	N/A	\$0.22	345
Utah	Manufactured	Ventilation And Circulation	Motor, ECM - VFD	ECMVFD Motor	Standard Motor	Per installation	Existing	227	20	\$194	50%	N/A	\$0.08	1,035
Utah	Manufactured	Ventilation And Circulation	Motor, ECM	ECM Motor	Standard Motor	Per installation	New	64	20	\$172	50%	N/A	\$0.26	179
Utah	Manufactured	Ventilation And Circulation	Motor, ECM - VFD	ECMVFD Motor	Standard Motor	Per installation	New	194	20	\$194	50%	N/A	\$0.10	537
Utah	Manufactured	Water Heat	Clothes Washer	Energy Star - Tier 1 (MEF 2.0 - 2.19) - Electric DHW & Dryer	MEF = 1.66 - Electric DHW & Dryer	Per installation	Existing	112	14	\$227	100%	85%	\$0.24	163
Utah	Manufactured	Water Heat	Clothes Washer	Energy Star - Tier 2 (MEF 2.2 - 2.45) - Electric DHW & Dryer	MEF = 1.66 - Electric DHW & Dryer	Per installation	Existing	150	14	\$296	100%	90%	\$0.23	229

Table C.2.1. Residential Measure Details

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Utah	Manufactured	Water Heat	Clothes Washer	Energy Star - Tier 3 (MEF 2.46 or higher) Top 10% of Energy Star Model - Electric DHW & Dryer	MEF = 1.66 - Electric DHW & Dryer	Per installation	Existing	171	14	\$317	100%	95%	\$0.22	275
Utah	Manufactured	Water Heat	Dishwasher	Energy Star, July 1st 2011, <= 307 kWh/year, <= 5.0 gallons/cycle	Energy Star - EF65 (6th Plan Baseline)	Per installation	Existing	33	12	\$42	67%	50%	\$0.16	56
Utah	Manufactured	Water Heat	Drain Water Heat Recovery (GFX)	Gravity Film Heat Exchanger	No Heat Exchanger	Per installation	Existing	332	40	\$506	29%	90%	\$0.12	367
Utah	Manufactured	Water Heat	Faucet Aerators	0.5 GPM	2.2 GPM	Per installation	Existing	82	9	\$0.71	95%	95%	\$0.00	378
Utah	Manufactured	Water Heat	Faucet Aerators	1.5 GPM	2.2 GPM	Per installation	Existing	34	9	\$0.46	95%	65%	\$0.00	107
Utah	Manufactured	Water Heat	Faucet Aerators	2.2 GPM	Existing Faucet Aerator (3.0 GPM)	Per installation	Existing	38	9	\$1	95%	25%	\$0.01	92
Utah	Manufactured	Water Heat	Hot Water Pipe Insulation	R-4 Wrap	No insulation	Per installation	Existing	40	5	\$18	95%	75%	\$0.12	121
Utah	Manufactured	Water Heat	Low-Flow Showerheads	2.0 GPM	2.5 GPM	Per installation	Existing	112	10	\$16	95%	65%	\$0.02	353
Utah	Manufactured	Water Heat	Water Heater, Heat Pump EF 2.2	Heat Pump Water Heater EF = 2.2	Standard Storage Water Heater EF = 0.92	Per installation	Existing	1,318	15	\$1,301	59%	N/A	\$0.11	2,008
Utah	Manufactured	Water Heat	Water Heater, Storage EF 0.95	Standard Storage Water Heater EF = 0.95	Standard Storage Water Heater EF = 0.92	Per installation	Existing	74	15	\$42	100%	N/A	\$0.06	17
Utah	Manufactured	Water Heat	Water_Heater Tank Blanket/Insulation	Install Insulation (R-5)	No Tank Insulation	Per installation	Existing	149	10	\$11	50%	20%	\$0.01	65
Utah	Manufactured	Water Heat	Water_Heater Thermostat Setback	120 degrees	135 degrees	Per installation	Existing	137	5	\$6	95%	45%	\$0.01	255
Utah	Manufactured	Water Heat	Clothes Washer	Energy Star - Tier 1 (MEF 2.0 - 2.19) - Electric DHW & Dryer	MEF = 1.66 - Electric DHW & Dryer	Per installation	New	111	14	\$227	100%	85%	\$0.24	79
Utah	Manufactured	Water Heat	Clothes Washer	Energy Star - Tier 2 (MEF 2.2 - 2.45) - Electric DHW & Dryer	MEF = 1.66 - Electric DHW & Dryer	Per installation	New	148	14	\$296	100%	90%	\$0.23	111
Utah	Manufactured	Water Heat	Clothes Washer	Energy Star - Tier 3 (MEF 2.46 or higher) Top 10% of Energy Star Model - Electric DHW & Dryer	MEF = 1.66 - Electric DHW & Dryer	Per installation	New	168	14	\$317	100%	95%	\$0.22	134
Utah	Manufactured	Water Heat	Dishwasher	Energy Star, July 1st 2011, <= 307 kWh/year, <= 5.0 gallons/cycle	Energy Star - EF65 (6th Plan Baseline)	Per installation	New	32	12	\$42	67%	50%	\$0.17	27
Utah	Manufactured	Water Heat	Drain Water Heat Recovery (GFX)	Gravity Film Heat Exchanger	No Heat Exchanger	Per installation	New	331	40	\$442	59%	90%	\$0.10	372
Utah	Manufactured	Water Heat	Faucet Aerators	0.5 GPM	2.2 GPM	Per installation	New	81	9	\$0.71	95%	95%	\$0.00	184
Utah	Manufactured	Water Heat	Faucet Aerators	1.5 GPM	2.2 GPM	Per installation	New	33	9	\$0.46	95%	65%	\$0.00	52
Utah	Manufactured	Water Heat	Hot Water Pipe Insulation	R-4 Wrap	No insulation	Per installation	New	39	5	\$18	95%	75%	\$0.12	55
Utah	Manufactured	Water Heat	Low-Flow Showerheads	2.0 GPM	2.5 GPM	Per installation	New	111	10	\$9	95%	65%	\$0.01	172
Utah	Manufactured	Water Heat	Water Heater, Heat Pump EF 2.2	Heat Pump Water Heater EF = 2.2	Standard Storage Water Heater EF = 0.92	Per installation	New	1,318	15	\$1,301	59%	N/A	\$0.11	814
Utah	Manufactured	Water Heat	Water Heater, Storage EF 0.95	Standard Storage Water Heater EF = 0.95	Standard Storage Water Heater EF = 0.92	Per installation	New	74	15	\$42	100%	N/A	\$0.06	6
Utah	Manufactured	Water Heat	Water_Heater Thermostat Setback	120 degrees	135 degrees	Per installation	New	137	5	\$6	95%	45%	\$0.01	127
Utah	Multi Family	Computer	Computer, Energy Star	Energy Star Computer	Standard Computer	Per installation	Existing	47	5	\$21	100%	N/A	\$0.11	2,858
Utah	Multi Family	Computer	Computer, Energy Star	Energy Star Computer	Standard Computer	Per installation	New	47	5	\$21	100%	N/A	\$0.11	387
Utah	Multi Family	Cooking Oven	Cooking Oven, High Efficiency	High Efficiency Oven	Standard Oven	Per installation	Existing	58	20	\$282	100%	N/A	\$0.47	1,134
Utah	Multi Family	Cooking Oven	Cooking Oven, High Efficiency	High Efficiency Oven	Standard Oven	Per installation	New	58	20	\$282	100%	N/A	\$0.47	820
Utah	Multi Family	Cool Central	Air-to-Air Heat Exchangers	Air-to-Air Heat Exchangers	No Air to Air Heat Exchangers	Per installation	Existing	142	5	\$539	25%	95%	\$0.93	1,714
Utah	Multi Family	Cool Central	Canned Lighting Air Tight Sealing	Canned Lighting Air Tight Sealing	No Air tight Sealing	Per installation	Existing	9	30	\$23	95%	50%	\$0.21	546
Utah	Multi Family	Cool Central	Ceiling Fan	Ceiling Fan (no lighting kit)	No Ceiling Fan	Per installation	Existing	57	10	\$83	85%	50%	\$0.21	2,454
Utah	Multi Family	Cool Central	Ceiling Insulation (UT) above code	R-49	R-38	Per installation	Existing	39	30	\$165	95%	90%	\$0.35	1,105
Utah	Multi Family	Cool Central	Ceiling Insulation (UT) ave to code	R-38	R-15	Per installation	Existing	204	30	\$593	75%	35%	\$0.24	2,128

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Utah	Multi Family	Cool Central	Ceiling Insulation (UT) zero to code	R-38	R-0	Per installation	Existing	626	30	\$593	95%	1%	\$0.08	248
Utah	Multi Family	Cool Central	Central Cooling, Evaporative Cooler	Evaporative Cooler	SEER 13	Per installation	Existing	913	15	\$-224.7751	75%	N/A	\$0.00	8,680
Utah	Multi Family	Cool Central	Central Cooling, SEER 15	SEER 15	SEER 13	Per installation	Existing	201	15	\$595	100%	N/A	\$0.33	359
Utah	Multi Family	Cool Central	Central Cooling, SEER 18	SEER 18	SEER 13	Per installation	Existing	504	15	\$1,490	100%	N/A	\$0.33	3,743
Utah	Multi Family	Cool Central	Check Me! O&M Tune-up	Tune-up/Maintenance	No Tune-up Maintenance	Per installation	Existing	44	5	\$162	95%	75%	\$0.89	1,606
Utah	Multi Family	Cool Central	Cool Roofs	Lighter Colored Shingles (White)	Standard Roof Shingles	Per installation	Existing	16	20	\$141	85%	90%	\$0.84	393
Utah	Multi Family	Cool Central	Doors	R-11 (Steel Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	Existing	31	20	\$163	95%	80%	\$0.51	378
Utah	Multi Family	Cool Central	Doors	R-5 (Composite Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	Existing	20	20	\$192	95%	60%	\$0.90	184
Utah	Multi Family	Cool Central	Doors - Weatherization	Weatherstripping And Adding Door Sweeps	Existing Non-Efficient door	Per installation	Existing	13	6	\$44	95%	50%	\$0.70	202
Utah	Multi Family	Cool Central	Duct Insulation Upgrade	R-8 (code)	R-4	Per installation	Existing	41	20	\$561	75%	75%	\$1.31	725
Utah	Multi Family	Cool Central	Duct Sealing	Duct Sealing	No Duct Sealing	Per installation	Existing	142	18	\$485	75%	60%	\$0.35	1,298
Utah	Multi Family	Cool Central	Duct Sealing - Aerosol-Based	Spray-in ductwork sealant to minimize duct leaks	No Duct Sealing	Per installation	Existing	214	18	\$690	75%	60%	\$0.33	1,032
Utah	Multi Family	Cool Central	Floor Insulation (UT) above code	R-38	R-30	Per installation	Existing	28	30	\$235	25%	85%	\$0.69	193
Utah	Multi Family	Cool Central	Floor Insulation (UT) zero to code	R-30	R-0	Per installation	Existing	563	30	\$839	25%	20%	\$0.12	1,167
Utah	Multi Family	Cool Central	Infiltration Control (Caulk, Weather Strip, etc.) Blower-Door test	Install Caulking And Weatherstripping	Existing Infiltration Conditions	Per installation	Existing	142	11	\$357	75%	50%	\$0.34	1,873
Utah	Multi Family	Cool Central	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands (5 per unit)	13 SEER	Per installation	Existing	218	30	\$552	50%	95%	\$0.21	413
Utah	Multi Family	Cool Central	Proper Sizing - HVAC Unit	Proper Sizing - HVAC Unit	Oversized HVAC Unit	Per installation	Existing	134	15	\$-39.85	95%	65%	\$0.00	4,202
Utah	Multi Family	Cool Central	Radiant Barrier (Ceiling)	Install Radiant Barrier	No Radiant Barrier	Per installation	Existing	85	30	\$277	50%	90%	\$0.27	1,414
Utah	Multi Family	Cool Central	Thermostat - Multi-Zone	Individual Room Temperature Control for Major Occupied Rooms	Programmable Thermostat - Central Control Only	Per installation	Existing	97	11	\$1,053	50%	95%	\$1.47	1,408
Utah	Multi Family	Cool Central	Wall Insulation 2x4 (UT) zero to max feasible	R-13	R-0	Per installation	Existing	336	30	\$997	85%	25%	\$0.25	2,040
Utah	Multi Family	Cool Central	Wall Insulation 2x6 (UT) above code	R-21	R-19	Per installation	Existing	42	30	\$53	75%	95%	\$0.11	156
Utah	Multi Family	Cool Central	Wall Insulation 2x6 (UT) zero to code	R-19	R-0	Per installation	Existing	566	30	\$1,105	75%	25%	\$0.16	539
Utah	Multi Family	Cool Central	Whole-House Fan	Whole-House Fan	No Whole-House Fan	Per installation	Existing	214	20	\$1,349	50%	95%	\$0.61	2,571
Utah	Multi Family	Cool Central	Windows (Same for all Building Types)	CL25	CL30	Per installation	Existing	2	30	\$241	51%	85%	\$8.35	30
Utah	Multi Family	Cool Central	Windows (Same for all Building Types)	CL30	Double Pane	Per installation	Existing	25	30	\$2,484	51%	50%	\$8.04	192
Utah	Multi Family	Cool Central	Windows (Same for all Building Types)	CL30	Single Pane	Per installation	Existing	40	30	\$2,484	51%	20%	\$5.13	121
Utah	Multi Family	Cool Central	Air-to-Air Heat Exchangers	Air-to-Air Heat Exchangers	No Air to Air Heat Exchangers	Per installation	New	111	5	\$539	25%	95%	\$1.20	845
Utah	Multi Family	Cool Central	Ceiling Fan	Ceiling Fan (no lighting kit)	No Ceiling Fan	Per installation	New	44	10	\$83	85%	50%	\$0.27	1,209
Utah	Multi Family	Cool Central	Ceiling Insulation (UT) above code	R-49	R-38	Per installation	New	84	30	\$165	75%	90%	\$0.16	1,482
Utah	Multi Family	Cool Central	Central Cooling, Evaporative Cooler	Evaporative Cooler	SEER 13	Per installation	New	838	15	\$-142.3009	75%	N/A	\$0.00	4,299
Utah	Multi Family	Cool Central	Central Cooling, SEER 15	SEER 15	SEER 13	Per installation	New	172	15	\$595	100%	N/A	\$0.39	150
Utah	Multi Family	Cool Central	Central Cooling, SEER 18	SEER 18	SEER 13	Per installation	New	430	15	\$1,490	100%	N/A	\$0.39	1,878
Utah	Multi Family	Cool Central	Check Me! O&M Tune-up	Tune-up/Maintenance	No Tune-up Maintenance	Per installation	New	34	5	\$162	95%	75%	\$1.15	791
Utah	Multi Family	Cool Central	Construction - ICF	Concrete Framing	Standard Wood Framing	Per installation	New	355	45	\$3,453	50%	95%	\$0.75	191
Utah	Multi Family	Cool Central	Construction - SIP	Specialty Framing	Standard Wood Framing	Per installation	New	133	45	\$1,530	50%	95%	\$0.88	69

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Utah	Multi Family	Cool Central	Cool Roofs	Lighter Colored Shingles (White)	Standard Roof Shingles	Per installation	New	12	20	\$141	85%	90%	\$1.08	165
Utah	Multi Family	Cool Central	Doors	R-11 (Steel Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	New	24	20	\$25	95%	80%	\$0.10	243
Utah	Multi Family	Cool Central	Doors	R-5 (Composite Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	New	16	20	\$54	95%	60%	\$0.33	110
Utah	Multi Family	Cool Central	Duct Location	Conditioned Space Design - Duct Loss Is Not A Concern	Ducts in Unconditioned Space (Duct loss)	Per installation	New	88	30	\$169	95%	30%	\$0.16	166
Utah	Multi Family	Cool Central	Duct Sealing	Duct Sealing	No Duct Sealing	Per installation	New	111	18	\$220	75%	60%	\$0.20	433
Utah	Multi Family	Cool Central	Duct Sealing - Aerosol-Based	Spray-in ductwork sealant to minimize duct leaks	No Duct Sealing	Per installation	New	166	18	\$690	75%	60%	\$0.42	257
Utah	Multi Family	Cool Central	Floor Insulation (UT) above code	R-38	R-30	Per installation	New	22	30	\$235	75%	85%	\$0.89	312
Utah	Multi Family	Cool Central	Green Roof	ecorooft	Standard Roof	Per installation	New	56	40	\$6,860	50%	95%	\$9.52	109
Utah	Multi Family	Cool Central	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands (5 per unit)	13 SEER	Per installation	New	169	30	\$552	50%	95%	\$0.27	490
Utah	Multi Family	Cool Central	Proper Sizing - HVAC Unit	Proper Sizing - HVAC Unit	Oversized HVAC Unit	Per installation	New	104	15	\$-39.85	95%	65%	\$0.00	2,071
Utah	Multi Family	Cool Central	Radiant Barrier (Ceiling)	Install Radiant Barrier	No Radiant Barrier	Per installation	New	66	30	\$277	75%	90%	\$0.35	1,071
Utah	Multi Family	Cool Central	Smart Siting	Siting house to minimize heating/cooling costs	No smart siting	Per installation	New	61	45	\$631	40%	75%	\$0.80	411
Utah	Multi Family	Cool Central	Thermostat - Multi-Zone	Individual Room Temperature Control for Major Occupied Rooms	Programmable Thermostat - Central Control Only	Per installation	New	75	11	\$1,053	50%	95%	\$1.90	756
Utah	Multi Family	Cool Central	Wall Insulation 2x6 (UT) above code	R-21+R-5 sheathing	R-19	Per installation	New	60	30	\$643	50%	95%	\$0.89	564
Utah	Multi Family	Cool Central	Whole-House Fan	Whole-House Fan	No Whole-House Fan	Per installation	New	166	20	\$1,349	50%	95%	\$0.79	1,267
Utah	Multi Family	Cool Central	Windows (Same for all Building Types)	CL22	CL30	Per installation	New	3	30	\$279	95%	75%	\$6.06	56
Utah	Multi Family	Cool Central	Windows (Same for all Building Types)	CL25	CL30	Per installation	New	2	30	\$241	95%	75%	\$7.74	37
Utah	Multi Family	Cool Room	Canned Lighting Air Tight Sealing	Canned Lighting Air Tight Sealing	No Air tight Sealing	Per installation	Existing	4	30	\$23	95%	50%	\$0.41	66
Utah	Multi Family	Cool Room	Ceiling Fan	Ceiling Fan (no lighting kit)	No Ceiling Fan	Per installation	Existing	29	10	\$83	85%	50%	\$0.41	254
Utah	Multi Family	Cool Room	Ceiling Insulation (UT) above code	R-49	R-38	Per installation	Existing	20	30	\$165	95%	90%	\$0.67	144
Utah	Multi Family	Cool Room	Ceiling Insulation (UT) ave to code	R-38	R-15	Per installation	Existing	107	30	\$593	75%	35%	\$0.46	265
Utah	Multi Family	Cool Room	Ceiling Insulation (UT) zero to code	R-38	R-0	Per installation	Existing	328	30	\$593	95%	1%	\$0.15	30
Utah	Multi Family	Cool Room	Cool Roofs	Lighter Colored Shingles (White)	Standard Roof Shingles	Per installation	Existing	8	20	\$141	85%	90%	\$1.64	50
Utah	Multi Family	Cool Room	Doors	R-11 (Steel Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	Existing	15	20	\$163	95%	80%	\$0.99	48
Utah	Multi Family	Cool Room	Doors	R-5 (Composite Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	Existing	10	20	\$192	95%	60%	\$1.76	23
Utah	Multi Family	Cool Room	Doors - Weatherization	Weatherstripping And Adding Door Sweeps	Existing Non-Efficient door	Per installation	Existing	6	6	\$44	95%	50%	\$1.36	25
Utah	Multi Family	Cool Room	Floor Insulation (UT) above code	R-38	R-30	Per installation	Existing	8	30	\$235	25%	85%	\$2.27	14
Utah	Multi Family	Cool Room	Floor Insulation (UT) zero to code	R-30	R-0	Per installation	Existing	291	30	\$839	25%	20%	\$0.24	142
Utah	Multi Family	Cool Room	Infiltration Control (Caulk, Weather Strip, etc.) Blower-Door test	Install Caulking And Weatherstripping	Existing Infiltration Conditions	Per installation	Existing	73	11	\$357	75%	50%	\$0.66	232
Utah	Multi Family	Cool Room	Radiant Barrier (Ceiling)	Install Radiant Barrier	No Radiant Barrier	Per installation	Existing	43	30	\$277	50%	90%	\$0.53	172
Utah	Multi Family	Cool Room	Room AC conversion to Ductless Heat Pump	SEER 13	EER 9.8	Per installation	Existing	44	20	\$2,542	75%	N/A	\$5.60	601
Utah	Multi Family	Cool Room	Room AC, EER 10.8	EER 10.8	EER 9.8	Per installation	Existing	35	9	\$7	100%	N/A	\$0.03	109

Table C.2.1. Residential Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Utah	Multi Family	Cool Room	Wall Insulation 2x4 (UT) zero to max feasible	R-13	R-0	Per installation	Existing	176	30	\$997	85%	25%	\$0.48	254
Utah	Multi Family	Cool Room	Wall Insulation 2x6 (UT) above code	R-21	R-19	Per installation	Existing	22	30	\$53	75%	95%	\$0.20	19
Utah	Multi Family	Cool Room	Wall Insulation 2x6 (UT) zero to code	R-19	R-0	Per installation	Existing	296	30	\$1,105	75%	25%	\$0.31	66
Utah	Multi Family	Cool Room	Windows (Same for all Building Types)	CL25	CL30	Per installation	Existing	1	30	\$241	51%	85%	\$15.77	4
Utah	Multi Family	Cool Room	Windows (Same for all Building Types)	CL30	Double Pane	Per installation	Existing	13	30	\$2,484	51%	50%	\$15.20	26
Utah	Multi Family	Cool Room	Windows (Same for all Building Types)	CL30	Single Pane	Per installation	Existing	21	30	\$2,484	51%	20%	\$9.70	16
Utah	Multi Family	Cool Room	Ceiling Fan	Ceiling Fan (no lighting kit)	No Ceiling Fan	Per installation	New	21	10	\$83	85%	50%	\$0.57	115
Utah	Multi Family	Cool Room	Ceiling Insulation (UT) above code	R-49	R-38	Per installation	New	41	30	\$165	75%	90%	\$0.33	171
Utah	Multi Family	Cool Room	Construction - ICF	Concrete Framing	Standard Wood Framing	Per installation	New	170	45	\$3,453	50%	95%	\$1.56	22
Utah	Multi Family	Cool Room	Construction - SIP	Specialty Framing	Standard Wood Framing	Per installation	New	64	45	\$1,530	50%	95%	\$1.84	8
Utah	Multi Family	Cool Room	Cool Roofs	Lighter Colored Shingles (White)	Standard Roof Shingles	Per installation	New	6	20	\$141	85%	90%	\$2.25	19
Utah	Multi Family	Cool Room	Doors	R-11 (Steel Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	New	11	20	\$25	95%	80%	\$0.21	27
Utah	Multi Family	Cool Room	Doors	R-5 (Composite Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	New	7	20	\$54	95%	60%	\$0.68	12
Utah	Multi Family	Cool Room	Floor Insulation (UT) above code	R-38	R-30	Per installation	New	6	30	\$235	75%	85%	\$3.12	21
Utah	Multi Family	Cool Room	Green Roof	ecorooF	Standard Roof	Per installation	New	27	40	\$6,860	50%	95%	\$19.82	13
Utah	Multi Family	Cool Room	Radiant Barrier (Ceiling)	Install Radiant Barrier	No Radiant Barrier	Per installation	New	32	30	\$277	75%	90%	\$0.73	124
Utah	Multi Family	Cool Room	Room AC conversion to Ductless Heat Pump	SEER 13	EER 9.8	Per installation	New	33	20	\$2,542	75%	N/A	\$7.39	128
Utah	Multi Family	Cool Room	Room AC, EER 10.8	EER 10.8	EER 9.8	Per installation	New	26	9	\$7	100%	N/A	\$0.04	40
Utah	Multi Family	Cool Room	Smart Siting	Siting house to minimize heating/cooling costs	No smart siting	Per installation	New	29	45	\$631	40%	75%	\$1.66	48
Utah	Multi Family	Cool Room	Wall Insulation 2x6 (UT) above code	R-21+R-5 sheathing	R-19	Per installation	New	29	30	\$643	50%	95%	\$1.81	68
Utah	Multi Family	Cool Room	Windows (Same for all Building Types)	CL22	CL30	Per installation	New	1	30	\$279	95%	75%	\$12.09	7
Utah	Multi Family	Cool Room	Windows (Same for all Building Types)	CL25	CL30	Per installation	New	1	30	\$241	95%	75%	\$15.60	4
Utah	Multi Family	Dryer	Dryer, Advanced Efficiency EF 3.30	Advanced Efficiency Dryer 3.30	Standard Dryer EF 3.01	Per installation	Existing	38	14	\$224	100%	N/A	\$0.69	1,557
Utah	Multi Family	Dryer	Dryer, High Efficiency EF 3.08	High Efficiency Dryer EF 3.08	Standard Dryer EF 3.01	Per installation	Existing	9	14	\$54	100%	N/A	\$0.64	28
Utah	Multi Family	Dryer	Dryer, Premium Efficiency EF 3.19	Premium Efficiency Dryer 3.19	Standard Dryer EF 3.01	Per installation	Existing	24	14	\$139	100%	N/A	\$0.66	193
Utah	Multi Family	Dryer	Dryer, Advanced Efficiency EF 3.30	Advanced Efficiency Dryer 3.30	Standard Dryer EF 3.01	Per installation	New	38	14	\$224	100%	N/A	\$0.69	639
Utah	Multi Family	Dryer	Dryer, High Efficiency EF 3.08	High Efficiency Dryer EF 3.08	Standard Dryer EF 3.01	Per installation	New	9	14	\$54	100%	N/A	\$0.64	12
Utah	Multi Family	Dryer	Dryer, Premium Efficiency EF 3.19	Premium Efficiency Dryer 3.19	Standard Dryer EF 3.01	Per installation	New	24	14	\$139	100%	N/A	\$0.66	95
Utah	Multi Family	Freezer	Freezer, Energy Star	Energy Star Freezer	Standard Freezer	Per installation	Existing	46	20	\$22	76%	N/A	\$0.05	83
Utah	Multi Family	Freezer	Stand-Alone Freezer - Removal	Proper Disposal of Freezer	Existing Non-Efficient Freezer	Per installation	Existing	1,317	8	\$79	17%	99%	\$0.01	634
Utah	Multi Family	Freezer	Freezer, Energy Star	Energy Star Freezer	Standard Freezer	Per installation	New	46	20	\$22	76%	N/A	\$0.05	104
Utah	Multi Family	Heat Central	Air-to-Air Heat Exchangers	Air-to-Air Heat Exchangers	No Air to Air Heat Exchangers	Per installation	Existing	932	5	\$539	25%	95%	\$0.14	854
Utah	Multi Family	Heat Central	Canned Lighting Air Tight Sealing	Canned Lighting Air Tight Sealing	No Air tight Sealing	Per installation	Existing	85	30	\$23	95%	50%	\$0.02	432
Utah	Multi Family	Heat Central	Ceiling Insulation (UT) above code	R-49	R-38	Per installation	Existing	354	30	\$165	95%	90%	\$0.04	953
Utah	Multi Family	Heat Central	Ceiling Insulation (UT) ave to code	R-38	R-15	Per installation	Existing	1,838	30	\$593	75%	35%	\$0.03	1,688

Table C.2.1. Residential Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Utah	Multi Family	Heat Central	Ceiling Insulation (UT) zero to code	R-38	R-0	Per installation	Existing	5,622	30	\$593	95%	1%	\$0.01	199
Utah	Multi Family	Heat Central	Doors	R-11 (Steel Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	Existing	279	20	\$163	95%	80%	\$0.06	307
Utah	Multi Family	Heat Central	Doors	R-5 (Composite Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	Existing	186	20	\$192	95%	60%	\$0.10	150
Utah	Multi Family	Heat Central	Doors - Weatherization	Weatherstripping And Adding Door Sweeps	Existing Non-Efficient door	Per installation	Existing	121	6	\$44	95%	50%	\$0.08	163
Utah	Multi Family	Heat Central	Duct Insulation Upgrade	R-8 (code)	R-4	Per installation	Existing	373	20	\$561	75%	75%	\$0.15	584
Utah	Multi Family	Heat Central	Duct Sealing	Duct Sealing	No Duct Sealing	Per installation	Existing	932	18	\$485	75%	15%	\$0.05	183
Utah	Multi Family	Heat Central	Duct Sealing - Aerosol-Based	Spray-in ductwork sealant to minimize duct leaks	No Duct Sealing	Per installation	Existing	1,399	18	\$690	75%	15%	\$0.05	143
Utah	Multi Family	Heat Central	Floor Insulation (UT) above code	R-38	R-30	Per installation	Existing	257	30	\$235	25%	85%	\$0.08	156
Utah	Multi Family	Heat Central	Floor Insulation (UT) zero to code	R-30	R-0	Per installation	Existing	5,056	30	\$839	25%	20%	\$0.01	934
Utah	Multi Family	Heat Central	Infiltration Control (Caulk, Weather Strip, etc.) Blower-Door test	Install Caulking And Weatherstripping	Existing Infiltration Conditions	Per installation	Existing	932	11	\$357	75%	50%	\$0.05	1,059
Utah	Multi Family	Heat Central	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands (5 per unit)	13 SEER	Per installation	Existing	1,959	30	\$552	50%	15%	\$0.02	51
Utah	Multi Family	Heat Central	Proper Sizing - HVAC Unit	Proper Sizing - HVAC Unit	Oversized HVAC Unit	Per installation	Existing	879	15	\$-39.85	15%	65%	\$0.00	330
Utah	Multi Family	Heat Central	Radiant Barrier (Ceiling)	Install Radiant Barrier	No Radiant Barrier	Per installation	Existing	186	30	\$277	50%	90%	\$0.12	236
Utah	Multi Family	Heat Central	Thermostat - Multi-Zone	Individual Room Temperature Control for Major Occupied Rooms	Programmable Thermostat - Central Control Only	Per installation	Existing	634	11	\$1,053	50%	95%	\$0.23	820
Utah	Multi Family	Heat Central	Wall Insulation 2x4 (UT) zero to max feasible	R-13	R-0	Per installation	Existing	3,016	30	\$997	85%	25%	\$0.03	1,594
Utah	Multi Family	Heat Central	Wall Insulation 2x6 (UT) above code	R-21	R-19	Per installation	Existing	379	30	\$53	75%	95%	\$0.01	125
Utah	Multi Family	Heat Central	Wall Insulation 2x6 (UT) zero to code	R-19	R-0	Per installation	Existing	5,085	30	\$1,105	75%	25%	\$0.02	428
Utah	Multi Family	Heat Central	Windows (Same for all Building Types)	CL25	CL30	Per installation	Existing	21	30	\$241	51%	85%	\$0.93	24
Utah	Multi Family	Heat Central	Windows (Same for all Building Types)	CL30	Double Pane	Per installation	Existing	232	30	\$2,484	51%	50%	\$0.90	154
Utah	Multi Family	Heat Central	Windows (Same for all Building Types)	CL30	Single Pane	Per installation	Existing	364	30	\$2,484	51%	20%	\$0.57	97
Utah	Multi Family	Heat Central	Air-to-Air Heat Exchangers	Air-to-Air Heat Exchangers	No Air to Air Heat Exchangers	Per installation	New	476	5	\$539	25%	95%	\$0.28	261
Utah	Multi Family	Heat Central	Ceiling Insulation (UT) above code	R-49	R-38	Per installation	New	496	30	\$165	75%	90%	\$0.03	741
Utah	Multi Family	Heat Central	Construction - ICF	Concrete Framing	Standard Wood Framing	Per installation	New	2,095	45	\$3,453	50%	95%	\$0.13	100
Utah	Multi Family	Heat Central	Construction - SIP	Specialty Framing	Standard Wood Framing	Per installation	New	571	45	\$1,530	50%	95%	\$0.21	25
Utah	Multi Family	Heat Central	Doors	R-11 (Steel Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	New	142	20	\$25	95%	80%	\$0.02	121
Utah	Multi Family	Heat Central	Doors	R-5 (Composite Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	New	95	20	\$54	95%	60%	\$0.06	55
Utah	Multi Family	Heat Central	Duct Location	Conditioned Space Design - Duct Loss Is Not A Concern	Ducts in Unconditioned Space (Duct loss)	Per installation	New	380	30	\$169	95%	15%	\$0.04	27
Utah	Multi Family	Heat Central	Duct Sealing	Duct Sealing	No Duct Sealing	Per installation	New	476	18	\$220	75%	15%	\$0.05	38
Utah	Multi Family	Heat Central	Duct Sealing - Aerosol-Based	Spray-in ductwork sealant to minimize duct leaks	No Duct Sealing	Per installation	New	714	18	\$690	75%	15%	\$0.10	24
Utah	Multi Family	Heat Central	Floor Insulation (UT) above code	R-38	R-30	Per installation	New	131	30	\$235	75%	85%	\$0.15	167
Utah	Multi Family	Heat Central	Green Roof	ecorroof	Standard Roof	Per installation	New	333	40	\$6,860	50%	95%	\$1.62	56
Utah	Multi Family	Heat Central	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands (5 per unit)	13 SEER	Per installation	New	1,000	30	\$552	50%	15%	\$0.05	38

Table C.2.1. Residential Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Utah	Multi Family	Heat Central	Proper Sizing - HVAC Unit	Proper Sizing - HVAC Unit	Oversized HVAC Unit	Per installation	New	448	15	\$-39.85	15%	65%	\$0.00	101
Utah	Multi Family	Heat Central	Radiant Barrier (Ceiling)	Install Radiant Barrier	No Radiant Barrier	Per installation	New	95	30	\$277	75%	90%	\$0.24	121
Utah	Multi Family	Heat Central	Smart Siting	Siting house to minimize heating/cooling costs	No smart siting	Per installation	New	14	45	\$631	40%	75%	\$3.29	7
Utah	Multi Family	Heat Central	Thermostat - Multi-Zone	Individual Room Temperature Control for Major Occupied Rooms	Programmable Thermostat - Central Control Only	Per installation	New	323	11	\$1,053	50%	95%	\$0.44	287
Utah	Multi Family	Heat Central	Wall Insulation 2x6 (UT) above code	R-21+R-5 sheathing	R-19	Per installation	New	358	30	\$643	50%	95%	\$0.15	300
Utah	Multi Family	Heat Central	Windows (Same for all Building Types)	CL22	CL30	Per installation	New	22	30	\$279	95%	75%	\$1.03	29
Utah	Multi Family	Heat Central	Windows (Same for all Building Types)	CL25	CL30	Per installation	New	15	30	\$241	95%	75%	\$1.31	19
Utah	Multi Family	Heat Room	Canned Lighting Air Tight Sealing	Canned Lighting Air Tight Sealing	No Air tight Sealing	Per installation	Existing	65	30	\$23	95%	50%	\$0.03	540
Utah	Multi Family	Heat Room	Ceiling Insulation (UT) above code	R-49	R-38	Per installation	Existing	279	30	\$165	95%	90%	\$0.05	1,217
Utah	Multi Family	Heat Room	Ceiling Insulation (UT) ave to code	R-38	R-15	Per installation	Existing	1,448	30	\$593	75%	35%	\$0.03	2,161
Utah	Multi Family	Heat Room	Ceiling Insulation (UT) zero to code	R-38	R-0	Per installation	Existing	4,430	30	\$593	95%	1%	\$0.01	254
Utah	Multi Family	Heat Room	Conversion Baseboard Heating to DHP	Ductless Heat Pump HSPF 7.7	HSPF = 1	Per installation	Existing	1,025	20	\$2,348	50%	N/A	\$0.22	3,083
Utah	Multi Family	Heat Room	Doors	R-11 (Steel Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	Existing	215	20	\$163	95%	80%	\$0.07	388
Utah	Multi Family	Heat Room	Doors	R-5 (Composite Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	Existing	143	20	\$192	95%	60%	\$0.13	190
Utah	Multi Family	Heat Room	Doors - Weatherization	Weatherstripping And Adding Door Sweeps	Existing Non-Efficient door	Per installation	Existing	93	6	\$44	95%	50%	\$0.10	208
Utah	Multi Family	Heat Room	Floor Insulation (UT) above code	R-38	R-30	Per installation	Existing	117	30	\$235	25%	85%	\$0.17	114
Utah	Multi Family	Heat Room	Floor Insulation (UT) zero to code	R-30	R-0	Per installation	Existing	3,927	30	\$839	25%	20%	\$0.02	1,178
Utah	Multi Family	Heat Room	Infiltration Control (Caulk, Weather Strip, etc.) Blower-Door test	Install Caulking And Weatherstripping	Existing Infiltration Conditions	Per installation	Existing	718	11	\$357	75%	50%	\$0.07	1,327
Utah	Multi Family	Heat Room	Radiant Barrier (Ceiling)	Install Radiant Barrier	No Radiant Barrier	Per installation	Existing	143	30	\$277	50%	90%	\$0.16	299
Utah	Multi Family	Heat Room	Wall Insulation 2x4 (UT) zero to max feasible	R-13	R-0	Per installation	Existing	2,373	30	\$997	85%	25%	\$0.04	2,035
Utah	Multi Family	Heat Room	Wall Insulation 2x6 (UT) above code	R-21	R-19	Per installation	Existing	298	30	\$53	75%	95%	\$0.02	159
Utah	Multi Family	Heat Room	Wall Insulation 2x6 (UT) zero to code	R-19	R-0	Per installation	Existing	4,000	30	\$1,105	75%	25%	\$0.02	547
Utah	Multi Family	Heat Room	Windows (Same for all Building Types)	CL25	CL30	Per installation	Existing	17	30	\$241	51%	85%	\$1.17	33
Utah	Multi Family	Heat Room	Windows (Same for all Building Types)	CL30	Double Pane	Per installation	Existing	184	30	\$2,484	51%	50%	\$1.13	213
Utah	Multi Family	Heat Room	Windows (Same for all Building Types)	CL30	Single Pane	Per installation	Existing	289	30	\$2,484	51%	20%	\$0.72	134
Utah	Multi Family	Heat Room	Ceiling Insulation (UT) above code	R-49	R-38	Per installation	New	393	30	\$165	75%	90%	\$0.04	953
Utah	Multi Family	Heat Room	Construction - ICF	Concrete Framing	Standard Wood Framing	Per installation	New	1,613	45	\$3,453	50%	95%	\$0.17	126
Utah	Multi Family	Heat Room	Construction - SIP	Specialty Framing	Standard Wood Framing	Per installation	New	440	45	\$1,530	50%	95%	\$0.27	33
Utah	Multi Family	Heat Room	Conversion Baseboard Heating to DHP	Ductless Heat Pump HSPF 7.7	HSPF = 1	Per installation	New	523	20	\$2,348	50%	N/A	\$0.44	1,285
Utah	Multi Family	Heat Room	Doors	R-11 (Steel Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	New	110	20	\$25	95%	80%	\$0.02	151
Utah	Multi Family	Heat Room	Doors	R-5 (Composite Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	New	73	20	\$54	95%	60%	\$0.07	69

Table C.2.1. Residential Measure Details

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Utah	Multi Family	Heat Room	Floor Insulation (UT) above code	R-38	R-30	Per installation	New	59	30	\$235	75%	85%	\$0.33	118
Utah	Multi Family	Heat Room	Green Roof	ecorof	Standard Roof	Per installation	New	256	40	\$6,860	50%	95%	\$2.10	74
Utah	Multi Family	Heat Room	Radiant Barrier (Ceiling)	Install Radiant Barrier	No Radiant Barrier	Per installation	New	73	30	\$277	75%	90%	\$0.32	156
Utah	Multi Family	Heat Room	Smart Siting	Siting house to minimize heating/cooling costs	No smart siting	Per installation	New	11	45	\$631	40%	75%	\$4.28	10
Utah	Multi Family	Heat Room	Wall Insulation 2x6 (UT) above code	R-21+R-5 sheathing	R-19	Per installation	New	281	30	\$643	50%	95%	\$0.19	394
Utah	Multi Family	Heat Room	Windows (Same for all Building Types)	CL22	CL30	Per installation	New	18	30	\$279	95%	75%	\$1.28	40
Utah	Multi Family	Heat Room	Windows (Same for all Building Types)	CL25	CL30	Per installation	New	12	30	\$241	95%	75%	\$1.65	26
Utah	Multi Family	Lighting Exterior	CFL, Flood (17 W)	CFL, Flood	Standard Incandescent Flood	Per installation	Existing	53	5	\$0.91	100%	N/A	\$0.00	511
Utah	Multi Family	Lighting Exterior	Time Clocks (Exterior Lighting)	Exterior Lighting on a Time Clock	Exterior Lighting (Manual Control)	Per installation	Existing	25	10	\$16	80%	85%	\$0.10	114
Utah	Multi Family	Lighting Exterior	CFL, Flood (17 W)	CFL, Flood	Standard Incandescent Flood	Per installation	New	53	5	\$0.91	100%	N/A	\$0.00	36
Utah	Multi Family	Lighting Exterior	Time Clocks (Exterior Lighting)	Exterior Lighting on a Time Clock	Exterior Lighting (Manual Control)	Per installation	New	25	10	\$16	80%	85%	\$0.10	76
Utah	Multi Family	Lighting Interior Specialty	CFL (13 W, 20 W, 25 W)	CFL (3-Way)	Standard Incandescent (3-Way)	Per installation	Existing	43	5	\$3	100%	N/A	\$0.02	4,265
Utah	Multi Family	Lighting Interior Specialty	CFL (13 W, 20 W, 25 W)	CFL (3-Way)	Standard Incandescent (3-Way)	Per installation	New	43	5	\$3	100%	N/A	\$0.02	223
Utah	Multi Family	Lighting Interior Standard	Daylighting Controls (Photocell) - Indoor/Outdoors	Install Photocell	No Daylighting Controls	Per installation	Existing	23	20	\$137	25%	95%	\$0.57	24
Utah	Multi Family	Lighting Interior Standard	Lighting CFL 15 W	15 W CFL	Standard 60 W Incandescent	Per installation	Existing	40	5	\$2	100%	N/A	\$0.02	6,863
Utah	Multi Family	Lighting Interior Standard	Lighting LED 7 W	7 W LED	Standard 60 W Incandescent	Per installation	Existing	51	20	\$36	50%	N/A	\$0.07	14,795
Utah	Multi Family	Lighting Interior Standard	Occupancy Sensors	Wall-Switch Occupancy Sensors	No Occupancy Sensor	Per installation	Existing	5	10	\$30	85%	95%	\$0.75	494
Utah	Multi Family	Lighting Interior Standard	Daylighting Controls (Photocell) - Indoor/Outdoors	Install Photocell	No Daylighting Controls	Per installation	New	23	20	\$137	25%	95%	\$0.57	16
Utah	Multi Family	Lighting Interior Standard	Lighting CFL 15 W	15 W CFL	Standard 60 W Incandescent	Per installation	New	40	5	\$2	100%	N/A	\$0.02	484
Utah	Multi Family	Lighting Interior Standard	Lighting LED 7 W	7 W LED	Standard 60 W Incandescent	Per installation	New	51	20	\$36	50%	N/A	\$0.07	892
Utah	Multi Family	Lighting Interior Standard	Occupancy Sensors	Wall-Switch Occupancy Sensors	No Occupancy Sensor	Per installation	New	5	10	\$30	85%	95%	\$0.75	329
Utah	Multi Family	Microwave	Microwave, High Efficiency	High Efficiency Microwave	Standard Microwave	Per installation	Existing	9	15	\$79	100%	N/A	\$0.92	413
Utah	Multi Family	Microwave	Microwave, High Efficiency	High Efficiency Microwave	Standard Microwave	Per installation	New	9	15	\$79	100%	N/A	\$0.92	209
Utah	Multi Family	Monitor	Monitor, Energy Star	Energy Star Monitor	Standard Monitor	Per installation	Existing	36	5	\$3	100%	N/A	\$0.03	1,625
Utah	Multi Family	Monitor	Monitor, Energy Star	Energy Star Monitor	Standard Monitor	Per installation	New	36	5	\$3	100%	N/A	\$0.03	224
Utah	Multi Family	Plug Load Other	1-Watt Standby Power	1W or less standby power use for small appliances	Standard plug load appliance.	Per installation	Existing	17	7	\$30	50%	50%	\$0.32	1,317
Utah	Multi Family	Plug Load Other	Energy Star Battery Chargers	Energy Star Battery Chargers	Standard Battery Chargers	Per installation	Existing	0.73	7	\$33	50%	80%	\$8.69	197
Utah	Multi Family	Plug Load Other	Office Copier	Office Copier	Standard Copier	Per installation	Existing	39	6	\$5	10%	50%	\$0.03	131
Utah	Multi Family	Plug Load Other	Office Printer	Office Printer	Standard Printer	Per installation	Existing	5	5	\$5	20%	50%	\$0.25	33
Utah	Multi Family	Plug Load Other	Smart Strip	Smart Strip	Standard PowerStrip	Per installation	Existing	102	5	\$22	50%	85%	\$0.05	2,900
Utah	Multi Family	Plug Load Other	1-Watt Standby Power	1W or less standby power use for small appliances	Standard plug load appliance.	Per installation	New	17	7	\$30	50%	50%	\$0.32	780
Utah	Multi Family	Plug Load Other	Energy Star Battery Chargers	Energy Star Battery Chargers	Standard Battery Chargers	Per installation	New	0.73	7	\$2	50%	80%	\$0.66	118

Table C.2.1. Residential Measure Details

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Utah	Multi Family	Plug Load Other	Office Copier	Office Copier	Standard Copier	Per installation	New	38	6	\$5	10%	50%	\$0.03	77
Utah	Multi Family	Plug Load Other	Office Printer	Office Printer	Standard Printer	Per installation	New	4	5	\$5	20%	50%	\$0.25	19
Utah	Multi Family	Plug Load Other	Smart Strip	Smart Strip	Standard PowerStrip	Per installation	New	101	5	\$22	50%	85%	\$0.05	1,715
Utah	Multi Family	Refrigerator	Refrigerator, Energy Star	Energy Star Refrigerator	Standard Refrigerator	Per installation	Existing	122	20	\$15	98%	N/A	\$0.01	1,924
Utah	Multi Family	Refrigerator	Refrigerator/Freezer - Removal of Secondary	Proper Disposal of Refrigerator/Freezer	Existing Non-Efficient Refrigerator/Freezer	Per installation	Existing	1,316	9	\$81	2%	90%	\$0.01	289
Utah	Multi Family	Refrigerator	Refrigerator, Energy Star	Energy Star Refrigerator	Standard Refrigerator	Per installation	New	122	20	\$15	100%	N/A	\$0.01	1,419
Utah	Multi Family	Set Top Box	Set Top Box, Energy Star	Energy Star Set Top Box	Standard Set Top Box	Per installation	Existing	164	5	\$12	100%	N/A	\$0.02	4,771
Utah	Multi Family	Set Top Box	Set Top Box, Energy Star	Energy Star Set Top Box	Standard Set Top Box	Per installation	New	164	5	\$12	100%	N/A	\$0.02	604
Utah	Multi Family	Tv	TV CRT, Energy Star	Energy Star CRT TV	Standard CRT TV	Per installation	Existing	112	10	\$19	100%	N/A	\$0.02	8,825
Utah	Multi Family	Tv	TV CRT, Energy Star	Energy Star CRT TV	Standard CRT TV	Per installation	New	112	10	\$19	100%	N/A	\$0.02	2,712
Utah	Multi Family	Tv Bigscreen	TV LCD, Energy Star	Energy Star LCD TV	Standard LCD TV	Per installation	Existing	223	10	\$19	100%	N/A	\$0.01	5,409
Utah	Multi Family	Tv Bigscreen	TV LCD, Energy Star	Energy Star LCD TV	Standard LCD TV	Per installation	New	223	10	\$19	100%	N/A	\$0.01	1,662
Utah	Multi Family	Ventilation And Circulation	Motor, ECM	ECM Motor	Standard Motor	Per installation	Existing	41	20	\$172	50%	N/A	\$0.41	361
Utah	Multi Family	Ventilation And Circulation	Motor, ECM - VFD	ECM/VFD Motor	Standard Motor	Per installation	Existing	123	20	\$194	50%	N/A	\$0.15	1,084
Utah	Multi Family	Ventilation And Circulation	Motor, ECM	ECM Motor	Standard Motor	Per installation	New	33	20	\$172	50%	N/A	\$0.50	218
Utah	Multi Family	Ventilation And Circulation	Motor, ECM - VFD	ECM/VFD Motor	Standard Motor	Per installation	New	100	20	\$194	50%	N/A	\$0.19	654
Utah	Multi Family	Water Heat	Clothes Washer	Energy Star - Tier 1 (MEF 2.0 - 2.19) - Electric DHW & Dryer	MEF = 1.66 - Electric DHW & Dryer	Per installation	Existing	112	14	\$227	90%	90%	\$0.24	471
Utah	Multi Family	Water Heat	Clothes Washer	Energy Star - Tier 2 (MEF 2.2 - 2.45) - Electric DHW & Dryer	MEF = 1.66 - Electric DHW & Dryer	Per installation	Existing	149	14	\$296	90%	95%	\$0.23	661
Utah	Multi Family	Water Heat	Clothes Washer	Energy Star - Tier 3 (MEF 2.46 or higher) Top 10% of Energy Star Model - Electric DHW & Dryer	MEF = 1.66 - Electric DHW & Dryer	Per installation	Existing	170	14	\$317	90%	99%	\$0.22	785
Utah	Multi Family	Water Heat	Dishwasher	Energy Star, July 1st 2011, <= 307 kWh/year , <= 5.0 gallons/cycle	Energy Star - EF65 (6th Plan Baseline)	Per installation	Existing	33	12	\$42	80%	50%	\$0.16	205
Utah	Multi Family	Water Heat	Drain Water Heat Recovery (GFX)	Gravity Film Heat Exchanger	No Heat Exchanger	Per installation	Existing	374	40	\$506	29%	90%	\$0.11	1,176
Utah	Multi Family	Water Heat	Faucet Aerators	0.5 GPM	2.2 GPM	Per installation	Existing	82	9	\$0.71	95%	95%	\$0.00	1,150
Utah	Multi Family	Water Heat	Faucet Aerators	1.5 GPM	2.2 GPM	Per installation	Existing	34	9	\$0.46	95%	65%	\$0.00	326
Utah	Multi Family	Water Heat	Faucet Aerators	2.2 GPM	Existing Faucet Aerator (3.0 GPM)	Per installation	Existing	38	9	\$1	95%	25%	\$0.01	280
Utah	Multi Family	Water Heat	Hot Water Pipe Insulation	R-4 Wrap	No insulation	Per installation	Existing	40	5	\$18	95%	75%	\$0.12	317
Utah	Multi Family	Water Heat	Low-Flow Showerheads	2.0 GPM	2.5 GPM	Per installation	Existing	112	10	\$16	95%	65%	\$0.02	1,074
Utah	Multi Family	Water Heat	Water Heater, Storage EF 0.95	Standard Storage Water Heater EF = 0.95	Standard Storage Water Heater EF = 0.92	Per installation	Existing	49	15	\$42	100%	N/A	\$0.10	35
Utah	Multi Family	Water Heat	Water_Heater Tank Blanke/Insulation	Install Insulation (R-5)	No Tank Insulation	Per installation	Existing	99	10	\$11	50%	20%	\$0.02	122
Utah	Multi Family	Water Heat	Water_Heater Thermostat Setback	120 degrees	135 degrees	Per installation	Existing	92	5	\$6	95%	45%	\$0.02	480
Utah	Multi Family	Water Heat	Clothes Washer	Energy Star - Tier 1 (MEF 2.0 - 2.19) - Electric DHW & Dryer	MEF = 1.66 - Electric DHW & Dryer	Per installation	New	110	14	\$227	90%	90%	\$0.24	286
Utah	Multi Family	Water Heat	Clothes Washer	Energy Star - Tier 2 (MEF 2.2 - 2.45) - Electric DHW & Dryer	MEF = 1.66 - Electric DHW & Dryer	Per installation	New	147	14	\$296	90%	95%	\$0.24	401
Utah	Multi Family	Water Heat	Clothes Washer	Energy Star - Tier 3 (MEF 2.46 or higher) Top 10% of Energy Star Model - Electric DHW & Dryer	MEF = 1.66 - Electric DHW & Dryer	Per installation	New	168	14	\$317	90%	99%	\$0.22	476

Table C.2.1. Residential Measure Details

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Utah	Multi Family	Water Heat	Dishwasher	Energy Star, July 1st 2011, <= 307 kWh/year , <= 5.0 gallons/cycle	Energy Star - EF65 (6th Plan Baseline)	Per installation	New	32	12	\$42	80%	50%	\$0.17	124
Utah	Multi Family	Water Heat	Drain Water Heat Recovery (GFX)	Gravity Film Heat Exchanger	No Heat Exchanger	Per installation	New	372	40	\$442	59%	90%	\$0.09	1,475
Utah	Multi Family	Water Heat	Faucet Aerators	0.5 GPM	2.2 GPM	Per installation	New	81	9	\$0.71	95%	95%	\$0.00	698
Utah	Multi Family	Water Heat	Faucet Aerators	1.5 GPM	2.2 GPM	Per installation	New	33	9	\$0.46	95%	65%	\$0.00	198
Utah	Multi Family	Water Heat	Hot Water Pipe Insulation	R-4 Wrap	No insulation	Per installation	New	39	5	\$18	95%	75%	\$0.12	183
Utah	Multi Family	Water Heat	Low-Flow Showerheads	2.0 GPM	2.5 GPM	Per installation	New	110	10	\$9	95%	65%	\$0.01	652
Utah	Multi Family	Water Heat	Water Heater, Storage EF 0.95	Standard Storage Water Heater EF = 0.95	Standard Storage Water Heater EF = 0.92	Per installation	New	49	15	\$42	100%	N/A	\$0.10	17
Utah	Multi Family	Water Heat	Water_Heater Thermostat Setback	120 degrees	135 degrees	Per installation	New	91	5	\$6	95%	45%	\$0.02	301
Utah	Single Family	Computer	Computer, Energy Star	Energy Star Computer	Standard Computer	Per installation	Existing	45	5	\$19	100%	N/A	\$0.11	43,608
Utah	Single Family	Computer	Computer, Energy Star	Energy Star Computer	Standard Computer	Per installation	New	45	5	\$19	100%	N/A	\$0.11	4,614
Utah	Single Family	Cooking Oven	Cooking Oven, High Efficiency	High Efficiency Oven	Standard Oven	Per installation	Existing	58	20	\$282	100%	N/A	\$0.47	9,997
Utah	Single Family	Cooking Oven	Cooking Oven, High Efficiency	High Efficiency Oven	Standard Oven	Per installation	New	58	20	\$282	100%	N/A	\$0.47	5,327
Utah	Single Family	Cool Central	Air-to-Air Heat Exchangers	Air-to-Air Heat Exchangers	No Air to Air Heat Exchangers	Per installation	Existing	211	5	\$539	50%	95%	\$0.63	64,958
Utah	Single Family	Cool Central	Canned Lighting Air Tight Sealing	Canned Lighting Air Tight Sealing	No Air tight Sealing	Per installation	Existing	5	30	\$23	95%	50%	\$0.38	8,816
Utah	Single Family	Cool Central	Ceiling Fan	Ceiling Fan (no lighting kit)	No Ceiling Fan	Per installation	Existing	56	10	\$83	85%	50%	\$0.21	46,496
Utah	Single Family	Cool Central	Ceiling Insulation (UT) above code	R-49	R-38	Per installation	Existing	58	30	\$523	95%	90%	\$0.75	20,171
Utah	Single Family	Cool Central	Ceiling Insulation (UT) ave to code	R-38	R-15	Per installation	Existing	303	30	\$1,879	75%	35%	\$0.52	34,581
Utah	Single Family	Cool Central	Ceiling Insulation (UT) zero to code	R-38	R-0	Per installation	Existing	929	30	\$1,879	95%	1%	\$0.17	4,523
Utah	Single Family	Cool Central	Central Cooling, Evaporative Cooler	Evaporative Cooler	SEER 13	Per installation	Existing	1,353	15	\$-224,7751	75%	N/A	\$0.00	3,636
Utah	Single Family	Cool Central	Central Cooling, SEER 15	SEER 15	SEER 13	Per installation	Existing	298	15	\$595	100%	N/A	\$0.22	4,709
Utah	Single Family	Cool Central	Central Cooling, SEER 18	SEER 18	SEER 13	Per installation	Existing	746	15	\$1,490	100%	N/A	\$0.22	65,010
Utah	Single Family	Cool Central	Check Me! O&M Tune-up	Tune-up/Maintenance	No Tune-up Maintenance	Per installation	Existing	66	5	\$162	95%	75%	\$0.60	30,435
Utah	Single Family	Cool Central	Cool Roofs	Lighter Colored Shingles (White)	Standard Roof Shingles	Per installation	Existing	24	20	\$428	85%	90%	\$1.72	6,752
Utah	Single Family	Cool Central	Doors	R-11 (Steel Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	Existing	23	20	\$163	95%	80%	\$0.69	7,136
Utah	Single Family	Cool Central	Doors	R-5 (Composite Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	Existing	15	20	\$192	95%	60%	\$1.21	3,219
Utah	Single Family	Cool Central	Doors - Weatherization	Weatherstripping And Adding Door Sweeps	Existing Non-Efficient door	Per installation	Existing	10	6	\$44	95%	50%	\$0.94	3,681
Utah	Single Family	Cool Central	Duct Insulation Upgrade	R-8 (code)	R-4	Per installation	Existing	61	20	\$561	75%	75%	\$0.89	13,637
Utah	Single Family	Cool Central	Duct Sealing	Duct Sealing	No Duct Sealing	Per installation	Existing	211	18	\$612	75%	60%	\$0.30	27,796
Utah	Single Family	Cool Central	Duct Sealing - Aerosol-Based	Spray-in ductwork sealant to minimize duct leaks	No Duct Sealing	Per installation	Existing	317	18	\$690	75%	60%	\$0.22	21,706
Utah	Single Family	Cool Central	Floor Insulation (UT) above code	R-38	R-30	Per installation	Existing	42	30	\$746	25%	85%	\$1.47	3,295
Utah	Single Family	Cool Central	Floor Insulation (UT) zero to code	R-30	R-0	Per installation	Existing	835	30	\$2,659	25%	20%	\$0.27	20,698
Utah	Single Family	Cool Central	Infiltration Control (Caulk, Weather Strip, etc.) Blower-Door test	Install Caulking And Weatherstripping	Existing Infiltration Conditions	Per installation	Existing	211	11	\$487	75%	50%	\$0.31	36,156
Utah	Single Family	Cool Central	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands (5 per unit)	13 SEER	Per installation	Existing	323	30	\$552	50%	95%	\$0.14	7,939
Utah	Single Family	Cool Central	Proper Sizing - HVAC Unit	Proper Sizing - HVAC Unit	Oversized HVAC Unit	Per installation	Existing	199	15	\$-39.85	95%	65%	\$0.00	79,620
Utah	Single Family	Cool Central	Radiant Barrier (Ceiling)	Install Radiant Barrier	No Radiant Barrier	Per installation	Existing	127	30	\$880	50%	90%	\$0.58	23,884

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Utah	Single Family	Cool Central	Thermostat - Multi-Zone	Individual Room Temperature Control for Major Occupied Rooms	Programmable Thermostat - Central Control Only	Per installation	Existing	144	11	\$1,241	75%	95%	\$1.17	39,540
Utah	Single Family	Cool Central	Wall Insulation 2x4 (UT) zero to max feasible	R-13	R-0	Per installation	Existing	498	30	\$1,776	85%	25%	\$0.30	37,543
Utah	Single Family	Cool Central	Wall Insulation 2x6 (UT) above code	R-21	R-19	Per installation	Existing	62	30	\$94	75%	95%	\$0.13	2,889
Utah	Single Family	Cool Central	Wall Insulation 2x6 (UT) zero to code	R-19	R-0	Per installation	Existing	840	30	\$1,968	75%	25%	\$0.20	10,053
Utah	Single Family	Cool Central	Whole-House Fan	Whole-House Fan	No Whole-House Fan	Per installation	Existing	317	20	\$1,349	50%	95%	\$0.41	48,719
Utah	Single Family	Cool Central	Windows (Same for all Building Types)	CL25	CL30	Per installation	Existing	3	30	\$429	65%	75%	\$10.02	626
Utah	Single Family	Cool Central	Windows (Same for all Building Types)	CL30	Double Pane	Per installation	Existing	38	30	\$4,423	65%	25%	\$9.66	2,237
Utah	Single Family	Cool Central	Windows (Same for all Building Types)	CL30	Single Pane	Per installation	Existing	60	30	\$4,423	65%	25%	\$6.16	3,522
Utah	Single Family	Cool Central	Air-to-Air Heat Exchangers	Air-to-Air Heat Exchangers	No Air to Air Heat Exchangers	Per installation	New	204	5	\$539	50%	95%	\$0.65	27,807
Utah	Single Family	Cool Central	Ceiling Fan	Ceiling Fan (no lighting kit)	No Ceiling Fan	Per installation	New	54	10	\$83	85%	50%	\$0.22	19,904
Utah	Single Family	Cool Central	Ceiling Insulation (UT) above code	R-49	R-38	Per installation	New	155	30	\$523	95%	90%	\$0.28	25,432
Utah	Single Family	Cool Central	Central Cooling, Evaporative Cooler	Evaporative Cooler	SEER 13	Per installation	New	1,698	15	\$-142,3009	75%	N/A	\$0.00	44,086
Utah	Single Family	Cool Central	Central Cooling, SEER 15	SEER 15	SEER 13	Per installation	New	348	15	\$595	100%	N/A	\$0.19	1,819
Utah	Single Family	Cool Central	Central Cooling, SEER 18	SEER 18	SEER 13	Per installation	New	871	15	\$1,490	100%	N/A	\$0.19	27,266
Utah	Single Family	Cool Central	Check Me! O&M Tune-up	Tune-up/Maintenance	No Tune-up Maintenance	Per installation	New	63	5	\$162	95%	75%	\$0.62	13,029
Utah	Single Family	Cool Central	Construction - ICF	Concrete Framing	Standard Wood Framing	Per installation	New	654	45	\$6,147	50%	95%	\$0.72	2,582
Utah	Single Family	Cool Central	Construction - SIP	Specialty Framing	Standard Wood Framing	Per installation	New	245	45	\$2,723	50%	95%	\$0.86	961
Utah	Single Family	Cool Central	Cool Roofs	Lighter Colored Shingles (White)	Standard Roof Shingles	Per installation	New	23	20	\$428	85%	90%	\$1.78	2,164
Utah	Single Family	Cool Central	Doors	R-11 (Steel Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	New	22	20	\$25	95%	80%	\$0.11	3,894
Utah	Single Family	Cool Central	Doors	R-5 (Composite Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	New	14	20	\$54	95%	60%	\$0.35	1,521
Utah	Single Family	Cool Central	Duct Location	Conditioned Space Design - Duct Loss Is Not A Concern	Ducts in Unconditioned Space (Duct loss)	Per installation	New	163	30	\$269	95%	30%	\$0.14	2,655
Utah	Single Family	Cool Central	Duct Sealing	Duct Sealing	No Duct Sealing	Per installation	New	204	18	\$349	75%	60%	\$0.17	7,162
Utah	Single Family	Cool Central	Duct Sealing - Aerosol-Based	Spray-in ductwork sealant to minimize duct leaks	No Duct Sealing	Per installation	New	306	18	\$690	75%	60%	\$0.23	4,532
Utah	Single Family	Cool Central	Floor Insulation (UT) above code	R-38	R-30	Per installation	New	41	30	\$746	75%	85%	\$1.52	3,995
Utah	Single Family	Cool Central	Green Roof	ecorof	Standard Roof	Per installation	New	104	40	\$20,752	50%	95%	\$15.64	1,475
Utah	Single Family	Cool Central	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands (5 per unit)	13 SEER	Per installation	New	312	30	\$552	50%	95%	\$0.15	8,400
Utah	Single Family	Cool Central	Proper Sizing - HVAC Unit	Proper Sizing - HVAC Unit	Oversized HVAC Unit	Per installation	New	192	15	\$-39.85	95%	65%	\$0.00	34,084
Utah	Single Family	Cool Central	Radiant Barrier (Ceiling)	Install Radiant Barrier	No Radiant Barrier	Per installation	New	122	30	\$880	75%	90%	\$0.60	14,344
Utah	Single Family	Cool Central	Smart Siting	Siting house to minimize heating/cooling costs	No smart siting	Per installation	New	112	45	\$631	75%	75%	\$0.43	11,314
Utah	Single Family	Cool Central	Thermal Shell - Infiltration @0.2 ACH w/HRV	0.2 ACH w/HRV	Standard New Construction Home 0.35 ACH	Per installation	New	289	30	\$873	85%	95%	\$0.25	50,647
Utah	Single Family	Cool Central	Thermostat - Multi-Zone	Individual Room Temperature Control for Major Occupied Rooms	Programmable Thermostat - Central Control Only	Per installation	New	139	11	\$1,241	75%	95%	\$1.21	15,912
Utah	Single Family	Cool Central	Wall Insulation 2x6 (UT) above code	R-21+R-5 sheathing	R-19	Per installation	New	111	30	\$1,144	50%	95%	\$0.86	7,861
Utah	Single Family	Cool Central	Whole-House Fan	Whole-House Fan	No Whole-House Fan	Per installation	New	306	20	\$1,349	50%	95%	\$0.43	20,855
Utah	Single Family	Cool Central	Windows (Same for all Building Types)	CL22	CL30	Per installation	New	7	30	\$497	95%	75%	\$5.85	760

Table C.2.1. Residential Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Utah	Single Family	Cool Central	Windows (Same for all Building Types)	CL25	CL30	Per installation	New	4	30	\$429	95%	75%	\$7.48	512
Utah	Single Family	Cool Room	Canned Lighting Air Tight Sealing	Canned Lighting Air Tight Sealing	No Air tight Sealing	Per installation	Existing	2	30	\$23	95%	50%	\$0.68	192
Utah	Single Family	Cool Room	Ceiling Fan	Ceiling Fan (no lighting kit)	No Ceiling Fan	Per installation	Existing	31	10	\$83	85%	50%	\$0.39	798
Utah	Single Family	Cool Room	Ceiling Insulation (UT) above code	R-49	R-38	Per installation	Existing	33	30	\$523	95%	90%	\$1.32	450
Utah	Single Family	Cool Room	Ceiling Insulation (UT) ave to code	R-38	R-15	Per installation	Existing	172	30	\$1,879	75%	35%	\$0.92	772
Utah	Single Family	Cool Room	Ceiling Insulation (UT) zero to code	R-38	R-0	Per installation	Existing	526	30	\$1,879	95%	1%	\$0.30	96
Utah	Single Family	Cool Room	Cool Roofs	Lighter Colored Shingles (White)	Standard Roof Shingles	Per installation	Existing	13	20	\$428	85%	90%	\$3.10	157
Utah	Single Family	Cool Room	Doors	R-11 (Steel Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	Existing	12	20	\$163	95%	80%	\$1.24	155
Utah	Single Family	Cool Room	Doors	R-5 (Composite Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	Existing	8	20	\$192	95%	60%	\$2.19	74
Utah	Single Family	Cool Room	Doors - Weatherization	Weatherstripping And Adding Door Sweeps	Existing Non-Efficient door	Per installation	Existing	5	6	\$44	95%	50%	\$1.70	81
Utah	Single Family	Cool Room	Floor Insulation (UT) above code	R-38	R-30	Per installation	Existing	23	30	\$746	25%	85%	\$2.63	77
Utah	Single Family	Cool Room	Floor Insulation (UT) zero to code	R-30	R-0	Per installation	Existing	466	30	\$2,659	25%	20%	\$0.48	443
Utah	Single Family	Cool Room	Infiltration Control (Caulk, Weather Strip, etc.) Blower-Door test	Install Caulking And Weatherstripping	Existing Infiltration Conditions	Per installation	Existing	117	11	\$487	75%	50%	\$0.56	788
Utah	Single Family	Cool Room	Radiant Barrier (Ceiling)	Install Radiant Barrier	No Radiant Barrier	Per installation	Existing	70	30	\$880	50%	90%	\$1.05	520
Utah	Single Family	Cool Room	Room AC conversion to Ductless Heat Pump	SEER 13	EER 9.8	Per installation	Existing	46	20	\$2,101	75%	N/A	\$4.37	1,785
Utah	Single Family	Cool Room	Room AC, EER 10.8	EER 10.8	EER 9.8	Per installation	Existing	37	9	\$7	100%	N/A	\$0.03	331
Utah	Single Family	Cool Room	Wall Insulation 2x4 (UT) zero to max feasible	R-13	R-0	Per installation	Existing	282	30	\$1,776	85%	25%	\$0.53	837
Utah	Single Family	Cool Room	Wall Insulation 2x6 (UT) above code	R-21	R-19	Per installation	Existing	35	30	\$94	75%	95%	\$0.22	61
Utah	Single Family	Cool Room	Wall Insulation 2x6 (UT) zero to code	R-19	R-0	Per installation	Existing	475	30	\$1,968	75%	25%	\$0.35	213
Utah	Single Family	Cool Room	Windows (Same for all Building Types)	CL25	CL30	Per installation	Existing	2	30	\$429	65%	75%	\$17.53	15
Utah	Single Family	Cool Room	Windows (Same for all Building Types)	CL30	Double Pane	Per installation	Existing	21	30	\$4,423	65%	25%	\$16.89	53
Utah	Single Family	Cool Room	Windows (Same for all Building Types)	CL30	Single Pane	Per installation	Existing	34	30	\$4,423	65%	25%	\$10.78	84
Utah	Single Family	Cool Room	Ceiling Fan	Ceiling Fan (no lighting kit)	No Ceiling Fan	Per installation	New	31	10	\$83	85%	50%	\$0.38	356
Utah	Single Family	Cool Room	Ceiling Insulation (UT) above code	R-49	R-38	Per installation	New	92	30	\$523	95%	90%	\$0.47	589
Utah	Single Family	Cool Room	Construction - ICF	Concrete Framing	Standard Wood Framing	Per installation	New	379	45	\$6,147	50%	95%	\$1.25	58
Utah	Single Family	Cool Room	Construction - SIP	Specialty Framing	Standard Wood Framing	Per installation	New	142	45	\$2,723	50%	95%	\$1.48	21
Utah	Single Family	Cool Room	Cool Roofs	Lighter Colored Shingles (White)	Standard Roof Shingles	Per installation	New	13	20	\$428	85%	90%	\$3.07	51
Utah	Single Family	Cool Room	Doors	R-11 (Steel Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	New	12	20	\$25	95%	80%	\$0.19	83
Utah	Single Family	Cool Room	Doors	R-5 (Composite Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	New	8	20	\$54	95%	60%	\$0.61	34
Utah	Single Family	Cool Room	Floor Insulation (UT) above code	R-38	R-30	Per installation	New	23	30	\$746	75%	85%	\$2.61	95
Utah	Single Family	Cool Room	Green Roof	ecorroof	Standard Roof	Per installation	New	60	40	\$20,752	50%	95%	\$27.02	34
Utah	Single Family	Cool Room	Radiant Barrier (Ceiling)	Install Radiant Barrier	No Radiant Barrier	Per installation	New	71	30	\$880	75%	90%	\$1.04	322
Utah	Single Family	Cool Room	Room AC conversion to Ductless Heat Pump	SEER 13	EER 9.8	Per installation	New	49	20	\$2,101	75%	N/A	\$4.17	336

Table C.2.1. Residential Measure Details

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Utah	Single Family	Cool Room	Room AC, EER 10.8	EER 10.8	EER 9.8	Per installation	New	39	9	\$7	100%	N/A	\$0.03	108
Utah	Single Family	Cool Room	Smart Siting	Siting house to minimize heating/cooling costs	No smart siting	Per installation	New	65	45	\$631	75%	75%	\$0.75	254
Utah	Single Family	Cool Room	Thermal Shell - Infiltration @0.2 ACH w/HRV	0.2 ACH w/HRV	Standard New Construction Home 0.35 ACH	Per installation	New	176	30	\$873	85%	95%	\$0.42	1,204
Utah	Single Family	Cool Room	Wall Insulation 2x6 (UT) above code	R-21+R-5 sheathing	R-19	Per installation	New	66	30	\$1,144	50%	95%	\$1.45	180
Utah	Single Family	Cool Room	Windows (Same for all Building Types)	CL22	CL30	Per installation	New	4	30	\$497	95%	75%	\$9.70	18
Utah	Single Family	Cool Room	Windows (Same for all Building Types)	CL25	CL30	Per installation	New	2	30	\$429	95%	75%	\$12.51	12
Utah	Single Family	Dryer	Dryer, Advanced Efficiency EF 3.30	Advanced Efficiency Dryer 3.30	Standard Dryer EF 3.01	Per installation	Existing	50	14	\$224	100%	N/A	\$0.52	18,564
Utah	Single Family	Dryer	Dryer, High Efficiency EF 3.08	High Efficiency Dryer EF 3.08	Standard Dryer EF 3.01	Per installation	Existing	13	14	\$54	100%	N/A	\$0.48	383
Utah	Single Family	Dryer	Dryer, Premium Efficiency EF 3.19	Premium Efficiency Dryer 3.19	Standard Dryer EF 3.01	Per installation	Existing	32	14	\$139	100%	N/A	\$0.50	2,488
Utah	Single Family	Dryer	Dryer, Advanced Efficiency EF 3.30	Advanced Efficiency Dryer 3.30	Standard Dryer EF 3.01	Per installation	New	50	14	\$224	100%	N/A	\$0.52	6,366
Utah	Single Family	Dryer	Dryer, High Efficiency EF 3.08	High Efficiency Dryer EF 3.08	Standard Dryer EF 3.01	Per installation	New	13	14	\$54	100%	N/A	\$0.48	123
Utah	Single Family	Dryer	Dryer, Premium Efficiency EF 3.19	Premium Efficiency Dryer 3.19	Standard Dryer EF 3.01	Per installation	New	32	14	\$139	100%	N/A	\$0.50	975
Utah	Single Family	Freezer	Freezer, Energy Star	Energy Star Freezer	Standard Freezer	Per installation	Existing	46	20	\$22	76%	N/A	\$0.05	2,303
Utah	Single Family	Freezer	Stand-Alone Freezer - Removal	Proper Disposal of Freezer	Existing Non-Efficient Freezer	Per installation	Existing	1,328	8	\$79	17%	99%	\$0.01	18,527
Utah	Single Family	Freezer	Freezer, Energy Star	Energy Star Freezer	Standard Freezer	Per installation	New	46	20	\$22	76%	N/A	\$0.05	2,163
Utah	Single Family	Heat Central	Air-to-Air Heat Exchangers	Air-to-Air Heat Exchangers	No Air to Air Heat Exchangers	Per installation	Existing	1,239	5	\$539	50%	95%	\$0.11	21,022
Utah	Single Family	Heat Central	Canned Lighting Air Tight Sealing	Canned Lighting Air Tight Sealing	No Air tight Sealing	Per installation	Existing	42	30	\$23	95%	50%	\$0.05	4,889
Utah	Single Family	Heat Central	Ceiling Insulation (UT) above code	R-49	R-38	Per installation	Existing	470	30	\$523	95%	90%	\$0.09	10,756
Utah	Single Family	Heat Central	Ceiling Insulation (UT) ave to code	R-38	R-15	Per installation	Existing	2,442	30	\$1,879	75%	35%	\$0.06	18,267
Utah	Single Family	Heat Central	Ceiling Insulation (UT) zero to code	R-38	R-0	Per installation	Existing	7,468	30	\$1,879	95%	1%	\$0.02	2,377
Utah	Single Family	Heat Central	Conversion Electric Furnace to ASHP	Air Source Heat Pump Seer 13 HSPF 7.7	Electric Furnace HSPF 1	Per installation	Existing	6,607	20	\$2,662	100%	N/A	\$0.04	67,777
Utah	Single Family	Heat Central	Doors	R-11 (Steel Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	Existing	185	20	\$163	95%	80%	\$0.09	3,817
Utah	Single Family	Heat Central	Doors	R-5 (Composite Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	Existing	123	20	\$192	95%	60%	\$0.15	1,773
Utah	Single Family	Heat Central	Doors - Weatherization	Weatherstripping And Adding Door Sweeps	Existing Non-Efficient door	Per installation	Existing	80	6	\$44	95%	50%	\$0.12	1,933
Utah	Single Family	Heat Central	Duct Insulation Upgrade	R-8 (code)	R-4	Per installation	Existing	495	20	\$561	75%	75%	\$0.11	7,206
Utah	Single Family	Heat Central	Duct Sealing	Duct Sealing	No Duct Sealing	Per installation	Existing	1,239	18	\$612	75%	15%	\$0.05	2,493
Utah	Single Family	Heat Central	Duct Sealing - Aerosol-Based	Spray-in ductwork sealant to minimize duct leaks	No Duct Sealing	Per installation	Existing	1,858	18	\$690	75%	15%	\$0.04	1,904
Utah	Single Family	Heat Central	Floor Insulation (UT) above code	R-38	R-30	Per installation	Existing	341	30	\$746	25%	85%	\$0.18	1,813
Utah	Single Family	Heat Central	Floor Insulation (UT) zero to code	R-30	R-0	Per installation	Existing	6,716	30	\$2,659	25%	20%	\$0.03	11,047
Utah	Single Family	Heat Central	Infiltration Control (Caulk, Weather Strip, etc.) Blower-Door test	Install Caulking And Weatherstripping	Existing Infiltration Conditions	Per installation	Existing	1,239	11	\$487	75%	50%	\$0.05	13,758
Utah	Single Family	Heat Central	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands (5 per unit)	13 SEER	Per installation	Existing	2,602	30	\$552	50%	15%	\$0.02	655
Utah	Single Family	Heat Central	Proper Sizing - HVAC Unit	Proper Sizing - HVAC Unit	Oversized HVAC Unit	Per installation	Existing	1,168	15	\$-39.85	15%	65%	\$0.00	4,068
Utah	Single Family	Heat Central	Radiant Barrier (Ceiling)	Install Radiant Barrier	No Radiant Barrier	Per installation	Existing	247	30	\$880	50%	90%	\$0.30	2,634

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Utah	Single Family	Heat Central	Thermostat - Multi-Zone	Individual Room Temperature Control for Major Occupied Rooms	Programmable Thermostat - Central Control Only	Per installation	Existing	842	11	\$1,241	75%	95%	\$0.20	14,901
Utah	Single Family	Heat Central	Wall Insulation 2x4 (UT) zero to max feasible	R-13	R-0	Per installation	Existing	4,007	30	\$1,776	85%	25%	\$0.04	20,439
Utah	Single Family	Heat Central	Wall Insulation 2x6 (UT) above code	R-21	R-19	Per installation	Existing	503	30	\$94	75%	95%	\$0.02	1,511
Utah	Single Family	Heat Central	Wall Insulation 2x6 (UT) zero to code	R-19	R-0	Per installation	Existing	6,755	30	\$1,968	75%	25%	\$0.02	5,275
Utah	Single Family	Heat Central	Windows (Same for all Building Types)	CL25	CL30	Per installation	Existing	28	30	\$429	65%	75%	\$1.25	326
Utah	Single Family	Heat Central	Windows (Same for all Building Types)	CL30	Double Pane	Per installation	Existing	308	30	\$4,423	65%	25%	\$1.20	1,166
Utah	Single Family	Heat Central	Windows (Same for all Building Types)	CL30	Single Pane	Per installation	Existing	483	30	\$4,423	65%	25%	\$0.77	1,840
Utah	Single Family	Heat Central	Air-to-Air Heat Exchangers	Air-to-Air Heat Exchangers	No Air to Air Heat Exchangers	Per installation	New	905	5	\$539	50%	95%	\$0.15	6,528
Utah	Single Family	Heat Central	Ceiling Insulation (UT) above code	R-49	R-38	Per installation	New	943	30	\$523	95%	90%	\$0.05	9,522
Utah	Single Family	Heat Central	Construction - ICF	Concrete Framing	Standard Wood Framing	Per installation	New	3,983	45	\$6,147	50%	95%	\$0.12	1,008
Utah	Single Family	Heat Central	Construction - SIP	Specialty Framing	Standard Wood Framing	Per installation	New	1,086	45	\$2,723	50%	95%	\$0.19	263
Utah	Single Family	Heat Central	Conversion Electric Furnace to ASHP	Air Source Heat Pump Seer 13 HSPF 7.7	Electric Furnace HSPF 1	Per installation	New	4,827	20	\$2,563	100%	N/A	\$0.05	24,254
Utah	Single Family	Heat Central	Doors	R-11 (Steel Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	New	135	20	\$25	95%	80%	\$0.02	1,477
Utah	Single Family	Heat Central	Doors	R-5 (Composite Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	New	90	20	\$54	95%	60%	\$0.06	553
Utah	Single Family	Heat Central	Duct Location	Conditioned Space Design - Duct Loss Is Not A Concern	Ducts in Unconditioned Space (Duct loss)	Per installation	New	724	30	\$269	95%	15%	\$0.03	363
Utah	Single Family	Heat Central	Duct Sealing	Duct Sealing	No Duct Sealing	Per installation	New	905	18	\$349	75%	15%	\$0.04	501
Utah	Single Family	Heat Central	Duct Sealing - Aerosol-Based	Spray-in ductwork sealant to minimize duct leaks	No Duct Sealing	Per installation	New	1,358	18	\$690	75%	15%	\$0.05	246
Utah	Single Family	Heat Central	Floor Insulation (UT) above code	R-38	R-30	Per installation	New	249	30	\$746	75%	85%	\$0.25	1,620
Utah	Single Family	Heat Central	Green Roof	ecorooF	Standard Roof	Per installation	New	633	40	\$20,752	50%	95%	\$2.57	561
Utah	Single Family	Heat Central	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands (5 per unit)	13 SEER	Per installation	New	1,901	30	\$552	50%	15%	\$0.02	504
Utah	Single Family	Heat Central	Proper Sizing - HVAC Unit	Proper Sizing - HVAC Unit	Oversized HVAC Unit	Per installation	New	853	15	\$-39.85	15%	65%	\$0.00	1,263
Utah	Single Family	Heat Central	Radiant Barrier (Ceiling)	Install Radiant Barrier	No Radiant Barrier	Per installation	New	181	30	\$880	75%	90%	\$0.41	1,163
Utah	Single Family	Heat Central	Smart Siting	Siting house to minimize heating/cooling costs	No smart siting	Per installation	New	28	45	\$631	75%	75%	\$1.73	147
Utah	Single Family	Heat Central	Thermal Shell - Infiltration @0.2 ACH w/HRV	0.2 ACH w/HRV	Standard New Construction Home 0.35 ACH	Per installation	New	1,762	30	\$873	85%	95%	\$0.04	19,928
Utah	Single Family	Heat Central	Thermostat - Multi-Zone	Individual Room Temperature Control for Major Occupied Rooms	Programmable Thermostat - Central Control Only	Per installation	New	615	11	\$1,241	75%	95%	\$0.27	4,388
Utah	Single Family	Heat Central	Wall Insulation 2x6 (UT) above code	R-21+R-5 sheathing	R-19	Per installation	New	680	30	\$1,144	50%	95%	\$0.14	3,070
Utah	Single Family	Heat Central	Windows (Same for all Building Types)	CL22	CL30	Per installation	New	43	30	\$497	95%	75%	\$0.96	290
Utah	Single Family	Heat Central	Windows (Same for all Building Types)	CL25	CL30	Per installation	New	29	30	\$429	95%	75%	\$1.23	195
Utah	Single Family	Heat Pump	Air-to-Air Heat Exchangers	Air-to-Air Heat Exchangers	No Air to Air Heat Exchangers	Per installation	Existing	1,230	5	\$539	50%	95%	\$0.11	2,745
Utah	Single Family	Heat Pump	Canned Lighting Air Tight Sealing	Canned Lighting Air Tight Sealing	No Air tight Sealing	Per installation	Existing	40	30	\$23	95%	50%	\$0.05	596
Utah	Single Family	Heat Pump	Ceiling Fan	Ceiling Fan (no lighting kit)	No Ceiling Fan	Per installation	Existing	55	10	\$83	85%	50%	\$0.22	332
Utah	Single Family	Heat Pump	Ceiling Insulation (UT) above code	R-49	R-38	Per installation	Existing	166	30	\$523	95%	90%	\$0.26	437

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Utah	Single Family	Heat Pump	Ceiling Insulation (UT) ave to code	R-38	R-15	Per installation	Existing	865	30	\$1,879	75%	35%	\$0.18	759
Utah	Single Family	Heat Pump	Ceiling Insulation (UT) zero to code	R-38	R-0	Per installation	Existing	2,645	30	\$1,879	95%	1%	\$0.06	90
Utah	Single Family	Heat Pump	Check Me! O&M Tune-up	Tune-up/Maintenance	No Tune-up Maintenance	Per installation	Existing	62	5	\$162	95%	75%	\$0.64	209
Utah	Single Family	Heat Pump	Cool Roofs	Lighter Colored Shingles (White)	Standard Roof Shingles	Per installation	Existing	23	20	\$428	85%	90%	\$1.75	55
Utah	Single Family	Heat Pump	Doors	R-11 (Steel Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	Existing	176	20	\$163	95%	80%	\$0.09	468
Utah	Single Family	Heat Pump	Doors	R-5 (Composite Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	Existing	117	20	\$192	95%	60%	\$0.16	226
Utah	Single Family	Heat Pump	Doors - Weatherization	Weatherstripping And Adding Door Sweeps	Existing Non-Efficient door	Per installation	Existing	80	6	\$44	95%	50%	\$0.12	257
Utah	Single Family	Heat Pump	Duct Insulation Upgrade	R-8 (code)	R-4	Per installation	Existing	469	20	\$561	75%	75%	\$0.12	913
Utah	Single Family	Heat Pump	Duct Sealing	Duct Sealing	No Duct Sealing	Per installation	Existing	1,230	18	\$612	75%	60%	\$0.05	1,276
Utah	Single Family	Heat Pump	Duct Sealing - Aerosol-Based	Spray-in ductwork sealant to minimize duct leaks	No Duct Sealing	Per installation	Existing	1,846	18	\$690	75%	60%	\$0.04	990
Utah	Single Family	Heat Pump	Floor Insulation (UT) above code	R-38	R-30	Per installation	Existing	339	30	\$746	25%	85%	\$0.18	237
Utah	Single Family	Heat Pump	Floor Insulation (UT) zero to code	R-30	R-0	Per installation	Existing	6,670	30	\$2,659	25%	20%	\$0.03	1,362
Utah	Single Family	Heat Pump	Ground Source Heat Pump, EER 16.2, COP 3.6	GSHP EER 16.2, HSPF 8.8	ASHP SEER 13, HSPF 7.7	Per installation	Existing	4,260	20	\$9,434	40%	N/A	\$0.22	2,373
Utah	Single Family	Heat Pump	Heat Pump High Efficiency, SEER 14, HSPF 8.5	ASHP SEER 14, HSPF 8.5	ASHP SEER 13, HSPF 7.7	Per installation	Existing	1,057	20	\$411	100%	N/A	\$0.04	292
Utah	Single Family	Heat Pump	Heat Pump Premium Efficiency, SEER 16, HSPF 8.8	ASHP SEER 16, HSPF 8.8	ASHP SEER 13, HSPF 7.7	Per installation	Existing	1,584	20	\$1,233	100%	N/A	\$0.08	1,779
Utah	Single Family	Heat Pump	Infiltration Control (Caulk, Weather Strip, etc.) Blower-Door test	Install Caulking And Weatherstripping	Existing Infiltration Conditions	Per installation	Existing	1,230	11	\$487	75%	50%	\$0.05	1,724
Utah	Single Family	Heat Pump	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands (5 per unit)	13 SEER	Per installation	Existing	2,584	30	\$552	50%	95%	\$0.02	506
Utah	Single Family	Heat Pump	Proper Sizing - HVAC Unit	Proper Sizing - HVAC Unit	Oversized HVAC Unit	Per installation	Existing	1,160	15	\$-39.85	95%	65%	\$0.00	3,364
Utah	Single Family	Heat Pump	Radiant Barrier (Ceiling)	Install Radiant Barrier	No Radiant Barrier	Per installation	Existing	350	30	\$880	50%	90%	\$0.21	489
Utah	Single Family	Heat Pump	Thermostat - Multi-Zone	Individual Room Temperature Control for Major Occupied Rooms	Programmable Thermostat - Central Control Only	Per installation	Existing	837	11	\$1,241	75%	95%	\$0.20	1,946
Utah	Single Family	Heat Pump	Wall Insulation 2x4 (UT) zero to max feasible	R-13	R-0	Per installation	Existing	1,658	30	\$1,776	85%	25%	\$0.09	944
Utah	Single Family	Heat Pump	Wall Insulation 2x6 (UT) above code	R-21	R-19	Per installation	Existing	170	30	\$94	75%	95%	\$0.05	59
Utah	Single Family	Heat Pump	Wall Insulation 2x6 (UT) zero to code	R-19	R-0	Per installation	Existing	2,380	30	\$1,968	75%	25%	\$0.07	200
Utah	Single Family	Heat Pump	Whole-House Fan	Whole-House Fan	No Whole-House Fan	Per installation	Existing	312	20	\$1,349	50%	95%	\$0.42	348
Utah	Single Family	Heat Pump	Windows (Same for all Building Types)	CL25	CL30	Per installation	Existing	11	30	\$429	65%	75%	\$3.03	17
Utah	Single Family	Heat Pump	Windows (Same for all Building Types)	CL30	Double Pane	Per installation	Existing	126	30	\$4,423	65%	25%	\$2.92	62
Utah	Single Family	Heat Pump	Windows (Same for all Building Types)	CL30	Single Pane	Per installation	Existing	198	30	\$4,423	65%	25%	\$1.87	97
Utah	Single Family	Heat Pump	Air-to-Air Heat Exchangers	Air-to-Air Heat Exchangers	No Air to Air Heat Exchangers	Per installation	New	1,189	5	\$539	50%	95%	\$0.11	1,167
Utah	Single Family	Heat Pump	Ceiling Fan	Ceiling Fan (no lighting kit)	No Ceiling Fan	Per installation	New	53	10	\$83	85%	50%	\$0.23	141
Utah	Single Family	Heat Pump	Ceiling Insulation (UT) above code	R-49	R-38	Per installation	New	321	30	\$523	95%	90%	\$0.14	432
Utah	Single Family	Heat Pump	Check Me! O&M Tune-up	Tune-up/Maintenance	No Tune-up Maintenance	Per installation	New	60	5	\$162	95%	75%	\$0.66	88
Utah	Single Family	Heat Pump	Construction - ICF	Concrete Framing	Standard Wood Framing	Per installation	New	4,990	45	\$6,147	50%	95%	\$0.10	188
Utah	Single Family	Heat Pump	Construction - SIP	Specialty Framing	Standard Wood Framing	Per installation	New	1,426	45	\$2,723	50%	95%	\$0.15	52

Table C.2.1. Residential Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Utah	Single Family	Heat Pump	Cool Roofs	Lighter Colored Shingles (White)	Standard Roof Shingles	Per installation	New	23	20	\$428	85%	90%	\$1.81	19
Utah	Single Family	Heat Pump	Doors	R-11 (Steel Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	New	170	20	\$25	95%	80%	\$0.01	235
Utah	Single Family	Heat Pump	Doors	R-5 (Composite Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	New	113	20	\$54	95%	60%	\$0.05	110
Utah	Single Family	Heat Pump	Duct Location	Conditioned Space Design - Duct Loss Is Not A Concern	Ducts in Unconditioned Space (Duct loss)	Per installation	New	951	30	\$269	95%	30%	\$0.02	118
Utah	Single Family	Heat Pump	Duct Sealing	Duct Sealing	No Duct Sealing	Per installation	New	1,189	18	\$349	75%	60%	\$0.03	326
Utah	Single Family	Heat Pump	Duct Sealing - Aerosol-Based	Spray-in ductwork sealant to minimize duct leaks	No Duct Sealing	Per installation	New	1,783	18	\$690	75%	60%	\$0.04	206
Utah	Single Family	Heat Pump	Floor Insulation (UT) above code	R-38	R-30	Per installation	New	328	30	\$746	75%	85%	\$0.19	320
Utah	Single Family	Heat Pump	Green Roof	ecorooft	Standard Roof	Per installation	New	792	40	\$20,752	50%	95%	\$2.06	103
Utah	Single Family	Heat Pump	Ground Source Heat Pump, EER 16.2, COP 3.6	GSHP EER 16.2, HSPF 8.8	ASHP SEER 13, HSPF 7.7	Per installation	New	4,303	20	\$9,533	40%	N/A	\$0.22	1,265
Utah	Single Family	Heat Pump	Heat Pump High Efficiency, SEER 14, HSPF 8.5	ASHP SEER 14, HSPF 8.5	ASHP SEER 13, HSPF 7.7	Per installation	New	1,065	20	\$411	100%	N/A	\$0.04	196
Utah	Single Family	Heat Pump	Heat Pump Premium Efficiency, SEER 16, HSPF 8.8	ASHP SEER 16, HSPF 8.8	ASHP SEER 13, HSPF 7.7	Per installation	New	1,625	20	\$1,233	100%	N/A	\$0.07	1,013
Utah	Single Family	Heat Pump	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands (5 per unit)	13 SEER	Per installation	New	2,496	30	\$552	50%	95%	\$0.02	532
Utah	Single Family	Heat Pump	Proper Sizing - HVAC Unit	Proper Sizing - HVAC Unit	Oversized HVAC Unit	Per installation	New	1,121	15	\$-39.85	95%	65%	\$0.00	1,431
Utah	Single Family	Heat Pump	Radiant Barrier (Ceiling)	Install Radiant Barrier	No Radiant Barrier	Per installation	New	338	30	\$880	75%	90%	\$0.22	327
Utah	Single Family	Heat Pump	Smart Siting	Siting house to minimize heating/cooling costs	No smart siting	Per installation	New	122	45	\$631	75%	75%	\$0.40	96
Utah	Single Family	Heat Pump	Thermal Shell - Infiltration @0.2 ACH w/HRV	0.2 ACH w/HRV	Standard New Construction Home 0.35 ACH	Per installation	New	871	30	\$873	85%	95%	\$0.08	1,187
Utah	Single Family	Heat Pump	Thermostat - Multi-Zone	Individual Room Temperature Control for Major Occupied Rooms	Programmable Thermostat - Central Control Only	Per installation	New	808	11	\$1,241	75%	95%	\$0.21	866
Utah	Single Family	Heat Pump	Wall Insulation 2x6 (UT) above code	R-21+R-5 sheathing	R-19	Per installation	New	232	30	\$1,144	50%	95%	\$0.41	138
Utah	Single Family	Heat Pump	Whole-House Fan	Whole-House Fan	No Whole-House Fan	Per installation	New	301	20	\$1,349	50%	95%	\$0.44	148
Utah	Single Family	Heat Pump	Windows (Same for all Building Types)	CL22	CL30	Per installation	New	21	30	\$497	95%	75%	\$1.94	21
Utah	Single Family	Heat Pump	Windows (Same for all Building Types)	CL25	CL30	Per installation	New	15	30	\$429	95%	75%	\$2.39	14
Utah	Single Family	Heat Room	Canned Lighting Air Tight Sealing	Canned Lighting Air Tight Sealing	No Air tight Sealing	Per installation	Existing	32	30	\$23	95%	50%	\$0.06	2,369
Utah	Single Family	Heat Room	Ceiling Insulation (UT) above code	R-49	R-38	Per installation	Existing	371	30	\$523	95%	90%	\$0.12	5,364
Utah	Single Family	Heat Room	Ceiling Insulation (UT) ave to code	R-38	R-15	Per installation	Existing	1,924	30	\$1,879	75%	35%	\$0.08	9,121
Utah	Single Family	Heat Room	Ceiling Insulation (UT) zero to code	R-38	R-0	Per installation	Existing	5,884	30	\$1,879	95%	1%	\$0.03	1,175
Utah	Single Family	Heat Room	Conversion Baseboard Heating to DHP	Ductless Heat Pump HSPF 7.7	HSPF = 1	Per installation	Existing	1,350	20	\$2,348	54%	N/A	\$0.17	15,146
Utah	Single Family	Heat Room	Doors	R-11 (Steel Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	Existing	143	20	\$163	95%	80%	\$0.11	1,860
Utah	Single Family	Heat Room	Doors	R-5 (Composite Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	Existing	95	20	\$192	95%	60%	\$0.20	883
Utah	Single Family	Heat Room	Doors - Weatherization	Weatherstripping And Adding Door Sweeps	Existing Non-Efficient door	Per installation	Existing	62	6	\$44	95%	50%	\$0.15	963
Utah	Single Family	Heat Room	Floor Insulation (UT) above code	R-38	R-30	Per installation	Existing	265	30	\$746	25%	85%	\$0.24	911
Utah	Single Family	Heat Room	Floor Insulation (UT) zero to code	R-30	R-0	Per installation	Existing	5,217	30	\$2,659	25%	20%	\$0.04	5,381

Table C.2.1. Residential Measure Details

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Utah	Single Family	Heat Room	Infiltration Control (Caulk, Weather Strip, etc.) Blower-Door test	Install Caulking And Weathersstripping	Existing Infiltration Conditions	Per installation	Existing	954	11	\$487	75%	50%	\$0.07	6,713
Utah	Single Family	Heat Room	Radiant Barrier (Ceiling)	Install Radiant Barrier	No Radiant Barrier	Per installation	Existing	190	30	\$880	50%	90%	\$0.39	1,378
Utah	Single Family	Heat Room	Wall Insulation 2x4 (UT) zero to max feasible	R-13	R-0	Per installation	Existing	3,152	30	\$1,776	85%	25%	\$0.05	10,081
Utah	Single Family	Heat Room	Wall Insulation 2x6 (UT) above code	R-21	R-19	Per installation	Existing	396	30	\$94	75%	95%	\$0.02	744
Utah	Single Family	Heat Room	Wall Insulation 2x6 (UT) zero to code	R-19	R-0	Per installation	Existing	5,314	30	\$1,968	75%	25%	\$0.03	2,603
Utah	Single Family	Heat Room	Windows (Same for all Building Types)	CL25	CL30	Per installation	Existing	22	30	\$429	65%	75%	\$1.57	176
Utah	Single Family	Heat Room	Windows (Same for all Building Types)	CL30	Double Pane	Per installation	Existing	245	30	\$4,423	65%	25%	\$1.51	630
Utah	Single Family	Heat Room	Windows (Same for all Building Types)	CL30	Single Pane	Per installation	Existing	384	30	\$4,423	65%	25%	\$0.96	994
Utah	Single Family	Heat Room	Ceiling Insulation (UT) above code	R-49	R-38	Per installation	New	747	30	\$523	95%	90%	\$0.06	4,733
Utah	Single Family	Heat Room	Construction - ICF	Concrete Framing	Standard Wood Framing	Per installation	New	3,067	45	\$6,147	50%	95%	\$0.15	487
Utah	Single Family	Heat Room	Construction - SIP	Specialty Framing	Standard Wood Framing	Per installation	New	836	45	\$2,723	50%	95%	\$0.25	127
Utah	Single Family	Heat Room	Conversion Baseboard Heating to DHP	Ductless Heat Pump HSPF 7.7	HSPF = 1	Per installation	New	986	20	\$2,348	54%	N/A	\$0.23	5,271
Utah	Single Family	Heat Room	Doors	R-11 (Steel Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	New	104	20	\$25	95%	80%	\$0.02	712
Utah	Single Family	Heat Room	Doors	R-5 (Composite Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	New	69	20	\$54	95%	60%	\$0.08	267
Utah	Single Family	Heat Room	Floor Insulation (UT) above code	R-38	R-30	Per installation	New	194	30	\$746	75%	85%	\$0.32	789
Utah	Single Family	Heat Room	Green Roof	ecorooF	Standard Roof	Per installation	New	488	40	\$20,752	50%	95%	\$3.34	284
Utah	Single Family	Heat Room	Radiant Barrier (Ceiling)	Install Radiant Barrier	No Radiant Barrier	Per installation	New	139	30	\$880	75%	90%	\$0.53	589
Utah	Single Family	Heat Room	Smart Siling	Siting house to minimize heating/cooling costs	No smart siling	Per installation	New	21	45	\$631	75%	75%	\$2.25	74
Utah	Single Family	Heat Room	Thermal Shell - Infiltration @0.2 ACH w/HRV	0.2 ACH w/HRV	Standard New Construction Home 0.35 ACH	Per installation	New	1,424	30	\$873	85%	95%	\$0.05	10,202
Utah	Single Family	Heat Room	Wall Insulation 2x6 (UT) above code	R-21+R-5 sheathing	R-19	Per installation	New	535	30	\$1,144	50%	95%	\$0.18	1,514
Utah	Single Family	Heat Room	Windows (Same for all Building Types)	CL22	CL30	Per installation	New	34	30	\$497	95%	75%	\$1.20	153
Utah	Single Family	Heat Room	Windows (Same for all Building Types)	CL25	CL30	Per installation	New	23	30	\$429	95%	75%	\$1.55	102
Utah	Single Family	Lighting Exterior	CFL, Flood (17 W)	CFL, Flood	Standard Incandescent Flood	Per installation	Existing	53	5	\$0.91	100%	N/A	\$0.00	27,269
Utah	Single Family	Lighting Exterior	Time Clocks (Exterior Lighting)	Exterior Lighting on a Time Clock	Exterior Lighting (Manual Control)	Per installation	Existing	13	10	\$16	80%	85%	\$0.18	6,795
Utah	Single Family	Lighting Exterior	CFL, Flood (17 W)	CFL, Flood	Standard Incandescent Flood	Per installation	New	53	5	\$0.91	100%	N/A	\$0.00	1,371
Utah	Single Family	Lighting Exterior	Time Clocks (Exterior Lighting)	Exterior Lighting on a Time Clock	Exterior Lighting (Manual Control)	Per installation	New	13	10	\$16	80%	85%	\$0.18	3,174
Utah	Single Family	Lighting Interior Specialty	CFL (13 W, 20 W, 25 W)	CFL (3-Way)	Standard Incandescent (3-Way)	Per installation	Existing	43	5	\$3	100%	N/A	\$0.02	69,808
Utah	Single Family	Lighting Interior Specialty	CFL (13 W, 20 W, 25 W)	CFL (3-Way)	Standard Incandescent (3-Way)	Per installation	New	43	5	\$3	100%	N/A	\$0.02	2,881
Utah	Single Family	Lighting Interior Standard	Daylighting Controls (Photocell) - Indoor/Outdoors	Install Photocell	No Daylighting Controls	Per installation	Existing	9	20	\$137	60%	95%	\$1.43	1,038
Utah	Single Family	Lighting Interior Standard	Lighting CFL 15 W	15 W CFL	Standard 60 W Incandescent	Per installation	Existing	40	5	\$2	100%	N/A	\$0.02	12,632
Utah	Single Family	Lighting Interior Standard	Lighting LED 7 W	7 W LED	Standard 60 W Incandescent	Per installation	Existing	51	20	\$36	50%	N/A	\$0.07	40,591

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Utah	Single Family	Lighting Interior Standard	Occupancy Sensors	Wall-Switch Occupancy Sensors	No Occupancy Sensor	Per installation	Existing	5	10	\$30	85%	95%	\$0.78	9,035
Utah	Single Family	Lighting Interior Standard	Daylighting Controls (Photocell) - Indoor/Outdoors	Install Photocell	No Daylighting Controls	Per installation	New	9	20	\$137	60%	95%	\$1.43	482
Utah	Single Family	Lighting Interior Standard	Lighting CFL 15 W	15 W CFL	Standard 60 W Incandescent	Per installation	New	40	5	\$2	100%	N/A	\$0.02	5,662
Utah	Single Family	Lighting Interior Standard	Lighting LED 7 W	7 W LED	Standard 60 W Incandescent	Per installation	New	51	20	\$36	50%	N/A	\$0.07	11,187
Utah	Single Family	Lighting Interior Standard	Occupancy Sensors	Wall-Switch Occupancy Sensors	No Occupancy Sensor	Per installation	New	5	10	\$30	85%	95%	\$0.78	4,199
Utah	Single Family	Microwave	Microwave, High Efficiency	High Efficiency Microwave	Standard Microwave	Per installation	Existing	9	15	\$79	100%	N/A	\$0.92	4,453
Utah	Single Family	Microwave	Microwave, High Efficiency	High Efficiency Microwave	Standard Microwave	Per installation	New	9	15	\$79	100%	N/A	\$0.92	1,711
Utah	Single Family	Monitor	Monitor, Energy Star	Energy Star Monitor	Standard Monitor	Per installation	Existing	36	5	\$3	100%	N/A	\$0.03	24,082
Utah	Single Family	Monitor	Monitor, Energy Star	Energy Star Monitor	Standard Monitor	Per installation	New	36	5	\$3	100%	N/A	\$0.03	2,599
Utah	Single Family	Plug Load Other	1-Watt Standby Power	1W or less standby power use for small appliances	Standard plug load appliance.	Per installation	Existing	17	7	\$30	50%	50%	\$0.32	24,871
Utah	Single Family	Plug Load Other	Energy Star Battery Chargers	Energy Star Battery Chargers	Standard Battery Chargers	Per installation	Existing	0.99	7	\$33	50%	80%	\$6.46	3,036
Utah	Single Family	Plug Load Other	Office Copier	Office Copier	Standard Copier	Per installation	Existing	39	6	\$5	20%	50%	\$0.03	3,026
Utah	Single Family	Plug Load Other	Office Printer	Office Printer	Standard Printer	Per installation	Existing	5	5	\$5	50%	50%	\$0.24	969
Utah	Single Family	Plug Load Other	Smart Strip	Smart Strip	Standard PowerStrip	Per installation	Existing	103	5	\$22	50%	85%	\$0.05	33,255
Utah	Single Family	Plug Load Other	1-Watt Standby Power	1W or less standby power use for small appliances	Standard plug load appliance.	Per installation	New	17	7	\$30	50%	50%	\$0.32	10,405
Utah	Single Family	Plug Load Other	Energy Star Battery Chargers	Energy Star Battery Chargers	Standard Battery Chargers	Per installation	New	0.99	7	\$2	50%	80%	\$0.49	1,290
Utah	Single Family	Plug Load Other	Office Copier	Office Copier	Standard Copier	Per installation	New	38	6	\$5	20%	50%	\$0.03	1,264
Utah	Single Family	Plug Load Other	Office Printer	Office Printer	Standard Printer	Per installation	New	4	5	\$5	50%	50%	\$0.25	405
Utah	Single Family	Plug Load Other	Smart Strip	Smart Strip	Standard PowerStrip	Per installation	New	102	5	\$22	50%	85%	\$0.05	13,892
Utah	Single Family	Pool Pump	Pool Pump Timers	Pool Pump Timers	Pool Pump No Timers	Per installation	Existing	296	10	\$45	95%	50%	\$0.02	1,345
Utah	Single Family	Pool Pump	Pool Pump, 2 Speed	2 Speed Pool Pump	Standard 1 Speed Pool Pump	Per installation	Existing	570	10	\$110	75%	N/A	\$0.03	1,451
Utah	Single Family	Pool Pump	Pool Pump, VSD	VSD Pool Pump	Standard 1 Speed Pool Pump	Per installation	Existing	630	10	\$819	75%	N/A	\$0.19	3,699
Utah	Single Family	Pool Pump	Pool Pump Timers	Pool Pump Timers	Pool Pump No Timers	Per installation	New	297	10	\$45	95%	50%	\$0.02	576
Utah	Single Family	Pool Pump	Pool Pump, 2 Speed	2 Speed Pool Pump	Standard 1 Speed Pool Pump	Per installation	New	570	10	\$110	75%	N/A	\$0.03	351
Utah	Single Family	Pool Pump	Pool Pump, VSD	VSD Pool Pump	Standard 1 Speed Pool Pump	Per installation	New	630	10	\$819	75%	N/A	\$0.19	783
Utah	Single Family	Refrigerator	Refrigerator, Energy Star	Energy Star Refrigerator	Standard Refrigerator	Per installation	Existing	122	20	\$15	91%	N/A	\$0.01	11,112
Utah	Single Family	Refrigerator	Refrigerator/Freezer - Removal of Secondary	Proper Disposal of Refrigerator/Freezer	Existing Non-Efficient Refrigerator/Freezer	Per installation	Existing	1,330	9	\$81	7%	90%	\$0.01	13,605
Utah	Single Family	Refrigerator	Refrigerator, Energy Star	Energy Star Refrigerator	Standard Refrigerator	Per installation	New	122	20	\$15	100%	N/A	\$0.01	8,224
Utah	Single Family	Set Top Box	Set Top Box, Energy Star	Energy Star Set Top Box	Standard Set Top Box	Per installation	Existing	164	5	\$12	100%	N/A	\$0.02	64,379
Utah	Single Family	Set Top Box	Set Top Box, Energy Star	Energy Star Set Top Box	Standard Set Top Box	Per installation	New	164	5	\$12	100%	N/A	\$0.02	6,373
Utah	Single Family	Tv	TV CRT, Energy Star	Energy Star CRT TV	Standard CRT TV	Per installation	Existing	112	10	\$19	100%	N/A	\$0.02	13,786
Utah	Single Family	Tv	TV CRT, Energy Star	Energy Star CRT TV	Standard CRT TV	Per installation	New	112	10	\$19	100%	N/A	\$0.02	26,942
Utah	Single Family	Tv Bigscreen	TV LCD, Energy Star	Energy Star LCD TV	Standard LCD TV	Per installation	Existing	223	10	\$19	100%	N/A	\$0.01	60,891
Utah	Single Family	Tv Bigscreen	TV LCD, Energy Star	Energy Star LCD TV	Standard LCD TV	Per installation	New	223	10	\$19	100%	N/A	\$0.01	14,418
Utah	Single Family	Ventilation And Circulation	Motor, ECM	ECM Motor	Standard Motor	Per installation	Existing	164	20	\$172	50%	N/A	\$0.10	17,752
Utah	Single Family	Ventilation And Circulation	Motor, ECM - VFD	ECM/VFD Motor	Standard Motor	Per installation	Existing	492	20	\$194	50%	N/A	\$0.04	53,257
Utah	Single Family	Ventilation And Circulation	Motor, ECM	ECM Motor	Standard Motor	Per installation	New	113	20	\$172	50%	N/A	\$0.15	6,722

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Utah	Single Family	Ventilation And Circulation	Motor, ECM - VFD	ECMVFD Motor	Standard Motor	Per installation	New	339	20	\$194	50%	N/A	\$0.06	20,166
Utah	Single Family	Water Heat	Clothes Washer	Energy Star - Tier 1 (MEF 2.0 - 2.19) - Electric DHW & Dryer	MEF = 1.66 - Electric DHW & Dryer	Per installation	Existing	113	14	\$227	100%	87%	\$0.23	2,356
Utah	Single Family	Water Heat	Clothes Washer	Energy Star - Tier 2 (MEF 2.2 - 2.45) - Electric DHW & Dryer	MEF = 1.66 - Electric DHW & Dryer	Per installation	Existing	151	14	\$296	100%	90%	\$0.23	3,260
Utah	Single Family	Water Heat	Clothes Washer	Energy Star - Tier 3 (MEF 2.46 or higher) Top 10% of Energy Star Model - Electric DHW & Dryer	MEF = 1.66 - Electric DHW & Dryer	Per installation	Existing	172	14	\$317	100%	95%	\$0.22	3,921
Utah	Single Family	Water Heat	Dishwasher	Energy Star, July 1st 2011, <= 307 kWh/year , <= 5.0 gallons/cycle	Energy Star - EF65 (6th Plan Baseline)	Per installation	Existing	33	12	\$42	73%	50%	\$0.16	873
Utah	Single Family	Water Heat	Drain Water Heat Recovery (GFX)	Gravity Film Heat Exchanger	No Heat Exchanger	Per installation	Existing	405	40	\$506	29%	90%	\$0.10	6,291
Utah	Single Family	Water Heat	Faucet Aerators	0.5 GPM	2.2 GPM	Per installation	Existing	82	9	\$0.71	95%	95%	\$0.00	8,078
Utah	Single Family	Water Heat	Faucet Aerators	1.5 GPM	2.2 GPM	Per installation	Existing	34	9	\$0.46	95%	65%	\$0.00	2,291
Utah	Single Family	Water Heat	Faucet Aerators	2.2 GPM	Existing Faucet Aerator (3.0 GPM)	Per installation	Existing	38	9	\$1	95%	25%	\$0.01	1,970
Utah	Single Family	Water Heat	Hot Water Pipe Insulation	R-4 Wrap	No insulation	Per installation	Existing	40	5	\$18	95%	75%	\$0.11	1,628
Utah	Single Family	Water Heat	Low-Flow Showerheads	2.0 GPM	2.5 GPM	Per installation	Existing	113	10	\$16	95%	65%	\$0.02	10,066
Utah	Single Family	Water Heat	Water Heater, Heat Pump EF 2.2	Heat Pump Water Heater EF = 2.2	Standard Storage Water Heater EF = 0.92	Per installation	Existing	1,653	15	\$1,301	59%	N/A	\$0.09	34,517
Utah	Single Family	Water Heat	Water Heater, Storage EF 0.95	Standard Storage Water Heater EF = 0.95	Standard Storage Water Heater EF = 0.92	Per installation	Existing	92	15	\$42	100%	N/A	\$0.05	293
Utah	Single Family	Water Heat	Water_Heater Tank Blanket/Insulation	Install Insulation (R-5)	No Tank Insulation	Per installation	Existing	188	10	\$11	50%	20%	\$0.01	1,139
Utah	Single Family	Water Heat	Water_Heater Thermostat Setback	120 degrees	135 degrees	Per installation	Existing	173	5	\$6	95%	45%	\$0.01	4,469
Utah	Single Family	Water Heat	Clothes Washer	Energy Star - Tier 1 (MEF 2.0 - 2.19) - Electric DHW & Dryer	MEF = 1.66 - Electric DHW & Dryer	Per installation	New	111	14	\$227	100%	87%	\$0.24	1,010
Utah	Single Family	Water Heat	Clothes Washer	Energy Star - Tier 2 (MEF 2.2 - 2.45) - Electric DHW & Dryer	MEF = 1.66 - Electric DHW & Dryer	Per installation	New	148	14	\$296	100%	90%	\$0.23	1,398
Utah	Single Family	Water Heat	Clothes Washer	Energy Star - Tier 3 (MEF 2.46 or higher) Top 10% of Energy Star Model - Electric DHW & Dryer	MEF = 1.66 - Electric DHW & Dryer	Per installation	New	169	14	\$317	100%	95%	\$0.22	1,681
Utah	Single Family	Water Heat	Dishwasher	Energy Star, July 1st 2011, <= 307 kWh/year , <= 5.0 gallons/cycle	Energy Star - EF65 (6th Plan Baseline)	Per installation	New	32	12	\$42	73%	50%	\$0.17	374
Utah	Single Family	Water Heat	Drain Water Heat Recovery (GFX)	Gravity Film Heat Exchanger	No Heat Exchanger	Per installation	New	403	40	\$495	59%	90%	\$0.10	5,569
Utah	Single Family	Water Heat	Faucet Aerators	0.5 GPM	2.2 GPM	Per installation	New	81	9	\$0.71	95%	95%	\$0.00	3,463
Utah	Single Family	Water Heat	Faucet Aerators	1.5 GPM	2.2 GPM	Per installation	New	33	9	\$0.46	95%	65%	\$0.00	982
Utah	Single Family	Water Heat	Hot Water Pipe Insulation	R-4 Wrap	No insulation	Per installation	New	39	5	\$18	95%	75%	\$0.12	684
Utah	Single Family	Water Heat	Low-Flow Showerheads	2.0 GPM	2.5 GPM	Per installation	New	111	10	\$9	95%	65%	\$0.01	4,315
Utah	Single Family	Water Heat	Water Heater, Heat Pump EF 2.2	Heat Pump Water Heater EF = 2.2	Standard Storage Water Heater EF = 0.92	Per installation	New	1,653	15	\$1,301	59%	N/A	\$0.09	12,632
Utah	Single Family	Water Heat	Water Heater, Storage EF 0.95	Standard Storage Water Heater EF = 0.95	Standard Storage Water Heater EF = 0.92	Per installation	New	92	15	\$42	100%	N/A	\$0.05	101
Utah	Single Family	Water Heat	Water_Heater Thermostat Setback	120 degrees	135 degrees	Per installation	New	172	5	\$6	95%	45%	\$0.01	1,977
Washington	Manufactured	Computer	Computer, Energy Star	Energy Star Computer	Standard Computer	Per installation	Existing	51	5	\$24	100%	N/A	\$0.13	325
Washington	Manufactured	Computer	Computer, Energy Star	Energy Star Computer	Standard Computer	Per installation	New	51	5	\$24	100%	N/A	\$0.13	10
Washington	Manufactured	Cooking Oven	Cooking Oven, High Efficiency	High Efficiency Oven	Standard Oven	Per installation	Existing	58	20	\$282	100%	N/A	\$0.55	154
Washington	Manufactured	Cooking Oven	Cooking Oven, High Efficiency	High Efficiency Oven	Standard Oven	Per installation	New	58	20	\$282	100%	N/A	\$0.55	24
Washington	Manufactured	Cool Central	Air-to-Air Heat Exchangers	Air-to-Air Heat Exchangers	No Air to Air Heat Exchangers	Per installation	Existing	115	5	\$565	25%	95%	\$1.39	180
Washington	Manufactured	Cool Central	Canned Lighting Air Tight Sealing	Canned Lighting Air Tight Sealing	No Air tight Sealing	Per installation	Existing	3	30	\$24	95%	50%	\$0.63	56

Table C.2.1. Residential Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Washington	Manufactured	Cool Central	Ceiling Fan	Ceiling Fan (no lighting kit)	No Ceiling Fan	Per installation	Existing	46	10	\$90	85%	35%	\$0.33	180
Washington	Manufactured	Cool Central	Ceiling Insulation (WA) above code	R-60	R-49	Per installation	Existing	15	25	\$424	40%	95%	\$2.76	23
Washington	Manufactured	Cool Central	Ceiling Insulation (WA) ave to code	R-49	R-10	Per installation	Existing	238	25	\$1,957	75%	35%	\$0.84	286
Washington	Manufactured	Cool Central	Ceiling Insulation (WA) zero to code	R-49	R-0	Per installation	Existing	477	25	\$1,957	75%	1%	\$0.42	19
Washington	Manufactured	Cool Central	Central Cooling, SEER 15	SEER 15	SEER 13	Per installation	Existing	139	15	\$595	100%	N/A	\$0.55	65
Washington	Manufactured	Cool Central	Central Cooling, SEER 18	SEER 18	SEER 13	Per installation	Existing	348	15	\$1,490	100%	N/A	\$0.55	939
Washington	Manufactured	Cool Central	Check Me! O&M Tune-up	Tune-up/Maintenance	No Tune-up Maintenance	Per installation	Existing	36	5	\$192	95%	75%	\$1.51	168
Washington	Manufactured	Cool Central	Cool Roofs	Lighter Colored Shingles (White)	Standard Roof Shingles	Per installation	Existing	13	20	\$351	85%	95%	\$2.87	43
Washington	Manufactured	Cool Central	Doors	R-11 (Steel Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	Existing	12	20	\$167	95%	80%	\$1.49	40
Washington	Manufactured	Cool Central	Doors	R-5 (Composite Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	Existing	8	20	\$196	95%	60%	\$2.63	19
Washington	Manufactured	Cool Central	Doors - Weatherization	Weatherstripping And Adding Door Sweeps	Existing Non-Efficient door	Per installation	Existing	5	6	\$45	95%	50%	\$2.05	21
Washington	Manufactured	Cool Central	Duct Insulation Upgrade	R-8 (code)	R-4	Per installation	Existing	33	20	\$640	75%	75%	\$2.14	79
Washington	Manufactured	Cool Central	Duct Sealing	Duct Sealing	No Duct Sealing	Per installation	Existing	115	18	\$635	75%	60%	\$0.65	158
Washington	Manufactured	Cool Central	Duct Sealing - Aerosol-Based	Spray-in ductwork sealant to minimize duct leaks	No Duct Sealing	Per installation	Existing	172	18	\$787	75%	60%	\$0.54	122
Washington	Manufactured	Cool Central	Floor Insulation (WA) above code	R-38	R-30	Per installation	Existing	23	25	\$572	25%	85%	\$2.53	19
Washington	Manufactured	Cool Central	Floor Insulation (WA) zero to code	R-30	R-0	Per installation	Existing	454	25	\$2,123	25%	20%	\$0.48	121
Washington	Manufactured	Cool Central	Infiltration Control (Caulk, Weather Strip, etc.) Blower-Door test	Install Caulking And Weatherstripping	Existing Infiltration Conditions	Per installation	Existing	115	11	\$481	75%	50%	\$0.65	213
Washington	Manufactured	Cool Central	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands (5 per unit)	13 SEER	Per installation	Existing	176	30	\$590	50%	95%	\$0.32	46
Washington	Manufactured	Cool Central	Proper Sizing - HVAC Unit	Proper Sizing - HVAC Unit	Oversized HVAC Unit	Per installation	Existing	108	15	\$-7.6	95%	65%	\$-0.01	441
Washington	Manufactured	Cool Central	Radiant Barrier (Ceiling)	Install Radiant Barrier	No Radiant Barrier	Per installation	Existing	69	25	\$730	25%	90%	\$1.08	67
Washington	Manufactured	Cool Central	Thermostat - Multi-Zone	Individual Room Temperature Control for Major Occupied Rooms	Programmable Thermostat - Central Control Only	Per installation	Existing	78	11	\$1,075	50%	95%	\$2.15	154
Washington	Manufactured	Cool Central	Wall Insulation 2x4 (WA) zero to max feasible	R-13	R-0	Per installation	Existing	271	25	\$1,778	85%	25%	\$0.67	205
Washington	Manufactured	Cool Central	Wall Insulation 2x6 (WA) zero to code	R-21	R-0	Per installation	Existing	463	25	\$2,043	75%	25%	\$0.45	118
Washington	Manufactured	Cool Central	Whole-House Fan	Whole-House Fan	No Whole-House Fan	Per installation	Existing	172	20	\$1,543	50%	95%	\$1.00	270
Washington	Manufactured	Cool Central	Windows (Same for all Building Types)	CL25	CL30	Per installation	Existing	1	25	\$383	65%	85%	\$20.06	4
Washington	Manufactured	Cool Central	Windows (Same for all Building Types)	CL30	Double Pane	Per installation	Existing	20	25	\$3,951	65%	50%	\$19.34	26
Washington	Manufactured	Cool Central	Windows (Same for all Building Types)	CL30	Single Pane	Per installation	Existing	32	25	\$3,951	65%	20%	\$12.34	16
Washington	Manufactured	Cool Central	Air-to-Air Heat Exchangers	Air-to-Air Heat Exchangers	No Air to Air Heat Exchangers	Per installation	New	105	5	\$565	25%	95%	\$1.53	22
Washington	Manufactured	Cool Central	Ceiling Fan	Ceiling Fan (no lighting kit)	No Ceiling Fan	Per installation	New	42	10	\$90	85%	35%	\$0.36	22
Washington	Manufactured	Cool Central	Ceiling Insulation (WA) above code	R-60	R-49	Per installation	New	19	25	\$424	60%	95%	\$2.18	7
Washington	Manufactured	Cool Central	Central Cooling, SEER 15	SEER 15	SEER 13	Per installation	New	144	15	\$595	100%	N/A	\$0.53	10
Washington	Manufactured	Cool Central	Central Cooling, SEER 18	SEER 18	SEER 13	Per installation	New	361	15	\$1,490	100%	N/A	\$0.53	137
Washington	Manufactured	Cool Central	Check Me! O&M Tune-up	Tune-up/Maintenance	No Tune-up Maintenance	Per installation	New	32	5	\$192	95%	75%	\$1.66	21
Washington	Manufactured	Cool Central	Cool Roofs	Lighter Colored Shingles (White)	Standard Roof Shingles	Per installation	New	12	20	\$351	85%	95%	\$3.15	5

Table C.2.1. Residential Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Washington	Manufactured	Cool Central	Doors	R-11 (Steel Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	New	11	20	\$25	95%	80%	\$0.24	6
Washington	Manufactured	Cool Central	Doors	R-5 (Composite Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	New	7	20	\$54	95%	60%	\$0.79	3
Washington	Manufactured	Cool Central	Floor Insulation (WA) above code	R-38	R-30	Per installation	New	21	25	\$572	75%	85%	\$2.78	8
Washington	Manufactured	Cool Central	Green Roof	ecorooF	Standard Roof	Per installation	New	53	40	\$17,622	20%	95%	\$29.75	1
Washington	Manufactured	Cool Central	Proper Sizing - HVAC Unit	Proper Sizing - HVAC Unit	Oversized HVAC Unit	Per installation	New	99	15	-\$7.6	95%	65%	-\$0.01	55
Washington	Manufactured	Cool Central	Radiant Barrier (Ceiling)	Install Radiant Barrier	No Radiant Barrier	Per installation	New	63	25	\$730	50%	90%	\$1.18	21
Washington	Manufactured	Cool Central	Smart Siting	Siting house to minimize heating/cooling costs	No smart siting	Per installation	New	57	25	\$748	75%	75%	\$1.32	23
Washington	Manufactured	Cool Central	Thermostat - Multi-Zone	Individual Room Temperature Control for Major Occupied Rooms	Programmable Thermostat - Central Control Only	Per installation	New	71	11	\$1,075	50%	95%	\$2.35	23
Washington	Manufactured	Cool Central	Wall Insulation 2x6 (WA) above code	R-21+R-5 sheathing	R-21	Per installation	New	54	25	\$935	50%	95%	\$1.75	18
Washington	Manufactured	Cool Central	Whole-House Fan	Whole-House Fan	No Whole-House Fan	Per installation	New	157	20	\$1,543	50%	95%	\$1.10	33
Washington	Manufactured	Cool Central	Windows (Same for all Building Types)	CL22	CL30	Per installation	New	3	25	\$444	95%	75%	\$12.42	1
Washington	Manufactured	Cool Central	Windows (Same for all Building Types)	CL25	CL30	Per installation	New	2	25	\$383	95%	75%	\$15.87	1
Washington	Manufactured	Cool Room	Canned Lighting Air Tight Sealing	Canned Lighting Air Tight Sealing	No Air tight Sealing	Per installation	Existing	2	30	\$24	95%	50%	\$1.18	9
Washington	Manufactured	Cool Room	Ceiling Fan	Ceiling Fan (no lighting kit)	No Ceiling Fan	Per installation	Existing	24	10	\$90	85%	35%	\$0.62	25
Washington	Manufactured	Cool Room	Ceiling Insulation (WA) above code	R-60	R-49	Per installation	Existing	8	25	\$424	40%	95%	\$5.05	4
Washington	Manufactured	Cool Room	Ceiling Insulation (WA) ave to code	R-49	R-10	Per installation	Existing	129	25	\$1,957	75%	35%	\$1.55	51
Washington	Manufactured	Cool Room	Ceiling Insulation (WA) zero to code	R-49	R-0	Per installation	Existing	259	25	\$1,957	75%	1%	\$0.77	3
Washington	Manufactured	Cool Room	Cool Roofs	Lighter Colored Shingles (White)	Standard Roof Shingles	Per installation	Existing	7	20	\$351	85%	95%	\$5.41	8
Washington	Manufactured	Cool Room	Doors	R-11 (Steel Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	Existing	6	20	\$167	95%	80%	\$2.81	7
Washington	Manufactured	Cool Room	Doors	R-5 (Composite Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	Existing	4	20	\$196	95%	60%	\$4.94	3
Washington	Manufactured	Cool Room	Doors - Weatherization	Weatherstripping And Adding Door Sweeps	Existing Non-Efficient door	Per installation	Existing	2	6	\$45	95%	50%	\$3.86	3
Washington	Manufactured	Cool Room	Floor Insulation (WA) above code	R-38	R-30	Per installation	Existing	12	25	\$572	25%	85%	\$4.72	3
Washington	Manufactured	Cool Room	Floor Insulation (WA) zero to code	R-30	R-0	Per installation	Existing	243	25	\$2,123	25%	20%	\$0.89	20
Washington	Manufactured	Cool Room	Infiltration Control (Caulk, Weather Strip, etc.) Blower-Door test	Install Caulking And Weatherstripping	Existing Infiltration Conditions	Per installation	Existing	61	11	\$481	75%	50%	\$1.23	37
Washington	Manufactured	Cool Room	Radiant Barrier (Ceiling)	Install Radiant Barrier	No Radiant Barrier	Per installation	Existing	36	25	\$730	25%	90%	\$2.03	11
Washington	Manufactured	Cool Room	Room AC conversion to Ductless Heat Pump	SEER 13	EER 9.8	Per installation	Existing	36	20	\$2,626	75%	N/A	\$7.97	71
Washington	Manufactured	Cool Room	Room AC, EER 10.8	EER 10.8	EER 9.8	Per installation	Existing	29	9	\$7	100%	N/A	\$0.04	14
Washington	Manufactured	Cool Room	Wall Insulation 2x4 (WA) zero to max feasible	R-13	R-0	Per installation	Existing	147	25	\$1,778	85%	25%	\$1.24	36
Washington	Manufactured	Cool Room	Wall Insulation 2x6 (WA) zero to code	R-21	R-0	Per installation	Existing	251	25	\$2,043	75%	25%	\$0.83	20
Washington	Manufactured	Cool Room	Windows (Same for all Building Types)	CL25	CL30	Per installation	Existing	1	25	\$383	65%	85%	\$36.57	0.79
Washington	Manufactured	Cool Room	Windows (Same for all Building Types)	CL30	Double Pane	Per installation	Existing	11	25	\$3,951	65%	50%	\$35.25	5
Washington	Manufactured	Cool Room	Windows (Same for all Building Types)	CL30	Single Pane	Per installation	Existing	17	25	\$3,951	65%	20%	\$22.49	3

Table C.2.1. Residential Measure Details

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Washington	Manufactured	Cool Room	Ceiling Fan	Ceiling Fan (no lighting kit)	No Ceiling Fan	Per installation	New	20	10	\$90	85%	35%	\$0.74	2
Washington	Manufactured	Cool Room	Ceiling Insulation (WA) above code	R-60	R-49	Per installation	New	9	25	\$424	60%	95%	\$4.35	1
Washington	Manufactured	Cool Room	Cool Roofs	Lighter Colored Shingles (White)	Standard Roof Shingles	Per installation	New	6	20	\$351	85%	95%	\$6.47	0.80
Washington	Manufactured	Cool Room	Doors	R-11 (Steel Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	New	5	20	\$25	95%	80%	\$0.50	0.98
Washington	Manufactured	Cool Room	Doors	R-5 (Composite Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	New	3	20	\$54	95%	60%	\$1.62	0.48
Washington	Manufactured	Cool Room	Floor Insulation (WA) above code	R-38	R-30	Per installation	New	10	25	\$572	75%	85%	\$5.65	1
Washington	Manufactured	Cool Room	Green Roof	ecorooft	Standard Roof	Per installation	New	26	40	\$17,622	20%	95%	\$61.07	0.20
Washington	Manufactured	Cool Room	Radiant Barrier (Ceiling)	Install Radiant Barrier	No Radiant Barrier	Per installation	New	30	25	\$730	50%	90%	\$2.43	3
Washington	Manufactured	Cool Room	Room AC conversion to Ductless Heat Pump	SEER 13	EER 9.8	Per installation	New	32	20	\$2,626	75%	N/A	\$9.18	4
Washington	Manufactured	Cool Room	Room AC, EER 10.8	EER 10.8	EER 9.8	Per installation	New	25	9	\$7	100%	N/A	\$0.05	1
Washington	Manufactured	Cool Room	Smart Siting	Siting house to minimize heating/cooling costs	No smart siting	Per installation	New	28	25	\$748	75%	75%	\$2.72	3
Washington	Manufactured	Cool Room	Wall Insulation 2x6 (WA) above code	R-21+R-5 sheathing	R-21	Per installation	New	27	25	\$935	50%	95%	\$3.53	2
Washington	Manufactured	Cool Room	Windows (Same for all Building Types)	CL22	CL30	Per installation	New	1	25	\$444	95%	75%	\$24.46	0.27
Washington	Manufactured	Cool Room	Windows (Same for all Building Types)	CL25	CL30	Per installation	New	1	25	\$383	95%	75%	\$31.55	0.18
Washington	Manufactured	Dryer	Dryer, Advanced Efficiency EF 3.30	Advanced Efficiency Dryer 3.30	Standard Dryer EF 3.01	Per installation	Existing	38	14	\$224	100%	N/A	\$0.79	245
Washington	Manufactured	Dryer	Dryer, High Efficiency EF 3.08	High Efficiency Dryer EF 3.08	Standard Dryer EF 3.01	Per installation	Existing	9	14	\$54	100%	N/A	\$0.74	5
Washington	Manufactured	Dryer	Dryer, Premium Efficiency EF 3.19	Premium Efficiency Dryer 3.19	Standard Dryer EF 3.01	Per installation	Existing	24	14	\$139	100%	N/A	\$0.76	36
Washington	Manufactured	Dryer	Dryer, Advanced Efficiency EF 3.30	Advanced Efficiency Dryer 3.30	Standard Dryer EF 3.01	Per installation	New	38	14	\$224	100%	N/A	\$0.79	26
Washington	Manufactured	Dryer	Dryer, High Efficiency EF 3.08	High Efficiency Dryer EF 3.08	Standard Dryer EF 3.01	Per installation	New	9	14	\$54	100%	N/A	\$0.74	0.61
Washington	Manufactured	Dryer	Dryer, Premium Efficiency EF 3.19	Premium Efficiency Dryer 3.19	Standard Dryer EF 3.01	Per installation	New	24	14	\$139	100%	N/A	\$0.76	4
Washington	Manufactured	Freezer	Freezer, Energy Star	Energy Star Freezer	Standard Freezer	Per installation	Existing	46	20	\$22	76%	N/A	\$0.05	38
Washington	Manufactured	Freezer	Stand-Alone Freezer - Removal	Proper Disposal of Freezer	Existing Non-Efficient Freezer	Per installation	Existing	1,418	8	\$93	17%	97%	\$0.01	254
Washington	Manufactured	Freezer	Freezer, Energy Star	Energy Star Freezer	Standard Freezer	Per installation	New	46	20	\$22	76%	N/A	\$0.05	11
Washington	Manufactured	Heat Central	Air-to-Air Heat Exchangers	Air-to-Air Heat Exchangers	No Air to Air Heat Exchangers	Per installation	Existing	1,158	5	\$565	25%	95%	\$0.14	1,676
Washington	Manufactured	Heat Central	Canned Lighting Air Tight Sealing	Canned Lighting Air Tight Sealing	No Air tight Sealing	Per installation	Existing	53	30	\$24	95%	50%	\$0.05	840
Washington	Manufactured	Heat Central	Ceiling Insulation (WA) above code	R-60	R-49	Per installation	Existing	217	25	\$424	40%	95%	\$0.20	358
Washington	Manufactured	Heat Central	Ceiling Insulation (WA) ave to code	R-49	R-10	Per installation	Existing	3,289	25	\$1,957	75%	35%	\$0.06	4,466
Washington	Manufactured	Heat Central	Ceiling Insulation (WA) zero to code	R-49	R-0	Per installation	Existing	6,588	25	\$1,957	75%	1%	\$0.03	290
Washington	Manufactured	Heat Central	Conversion Electric Furnace to ASHP	Air Source Heat Pump Seer 13 HSPF 7.7	Electric Furnace HSPF 1	Per installation	Existing	6,217	20	\$2,820	100%	N/A	\$0.05	10,753
Washington	Manufactured	Heat Central	Doors	R-11 (Steel Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	Existing	173	20	\$167	95%	80%	\$0.11	604
Washington	Manufactured	Heat Central	Doors	R-5 (Composite Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	Existing	115	20	\$196	95%	60%	\$0.19	288
Washington	Manufactured	Heat Central	Doors - Weatherization	Weatherstripping And Adding Door Sweeps	Existing Non-Efficient door	Per installation	Existing	75	6	\$45	95%	50%	\$0.15	323
Washington	Manufactured	Heat Central	Duct Insulation Upgrade	R-8 (code)	R-4	Per installation	Existing	463	20	\$640	75%	75%	\$0.15	1,171
Washington	Manufactured	Heat Central	Duct Sealing	Duct Sealing	No Duct Sealing	Per installation	Existing	1,158	18	\$635	75%	15%	\$0.06	374
Washington	Manufactured	Heat Central	Duct Sealing - Aerosol-Based	Spray-in ductwork sealant to minimize duct leaks	No Duct Sealing	Per installation	Existing	1,737	18	\$787	75%	15%	\$0.05	304

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Washington	Manufactured	Heat Central	Floor Insulation (WA) above code	R-38	R-30	Per installation	Existing	319	25	\$572	25%	85%	\$0.18	298
Washington	Manufactured	Heat Central	Floor Insulation (WA) zero to code	R-30	R-0	Per installation	Existing	6,277	25	\$2,123	25%	20%	\$0.03	1,791
Washington	Manufactured	Heat Central	Infiltration Control (Caulk, Weather Strip, etc.) Blower-Door test	Install Caulking And Weatherstripping	Existing Infiltration Conditions	Per installation	Existing	1,158	11	\$481	75%	50%	\$0.07	2,064
Washington	Manufactured	Heat Central	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands (5 per unit)	13 SEER	Per installation	Existing	2,432	30	\$590	50%	15%	\$0.02	107
Washington	Manufactured	Heat Central	Proper Sizing - HVAC Unit	Proper Sizing - HVAC Unit	Oversized HVAC Unit	Per installation	Existing	1,091	15	\$-7.6	15%	65%	\$-0.00	648
Washington	Manufactured	Heat Central	Radiant Barrier (Ceiling)	Install Radiant Barrier	No Radiant Barrier	Per installation	Existing	231	25	\$730	25%	90%	\$0.32	217
Washington	Manufactured	Heat Central	Thermostat - Multi-Zone	Individual Room Temperature Control for Major Occupied Rooms	Programmable Thermostat - Central Control Only	Per installation	Existing	787	11	\$1,075	50%	95%	\$0.21	1,613
Washington	Manufactured	Heat Central	Wall Insulation 2x4 (WA) zero to max feasible	R-13	R-0	Per installation	Existing	3,744	25	\$1,778	85%	25%	\$0.05	3,271
Washington	Manufactured	Heat Central	Wall Insulation 2x6 (WA) zero to code	R-21	R-0	Per installation	Existing	6,395	25	\$2,043	75%	25%	\$0.03	1,756
Washington	Manufactured	Heat Central	Windows (Same for all Building Types)	CL25	CL30	Per installation	Existing	26	25	\$383	65%	85%	\$1.45	61
Washington	Manufactured	Heat Central	Windows (Same for all Building Types)	CL30	Double Pane	Per installation	Existing	288	25	\$3,951	65%	50%	\$1.40	387
Washington	Manufactured	Heat Central	Windows (Same for all Building Types)	CL30	Single Pane	Per installation	Existing	452	25	\$3,951	65%	20%	\$0.89	244
Washington	Manufactured	Heat Central	Air-to-Air Heat Exchangers	Air-to-Air Heat Exchangers	No Air to Air Heat Exchangers	Per installation	New	811	5	\$565	25%	95%	\$0.20	153
Washington	Manufactured	Heat Central	Ceiling Insulation (WA) above code	R-60	R-49	Per installation	New	211	25	\$424	60%	95%	\$0.21	88
Washington	Manufactured	Heat Central	Conversion Electric Furnace to ASHP	Air Source Heat Pump Seer 13 HSPF 7.7	Electric Furnace HSPF 1	Per installation	New	4,359	20	\$2,702	100%	N/A	\$0.07	1,456
Washington	Manufactured	Heat Central	Doors	R-11 (Steel Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	New	121	20	\$25	95%	80%	\$0.02	71
Washington	Manufactured	Heat Central	Doors	R-5 (Composite Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	New	81	20	\$54	95%	60%	\$0.07	35
Washington	Manufactured	Heat Central	Floor Insulation (WA) above code	R-38	R-30	Per installation	New	223	25	\$572	75%	85%	\$0.26	102
Washington	Manufactured	Heat Central	Green Roof	ecorooF	Standard Roof	Per installation	New	568	40	\$17,622	20%	95%	\$2.80	14
Washington	Manufactured	Heat Central	Proper Sizing - HVAC Unit	Proper Sizing - HVAC Unit	Oversized HVAC Unit	Per installation	New	765	15	\$-7.6	15%	65%	\$-0.00	59
Washington	Manufactured	Heat Central	Radiant Barrier (Ceiling)	Install Radiant Barrier	No Radiant Barrier	Per installation	New	162	25	\$730	50%	90%	\$0.46	49
Washington	Manufactured	Heat Central	Smart Siting	Siting house to minimize heating/cooling costs	No smart siting	Per installation	New	25	25	\$748	75%	75%	\$3.04	9
Washington	Manufactured	Heat Central	Thermostat - Multi-Zone	Individual Room Temperature Control for Major Occupied Rooms	Programmable Thermostat - Central Control Only	Per installation	New	552	11	\$1,075	50%	95%	\$0.30	185
Washington	Manufactured	Heat Central	Wall Insulation 2x6 (WA) above code	R-21+R-5 sheathing	R-21	Per installation	New	579	25	\$935	50%	95%	\$0.17	208
Washington	Manufactured	Heat Central	Windows (Same for all Building Types)	CL22	CL30	Per installation	New	38	25	\$444	95%	75%	\$1.17	18
Washington	Manufactured	Heat Central	Windows (Same for all Building Types)	CL25	CL30	Per installation	New	26	25	\$383	95%	75%	\$1.49	12
Washington	Manufactured	Heat Pump	Air-to-Air Heat Exchangers	Air-to-Air Heat Exchangers	No Air to Air Heat Exchangers	Per installation	Existing	956	5	\$565	25%	95%	\$0.17	489
Washington	Manufactured	Heat Pump	Canned Lighting Air Tight Sealing	Canned Lighting Air Tight Sealing	No Air tight Sealing	Per installation	Existing	42	30	\$24	95%	50%	\$0.06	228
Washington	Manufactured	Heat Pump	Ceiling Fan	Ceiling Fan (no lighting kit)	No Ceiling Fan	Per installation	Existing	45	10	\$90	85%	35%	\$0.33	58
Washington	Manufactured	Heat Pump	Ceiling Insulation (WA) above code	R-60	R-49	Per installation	Existing	71	25	\$424	40%	95%	\$0.60	39
Washington	Manufactured	Heat Pump	Ceiling Insulation (WA) ave to code	R-49	R-10	Per installation	Existing	1,137	25	\$1,957	75%	35%	\$0.18	487

Table C.2.1. Residential Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Washington	Manufactured	Heat Pump	Ceiling Insulation (WA) zero to code	R-49	R-0	Per installation	Existing	2,278	25	\$1,957	75%	1%	\$0.09	29
Washington	Manufactured	Heat Pump	Check Me! O&M Tune-up	Tune-up/Maintenance	No Tune-up Maintenance	Per installation	Existing	34	5	\$192	95%	75%	\$1.60	52
Washington	Manufactured	Heat Pump	Cool Roofs	Lighter Colored Shingles (White)	Standard Roof Shingles	Per installation	Existing	13	20	\$351	85%	95%	\$2.92	15
Washington	Manufactured	Heat Pump	Doors	R-11 (Steel Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	Existing	138	20	\$167	95%	80%	\$0.14	178
Washington	Manufactured	Heat Pump	Doors	R-5 (Composite Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	Existing	92	20	\$196	95%	60%	\$0.24	80
Washington	Manufactured	Heat Pump	Doors - Weatherization	Weatherstripping And Adding Door Sweeps	Existing Non-Efficient door	Per installation	Existing	62	6	\$45	95%	50%	\$0.18	93
Washington	Manufactured	Heat Pump	Duct Insulation Upgrade	R-8 (code)	R-4	Per installation	Existing	370	20	\$640	75%	75%	\$0.19	327
Washington	Manufactured	Heat Pump	Duct Sealing	Duct Sealing	No Duct Sealing	Per installation	Existing	956	18	\$635	75%	60%	\$0.08	471
Washington	Manufactured	Heat Pump	Duct Sealing - Aerosol-Based	Spray-in ductwork sealant to minimize duct leaks	No Duct Sealing	Per installation	Existing	1,434	18	\$787	75%	60%	\$0.06	360
Washington	Manufactured	Heat Pump	Floor Insulation (WA) above code	R-38	R-30	Per installation	Existing	264	25	\$572	25%	85%	\$0.22	86
Washington	Manufactured	Heat Pump	Floor Insulation (WA) zero to code	R-30	R-0	Per installation	Existing	5,182	25	\$2,123	25%	20%	\$0.04	502
Washington	Manufactured	Heat Pump	Heat Pump High Efficiency, SEER 14, HSPF 8.5	ASHP SEER 14, HSPF 8.5	ASHP SEER 13, HSPF 7.7	Per installation	Existing	836	20	\$411	100%	N/A	\$0.06	158
Washington	Manufactured	Heat Pump	Heat Pump Premium Efficiency, SEER 16, HSPF 8.8	ASHP SEER 16, HSPF 8.8	ASHP SEER 13, HSPF 7.7	Per installation	Existing	1,194	20	\$1,233	100%	N/A	\$0.12	731
Washington	Manufactured	Heat Pump	Infiltration Control (Caulk, Weather Strip, etc.) Blower-Door test	Install Caulking And Weatherstripping	Existing Infiltration Conditions	Per installation	Existing	956	11	\$481	75%	50%	\$0.08	637
Washington	Manufactured	Heat Pump	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands (5 per unit)	13 SEER	Per installation	Existing	2,008	30	\$590	50%	95%	\$0.03	186
Washington	Manufactured	Heat Pump	Proper Sizing - HVAC Unit	Proper Sizing - HVAC Unit	Oversized HVAC Unit	Per installation	Existing	901	15	\$-7.6	95%	65%	\$-0.00	1,201
Washington	Manufactured	Heat Pump	Radiant Barrier (Ceiling)	Install Radiant Barrier	No Radiant Barrier	Per installation	Existing	248	25	\$730	25%	90%	\$0.30	82
Washington	Manufactured	Heat Pump	Thermostat - Multi-Zone	Individual Room Temperature Control for Major Occupied Rooms	Programmable Thermostat - Central Control Only	Per installation	Existing	650	11	\$1,075	50%	95%	\$0.26	469
Washington	Manufactured	Heat Pump	Wall Insulation 2x4 (WA) zero to max feasible	R-13	R-0	Per installation	Existing	1,288	25	\$1,778	85%	25%	\$0.14	342
Washington	Manufactured	Heat Pump	Wall Insulation 2x6 (WA) zero to code	R-21	R-0	Per installation	Existing	2,199	25	\$2,043	75%	25%	\$0.10	176
Washington	Manufactured	Heat Pump	Whole-House Fan	Whole-House Fan	No Whole-House Fan	Per installation	Existing	170	20	\$1,543	50%	95%	\$1.02	87
Washington	Manufactured	Heat Pump	Windows (Same for all Building Types)	CL25	CL30	Per installation	Existing	9	25	\$383	65%	85%	\$4.25	7
Washington	Manufactured	Heat Pump	Windows (Same for all Building Types)	CL30	Double Pane	Per installation	Existing	98	25	\$3,951	65%	50%	\$4.10	46
Washington	Manufactured	Heat Pump	Windows (Same for all Building Types)	CL30	Single Pane	Per installation	Existing	154	25	\$3,951	65%	20%	\$2.62	29
Washington	Manufactured	Heat Pump	Air-to-Air Heat Exchangers	Air-to-Air Heat Exchangers	No Air to Air Heat Exchangers	Per installation	New	814	5	\$565	25%	95%	\$0.20	56
Washington	Manufactured	Heat Pump	Ceiling Fan	Ceiling Fan (no lighting kit)	No Ceiling Fan	Per installation	New	38	10	\$90	85%	35%	\$0.39	6
Washington	Manufactured	Heat Pump	Ceiling Insulation (WA) above code	R-60	R-49	Per installation	New	80	25	\$424	60%	95%	\$0.54	11
Washington	Manufactured	Heat Pump	Check Me! O&M Tune-up	Tune-up/Maintenance	No Tune-up Maintenance	Per installation	New	28	5	\$192	95%	75%	\$1.88	6
Washington	Manufactured	Heat Pump	Cool Roofs	Lighter Colored Shingles (White)	Standard Roof Shingles	Per installation	New	11	20	\$351	85%	95%	\$3.43	1
Washington	Manufactured	Heat Pump	Doors	R-11 (Steel Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	New	118	20	\$25	95%	80%	\$0.02	23
Washington	Manufactured	Heat Pump	Doors	R-5 (Composite Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	New	79	20	\$54	95%	60%	\$0.08	11
Washington	Manufactured	Heat Pump	Floor Insulation (WA) above code	R-38	R-30	Per installation	New	224	25	\$572	75%	85%	\$0.26	37
Washington	Manufactured	Heat Pump	Green Roof	ecorooF	Standard Roof	Per installation	New	550	40	\$17,622	20%	95%	\$2.89	5

Table C.2.1. Residential Measure Details

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Washington	Manufactured	Heat Pump	Heat Pump High Efficiency, SEER 14, HSPF 8.5	ASHP SEER 14, HSPF 8.5	ASHP SEER 13, HSPF 7.7	Per installation	New	749	20	\$411	100%	N/A	\$0.06	37
Washington	Manufactured	Heat Pump	Heat Pump Premium Efficiency, SEER 16, HSPF 8.8	ASHP SEER 16, HSPF 8.8	ASHP SEER 13, HSPF 7.7	Per installation	New	1,082	20	\$1,233	100%	N/A	\$0.13	126
Washington	Manufactured	Heat Pump	Proper Sizing - HVAC Unit	Proper Sizing - HVAC Unit	Oversized HVAC Unit	Per installation	New	767	15	-\$7.6	95%	65%	-\$0.00	138
Washington	Manufactured	Heat Pump	Radiant Barrier (Ceiling)	Install Radiant Barrier	No Radiant Barrier	Per installation	New	211	25	\$730	50%	90%	\$0.35	23
Washington	Manufactured	Heat Pump	Smart Siting	Siting house to minimize heating/cooling costs	No smart siting	Per installation	New	59	25	\$748	75%	75%	\$1.29	8
Washington	Manufactured	Heat Pump	Thermostat - Multi-Zone	Individual Room Temperature Control for Major Occupied Rooms	Programmable Thermostat - Central Control Only	Per installation	New	553	11	\$1,075	50%	95%	\$0.30	67
Washington	Manufactured	Heat Pump	Wall Insulation 2x6 (WA) above code	R-21+R-5 sheathing	R-21	Per installation	New	220	25	\$935	50%	95%	\$0.43	25
Washington	Manufactured	Heat Pump	Whole-House Fan	Whole-House Fan	No Whole-House Fan	Per installation	New	144	20	\$1,543	50%	95%	\$1.19	10
Washington	Manufactured	Heat Pump	Windows (Same for all Building Types)	CL22	CL30	Per installation	New	14	25	\$444	95%	75%	\$3.09	2
Washington	Manufactured	Heat Pump	Windows (Same for all Building Types)	CL25	CL30	Per installation	New	10	25	\$383	95%	75%	\$3.80	1
Washington	Manufactured	Heat Room	Canned Lighting Air Tight Sealing	Canned Lighting Air Tight Sealing	No Air tight Sealing	Per installation	Existing	40	30	\$24	95%	50%	\$0.06	35
Washington	Manufactured	Heat Room	Ceiling Insulation (WA) above code	R-60	R-49	Per installation	Existing	172	25	\$424	40%	95%	\$0.25	15
Washington	Manufactured	Heat Room	Ceiling Insulation (WA) ave to code	R-49	R-10	Per installation	Existing	2,591	25	\$1,957	75%	35%	\$0.08	192
Washington	Manufactured	Heat Room	Ceiling Insulation (WA) zero to code	R-49	R-0	Per installation	Existing	5,191	25	\$1,957	75%	1%	\$0.04	12
Washington	Manufactured	Heat Room	Conversion Baseboard Heating to DHP	Ductless Heat Pump HSPF 7.7	HSPF = 1	Per installation	Existing	1,270	20	\$2,414	50%	N/A	\$0.21	191
Washington	Manufactured	Heat Room	Doors	R-11 (Steel Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	Existing	133	20	\$167	95%	80%	\$0.14	25
Washington	Manufactured	Heat Room	Doors	R-5 (Composite Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	Existing	89	20	\$196	95%	60%	\$0.25	12
Washington	Manufactured	Heat Room	Doors - Weatherization	Weathersstripping And Adding Door Sweeps	Existing Non-Efficient door	Per installation	Existing	57	6	\$45	95%	50%	\$0.19	13
Washington	Manufactured	Heat Room	Floor Insulation (WA) above code	R-38	R-30	Per installation	Existing	248	25	\$572	25%	85%	\$0.24	13
Washington	Manufactured	Heat Room	Floor Insulation (WA) zero to code	R-30	R-0	Per installation	Existing	4,876	25	\$2,123	25%	20%	\$0.04	75
Washington	Manufactured	Heat Room	Infiltration Control (Caulk, Weather Strip, etc.) Blower-Door test	Install Caulking And Weathersstripping	Existing Infiltration Conditions	Per installation	Existing	891	11	\$481	75%	50%	\$0.08	87
Washington	Manufactured	Heat Room	Radiant Barrier (Ceiling)	Install Radiant Barrier	No Radiant Barrier	Per installation	Existing	178	25	\$730	25%	90%	\$0.42	9
Washington	Manufactured	Heat Room	Wall Insulation 2x4 (WA) zero to max feasible	R-13	R-0	Per installation	Existing	2,946	25	\$1,778	85%	25%	\$0.06	140
Washington	Manufactured	Heat Room	Wall Insulation 2x6 (WA) zero to code	R-21	R-0	Per installation	Existing	5,031	25	\$2,043	75%	25%	\$0.04	75
Washington	Manufactured	Heat Room	Windows (Same for all Building Types)	CL25	CL30	Per installation	Existing	21	25	\$383	65%	85%	\$1.83	2
Washington	Manufactured	Heat Room	Windows (Same for all Building Types)	CL30	Double Pane	Per installation	Existing	229	25	\$3,951	65%	50%	\$1.76	17
Washington	Manufactured	Heat Room	Windows (Same for all Building Types)	CL30	Single Pane	Per installation	Existing	359	25	\$3,951	65%	20%	\$1.12	11
Washington	Manufactured	Heat Room	Ceiling Insulation (WA) above code	R-60	R-49	Per installation	New	167	25	\$424	60%	95%	\$0.26	3
Washington	Manufactured	Heat Room	Conversion Baseboard Heating to DHP	Ductless Heat Pump HSPF 7.7	HSPF = 1	Per installation	New	890	20	\$2,414	50%	N/A	\$0.30	25
Washington	Manufactured	Heat Room	Doors	R-11 (Steel Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	New	93	20	\$25	95%	80%	\$0.03	2

Table C.2.1. Residential Measure Details

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Washington	Manufactured	Heat Room	Doors	R-5 (Composite Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	New	62	20	\$54	95%	60%	\$0.10	1
Washington	Manufactured	Heat Room	Floor Insulation (WA) above code	R-38	R-30	Per installation	New	174	25	\$572	75%	85%	\$0.34	4
Washington	Manufactured	Heat Room	Green Roof	ecorooF	Standard Roof	Per installation	New	437	40	\$17,622	20%	95%	\$3.64	0.62
Washington	Manufactured	Heat Room	Radiant Barrier (Ceiling)	Install Radiant Barrier	No Radiant Barrier	Per installation	New	125	25	\$730	50%	90%	\$0.60	2
Washington	Manufactured	Heat Room	Smart Siting	Siting house to minimize heating/cooling costs	No smart siting	Per installation	New	19	25	\$748	75%	75%	\$3.94	0.41
Washington	Manufactured	Heat Room	Wall Insulation 2x6 (WA) above code	R-21+R-5 sheathing	R-21	Per installation	New	455	25	\$935	50%	95%	\$0.21	8
Washington	Manufactured	Heat Room	Windows (Same for all Building Types)	CL22	CL30	Per installation	New	31	25	\$444	95%	75%	\$1.46	0.84
Washington	Manufactured	Heat Room	Windows (Same for all Building Types)	CL25	CL30	Per installation	New	20	25	\$383	95%	75%	\$1.88	0.56
Washington	Manufactured	Lighting Exterior	CFL, Flood (17 W)	CFL, Flood	Standard Incandescent Flood	Per installation	Existing	53	5	\$0.91	100%	N/A	\$0.00	206
Washington	Manufactured	Lighting Exterior	Time Clocks (Exterior Lighting)	Exterior Lighting on a Time Clock	Exterior Lighting (Manual Control)	Per installation	Existing	15	10	\$16	80%	85%	\$0.18	78
Washington	Manufactured	Lighting Exterior	CFL, Flood (17 W)	CFL, Flood	Standard Incandescent Flood	Per installation	New	53	5	\$0.91	100%	N/A	\$0.00	3
Washington	Manufactured	Lighting Exterior	Time Clocks (Exterior Lighting)	Exterior Lighting on a Time Clock	Exterior Lighting (Manual Control)	Per installation	New	15	10	\$16	80%	85%	\$0.18	11
Washington	Manufactured	Lighting Interior Specialty	CFL (13 W, 20 W, 25 W)	CFL (3-Way)	Standard Incandescent (3-Way)	Per installation	Existing	43	5	\$3	100%	N/A	\$0.02	653
Washington	Manufactured	Lighting Interior Specialty	CFL (13 W, 20 W, 25 W)	CFL (3-Way)	Standard Incandescent (3-Way)	Per installation	New	43	5	\$3	100%	N/A	\$0.02	9
Washington	Manufactured	Lighting Interior Standard	Daylighting Controls (Photocell) - Indoor/Outdoors	Install Photocell	No Daylighting Controls	Per installation	Existing	9	20	\$144	40%	95%	\$1.72	7
Washington	Manufactured	Lighting Interior Standard	Lighting CFL 15 W	15 W CFL	Standard 60 W Incandescent	Per installation	Existing	40	5	\$2	100%	N/A	\$0.02	851
Washington	Manufactured	Lighting Interior Standard	Lighting LED 7 W	7 W LED	Standard 60 W Incandescent	Per installation	Existing	51	20	\$36	50%	N/A	\$0.08	2,383
Washington	Manufactured	Lighting Interior Standard	Occupancy Sensors	Wall-Switch Occupancy Sensors	No Occupancy Sensor	Per installation	Existing	5	10	\$31	85%	95%	\$0.99	104
Washington	Manufactured	Lighting Interior Standard	Daylighting Controls (Photocell) - Indoor/Outdoors	Install Photocell	No Daylighting Controls	Per installation	New	9	20	\$144	40%	95%	\$1.72	1
Washington	Manufactured	Lighting Interior Standard	Lighting CFL 15 W	15 W CFL	Standard 60 W Incandescent	Per installation	New	40	5	\$2	100%	N/A	\$0.02	14
Washington	Manufactured	Lighting Interior Standard	Lighting LED 7 W	7 W LED	Standard 60 W Incandescent	Per installation	New	51	20	\$36	50%	N/A	\$0.08	38
Washington	Manufactured	Lighting Interior Standard	Occupancy Sensors	Wall-Switch Occupancy Sensors	No Occupancy Sensor	Per installation	New	5	10	\$31	85%	95%	\$0.99	15
Washington	Manufactured	Microwave	Microwave, High Efficiency	High Efficiency Microwave	Standard Microwave	Per installation	Existing	9	15	\$79	100%	N/A	\$1.05	61
Washington	Manufactured	Microwave	Microwave, High Efficiency	High Efficiency Microwave	Standard Microwave	Per installation	New	9	15	\$79	100%	N/A	\$1.05	7
Washington	Manufactured	Monitor	Monitor, Energy Star	Energy Star Monitor	Standard Monitor	Per installation	Existing	36	5	\$3	100%	N/A	\$0.03	199
Washington	Manufactured	Monitor	Monitor, Energy Star	Energy Star Monitor	Standard Monitor	Per installation	New	36	5	\$3	100%	N/A	\$0.03	6
Washington	Manufactured	Plug Load Other	1-Watt Standby Power	1W or less standby power use for small appliances	Standard plug load appliance.	Per installation	Existing	17	7	\$30	50%	50%	\$0.37	240
Washington	Manufactured	Plug Load Other	Energy Star Battery Chargers	Energy Star Battery Chargers	Standard Battery Chargers	Per installation	Existing	1	7	\$33	50%	80%	\$5.84	58
Washington	Manufactured	Plug Load Other	Office Copier	Office Copier	Standard Copier	Per installation	Existing	39	6	\$5	10%	50%	\$0.03	22
Washington	Manufactured	Plug Load Other	Office Printer	Office Printer	Standard Printer	Per installation	Existing	5	5	\$5	20%	50%	\$0.28	5
Washington	Manufactured	Plug Load Other	Smart Strip	Smart Strip	Standard PowerStrip	Per installation	Existing	103	5	\$22	50%	85%	\$0.06	505
Washington	Manufactured	Plug Load Other	1-Watt Standby Power	1W or less standby power use for small appliances	Standard plug load appliance.	Per installation	New	17	7	\$30	50%	50%	\$0.37	31

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Washington	Manufactured	Plug Load Other	Energy Star Battery Chargers	Energy Star Battery Chargers	Standard Battery Chargers	Per installation	New	1	7	\$2	50%	80%	\$0.44	7
Washington	Manufactured	Plug Load Other	Office Copier	Office Copier	Standard Copier	Per installation	New	39	6	\$5	10%	50%	\$0.03	2
Washington	Manufactured	Plug Load Other	Office Printer	Office Printer	Standard Printer	Per installation	New	5	5	\$5	20%	50%	\$0.28	0.76
Washington	Manufactured	Plug Load Other	Smart Strip	Smart Strip	Standard PowerStrip	Per installation	New	102	5	\$22	50%	85%	\$0.06	65
Washington	Manufactured	Refrigerator	Refrigerator, Energy Star	Energy Star Refrigerator	Standard Refrigerator	Per installation	Existing	122	20	\$15	81%	N/A	\$0.01	180
Washington	Manufactured	Refrigerator	Refrigerator/Freezer - Removal of Secondary	Proper Disposal of Refrigerator/Freezer	Existing Non-Efficient Refrigerator/Freezer	Per installation	Existing	1,482	9	\$96	13%	93%	\$0.01	374
Washington	Manufactured	Refrigerator	Refrigerator, Energy Star	Energy Star Refrigerator	Standard Refrigerator	Per installation	New	122	20	\$15	100%	N/A	\$0.01	56
Washington	Manufactured	Set Top Box	Set Top Box, Energy Star	Energy Star Set Top Box	Standard Set Top Box	Per installation	Existing	164	5	\$12	100%	N/A	\$0.02	937
Washington	Manufactured	Set Top Box	Set Top Box, Energy Star	Energy Star Set Top Box	Standard Set Top Box	Per installation	New	164	5	\$12	100%	N/A	\$0.02	29
Washington	Manufactured	Tv	TV CRT, Energy Star	Energy Star CRT TV	Standard CRT TV	Per installation	Existing	112	10	\$19	100%	N/A	\$0.03	1,259
Washington	Manufactured	Tv	TV CRT, Energy Star	Energy Star CRT TV	Standard CRT TV	Per installation	New	112	10	\$19	100%	N/A	\$0.03	93
Washington	Manufactured	Tv Bigscreen	TV LCD, Energy Star	Energy Star LCD TV	Standard LCD TV	Per installation	Existing	223	10	\$19	100%	N/A	\$0.01	636
Washington	Manufactured	Tv Bigscreen	TV LCD, Energy Star	Energy Star LCD TV	Standard LCD TV	Per installation	New	223	10	\$19	100%	N/A	\$0.01	47
Washington	Manufactured	Ventilation And Circulation	Motor, ECM	ECM Motor	Standard Motor	Per installation	Existing	95	20	\$172	50%	N/A	\$0.20	110
Washington	Manufactured	Ventilation And Circulation	Motor, ECM - VFD	ECM/VFD Motor	Standard Motor	Per installation	Existing	286	20	\$194	50%	N/A	\$0.08	331
Washington	Manufactured	Ventilation And Circulation	Motor, ECM	ECM Motor	Standard Motor	Per installation	New	71	20	\$172	50%	N/A	\$0.27	13
Washington	Manufactured	Ventilation And Circulation	Motor, ECM - VFD	ECM/VFD Motor	Standard Motor	Per installation	New	213	20	\$194	50%	N/A	\$0.10	40
Washington	Manufactured	Water Heat	Clothes Washer	Energy Star - Tier 1 (MEF 2.0 - 2.19) - Electric DHW & Dryer	MEF = 1.66 - Electric DHW & Dryer	Per installation	Existing	112	14	\$227	100%	83%	\$-0.27	282
Washington	Manufactured	Water Heat	Clothes Washer	Energy Star - Tier 2 (MEF 2.2 - 2.45) - Electric DHW & Dryer	MEF = 1.66 - Electric DHW & Dryer	Per installation	Existing	150	14	\$296	100%	90%	\$-0.25	410
Washington	Manufactured	Water Heat	Clothes Washer	Energy Star - Tier 3 (MEF 2.46 or higher) Top 10% of Energy Star Model - Electric DHW & Dryer	MEF = 1.66 - Electric DHW & Dryer	Per installation	Existing	170	14	\$317	100%	95%	\$-0.23	494
Washington	Manufactured	Water Heat	Dishwasher	Energy Star, July 1st 2011, <= 307 kWh/year, <= 5.0 gallons/cycle	Energy Star - EF65 (6th Plan Baseline)	Per installation	Existing	33	12	\$42	71%	50%	\$0.17	108
Washington	Manufactured	Water Heat	Drain Water Heat Recovery (GFX)	Gravity Film Heat Exchanger	No Heat Exchanger	Per installation	Existing	374	40	\$530	29%	90%	\$0.13	767
Washington	Manufactured	Water Heat	Faucet Aerators	0.5 GPM	2.2 GPM	Per installation	Existing	82	9	\$0.71	95%	95%	\$-0.08	678
Washington	Manufactured	Water Heat	Faucet Aerators	1.5 GPM	2.2 GPM	Per installation	Existing	34	9	\$0.46	95%	65%	\$-0.08	192
Washington	Manufactured	Water Heat	Faucet Aerators	2.2 GPM	Existing Faucet Aerator (3.0 GPM)	Per installation	Existing	38	9	\$1	95%	25%	\$-0.07	165
Washington	Manufactured	Water Heat	Hot Water Pipe Insulation	R-4 Wrap	No insulation	Per installation	Existing	40	5	\$22	95%	75%	\$0.16	212
Washington	Manufactured	Water Heat	Low-Flow Showerheads	2.0 GPM	2.5 GPM	Per installation	Existing	112	10	\$16	95%	65%	\$-0.06	634
Washington	Manufactured	Water Heat	Water Heater, Heat Pump EF 2.2	Heat Pump Water Heater EF = 2.2	Standard Storage Water Heater EF = 0.92	Per installation	Existing	1,488	15	\$1,347	59%	N/A	\$0.12	3,571
Washington	Manufactured	Water Heat	Water Heater, Storage EF 0.95	Standard Storage Water Heater EF = 0.95	Standard Storage Water Heater EF = 0.92	Per installation	Existing	83	15	\$45	100%	N/A	\$0.07	35
Washington	Manufactured	Water Heat	Water_Heater Tank Blanket/Insulation	Install Insulation (R-5)	No Tank Insulation	Per installation	Existing	168	10	\$11	50%	20%	\$0.01	134
Washington	Manufactured	Water Heat	Water_Heater Thermostat Setback	120 degrees	135 degrees	Per installation	Existing	155	5	\$7	95%	45%	\$0.01	526
Washington	Manufactured	Water Heat	Clothes Washer	Energy Star - Tier 1 (MEF 2.0 - 2.19) - Electric DHW & Dryer	MEF = 1.66 - Electric DHW & Dryer	Per installation	New	112	14	\$227	100%	83%	\$-0.27	36
Washington	Manufactured	Water Heat	Clothes Washer	Energy Star - Tier 2 (MEF 2.2 - 2.45) - Electric DHW & Dryer	MEF = 1.66 - Electric DHW & Dryer	Per installation	New	149	14	\$296	100%	90%	\$-0.25	53

Table C.2.1. Residential Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Washington	Manufactured	Water Heat	Clothes Washer	Energy Star - Tier 3 (MEF 2.46 or higher) Top 10% of Energy Star Model - Electric DHW & Dryer	MEF = 1.66 - Electric DHW & Dryer	Per installation	New	170	14	\$317	100%	95%	\$-0.23	63
Washington	Manufactured	Water Heat	Dishwasher	Energy Star, July 1st 2011, <= 307 kWh/year, <= 5.0 gallons/cycle	Energy Star - EF65 (6th Plan Baseline)	Per installation	New	33	12	\$42	71%	50%	\$0.17	13
Washington	Manufactured	Water Heat	Drain Water Heat Recovery (GFX)	Gravity Film Heat Exchanger	No Heat Exchanger	Per installation	New	373	40	\$454	59%	90%	\$0.11	201
Washington	Manufactured	Water Heat	Faucet Aerators	0.5 GPM	2.2 GPM	Per installation	New	82	9	\$0.71	95%	95%	\$-0.08	87
Washington	Manufactured	Water Heat	Faucet Aerators	1.5 GPM	2.2 GPM	Per installation	New	34	9	\$0.46	95%	65%	\$-0.08	24
Washington	Manufactured	Water Heat	Hot Water Pipe Insulation	R-4 Wrap	No insulation	Per installation	New	40	5	\$22	95%	75%	\$0.16	26
Washington	Manufactured	Water Heat	Low-Flow Showerheads	2.0 GPM	2.5 GPM	Per installation	New	112	10	\$9	95%	65%	\$-0.07	82
Washington	Manufactured	Water Heat	Water Heater, Heat Pump EF 2.2	Heat Pump Water Heater EF = 2.2	Standard Storage Water Heater EF = 0.92	Per installation	New	1,488	15	\$1,347	59%	N/A	\$0.12	409
Washington	Manufactured	Water Heat	Water Heater, Storage EF 0.95	Standard Storage Water Heater EF = 0.95	Standard Storage Water Heater EF = 0.92	Per installation	New	83	15	\$45	100%	N/A	\$0.07	4
Washington	Manufactured	Water Heat	Water_Heater Thermostat Setback	120 degrees	135 degrees	Per installation	New	154	5	\$7	95%	45%	\$0.01	69
Washington	Multi Family	Computer	Computer, Energy Star	Energy Star Computer	Standard Computer	Per installation	Existing	51	5	\$24	100%	N/A	\$0.13	378
Washington	Multi Family	Computer	Computer, Energy Star	Energy Star Computer	Standard Computer	Per installation	New	51	5	\$24	100%	N/A	\$0.13	11
Washington	Multi Family	Cooking Oven	Cooking Oven, High Efficiency	High Efficiency Oven	Standard Oven	Per installation	Existing	58	20	\$282	100%	N/A	\$0.55	241
Washington	Multi Family	Cooking Oven	Cooking Oven, High Efficiency	High Efficiency Oven	Standard Oven	Per installation	New	58	20	\$282	100%	N/A	\$0.55	35
Washington	Multi Family	Cool Central	Air-to-Air Heat Exchangers	Air-to-Air Heat Exchangers	No Air to Air Heat Exchangers	Per installation	Existing	99	5	\$565	25%	95%	\$1.62	167
Washington	Multi Family	Cool Central	Canned Lighting Air Tight Sealing	Canned Lighting Air Tight Sealing	No Air tight Sealing	Per installation	Existing	6	30	\$24	95%	50%	\$0.36	53
Washington	Multi Family	Cool Central	Ceiling Fan	Ceiling Fan (no lighting kit)	No Ceiling Fan	Per installation	Existing	39	10	\$90	85%	50%	\$0.38	240
Washington	Multi Family	Cool Central	Ceiling Insulation (WA) above code	R-60	R-49	Per installation	Existing	13	30	\$175	75%	95%	\$1.25	42
Washington	Multi Family	Cool Central	Ceiling Insulation (WA) ave to code	R-49	R-10	Per installation	Existing	204	30	\$810	75%	35%	\$0.38	298
Washington	Multi Family	Cool Central	Ceiling Insulation (WA) zero to code	R-49	R-0	Per installation	Existing	410	30	\$810	95%	1%	\$0.19	22
Washington	Multi Family	Cool Central	Central Cooling, SEER 15	SEER 15	SEER 13	Per installation	Existing	121	15	\$595	100%	N/A	\$0.63	67
Washington	Multi Family	Cool Central	Central Cooling, SEER 18	SEER 18	SEER 13	Per installation	Existing	304	15	\$1,490	100%	N/A	\$0.63	899
Washington	Multi Family	Cool Central	Check Me! O&M Tune-up	Tune-up/Maintenance	No Tune-up Maintenance	Per installation	Existing	30	5	\$192	95%	75%	\$1.76	157
Washington	Multi Family	Cool Central	Cool Roofs	Lighter Colored Shingles (White)	Standard Roof Shingles	Per installation	Existing	11	20	\$151	85%	95%	\$1.44	41
Washington	Multi Family	Cool Central	Doors	R-11 (Steel Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	Existing	21	20	\$167	95%	80%	\$0.87	37
Washington	Multi Family	Cool Central	Doors	R-5 (Composite Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	Existing	14	20	\$196	95%	60%	\$1.53	17
Washington	Multi Family	Cool Central	Doors - Weatherization	Weatherstripping And Adding Door Sweeps	Existing Non-Efficient door	Per installation	Existing	9	6	\$45	95%	50%	\$1.19	19
Washington	Multi Family	Cool Central	Duct Insulation Upgrade	R-8 (code)	R-4	Per installation	Existing	28	20	\$640	75%	75%	\$2.49	70
Washington	Multi Family	Cool Central	Duct Sealing	Duct Sealing	No Duct Sealing	Per installation	Existing	99	18	\$563	75%	60%	\$0.67	124
Washington	Multi Family	Cool Central	Duct Sealing - Aerosol-Based	Spray-in ductwork sealant to minimize duct leaks	No Duct Sealing	Per installation	Existing	148	18	\$787	75%	60%	\$0.62	98
Washington	Multi Family	Cool Central	Floor Insulation (WA) above code	R-38	R-30	Per installation	Existing	19	30	\$236	25%	85%	\$1.15	18
Washington	Multi Family	Cool Central	Floor Insulation (WA) zero to code	R-30	R-0	Per installation	Existing	390	30	\$879	25%	20%	\$0.22	114
Washington	Multi Family	Cool Central	Infiltration Control (Caulk, Weather Strip, etc.) Blower-Door test	Install Caulking And Weatherstripping	Existing Infiltration Conditions	Per installation	Existing	99	11	\$410	75%	50%	\$0.65	179
Washington	Multi Family	Cool Central	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands (5 per unit)	13 SEER	Per installation	Existing	151	30	\$590	50%	95%	\$0.38	40

Table C.2.1. Residential Measure Details

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Washington	Multi Family	Cool Central	Proper Sizing - HVAC Unit	Proper Sizing - HVAC Unit	Oversized HVAC Unit	Per installation	Existing	93	15	\$-7.6	95%	65%	\$-0.01	411
Washington	Multi Family	Cool Central	Radiant Barrier (Ceiling)	Install Radiant Barrier	No Radiant Barrier	Per installation	Existing	59	30	\$302	50%	90%	\$0.49	135
Washington	Multi Family	Cool Central	Thermostat - Multi-Zone	Individual Room Temperature Control for Major Occupied Rooms	Programmable Thermostat - Central Control Only	Per installation	Existing	67	11	\$1,075	50%	95%	\$2.50	136
Washington	Multi Family	Cool Central	Wall Insulation 2x4 (WA) zero to max feasible	R-13	R-0	Per installation	Existing	233	30	\$1,144	85%	25%	\$0.47	195
Washington	Multi Family	Cool Central	Wall Insulation 2x6 (WA) zero to code	R-21	R-0	Per installation	Existing	398	30	\$1,314	75%	25%	\$0.32	107
Washington	Multi Family	Cool Central	Whole-House Fan	Whole-House Fan	No Whole-House Fan	Per installation	Existing	148	20	\$1,543	50%	95%	\$1.16	251
Washington	Multi Family	Cool Central	Windows (Same for all Building Types)	CL25	CL30	Per installation	Existing	1	30	\$246	51%	85%	\$14.16	2
Washington	Multi Family	Cool Central	Windows (Same for all Building Types)	CL30	Double Pane	Per installation	Existing	17	30	\$2,542	51%	50%	\$13.65	18
Washington	Multi Family	Cool Central	Windows (Same for all Building Types)	CL30	Single Pane	Per installation	Existing	28	30	\$2,542	51%	20%	\$8.71	11
Washington	Multi Family	Cool Central	Air-to-Air Heat Exchangers	Air-to-Air Heat Exchangers	No Air to Air Heat Exchangers	Per installation	New	83	5	\$565	25%	95%	\$1.92	18
Washington	Multi Family	Cool Central	Ceiling Fan	Ceiling Fan (no lighting kit)	No Ceiling Fan	Per installation	New	33	10	\$90	85%	50%	\$0.45	25
Washington	Multi Family	Cool Central	Ceiling Insulation (WA) above code	R-60	R-49	Per installation	New	15	30	\$175	90%	95%	\$1.07	9
Washington	Multi Family	Cool Central	Central Cooling, SEER 15	SEER 15	SEER 13	Per installation	New	114	15	\$595	100%	N/A	\$0.67	9
Washington	Multi Family	Cool Central	Central Cooling, SEER 18	SEER 18	SEER 13	Per installation	New	286	15	\$1,490	100%	N/A	\$0.67	110
Washington	Multi Family	Cool Central	Check Me! O&M Tune-up	Tune-up/Maintenance	No Tune-up Maintenance	Per installation	New	26	5	\$192	95%	75%	\$2.08	16
Washington	Multi Family	Cool Central	Construction - ICF	Concrete Framing	Standard Wood Framing	Per installation	New	267	45	\$3,640	50%	95%	\$1.21	4
Washington	Multi Family	Cool Central	Construction - SIP	Specialty Framing	Standard Wood Framing	Per installation	New	100	45	\$1,468	50%	95%	\$1.30	1
Washington	Multi Family	Cool Central	Cool Roofs	Lighter Colored Shingles (White)	Standard Roof Shingles	Per installation	New	9	20	\$151	85%	95%	\$1.70	4
Washington	Multi Family	Cool Central	Doors	R-11 (Steel Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	New	18	20	\$25	95%	80%	\$0.15	5
Washington	Multi Family	Cool Central	Doors	R-5 (Composite Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	New	12	20	\$54	95%	60%	\$0.50	2
Washington	Multi Family	Cool Central	Floor Insulation (WA) above code	R-38	R-30	Per installation	New	16	30	\$236	75%	85%	\$1.36	7
Washington	Multi Family	Cool Central	Green Roof	ecorooF	Standard Roof	Per installation	New	42	40	\$7,577	50%	95%	\$16.06	2
Washington	Multi Family	Cool Central	Proper Sizing - HVAC Unit	Proper Sizing - HVAC Unit	Oversized HVAC Unit	Per installation	New	78	15	\$-7.6	95%	65%	\$-0.01	44
Washington	Multi Family	Cool Central	Radiant Barrier (Ceiling)	Install Radiant Barrier	No Radiant Barrier	Per installation	New	50	30	\$302	75%	90%	\$0.58	25
Washington	Multi Family	Cool Central	Smart Siting	Siting house to minimize heating/cooling costs	No smart siting	Per installation	New	46	45	\$748	40%	75%	\$1.44	9
Washington	Multi Family	Cool Central	Thermostat - Multi-Zone	Individual Room Temperature Control for Major Occupied Rooms	Programmable Thermostat - Central Control Only	Per installation	New	56	11	\$1,075	50%	95%	\$2.96	17
Washington	Multi Family	Cool Central	Wall Insulation 2x6 (WA) above code	R-21+R-5 sheathing	R-21	Per installation	New	43	30	\$601	50%	95%	\$1.34	12
Washington	Multi Family	Cool Central	Whole-House Fan	Whole-House Fan	No Whole-House Fan	Per installation	New	125	20	\$1,543	50%	95%	\$1.38	27
Washington	Multi Family	Cool Central	Windows (Same for all Building Types)	CL22	CL30	Per installation	New	2	30	\$286	95%	75%	\$9.46	1
Washington	Multi Family	Cool Central	Windows (Same for all Building Types)	CL25	CL30	Per installation	New	1	30	\$246	95%	75%	\$12.08	0.88
Washington	Multi Family	Cool Room	Canned Lighting Air Tight Sealing	Canned Lighting Air Tight Sealing	No Air tight Sealing	Per installation	Existing	3	30	\$24	95%	50%	\$0.76	30
Washington	Multi Family	Cool Room	Ceiling Fan	Ceiling Fan (no lighting kit)	No Ceiling Fan	Per installation	Existing	19	10	\$90	85%	50%	\$0.79	117
Washington	Multi Family	Cool Room	Ceiling Insulation (WA) above code	R-60	R-49	Per installation	Existing	6	30	\$175	75%	95%	\$2.53	26
Washington	Multi Family	Cool Room	Ceiling Insulation (WA) ave to code	R-49	R-10	Per installation	Existing	100	30	\$810	75%	35%	\$0.78	175
Washington	Multi Family	Cool Room	Ceiling Insulation (WA) zero to code	R-49	R-0	Per installation	Existing	201	30	\$810	95%	1%	\$0.39	13

Table C.2.1. Residential Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Washington	Multi Family	Cool Room	Cool Roofs	Lighter Colored Shingles (White)	Standard Roof Shingles	Per installation	Existing	5	20	\$151	85%	95%	\$2.99	25
Washington	Multi Family	Cool Room	Doors	R-11 (Steel Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	Existing	10	20	\$167	95%	80%	\$1.81	22
Washington	Multi Family	Cool Room	Doors	R-5 (Composite Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	Existing	6	20	\$196	95%	60%	\$3.18	10
Washington	Multi Family	Cool Room	Doors - Weatherization	Weatherstripping And Adding Door Sweeps	Existing Non-Efficient door	Per installation	Existing	4	6	\$45	95%	50%	\$2.48	11
Washington	Multi Family	Cool Room	Floor Insulation (WA) above code	R-38	R-30	Per installation	Existing	5	30	\$236	25%	85%	\$4.04	6
Washington	Multi Family	Cool Room	Floor Insulation (WA) zero to code	R-30	R-0	Per installation	Existing	189	30	\$879	25%	20%	\$0.45	66
Washington	Multi Family	Cool Room	Infiltration Control (Caulk, Weather Strip, etc.) Blower-Door test	Install Caulking And Weatherstripping	Existing Infiltration Conditions	Per installation	Existing	47	11	\$410	75%	50%	\$1.35	104
Washington	Multi Family	Cool Room	Radiant Barrier (Ceiling)	Install Radiant Barrier	No Radiant Barrier	Per installation	Existing	28	30	\$302	50%	90%	\$1.02	77
Washington	Multi Family	Cool Room	Room AC conversion to Ductless Heat Pump	SEER 13	EER 9.8	Per installation	Existing	28	20	\$2,626	75%	N/A	\$10.25	221
Washington	Multi Family	Cool Room	Room AC, EER 10.8	EER 10.8	EER 9.8	Per installation	Existing	22	9	\$7	100%	N/A	\$0.06	46
Washington	Multi Family	Cool Room	Wall Insulation 2x4 (WA) zero to max feasible	R-13	R-0	Per installation	Existing	114	30	\$1,144	85%	25%	\$0.96	114
Washington	Multi Family	Cool Room	Wall Insulation 2x6 (WA) zero to code	R-21	R-0	Per installation	Existing	195	30	\$1,314	75%	25%	\$0.65	62
Washington	Multi Family	Cool Room	Windows (Same for all Building Types)	CL25	CL30	Per installation	Existing	0.83	30	\$246	51%	85%	\$28.51	1
Washington	Multi Family	Cool Room	Windows (Same for all Building Types)	CL30	Double Pane	Per installation	Existing	8	30	\$2,542	51%	50%	\$27.48	12
Washington	Multi Family	Cool Room	Windows (Same for all Building Types)	CL30	Single Pane	Per installation	Existing	13	30	\$2,542	51%	20%	\$17.54	7
Washington	Multi Family	Cool Room	Ceiling Fan	Ceiling Fan (no lighting kit)	No Ceiling Fan	Per installation	New	16	10	\$90	85%	50%	\$0.94	12
Washington	Multi Family	Cool Room	Ceiling Insulation (WA) above code	R-60	R-49	Per installation	New	7	30	\$175	90%	95%	\$2.16	5
Washington	Multi Family	Cool Room	Construction - ICF	Concrete Framing	Standard Wood Framing	Per installation	New	128	45	\$3,640	50%	95%	\$2.50	2
Washington	Multi Family	Cool Room	Construction - SIP	Specialty Framing	Standard Wood Framing	Per installation	New	48	45	\$1,468	50%	95%	\$2.69	0.92
Washington	Multi Family	Cool Room	Cool Roofs	Lighter Colored Shingles (White)	Standard Roof Shingles	Per installation	New	4	20	\$151	85%	95%	\$3.54	2
Washington	Multi Family	Cool Room	Doors	R-11 (Steel Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	New	8	20	\$25	95%	80%	\$0.32	2
Washington	Multi Family	Cool Room	Doors	R-5 (Composite Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	New	5	20	\$54	95%	60%	\$1.03	1
Washington	Multi Family	Cool Room	Floor Insulation (WA) above code	R-38	R-30	Per installation	New	4	30	\$236	75%	85%	\$4.78	2
Washington	Multi Family	Cool Room	Green Roof	ecorof	Standard Roof	Per installation	New	20	40	\$7,577	50%	95%	\$33.37	1
Washington	Multi Family	Cool Room	Radiant Barrier (Ceiling)	Install Radiant Barrier	No Radiant Barrier	Per installation	New	24	30	\$302	75%	90%	\$1.21	14
Washington	Multi Family	Cool Room	Room AC conversion to Ductless Heat Pump	SEER 13	EER 9.8	Per installation	New	25	20	\$2,626	75%	N/A	\$11.67	12
Washington	Multi Family	Cool Room	Room AC, EER 10.8	EER 10.8	EER 9.8	Per installation	New	20	9	\$7	100%	N/A	\$0.06	4
Washington	Multi Family	Cool Room	Smart Siting	Siting house to minimize heating/cooling costs	No smart siting	Per installation	New	22	45	\$748	40%	75%	\$3.00	5
Washington	Multi Family	Cool Room	Wall Insulation 2x6 (WA) above code	R-21+R-5 sheathing	R-21	Per installation	New	21	30	\$601	50%	95%	\$2.72	7
Washington	Multi Family	Cool Room	Windows (Same for all Building Types)	CL22	CL30	Per installation	New	1	30	\$286	95%	75%	\$18.86	0.79
Washington	Multi Family	Cool Room	Windows (Same for all Building Types)	CL25	CL30	Per installation	New	0.97	30	\$246	95%	75%	\$24.33	0.52
Washington	Multi Family	Dryer	Dryer, Advanced Efficiency EF 3.30	Advanced Efficiency Dryer 3.30	Standard Dryer EF 3.01	Per installation	Existing	38	14	\$224	100%	N/A	\$0.79	309
Washington	Multi Family	Dryer	Dryer, High Efficiency EF 3.08	High Efficiency Dryer EF 3.08	Standard Dryer EF 3.01	Per installation	Existing	9	14	\$54	100%	N/A	\$0.74	6

Table C.2.1. Residential Measure Details

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Washington	Multi Family	Dryer	Dryer, Premium Efficiency EF 3.19	Premium Efficiency Dryer 3.19	Standard Dryer EF 3.01	Per installation	Existing	24	14	\$139	100%	N/A	\$0.76	42
Washington	Multi Family	Dryer	Dryer, Advanced Efficiency EF 3.30	Advanced Efficiency Dryer 3.30	Standard Dryer EF 3.01	Per installation	New	38	14	\$224	100%	N/A	\$0.79	28
Washington	Multi Family	Dryer	Dryer, High Efficiency EF 3.08	High Efficiency Dryer EF 3.08	Standard Dryer EF 3.01	Per installation	New	9	14	\$54	100%	N/A	\$0.74	0.61
Washington	Multi Family	Dryer	Dryer, Premium Efficiency EF 3.19	Premium Efficiency Dryer 3.19	Standard Dryer EF 3.01	Per installation	New	24	14	\$139	100%	N/A	\$0.76	5
Washington	Multi Family	Freezer	Freezer, Energy Star	Energy Star Freezer	Standard Freezer	Per installation	Existing	46	20	\$22	76%	N/A	\$0.05	16
Washington	Multi Family	Freezer	Stand-Alone Freezer - Removal	Proper Disposal of Freezer	Existing Non-Efficient Freezer	Per installation	Existing	1,419	8	\$93	17%	97%	\$0.01	106
Washington	Multi Family	Freezer	Freezer, Energy Star	Energy Star Freezer	Standard Freezer	Per installation	New	46	20	\$22	76%	N/A	\$0.05	4
Washington	Multi Family	Heat Central	Air-to-Air Heat Exchangers	Air-to-Air Heat Exchangers	No Air to Air Heat Exchangers	Per installation	Existing	937	5	\$565	25%	95%	\$0.17	266
Washington	Multi Family	Heat Central	Canned Lighting Air Tight Sealing	Canned Lighting Air Tight Sealing	No Air tight Sealing	Per installation	Existing	85	30	\$24	95%	50%	\$0.03	133
Washington	Multi Family	Heat Central	Ceiling Insulation (WA) above code	R-60	R-49	Per installation	Existing	175	30	\$175	75%	95%	\$0.10	109
Washington	Multi Family	Heat Central	Ceiling Insulation (WA) ave to code	R-49	R-10	Per installation	Existing	2,663	30	\$810	75%	35%	\$0.03	750
Washington	Multi Family	Heat Central	Ceiling Insulation (WA) zero to code	R-49	R-0	Per installation	Existing	5,335	30	\$810	95%	1%	\$0.01	58
Washington	Multi Family	Heat Central	Doors	R-11 (Steel Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	Existing	281	20	\$167	95%	80%	\$0.07	100
Washington	Multi Family	Heat Central	Doors	R-5 (Composite Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	Existing	187	20	\$196	95%	60%	\$0.12	46
Washington	Multi Family	Heat Central	Doors - Weatherization	Weatherstripping And Adding Door Sweeps	Existing Non-Efficient door	Per installation	Existing	121	6	\$45	95%	50%	\$0.09	51
Washington	Multi Family	Heat Central	Duct Insulation Upgrade	R-8 (code)	R-4	Per installation	Existing	375	20	\$640	75%	75%	\$0.19	179
Washington	Multi Family	Heat Central	Duct Sealing	Duct Sealing	No Duct Sealing	Per installation	Existing	937	18	\$563	75%	15%	\$0.07	56
Washington	Multi Family	Heat Central	Duct Sealing - Aerosol-Based	Spray-in ductwork sealant to minimize duct leaks	No Duct Sealing	Per installation	Existing	1,406	18	\$787	75%	15%	\$0.07	44
Washington	Multi Family	Heat Central	Floor Insulation (WA) above code	R-38	R-30	Per installation	Existing	258	30	\$236	25%	85%	\$0.09	48
Washington	Multi Family	Heat Central	Floor Insulation (WA) zero to code	R-30	R-0	Per installation	Existing	5,083	30	\$879	25%	20%	\$0.02	292
Washington	Multi Family	Heat Central	Infiltration Control (Caulk, Weather Strip, etc.) Blower-Door test	Install Caulking And Weatherstripping	Existing Infiltration Conditions	Per installation	Existing	937	11	\$410	75%	50%	\$0.07	325
Washington	Multi Family	Heat Central	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands (5 per unit)	13 SEER	Per installation	Existing	1,969	30	\$590	50%	15%	\$0.03	15
Washington	Multi Family	Heat Central	Proper Sizing - HVAC Unit	Proper Sizing - HVAC Unit	Oversized HVAC Unit	Per installation	Existing	884	15	\$-7.6	15%	65%	\$-0.00	103
Washington	Multi Family	Heat Central	Radiant Barrier (Ceiling)	Install Radiant Barrier	No Radiant Barrier	Per installation	Existing	187	30	\$302	50%	90%	\$0.16	72
Washington	Multi Family	Heat Central	Thermostat - Multi-Zone	Individual Room Temperature Control for Major Occupied Rooms	Programmable Thermostat - Central Control Only	Per installation	Existing	637	11	\$1,075	50%	95%	\$0.26	252
Washington	Multi Family	Heat Central	Wall Insulation 2x4 (WA) zero to max feasible	R-13	R-0	Per installation	Existing	3,032	30	\$1,144	85%	25%	\$0.04	480
Washington	Multi Family	Heat Central	Wall Insulation 2x6 (WA) zero to code	R-21	R-0	Per installation	Existing	5,178	30	\$1,314	75%	25%	\$0.02	271
Washington	Multi Family	Heat Central	Windows (Same for all Building Types)	CL25	CL30	Per installation	Existing	21	30	\$246	51%	85%	\$1.09	7
Washington	Multi Family	Heat Central	Windows (Same for all Building Types)	CL30	Double Pane	Per installation	Existing	233	30	\$2,542	51%	50%	\$1.05	47
Washington	Multi Family	Heat Central	Windows (Same for all Building Types)	CL30	Single Pane	Per installation	Existing	366	30	\$2,542	51%	20%	\$0.67	29
Washington	Multi Family	Heat Central	Air-to-Air Heat Exchangers	Air-to-Air Heat Exchangers	No Air to Air Heat Exchangers	Per installation	New	580	5	\$565	25%	95%	\$0.28	19
Washington	Multi Family	Heat Central	Ceiling Insulation (WA) above code	R-60	R-49	Per installation	New	151	30	\$175	90%	95%	\$0.11	17
Washington	Multi Family	Heat Central	Construction - ICF	Concrete Framing	Standard Wood Framing	Per installation	New	2,556	45	\$3,640	50%	95%	\$0.13	8

Table C.2.1. Residential Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Washington	Multi Family	Heat Central	Construction - SIP	Specialty Framing	Standard Wood Framing	Per installation	New	697	45	\$1,468	50%	95%	\$0.19	2
Washington	Multi Family	Heat Central	Doors	R-11 (Steel Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	New	174	20	\$25	95%	80%	\$0.02	9
Washington	Multi Family	Heat Central	Doors	R-5 (Composite Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	New	116	20	\$54	95%	60%	\$0.05	4
Washington	Multi Family	Heat Central	Floor Insulation (WA) above code	R-38	R-30	Per installation	New	160	30	\$236	75%	85%	\$0.14	13
Washington	Multi Family	Heat Central	Green Roof	ecorooF	Standard Roof	Per installation	New	406	40	\$7,577	50%	95%	\$1.68	4
Washington	Multi Family	Heat Central	Proper Sizing - HVAC Unit	Proper Sizing - HVAC Unit	Oversized HVAC Unit	Per installation	New	547	15	\$-7.6	15%	65%	\$-0.00	7
Washington	Multi Family	Heat Central	Radiant Barrier (Ceiling)	Install Radiant Barrier	No Radiant Barrier	Per installation	New	116	30	\$302	75%	90%	\$0.25	9
Washington	Multi Family	Heat Central	Smart Siting	Siting house to minimize heating/cooling costs	No smart siting	Per installation	New	18	45	\$748	40%	75%	\$3.68	0.63
Washington	Multi Family	Heat Central	Thermostat - Multi-Zone	Individual Room Temperature Control for Major Occupied Rooms	Programmable Thermostat - Central Control Only	Per installation	New	395	11	\$1,075	50%	95%	\$0.43	23
Washington	Multi Family	Heat Central	Wall Insulation 2x6 (WA) above code	R-21+R-5 sheathing	R-21	Per installation	New	414	30	\$601	50%	95%	\$0.14	23
Washington	Multi Family	Heat Central	Windows (Same for all Building Types)	CL22	CL30	Per installation	New	27	30	\$286	95%	75%	\$0.99	2
Washington	Multi Family	Heat Central	Windows (Same for all Building Types)	CL25	CL30	Per installation	New	18	30	\$246	95%	75%	\$1.27	1
Washington	Multi Family	Heat Pump	Air-to-Air Heat Exchangers	Air-to-Air Heat Exchangers	No Air to Air Heat Exchangers	Per installation	Existing	600	5	\$565	25%	95%	\$0.27	82
Washington	Multi Family	Heat Pump	Canned Lighting Air Tight Sealing	Canned Lighting Air Tight Sealing	No Air tight Sealing	Per installation	Existing	52	30	\$24	95%	50%	\$0.05	37
Washington	Multi Family	Heat Pump	Ceiling Fan	Ceiling Fan (no lighting kit)	No Ceiling Fan	Per installation	Existing	39	10	\$90	85%	50%	\$0.39	19
Washington	Multi Family	Heat Pump	Ceiling Insulation (WA) above code	R-60	R-49	Per installation	Existing	45	30	\$175	75%	95%	\$0.38	12
Washington	Multi Family	Heat Pump	Ceiling Insulation (WA) ave to code	R-49	R-10	Per installation	Existing	714	30	\$810	75%	35%	\$0.11	85
Washington	Multi Family	Heat Pump	Ceiling Insulation (WA) zero to code	R-49	R-0	Per installation	Existing	1,431	30	\$810	95%	1%	\$0.05	6
Washington	Multi Family	Heat Pump	Check Me! O&M Tune-up	Tune-up/Maintenance	No Tune-up Maintenance	Per installation	Existing	29	5	\$192	95%	75%	\$1.86	12
Washington	Multi Family	Heat Pump	Cool Roofs	Lighter Colored Shingles (White)	Standard Roof Shingles	Per installation	Existing	11	20	\$151	85%	95%	\$1.46	3
Washington	Multi Family	Heat Pump	Doors	R-11 (Steel Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	Existing	172	20	\$167	95%	80%	\$0.11	30
Washington	Multi Family	Heat Pump	Doors	R-5 (Composite Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	Existing	115	20	\$196	95%	60%	\$0.19	13
Washington	Multi Family	Heat Pump	Doors - Weatherization	Weatherstripping And Adding Door Sweeps	Existing Non-Efficient door	Per installation	Existing	78	6	\$45	95%	50%	\$0.14	15
Washington	Multi Family	Heat Pump	Duct Insulation Upgrade	R-8 (code)	R-4	Per installation	Existing	229	20	\$640	75%	75%	\$0.31	52
Washington	Multi Family	Heat Pump	Duct Sealing	Duct Sealing	No Duct Sealing	Per installation	Existing	600	18	\$563	75%	60%	\$0.11	71
Washington	Multi Family	Heat Pump	Duct Sealing - Aerosol-Based	Spray-in ductwork sealant to minimize duct leaks	No Duct Sealing	Per installation	Existing	901	18	\$787	75%	60%	\$0.10	59
Washington	Multi Family	Heat Pump	Floor Insulation (WA) above code	R-38	R-30	Per installation	Existing	165	30	\$236	25%	85%	\$0.14	14
Washington	Multi Family	Heat Pump	Floor Insulation (WA) zero to code	R-30	R-0	Per installation	Existing	3,255	30	\$879	25%	20%	\$0.03	84
Washington	Multi Family	Heat Pump	Ground Source Heat Pump, EER 16.2, COP 3.6	GSHp EER 16.2, HSPF 8.8	ASHp SEER 13, HSPF 7.7	Per installation	Existing	2,095	20	\$9,870	25%	N/A	\$0.53	83
Washington	Multi Family	Heat Pump	Heat Pump High Efficiency, SEER 14, HSPF 8.5	ASHp SEER 14, HSPF 8.5	ASHp SEER 13, HSPF 7.7	Per installation	Existing	521	20	\$411	100%	N/A	\$0.09	20
Washington	Multi Family	Heat Pump	Heat Pump Premium Efficiency, SEER 16, HSPF 8.8	ASHp SEER 16, HSPF 8.8	ASHp SEER 13, HSPF 7.7	Per installation	Existing	766	20	\$1,233	100%	N/A	\$0.18	112
Washington	Multi Family	Heat Pump	Infiltration Control (Caulk, Weather Strip, etc.) Blower-Door test	Install Caulking And Weatherstripping	Existing Infiltration Conditions	Per installation	Existing	600	11	\$410	75%	50%	\$0.11	107

Table C.2.1. Residential Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Washington	Multi Family	Heat Pump	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands (5 per unit)	13 SEER	Per installation	Existing	1,261	30	\$590	50%	95%	\$0.05	30
Washington	Multi Family	Heat Pump	Proper Sizing - HVAC Unit	Proper Sizing - HVAC Unit	Oversized HVAC Unit	Per installation	Existing	566	15	\$-7.6	95%	65%	\$-0.00	201
Washington	Multi Family	Heat Pump	Radiant Barrier (Ceiling)	Install Radiant Barrier	No Radiant Barrier	Per installation	Existing	168	30	\$302	50%	90%	\$0.17	31
Washington	Multi Family	Heat Pump	Thermostat - Multi-Zone	Individual Room Temperature Control for Major Occupied Rooms	Programmable Thermostat - Central Control Only	Per installation	Existing	408	11	\$1,075	50%	95%	\$0.41	76
Washington	Multi Family	Heat Pump	Wall Insulation 2x4 (WA) zero to max feasible	R-13	R-0	Per installation	Existing	809	30	\$1,144	85%	25%	\$0.14	55
Washington	Multi Family	Heat Pump	Wall Insulation 2x6 (WA) zero to code	R-21	R-0	Per installation	Existing	1,382	30	\$1,314	75%	25%	\$0.09	31
Washington	Multi Family	Heat Pump	Whole-House Fan	Whole-House Fan	No Whole-House Fan	Per installation	Existing	146	20	\$1,543	50%	95%	\$1.18	20
Washington	Multi Family	Heat Pump	Windows (Same for all Building Types)	CL25	CL30	Per installation	Existing	5	30	\$246	51%	85%	\$4.11	0.94
Washington	Multi Family	Heat Pump	Windows (Same for all Building Types)	CL30	Double Pane	Per installation	Existing	61	30	\$2,542	51%	50%	\$3.96	5
Washington	Multi Family	Heat Pump	Windows (Same for all Building Types)	CL30	Single Pane	Per installation	Existing	97	30	\$2,542	51%	20%	\$2.53	3
Washington	Multi Family	Heat Pump	Air-to-Air Heat Exchangers	Air-to-Air Heat Exchangers	No Air to Air Heat Exchangers	Per installation	New	385	5	\$565	25%	95%	\$0.42	6
Washington	Multi Family	Heat Pump	Ceiling Fan	Ceiling Fan (no lighting kit)	No Ceiling Fan	Per installation	New	25	10	\$90	85%	50%	\$0.60	1
Washington	Multi Family	Heat Pump	Ceiling Insulation (WA) above code	R-60	R-49	Per installation	New	38	30	\$175	90%	95%	\$0.45	1
Washington	Multi Family	Heat Pump	Check Me! O&M Tune-up	Tune-up/Maintenance	No Tune-up Maintenance	Per installation	New	18	5	\$192	95%	75%	\$2.89	0.95
Washington	Multi Family	Heat Pump	Construction - ICF	Concrete Framing	Standard Wood Framing	Per installation	New	1,622	45	\$3,640	50%	95%	\$0.20	2
Washington	Multi Family	Heat Pump	Construction - SIP	Specialty Framing	Standard Wood Framing	Per installation	New	463	45	\$1,468	50%	95%	\$0.28	0.66
Washington	Multi Family	Heat Pump	Cool Roofs	Lighter Colored Shingles (White)	Standard Roof Shingles	Per installation	New	7	20	\$151	85%	95%	\$2.27	0.27
Washington	Multi Family	Heat Pump	Doors	R-11 (Steel Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	New	110	20	\$25	95%	80%	\$0.03	2
Washington	Multi Family	Heat Pump	Doors	R-5 (Composite Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	New	74	20	\$54	95%	60%	\$0.08	1
Washington	Multi Family	Heat Pump	Floor Insulation (WA) above code	R-38	R-30	Per installation	New	106	30	\$236	75%	85%	\$0.21	4
Washington	Multi Family	Heat Pump	Green Roof	ecorroof	Standard Roof	Per installation	New	257	40	\$7,577	50%	95%	\$2.66	1
Washington	Multi Family	Heat Pump	Ground Source Heat Pump, EER 16.2, COP 3.6	GSHP EER 16.2, HSPF 8.8	ASHP SEER 13, HSPF 7.7	Per installation	New	1,404	20	\$9,987	25%	N/A	\$0.80	9
Washington	Multi Family	Heat Pump	Heat Pump High Efficiency, SEER 14, HSPF 8.5	ASHP SEER 14, HSPF 8.5	ASHP SEER 13, HSPF 7.7	Per installation	New	347	20	\$411	100%	N/A	\$0.13	3
Washington	Multi Family	Heat Pump	Heat Pump Premium Efficiency, SEER 16, HSPF 8.8	ASHP SEER 16, HSPF 8.8	ASHP SEER 13, HSPF 7.7	Per installation	New	530	20	\$1,233	100%	N/A	\$0.26	13
Washington	Multi Family	Heat Pump	Proper Sizing - HVAC Unit	Proper Sizing - HVAC Unit	Oversized HVAC Unit	Per installation	New	363	15	\$-7.6	95%	65%	\$-0.00	16
Washington	Multi Family	Heat Pump	Radiant Barrier (Ceiling)	Install Radiant Barrier	No Radiant Barrier	Per installation	New	108	30	\$302	75%	90%	\$0.27	4
Washington	Multi Family	Heat Pump	Smart Siting	Siting house to minimize heating/cooling costs	No smart siting	Per installation	New	38	45	\$748	40%	75%	\$1.73	0.65
Washington	Multi Family	Heat Pump	Thermostat - Multi-Zone	Individual Room Temperature Control for Major Occupied Rooms	Programmable Thermostat - Central Control Only	Per installation	New	262	11	\$1,075	50%	95%	\$0.64	7
Washington	Multi Family	Heat Pump	Wall Insulation 2x6 (WA) above code	R-21+R-5 sheathing	R-21	Per installation	New	104	30	\$601	50%	95%	\$0.56	2
Washington	Multi Family	Heat Pump	Whole-House Fan	Whole-House Fan	No Whole-House Fan	Per installation	New	94	20	\$1,543	50%	95%	\$1.84	1
Washington	Multi Family	Heat Pump	Windows (Same for all Building Types)	CL22	CL30	Per installation	New	6	30	\$286	95%	75%	\$3.96	0.28
Washington	Multi Family	Heat Pump	Windows (Same for all Building Types)	CL25	CL30	Per installation	New	4	30	\$246	95%	75%	\$4.87	0.19
Washington	Multi Family	Heat Room	Canned Lighting Air Tight Sealing	Canned Lighting Air Tight Sealing	No Air tight Sealing	Per installation	Existing	66	30	\$24	95%	50%	\$0.04	477

Table C.2.1. Residential Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Washington	Multi Family	Heat Room	Ceiling Insulation (WA) above code	R-60	R-49	Per installation	Existing	139	30	\$175	75%	95%	\$0.12	411
Washington	Multi Family	Heat Room	Ceiling Insulation (WA) ave to code	R-49	R-10	Per installation	Existing	2,098	30	\$810	75%	35%	\$0.04	2,754
Washington	Multi Family	Heat Room	Ceiling Insulation (WA) zero to code	R-49	R-0	Per installation	Existing	4,204	30	\$810	95%	1%	\$0.02	214
Washington	Multi Family	Heat Room	Conversion Baseboard Heating to DHP	Ductless Heat Pump HSPF 7.7	HSPF = 1	Per installation	Existing	1,028	20	\$2,414	89%	N/A	\$0.26	4,551
Washington	Multi Family	Heat Room	Doors	R-11 (Steel Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	Existing	216	20	\$167	95%	80%	\$0.09	360
Washington	Multi Family	Heat Room	Doors	R-5 (Composite Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	Existing	144	20	\$196	95%	60%	\$0.15	167
Washington	Multi Family	Heat Room	Doors - Weatherization	Weatherstripping And Adding Door Sweeps	Existing Non-Efficient door	Per installation	Existing	93	6	\$45	95%	50%	\$0.12	185
Washington	Multi Family	Heat Room	Floor Insulation (WA) above code	R-38	R-30	Per installation	Existing	117	30	\$236	25%	85%	\$0.19	101
Washington	Multi Family	Heat Room	Floor Insulation (WA) zero to code	R-30	R-0	Per installation	Existing	3,948	30	\$879	25%	20%	\$0.02	1,056
Washington	Multi Family	Heat Room	Infiltration Control (Cauk, Weather Strip, etc.) Blower-Door test	Install Caulking And Weatherstripping	Existing Infiltration Conditions	Per installation	Existing	722	11	\$410	75%	50%	\$0.09	1,171
Washington	Multi Family	Heat Room	Radiant Barrier (Ceiling)	Install Radiant Barrier	No Radiant Barrier	Per installation	Existing	144	30	\$302	50%	90%	\$0.20	262
Washington	Multi Family	Heat Room	Wall Insulation 2x4 (WA) zero to max feasible	R-13	R-0	Per installation	Existing	2,385	30	\$1,144	85%	25%	\$0.05	1,755
Washington	Multi Family	Heat Room	Wall Insulation 2x6 (WA) zero to code	R-21	R-0	Per installation	Existing	4,074	30	\$1,314	75%	25%	\$0.03	993
Washington	Multi Family	Heat Room	Windows (Same for all Building Types)	CL25	CL30	Per installation	Existing	17	30	\$246	51%	85%	\$1.37	29
Washington	Multi Family	Heat Room	Windows (Same for all Building Types)	CL30	Double Pane	Per installation	Existing	185	30	\$2,542	51%	50%	\$1.32	187
Washington	Multi Family	Heat Room	Windows (Same for all Building Types)	CL30	Single Pane	Per installation	Existing	291	30	\$2,542	51%	20%	\$0.84	117
Washington	Multi Family	Heat Room	Ceiling Insulation (WA) above code	R-60	R-49	Per installation	New	119	30	\$175	90%	95%	\$0.14	64
Washington	Multi Family	Heat Room	Construction - ICF	Concrete Framing	Standard Wood Framing	Per installation	New	1,968	45	\$3,640	50%	95%	\$0.16	28
Washington	Multi Family	Heat Room	Construction - SIP	Specialty Framing	Standard Wood Framing	Per installation	New	536	45	\$1,468	50%	95%	\$0.24	7
Washington	Multi Family	Heat Room	Conversion Baseboard Heating to DHP	Ductless Heat Pump HSPF 7.7	HSPF = 1	Per installation	New	636	20	\$2,414	89%	N/A	\$0.42	482
Washington	Multi Family	Heat Room	Doors	R-11 (Steel Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	New	134	20	\$25	95%	80%	\$0.02	32
Washington	Multi Family	Heat Room	Doors	R-5 (Composite Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	New	89	20	\$54	95%	60%	\$0.07	16
Washington	Multi Family	Heat Room	Floor Insulation (WA) above code	R-38	R-30	Per installation	New	72	30	\$236	75%	85%	\$0.31	27
Washington	Multi Family	Heat Room	Green Roof	ecorooF	Standard Roof	Per installation	New	313	40	\$7,577	50%	95%	\$2.18	17
Washington	Multi Family	Heat Room	Radiant Barrier (Ceiling)	Install Radiant Barrier	No Radiant Barrier	Per installation	New	89	30	\$302	75%	90%	\$0.33	35
Washington	Multi Family	Heat Room	Smart Siting	Siting house to minimize heating/cooling costs	No smart siting	Per installation	New	13	45	\$748	40%	75%	\$4.78	2
Washington	Multi Family	Heat Room	Wall Insulation 2x6 (WA) above code	R-21+R-5 sheathing	R-21	Per installation	New	325	30	\$601	50%	95%	\$0.18	85
Washington	Multi Family	Heat Room	Windows (Same for all Building Types)	CL22	CL30	Per installation	New	22	30	\$286	95%	75%	\$1.23	9
Washington	Multi Family	Heat Room	Windows (Same for all Building Types)	CL25	CL30	Per installation	New	14	30	\$246	95%	75%	\$1.59	6
Washington	Multi Family	Lighting Exterior	CFL, Flood (17 W)	CFL, Flood	Standard Incandescent Flood	Per installation	Existing	53	5	\$0.91	100%	N/A	\$0.00	133
Washington	Multi Family	Lighting Exterior	Time Clocks (Exterior Lighting)	Exterior Lighting on a Time Clock	Exterior Lighting (Manual Control)	Per installation	Existing	25	10	\$16	80%	85%	\$0.11	50

Table C.2.1. Residential Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Washington	Multi Family	Lighting Exterior	CFL, Flood (17 W)	CFL, Flood	Standard Incandescent Flood	Per installation	New	53	5	\$0.91	100%	N/A	\$0.00	2
Washington	Multi Family	Lighting Exterior	Time Clocks (Exterior Lighting)	Exterior Lighting on a Time Clock	Exterior Lighting (Manual Control)	Per installation	New	25	10	\$16	80%	85%	\$0.11	6
Washington	Multi Family	Lighting Interior Specialty	CFL (13 W, 20 W, 25 W)	CFL (3-Way)	Standard Incandescent (3-Way)	Per installation	Existing	43	5	\$3	100%	N/A	\$0.02	745
Washington	Multi Family	Lighting Interior Specialty	CFL (13 W, 20 W, 25 W)	CFL (3-Way)	Standard Incandescent (3-Way)	Per installation	New	43	5	\$3	100%	N/A	\$0.02	9
Washington	Multi Family	Lighting Interior Standard	Daylighting Controls (Photocell) - Indoor/Outdoors	Install Photocell	No Daylighting Controls	Per installation	Existing	23	20	\$144	25%	95%	\$0.69	5
Washington	Multi Family	Lighting Interior Standard	Lighting CFL 15 W	15 W CFL	Standard 60 W Incandescent	Per installation	Existing	40	5	\$2	100%	N/A	\$0.02	973
Washington	Multi Family	Lighting Interior Standard	Lighting LED 7 W	7 W LED	Standard 60 W Incandescent	Per installation	Existing	51	20	\$36	50%	N/A	\$0.08	2,728
Washington	Multi Family	Lighting Interior Standard	Occupancy Sensors	Wall-Switch Occupancy Sensors	No Occupancy Sensor	Per installation	Existing	5	10	\$31	85%	95%	\$0.90	119
Washington	Multi Family	Lighting Interior Standard	Daylighting Controls (Photocell) - Indoor/Outdoors	Install Photocell	No Daylighting Controls	Per installation	New	23	20	\$144	25%	95%	\$0.69	0.79
Washington	Multi Family	Lighting Interior Standard	Lighting CFL 15 W	15 W CFL	Standard 60 W Incandescent	Per installation	New	40	5	\$2	100%	N/A	\$0.02	15
Washington	Multi Family	Lighting Interior Standard	Lighting LED 7 W	7 W LED	Standard 60 W Incandescent	Per installation	New	51	20	\$36	50%	N/A	\$0.08	41
Washington	Multi Family	Lighting Interior Standard	Occupancy Sensors	Wall-Switch Occupancy Sensors	No Occupancy Sensor	Per installation	New	5	10	\$31	85%	95%	\$0.90	16
Washington	Multi Family	Microwave	Microwave, High Efficiency	High Efficiency Microwave	Standard Microwave	Per installation	Existing	9	15	\$79	100%	N/A	\$1.05	84
Washington	Multi Family	Microwave	Microwave, High Efficiency	High Efficiency Microwave	Standard Microwave	Per installation	New	9	15	\$79	100%	N/A	\$1.05	9
Washington	Multi Family	Monitor	Monitor, Energy Star	Energy Star Monitor	Standard Monitor	Per installation	Existing	36	5	\$3	100%	N/A	\$0.03	243
Washington	Multi Family	Monitor	Monitor, Energy Star	Energy Star Monitor	Standard Monitor	Per installation	New	36	5	\$3	100%	N/A	\$0.03	7
Washington	Multi Family	Plug Load Other	1-Watt Standby Power	1W or less standby power use for small appliances	Standard plug load appliance.	Per installation	Existing	17	7	\$30	50%	50%	\$0.36	306
Washington	Multi Family	Plug Load Other	Energy Star Battery Chargers	Energy Star Battery Chargers	Standard Battery Chargers	Per installation	Existing	0.56	7	\$33	50%	80%	\$13.07	36
Washington	Multi Family	Plug Load Other	Office Copier	Office Copier	Standard Copier	Per installation	Existing	39	6	\$5	10%	50%	\$0.03	31
Washington	Multi Family	Plug Load Other	Office Printer	Office Printer	Standard Printer	Per installation	Existing	5	5	\$5	20%	50%	\$0.28	8
Washington	Multi Family	Plug Load Other	Smart Strip	Smart Strip	Standard PowerStrip	Per installation	Existing	103	5	\$22	50%	85%	\$0.06	700
Washington	Multi Family	Plug Load Other	1-Watt Standby Power	1W or less standby power use for small appliances	Standard plug load appliance.	Per installation	New	17	7	\$30	50%	50%	\$0.37	36
Washington	Multi Family	Plug Load Other	Energy Star Battery Chargers	Energy Star Battery Chargers	Standard Battery Chargers	Per installation	New	0.56	7	\$2	50%	80%	\$1.00	4
Washington	Multi Family	Plug Load Other	Office Copier	Office Copier	Standard Copier	Per installation	New	39	6	\$5	10%	50%	\$0.03	3
Washington	Multi Family	Plug Load Other	Office Printer	Office Printer	Standard Printer	Per installation	New	5	5	\$5	20%	50%	\$0.28	0.97
Washington	Multi Family	Plug Load Other	Smart Strip	Smart Strip	Standard PowerStrip	Per installation	New	102	5	\$22	50%	85%	\$0.06	83
Washington	Multi Family	Refrigerator	Refrigerator, Energy Star	Energy Star Refrigerator	Standard Refrigerator	Per installation	Existing	122	20	\$15	79%	N/A	\$0.01	260
Washington	Multi Family	Refrigerator	Refrigerator/Freezer - Removal of Secondary	Proper Disposal of Refrigerator/Freezer	Existing Non-Efficient Refrigerator/Freezer	Per installation	Existing	1,482	9	\$96	14%	93%	\$0.01	578
Washington	Multi Family	Refrigerator	Refrigerator, Energy Star	Energy Star Refrigerator	Standard Refrigerator	Per installation	New	122	20	\$15	100%	N/A	\$0.01	78
Washington	Multi Family	Set Top Box	Set Top Box, Energy Star	Energy Star Set Top Box	Standard Set Top Box	Per installation	Existing	164	5	\$12	100%	N/A	\$0.02	1,381
Washington	Multi Family	Set Top Box	Set Top Box, Energy Star	Energy Star Set Top Box	Standard Set Top Box	Per installation	New	164	5	\$12	100%	N/A	\$0.02	40
Washington	Multi Family	Tv	TV CRT, Energy Star	Energy Star CRT TV	Standard CRT TV	Per installation	Existing	112	10	\$19	100%	N/A	\$0.03	2,103
Washington	Multi Family	Tv	TV CRT, Energy Star	Energy Star CRT TV	Standard CRT TV	Per installation	New	112	10	\$19	100%	N/A	\$0.03	144
Washington	Multi Family	Tv Bigscreen	TV LCD, Energy Star	Energy Star LCD TV	Standard LCD TV	Per installation	Existing	223	10	\$19	100%	N/A	\$0.01	215
Washington	Multi Family	Tv Bigscreen	TV LCD, Energy Star	Energy Star LCD TV	Standard LCD TV	Per installation	New	223	10	\$19	100%	N/A	\$0.01	14

Table C.2.1. Residential Measure Details

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Washington	Multi Family	Ventilation And Circulation	Motor, ECM	ECM Motor	Standard Motor	Per installation	Existing	49	20	\$172	50%	N/A	\$0.39	61
Washington	Multi Family	Ventilation And Circulation	Motor, ECM - VFD	ECMVFD Motor	Standard Motor	Per installation	Existing	147	20	\$194	50%	N/A	\$0.15	184
Washington	Multi Family	Ventilation And Circulation	Motor, ECM	ECM Motor	Standard Motor	Per installation	New	36	20	\$172	50%	N/A	\$0.53	6
Washington	Multi Family	Ventilation And Circulation	Motor, ECM - VFD	ECMVFD Motor	Standard Motor	Per installation	New	109	20	\$194	50%	N/A	\$0.20	20
Washington	Multi Family	Water Heat	Clothes Washer	Energy Star - Tier 1 (MEF 2.0 - 2.19) - Electric DHW & Dryer	MEF = 1.66 - Electric DHW & Dryer	Per installation	Existing	112	14	\$227	79%	87%	\$-0.27	293
Washington	Multi Family	Water Heat	Clothes Washer	Energy Star - Tier 2 (MEF 2.2 - 2.45) - Electric DHW & Dryer	MEF = 1.66 - Electric DHW & Dryer	Per installation	Existing	150	14	\$296	79%	95%	\$-0.25	429
Washington	Multi Family	Water Heat	Clothes Washer	Energy Star - Tier 3 (MEF 2.46 or higher) Top 10% of Energy Star Model - Electric DHW & Dryer	MEF = 1.66 - Electric DHW & Dryer	Per installation	Existing	171	14	\$317	79%	99%	\$-0.23	509
Washington	Multi Family	Water Heat	Dishwasher	Energy Star, July 1st 2011, <= 307 kWh/year , <= 5.0 gallons/cycle	Energy Star - EF65 (6th Plan Baseline)	Per installation	Existing	33	12	\$42	58%	50%	\$0.17	109
Washington	Multi Family	Water Heat	Drain Water Heat Recovery (GFX)	Gravity Film Heat Exchanger	No Heat Exchanger	Per installation	Existing	375	40	\$530	29%	90%	\$0.13	884
Washington	Multi Family	Water Heat	Faucet Aerators	0.5 GPM	2.2 GPM	Per installation	Existing	82	9	\$0.71	95%	95%	\$-0.08	850
Washington	Multi Family	Water Heat	Faucet Aerators	1.5 GPM	2.2 GPM	Per installation	Existing	34	9	\$0.46	95%	65%	\$-0.08	241
Washington	Multi Family	Water Heat	Faucet Aerators	2.2 GPM	Existing Faucet Aerator (3.0 GPM)	Per installation	Existing	38	9	\$1	95%	25%	\$-0.07	207
Washington	Multi Family	Water Heat	Hot Water Pipe Insulation	R-4 Wrap	No insulation	Per installation	Existing	40	5	\$22	95%	75%	\$0.16	238
Washington	Multi Family	Water Heat	Low-Flow Showerheads	2.0 GPM	2.5 GPM	Per installation	Existing	112	10	\$16	95%	65%	\$-0.06	794
Washington	Multi Family	Water Heat	Water Heater, Storage EF 0.95	Standard Storage Water Heater EF = 0.95	Standard Storage Water Heater EF = 0.92	Per installation	Existing	49	15	\$45	100%	N/A	\$0.12	23
Washington	Multi Family	Water Heat	Water_Heater Tank Blanket/Insulation	Install Insulation (R-5)	No Tank Insulation	Per installation	Existing	100	10	\$11	50%	20%	\$0.02	92
Washington	Multi Family	Water Heat	Water_Heater Thermostat Setback	120 degrees	135 degrees	Per installation	Existing	92	5	\$7	95%	45%	\$0.02	360
Washington	Multi Family	Water Heat	Clothes Washer	Energy Star - Tier 1 (MEF 2.0 - 2.19) - Electric DHW & Dryer	MEF = 1.66 - Electric DHW & Dryer	Per installation	New	112	14	\$227	79%	87%	\$-0.27	35
Washington	Multi Family	Water Heat	Clothes Washer	Energy Star - Tier 2 (MEF 2.2 - 2.45) - Electric DHW & Dryer	MEF = 1.66 - Electric DHW & Dryer	Per installation	New	149	14	\$296	79%	95%	\$-0.25	52
Washington	Multi Family	Water Heat	Clothes Washer	Energy Star - Tier 3 (MEF 2.46 or higher) Top 10% of Energy Star Model - Electric DHW & Dryer	MEF = 1.66 - Electric DHW & Dryer	Per installation	New	170	14	\$317	79%	99%	\$-0.23	62
Washington	Multi Family	Water Heat	Dishwasher	Energy Star, July 1st 2011, <= 307 kWh/year , <= 5.0 gallons/cycle	Energy Star - EF65 (6th Plan Baseline)	Per installation	New	33	12	\$42	58%	50%	\$0.17	13
Washington	Multi Family	Water Heat	Drain Water Heat Recovery (GFX)	Gravity Film Heat Exchanger	No Heat Exchanger	Per installation	New	373	40	\$454	59%	90%	\$0.11	220
Washington	Multi Family	Water Heat	Faucet Aerators	0.5 GPM	2.2 GPM	Per installation	New	82	9	\$0.71	95%	95%	\$-0.08	103
Washington	Multi Family	Water Heat	Faucet Aerators	1.5 GPM	2.2 GPM	Per installation	New	34	9	\$0.46	95%	65%	\$-0.08	29
Washington	Multi Family	Water Heat	Hot Water Pipe Insulation	R-4 Wrap	No insulation	Per installation	New	40	5	\$22	95%	75%	\$0.16	27
Washington	Multi Family	Water Heat	Low-Flow Showerheads	2.0 GPM	2.5 GPM	Per installation	New	112	10	\$9	95%	65%	\$-0.07	96
Washington	Multi Family	Water Heat	Water Heater, Storage EF 0.95	Standard Storage Water Heater EF = 0.95	Standard Storage Water Heater EF = 0.92	Per installation	New	49	15	\$45	100%	N/A	\$0.12	2
Washington	Multi Family	Water Heat	Water_Heater Thermostat Setback	120 degrees	135 degrees	Per installation	New	91	5	\$7	95%	45%	\$0.02	44
Washington	Single Family	Computer	Computer, Energy Star	Energy Star Computer	Standard Computer	Per installation	Existing	48	5	\$22	100%	N/A	\$0.13	5,193
Washington	Single Family	Computer	Computer, Energy Star	Energy Star Computer	Standard Computer	Per installation	New	48	5	\$22	100%	N/A	\$0.13	147
Washington	Single Family	Cooking Oven	Cooking Oven, High Efficiency	High Efficiency Oven	Standard Oven	Per installation	Existing	58	20	\$282	100%	N/A	\$0.55	1,735
Washington	Single Family	Cooking Oven	Cooking Oven, High Efficiency	High Efficiency Oven	Standard Oven	Per installation	New	58	20	\$282	100%	N/A	\$0.55	240
Washington	Single Family	Cool Central	Air-to-Air Heat Exchangers	Air-to-Air Heat Exchangers	No Air to Air Heat Exchangers	Per installation	Existing	155	5	\$565	50%	95%	\$1.03	4,812

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Washington	Single Family	Cool Central	Canned Lighting Air Tight Sealing	Canned Lighting Air Tight Sealing	No Air tight Sealing	Per installation	Existing	3	30	\$24	95%	50%	\$0.62	648
Washington	Single Family	Cool Central	Ceiling Fan	Ceiling Fan (no lighting kit)	No Ceiling Fan	Per installation	Existing	41	10	\$90	85%	50%	\$0.37	3,444
Washington	Single Family	Cool Central	Ceiling Insulation (WA) above code	R-60	R-49	Per installation	Existing	21	30	\$519	75%	95%	\$2.36	554
Washington	Single Family	Cool Central	Ceiling Insulation (WA) ave to code	R-49	R-10	Per installation	Existing	321	30	\$2,393	75%	35%	\$0.72	3,667
Washington	Single Family	Cool Central	Ceiling Insulation (WA) zero to code	R-49	R-0	Per installation	Existing	643	30	\$2,393	95%	1%	\$0.36	311
Washington	Single Family	Cool Central	Central Cooling, SEER 15	SEER 15	SEER 13	Per installation	Existing	176	15	\$595	100%	N/A	\$0.44	796
Washington	Single Family	Cool Central	Central Cooling, SEER 18	SEER 18	SEER 13	Per installation	Existing	441	15	\$1,490	100%	N/A	\$0.44	10,848
Washington	Single Family	Cool Central	Check Me! O&M Tune-up	Tune-up/Maintenance	No Tune-up Maintenance	Per installation	Existing	48	5	\$192	95%	75%	\$1.12	2,254
Washington	Single Family	Cool Central	Cool Roofs	Lighter Colored Shingles (White)	Standard Roof Shingles	Per installation	Existing	18	20	\$426	85%	95%	\$2.59	541
Washington	Single Family	Cool Central	Doors	R-11 (Steel Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	Existing	16	20	\$167	95%	80%	\$1.11	516
Washington	Single Family	Cool Central	Doors	R-5 (Composite Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	Existing	11	20	\$196	95%	60%	\$1.95	238
Washington	Single Family	Cool Central	Doors - Weatherization	Weatherstripping And Adding Door Sweeps	Existing Non-Efficient door	Per installation	Existing	7	6	\$45	95%	50%	\$1.52	277
Washington	Single Family	Cool Central	Duct Insulation Upgrade	R-8 (code)	R-4	Per installation	Existing	45	20	\$640	75%	75%	\$1.59	1,005
Washington	Single Family	Cool Central	Duct Sealing	Duct Sealing	No Duct Sealing	Per installation	Existing	155	18	\$635	75%	60%	\$0.48	2,045
Washington	Single Family	Cool Central	Duct Sealing - Aerosol-Based	Spray-in ductwork sealant to minimize duct leaks	No Duct Sealing	Per installation	Existing	233	18	\$787	75%	60%	\$0.40	1,597
Washington	Single Family	Cool Central	Floor Insulation (WA) above code	R-38	R-30	Per installation	Existing	31	30	\$699	25%	85%	\$2.16	244
Washington	Single Family	Cool Central	Floor Insulation (WA) zero to code	R-30	R-0	Per installation	Existing	612	30	\$2,597	25%	20%	\$0.41	1,523
Washington	Single Family	Cool Central	Infiltration Control (Caulk, Weather Strip, etc.) Blower-Door test	Install Caulking And Weatherstripping	Existing Infiltration Conditions	Per installation	Existing	155	11	\$533	75%	50%	\$0.54	2,660
Washington	Single Family	Cool Central	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands (5 per unit)	13 SEER	Per installation	Existing	237	30	\$590	50%	95%	\$0.24	589
Washington	Single Family	Cool Central	Proper Sizing - HVAC Unit	Proper Sizing - HVAC Unit	Oversized HVAC Unit	Per installation	Existing	146	15	\$-7.6	95%	65%	\$-0.01	5,898
Washington	Single Family	Cool Central	Radiant Barrier (Ceiling)	Install Radiant Barrier	No Radiant Barrier	Per installation	Existing	93	30	\$892	50%	90%	\$0.92	1,727
Washington	Single Family	Cool Central	Thermostat - Multi-Zone	Individual Room Temperature Control for Major Occupied Rooms	Programmable Thermostat - Central Control Only	Per installation	Existing	105	11	\$1,263	75%	95%	\$1.87	2,928
Washington	Single Family	Cool Central	Wall Insulation 2x4 (WA) zero to max feasible	R-13	R-0	Per installation	Existing	365	30	\$1,966	85%	25%	\$0.52	2,762
Washington	Single Family	Cool Central	Wall Insulation 2x6 (WA) zero to code	R-21	R-0	Per installation	Existing	624	30	\$2,259	75%	25%	\$0.35	1,519
Washington	Single Family	Cool Central	Whole-House Fan	Whole-House Fan	No Whole-House Fan	Per installation	Existing	233	20	\$1,543	50%	95%	\$0.74	3,609
Washington	Single Family	Cool Central	Windows (Same for all Building Types)	CL25	CL30	Per installation	Existing	2	30	\$424	65%	75%	\$15.52	45
Washington	Single Family	Cool Central	Windows (Same for all Building Types)	CL30	Double Pane	Per installation	Existing	28	30	\$4,369	65%	25%	\$14.96	163
Washington	Single Family	Cool Central	Windows (Same for all Building Types)	CL30	Single Pane	Per installation	Existing	44	30	\$4,369	65%	25%	\$9.55	258
Washington	Single Family	Cool Central	Air-to-Air Heat Exchangers	Air-to-Air Heat Exchangers	No Air to Air Heat Exchangers	Per installation	New	139	5	\$565	50%	95%	\$1.15	509
Washington	Single Family	Cool Central	Ceiling Fan	Ceiling Fan (no lighting kit)	No Ceiling Fan	Per installation	New	37	10	\$90	85%	50%	\$0.41	364
Washington	Single Family	Cool Central	Ceiling Insulation (WA) above code	R-60	R-49	Per installation	New	26	30	\$519	90%	95%	\$1.89	109
Washington	Single Family	Cool Central	Central Cooling, SEER 15	SEER 15	SEER 13	Per installation	New	184	15	\$595	100%	N/A	\$0.42	101
Washington	Single Family	Cool Central	Central Cooling, SEER 18	SEER 18	SEER 13	Per installation	New	461	15	\$1,490	100%	N/A	\$0.42	1,214
Washington	Single Family	Cool Central	Check Me! O&M Tune-up	Tune-up/Maintenance	No Tune-up Maintenance	Per installation	New	43	5	\$192	95%	75%	\$1.25	238
Washington	Single Family	Cool Central	Construction - ICF	Concrete Framing	Standard Wood Framing	Per installation	New	447	45	\$6,256	50%	95%	\$1.24	53

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Washington	Single Family	Cool Central	Construction - SIP	Specialty Framing	Standard Wood Framing	Per installation	New	167	45	\$2,524	50%	95%	\$1.33	19
Washington	Single Family	Cool Central	Cool Roofs	Lighter Colored Shingles (White)	Standard Roof Shingles	Per installation	New	16	20	\$426	85%	95%	\$2.88	47
Washington	Single Family	Cool Central	Doors	R-11 (Steel Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	New	15	20	\$25	95%	80%	\$0.18	71
Washington	Single Family	Cool Central	Doors	R-5 (Composite Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	New	10	20	\$54	95%	60%	\$0.59	31
Washington	Single Family	Cool Central	Floor Insulation (WA) above code	R-38	R-30	Per installation	New	28	30	\$699	75%	85%	\$2.40	81
Washington	Single Family	Cool Central	Green Roof	ecorooF	Standard Roof	Per installation	New	71	40	\$21,409	50%	95%	\$27.13	29
Washington	Single Family	Cool Central	Proper Sizing - HVAC Unit	Proper Sizing - HVAC Unit	Oversized HVAC Unit	Per installation	New	131	15	\$-7.6	95%	65%	\$-0.01	624
Washington	Single Family	Cool Central	Radiant Barrier (Ceiling)	Install Radiant Barrier	No Radiant Barrier	Per installation	New	83	30	\$892	75%	90%	\$1.03	295
Washington	Single Family	Cool Central	Smart Siting	Siting house to minimize heating/cooling costs	No smart siting	Per installation	New	77	45	\$748	75%	75%	\$0.86	232
Washington	Single Family	Cool Central	Thermal Shell - Infiltration @0.2 ACH w/HRV	0.2 ACH w/HRV	Standard New Construction Home 0.35 ACH	Per installation	New	198	30	\$929	85%	95%	\$0.45	974
Washington	Single Family	Cool Central	Thermostat - Multi-Zone	Individual Room Temperature Control for Major Occupied Rooms	Programmable Thermostat - Central Control Only	Per installation	New	95	11	\$1,263	75%	95%	\$2.08	322
Washington	Single Family	Cool Central	Wall Insulation 2x6 (WA) above code	R-21+R-5 sheathing	R-21	Per installation	New	72	30	\$1,034	50%	95%	\$1.37	153
Washington	Single Family	Cool Central	Whole-House Fan	Whole-House Fan	No Whole-House Fan	Per installation	New	209	20	\$1,543	50%	95%	\$0.82	381
Washington	Single Family	Cool Central	Windows (Same for all Building Types)	CL22	CL30	Per installation	New	4	30	\$491	95%	75%	\$9.72	15
Washington	Single Family	Cool Central	Windows (Same for all Building Types)	CL25	CL30	Per installation	New	3	30	\$424	95%	75%	\$12.42	10
Washington	Single Family	Cool Room	Canned Lighting Air Tight Sealing	Canned Lighting Air Tight Sealing	No Air tight Sealing	Per installation	Existing	1	30	\$24	95%	50%	\$1.39	130
Washington	Single Family	Cool Room	Ceiling Fan	Ceiling Fan (no lighting kit)	No Ceiling Fan	Per installation	Existing	18	10	\$90	85%	50%	\$0.82	545
Washington	Single Family	Cool Room	Ceiling Insulation (WA) above code	R-60	R-49	Per installation	Existing	9	30	\$519	75%	95%	\$5.15	122
Washington	Single Family	Cool Room	Ceiling Insulation (WA) ave to code	R-49	R-10	Per installation	Existing	146	30	\$2,393	75%	35%	\$1.58	754
Washington	Single Family	Cool Room	Ceiling Insulation (WA) zero to code	R-49	R-0	Per installation	Existing	293	30	\$2,393	95%	1%	\$0.79	61
Washington	Single Family	Cool Room	Cool Roofs	Lighter Colored Shingles (White)	Standard Roof Shingles	Per installation	Existing	8	20	\$426	85%	95%	\$5.81	116
Washington	Single Family	Cool Room	Doors	R-11 (Steel Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	Existing	7	20	\$167	95%	80%	\$2.49	103
Washington	Single Family	Cool Room	Doors	R-5 (Composite Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	Existing	5	20	\$196	95%	60%	\$4.37	51
Washington	Single Family	Cool Room	Doors - Weatherization	Weatherstripping And Adding Door Sweeps	Existing Non-Efficient door	Per installation	Existing	3	6	\$45	95%	50%	\$3.42	55
Washington	Single Family	Cool Room	Floor Insulation (WA) above code	R-38	R-30	Per installation	Existing	14	30	\$699	25%	85%	\$4.81	52
Washington	Single Family	Cool Room	Floor Insulation (WA) zero to code	R-30	R-0	Per installation	Existing	275	30	\$2,597	25%	20%	\$0.91	300
Washington	Single Family	Cool Room	Infiltration Control (Caulk, Weather Strip, etc.) Blower-Door test	Install Caulking And Weatherstripping	Existing Infiltration Conditions	Per installation	Existing	69	11	\$533	75%	50%	\$1.20	535
Washington	Single Family	Cool Room	Radiant Barrier (Ceiling)	Install Radiant Barrier	No Radiant Barrier	Per installation	Existing	41	30	\$892	50%	90%	\$2.07	346
Washington	Single Family	Cool Room	Room AC conversion to Ductless Heat Pump	SEER 13	EER 9.8	Per installation	Existing	27	20	\$2,172	75%	N/A	\$8.77	1,020
Washington	Single Family	Cool Room	Room AC, EER 10.8	EER 10.8	EER 9.8	Per installation	Existing	22	9	\$7	100%	N/A	\$0.06	212
Washington	Single Family	Cool Room	Wall Insulation 2x4 (WA) zero to max feasible	R-13	R-0	Per installation	Existing	166	30	\$1,966	85%	25%	\$1.14	568
Washington	Single Family	Cool Room	Wall Insulation 2x6 (WA) zero to code	R-21	R-0	Per installation	Existing	284	30	\$2,259	75%	25%	\$0.77	298

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Washington	Single Family	Cool Room	Windows (Same for all Building Types)	CL25	CL30	Per installation	Existing	1	30	\$424	65%	75%	\$33.75	10
Washington	Single Family	Cool Room	Windows (Same for all Building Types)	CL30	Double Pane	Per installation	Existing	12	30	\$4,369	65%	25%	\$32.53	36
Washington	Single Family	Cool Room	Windows (Same for all Building Types)	CL30	Single Pane	Per installation	Existing	20	30	\$4,369	65%	25%	\$20.76	57
Washington	Single Family	Cool Room	Ceiling Fan	Ceiling Fan (no lighting kit)	No Ceiling Fan	Per installation	New	16	10	\$90	85%	50%	\$0.91	57
Washington	Single Family	Cool Room	Ceiling Insulation (WA) above code	R-60	R-49	Per installation	New	12	30	\$519	90%	95%	\$4.12	21
Washington	Single Family	Cool Room	Construction - ICF	Concrete Framing	Standard Wood Framing	Per installation	New	199	45	\$6,256	50%	95%	\$2.78	9
Washington	Single Family	Cool Room	Construction - SIP	Specialty Framing	Standard Wood Framing	Per installation	New	74	45	\$2,524	50%	95%	\$2.99	3
Washington	Single Family	Cool Room	Cool Roofs	Lighter Colored Shingles (White)	Standard Roof Shingles	Per installation	New	7	20	\$426	85%	95%	\$6.45	9
Washington	Single Family	Cool Room	Doors	R-11 (Steel Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	New	6	20	\$25	95%	80%	\$0.41	13
Washington	Single Family	Cool Room	Doors	R-5 (Composite Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	New	4	20	\$54	95%	60%	\$1.33	5
Washington	Single Family	Cool Room	Floor Insulation (WA) above code	R-38	R-30	Per installation	New	12	30	\$699	75%	85%	\$5.34	16
Washington	Single Family	Cool Room	Green Roof	ecorooF	Standard Roof	Per installation	New	31	40	\$21,409	50%	95%	\$60.84	5
Washington	Single Family	Cool Room	Radiant Barrier (Ceiling)	Install Radiant Barrier	No Radiant Barrier	Per installation	New	37	30	\$892	75%	90%	\$2.30	55
Washington	Single Family	Cool Room	Room AC conversion to Ductless Heat Pump	SEER 13	EER 9.8	Per installation	New	25	20	\$2,172	75%	N/A	\$9.35	49
Washington	Single Family	Cool Room	Room AC, EER 10.8	EER 10.8	EER 9.8	Per installation	New	20	9	\$7	100%	N/A	\$0.06	20
Washington	Single Family	Cool Room	Smart Siting	Siting house to minimize heating/cooling costs	No smart siting	Per installation	New	34	45	\$748	75%	75%	\$1.93	43
Washington	Single Family	Cool Room	Thermal Shell - Infiltration @0.2 ACH w/HRV	0.2 ACH w/HRV	Standard New Construction Home 0.35 ACH	Per installation	New	92	30	\$929	85%	95%	\$0.97	192
Washington	Single Family	Cool Room	Wall Insulation 2x6 (WA) above code	R-21+R-5 sheathing	R-21	Per installation	New	33	30	\$1,034	50%	95%	\$3.02	29
Washington	Single Family	Cool Room	Windows (Same for all Building Types)	CL22	CL30	Per installation	New	2	30	\$491	95%	75%	\$20.91	3
Washington	Single Family	Cool Room	Windows (Same for all Building Types)	CL25	CL30	Per installation	New	1	30	\$424	95%	75%	\$26.98	2
Washington	Single Family	Dryer	Dryer, Advanced Efficiency EF 3.30	Advanced Efficiency Dryer 3.30	Standard Dryer EF 3.01	Per installation	Existing	50	14	\$224	100%	N/A	\$0.59	3,333
Washington	Single Family	Dryer	Dryer, High Efficiency EF 3.08	High Efficiency Dryer EF 3.08	Standard Dryer EF 3.01	Per installation	Existing	13	14	\$54	100%	N/A	\$0.56	76
Washington	Single Family	Dryer	Dryer, Premium Efficiency EF 3.19	Premium Efficiency Dryer 3.19	Standard Dryer EF 3.01	Per installation	Existing	32	14	\$139	100%	N/A	\$0.57	488
Washington	Single Family	Dryer	Dryer, Advanced Efficiency EF 3.30	Advanced Efficiency Dryer 3.30	Standard Dryer EF 3.01	Per installation	New	50	14	\$224	100%	N/A	\$0.59	310
Washington	Single Family	Dryer	Dryer, High Efficiency EF 3.08	High Efficiency Dryer EF 3.08	Standard Dryer EF 3.01	Per installation	New	13	14	\$54	100%	N/A	\$0.56	7
Washington	Single Family	Dryer	Dryer, Premium Efficiency EF 3.19	Premium Efficiency Dryer 3.19	Standard Dryer EF 3.01	Per installation	New	32	14	\$139	100%	N/A	\$0.57	58
Washington	Single Family	Freezer	Freezer, Energy Star	Energy Star Freezer	Standard Freezer	Per installation	Existing	46	20	\$22	76%	N/A	\$0.05	477
Washington	Single Family	Freezer	Stand-Alone Freezer - Removal	Proper Disposal of Freezer	Existing Non-Efficient Freezer	Per installation	Existing	1,421	8	\$93	17%	97%	\$0.01	3,198
Washington	Single Family	Freezer	Freezer, Energy Star	Energy Star Freezer	Standard Freezer	Per installation	New	46	20	\$22	76%	N/A	\$0.05	122
Washington	Single Family	Heat Central	Air-to-Air Heat Exchangers	Air-to-Air Heat Exchangers	No Air to Air Heat Exchangers	Per installation	Existing	1,294	5	\$565	50%	95%	\$0.12	7,080
Washington	Single Family	Heat Central	Canned Lighting Air Tight Sealing	Canned Lighting Air Tight Sealing	No Air tight Sealing	Per installation	Existing	44	30	\$24	95%	50%	\$0.05	1,631
Washington	Single Family	Heat Central	Ceiling Insulation (WA) above code	R-60	R-49	Per installation	Existing	242	30	\$519	75%	95%	\$0.21	1,384
Washington	Single Family	Heat Central	Ceiling Insulation (WA) ave to code	R-49	R-10	Per installation	Existing	3,676	30	\$2,393	75%	35%	\$0.06	9,126
Washington	Single Family	Heat Central	Ceiling Insulation (WA) zero to code	R-49	R-0	Per installation	Existing	7,363	30	\$2,393	95%	1%	\$0.03	739
Washington	Single Family	Heat Central	Conversion Electric Furnace to ASHP	Air Source Heat Pump Seer 13 HSPF 7.7	Electric Furnace HSPF 1	Per installation	Existing	6,935	20	\$2,820	100%	N/A	\$0.05	21,409

Table C.2.1. Residential Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Washington	Single Family	Heat Central	Doors	R-11 (Steel Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	Existing	194	20	\$167	95%	80%	\$0.10	1,243
Washington	Single Family	Heat Central	Doors	R-5 (Composite Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	Existing	129	20	\$196	95%	60%	\$0.17	596
Washington	Single Family	Heat Central	Doors - Weatherization	Weatherstripping And Adding Door Sweeps	Existing Non-Efficient door	Per installation	Existing	84	6	\$45	95%	50%	\$0.13	665
Washington	Single Family	Heat Central	Duct Insulation Upgrade	R-8 (code)	R-4	Per installation	Existing	517	20	\$640	75%	75%	\$0.14	2,410
Washington	Single Family	Heat Central	Duct Sealing	Duct Sealing	No Duct Sealing	Per installation	Existing	1,294	18	\$635	75%	15%	\$0.06	831
Washington	Single Family	Heat Central	Duct Sealing - Aerosol-Based	Spray-in ductwork sealant to minimize duct leaks	No Duct Sealing	Per installation	Existing	1,941	18	\$787	75%	15%	\$0.05	635
Washington	Single Family	Heat Central	Floor Insulation (WA) above code	R-38	R-30	Per installation	Existing	356	30	\$699	25%	85%	\$0.19	610
Washington	Single Family	Heat Central	Floor Insulation (WA) zero to code	R-30	R-0	Per installation	Existing	7,014	30	\$2,597	25%	20%	\$0.04	3,686
Washington	Single Family	Heat Central	Infiltration Control (Caulk, Weather Strip, etc.) Blower-Door Test	Install Caulking And Weatherstripping	Existing Infiltration Conditions	Per installation	Existing	1,294	11	\$533	75%	50%	\$0.06	4,248
Washington	Single Family	Heat Central	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands (5 per unit)	13 SEER	Per installation	Existing	2,718	30	\$590	50%	15%	\$0.02	221
Washington	Single Family	Heat Central	Proper Sizing - HVAC Unit	Proper Sizing - HVAC Unit	Oversized HVAC Unit	Per installation	Existing	1,220	15	\$-7.6	15%	65%	\$-0.00	1,370
Washington	Single Family	Heat Central	Radiant Barrier (Ceiling)	Install Radiant Barrier	No Radiant Barrier	Per installation	Existing	258	30	\$892	50%	90%	\$0.33	874
Washington	Single Family	Heat Central	Thermostat - Multi-Zone	Individual Room Temperature Control for Major Occupied Rooms	Programmable Thermostat - Central Control Only	Per installation	Existing	880	11	\$1,263	75%	95%	\$0.22	4,948
Washington	Single Family	Heat Central	Wall Insulation 2x4 (WA) zero to max feasible	R-13	R-0	Per installation	Existing	4,185	30	\$1,966	85%	25%	\$0.05	6,819
Washington	Single Family	Heat Central	Wall Insulation 2x6 (WA) zero to code	R-21	R-0	Per installation	Existing	7,146	30	\$2,259	75%	25%	\$0.03	3,633
Washington	Single Family	Heat Central	Windows (Same for all Building Types)	CL25	CL30	Per installation	Existing	30	30	\$424	65%	75%	\$1.36	108
Washington	Single Family	Heat Central	Windows (Same for all Building Types)	CL30	Double Pane	Per installation	Existing	322	30	\$4,369	65%	25%	\$1.31	387
Washington	Single Family	Heat Central	Windows (Same for all Building Types)	CL30	Single Pane	Per installation	Existing	505	30	\$4,369	65%	25%	\$0.83	611
Washington	Single Family	Heat Central	Air-to-Air Heat Exchangers	Air-to-Air Heat Exchangers	No Air to Air Heat Exchangers	Per installation	New	927	5	\$565	50%	95%	\$0.17	566
Washington	Single Family	Heat Central	Ceiling Insulation (WA) above code	R-60	R-49	Per installation	New	241	30	\$519	90%	95%	\$0.21	198
Washington	Single Family	Heat Central	Construction - ICF	Concrete Framing	Standard Wood Framing	Per installation	New	4,080	45	\$6,256	50%	95%	\$0.14	97
Washington	Single Family	Heat Central	Construction - SIP	Specialty Framing	Standard Wood Framing	Per installation	New	1,112	45	\$2,524	50%	95%	\$0.20	25
Washington	Single Family	Heat Central	Conversion Electric Furnace to ASHP	Air Source Heat Pump Seer 13 HSPF 7.7	Electric Furnace HSPF 1	Per installation	New	4,969	20	\$2,702	100%	N/A	\$0.06	2,119
Washington	Single Family	Heat Central	Doors	R-11 (Steel Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	New	139	20	\$25	95%	80%	\$0.02	128
Washington	Single Family	Heat Central	Doors	R-5 (Composite Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	New	92	20	\$54	95%	60%	\$0.07	53
Washington	Single Family	Heat Central	Floor Insulation (WA) above code	R-38	R-30	Per installation	New	255	30	\$699	75%	85%	\$0.26	153
Washington	Single Family	Heat Central	Green Roof	ecorof	Standard Roof	Per installation	New	649	40	\$21,409	50%	95%	\$2.98	53
Washington	Single Family	Heat Central	Proper Sizing - HVAC Unit	Proper Sizing - HVAC Unit	Oversized HVAC Unit	Per installation	New	874	15	\$-7.6	15%	65%	\$-0.00	109
Washington	Single Family	Heat Central	Radiant Barrier (Ceiling)	Install Radiant Barrier	No Radiant Barrier	Per installation	New	185	30	\$892	75%	90%	\$0.46	109
Washington	Single Family	Heat Central	Smart Siting	Siting house to minimize heating/cooling costs	No smart siting	Per installation	New	28	45	\$748	75%	75%	\$2.30	13
Washington	Single Family	Heat Central	Thermal Shell - Infiltration @0.2 ACH w/HRV	0.2 ACH w/HRV	Standard New Construction Home 0.35 ACH	Per installation	New	1,805	30	\$929	85%	95%	\$0.05	1,747
Washington	Single Family	Heat Central	Thermostat - Multi-Zone	Individual Room Temperature Control for Major Occupied Rooms	Programmable Thermostat - Central Control Only	Per installation	New	630	11	\$1,263	75%	95%	\$0.31	414

Table C.2.1. Residential Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Washington	Single Family	Heat Central	Wall Insulation 2x6 (WA) above code	R-21+R-5 sheathing	R-21	Per installation	New	661	30	\$1,034	50%	95%	\$0.15	281
Washington	Single Family	Heat Central	Windows (Same for all Building Types)	CL22	CL30	Per installation	New	44	30	\$491	95%	75%	\$1.07	27
Washington	Single Family	Heat Central	Windows (Same for all Building Types)	CL25	CL30	Per installation	New	30	30	\$424	95%	75%	\$1.36	18
Washington	Single Family	Heat Pump	Air-to-Air Heat Exchangers	Air-to-Air Heat Exchangers	No Air to Air Heat Exchangers	Per installation	Existing	1,090	5	\$565	50%	95%	\$0.15	6,996
Washington	Single Family	Heat Pump	Canned Lighting Air Tight Sealing	Canned Lighting Air Tight Sealing	No Air tight Sealing	Per installation	Existing	36	30	\$24	95%	50%	\$0.07	1,539
Washington	Single Family	Heat Pump	Ceiling Fan	Ceiling Fan (no lighting kit)	No Ceiling Fan	Per installation	Existing	40	10	\$90	85%	50%	\$0.37	699
Washington	Single Family	Heat Pump	Ceiling Insulation (WA) above code	R-60	R-49	Per installation	Existing	81	30	\$519	75%	95%	\$0.61	507
Washington	Single Family	Heat Pump	Ceiling Insulation (WA) ave to code	R-49	R-10	Per installation	Existing	1,297	30	\$2,393	75%	35%	\$0.18	3,286
Washington	Single Family	Heat Pump	Ceiling Insulation (WA) zero to code	R-49	R-0	Per installation	Existing	2,598	30	\$2,393	95%	1%	\$0.09	253
Washington	Single Family	Heat Pump	Check Me! O&M Tune-up	Tune-up/Maintenance	No Tune-up Maintenance	Per installation	Existing	45	5	\$192	95%	75%	\$1.19	439
Washington	Single Family	Heat Pump	Cool Roofs	Lighter Colored Shingles (White)	Standard Roof Shingles	Per installation	Existing	18	20	\$426	85%	95%	\$2.64	125
Washington	Single Family	Heat Pump	Doors	R-11 (Steel Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	Existing	157	20	\$167	95%	80%	\$0.12	1,227
Washington	Single Family	Heat Pump	Doors	R-5 (Composite Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	Existing	105	20	\$196	95%	60%	\$0.21	560
Washington	Single Family	Heat Pump	Doors - Weatherization	Weatherstripping And Adding Door Sweeps	Existing Non-Efficient door	Per installation	Existing	70	6	\$45	95%	50%	\$0.16	668
Washington	Single Family	Heat Pump	Duct Insulation Upgrade	R-8 (code)	R-4	Per installation	Existing	419	20	\$640	75%	75%	\$0.17	2,327
Washington	Single Family	Heat Pump	Duct Sealing	Duct Sealing	No Duct Sealing	Per installation	Existing	1,090	18	\$635	75%	60%	\$0.07	3,267
Washington	Single Family	Heat Pump	Duct Sealing - Aerosol-Based	Spray-in ductwork sealant to minimize duct leaks	No Duct Sealing	Per installation	Existing	1,636	18	\$787	75%	60%	\$0.06	2,532
Washington	Single Family	Heat Pump	Floor Insulation (WA) above code	R-38	R-30	Per installation	Existing	301	30	\$699	25%	85%	\$0.22	594
Washington	Single Family	Heat Pump	Floor Insulation (WA) zero to code	R-30	R-0	Per installation	Existing	5,910	30	\$2,597	25%	20%	\$0.04	3,483
Washington	Single Family	Heat Pump	Ground Source Heat Pump, EER 16.2, COP 3.6	GSHP EER 16.2, HSPF 8.8	ASHP SEER 13, HSPF 7.7	Per installation	Existing	3,969	20	\$9,870	40%	N/A	\$0.28	4,598
Washington	Single Family	Heat Pump	Heat Pump High Efficiency, SEER 14, HSPF 8.5	ASHP SEER 14, HSPF 8.5	ASHP SEER 13, HSPF 7.7	Per installation	Existing	991	20	\$411	100%	N/A	\$0.05	57
Washington	Single Family	Heat Pump	Heat Pump Premium Efficiency, SEER 16, HSPF 8.8	ASHP SEER 16, HSPF 8.8	ASHP SEER 13, HSPF 7.7	Per installation	Existing	1,422	20	\$1,233	100%	N/A	\$0.10	1,598
Washington	Single Family	Heat Pump	Infiltration Control (Caulk, Weather Strip, etc.) Blower-Door test	Install Caulking And Weatherstripping	Existing Infiltration Conditions	Per installation	Existing	1,090	11	\$533	75%	50%	\$0.08	4,415
Washington	Single Family	Heat Pump	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands (5 per unit)	13 SEER	Per installation	Existing	2,290	30	\$590	50%	95%	\$0.02	1,295
Washington	Single Family	Heat Pump	Proper Sizing - HVAC Unit	Proper Sizing - HVAC Unit	Oversized HVAC Unit	Per installation	Existing	1,028	15	\$-7.6	95%	65%	\$-0.00	8,576
Washington	Single Family	Heat Pump	Radiant Barrier (Ceiling)	Install Radiant Barrier	No Radiant Barrier	Per installation	Existing	294	30	\$892	50%	90%	\$0.29	1,164
Washington	Single Family	Heat Pump	Thermostat - Multi-Zone	Individual Room Temperature Control for Major Occupied Rooms	Programmable Thermostat - Central Control Only	Per installation	Existing	741	11	\$1,263	75%	95%	\$0.27	4,884
Washington	Single Family	Heat Pump	Wall Insulation 2x4 (WA) zero to max feasible	R-13	R-0	Per installation	Existing	1,469	30	\$1,966	85%	25%	\$0.13	2,374
Washington	Single Family	Heat Pump	Wall Insulation 2x6 (WA) zero to code	R-21	R-0	Per installation	Existing	2,508	30	\$2,259	75%	25%	\$0.09	1,221
Washington	Single Family	Heat Pump	Whole-House Fan	Whole-House Fan	No Whole-House Fan	Per installation	Existing	228	20	\$1,543	50%	95%	\$0.76	733
Washington	Single Family	Heat Pump	Windows (Same for all Building Types)	CL25	CL30	Per installation	Existing	10	30	\$424	65%	75%	\$3.89	44
Washington	Single Family	Heat Pump	Windows (Same for all Building Types)	CL30	Double Pane	Per installation	Existing	112	30	\$4,369	65%	25%	\$3.75	157

Table C.2.1. Residential Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Washington	Single Family	Heat Pump	Windows (Same for all Building Types)	CL30	Single Pane	Per installation	Existing	176	30	\$4,369	65%	25%	\$2.39	247
Washington	Single Family	Heat Pump	Air-to-Air Heat Exchangers	Air-to-Air Heat Exchangers	No Air to Air Heat Exchangers	Per installation	New	833	5	\$565	50%	95%	\$0.19	632
Washington	Single Family	Heat Pump	Ceiling Fan	Ceiling Fan (no lighting kit)	No Ceiling Fan	Per installation	New	31	10	\$90	85%	50%	\$0.49	63
Washington	Single Family	Heat Pump	Ceiling Insulation (WA) above code	R-60	R-49	Per installation	New	82	30	\$519	90%	95%	\$0.61	82
Washington	Single Family	Heat Pump	Check Me! O&M Tune-up	Tune-up/Maintenance	No Tune-up Maintenance	Per installation	New	34	5	\$192	95%	75%	\$1.56	39
Washington	Single Family	Heat Pump	Construction - ICF	Concrete Framing	Standard Wood Framing	Per installation	New	3,529	45	\$6,256	50%	95%	\$0.16	109
Washington	Single Family	Heat Pump	Construction - SIP	Specialty Framing	Standard Wood Framing	Per installation	New	1,000	45	\$2,524	50%	95%	\$0.22	30
Washington	Single Family	Heat Pump	Cool Roofs	Lighter Colored Shingles (White)	Standard Roof Shingles	Per installation	New	13	20	\$426	85%	95%	\$3.45	10
Washington	Single Family	Heat Pump	Doors	R-11 (Steel Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	New	120	20	\$25	95%	80%	\$0.02	128
Washington	Single Family	Heat Pump	Doors	R-5 (Composite Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	New	80	20	\$54	95%	60%	\$0.08	63
Washington	Single Family	Heat Pump	Floor Insulation (WA) above code	R-38	R-30	Per installation	New	230	30	\$699	75%	85%	\$0.29	188
Washington	Single Family	Heat Pump	Green Roof	ecorooF	Standard Roof	Per installation	New	560	40	\$21,409	50%	95%	\$3.45	61
Washington	Single Family	Heat Pump	Ground Source Heat Pump, EER 16.2, COP 3.6	GSHP EER 16.2, HSPF 8.8	ASHP SEER 13, HSPF 7.7	Per installation	New	3,055	20	\$9,987	40%	N/A	\$0.37	687
Washington	Single Family	Heat Pump	Heat Pump High Efficiency, SEER 14, HSPF 8.5	ASHP SEER 14, HSPF 8.5	ASHP SEER 13, HSPF 7.7	Per installation	New	760	20	\$411	100%	N/A	\$0.06	126
Washington	Single Family	Heat Pump	Heat Pump Premium Efficiency, SEER 16, HSPF 8.8	ASHP SEER 16, HSPF 8.8	ASHP SEER 13, HSPF 7.7	Per installation	New	1,120	20	\$1,233	100%	N/A	\$0.12	545
Washington	Single Family	Heat Pump	Proper Sizing - HVAC Unit	Proper Sizing - HVAC Unit	Oversized HVAC Unit	Per installation	New	786	15	\$-7.6	95%	65%	\$-0.00	775
Washington	Single Family	Heat Pump	Radiant Barrier (Ceiling)	Install Radiant Barrier	No Radiant Barrier	Per installation	New	225	30	\$892	75%	90%	\$0.38	182
Washington	Single Family	Heat Pump	Smart Siting	Siting house to minimize heating/cooling costs	No smart siting	Per installation	New	71	45	\$748	75%	75%	\$0.93	46
Washington	Single Family	Heat Pump	Thermal Shell - Infiltration @0.2 ACH w/HRV	0.2 ACH w/HRV	Standard New Construction Home 0.35 ACH	Per installation	New	611	30	\$929	85%	95%	\$0.15	683
Washington	Single Family	Heat Pump	Thermostat - Multi-Zone	Individual Room Temperature Control for Major Occupied Rooms	Programmable Thermostat - Central Control Only	Per installation	New	567	11	\$1,263	75%	95%	\$0.35	510
Washington	Single Family	Heat Pump	Wall Insulation 2x6 (WA) above code	R-21+R-5 sheathing	R-21	Per installation	New	225	30	\$1,034	50%	95%	\$0.44	113
Washington	Single Family	Heat Pump	Whole-House Fan	Whole-House Fan	No Whole-House Fan	Per installation	New	174	20	\$1,543	50%	95%	\$0.99	66
Washington	Single Family	Heat Pump	Windows (Same for all Building Types)	CL22	CL30	Per installation	New	15	30	\$491	95%	75%	\$3.15	12
Washington	Single Family	Heat Pump	Windows (Same for all Building Types)	CL25	CL30	Per installation	New	10	30	\$424	95%	75%	\$3.87	8
Washington	Single Family	Heat Room	Canned Lighting Air Tight Sealing	Canned Lighting Air Tight Sealing	No Air tight Sealing	Per installation	Existing	34	30	\$24	95%	50%	\$0.07	1,109
Washington	Single Family	Heat Room	Ceiling Insulation (WA) above code	R-60	R-49	Per installation	Existing	192	30	\$519	75%	95%	\$0.26	995
Washington	Single Family	Heat Room	Ceiling Insulation (WA) ave to code	R-49	R-10	Per installation	Existing	2,896	30	\$2,393	75%	35%	\$0.08	6,394
Washington	Single Family	Heat Room	Ceiling Insulation (WA) zero to code	R-49	R-0	Per installation	Existing	5,801	30	\$2,393	95%	1%	\$0.04	512
Washington	Single Family	Heat Room	Conversion Baseboard Heating to DHP	Ductless Heat Pump HSPF 7.7	HSPF = 1	Per installation	Existing	1,417	20	\$2,414	68%	N/A	\$0.19	8,449
Washington	Single Family	Heat Room	Doors	R-11 (Steel Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	Existing	149	20	\$167	95%	80%	\$0.13	849
Washington	Single Family	Heat Room	Doors	R-5 (Composite Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	Existing	99	20	\$196	95%	60%	\$0.22	417
Washington	Single Family	Heat Room	Doors - Weatherization	Weatherstripping And Adding Door Sweeps	Existing Non-Efficient door	Per installation	Existing	64	6	\$45	95%	50%	\$0.17	454
Washington	Single Family	Heat Room	Floor Insulation (WA) above code	R-38	R-30	Per installation	Existing	277	30	\$699	25%	85%	\$0.24	430

Table C.2.1. Residential Measure Details

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Washington	Single Family	Heat Room	Floor Insulation (WA) zero to code	R-30	R-0	Per installation	Existing	5,449	30	\$2,597	25%	20%	\$0.05	2,519
Washington	Single Family	Heat Room	Infiltration Control (Caulk, Weather Strip, etc.) Blower-Door test	Install Caulking And Weatherstripping	Existing Infiltration Conditions	Per installation	Existing	996	11	\$533	75%	50%	\$0.08	2,903
Washington	Single Family	Heat Room	Radiant Barrier (Ceiling)	Install Radiant Barrier	No Radiant Barrier	Per installation	Existing	199	30	\$892	50%	90%	\$0.43	642
Washington	Single Family	Heat Room	Wall Insulation 2x4 (WA) zero to max feasible	R-13	R-0	Per installation	Existing	3,292	30	\$1,966	85%	25%	\$0.06	4,719
Washington	Single Family	Heat Room	Wall Insulation 2x6 (WA) zero to code	R-21	R-0	Per installation	Existing	5,622	30	\$2,259	75%	25%	\$0.04	2,517
Washington	Single Family	Heat Room	Windows (Same for all Building Types)	CL25	CL30	Per installation	Existing	23	30	\$424	65%	75%	\$1.71	82
Washington	Single Family	Heat Room	Windows (Same for all Building Types)	CL30	Double Pane	Per installation	Existing	256	30	\$4,369	65%	25%	\$1.64	293
Washington	Single Family	Heat Room	Windows (Same for all Building Types)	CL30	Single Pane	Per installation	Existing	401	30	\$4,369	65%	25%	\$1.05	463
Washington	Single Family	Heat Room	Ceiling Insulation (WA) above code	R-60	R-49	Per installation	New	191	30	\$519	90%	95%	\$0.26	136
Washington	Single Family	Heat Room	Construction - ICF	Concrete Framing	Standard Wood Framing	Per installation	New	3,142	45	\$6,256	50%	95%	\$0.18	65
Washington	Single Family	Heat Room	Construction - SIP	Specialty Framing	Standard Wood Framing	Per installation	New	856	45	\$2,524	50%	95%	\$0.26	17
Washington	Single Family	Heat Room	Conversion Baseboard Heating to DHP	Ductless Heat Pump HSPF 7.7	HSPF = 1	Per installation	New	1,015	20	\$2,414	68%	N/A	\$0.27	803
Washington	Single Family	Heat Room	Doors	R-11 (Steel Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	New	107	20	\$25	95%	80%	\$0.03	86
Washington	Single Family	Heat Room	Doors	R-5 (Composite Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	New	71	20	\$54	95%	60%	\$0.08	35
Washington	Single Family	Heat Room	Floor Insulation (WA) above code	R-38	R-30	Per installation	New	198	30	\$699	75%	85%	\$0.34	103
Washington	Single Family	Heat Room	Green Roof	ecorooF	Standard Roof	Per installation	New	499	40	\$21,409	50%	95%	\$3.87	37
Washington	Single Family	Heat Room	Radiant Barrier (Ceiling)	Install Radiant Barrier	No Radiant Barrier	Per installation	New	142	30	\$892	75%	90%	\$0.60	77
Washington	Single Family	Heat Room	Smart Siling	Siting house to minimize heating/cooling costs	No smart siling	Per installation	New	22	45	\$748	75%	75%	\$2.99	9
Washington	Single Family	Heat Room	Thermal Shell - Infiltration @0.2 ACH w/HRV	0.2 ACH w/HRV	Standard New Construction Home 0.35 ACH	Per installation	New	1,459	30	\$929	85%	95%	\$0.06	1,242
Washington	Single Family	Heat Room	Wall Insulation 2x6 (WA) above code	R-21+R-5 sheathing	R-21	Per installation	New	520	30	\$1,034	50%	95%	\$0.19	192
Washington	Single Family	Heat Room	Windows (Same for all Building Types)	CL22	CL30	Per installation	New	35	30	\$491	95%	75%	\$1.33	20
Washington	Single Family	Heat Room	Windows (Same for all Building Types)	CL25	CL30	Per installation	New	23	30	\$424	95%	75%	\$1.71	13
Washington	Single Family	Lighting Exterior	CFL, Flood (17 W)	CFL, Flood	Standard Incandescent Flood	Per installation	Existing	53	5	\$0.91	100%	N/A	\$0.00	2,630
Washington	Single Family	Lighting Exterior	Time Clocks (Exterior Lighting)	Exterior Lighting on a Time Clock	Exterior Lighting (Manual Control)	Per installation	Existing	12	10	\$16	80%	85%	\$0.22	1,025
Washington	Single Family	Lighting Exterior	CFL, Flood (17 W)	CFL, Flood	Standard Incandescent Flood	Per installation	New	53	5	\$0.91	100%	N/A	\$0.00	38
Washington	Single Family	Lighting Exterior	Time Clocks (Exterior Lighting)	Exterior Lighting on a Time Clock	Exterior Lighting (Manual Control)	Per installation	New	12	10	\$16	80%	85%	\$0.22	129
Washington	Single Family	Lighting Interior Specialty	CFL (13 W, 20 W, 25 W)	CFL (3-Way)	Standard Incandescent (3-Way)	Per installation	Existing	43	5	\$3	100%	N/A	\$0.02	8,422
Washington	Single Family	Lighting Interior Specialty	CFL (13 W, 20 W, 25 W)	CFL (3-Way)	Standard Incandescent (3-Way)	Per installation	New	43	5	\$3	100%	N/A	\$0.02	102
Washington	Single Family	Lighting Interior Standard	Daylighting Controls (Photocell) - Indoor/Outdoors	Install Photocell	No Daylighting Controls	Per installation	Existing	8	20	\$144	60%	95%	\$1.87	156
Washington	Single Family	Lighting Interior Standard	Lighting CFL 15 W	15 W CFL	Standard 60 W Incandescent	Per installation	Existing	40	5	\$2	100%	N/A	\$0.02	10,866
Washington	Single Family	Lighting Interior Standard	Lighting LED 7 W	7 W LED	Standard 60 W Incandescent	Per installation	Existing	51	20	\$36	50%	N/A	\$0.08	30,638

Table C.2.1. Residential Measure Details

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Washington	Single Family	Lighting Interior Standard	Occupancy Sensors	Wall-Switch Occupancy Sensors	No Occupancy Sensor	Per installation	Existing	5	10	\$31	85%	95%	\$1.01	1,362
Washington	Single Family	Lighting Interior Standard	Daylighting Controls (Photocell) - Indoor/Outdoors	Install Photocell	No Daylighting Controls	Per installation	New	8	20	\$144	60%	95%	\$1.87	19
Washington	Single Family	Lighting Interior Standard	Lighting CFL 15 W	15 W CFL	Standard 60 W Incandescent	Per installation	New	40	5	\$2	100%	N/A	\$0.02	157
Washington	Single Family	Lighting Interior Standard	Lighting LED 7 W	7 W LED	Standard 60 W Incandescent	Per installation	New	51	20	\$36	50%	N/A	\$0.08	433
Washington	Single Family	Lighting Interior Standard	Occupancy Sensors	Wall-Switch Occupancy Sensors	No Occupancy Sensor	Per installation	New	5	10	\$31	85%	95%	\$1.01	171
Washington	Single Family	Microwave	Microwave, High Efficiency	High Efficiency Microwave	Standard Microwave	Per installation	Existing	9	15	\$79	100%	N/A	\$1.05	647
Washington	Single Family	Microwave	Microwave, High Efficiency	High Efficiency Microwave	Standard Microwave	Per installation	New	9	15	\$79	100%	N/A	\$1.05	67
Washington	Single Family	Monitor	Monitor, Energy Star	Energy Star Monitor	Standard Monitor	Per installation	Existing	36	5	\$3	100%	N/A	\$0.03	3,114
Washington	Single Family	Monitor	Monitor, Energy Star	Energy Star Monitor	Standard Monitor	Per installation	New	36	5	\$3	100%	N/A	\$0.03	90
Washington	Single Family	Plug Load Other	1-Watt Standby Power	1W or less standby power use for small appliances	Standard plug load appliance.	Per installation	Existing	17	7	\$30	50%	50%	\$0.36	4,125
Washington	Single Family	Plug Load Other	Energy Star Battery Chargers	Energy Star Battery Chargers	Standard Battery Chargers	Per installation	Existing	1	7	\$33	50%	80%	\$5.49	668
Washington	Single Family	Plug Load Other	Office Copier	Office Copier	Standard Copier	Per installation	Existing	39	6	\$5	20%	50%	\$0.03	489
Washington	Single Family	Plug Load Other	Office Printer	Office Printer	Standard Printer	Per installation	Existing	5	5	\$5	50%	50%	\$0.28	156
Washington	Single Family	Plug Load Other	Smart Strip	Smart Strip	Standard PowerStrip	Per installation	Existing	103	5	\$22	50%	85%	\$0.06	5,395
Washington	Single Family	Plug Load Other	1-Watt Standby Power	1W or less standby power use for small appliances	Standard plug load appliance.	Per installation	New	17	7	\$30	50%	50%	\$0.37	458
Washington	Single Family	Plug Load Other	Energy Star Battery Chargers	Energy Star Battery Chargers	Standard Battery Chargers	Per installation	New	1	7	\$2	50%	80%	\$0.42	74
Washington	Single Family	Plug Load Other	Office Copier	Office Copier	Standard Copier	Per installation	New	39	6	\$5	20%	50%	\$0.03	54
Washington	Single Family	Plug Load Other	Office Printer	Office Printer	Standard Printer	Per installation	New	5	5	\$5	50%	50%	\$0.28	17
Washington	Single Family	Plug Load Other	Smart Strip	Smart Strip	Standard PowerStrip	Per installation	New	102	5	\$22	50%	85%	\$0.06	599
Washington	Single Family	Pool Pump	Pool Pump Timers	Pool Pump Timers	Pool Pump No Timers	Per installation	Existing	295	10	\$45	95%	50%	\$0.03	862
Washington	Single Family	Pool Pump	Pool Pump, 2 Speed	2 Speed Pool Pump	Standard 1 Speed Pool Pump	Per installation	Existing	570	10	\$110	75%	N/A	\$0.03	812
Washington	Single Family	Pool Pump	Pool Pump, VSD	VSD Pool Pump	Standard 1 Speed Pool Pump	Per installation	Existing	630	10	\$819	75%	N/A	\$0.22	2,008
Washington	Single Family	Pool Pump	Pool Pump Timers	Pool Pump Timers	Pool Pump No Timers	Per installation	New	296	10	\$45	95%	50%	\$0.03	96
Washington	Single Family	Pool Pump	Pool Pump, 2 Speed	2 Speed Pool Pump	Standard 1 Speed Pool Pump	Per installation	New	570	10	\$110	75%	N/A	\$0.03	59
Washington	Single Family	Pool Pump	Pool Pump, VSD	VSD Pool Pump	Standard 1 Speed Pool Pump	Per installation	New	630	10	\$819	75%	N/A	\$0.22	114
Washington	Single Family	Refrigerator	Refrigerator, Energy Star	Energy Star Refrigerator	Standard Refrigerator	Per installation	Existing	122	20	\$15	72%	N/A	\$0.01	1,321
Washington	Single Family	Refrigerator	Refrigerator/Freezer - Removal of Secondary	Proper Disposal of Refrigerator/Freezer	Existing Non-Efficient Refrigerator/Freezer	Per installation	Existing	1,485	9	\$96	19%	93%	\$0.01	6,521
Washington	Single Family	Refrigerator	Refrigerator, Energy Star	Energy Star Refrigerator	Standard Refrigerator	Per installation	New	122	20	\$15	100%	N/A	\$0.01	560
Washington	Single Family	Set Top Box	Set Top Box, Energy Star	Energy Star Set Top Box	Standard Set Top Box	Per installation	Existing	164	5	\$12	100%	N/A	\$0.02	10,288
Washington	Single Family	Set Top Box	Set Top Box, Energy Star	Energy Star Set Top Box	Standard Set Top Box	Per installation	New	164	5	\$12	100%	N/A	\$0.02	279
Washington	Single Family	Tv	TV CRT, Energy Star	Energy Star CRT TV	Standard CRT TV	Per installation	Existing	112	10	\$19	100%	N/A	\$0.03	15,451
Washington	Single Family	Tv	TV CRT, Energy Star	Energy Star CRT TV	Standard CRT TV	Per installation	New	112	10	\$19	100%	N/A	\$0.03	992
Washington	Single Family	Tv Bigscreen	TV LCD, Energy Star	Energy Star LCD TV	Standard LCD TV	Per installation	Existing	223	10	\$19	100%	N/A	\$0.01	6,041
Washington	Single Family	Tv Bigscreen	TV LCD, Energy Star	Energy Star LCD TV	Standard LCD TV	Per installation	New	223	10	\$19	100%	N/A	\$0.01	388
Washington	Single Family	Ventilation And Circulation	Motor, ECM	ECM Motor	Standard Motor	Per installation	Existing	159	20	\$172	50%	N/A	\$0.12	1,946
Washington	Single Family	Ventilation And Circulation	Motor, ECM - VFD	ECM/VFD Motor	Standard Motor	Per installation	Existing	479	20	\$194	50%	N/A	\$0.05	5,839
Washington	Single Family	Ventilation And Circulation	Motor, ECM	ECM Motor	Standard Motor	Per installation	New	113	20	\$172	50%	N/A	\$0.17	193

Table C.2.1. Residential Measure Details

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Washington	Single Family	Ventilation And Circulation	Motor, ECM - VFD	ECMVFD Motor	Standard Motor	Per installation	New	340	20	\$194	50%	N/A	\$0.06	579
Washington	Single Family	Water Heat	Clothes Washer	Energy Star - Tier 1 (MEF 2.0 - 2.19) - Electric DHW & Dryer	MEF = 1.66 - Electric DHW & Dryer	Per installation	Existing	112	14	\$227	99%	88%	\$-0.27	2,398
Washington	Single Family	Water Heat	Clothes Washer	Energy Star - Tier 2 (MEF 2.2 - 2.45) - Electric DHW & Dryer	MEF = 1.66 - Electric DHW & Dryer	Per installation	Existing	150	14	\$296	99%	90%	\$-0.25	3,279
Washington	Single Family	Water Heat	Clothes Washer	Energy Star - Tier 3 (MEF 2.46 or higher) Top 10% of Energy Star Model - Electric DHW & Dryer	MEF = 1.66 - Electric DHW & Dryer	Per installation	Existing	171	14	\$317	99%	95%	\$-0.23	3,944
Washington	Single Family	Water Heat	Dishwasher	Energy Star, July 1st 2011, <= 307 kWh/year , <= 5.0 gallons/cycle	Energy Star - EF65 (6th Plan Baseline)	Per installation	Existing	33	12	\$42	71%	50%	\$0.17	866
Washington	Single Family	Water Heat	Drain Water Heat Recovery (GFX)	Gravity Film Heat Exchanger	No Heat Exchanger	Per installation	Existing	375	40	\$530	29%	90%	\$0.13	5,865
Washington	Single Family	Water Heat	Faucet Aerators	0.5 GPM	2.2 GPM	Per installation	Existing	82	9	\$0.71	95%	95%	\$-0.08	8,190
Washington	Single Family	Water Heat	Faucet Aerators	1.5 GPM	2.2 GPM	Per installation	Existing	34	9	\$0.46	95%	65%	\$-0.08	2,323
Washington	Single Family	Water Heat	Faucet Aerators	2.2 GPM	Existing Faucet Aerator (3.0 GPM)	Per installation	Existing	38	9	\$1	95%	25%	\$-0.07	1,997
Washington	Single Family	Water Heat	Hot Water Pipe Insulation	R-4 Wrap	No insulation	Per installation	Existing	40	5	\$22	95%	75%	\$0.16	1,629
Washington	Single Family	Water Heat	Low-Flow Showerheads	2.0 GPM	2.5 GPM	Per installation	Existing	112	10	\$16	95%	65%	\$-0.06	10,205
Washington	Single Family	Water Heat	Water Heater, Heat Pump EF 2.2	Heat Pump Water Heater EF = 2.2	Standard Storage Water Heater EF = 0.92	Per installation	Existing	1,540	15	\$1,347	59%	N/A	\$0.12	28,982
Washington	Single Family	Water Heat	Water Heater, Storage EF 0.95	Standard Storage Water Heater EF = 0.95	Standard Storage Water Heater EF = 0.92	Per installation	Existing	86	15	\$45	100%	N/A	\$0.07	263
Washington	Single Family	Water Heat	Water_Heater Tank Blanket/Insulation	Install Insulation (R-5)	No Tank Insulation	Per installation	Existing	174	10	\$11	50%	20%	\$0.01	1,062
Washington	Single Family	Water Heat	Water_Heater Thermostat Setback	120 degrees	135 degrees	Per installation	Existing	160	5	\$7	95%	45%	\$0.01	4,166
Washington	Single Family	Water Heat	Clothes Washer	Energy Star - Tier 1 (MEF 2.0 - 2.19) - Electric DHW & Dryer	MEF = 1.66 - Electric DHW & Dryer	Per installation	New	112	14	\$227	99%	88%	\$-0.27	272
Washington	Single Family	Water Heat	Clothes Washer	Energy Star - Tier 2 (MEF 2.2 - 2.45) - Electric DHW & Dryer	MEF = 1.66 - Electric DHW & Dryer	Per installation	New	149	14	\$296	99%	90%	\$-0.25	372
Washington	Single Family	Water Heat	Clothes Washer	Energy Star - Tier 3 (MEF 2.46 or higher) Top 10% of Energy Star Model - Electric DHW & Dryer	MEF = 1.66 - Electric DHW & Dryer	Per installation	New	170	14	\$317	99%	95%	\$-0.23	448
Washington	Single Family	Water Heat	Dishwasher	Energy Star, July 1st 2011, <= 307 kWh/year , <= 5.0 gallons/cycle	Energy Star - EF65 (6th Plan Baseline)	Per installation	New	33	12	\$42	71%	50%	\$0.17	98
Washington	Single Family	Water Heat	Drain Water Heat Recovery (GFX)	Gravity Film Heat Exchanger	No Heat Exchanger	Per installation	New	373	40	\$518	59%	90%	\$0.13	1,358
Washington	Single Family	Water Heat	Faucet Aerators	0.5 GPM	2.2 GPM	Per installation	New	82	9	\$0.71	95%	95%	\$-0.08	930
Washington	Single Family	Water Heat	Faucet Aerators	1.5 GPM	2.2 GPM	Per installation	New	34	9	\$0.46	95%	65%	\$-0.08	264
Washington	Single Family	Water Heat	Hot Water Pipe Insulation	R-4 Wrap	No insulation	Per installation	New	40	5	\$22	95%	75%	\$0.16	181
Washington	Single Family	Water Heat	Low-Flow Showerheads	2.0 GPM	2.5 GPM	Per installation	New	112	10	\$9	95%	65%	\$-0.07	1,159
Washington	Single Family	Water Heat	Water Heater, Heat Pump EF 2.2	Heat Pump Water Heater EF = 2.2	Standard Storage Water Heater EF = 0.92	Per installation	New	1,540	15	\$1,347	59%	N/A	\$0.12	2,860
Washington	Single Family	Water Heat	Water Heater, Storage EF 0.95	Standard Storage Water Heater EF = 0.95	Standard Storage Water Heater EF = 0.92	Per installation	New	86	15	\$45	100%	N/A	\$0.07	26
Washington	Single Family	Water Heat	Water_Heater Thermostat Setback	120 degrees	135 degrees	Per installation	New	160	5	\$7	95%	45%	\$0.01	482
Wyoming	Manufactured	Computer	Computer, Energy Star	Energy Star Computer	Standard Computer	Per installation	Existing	50	5	\$24	100%	N/A	\$0.13	255
Wyoming	Manufactured	Computer	Computer, Energy Star	Energy Star Computer	Standard Computer	Per installation	New	50	5	\$24	100%	N/A	\$0.13	22
Wyoming	Manufactured	Cooking Oven	Cooking Oven, High Efficiency	High Efficiency Oven	Standard Oven	Per installation	Existing	58	20	\$282	100%	N/A	\$0.55	54
Wyoming	Manufactured	Cooking Oven	Cooking Oven, High Efficiency	High Efficiency Oven	Standard Oven	Per installation	New	58	20	\$282	100%	N/A	\$0.55	24
Wyoming	Manufactured	Cool Central	Air-to-Air Heat Exchangers	Air-to-Air Heat Exchangers	No Air to Air Heat Exchangers	Per installation	Existing	40	5	\$531	25%	95%	\$3.74	49
Wyoming	Manufactured	Cool Central	Canned Lighting Air Tight Sealing	Canned Lighting Air Tight Sealing	No Air tight Sealing	Per installation	Existing	1	30	\$23	95%	50%	\$1.67	13

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Wyoming	Manufactured	Cool Central	Ceiling Fan	Ceiling Fan (no lighting kit)	No Ceiling Fan	Per installation	Existing	16	10	\$81	85%	35%	\$0.84	49
Wyoming	Manufactured	Cool Central	Ceiling Insulation (WY) above code	R-60	R-49	Per installation	Existing	5	25	\$345	40%	95%	\$6.44	6
Wyoming	Manufactured	Cool Central	Ceiling Insulation (WY) ave to code	R-49	R-12	Per installation	Existing	59	25	\$1,584	75%	35%	\$2.71	56
Wyoming	Manufactured	Cool Central	Ceiling Insulation (WY) zero to code	R-49	R-0	Per installation	Existing	166	25	\$1,584	75%	1%	\$0.97	5
Wyoming	Manufactured	Cool Central	Central Cooling, SEER 15	SEER 15	SEER 13	Per installation	Existing	85	15	\$595	100%	N/A	\$0.90	2
Wyoming	Manufactured	Cool Central	Central Cooling, SEER 18	SEER 18	SEER 13	Per installation	Existing	214	15	\$1,490	100%	N/A	\$0.90	138
Wyoming	Manufactured	Cool Central	Check Me! O&M Tune-up	Tune-up/Maintenance	No Tune-up Maintenance	Per installation	Existing	12	5	\$152	95%	75%	\$3.43	46
Wyoming	Manufactured	Cool Central	Cool Roofs	Lighter Colored Shingles (White)	Standard Roof Shingles	Per installation	Existing	4	20	\$286	85%	95%	\$6.50	12
Wyoming	Manufactured	Cool Central	Doors	R-11 (Steel Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	Existing	4	20	\$161	95%	80%	\$4.13	11
Wyoming	Manufactured	Cool Central	Doors	R-5 (Composite Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	Existing	2	20	\$190	95%	60%	\$7.30	5
Wyoming	Manufactured	Cool Central	Doors - Weatherization	Weatherstripping And Adding Door Sweeps	Existing Non-Efficient door	Per installation	Existing	1	6	\$43	95%	50%	\$5.63	6
Wyoming	Manufactured	Cool Central	Duct Insulation Upgrade	R-8 (code)	R-4	Per installation	Existing	11	20	\$534	75%	75%	\$5.12	22
Wyoming	Manufactured	Cool Central	Duct Sealing	Duct Sealing	No Duct Sealing	Per installation	Existing	40	18	\$459	75%	60%	\$1.34	44
Wyoming	Manufactured	Cool Central	Duct Sealing - Aerosol-Based	Spray-in ductwork sealant to minimize duct leaks	No Duct Sealing	Per installation	Existing	60	18	\$657	75%	60%	\$1.28	33
Wyoming	Manufactured	Cool Central	Floor Insulation (WY) above code	R-38	R-21	Per installation	Existing	0.40	25	\$1,075	25%	85%	\$273.55	0.26
Wyoming	Manufactured	Cool Central	Floor Insulation (WY) zero to code	R-21	R-0	Per installation	Existing	124	25	\$1,192	25%	20%	\$0.98	26
Wyoming	Manufactured	Cool Central	Infiltration Control (Caulk, Weather Strip, etc.) Blower-Door test	Install Caulking And Weatherstripping	Existing Infiltration Conditions	Per installation	Existing	40	11	\$382	75%	50%	\$1.49	59
Wyoming	Manufactured	Cool Central	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands (5 per unit)	13 SEER	Per installation	Existing	61	30	\$540	50%	95%	\$0.85	12
Wyoming	Manufactured	Cool Central	Proper Sizing - HVAC Unit	Proper Sizing - HVAC Unit	Oversized HVAC Unit	Per installation	Existing	37	15	\$-50.6	95%	65%	\$-0.17	121
Wyoming	Manufactured	Cool Central	Radiant Barrier (Ceiling)	Install Radiant Barrier	No Radiant Barrier	Per installation	Existing	24	25	\$576	25%	90%	\$2.44	19
Wyoming	Manufactured	Cool Central	Thermostat - Multi-Zone	Individual Room Temperature Control for Major Occupied Rooms	Programmable Thermostat - Central Control Only	Per installation	Existing	27	11	\$1,045	50%	95%	\$5.98	43
Wyoming	Manufactured	Cool Central	Wall Insulation 2x4 (WY) zero to max feasible	R-13	R-0	Per installation	Existing	94	25	\$1,387	85%	25%	\$1.50	57
Wyoming	Manufactured	Cool Central	Wall Insulation 2x6 (WY) zero to code	R-21	R-0	Per installation	Existing	161	25	\$1,619	75%	25%	\$1.03	31
Wyoming	Manufactured	Cool Central	Whole-House Fan	Whole-House Fan	No Whole-House Fan	Per installation	Existing	60	20	\$1,284	50%	95%	\$2.38	74
Wyoming	Manufactured	Cool Central	Windows (Same for all Building Types)	CL25	CL30	Per installation	Existing	0.68	25	\$349	65%	85%	\$52.50	1
Wyoming	Manufactured	Cool Central	Windows (Same for all Building Types)	CL30	Double Pane	Per installation	Existing	7	25	\$3,605	65%	50%	\$50.60	7
Wyoming	Manufactured	Cool Central	Windows (Same for all Building Types)	CL30	Single Pane	Per installation	Existing	11	25	\$3,605	65%	20%	\$32.29	4
Wyoming	Manufactured	Cool Central	Air-to-Air Heat Exchangers	Air-to-Air Heat Exchangers	No Air to Air Heat Exchangers	Per installation	New	42	5	\$531	25%	95%	\$3.57	19
Wyoming	Manufactured	Cool Central	Ceiling Fan	Ceiling Fan (no lighting kit)	No Ceiling Fan	Per installation	New	16	10	\$81	85%	35%	\$0.80	19
Wyoming	Manufactured	Cool Central	Ceiling Insulation (WY) above code	R-60	R-49	Per installation	New	7	25	\$345	60%	95%	\$4.42	6
Wyoming	Manufactured	Cool Central	Central Cooling, SEER 15	SEER 15	SEER 13	Per installation	New	109	15	\$595	100%	N/A	\$0.70	1
Wyoming	Manufactured	Cool Central	Central Cooling, SEER 18	SEER 18	SEER 13	Per installation	New	274	15	\$1,490	100%	N/A	\$0.70	60
Wyoming	Manufactured	Cool Central	Check Me! O&M Tune-up	Tune-up/Maintenance	No Tune-up Maintenance	Per installation	New	13	5	\$152	95%	75%	\$3.27	18
Wyoming	Manufactured	Cool Central	Cool Roofs	Lighter Colored Shingles (White)	Standard Roof Shingles	Per installation	New	5	20	\$286	85%	95%	\$6.20	4

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State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Wyoming	Manufactured	Cool Central	Doors	R-11 (Steel Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	New	4	20	\$25	95%	80%	\$0.61	5
Wyoming	Manufactured	Cool Central	Doors	R-5 (Composite Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	New	3	20	\$54	95%	60%	\$1.97	2
Wyoming	Manufactured	Cool Central	Duct Location	Conditioned Space Design - Duct Loss Is Not A Concern	Ducts in Unconditioned Space (Duct loss)	Per installation	New	33	30	\$179	95%	30%	\$0.51	3
Wyoming	Manufactured	Cool Central	Duct Sealing	Duct Sealing	No Duct Sealing	Per installation	New	42	18	\$224	75%	60%	\$0.63	10
Wyoming	Manufactured	Cool Central	Duct Sealing - Aerosol-Based	Spray-in ductwork sealant to minimize duct leaks	No Duct Sealing	Per installation	New	63	18	\$657	75%	60%	\$1.22	6
Wyoming	Manufactured	Cool Central	Floor Insulation (WY) above code	R-38	R-21	Per installation	New	0.42	25	\$1,075	75%	85%	\$260.84	0.35
Wyoming	Manufactured	Cool Central	Green Roof	ecorof	Standard Roof	Per installation	New	21	40	\$13,693	20%	95%	\$57.59	1
Wyoming	Manufactured	Cool Central	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands (5 per unit)	13 SEER	Per installation	New	64	30	\$540	50%	95%	\$0.81	12
Wyoming	Manufactured	Cool Central	Proper Sizing - HVAC Unit	Proper Sizing - HVAC Unit	Oversized HVAC Unit	Per installation	New	39	15	\$-50.6	95%	65%	\$-0.16	47
Wyoming	Manufactured	Cool Central	Radiant Barrier (Ceiling)	Install Radiant Barrier	No Radiant Barrier	Per installation	New	25	25	\$576	50%	90%	\$2.33	17
Wyoming	Manufactured	Cool Central	Smart Siting	Siting house to minimize heating/cooling costs	No smart siting	Per installation	New	23	25	\$592	75%	75%	\$2.61	19
Wyoming	Manufactured	Cool Central	Thermostat - Multi-Zone	Individual Room Temperature Control for Major Occupied Rooms	Programmable Thermostat - Central Control Only	Per installation	New	28	11	\$1,045	50%	95%	\$5.71	18
Wyoming	Manufactured	Cool Central	Wall Insulation 2x6 (WY) above code	R-21+R-5 sheathing	R-21	Per installation	New	21	25	\$826	50%	95%	\$3.86	14
Wyoming	Manufactured	Cool Central	Whole-House Fan	Whole-House Fan	No Whole-House Fan	Per installation	New	63	20	\$1,284	50%	95%	\$2.27	29
Wyoming	Manufactured	Cool Central	Windows (Same for all Building Types)	CL22	CL30	Per installation	New	1	25	\$405	95%	75%	\$28.23	1
Wyoming	Manufactured	Cool Central	Windows (Same for all Building Types)	CL25	CL30	Per installation	New	0.99	25	\$349	95%	75%	\$36.07	0.93
Wyoming	Manufactured	Cool Room	Canned Lighting Air Tight Sealing	Canned Lighting Air Tight Sealing	No Air tight Sealing	Per installation	Existing	1	30	\$23	95%	50%	\$2.02	3
Wyoming	Manufactured	Cool Room	Ceiling Fan	Ceiling Fan (no lighting kit)	No Ceiling Fan	Per installation	Existing	13	10	\$81	85%	35%	\$1.02	9
Wyoming	Manufactured	Cool Room	Ceiling Insulation (WY) above code	R-60	R-49	Per installation	Existing	4	25	\$345	40%	95%	\$7.54	1
Wyoming	Manufactured	Cool Room	Ceiling Insulation (WY) ave to code	R-49	R-12	Per installation	Existing	50	25	\$1,584	75%	35%	\$3.20	13
Wyoming	Manufactured	Cool Room	Ceiling Insulation (WY) zero to code	R-49	R-0	Per installation	Existing	141	25	\$1,584	75%	1%	\$1.15	1
Wyoming	Manufactured	Cool Room	Cool Roofs	Lighter Colored Shingles (White)	Standard Roof Shingles	Per installation	Existing	4	20	\$286	85%	95%	\$7.84	3
Wyoming	Manufactured	Cool Room	Doors	R-11 (Steel Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	Existing	3	20	\$161	95%	80%	\$4.98	2
Wyoming	Manufactured	Cool Room	Doors	R-5 (Composite Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	Existing	2	20	\$190	95%	60%	\$8.81	1
Wyoming	Manufactured	Cool Room	Doors - Weatherization	Weatherstripping And Adding Door Sweeps	Existing Non-Efficient door	Per installation	Existing	1	6	\$43	95%	50%	\$6.79	1
Wyoming	Manufactured	Cool Room	Floor Insulation (WY) above code	R-38	R-21	Per installation	Existing	0.33	25	\$1,075	25%	85%	\$329.82	0.06
Wyoming	Manufactured	Cool Room	Floor Insulation (WY) zero to code	R-21	R-0	Per installation	Existing	134	25	\$1,192	25%	20%	\$0.91	7
Wyoming	Manufactured	Cool Room	Infiltration Control (Caulk, Weather Strip, etc.) Blower-Door test	Install Caulking And Weatherstripping	Existing Infiltration Conditions	Per installation	Existing	33	11	\$382	75%	50%	\$1.79	13
Wyoming	Manufactured	Cool Room	Radiant Barrier (Ceiling)	Install Radiant Barrier	No Radiant Barrier	Per installation	Existing	20	25	\$576	25%	90%	\$2.95	4
Wyoming	Manufactured	Cool Room	Room AC conversion to Ductless Heat Pump	SEER 13	EER 9.8	Per installation	Existing	20	20	\$2,514	75%	N/A	\$14.00	30
Wyoming	Manufactured	Cool Room	Room AC, EER 10.8	EER 10.8	EER 9.8	Per installation	Existing	16	9	\$7	100%	N/A	\$0.08	5
Wyoming	Manufactured	Cool Room	Wall Insulation 2x4 (WY) zero to max feasible	R-13	R-0	Per installation	Existing	80	25	\$1,387	85%	25%	\$1.77	13

Table C.2.1. Residential Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Wyoming	Manufactured	Cool Room	Wall Insulation 2x6 (WY) zero to code	R-21	R-0	Per installation	Existing	136	25	\$1,619	75%	25%	\$1.21	7
Wyoming	Manufactured	Cool Room	Windows (Same for all Building Types)	CL25	CL30	Per installation	Existing	0.58	25	\$349	65%	85%	\$61.32	0.29
Wyoming	Manufactured	Cool Room	Windows (Same for all Building Types)	CL30	Double Pane	Per installation	Existing	6	25	\$3,605	65%	50%	\$59.11	1
Wyoming	Manufactured	Cool Room	Windows (Same for all Building Types)	CL30	Single Pane	Per installation	Existing	9	25	\$3,605	65%	20%	\$37.71	1
Wyoming	Manufactured	Cool Room	Ceiling Fan	Ceiling Fan (no lighting kit)	No Ceiling Fan	Per installation	New	13	10	\$81	85%	35%	\$0.99	3
Wyoming	Manufactured	Cool Room	Ceiling Insulation (WY) above code	R-60	R-49	Per installation	New	6	25	\$345	60%	95%	\$5.29	1
Wyoming	Manufactured	Cool Room	Cool Roofs	Lighter Colored Shingles (White)	Standard Roof Shingles	Per installation	New	4	20	\$286	85%	95%	\$7.63	1
Wyoming	Manufactured	Cool Room	Doors	R-11 (Steel Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	New	3	20	\$25	95%	80%	\$0.75	1
Wyoming	Manufactured	Cool Room	Doors	R-5 (Composite Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	New	2	20	\$54	95%	60%	\$2.43	0.61
Wyoming	Manufactured	Cool Room	Floor Insulation (WY) above code	R-38	R-21	Per installation	New	0.34	25	\$1,075	75%	85%	\$320.93	0.08
Wyoming	Manufactured	Cool Room	Green Roof	ecorooft	Standard Roof	Per installation	New	17	40	\$13,693	20%	95%	\$70.85	0.25
Wyoming	Manufactured	Cool Room	Radiant Barrier (Ceiling)	Install Radiant Barrier	No Radiant Barrier	Per installation	New	20	25	\$576	50%	90%	\$2.87	3
Wyoming	Manufactured	Cool Room	Room AC conversion to Ductless Heat Pump	SEER 13	EER 9.8	Per installation	New	21	20	\$2,514	75%	N/A	\$13.10	5
Wyoming	Manufactured	Cool Room	Room AC, EER 10.8	EER 10.8	EER 9.8	Per installation	New	17	9	\$7	100%	N/A	\$0.07	1
Wyoming	Manufactured	Cool Room	Smart Siting	Siting house to minimize heating/cooling costs	No smart siting	Per installation	New	18	25	\$592	75%	75%	\$3.21	4
Wyoming	Manufactured	Cool Room	Wall Insulation 2x6 (WY) above code	R-21+R-5 sheathing	R-21	Per installation	New	18	25	\$826	50%	95%	\$4.65	3
Wyoming	Manufactured	Cool Room	Windows (Same for all Building Types)	CL22	CL30	Per installation	New	1	25	\$405	95%	75%	\$33.32	0.34
Wyoming	Manufactured	Cool Room	Windows (Same for all Building Types)	CL25	CL30	Per installation	New	0.83	25	\$349	95%	75%	\$42.99	0.22
Wyoming	Manufactured	Dryer	Dryer, Advanced Efficiency EF 3.30	Advanced Efficiency Dryer 3.30	Standard Dryer EF 3.01	Per installation	Existing	38	14	\$224	100%	N/A	\$0.79	170
Wyoming	Manufactured	Dryer	Dryer, High Efficiency EF 3.08	High Efficiency Dryer EF 3.08	Standard Dryer EF 3.01	Per installation	Existing	9	14	\$54	100%	N/A	\$0.74	3
Wyoming	Manufactured	Dryer	Dryer, Premium Efficiency EF 3.19	Premium Efficiency Dryer 3.19	Standard Dryer EF 3.01	Per installation	Existing	24	14	\$139	100%	N/A	\$0.76	24
Wyoming	Manufactured	Dryer	Dryer, Advanced Efficiency EF 3.30	Advanced Efficiency Dryer 3.30	Standard Dryer EF 3.01	Per installation	New	38	14	\$224	100%	N/A	\$0.79	48
Wyoming	Manufactured	Dryer	Dryer, High Efficiency EF 3.08	High Efficiency Dryer EF 3.08	Standard Dryer EF 3.01	Per installation	New	9	14	\$54	100%	N/A	\$0.74	1
Wyoming	Manufactured	Dryer	Dryer, Premium Efficiency EF 3.19	Premium Efficiency Dryer 3.19	Standard Dryer EF 3.01	Per installation	New	24	14	\$139	100%	N/A	\$0.76	7
Wyoming	Manufactured	Freezer	Freezer, Energy Star	Energy Star Freezer	Standard Freezer	Per installation	Existing	46	20	\$22	76%	N/A	\$0.05	21
Wyoming	Manufactured	Freezer	Stand-Alone Freezer - Removal	Proper Disposal of Freezer	Existing Non-Efficient Freezer	Per installation	Existing	1,386	8	\$74	17%	**	\$0.01	155
Wyoming	Manufactured	Freezer	Freezer, Energy Star	Energy Star Freezer	Standard Freezer	Per installation	New	46	20	\$22	76%	N/A	\$0.05	17
Wyoming	Manufactured	Heat Central	Air-to-Air Heat Exchangers	Air-to-Air Heat Exchangers	No Air to Air Heat Exchangers	Per installation	Existing	1,789	5	\$531	25%	95%	\$0.08	473
Wyoming	Manufactured	Heat Central	Canned Lighting Air Tight Sealing	Canned Lighting Air Tight Sealing	No Air tight Sealing	Per installation	Existing	82	30	\$23	95%	50%	\$0.03	226
Wyoming	Manufactured	Heat Central	Ceiling Insulation (WY) above code	R-60	R-49	Per installation	Existing	335	25	\$345	40%	95%	\$0.11	105
Wyoming	Manufactured	Heat Central	Ceiling Insulation (WY) ave to code	R-49	R-12	Per installation	Existing	3,654	25	\$1,584	75%	35%	\$0.04	872
Wyoming	Manufactured	Heat Central	Ceiling Insulation (WY) zero to code	R-49	R-0	Per installation	Existing	10,178	25	\$1,584	75%	1%	\$0.02	82
Wyoming	Manufactured	Heat Central	Conversion Electric Furnace to ASHP	Air Source Heat Pump Seer 13 HSPF 7.7	Electric Furnace HSPF 1	Per installation	Existing	9,623	20	\$2,609	100%	N/A	\$0.03	3,300
Wyoming	Manufactured	Heat Central	Doors	R-11 (Steel Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	Existing	268	20	\$161	95%	80%	\$0.07	175

Table C.2.1. Residential Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Wyoming	Manufactured	Heat Central	Doors	R-5 (Composite Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	Existing	178	20	\$190	95%	60%	\$0.12	83
Wyoming	Manufactured	Heat Central	Doors - Weatherization	Weatherstripping And Adding Door Sweeps	Existing Non-Efficient door	Per installation	Existing	116	6	\$43	95%	50%	\$0.09	91
Wyoming	Manufactured	Heat Central	Duct Insulation Upgrade	R-8 (code)	R-4	Per installation	Existing	715	20	\$534	75%	75%	\$0.08	342
Wyoming	Manufactured	Heat Central	Duct Sealing	Duct Sealing	No Duct Sealing	Per installation	Existing	1,789	18	\$459	75%	15%	\$0.03	114
Wyoming	Manufactured	Heat Central	Duct Sealing - Aerosol-Based	Spray-in ductwork sealant to minimize duct leaks	No Duct Sealing	Per installation	Existing	2,683	18	\$657	75%	15%	\$0.03	86
Wyoming	Manufactured	Heat Central	Floor Insulation (WY) above code	R-38	R-21	Per installation	Existing	17	25	\$1,075	25%	85%	\$6.15	2
Wyoming	Manufactured	Heat Central	Floor Insulation (WY) zero to code	R-21	R-0	Per installation	Existing	7,631	25	\$1,192	25%	20%	\$0.02	408
Wyoming	Manufactured	Heat Central	Infiltration Control (Caulk, Weather Strip, etc.) Blower-Door test	Install Caulking And Weatherstripping	Existing Infiltration Conditions	Per installation	Existing	1,789	11	\$382	75%	50%	\$0.03	634
Wyoming	Manufactured	Heat Central	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands (5 per unit)	13 SEER	Per installation	Existing	3,757	30	\$540	50%	15%	\$0.01	30
Wyoming	Manufactured	Heat Central	Proper Sizing - HVAC Unit	Proper Sizing - HVAC Unit	Oversized HVAC Unit	Per installation	Existing	1,686	15	\$-50.6	15%	65%	\$-0.00	183
Wyoming	Manufactured	Heat Central	Radiant Barrier (Ceiling)	Install Radiant Barrier	No Radiant Barrier	Per installation	Existing	357	25	\$576	25%	90%	\$0.16	63
Wyoming	Manufactured	Heat Central	Thermostat - Multi-Zone	Individual Room Temperature Control for Major Occupied Rooms	Programmable Thermostat - Central Control Only	Per installation	Existing	1,216	11	\$1,045	50%	95%	\$0.13	471
Wyoming	Manufactured	Heat Central	Wall Insulation 2x4 (WY) zero to max feasible	R-13	R-0	Per installation	Existing	5,785	25	\$1,387	85%	25%	\$0.02	941
Wyoming	Manufactured	Heat Central	Wall Insulation 2x6 (WY) zero to code	R-21	R-0	Per installation	Existing	9,879	25	\$1,619	75%	25%	\$0.02	485
Wyoming	Manufactured	Heat Central	Windows (Same for all Building Types)	CL25	CL30	Per installation	Existing	41	25	\$349	65%	85%	\$0.86	17
Wyoming	Manufactured	Heat Central	Windows (Same for all Building Types)	CL30	Double Pane	Per installation	Existing	445	25	\$3,605	65%	50%	\$0.83	113
Wyoming	Manufactured	Heat Central	Windows (Same for all Building Types)	CL30	Single Pane	Per installation	Existing	698	25	\$3,605	65%	20%	\$0.53	71
Wyoming	Manufactured	Heat Central	Air-to-Air Heat Exchangers	Air-to-Air Heat Exchangers	No Air to Air Heat Exchangers	Per installation	New	1,275	5	\$531	25%	95%	\$0.12	123
Wyoming	Manufactured	Heat Central	Ceiling Insulation (WY) above code	R-60	R-49	Per installation	New	332	25	\$345	60%	95%	\$0.11	69
Wyoming	Manufactured	Heat Central	Conversion Electric Furnace to ASHP	Air Source Heat Pump Seer 13 HSPF 7.7	Electric Furnace HSPF 1	Per installation	New	6,861	20	\$2,516	100%	N/A	\$0.04	1,226
Wyoming	Manufactured	Heat Central	Doors	R-11 (Steel Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	New	191	20	\$25	95%	80%	\$0.01	57
Wyoming	Manufactured	Heat Central	Doors	R-5 (Composite Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	New	127	20	\$54	95%	60%	\$0.05	27
Wyoming	Manufactured	Heat Central	Duct Location	Conditioned Space Design - Duct Loss Is Not A Concern	Ducts in Unconditioned Space (Duct loss)	Per installation	New	1,020	30	\$179	95%	15%	\$0.02	14
Wyoming	Manufactured	Heat Central	Duct Sealing	Duct Sealing	No Duct Sealing	Per installation	New	1,275	18	\$224	75%	15%	\$0.02	19
Wyoming	Manufactured	Heat Central	Duct Sealing - Aerosol-Based	Spray-in ductwork sealant to minimize duct leaks	No Duct Sealing	Per installation	New	1,913	18	\$657	75%	15%	\$0.04	12
Wyoming	Manufactured	Heat Central	Floor Insulation (WY) above code	R-38	R-21	Per installation	New	12	25	\$1,075	75%	85%	\$8.62	2
Wyoming	Manufactured	Heat Central	Green Roof	ecorof	Standard Roof	Per installation	New	892	40	\$13,693	20%	95%	\$1.38	11
Wyoming	Manufactured	Heat Central	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands (5 per unit)	13 SEER	Per installation	New	2,678	30	\$540	50%	15%	\$0.02	19
Wyoming	Manufactured	Heat Central	Proper Sizing - HVAC Unit	Proper Sizing - HVAC Unit	Oversized HVAC Unit	Per installation	New	1,202	15	\$-50.6	15%	65%	\$-0.01	47
Wyoming	Manufactured	Heat Central	Radiant Barrier (Ceiling)	Install Radiant Barrier	No Radiant Barrier	Per installation	New	255	25	\$576	50%	90%	\$0.23	40
Wyoming	Manufactured	Heat Central	Smart Siting	Siting house to minimize heating/cooling costs	No smart siting	Per installation	New	39	25	\$592	75%	75%	\$1.53	7

Table C.2.1. Residential Measure Details

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Wyoming	Manufactured	Heat Central	Thermostat - Multi-Zone	Individual Room Temperature Control for Major Occupied Rooms	Programmable Thermostat - Central Control Only	Per installation	New	867	11	\$1,045	50%	95%	\$0.19	149
Wyoming	Manufactured	Heat Central	Wall Insulation 2x6 (WY) above code	R-21+R-5 sheathing	R-21	Per installation	New	910	25	\$826	50%	95%	\$0.09	164
Wyoming	Manufactured	Heat Central	Windows (Same for all Building Types)	CL22	CL30	Per installation	New	61	25	\$405	95%	75%	\$0.68	15
Wyoming	Manufactured	Heat Central	Windows (Same for all Building Types)	CL25	CL30	Per installation	New	41	25	\$349	95%	75%	\$0.87	10
Wyoming	Manufactured	Heat Room	Canned Lighting Air Tight Sealing	Canned Lighting Air Tight Sealing	No Air tight Sealing	Per installation	Existing	63	30	\$23	95%	50%	\$0.04	39
Wyoming	Manufactured	Heat Room	Ceiling Insulation (WY) above code	R-60	R-49	Per installation	Existing	266	25	\$345	40%	95%	\$0.13	19
Wyoming	Manufactured	Heat Room	Ceiling Insulation (WY) ave to code	R-49	R-12	Per installation	Existing	2,879	25	\$1,584	75%	35%	\$0.06	158
Wyoming	Manufactured	Heat Room	Ceiling Insulation (WY) zero to code	R-49	R-0	Per installation	Existing	8,020	25	\$1,584	75%	1%	\$0.02	14
Wyoming	Manufactured	Heat Room	Conversion Baseboard Heating to DHP	Ductless Heat Pump HSPF 7.7	HSPF = 1	Per installation	Existing	1,966	20	\$2,326	50%	N/A	\$0.13	246
Wyoming	Manufactured	Heat Room	Doors	R-11 (Steel Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	Existing	206	20	\$161	95%	80%	\$0.09	31
Wyoming	Manufactured	Heat Room	Doors	R-5 (Composite Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	Existing	137	20	\$190	95%	60%	\$0.16	15
Wyoming	Manufactured	Heat Room	Doors - Weatherization	Weatherstripping And Adding Door Sweeps	Existing Non-Efficient door	Per installation	Existing	89	6	\$43	95%	50%	\$0.12	16
Wyoming	Manufactured	Heat Room	Floor Insulation (WY) above code	R-38	R-21	Per installation	Existing	13	25	\$1,075	25%	85%	\$7.98	0.55
Wyoming	Manufactured	Heat Room	Floor Insulation (WY) zero to code	R-21	R-0	Per installation	Existing	7,631	25	\$1,192	25%	20%	\$0.02	94
Wyoming	Manufactured	Heat Room	Infiltration Control (Caulk, Weather Strip, etc.) Blower-Door test	Install Caulking And Weatherstripping	Existing Infiltration Conditions	Per installation	Existing	1,377	11	\$382	75%	50%	\$0.04	112
Wyoming	Manufactured	Heat Room	Radiant Barrier (Ceiling)	Install Radiant Barrier	No Radiant Barrier	Per installation	Existing	275	25	\$576	25%	90%	\$0.21	11
Wyoming	Manufactured	Heat Room	Wall Insulation 2x4 (WY) zero to max feasible	R-13	R-0	Per installation	Existing	4,551	25	\$1,387	85%	25%	\$0.03	169
Wyoming	Manufactured	Heat Room	Wall Insulation 2x6 (WY) zero to code	R-21	R-0	Per installation	Existing	7,772	25	\$1,619	75%	25%	\$0.02	87
Wyoming	Manufactured	Heat Room	Windows (Same for all Building Types)	CL25	CL30	Per installation	Existing	33	25	\$349	65%	85%	\$1.08	3
Wyoming	Manufactured	Heat Room	Windows (Same for all Building Types)	CL30	Double Pane	Per installation	Existing	354	25	\$3,605	65%	50%	\$1.04	21
Wyoming	Manufactured	Heat Room	Windows (Same for all Building Types)	CL30	Single Pane	Per installation	Existing	555	25	\$3,605	65%	20%	\$0.66	13
Wyoming	Manufactured	Heat Room	Ceiling Insulation (WY) above code	R-60	R-49	Per installation	New	263	25	\$345	60%	95%	\$0.13	12
Wyoming	Manufactured	Heat Room	Conversion Baseboard Heating to DHP	Ductless Heat Pump HSPF 7.7	HSPF = 1	Per installation	New	1,402	20	\$2,326	50%	N/A	\$0.19	90
Wyoming	Manufactured	Heat Room	Doors	R-11 (Steel Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	New	147	20	\$25	95%	80%	\$0.02	10
Wyoming	Manufactured	Heat Room	Doors	R-5 (Composite Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	New	98	20	\$54	95%	60%	\$0.06	4
Wyoming	Manufactured	Heat Room	Floor Insulation (WY) above code	R-38	R-21	Per installation	New	9	25	\$1,075	75%	85%	\$11.20	0.51
Wyoming	Manufactured	Heat Room	Green Roof	ecorooF	Standard Roof	Per installation	New	687	40	\$13,693	20%	95%	\$1.80	2
Wyoming	Manufactured	Heat Room	Radiant Barrier (Ceiling)	Install Radiant Barrier	No Radiant Barrier	Per installation	New	196	25	\$576	50%	90%	\$0.30	7
Wyoming	Manufactured	Heat Room	Smart Siting	Siting house to minimize heating/cooling costs	No smart siting	Per installation	New	30	25	\$592	75%	75%	\$1.99	1
Wyoming	Manufactured	Heat Room	Wall Insulation 2x6 (WY) above code	R-21+R-5 sheathing	R-21	Per installation	New	715	25	\$826	50%	95%	\$0.12	30

Table C.2.1. Residential Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Wyoming	Manufactured	Heat Room	Windows (Same for all Building Types)	CL22	CL30	Per installation	New	49	25	\$405	95%	75%	\$0.85	2
Wyoming	Manufactured	Heat Room	Windows (Same for all Building Types)	CL25	CL30	Per installation	New	32	25	\$349	95%	75%	\$1.09	1
Wyoming	Manufactured	Lighting Exterior	CFL, Flood (17 W)	CFL, Flood	Standard Incandescent Flood	Per installation	Existing	53	5	\$0.91	100%	N/A	\$0.00	50
Wyoming	Manufactured	Lighting Exterior	Time Clocks (Exterior Lighting)	Exterior Lighting on a Time Clock	Exterior Lighting (Manual Control)	Per installation	Existing	13	10	\$16	80%	85%	\$0.21	45
Wyoming	Manufactured	Lighting Exterior	CFL, Flood (17 W)	CFL, Flood	Standard Incandescent Flood	Per installation	New	53	5	\$0.91	100%	N/A	\$0.00	2
Wyoming	Manufactured	Lighting Exterior	Time Clocks (Exterior Lighting)	Exterior Lighting on a Time Clock	Exterior Lighting (Manual Control)	Per installation	New	13	10	\$16	80%	85%	\$0.21	18
Wyoming	Manufactured	Lighting Interior Specialty	CFL (13 W, 20 W, 25 W)	CFL (3-Way)	Standard Incandescent (3-Way)	Per installation	Existing	43	5	\$3	100%	N/A	\$0.02	448
Wyoming	Manufactured	Lighting Interior Specialty	CFL (13 W, 20 W, 25 W)	CFL (3-Way)	Standard Incandescent (3-Way)	Per installation	New	43	5	\$3	100%	N/A	\$0.02	15
Wyoming	Manufactured	Lighting Interior Standard	Daylighting Controls (Photocell) - Indoor/Outdoors	Install Photocell	No Daylighting Controls	Per installation	Existing	8	20	\$135	40%	95%	\$1.82	4
Wyoming	Manufactured	Lighting Interior Standard	Lighting CFL 15 W	15 W CFL	Standard 60 W Incandescent	Per installation	Existing	40	5	\$2	100%	N/A	\$0.02	210
Wyoming	Manufactured	Lighting Interior Standard	Lighting LED 7 W	7 W LED	Standard 60 W Incandescent	Per installation	Existing	51	20	\$36	50%	N/A	\$0.08	1,602
Wyoming	Manufactured	Lighting Interior Standard	Occupancy Sensors	Wall-Switch Occupancy Sensors	No Occupancy Sensor	Per installation	Existing	4	10	\$29	85%	95%	\$1.05	60
Wyoming	Manufactured	Lighting Interior Standard	Daylighting Controls (Photocell) - Indoor/Outdoors	Install Photocell	No Daylighting Controls	Per installation	New	8	20	\$135	40%	95%	\$1.82	1
Wyoming	Manufactured	Lighting Interior Standard	Lighting CFL 15 W	15 W CFL	Standard 60 W Incandescent	Per installation	New	40	5	\$2	100%	N/A	\$0.02	10
Wyoming	Manufactured	Lighting Interior Standard	Lighting LED 7 W	7 W LED	Standard 60 W Incandescent	Per installation	New	51	20	\$36	50%	N/A	\$0.08	62
Wyoming	Manufactured	Lighting Interior Standard	Occupancy Sensors	Wall-Switch Occupancy Sensors	No Occupancy Sensor	Per installation	New	4	10	\$29	85%	95%	\$1.05	24
Wyoming	Manufactured	Microwave	Microwave, High Efficiency	High Efficiency Microwave	Standard Microwave	Per installation	Existing	9	15	\$79	100%	N/A	\$1.05	43
Wyoming	Manufactured	Microwave	Microwave, High Efficiency	High Efficiency Microwave	Standard Microwave	Per installation	New	9	15	\$79	100%	N/A	\$1.05	13
Wyoming	Manufactured	Monitor	Monitor, Energy Star	Energy Star Monitor	Standard Monitor	Per installation	Existing	36	5	\$3	100%	N/A	\$0.03	151
Wyoming	Manufactured	Monitor	Monitor, Energy Star	Energy Star Monitor	Standard Monitor	Per installation	New	36	5	\$3	100%	N/A	\$0.03	13
Wyoming	Manufactured	Plug Load Other	1-Watt Standby Power	1W or less standby power use for small appliances	Standard plug load appliance.	Per installation	Existing	17	7	\$30	50%	50%	\$0.37	155
Wyoming	Manufactured	Plug Load Other	Energy Star Battery Chargers	Energy Star Battery Chargers	Standard Battery Chargers	Per installation	Existing	1	7	\$33	50%	80%	\$7.07	31
Wyoming	Manufactured	Plug Load Other	Office Copier	Office Copier	Standard Copier	Per installation	Existing	39	6	\$5	10%	50%	\$0.03	14
Wyoming	Manufactured	Plug Load Other	Office Printer	Office Printer	Standard Printer	Per installation	Existing	5	5	\$5	20%	50%	\$0.28	3
Wyoming	Manufactured	Plug Load Other	Smart Strip	Smart Strip	Standard PowerStrip	Per installation	Existing	102	5	\$22	50%	85%	\$0.06	330
Wyoming	Manufactured	Plug Load Other	1-Watt Standby Power	1W or less standby power use for small appliances	Standard plug load appliance.	Per installation	New	17	7	\$30	50%	50%	\$0.37	55
Wyoming	Manufactured	Plug Load Other	Energy Star Battery Chargers	Energy Star Battery Chargers	Standard Battery Chargers	Per installation	New	1	7	\$2	50%	80%	\$0.54	11
Wyoming	Manufactured	Plug Load Other	Office Copier	Office Copier	Standard Copier	Per installation	New	38	6	\$5	10%	50%	\$0.03	5
Wyoming	Manufactured	Plug Load Other	Office Printer	Office Printer	Standard Printer	Per installation	New	4	5	\$5	20%	50%	\$0.29	1
Wyoming	Manufactured	Plug Load Other	Smart Strip	Smart Strip	Standard PowerStrip	Per installation	New	100	5	\$22	50%	85%	\$0.06	118
Wyoming	Manufactured	Refrigerator	Refrigerator, Energy Star	Energy Star Refrigerator	Standard Refrigerator	Per installation	Existing	122	20	\$15	95%	N/A	\$0.01	176
Wyoming	Manufactured	Refrigerator	Refrigerator/Freezer - Removal of Secondary	Proper Disposal of Refrigerator/Freezer	Existing Non-Efficient Refrigerator/Freezer	Per installation	Existing	1,400	9	\$76	4%	99%	\$0.01	66

Table C.2.1. Residential Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Wyoming	Manufactured	Refrigerator	Refrigerator, Energy Star	Energy Star Refrigerator	Standard Refrigerator	Per installation	New	122	20	\$15	100%	N/A	\$0.01	88
Wyoming	Manufactured	Set Top Box	Set Top Box, Energy Star	Energy Star Set Top Box	Standard Set Top Box	Per installation	Existing	164	5	\$12	100%	N/A	\$0.02	375
Wyoming	Manufactured	Set Top Box	Set Top Box, Energy Star	Energy Star Set Top Box	Standard Set Top Box	Per installation	New	164	5	\$12	100%	N/A	\$0.02	30
Wyoming	Manufactured	Tv	TV CRT, Energy Star	Energy Star CRT TV	Standard CRT TV	Per installation	Existing	112	10	\$19	100%	N/A	\$0.03	926
Wyoming	Manufactured	Tv	TV CRT, Energy Star	Energy Star CRT TV	Standard CRT TV	Per installation	New	112	10	\$19	100%	N/A	\$0.03	182
Wyoming	Manufactured	Tv Bigscreen	TV LCD, Energy Star	Energy Star LCD TV	Standard LCD TV	Per installation	Existing	223	10	\$19	100%	N/A	\$0.01	346
Wyoming	Manufactured	Tv Bigscreen	TV LCD, Energy Star	Energy Star LCD TV	Standard LCD TV	Per installation	New	223	10	\$19	100%	N/A	\$0.01	68
Wyoming	Manufactured	Ventilation And Circulation	Motor, ECM	ECM Motor	Standard Motor	Per installation	Existing	105	20	\$172	50%	N/A	\$0.18	110
Wyoming	Manufactured	Ventilation And Circulation	Motor, ECM - VFD	ECMVFD Motor	Standard Motor	Per installation	Existing	316	20	\$194	50%	N/A	\$0.07	330
Wyoming	Manufactured	Ventilation And Circulation	Motor, ECM	ECM Motor	Standard Motor	Per installation	New	96	20	\$172	50%	N/A	\$0.20	45
Wyoming	Manufactured	Ventilation And Circulation	Motor, ECM - VFD	ECMVFD Motor	Standard Motor	Per installation	New	290	20	\$194	50%	N/A	\$0.07	135
Wyoming	Manufactured	Water Heat	Clothes Washer	Energy Star - Tier 1 (MEF 2.0 - 2.19) - Electric DHW & Dryer	MEF = 1.66 - Electric DHW & Dryer	Per installation	Existing	112	14	\$227	100%	76%	\$-0.27	56
Wyoming	Manufactured	Water Heat	Clothes Washer	Energy Star - Tier 2 (MEF 2.2 - 2.45) - Electric DHW & Dryer	MEF = 1.66 - Electric DHW & Dryer	Per installation	Existing	149	14	\$296	100%	85%	\$-0.25	83
Wyoming	Manufactured	Water Heat	Clothes Washer	Energy Star - Tier 3 (MEF 2.46 or higher) Top 10% of Energy Star Model - Electric DHW & Dryer	MEF = 1.66 - Electric DHW & Dryer	Per installation	Existing	170	14	\$317	100%	95%	\$-0.23	106
Wyoming	Manufactured	Water Heat	Dishwasher	Energy Star, July 1st 2011, <= 307 kWh/year , <= 5.0 gallons/cycle	Energy Star - EF65 (6th Plan Baseline)	Per installation	Existing	33	12	\$42	75%	50%	\$0.17	24
Wyoming	Manufactured	Water Heat	Drain Water Heat Recovery (GFX)	Gravity Film Heat Exchanger	No Heat Exchanger	Per installation	Existing	331	40	\$498	29%	90%	\$0.14	141
Wyoming	Manufactured	Water Heat	Faucet Aerators	0.5 GPM	2.2 GPM	Per installation	Existing	82	9	\$0.71	95%	95%	\$-0.08	145
Wyoming	Manufactured	Water Heat	Faucet Aerators	1.5 GPM	2.2 GPM	Per installation	Existing	34	9	\$0.46	95%	65%	\$-0.08	41
Wyoming	Manufactured	Water Heat	Faucet Aerators	2.2 GPM	Existing Faucet Aerator (3.0 GPM)	Per installation	Existing	38	9	\$1	95%	25%	\$-0.07	35
Wyoming	Manufactured	Water Heat	Hot Water Pipe Insulation	R-4 Wrap	No insulation	Per installation	Existing	40	5	\$17	95%	75%	\$0.13	46
Wyoming	Manufactured	Water Heat	Low-Flow Showerheads	2.0 GPM	2.5 GPM	Per installation	Existing	112	10	\$16	95%	65%	\$-0.06	136
Wyoming	Manufactured	Water Heat	Water Heater, Heat Pump EF 2.2	Heat Pump Water Heater EF = 2.2	Standard Storage Water Heater EF = 0.92	Per installation	Existing	1,318	15	\$1,286	59%	N/A	\$0.13	751
Wyoming	Manufactured	Water Heat	Water Heater, Storage EF 0.95	Standard Storage Water Heater EF = 0.95	Standard Storage Water Heater EF = 0.92	Per installation	Existing	74	15	\$41	100%	N/A	\$0.07	6
Wyoming	Manufactured	Water Heat	Water_Heater Tank Blanket/Insulation	Install Insulation (R-5)	No Tank Insulation	Per installation	Existing	148	10	\$11	50%	20%	\$0.01	24
Wyoming	Manufactured	Water Heat	Water_Heater Thermostat Setback	120 degrees	135 degrees	Per installation	Existing	137	5	\$6	95%	45%	\$0.01	99
Wyoming	Manufactured	Water Heat	Clothes Washer	Energy Star - Tier 1 (MEF 2.0 - 2.19) - Electric DHW & Dryer	MEF = 1.66 - Electric DHW & Dryer	Per installation	New	110	14	\$227	100%	76%	\$-0.28	20
Wyoming	Manufactured	Water Heat	Clothes Washer	Energy Star - Tier 2 (MEF 2.2 - 2.45) - Electric DHW & Dryer	MEF = 1.66 - Electric DHW & Dryer	Per installation	New	146	14	\$296	100%	85%	\$-0.25	30
Wyoming	Manufactured	Water Heat	Clothes Washer	Energy Star - Tier 3 (MEF 2.46 or higher) Top 10% of Energy Star Model - Electric DHW & Dryer	MEF = 1.66 - Electric DHW & Dryer	Per installation	New	167	14	\$317	100%	95%	\$-0.23	38
Wyoming	Manufactured	Water Heat	Dishwasher	Energy Star, July 1st 2011, <= 307 kWh/year , <= 5.0 gallons/cycle	Energy Star - EF65 (6th Plan Baseline)	Per installation	New	32	12	\$42	75%	50%	\$0.17	8
Wyoming	Manufactured	Water Heat	Drain Water Heat Recovery (GFX)	Gravity Film Heat Exchanger	No Heat Exchanger	Per installation	New	329	40	\$438	59%	90%	\$0.12	108
Wyoming	Manufactured	Water Heat	Faucet Aerators	0.5 GPM	2.2 GPM	Per installation	New	80	9	\$0.71	95%	95%	\$-0.08	53
Wyoming	Manufactured	Water Heat	Faucet Aerators	1.5 GPM	2.2 GPM	Per installation	New	33	9	\$0.46	95%	65%	\$-0.08	15
Wyoming	Manufactured	Water Heat	Hot Water Pipe Insulation	R-4 Wrap	No insulation	Per installation	New	39	5	\$17	95%	75%	\$0.13	16

Table C.2.1. Residential Measure Details

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Wyoming	Manufactured	Water Heat	Low-Flow Showerheads	2.0 GPM	2.5 GPM	Per installation	New	110	10	\$9	95%	65%	\$-0.07	50
Wyoming	Manufactured	Water Heat	Water Heater, Heat Pump EF 2.2	Heat Pump Water Heater EF = 2.2	Standard Storage Water Heater EF = 0.92	Per installation	New	1,318	15	\$1,286	59%	N/A	\$0.13	229
Wyoming	Manufactured	Water Heat	Water Heater, Storage EF 0.95	Standard Storage Water Heater EF = 0.95	Standard Storage Water Heater EF = 0.92	Per installation	New	74	15	\$41	100%	N/A	\$0.07	2
Wyoming	Manufactured	Water Heat	Water_Heater Thermostat Setback	120 degrees	135 degrees	Per installation	New	136	5	\$6	95%	45%	\$0.01	37
Wyoming	Multi Family	Computer	Computer, Energy Star	Energy Star Computer	Standard Computer	Per installation	Existing	46	5	\$21	100%	N/A	\$0.13	412
Wyoming	Multi Family	Computer	Computer, Energy Star	Energy Star Computer	Standard Computer	Per installation	New	46	5	\$21	100%	N/A	\$0.13	36
Wyoming	Multi Family	Cooking Oven	Cooking Oven, High Efficiency	High Efficiency Oven	Standard Oven	Per installation	Existing	58	20	\$282	100%	N/A	\$0.55	213
Wyoming	Multi Family	Cooking Oven	Cooking Oven, High Efficiency	High Efficiency Oven	Standard Oven	Per installation	New	58	20	\$282	100%	N/A	\$0.55	98
Wyoming	Multi Family	Cool Central	Air-to-Air Heat Exchangers	Air-to-Air Heat Exchangers	No Air to Air Heat Exchangers	Per installation	Existing	41	5	\$531	25%	95%	\$3.64	44
Wyoming	Multi Family	Cool Central	Canned Lighting Air Tight Sealing	Canned Lighting Air Tight Sealing	No Air tight Sealing	Per installation	Existing	2	30	\$23	95%	50%	\$0.81	14
Wyoming	Multi Family	Cool Central	Ceiling Fan	Ceiling Fan (no lighting kit)	No Ceiling Fan	Per installation	Existing	16	10	\$81	85%	50%	\$0.82	63
Wyoming	Multi Family	Cool Central	Ceiling Insulation (WY) above code	R-60	R-49	Per installation	Existing	5	30	\$161	75%	95%	\$2.76	11
Wyoming	Multi Family	Cool Central	Ceiling Insulation (WY) ave to code	R-49	R-12	Per installation	Existing	61	30	\$740	75%	35%	\$1.16	53
Wyoming	Multi Family	Cool Central	Ceiling Insulation (WY) zero to code	R-49	R-0	Per installation	Existing	171	30	\$740	95%	1%	\$0.42	6
Wyoming	Multi Family	Cool Central	Central Cooling, SEER 15	SEER 15	SEER 13	Per installation	Existing	76	15	\$595	100%	N/A	\$1.00	6
Wyoming	Multi Family	Cool Central	Central Cooling, SEER 18	SEER 18	SEER 13	Per installation	Existing	192	15	\$1,490	100%	N/A	\$1.00	184
Wyoming	Multi Family	Cool Central	Check Me! O&M Tune-up	Tune-up/Maintenance	No Tune-up Maintenance	Per installation	Existing	12	5	\$152	95%	75%	\$3.34	41
Wyoming	Multi Family	Cool Central	Cool Roofs	Lighter Colored Shingles (White)	Standard Roof Shingles	Per installation	Existing	5	20	\$138	85%	95%	\$3.06	11
Wyoming	Multi Family	Cool Central	Doors	R-11 (Steel Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	Existing	9	20	\$161	95%	80%	\$2.01	9
Wyoming	Multi Family	Cool Central	Doors	R-5 (Composite Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	Existing	6	20	\$190	95%	60%	\$3.55	4
Wyoming	Multi Family	Cool Central	Doors - Weatherization	Weatherstripping And Adding Door Sweeps	Existing Non-Efficient door	Per installation	Existing	3	6	\$43	95%	50%	\$2.74	5
Wyoming	Multi Family	Cool Central	Duct Insulation Upgrade	R-8 (code)	R-4	Per installation	Existing	12	20	\$534	75%	75%	\$4.98	18
Wyoming	Multi Family	Cool Central	Duct Sealing	Duct Sealing	No Duct Sealing	Per installation	Existing	41	18	\$459	75%	60%	\$1.31	33
Wyoming	Multi Family	Cool Central	Duct Sealing - Aerosol-Based	Spray-in ductwork sealant to minimize duct leaks	No Duct Sealing	Per installation	Existing	61	18	\$657	75%	60%	\$1.25	26
Wyoming	Multi Family	Cool Central	Floor Insulation (WY) above code	R-38	R-21	Per installation	Existing	0.41	30	\$503	25%	85%	\$117.35	0.23
Wyoming	Multi Family	Cool Central	Floor Insulation (WY) zero to code	R-21	R-0	Per installation	Existing	128	30	\$557	25%	20%	\$0.42	23
Wyoming	Multi Family	Cool Central	Infiltration Control (Caulk, Weather Strip, etc.) Blower-Door test	Install Caulking And Weatherstripping	Existing Infiltration Conditions	Per installation	Existing	41	11	\$339	75%	50%	\$1.29	48
Wyoming	Multi Family	Cool Central	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands (5 per unit)	13 SEER	Per installation	Existing	63	30	\$540	50%	95%	\$0.82	10
Wyoming	Multi Family	Cool Central	Proper Sizing - HVAC Unit	Proper Sizing - HVAC Unit	Oversized HVAC Unit	Per installation	Existing	38	15	\$-50.6	95%	65%	\$-0.17	108
Wyoming	Multi Family	Cool Central	Radiant Barrier (Ceiling)	Install Radiant Barrier	No Radiant Barrier	Per installation	Existing	24	30	\$269	50%	90%	\$1.05	37
Wyoming	Multi Family	Cool Central	Thermostat - Multi-Zone	Individual Room Temperature Control for Major Occupied Rooms	Programmable Thermostat - Central Control Only	Per installation	Existing	28	11	\$1,045	50%	95%	\$5.82	36
Wyoming	Multi Family	Cool Central	Wall Insulation 2x4 (WY) zero to max feasible	R-13	R-0	Per installation	Existing	97	30	\$948	85%	25%	\$0.94	54
Wyoming	Multi Family	Cool Central	Wall Insulation 2x6 (WY) zero to code	R-21	R-0	Per installation	Existing	165	30	\$1,107	75%	25%	\$0.64	28
Wyoming	Multi Family	Cool Central	Whole-House Fan	Whole-House Fan	No Whole-House Fan	Per installation	Existing	61	20	\$1,284	50%	95%	\$2.32	66
Wyoming	Multi Family	Cool Central	Windows (Same for all Building Types)	CL25	CL30	Per installation	Existing	0.70	30	\$239	51%	85%	\$32.93	0.79

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Wyoming	Multi Family	Cool Central	Windows (Same for all Building Types)	CL30	Double Pane	Per installation	Existing	7	30	\$2,465	51%	50%	\$31.75	5
Wyoming	Multi Family	Cool Central	Windows (Same for all Building Types)	CL30	Single Pane	Per installation	Existing	11	30	\$2,465	51%	20%	\$20.26	3
Wyoming	Multi Family	Cool Central	Air-to-Air Heat Exchangers	Air-to-Air Heat Exchangers	No Air to Air Heat Exchangers	Per installation	New	33	5	\$531	25%	95%	\$4.45	14
Wyoming	Multi Family	Cool Central	Ceiling Fan	Ceiling Fan (no lighting kit)	No Ceiling Fan	Per installation	New	13	10	\$81	85%	50%	\$1.00	20
Wyoming	Multi Family	Cool Central	Ceiling Insulation (WY) above code	R-60	R-49	Per installation	New	6	30	\$161	90%	95%	\$2.43	7
Wyoming	Multi Family	Cool Central	Central Cooling, SEER 15	SEER 15	SEER 13	Per installation	New	71	15	\$595	100%	N/A	\$1.08	2
Wyoming	Multi Family	Cool Central	Central Cooling, SEER 18	SEER 18	SEER 13	Per installation	New	178	15	\$1,490	100%	N/A	\$1.08	63
Wyoming	Multi Family	Cool Central	Check Me! O&M Tune-up	Tune-up/Maintenance	No Tune-up Maintenance	Per installation	New	10	5	\$152	95%	75%	\$4.07	13
Wyoming	Multi Family	Cool Central	Construction - ICF	Concrete Framing	Standard Wood Framing	Per installation	New	108	45	\$3,390	50%	95%	\$2.78	3
Wyoming	Multi Family	Cool Central	Construction - SIP	Specialty Framing	Standard Wood Framing	Per installation	New	40	45	\$1,550	50%	95%	\$3.38	1
Wyoming	Multi Family	Cool Central	Cool Roofs	Lighter Colored Shingles (White)	Standard Roof Shingles	Per installation	New	4	20	\$138	85%	95%	\$3.73	3
Wyoming	Multi Family	Cool Central	Doors	R-11 (Steel Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	New	7	20	\$25	95%	80%	\$0.38	4
Wyoming	Multi Family	Cool Central	Doors	R-5 (Composite Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	New	4	20	\$54	95%	60%	\$1.23	1
Wyoming	Multi Family	Cool Central	Duct Location	Conditioned Space Design - Duct Loss Is Not A Concern	Ducts in Unconditioned Space (Duct loss)	Per installation	New	27	30	\$168	95%	30%	\$0.60	2
Wyoming	Multi Family	Cool Central	Duct Sealing	Duct Sealing	No Duct Sealing	Per installation	New	33	18	\$210	75%	60%	\$0.73	7
Wyoming	Multi Family	Cool Central	Duct Sealing - Aerosol-Based	Spray-in ductwork sealant to minimize duct leaks	No Duct Sealing	Per installation	New	50	18	\$657	75%	60%	\$1.52	4
Wyoming	Multi Family	Cool Central	Floor Insulation (WY) above code	R-38	R-21	Per installation	New	0.33	30	\$503	75%	85%	\$143.26	0.25
Wyoming	Multi Family	Cool Central	Green Roof	ecorooF	Standard Roof	Per installation	New	17	40	\$6,621	50%	95%	\$34.69	1
Wyoming	Multi Family	Cool Central	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands (5 per unit)	13 SEER	Per installation	New	51	30	\$540	50%	95%	\$1.01	8
Wyoming	Multi Family	Cool Central	Proper Sizing - HVAC Unit	Proper Sizing - HVAC Unit	Oversized HVAC Unit	Per installation	New	31	15	\$-50.6	95%	65%	\$-0.21	34
Wyoming	Multi Family	Cool Central	Radiant Barrier (Ceiling)	Install Radiant Barrier	No Radiant Barrier	Per installation	New	20	30	\$269	75%	90%	\$1.28	19
Wyoming	Multi Family	Cool Central	Smart Siting	Siting house to minimize heating/cooling costs	No smart siting	Per installation	New	18	45	\$592	40%	75%	\$2.82	7
Wyoming	Multi Family	Cool Central	Thermostat - Multi-Zone	Individual Room Temperature Control for Major Occupied Rooms	Programmable Thermostat - Central Control Only	Per installation	New	23	11	\$1,045	50%	95%	\$7.11	13
Wyoming	Multi Family	Cool Central	Wall Insulation 2x6 (WY) above code	R-21+R-5 sheathing	R-21	Per installation	New	17	30	\$565	50%	95%	\$3.10	9
Wyoming	Multi Family	Cool Central	Whole-House Fan	Whole-House Fan	No Whole-House Fan	Per installation	New	50	20	\$1,284	50%	95%	\$2.83	21
Wyoming	Multi Family	Cool Central	Windows (Same for all Building Types)	CL22	CL30	Per installation	New	1	30	\$277	95%	75%	\$22.68	0.99
Wyoming	Multi Family	Cool Central	Windows (Same for all Building Types)	CL25	CL30	Per installation	New	0.79	30	\$239	95%	75%	\$28.97	0.67
Wyoming	Multi Family	Cool Room	Canned Lighting Air Tight Sealing	Canned Lighting Air Tight Sealing	No Air tight Sealing	Per installation	Existing	2	30	\$23	95%	50%	\$1.12	5
Wyoming	Multi Family	Cool Room	Ceiling Fan	Ceiling Fan (no lighting kit)	No Ceiling Fan	Per installation	Existing	12	10	\$81	85%	50%	\$1.13	19
Wyoming	Multi Family	Cool Room	Ceiling Insulation (WY) above code	R-60	R-49	Per installation	Existing	4	30	\$161	75%	95%	\$3.69	4
Wyoming	Multi Family	Cool Room	Ceiling Insulation (WY) ave to code	R-49	R-12	Per installation	Existing	45	30	\$740	75%	35%	\$1.57	19
Wyoming	Multi Family	Cool Room	Ceiling Insulation (WY) zero to code	R-49	R-0	Per installation	Existing	127	30	\$740	95%	1%	\$0.56	2
Wyoming	Multi Family	Cool Room	Cool Roofs	Lighter Colored Shingles (White)	Standard Roof Shingles	Per installation	Existing	3	20	\$138	85%	95%	\$4.21	4
Wyoming	Multi Family	Cool Room	Doors	R-11 (Steel Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	Existing	6	20	\$161	95%	80%	\$2.77	3

Table C.2.1. Residential Measure Details

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Wyoming	Multi Family	Cool Room	Doors	R-5 (Composite Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	Existing	4	20	\$190	95%	60%	\$4.89	1
Wyoming	Multi Family	Cool Room	Doors - Weatherization	Weatherstripping And Adding Door Sweeps	Existing Non-Efficient door	Per installation	Existing	2	6	\$43	95%	50%	\$3.77	2
Wyoming	Multi Family	Cool Room	Floor Insulation (WY) above code	R-38	R-21	Per installation	Existing	0.30	30	\$503	25%	85%	\$161.56	0.09
Wyoming	Multi Family	Cool Room	Floor Insulation (WY) zero to code	R-21	R-0	Per installation	Existing	120	30	\$557	25%	20%	\$0.44	11
Wyoming	Multi Family	Cool Room	Infiltration Control (Caulk, Weather Strip, etc.) Blower-Door test	Install Caulking And Weatherstripping	Existing Infiltration Conditions	Per installation	Existing	30	11	\$339	75%	50%	\$1.77	17
Wyoming	Multi Family	Cool Room	Radiant Barrier (Ceiling)	Install Radiant Barrier	No Radiant Barrier	Per installation	Existing	18	30	\$269	50%	90%	\$1.44	13
Wyoming	Multi Family	Cool Room	Room AC conversion to Ductless Heat Pump	SEER 13	EER 9.8	Per installation	Existing	18	20	\$2,514	75%	N/A	\$15.55	43
Wyoming	Multi Family	Cool Room	Room AC, EER 10.8	EER 10.8	EER 9.8	Per installation	Existing	14	9	\$7	100%	N/A	\$0.09	8
Wyoming	Multi Family	Cool Room	Wall Insulation 2x4 (WY) zero to max feasible	R-13	R-0	Per installation	Existing	72	30	\$948	85%	25%	\$1.27	20
Wyoming	Multi Family	Cool Room	Wall Insulation 2x6 (WY) zero to code	R-21	R-0	Per installation	Existing	123	30	\$1,107	75%	25%	\$0.87	10
Wyoming	Multi Family	Cool Room	Windows (Same for all Building Types)	CL25	CL30	Per installation	Existing	0.52	30	\$239	51%	85%	\$43.92	0.32
Wyoming	Multi Family	Cool Room	Windows (Same for all Building Types)	CL30	Double Pane	Per installation	Existing	5	30	\$2,465	51%	50%	\$42.34	2
Wyoming	Multi Family	Cool Room	Windows (Same for all Building Types)	CL30	Single Pane	Per installation	Existing	8	30	\$2,465	51%	20%	\$27.01	1
Wyoming	Multi Family	Cool Room	Ceiling Fan	Ceiling Fan (no lighting kit)	No Ceiling Fan	Per installation	New	10	10	\$81	85%	50%	\$1.36	6
Wyoming	Multi Family	Cool Room	Ceiling Insulation (WY) above code	R-60	R-49	Per installation	New	4	30	\$161	90%	95%	\$3.20	2
Wyoming	Multi Family	Cool Room	Construction - ICF	Concrete Framing	Standard Wood Framing	Per installation	New	80	45	\$3,390	50%	95%	\$3.76	1
Wyoming	Multi Family	Cool Room	Construction - SIP	Specialty Framing	Standard Wood Framing	Per installation	New	30	45	\$1,550	50%	95%	\$4.58	0.46
Wyoming	Multi Family	Cool Room	Cool Roofs	Lighter Colored Shingles (White)	Standard Roof Shingles	Per installation	New	3	20	\$138	85%	95%	\$5.06	1
Wyoming	Multi Family	Cool Room	Doors	R-11 (Steel Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	New	5	20	\$25	95%	80%	\$0.51	1
Wyoming	Multi Family	Cool Room	Doors	R-5 (Composite Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	New	3	20	\$54	95%	60%	\$1.66	0.75
Wyoming	Multi Family	Cool Room	Floor Insulation (WY) above code	R-38	R-21	Per installation	New	0.25	30	\$503	75%	85%	\$193.97	0.10
Wyoming	Multi Family	Cool Room	Green Roof	ecorooF	Standard Roof	Per installation	New	12	40	\$6,621	50%	95%	\$46.97	0.77
Wyoming	Multi Family	Cool Room	Radiant Barrier (Ceiling)	Install Radiant Barrier	No Radiant Barrier	Per installation	New	15	30	\$269	75%	90%	\$1.73	7
Wyoming	Multi Family	Cool Room	Room AC conversion to Ductless Heat Pump	SEER 13	EER 9.8	Per installation	New	15	20	\$2,514	75%	N/A	\$17.95	7
Wyoming	Multi Family	Cool Room	Room AC, EER 10.8	EER 10.8	EER 9.8	Per installation	New	12	9	\$7	100%	N/A	\$0.10	2
Wyoming	Multi Family	Cool Room	Smart Siting	Siting house to minimize heating/cooling costs	No smart siting	Per installation	New	13	45	\$592	40%	75%	\$3.82	2
Wyoming	Multi Family	Cool Room	Wall Insulation 2x6 (WY) above code	R-21+R-5 sheathing	R-21	Per installation	New	13	30	\$565	50%	95%	\$4.11	3
Wyoming	Multi Family	Cool Room	Windows (Same for all Building Types)	CL22	CL30	Per installation	New	0.90	30	\$277	95%	75%	\$29.45	0.41
Wyoming	Multi Family	Cool Room	Windows (Same for all Building Types)	CL25	CL30	Per installation	New	0.60	30	\$239	95%	75%	\$38.00	0.27
Wyoming	Multi Family	Dryer	Dryer, Advanced Efficiency EF 3.30	Advanced Efficiency Dryer 3.30	Standard Dryer EF 3.01	Per installation	Existing	38	14	\$224	100%	N/A	\$0.79	251
Wyoming	Multi Family	Dryer	Dryer, High Efficiency EF 3.08	High Efficiency Dryer EF 3.08	Standard Dryer EF 3.01	Per installation	Existing	9	14	\$54	100%	N/A	\$0.74	4
Wyoming	Multi Family	Dryer	Dryer, Premium Efficiency EF 3.19	Premium Efficiency Dryer 3.19	Standard Dryer EF 3.01	Per installation	Existing	24	14	\$139	100%	N/A	\$0.76	32
Wyoming	Multi Family	Dryer	Dryer, Advanced Efficiency EF 3.30	Advanced Efficiency Dryer 3.30	Standard Dryer EF 3.01	Per installation	New	38	14	\$224	100%	N/A	\$0.79	67

Table C.2.1. Residential Measure Details

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Wyoming	Multi Family	Dryer	Dryer, High Efficiency EF 3.08	High Efficiency Dryer EF 3.08	Standard Dryer EF 3.01	Per installation	New	9	14	\$54	100%	N/A	\$0.74	1
Wyoming	Multi Family	Dryer	Dryer, Premium Efficiency EF 3.19	Premium Efficiency Dryer 3.19	Standard Dryer EF 3.01	Per installation	New	24	14	\$139	100%	N/A	\$0.76	10
Wyoming	Multi Family	Freezer	Freezer, Energy Star	Energy Star Freezer	Standard Freezer	Per installation	Existing	46	20	\$22	76%	N/A	\$0.05	27
Wyoming	Multi Family	Freezer	Stand-Alone Freezer - Removal	Proper Disposal of Freezer	Existing Non-Efficient Freezer	Per installation	Existing	1,386	8	\$74	17%	**%	\$0.01	198
Wyoming	Multi Family	Freezer	Freezer, Energy Star	Energy Star Freezer	Standard Freezer	Per installation	New	46	20	\$22	76%	N/A	\$0.05	23
Wyoming	Multi Family	Heat Room	Canned Lighting Air Tight Sealing	Canned Lighting Air Tight Sealing	No Air tight Sealing	Per installation	Existing	82	30	\$23	95%	50%	\$0.03	558
Wyoming	Multi Family	Heat Room	Ceiling Insulation (WY) above code	R-60	R-49	Per installation	Existing	173	30	\$161	75%	95%	\$0.09	494
Wyoming	Multi Family	Heat Room	Ceiling Insulation (WY) ave to code	R-49	R-12	Per installation	Existing	1,881	30	\$740	75%	35%	\$0.04	2,193
Wyoming	Multi Family	Heat Room	Ceiling Insulation (WY) zero to code	R-49	R-0	Per installation	Existing	5,239	30	\$740	95%	1%	\$0.01	244
Wyoming	Multi Family	Heat Room	Conversion Baseboard Heating to DHP	Ductless Heat Pump HSPF 7.7	HSPF = 1	Per installation	Existing	1,285	20	\$2,326	90%	N/A	\$0.20	5,824
Wyoming	Multi Family	Heat Room	Doors	R-11 (Steel Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	Existing	270	20	\$161	95%	80%	\$0.07	414
Wyoming	Multi Family	Heat Room	Doors	R-5 (Composite Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	Existing	180	20	\$190	95%	60%	\$0.12	200
Wyoming	Multi Family	Heat Room	Doors - Weatherization	Weatherstripping And Adding Door Sweeps	Existing Non-Efficient door	Per installation	Existing	117	6	\$43	95%	50%	\$0.09	218
Wyoming	Multi Family	Heat Room	Floor Insulation (WY) above code	R-38	R-21	Per installation	Existing	9	30	\$503	25%	85%	\$5.39	7
Wyoming	Multi Family	Heat Room	Floor Insulation (WY) zero to code	R-21	R-0	Per installation	Existing	4,985	30	\$557	25%	20%	\$0.01	1,258
Wyoming	Multi Family	Heat Room	Infiltration Control (Caulk, Weather Strip, etc.) Blower-Door test	Install Caulking And Weatherstripping	Existing Infiltration Conditions	Per installation	Existing	900	11	\$339	75%	50%	\$0.06	1,416
Wyoming	Multi Family	Heat Room	Radiant Barrier (Ceiling)	Install Radiant Barrier	No Radiant Barrier	Per installation	Existing	180	30	\$269	50%	90%	\$0.14	315
Wyoming	Multi Family	Heat Room	Wall Insulation 2x4 (WY) zero to max feasible	R-13	R-0	Per installation	Existing	2,973	30	\$948	85%	25%	\$0.03	2,221
Wyoming	Multi Family	Heat Room	Wall Insulation 2x6 (WY) zero to code	R-21	R-0	Per installation	Existing	5,077	30	\$1,107	75%	25%	\$0.02	1,161
Wyoming	Multi Family	Heat Room	Windows (Same for all Building Types)	CL25	CL30	Per installation	Existing	21	30	\$239	51%	85%	\$1.07	35
Wyoming	Multi Family	Heat Room	Windows (Same for all Building Types)	CL30	Double Pane	Per installation	Existing	231	30	\$2,465	51%	50%	\$1.03	224
Wyoming	Multi Family	Heat Room	Windows (Same for all Building Types)	CL30	Single Pane	Per installation	Existing	362	30	\$2,465	51%	20%	\$0.66	141
Wyoming	Multi Family	Heat Room	Ceiling Insulation (WY) above code	R-60	R-49	Per installation	New	160	30	\$161	90%	95%	\$0.10	258
Wyoming	Multi Family	Heat Room	Construction - ICF	Concrete Framing	Standard Wood Framing	Per installation	New	2,641	45	\$3,390	50%	95%	\$0.11	115
Wyoming	Multi Family	Heat Room	Construction - SIP	Specialty Framing	Standard Wood Framing	Per installation	New	720	45	\$1,550	50%	95%	\$0.19	30
Wyoming	Multi Family	Heat Room	Conversion Baseboard Heating to DHP	Ductless Heat Pump HSPF 7.7	HSPF = 1	Per installation	New	857	20	\$2,326	90%	N/A	\$0.30	2,054
Wyoming	Multi Family	Heat Room	Doors	R-11 (Steel Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	New	180	20	\$25	95%	80%	\$0.02	131
Wyoming	Multi Family	Heat Room	Doors	R-5 (Composite Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	New	120	20	\$54	95%	60%	\$0.05	64
Wyoming	Multi Family	Heat Room	Floor Insulation (WY) above code	R-38	R-21	Per installation	New	6	30	\$503	75%	85%	\$8.08	6
Wyoming	Multi Family	Heat Room	Green Roof	ecorooF	Standard Roof	Per installation	New	420	40	\$6,621	50%	95%	\$1.42	68
Wyoming	Multi Family	Heat Room	Radiant Barrier (Ceiling)	Install Radiant Barrier	No Radiant Barrier	Per installation	New	120	30	\$269	75%	90%	\$0.22	142
Wyoming	Multi Family	Heat Room	Smart Siting	Siting house to minimize heating/cooling costs	No smart siting	Per installation	New	18	45	\$592	40%	75%	\$2.82	9
Wyoming	Multi Family	Heat Room	Wall Insulation 2x6 (WY) above code	R-21+R-5 sheathing	R-21	Per installation	New	437	30	\$565	50%	95%	\$0.12	340

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Wyoming	Multi Family	Heat Room	Windows (Same for all Building Types)	CL22	CL30	Per installation	New	29	30	\$277	95%	75%	\$0.89	37
Wyoming	Multi Family	Heat Room	Windows (Same for all Building Types)	CL25	CL30	Per installation	New	20	30	\$239	95%	75%	\$1.15	24
Wyoming	Multi Family	Lighting Exterior	CFL, Flood (17 W)	CFL, Flood	Standard Incandescent Flood	Per installation	Existing	53	5	\$0.91	100%	N/A	\$0.00	23
Wyoming	Multi Family	Lighting Exterior	Time Clocks (Exterior Lighting)	Exterior Lighting on a Time Clock	Exterior Lighting (Manual Control)	Per installation	Existing	25	10	\$16	80%	85%	\$0.11	20
Wyoming	Multi Family	Lighting Exterior	CFL, Flood (17 W)	CFL, Flood	Standard Incandescent Flood	Per installation	New	53	5	\$0.91	100%	N/A	\$0.00	1
Wyoming	Multi Family	Lighting Exterior	Time Clocks (Exterior Lighting)	Exterior Lighting on a Time Clock	Exterior Lighting (Manual Control)	Per installation	New	25	10	\$16	80%	85%	\$0.11	8
Wyoming	Multi Family	Lighting Interior Specialty	CFL (13 W, 20 W, 25 W)	CFL (3-Way)	Standard Incandescent (3-Way)	Per installation	Existing	43	5	\$3	100%	N/A	\$0.02	794
Wyoming	Multi Family	Lighting Interior Specialty	CFL (13 W, 20 W, 25 W)	CFL (3-Way)	Standard Incandescent (3-Way)	Per installation	New	43	5	\$3	100%	N/A	\$0.02	27
Wyoming	Multi Family	Lighting Interior Standard	Daylighting Controls (Photocell) - Indoor/Outdoors	Install Photocell	No Daylighting Controls	Per installation	Existing	23	20	\$135	25%	95%	\$0.65	5
Wyoming	Multi Family	Lighting Interior Standard	Lighting CFL 15 W	15 W CFL	Standard 60 W Incandescent	Per installation	Existing	40	5	\$2	100%	N/A	\$0.02	371
Wyoming	Multi Family	Lighting Interior Standard	Lighting LED 7 W	7 W LED	Standard 60 W Incandescent	Per installation	Existing	51	20	\$36	50%	N/A	\$0.08	2,843
Wyoming	Multi Family	Lighting Interior Standard	Occupancy Sensors	Wall-Switch Occupancy Sensors	No Occupancy Sensor	Per installation	Existing	5	10	\$29	85%	95%	\$0.84	105
Wyoming	Multi Family	Lighting Interior Standard	Daylighting Controls (Photocell) - Indoor/Outdoors	Install Photocell	No Daylighting Controls	Per installation	New	23	20	\$135	25%	95%	\$0.65	2
Wyoming	Multi Family	Lighting Interior Standard	Lighting CFL 15 W	15 W CFL	Standard 60 W Incandescent	Per installation	New	40	5	\$2	100%	N/A	\$0.02	18
Wyoming	Multi Family	Lighting Interior Standard	Lighting LED 7 W	7 W LED	Standard 60 W Incandescent	Per installation	New	51	20	\$36	50%	N/A	\$0.08	114
Wyoming	Multi Family	Lighting Interior Standard	Occupancy Sensors	Wall-Switch Occupancy Sensors	No Occupancy Sensor	Per installation	New	5	10	\$29	85%	95%	\$0.84	44
Wyoming	Multi Family	Microwave	Microwave, High Efficiency	High Efficiency Microwave	Standard Microwave	Per installation	Existing	9	15	\$79	100%	N/A	\$1.05	81
Wyoming	Multi Family	Microwave	Microwave, High Efficiency	High Efficiency Microwave	Standard Microwave	Per installation	New	9	15	\$79	100%	N/A	\$1.05	27
Wyoming	Multi Family	Monitor	Monitor, Energy Star	Energy Star Monitor	Standard Monitor	Per installation	Existing	36	5	\$3	100%	N/A	\$0.03	231
Wyoming	Multi Family	Monitor	Monitor, Energy Star	Energy Star Monitor	Standard Monitor	Per installation	New	36	5	\$3	100%	N/A	\$0.03	21
Wyoming	Multi Family	Plug Load Other	1-Watt Standby Power	1W or less standby power use for small appliances	Standard plug load appliance.	Per installation	Existing	17	7	\$30	50%	50%	\$0.37	287
Wyoming	Multi Family	Plug Load Other	Energy Star Battery Chargers	Energy Star Battery Chargers	Standard Battery Chargers	Per installation	Existing	0.91	7	\$33	50%	80%	\$8.06	52
Wyoming	Multi Family	Plug Load Other	Office Copier	Office Copier	Standard Copier	Per installation	Existing	39	6	\$5	10%	50%	\$0.03	28
Wyoming	Multi Family	Plug Load Other	Office Printer	Office Printer	Standard Printer	Per installation	Existing	5	5	\$5	20%	50%	\$0.28	7
Wyoming	Multi Family	Plug Load Other	Smart Strip	Smart Strip	Standard PowerStrip	Per installation	Existing	102	5	\$22	50%	85%	\$0.06	618
Wyoming	Multi Family	Plug Load Other	1-Watt Standby Power	1W or less standby power use for small appliances	Standard plug load appliance.	Per installation	New	17	7	\$30	50%	50%	\$0.37	106
Wyoming	Multi Family	Plug Load Other	Energy Star Battery Chargers	Energy Star Battery Chargers	Standard Battery Chargers	Per installation	New	0.91	7	\$2	50%	80%	\$0.61	19
Wyoming	Multi Family	Plug Load Other	Office Copier	Office Copier	Standard Copier	Per installation	New	38	6	\$5	10%	50%	\$0.03	10
Wyoming	Multi Family	Plug Load Other	Office Printer	Office Printer	Standard Printer	Per installation	New	4	5	\$5	20%	50%	\$0.29	2
Wyoming	Multi Family	Plug Load Other	Smart Strip	Smart Strip	Standard PowerStrip	Per installation	New	100	5	\$22	50%	85%	\$0.06	229
Wyoming	Multi Family	Refrigerator	Refrigerator, Energy Star	Energy Star Refrigerator	Standard Refrigerator	Per installation	Existing	122	20	\$15	96%	N/A	\$0.01	376
Wyoming	Multi Family	Refrigerator	Refrigerator/Freezer - Removal of Secondary	Proper Disposal of Refrigerator/Freezer	Existing Non-Efficient Refrigerator/Freezer	Per installation	Existing	1,399	9	\$76	3%	99%	\$0.01	100

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Wyoming	Multi Family	Refrigerator	Refrigerator, Energy Star	Energy Star Refrigerator	Standard Refrigerator	Per installation	New	122	20	\$15	100%	N/A	\$0.01	187
Wyoming	Multi Family	Set Top Box	Set Top Box, Energy Star	Energy Star Set Top Box	Standard Set Top Box	Per installation	Existing	164	5	\$12	100%	N/A	\$0.02	903
Wyoming	Multi Family	Set Top Box	Set Top Box, Energy Star	Energy Star Set Top Box	Standard Set Top Box	Per installation	New	164	5	\$12	100%	N/A	\$0.02	75
Wyoming	Multi Family	Tv	TV CRT, Energy Star	Energy Star CRT TV	Standard CRT TV	Per installation	Existing	112	10	\$19	100%	N/A	\$0.03	1,578
Wyoming	Multi Family	Tv	TV CRT, Energy Star	Energy Star CRT TV	Standard CRT TV	Per installation	New	112	10	\$19	100%	N/A	\$0.03	321
Wyoming	Multi Family	Tv Bigscreen	TV LCD, Energy Star	Energy Star LCD TV	Standard LCD TV	Per installation	Existing	223	10	\$19	100%	N/A	\$0.01	327
Wyoming	Multi Family	Tv Bigscreen	TV LCD, Energy Star	Energy Star LCD TV	Standard LCD TV	Per installation	New	223	10	\$19	100%	N/A	\$0.01	66
Wyoming	Multi Family	Ventilation And Circulation	Motor, ECM	ECM Motor	Standard Motor	Per installation	Existing	56	20	\$172	50%	N/A	\$0.34	62
Wyoming	Multi Family	Ventilation And Circulation	Motor, ECM - VFD	ECMVFD Motor	Standard Motor	Per installation	Existing	170	20	\$194	50%	N/A	\$0.13	188
Wyoming	Multi Family	Ventilation And Circulation	Motor, ECM	ECM Motor	Standard Motor	Per installation	New	45	20	\$172	50%	N/A	\$0.42	23
Wyoming	Multi Family	Ventilation And Circulation	Motor, ECM - VFD	ECMVFD Motor	Standard Motor	Per installation	New	136	20	\$194	50%	N/A	\$0.16	70
Wyoming	Multi Family	Water Heat	Clothes Washer	Energy Star - Tier 1 (MEF 2.0 - 2.19) - Electric DHW & Dryer	MEF = 1.66 - Electric DHW & Dryer	Per installation	Existing	112	14	\$227	82%	89%	\$-0.27	174
Wyoming	Multi Family	Water Heat	Clothes Washer	Energy Star - Tier 2 (MEF 2.2 - 2.45) - Electric DHW & Dryer	MEF = 1.66 - Electric DHW & Dryer	Per installation	Existing	149	14	\$296	82%	95%	\$-0.25	248
Wyoming	Multi Family	Water Heat	Clothes Washer	Energy Star - Tier 3 (MEF 2.46 or higher) Top 10% of Energy Star Model - Electric DHW & Dryer	MEF = 1.66 - Electric DHW & Dryer	Per installation	Existing	170	14	\$317	82%	99%	\$-0.23	294
Wyoming	Multi Family	Water Heat	Dishwasher	Energy Star, July 1st 2011, <= 307 kWh/year , <= 5.0 gallons/cycle	Energy Star - EF65 (6th Plan Baseline)	Per installation	Existing	33	12	\$42	73%	50%	\$0.17	76
Wyoming	Multi Family	Water Heat	Drain Water Heat Recovery (GFX)	Gravity Film Heat Exchanger	No Heat Exchanger	Per installation	Existing	374	40	\$498	29%	90%	\$0.12	490
Wyoming	Multi Family	Water Heat	Faucet Aerators	0.5 GPM	2.2 GPM	Per installation	Existing	82	9	\$0.71	95%	95%	\$-0.08	474
Wyoming	Multi Family	Water Heat	Faucet Aerators	1.5 GPM	2.2 GPM	Per installation	Existing	34	9	\$0.46	95%	65%	\$-0.08	134
Wyoming	Multi Family	Water Heat	Faucet Aerators	2.2 GPM	Existing Faucet Aerator (3.0 GPM)	Per installation	Existing	38	9	\$1	95%	25%	\$-0.07	115
Wyoming	Multi Family	Water Heat	Hot Water Pipe Insulation	R-4 Wrap	No insulation	Per installation	Existing	40	5	\$17	95%	75%	\$0.13	132
Wyoming	Multi Family	Water Heat	Low-Flow Showerheads	2.0 GPM	2.5 GPM	Per installation	Existing	112	10	\$16	95%	65%	\$-0.06	443
Wyoming	Multi Family	Water Heat	Water Heater, Storage EF 0.95	Standard Storage Water Heater EF = 0.95	Standard Storage Water Heater EF = 0.92	Per installation	Existing	49	15	\$41	100%	N/A	\$0.11	14
Wyoming	Multi Family	Water Heat	Water_Heater Tank Blanket/Insulation	Install Insulation (R-5)	No Tank Insulation	Per installation	Existing	99	10	\$11	50%	20%	\$0.02	49
Wyoming	Multi Family	Water Heat	Water_Heater Thermostat Setback	120 degrees	135 degrees	Per installation	Existing	92	5	\$6	95%	45%	\$0.02	201
Wyoming	Multi Family	Water Heat	Clothes Washer	Energy Star - Tier 1 (MEF 2.0 - 2.19) - Electric DHW & Dryer	MEF = 1.66 - Electric DHW & Dryer	Per installation	New	110	14	\$227	82%	89%	\$-0.28	66
Wyoming	Multi Family	Water Heat	Clothes Washer	Energy Star - Tier 2 (MEF 2.2 - 2.45) - Electric DHW & Dryer	MEF = 1.66 - Electric DHW & Dryer	Per installation	New	146	14	\$296	82%	95%	\$-0.25	94
Wyoming	Multi Family	Water Heat	Clothes Washer	Energy Star - Tier 3 (MEF 2.46 or higher) Top 10% of Energy Star Model - Electric DHW & Dryer	MEF = 1.66 - Electric DHW & Dryer	Per installation	New	167	14	\$317	82%	99%	\$-0.23	112
Wyoming	Multi Family	Water Heat	Dishwasher	Energy Star, July 1st 2011, <= 307 kWh/year , <= 5.0 gallons/cycle	Energy Star - EF65 (6th Plan Baseline)	Per installation	New	32	12	\$42	73%	50%	\$0.17	29
Wyoming	Multi Family	Water Heat	Drain Water Heat Recovery (GFX)	Gravity Film Heat Exchanger	No Heat Exchanger	Per installation	New	372	40	\$438	59%	90%	\$0.11	389
Wyoming	Multi Family	Water Heat	Faucet Aerators	0.5 GPM	2.2 GPM	Per installation	New	80	9	\$0.71	95%	95%	\$-0.08	180
Wyoming	Multi Family	Water Heat	Faucet Aerators	1.5 GPM	2.2 GPM	Per installation	New	33	9	\$0.46	95%	65%	\$-0.08	51
Wyoming	Multi Family	Water Heat	Hot Water Pipe Insulation	R-4 Wrap	No insulation	Per installation	New	39	5	\$17	95%	75%	\$0.13	48
Wyoming	Multi Family	Water Heat	Low-Flow Showerheads	2.0 GPM	2.5 GPM	Per installation	New	110	10	\$9	95%	65%	\$-0.07	169

Table C.2.1. Residential Measure Details

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Wyoming	Multi Family	Water Heat	Water Heater, Storage EF 0.95	Standard Storage Water Heater	Standard Storage Water Heater EF = 0.92	Per installation	New	49	15	\$41	100%	N/A	\$0.11	4
Wyoming	Multi Family	Water Heat	Water_Heater Thermostat Setback	120 degrees	135 degrees	Per installation	New	91	5	\$6	95%	45%	\$0.02	79
Wyoming	Single Family	Computer	Computer, Energy Star	Energy Star Computer	Standard Computer	Per installation	Existing	46	5	\$21	100%	N/A	\$0.13	4,641
Wyoming	Single Family	Computer	Computer, Energy Star	Energy Star Computer	Standard Computer	Per installation	New	46	5	\$21	100%	N/A	\$0.13	344
Wyoming	Single Family	Cooking Oven	Cooking Oven, High Efficiency	High Efficiency Oven	Standard Oven	Per installation	Existing	58	20	\$282	100%	N/A	\$0.55	1,525
Wyoming	Single Family	Cooking Oven	Cooking Oven, High Efficiency	High Efficiency Oven	Standard Oven	Per installation	New	58	20	\$282	100%	N/A	\$0.55	564
Wyoming	Single Family	Cool Central	Air-to-Air Heat Exchangers	Air-to-Air Heat Exchangers	No Air to Air Heat Exchangers	Per installation	Existing	65	5	\$531	50%	95%	\$2.29	1,803
Wyoming	Single Family	Cool Central	Canned Lighting Air Tight Sealing	Canned Lighting Air Tight Sealing	No Air tight Sealing	Per installation	Existing	1	30	\$23	95%	50%	\$1.36	244
Wyoming	Single Family	Cool Central	Ceiling Fan	Ceiling Fan (no lighting kit)	No Ceiling Fan	Per installation	Existing	17	10	\$81	85%	50%	\$0.77	1,290
Wyoming	Single Family	Cool Central	Ceiling Insulation (WY) above code	R-60	R-49	Per installation	Existing	8	30	\$512	75%	95%	\$5.49	212
Wyoming	Single Family	Cool Central	Ceiling Insulation (WY) ave to code	R-49	R-12	Per installation	Existing	97	30	\$2,348	75%	35%	\$2.31	965
Wyoming	Single Family	Cool Central	Ceiling Insulation (WY) zero to code	R-49	R-0	Per installation	Existing	272	30	\$2,348	95%	1%	\$0.83	114
Wyoming	Single Family	Cool Central	Central Cooling, SEER 15	SEER 15	SEER 13	Per installation	Existing	98	15	\$595	100%	N/A	\$0.78	105
Wyoming	Single Family	Cool Central	Central Cooling, SEER 18	SEER 18	SEER 13	Per installation	Existing	246	15	\$1,490	100%	N/A	\$0.78	2,874
Wyoming	Single Family	Cool Central	Check Me! O&M Tune-up	Tune-up/Maintenance	No Tune-up Maintenance	Per installation	Existing	20	5	\$152	95%	75%	\$2.09	844
Wyoming	Single Family	Cool Central	Cool Roofs	Lighter Colored Shingles (White)	Standard Roof Shingles	Per installation	Existing	8	20	\$418	85%	95%	\$5.80	214
Wyoming	Single Family	Cool Central	Doors	R-11 (Steel Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	Existing	7	20	\$161	95%	80%	\$2.52	197
Wyoming	Single Family	Cool Central	Doors	R-5 (Composite Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	Existing	4	20	\$190	95%	60%	\$4.46	91
Wyoming	Single Family	Cool Central	Doors - Weatherization	Weatherstripping And Adding Door Sweeps	Existing Non-Efficient door	Per installation	Existing	3	6	\$43	95%	50%	\$3.44	104
Wyoming	Single Family	Cool Central	Duct Insulation Upgrade	R-8 (code)	R-4	Per installation	Existing	19	20	\$534	75%	75%	\$3.12	386
Wyoming	Single Family	Cool Central	Duct Sealing	Duct Sealing	No Duct Sealing	Per installation	Existing	65	18	\$580	75%	60%	\$1.04	769
Wyoming	Single Family	Cool Central	Duct Sealing - Aerosol-Based	Spray-in ductwork sealant to minimize duct leaks	No Duct Sealing	Per installation	Existing	98	18	\$657	75%	60%	\$0.78	600
Wyoming	Single Family	Cool Central	Floor Insulation (WY) above code	R-38	R-21	Per installation	Existing	0.65	30	\$1,594	25%	85%	\$233.37	4
Wyoming	Single Family	Cool Central	Floor Insulation (WY) zero to code	R-21	R-0	Per installation	Existing	204	30	\$1,767	25%	20%	\$0.83	449
Wyoming	Single Family	Cool Central	Infiltration Control (Caulk, Weather Strip, etc.) Blower-Door test	Install Caulking And Weatherstripping	Existing Infiltration Conditions	Per installation	Existing	65	11	\$465	75%	50%	\$1.11	1,001
Wyoming	Single Family	Cool Central	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands (5 per unit)	13 SEER	Per installation	Existing	100	30	\$540	50%	95%	\$0.52	220
Wyoming	Single Family	Cool Central	Proper Sizing - HVAC Unit	Proper Sizing - HVAC Unit	Oversized HVAC Unit	Per installation	Existing	62	15	\$-50.6	95%	65%	\$-0.11	2,210
Wyoming	Single Family	Cool Central	Radiant Barrier (Ceiling)	Install Radiant Barrier	No Radiant Barrier	Per installation	Existing	39	30	\$854	50%	90%	\$2.09	687
Wyoming	Single Family	Cool Central	Thermostat - Multi-Zone	Individual Room Temperature Control for Major Occupied Rooms	Programmable Thermostat - Central Control Only	Per installation	Existing	44	11	\$1,233	75%	95%	\$4.31	1,119
Wyoming	Single Family	Cool Central	Wall Insulation 2x4 (WY) zero to max feasible	R-13	R-0	Per installation	Existing	154	30	\$1,689	85%	25%	\$1.05	1,039
Wyoming	Single Family	Cool Central	Wall Insulation 2x6 (WY) zero to code	R-21	R-0	Per installation	Existing	264	30	\$1,971	75%	25%	\$0.72	569
Wyoming	Single Family	Cool Central	Whole-House Fan	Whole-House Fan	No Whole-House Fan	Per installation	Existing	98	20	\$1,284	50%	95%	\$1.46	1,352
Wyoming	Single Family	Cool Central	Windows (Same for all Building Types)	CL25	CL30	Per installation	Existing	1	30	\$426	65%	75%	\$36.79	17
Wyoming	Single Family	Cool Central	Windows (Same for all Building Types)	CL30	Double Pane	Per installation	Existing	11	30	\$4,389	65%	25%	\$35.46	62

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Wyoming	Single Family	Cool Central	Windows (Same for all Building Types)	CL30	Single Pane	Per installation	Existing	18	30	\$4,389	65%	25%	\$22.63	99
Wyoming	Single Family	Cool Central	Air-to-Air Heat Exchangers	Air-to-Air Heat Exchangers	No Air to Air Heat Exchangers	Per installation	New	60	5	\$531	50%	95%	\$2.49	509
Wyoming	Single Family	Cool Central	Ceiling Fan	Ceiling Fan (no lighting kit)	No Ceiling Fan	Per installation	New	16	10	\$81	85%	50%	\$0.84	364
Wyoming	Single Family	Cool Central	Ceiling Insulation (WY) above code	R-60	R-49	Per installation	New	11	30	\$512	90%	95%	\$4.31	104
Wyoming	Single Family	Cool Central	Central Cooling, SEER 15	SEER 15	SEER 13	Per installation	New	107	15	\$595	100%	N/A	\$0.72	30
Wyoming	Single Family	Cool Central	Central Cooling, SEER 18	SEER 18	SEER 13	Per installation	New	268	15	\$1,490	100%	N/A	\$0.72	817
Wyoming	Single Family	Cool Central	Check Me! O&M Tune-up	Tune-up/Maintenance	No Tune-up Maintenance	Per installation	New	18	5	\$152	95%	75%	\$2.28	238
Wyoming	Single Family	Cool Central	Construction - ICF	Concrete Framing	Standard Wood Framing	Per installation	New	193	45	\$6,036	50%	95%	\$2.77	50
Wyoming	Single Family	Cool Central	Construction - SIP	Specialty Framing	Standard Wood Framing	Per installation	New	72	45	\$2,760	50%	95%	\$3.37	18
Wyoming	Single Family	Cool Central	Cool Roofs	Lighter Colored Shingles (White)	Standard Roof Shingles	Per installation	New	7	20	\$418	85%	95%	\$6.32	47
Wyoming	Single Family	Cool Central	Doors	R-11 (Steel Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	New	6	20	\$25	95%	80%	\$0.42	71
Wyoming	Single Family	Cool Central	Doors	R-5 (Composite Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	New	4	20	\$54	95%	60%	\$1.37	29
Wyoming	Single Family	Cool Central	Duct Location	Conditioned Space Design - Duct Loss Is Not A Concern	Ducts in Unconditioned Space (Duct loss)	Per installation	New	48	30	\$266	95%	30%	\$0.53	48
Wyoming	Single Family	Cool Central	Duct Sealing	Duct Sealing	No Duct Sealing	Per installation	New	60	18	\$332	75%	60%	\$0.65	131
Wyoming	Single Family	Cool Central	Duct Sealing - Aerosol-Based	Spray-in ductwork sealant to minimize duct leaks	No Duct Sealing	Per installation	New	90	18	\$657	75%	60%	\$0.85	83
Wyoming	Single Family	Cool Central	Floor Insulation (WY) above code	R-38	R-21	Per installation	New	0.60	30	\$1,594	75%	85%	\$254.16	3
Wyoming	Single Family	Cool Central	Green Roof	ecorooft	Standard Roof	Per installation	New	30	40	\$20,029	50%	95%	\$58.74	28
Wyoming	Single Family	Cool Central	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands (5 per unit)	13 SEER	Per installation	New	92	30	\$540	50%	95%	\$0.56	154
Wyoming	Single Family	Cool Central	Proper Sizing - HVAC Unit	Proper Sizing - HVAC Unit	Oversized HVAC Unit	Per installation	New	57	15	\$-50.6	95%	65%	\$-0.11	624
Wyoming	Single Family	Cool Central	Radiant Barrier (Ceiling)	Install Radiant Barrier	No Radiant Barrier	Per installation	New	36	30	\$854	75%	90%	\$2.27	281
Wyoming	Single Family	Cool Central	Smart Siting	Siting house to minimize heating/cooling costs	No smart siting	Per installation	New	33	45	\$592	75%	75%	\$1.58	221
Wyoming	Single Family	Cool Central	Thermal Shell - Infiltration @0.2 ACH w/HRV	0.2 ACH w/HRV	Standard New Construction Home 0.35 ACH	Per installation	New	85	30	\$832	85%	95%	\$0.94	928
Wyoming	Single Family	Cool Central	Thermostat - Multi-Zone	Individual Room Temperature Control for Major Occupied Rooms	Programmable Thermostat - Central Control Only	Per installation	New	41	11	\$1,233	75%	95%	\$4.69	307
Wyoming	Single Family	Cool Central	Wall Insulation 2x6 (WY) above code	R-21+R-5 sheathing	R-21	Per installation	New	31	30	\$1,006	50%	95%	\$3.09	146
Wyoming	Single Family	Cool Central	Whole-House Fan	Whole-House Fan	No Whole-House Fan	Per installation	New	90	20	\$1,284	50%	95%	\$1.58	382
Wyoming	Single Family	Cool Central	Windows (Same for all Building Types)	CL22	CL30	Per installation	New	2	30	\$494	95%	75%	\$22.60	14
Wyoming	Single Family	Cool Central	Windows (Same for all Building Types)	CL25	CL30	Per installation	New	1	30	\$426	95%	75%	\$28.87	10
Wyoming	Single Family	Cool Room	Canned Lighting Air Tight Sealing	Canned Lighting Air Tight Sealing	No Air tight Sealing	Per installation	Existing	0.96	30	\$23	95%	50%	\$2.32	38
Wyoming	Single Family	Cool Room	Ceiling Fan	Ceiling Fan (no lighting kit)	No Ceiling Fan	Per installation	Existing	10	10	\$81	85%	50%	\$1.31	159
Wyoming	Single Family	Cool Room	Ceiling Insulation (WY) above code	R-60	R-49	Per installation	Existing	5	30	\$512	75%	95%	\$9.08	36
Wyoming	Single Family	Cool Room	Ceiling Insulation (WY) ave to code	R-49	R-12	Per installation	Existing	58	30	\$2,348	75%	35%	\$3.85	154
Wyoming	Single Family	Cool Room	Ceiling Insulation (WY) zero to code	R-49	R-0	Per installation	Existing	163	30	\$2,348	95%	1%	\$1.38	17
Wyoming	Single Family	Cool Room	Cool Roofs	Lighter Colored Shingles (White)	Standard Roof Shingles	Per installation	Existing	4	20	\$418	85%	95%	\$9.88	35
Wyoming	Single Family	Cool Room	Doors	R-11 (Steel Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	Existing	4	20	\$161	95%	80%	\$4.29	30

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Wyoming	Single Family	Cool Room	Doors	R-5 (Composite Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	Existing	2	20	\$190	95%	60%	\$7.59	15
Wyoming	Single Family	Cool Room	Doors - Weatherization	Weatherstripping And Adding Door Sweeps	Existing Non-Efficient door	Per installation	Existing	1	6	\$43	95%	50%	\$5.85	16
Wyoming	Single Family	Cool Room	Floor Insulation (WY) above code	R-38	R-21	Per installation	Existing	0.38	30	\$1,594	25%	85%	\$397.13	0.75
Wyoming	Single Family	Cool Room	Floor Insulation (WY) zero to code	R-21	R-0	Per installation	Existing	155	30	\$1,767	25%	20%	\$1.09	91
Wyoming	Single Family	Cool Room	Infiltration Control (Caulk, Weather Strip, etc.) Blower-Door test	Install Caulking And Weatherstripping	Existing Infiltration Conditions	Per installation	Existing	38	11	\$465	75%	50%	\$1.88	156
Wyoming	Single Family	Cool Room	Radiant Barrier (Ceiling)	Install Radiant Barrier	No Radiant Barrier	Per installation	Existing	23	30	\$854	50%	90%	\$3.55	107
Wyoming	Single Family	Cool Room	Room AC conversion to Ductless Heat Pump	SEER 13	EER 9.8	Per installation	Existing	15	20	\$2,078	75%	N/A	\$15.02	338
Wyoming	Single Family	Cool Room	Room AC, EER 10.8	EER 10.8	EER 9.8	Per installation	Existing	12	9	\$7	100%	N/A	\$0.10	65
Wyoming	Single Family	Cool Room	Wall Insulation 2x4 (WY) zero to max feasible	R-13	R-0	Per installation	Existing	93	30	\$1,689	85%	25%	\$1.75	166
Wyoming	Single Family	Cool Room	Wall Insulation 2x6 (WY) zero to code	R-21	R-0	Per installation	Existing	158	30	\$1,971	75%	25%	\$1.20	85
Wyoming	Single Family	Cool Room	Windows (Same for all Building Types)	CL25	CL30	Per installation	Existing	0.67	30	\$426	65%	75%	\$60.65	3
Wyoming	Single Family	Cool Room	Windows (Same for all Building Types)	CL30	Double Pane	Per installation	Existing	7	30	\$4,389	65%	25%	\$58.46	10
Wyoming	Single Family	Cool Room	Windows (Same for all Building Types)	CL30	Single Pane	Per installation	Existing	11	30	\$4,389	65%	25%	\$37.30	17
Wyoming	Single Family	Cool Room	Ceiling Fan	Ceiling Fan (no lighting kit)	No Ceiling Fan	Per installation	New	9	10	\$81	85%	50%	\$1.40	46
Wyoming	Single Family	Cool Room	Ceiling Insulation (WY) above code	R-60	R-49	Per installation	New	7	30	\$512	90%	95%	\$6.97	17
Wyoming	Single Family	Cool Room	Construction - ICF	Concrete Framing	Standard Wood Framing	Per installation	New	116	45	\$6,036	50%	95%	\$4.61	8
Wyoming	Single Family	Cool Room	Construction - SIP	Specialty Framing	Standard Wood Framing	Per installation	New	43	45	\$2,760	50%	95%	\$5.62	2
Wyoming	Single Family	Cool Room	Cool Roofs	Lighter Colored Shingles (White)	Standard Roof Shingles	Per installation	New	4	20	\$418	85%	95%	\$10.53	8
Wyoming	Single Family	Cool Room	Doors	R-11 (Steel Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	New	3	20	\$25	95%	80%	\$0.71	10
Wyoming	Single Family	Cool Room	Doors	R-5 (Composite Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	New	2	20	\$54	95%	60%	\$2.29	4
Wyoming	Single Family	Cool Room	Floor Insulation (WY) above code	R-38	R-21	Per installation	New	0.36	30	\$1,594	75%	85%	\$423.25	0.63
Wyoming	Single Family	Cool Room	Green Roof	ecorooft	Standard Roof	Per installation	New	18	40	\$20,029	50%	95%	\$97.81	4
Wyoming	Single Family	Cool Room	Radiant Barrier (Ceiling)	Install Radiant Barrier	No Radiant Barrier	Per installation	New	21	30	\$854	75%	90%	\$3.78	45
Wyoming	Single Family	Cool Room	Room AC conversion to Ductless Heat Pump	SEER 13	EER 9.8	Per installation	New	15	20	\$2,078	75%	N/A	\$15.39	44
Wyoming	Single Family	Cool Room	Room AC, EER 10.8	EER 10.8	EER 9.8	Per installation	New	12	9	\$7	100%	N/A	\$0.10	15
Wyoming	Single Family	Cool Room	Smart Siting	Siting house to minimize heating/cooling costs	No smart siting	Per installation	New	19	45	\$592	75%	75%	\$2.63	35
Wyoming	Single Family	Cool Room	Thermal Shell - Infiltration @0.2 ACH w/HRV	0.2 ACH w/HRV	Standard New Construction Home 0.35 ACH	Per installation	New	53	30	\$832	85%	95%	\$1.49	157
Wyoming	Single Family	Cool Room	Wall Insulation 2x6 (WY) above code	R-21+R-5 sheathing	R-21	Per installation	New	19	30	\$1,006	50%	95%	\$5.04	23
Wyoming	Single Family	Cool Room	Windows (Same for all Building Types)	CL22	CL30	Per installation	New	1	30	\$494	95%	75%	\$36.10	2
Wyoming	Single Family	Cool Room	Windows (Same for all Building Types)	CL25	CL30	Per installation	New	0.88	30	\$426	95%	75%	\$46.57	1
Wyoming	Single Family	Dryer	Dryer, Advanced Efficiency EF 3.30	Advanced Efficiency Dryer 3.30	Standard Dryer EF 3.01	Per installation	Existing	50	14	\$224	100%	N/A	\$0.59	3,148
Wyoming	Single Family	Dryer	Dryer, High Efficiency EF 3.08	High Efficiency Dryer EF 3.08	Standard Dryer EF 3.01	Per installation	Existing	13	14	\$54	100%	N/A	\$0.56	69
Wyoming	Single Family	Dryer	Dryer, Premium Efficiency EF 3.19	Premium Efficiency Dryer 3.19	Standard Dryer EF 3.01	Per installation	Existing	32	14	\$139	100%	N/A	\$0.57	445

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Wyoming	Single Family	Dryer	Dryer, Advanced Efficiency EF 3.30	Advanced Efficiency Dryer 3.30	Standard Dryer EF 3.01	Per installation	New	50	14	\$224	100%	N/A	\$0.59	758
Wyoming	Single Family	Dryer	Dryer, High Efficiency EF 3.08	High Efficiency Dryer EF 3.08	Standard Dryer EF 3.01	Per installation	New	13	14	\$54	100%	N/A	\$0.56	16
Wyoming	Single Family	Dryer	Dryer, Premium Efficiency EF 3.19	Premium Efficiency Dryer 3.19	Standard Dryer EF 3.01	Per installation	New	32	14	\$139	100%	N/A	\$0.57	123
Wyoming	Single Family	Freezer	Freezer, Energy Star	Energy Star Freezer	Standard Freezer	Per installation	Existing	46	20	\$22	76%	N/A	\$0.05	403
Wyoming	Single Family	Freezer	Stand-Alone Freezer - Removal	Proper Disposal of Freezer	Existing Non-Efficient Freezer	Per installation	Existing	1,393	8	\$74	17%	**%	\$0.01	2,986
Wyoming	Single Family	Freezer	Freezer, Energy Star	Energy Star Freezer	Standard Freezer	Per installation	New	46	20	\$22	76%	N/A	\$0.05	272
Wyoming	Single Family	Heat Central	Air-to-Air Heat Exchangers	Air-to-Air Heat Exchangers	No Air to Air Heat Exchangers	Per installation	Existing	1,702	5	\$531	50%	95%	\$0.09	3,141
Wyoming	Single Family	Heat Central	Canned Lighting Air Tight Sealing	Canned Lighting Air Tight Sealing	No Air tight Sealing	Per installation	Existing	58	30	\$23	95%	50%	\$0.04	728
Wyoming	Single Family	Heat Central	Ceiling Insulation (WY) above code	R-60	R-49	Per installation	Existing	319	30	\$512	75%	95%	\$0.15	635
Wyoming	Single Family	Heat Central	Ceiling Insulation (WY) ave to code	R-49	R-12	Per installation	Existing	3,477	30	\$2,348	75%	35%	\$0.07	2,819
Wyoming	Single Family	Heat Central	Ceiling Insulation (WY) zero to code	R-49	R-0	Per installation	Existing	9,685	30	\$2,348	95%	1%	\$0.02	327
Wyoming	Single Family	Heat Central	Conversion Electric Furnace to ASHP	Air Source Heat Pump Seer 13 HSPF 7.7	Electric Furnace HSPF 1	Per installation	Existing	9,114	20	\$2,609	100%	N/A	\$0.03	10,193
Wyoming	Single Family	Heat Central	Doors	R-11 (Steel Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	Existing	255	20	\$161	95%	80%	\$0.07	567
Wyoming	Single Family	Heat Central	Doors	R-5 (Composite Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	Existing	170	20	\$190	95%	60%	\$0.13	272
Wyoming	Single Family	Heat Central	Doors - Weatherization	Weatherstripping And Adding Door Sweeps	Existing Non-Efficient door	Per installation	Existing	110	6	\$43	95%	50%	\$0.10	296
Wyoming	Single Family	Heat Central	Duct Insulation Upgrade	R-8 (code)	R-4	Per installation	Existing	681	20	\$534	75%	75%	\$0.09	1,106
Wyoming	Single Family	Heat Central	Duct Sealing	Duct Sealing	No Duct Sealing	Per installation	Existing	1,702	18	\$580	75%	15%	\$0.04	371
Wyoming	Single Family	Heat Central	Duct Sealing - Aerosol-Based	Spray-in ductwork sealant to minimize duct leaks	No Duct Sealing	Per installation	Existing	2,553	18	\$657	75%	15%	\$0.03	283
Wyoming	Single Family	Heat Central	Floor Insulation (WY) above code	R-38	R-21	Per installation	Existing	17	30	\$1,594	25%	85%	\$9.03	9
Wyoming	Single Family	Heat Central	Floor Insulation (WY) zero to code	R-21	R-0	Per installation	Existing	7,262	30	\$1,767	25%	20%	\$0.02	1,287
Wyoming	Single Family	Heat Central	Infiltration Control (Caulk, Weather Strip, etc.) Blower-Door test	Install Caulking And Weatherstripping	Existing Infiltration Conditions	Per installation	Existing	1,702	11	\$465	75%	50%	\$0.04	2,048
Wyoming	Single Family	Heat Central	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands (5 per unit)	13 SEER	Per installation	Existing	3,575	30	\$540	50%	15%	\$0.01	98
Wyoming	Single Family	Heat Central	Proper Sizing - HVAC Unit	Proper Sizing - HVAC Unit	Oversized HVAC Unit	Per installation	Existing	1,605	15	\$-50.6	15%	65%	\$-0.00	607
Wyoming	Single Family	Heat Central	Radiant Barrier (Ceiling)	Install Radiant Barrier	No Radiant Barrier	Per installation	Existing	340	30	\$854	50%	90%	\$0.24	401
Wyoming	Single Family	Heat Central	Thermostat - Multi-Zone	Individual Room Temperature Control for Major Occupied Rooms	Programmable Thermostat - Central Control Only	Per installation	Existing	1,157	11	\$1,233	75%	95%	\$0.17	2,271
Wyoming	Single Family	Heat Central	Wall Insulation 2x4 (WY) zero to max feasible	R-13	R-0	Per installation	Existing	5,505	30	\$1,689	85%	25%	\$0.03	3,043
Wyoming	Single Family	Heat Central	Wall Insulation 2x6 (WY) zero to code	R-21	R-0	Per installation	Existing	9,401	30	\$1,971	75%	25%	\$0.02	1,612
Wyoming	Single Family	Heat Central	Windows (Same for all Building Types)	CL25	CL30	Per installation	Existing	39	30	\$426	65%	75%	\$1.04	49
Wyoming	Single Family	Heat Central	Windows (Same for all Building Types)	CL30	Double Pane	Per installation	Existing	424	30	\$4,389	65%	25%	\$1.00	177
Wyoming	Single Family	Heat Central	Windows (Same for all Building Types)	CL30	Single Pane	Per installation	Existing	664	30	\$4,389	65%	25%	\$0.64	280
Wyoming	Single Family	Heat Central	Air-to-Air Heat Exchangers	Air-to-Air Heat Exchangers	No Air to Air Heat Exchangers	Per installation	New	1,285	5	\$531	50%	95%	\$0.12	708
Wyoming	Single Family	Heat Central	Ceiling Insulation (WY) above code	R-60	R-49	Per installation	New	334	30	\$512	90%	95%	\$0.15	245
Wyoming	Single Family	Heat Central	Construction - ICF	Concrete Framing	Standard Wood Framing	Per installation	New	5,658	45	\$6,036	50%	95%	\$0.09	120

Table C.2.1. Residential Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Wyoming	Single Family	Heat Central	Construction - SIP	Specialty Framing	Standard Wood Framing	Per installation	New	1,543	45	\$2,760	50%	95%	\$0.16	30
Wyoming	Single Family	Heat Central	Conversion Electric Furnace to ASHP	Air Source Heat Pump Seer 13 HSPF 7.7	Electric Furnace HSPF 1	Per installation	New	6,884	20	\$2,516	100%	N/A	\$0.04	2,780
Wyoming	Single Family	Heat Central	Doors	R-11 (Steel Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	New	192	20	\$25	95%	80%	\$0.01	160
Wyoming	Single Family	Heat Central	Doors	R-5 (Composite Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	New	128	20	\$54	95%	60%	\$0.05	65
Wyoming	Single Family	Heat Central	Duct Location	Conditioned Space Design - Duct Loss Is Not A Concern	Ducts in Unconditioned Space (Duct loss)	Per installation	New	1,028	30	\$266	95%	15%	\$0.03	39
Wyoming	Single Family	Heat Central	Duct Sealing	No Duct Sealing	No Duct Sealing	Per installation	New	1,285	18	\$332	75%	15%	\$0.03	54
Wyoming	Single Family	Heat Central	Duct Sealing - Aerosol-Based	Spray-in ductwork sealant to minimize duct leaks	No Duct Sealing	Per installation	New	1,928	18	\$657	75%	15%	\$0.04	29
Wyoming	Single Family	Heat Central	Floor Insulation (WY) above code	R-38	R-21	Per installation	New	12	30	\$1,594	75%	85%	\$11.95	6
Wyoming	Single Family	Heat Central	Green Roof	ecorooF	Standard Roof	Per installation	New	900	40	\$20,029	50%	95%	\$2.01	66
Wyoming	Single Family	Heat Central	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands (5 per unit)	13 SEER	Per installation	New	2,700	30	\$540	50%	15%	\$0.02	54
Wyoming	Single Family	Heat Central	Proper Sizing - HVAC Unit	Proper Sizing - HVAC Unit	Oversized HVAC Unit	Per installation	New	1,212	15	\$-50.6	15%	65%	\$-0.01	137
Wyoming	Single Family	Heat Central	Radiant Barrier (Ceiling)	Install Radiant Barrier	No Radiant Barrier	Per installation	New	257	30	\$854	75%	90%	\$0.32	138
Wyoming	Single Family	Heat Central	Smart Siting	Siting house to minimize heating/cooling costs	No smart siting	Per installation	New	39	45	\$592	75%	75%	\$1.32	17
Wyoming	Single Family	Heat Central	Thermal Shell - Infiltration @0.2 ACH w/HRV	0.2 ACH w/HRV	Standard New Construction Home 0.35 ACH	Per installation	New	2,502	30	\$832	85%	95%	\$0.03	2,163
Wyoming	Single Family	Heat Central	Thermostat - Multi-Zone	Individual Room Temperature Control for Major Occupied Rooms	Programmable Thermostat - Central Control Only	Per installation	New	874	11	\$1,233	75%	95%	\$0.22	521
Wyoming	Single Family	Heat Central	Wall Insulation 2x6 (WY) above code	R-21+R-5 sheathing	R-21	Per installation	New	917	30	\$1,006	50%	95%	\$0.11	347
Wyoming	Single Family	Heat Central	Windows (Same for all Building Types)	CL22	CL30	Per installation	New	61	30	\$494	95%	75%	\$0.77	34
Wyoming	Single Family	Heat Central	Windows (Same for all Building Types)	CL25	CL30	Per installation	New	41	30	\$426	95%	75%	\$0.99	23
Wyoming	Single Family	Heat Pump	Air-to-Air Heat Exchangers	Air-to-Air Heat Exchangers	No Air to Air Heat Exchangers	Per installation	Existing	1,199	5	\$531	50%	95%	\$0.13	1,206
Wyoming	Single Family	Heat Pump	Canned Lighting Air Tight Sealing	Canned Lighting Air Tight Sealing	No Air tight Sealing	Per installation	Existing	40	30	\$23	95%	50%	\$0.06	274
Wyoming	Single Family	Heat Pump	Ceiling Fan	Ceiling Fan (no lighting kit)	No Ceiling Fan	Per installation	Existing	17	10	\$81	85%	50%	\$0.79	46
Wyoming	Single Family	Heat Pump	Ceiling Insulation (WY) above code	R-60	R-49	Per installation	Existing	90	30	\$512	75%	95%	\$0.55	89
Wyoming	Single Family	Heat Pump	Ceiling Insulation (WY) ave to code	R-49	R-12	Per installation	Existing	1,233	30	\$2,348	75%	35%	\$0.18	491
Wyoming	Single Family	Heat Pump	Ceiling Insulation (WY) zero to code	R-49	R-0	Per installation	Existing	2,856	30	\$2,348	95%	1%	\$0.08	44
Wyoming	Single Family	Heat Pump	Check Me! O&M Tune-up	Tune-up/Maintenance	No Tune-up Maintenance	Per installation	Existing	19	5	\$152	95%	75%	\$2.22	29
Wyoming	Single Family	Heat Pump	Cool Roofs	Lighter Colored Shingles (White)	Standard Roof Shingles	Per installation	Existing	7	20	\$418	85%	95%	\$5.92	8
Wyoming	Single Family	Heat Pump	Doors	R-11 (Steel Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	Existing	177	20	\$161	95%	80%	\$0.10	213
Wyoming	Single Family	Heat Pump	Doors	R-5 (Composite Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	Existing	118	20	\$190	95%	60%	\$0.18	102
Wyoming	Single Family	Heat Pump	Doors - Weatherization	Weatherstripping And Adding Door Sweeps	Existing Non-Efficient door	Per installation	Existing	77	6	\$43	95%	50%	\$0.14	113
Wyoming	Single Family	Heat Pump	Duct Insulation Upgrade	R-8 (code)	R-4	Per installation	Existing	472	20	\$534	75%	75%	\$0.13	417
Wyoming	Single Family	Heat Pump	Duct Sealing	Duct Sealing	No Duct Sealing	Per installation	Existing	1,199	18	\$580	75%	60%	\$0.06	568
Wyoming	Single Family	Heat Pump	Duct Sealing - Aerosol-Based	Spray-in ductwork sealant to minimize duct leaks	No Duct Sealing	Per installation	Existing	1,798	18	\$657	75%	60%	\$0.04	440
Wyoming	Single Family	Heat Pump	Floor Insulation (WY) above code	R-38	R-21	Per installation	Existing	11	30	\$1,594	25%	85%	\$12.82	3

Table C.2.1. Residential Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Wyoming	Single Family	Heat Pump	Floor Insulation (WY) zero to code	R-21	R-0	Per installation	Existing	6,421	30	\$1,767	25%	20%	\$0.03	599
Wyoming	Single Family	Heat Pump	Ground Source Heat Pump, EER 16.2, COP 3.6	GSHP EER 16.2, HSPF 8.8	ASHP SEER 13, HSPF 7.7	Per installation	Existing	4,278	20	\$9,288	40%	N/A	\$0.24	1,035
Wyoming	Single Family	Heat Pump	Heat Pump High Efficiency, SEER 14, HSPF 8.5	ASHP SEER 14, HSPF 8.5	ASHP SEER 13, HSPF 7.7	Per installation	Existing	1,073	20	\$411	100%	N/A	\$0.04	132
Wyoming	Single Family	Heat Pump	Heat Pump Premium Efficiency, SEER 16, HSPF 8.8	ASHP SEER 16, HSPF 8.8	ASHP SEER 13, HSPF 7.7	Per installation	Existing	1,485	20	\$1,233	100%	N/A	\$0.09	721
Wyoming	Single Family	Heat Pump	Infiltration Control (Caulk, Weather Strip, etc.) Blower-Door test	Install Caulking And Weatherstripping	Existing Infiltration Conditions	Per installation	Existing	1,199	11	\$465	75%	50%	\$0.06	768
Wyoming	Single Family	Heat Pump	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands (5 per unit)	13 SEER	Per installation	Existing	2,518	30	\$540	50%	95%	\$0.02	225
Wyoming	Single Family	Heat Pump	Proper Sizing - HVAC Unit	Proper Sizing - HVAC Unit	Oversized HVAC Unit	Per installation	Existing	1,130	15	\$-50.6	95%	65%	\$-0.01	1,479
Wyoming	Single Family	Heat Pump	Radiant Barrier (Ceiling)	Install Radiant Barrier	No Radiant Barrier	Per installation	Existing	272	30	\$854	50%	90%	\$0.30	172
Wyoming	Single Family	Heat Pump	Thermostat - Multi-Zone	Individual Room Temperature Control for Major Occupied Rooms	Programmable Thermostat - Central Control Only	Per installation	Existing	815	11	\$1,233	75%	95%	\$0.24	857
Wyoming	Single Family	Heat Pump	Wall Insulation 2x4 (WY) zero to max feasible	R-13	R-0	Per installation	Existing	1,615	30	\$1,689	85%	25%	\$0.10	417
Wyoming	Single Family	Heat Pump	Wall Insulation 2x6 (WY) zero to code	R-21	R-0	Per installation	Existing	2,758	30	\$1,971	75%	25%	\$0.07	212
Wyoming	Single Family	Heat Pump	Whole-House Fan	Whole-House Fan	No Whole-House Fan	Per installation	Existing	96	20	\$1,284	50%	95%	\$1.48	48
Wyoming	Single Family	Heat Pump	Windows (Same for all Building Types)	CL25	CL30	Per installation	Existing	11	30	\$426	65%	75%	\$3.55	7
Wyoming	Single Family	Heat Pump	Windows (Same for all Building Types)	CL30	Double Pane	Per installation	Existing	123	30	\$4,389	65%	25%	\$3.42	27
Wyoming	Single Family	Heat Pump	Windows (Same for all Building Types)	CL30	Single Pane	Per installation	Existing	193	30	\$4,389	65%	25%	\$2.18	43
Wyoming	Single Family	Heat Pump	Air-to-Air Heat Exchangers	Air-to-Air Heat Exchangers	No Air to Air Heat Exchangers	Per installation	New	877	5	\$531	50%	95%	\$0.17	271
Wyoming	Single Family	Heat Pump	Ceiling Fan	Ceiling Fan (no lighting kit)	No Ceiling Fan	Per installation	New	12	10	\$81	85%	50%	\$1.08	10
Wyoming	Single Family	Heat Pump	Ceiling Insulation (WY) above code	R-60	R-49	Per installation	New	86	30	\$512	90%	95%	\$0.57	34
Wyoming	Single Family	Heat Pump	Check Me! O&M Tune-up	Tune-up/Maintenance	No Tune-up Maintenance	Per installation	New	14	5	\$152	95%	75%	\$3.04	6
Wyoming	Single Family	Heat Pump	Construction - ICF	Concrete Framing	Standard Wood Framing	Per installation	New	3,802	45	\$6,036	50%	95%	\$0.14	45
Wyoming	Single Family	Heat Pump	Construction - SIP	Specialty Framing	Standard Wood Framing	Per installation	New	1,052	45	\$2,760	50%	95%	\$0.23	12
Wyoming	Single Family	Heat Pump	Cool Roofs	Lighter Colored Shingles (White)	Standard Roof Shingles	Per installation	New	5	20	\$418	85%	95%	\$8.09	1
Wyoming	Single Family	Heat Pump	Doors	R-11 (Steel Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	New	129	20	\$25	95%	80%	\$0.02	57
Wyoming	Single Family	Heat Pump	Doors	R-5 (Composite Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	New	86	20	\$54	95%	60%	\$0.07	26
Wyoming	Single Family	Heat Pump	Duct Location	Conditioned Space Design - Duct Loss Is Not A Concern	Ducts in Unconditioned Space (Duct loss)	Per installation	New	701	30	\$266	95%	30%	\$0.04	27
Wyoming	Single Family	Heat Pump	Duct Sealing	Duct Sealing	No Duct Sealing	Per installation	New	877	18	\$332	75%	60%	\$0.04	76
Wyoming	Single Family	Heat Pump	Duct Sealing - Aerosol-Based	Spray-in ductwork sealant to minimize duct leaks	No Duct Sealing	Per installation	New	1,315	18	\$657	75%	60%	\$0.06	48
Wyoming	Single Family	Heat Pump	Floor Insulation (WY) above code	R-38	R-21	Per installation	New	8	30	\$1,594	75%	85%	\$17.52	2
Wyoming	Single Family	Heat Pump	Green Roof	ecorooF	Standard Roof	Per installation	New	604	40	\$20,029	50%	95%	\$2.99	26
Wyoming	Single Family	Heat Pump	Ground Source Heat Pump, EER 16.2, COP 3.6	GSHP EER 16.2, HSPF 8.8	ASHP SEER 13, HSPF 7.7	Per installation	New	3,242	20	\$9,381	40%	N/A	\$0.32	303
Wyoming	Single Family	Heat Pump	Heat Pump High Efficiency, SEER 14, HSPF 8.5	ASHP SEER 14, HSPF 8.5	ASHP SEER 13, HSPF 7.7	Per installation	New	811	20	\$411	100%	N/A	\$0.06	50
Wyoming	Single Family	Heat Pump	Heat Pump Premium Efficiency, SEER 16, HSPF 8.8	ASHP SEER 16, HSPF 8.8	ASHP SEER 13, HSPF 7.7	Per installation	New	1,142	20	\$1,233	100%	N/A	\$0.12	228

Table C.2.1. Residential Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Wyoming	Single Family	Heat Pump	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands (5 per unit)	13 SEER	Per installation	New	1,842	30	\$540	50%	95%	\$0.03	125
Wyoming	Single Family	Heat Pump	Proper Sizing - HVAC Unit	Proper Sizing - HVAC Unit	Oversized HVAC Unit	Per installation	New	827	15	\$-50.6	95%	65%	\$-0.01	332
Wyoming	Single Family	Heat Pump	Radiant Barrier (Ceiling)	Install Radiant Barrier	No Radiant Barrier	Per installation	New	199	30	\$854	75%	90%	\$0.41	63
Wyoming	Single Family	Heat Pump	Smart Siting	Siting house to minimize heating/cooling costs	No smart siting	Per installation	New	30	45	\$592	75%	75%	\$1.75	7
Wyoming	Single Family	Heat Pump	Thermal Shell - Infiltration @0.2 ACH w/HRV	0.2 ACH w/HRV	Standard New Construction Home 0.35 ACH	Per installation	New	642	30	\$832	85%	95%	\$0.12	279
Wyoming	Single Family	Heat Pump	Thermostat - Multi-Zone	Individual Room Temperature Control for Major Occupied Rooms	Programmable Thermostat - Central Control Only	Per installation	New	596	11	\$1,233	75%	95%	\$0.32	212
Wyoming	Single Family	Heat Pump	Wall Insulation 2x6 (WY) above code	R-21+R-5 sheathing	R-21	Per installation	New	237	30	\$1,006	50%	95%	\$0.41	48
Wyoming	Single Family	Heat Pump	Whole-House Fan	Whole-House Fan	No Whole-House Fan	Per installation	New	70	20	\$1,284	50%	95%	\$2.03	10
Wyoming	Single Family	Heat Pump	Windows (Same for all Building Types)	CL22	CL30	Per installation	New	15	30	\$494	95%	75%	\$3.01	5
Wyoming	Single Family	Heat Pump	Windows (Same for all Building Types)	CL25	CL30	Per installation	New	11	30	\$426	95%	75%	\$3.70	3
Wyoming	Single Family	Heat Room	Canned Lighting Air Tight Sealing	Canned Lighting Air Tight Sealing	No Air tight Sealing	Per installation	Existing	45	30	\$23	95%	50%	\$0.05	1,186
Wyoming	Single Family	Heat Room	Ceiling Insulation (WY) above code	R-60	R-49	Per installation	Existing	253	30	\$512	75%	95%	\$0.20	1,096
Wyoming	Single Family	Heat Room	Ceiling Insulation (WY) ave to code	R-49	R-12	Per installation	Existing	2,740	30	\$2,348	75%	35%	\$0.08	4,733
Wyoming	Single Family	Heat Room	Ceiling Insulation (WY) zero to code	R-49	R-0	Per installation	Existing	7,631	30	\$2,348	95%	1%	\$0.03	533
Wyoming	Single Family	Heat Room	Conversion Baseboard Heating to DHP	Ductless Heat Pump HSPF 7.7	HSPF = 1	Per installation	Existing	1,862	20	\$2,326	81%	N/A	\$0.14	11,577
Wyoming	Single Family	Heat Room	Doors	R-11 (Steel Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	Existing	196	20	\$161	95%	80%	\$0.09	929
Wyoming	Single Family	Heat Room	Doors	R-5 (Composite Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	Existing	131	20	\$190	95%	60%	\$0.16	456
Wyoming	Single Family	Heat Room	Doors - Weatherization	Weatherstripping And Adding Door Sweeps	Existing Non-Efficient door	Per installation	Existing	85	6	\$43	95%	50%	\$0.13	497
Wyoming	Single Family	Heat Room	Floor Insulation (WY) above code	R-38	R-21	Per installation	Existing	13	30	\$1,594	25%	85%	\$11.73	16
Wyoming	Single Family	Heat Room	Floor Insulation (WY) zero to code	R-21	R-0	Per installation	Existing	7,262	30	\$1,767	25%	20%	\$0.02	2,821
Wyoming	Single Family	Heat Room	Infiltration Control (Caulk, Weather Strip, etc.) Blower-Door test	Install Caulking And Weatherstripping	Existing Infiltration Conditions	Per installation	Existing	1,310	11	\$465	75%	50%	\$0.06	3,361
Wyoming	Single Family	Heat Room	Radiant Barrier (Ceiling)	Install Radiant Barrier	No Radiant Barrier	Per installation	Existing	262	30	\$854	50%	90%	\$0.31	707
Wyoming	Single Family	Heat Room	Wall Insulation 2x4 (WY) zero to max feasible	R-13	R-0	Per installation	Existing	4,330	30	\$1,689	85%	25%	\$0.04	5,048
Wyoming	Single Family	Heat Room	Wall Insulation 2x6 (WY) zero to code	R-21	R-0	Per installation	Existing	7,395	30	\$1,971	75%	25%	\$0.03	2,618
Wyoming	Single Family	Heat Room	Windows (Same for all Building Types)	CL25	CL30	Per installation	Existing	31	30	\$426	65%	75%	\$1.30	90
Wyoming	Single Family	Heat Room	Windows (Same for all Building Types)	CL30	Double Pane	Per installation	Existing	337	30	\$4,389	65%	25%	\$1.26	323
Wyoming	Single Family	Heat Room	Windows (Same for all Building Types)	CL30	Single Pane	Per installation	Existing	528	30	\$4,389	65%	25%	\$0.80	509
Wyoming	Single Family	Heat Room	Ceiling Insulation (WY) above code	R-60	R-49	Per installation	New	265	30	\$512	90%	95%	\$0.19	414
Wyoming	Single Family	Heat Room	Construction - ICF	Concrete Framing	Standard Wood Framing	Per installation	New	4,356	45	\$6,036	50%	95%	\$0.12	197
Wyoming	Single Family	Heat Room	Construction - SIP	Specialty Framing	Standard Wood Framing	Per installation	New	1,188	45	\$2,760	50%	95%	\$0.21	50
Wyoming	Single Family	Heat Room	Conversion Baseboard Heating to DHP	Ductless Heat Pump HSPF 7.7	HSPF = 1	Per installation	New	1,407	20	\$2,326	81%	N/A	\$0.19	3,093

Table C.2.1. Residential Measure Details

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Wyoming	Single Family	Heat Room	Doors	R-11 (Steel Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	New	148	20	\$25	95%	80%	\$0.02	261
Wyoming	Single Family	Heat Room	Doors	R-5 (Composite Doors with foam core)	Standard non-thermal wood door (R-2.5)	Per installation	New	99	20	\$54	95%	60%	\$0.06	108
Wyoming	Single Family	Heat Room	Floor Insulation (WY) above code	R-38	R-21	Per installation	New	9	30	\$1,594	75%	85%	\$15.52	10
Wyoming	Single Family	Heat Room	Green Roof	ecorooF	Standard Roof	Per installation	New	693	40	\$20,029	50%	95%	\$2.61	114
Wyoming	Single Family	Heat Room	Radiant Barrier (Ceiling)	Install Radiant Barrier	No Radiant Barrier	Per installation	New	198	30	\$854	75%	90%	\$0.42	237
Wyoming	Single Family	Heat Room	Smart Siting	Siting house to minimize heating/cooling costs	No smart siting	Per installation	New	30	45	\$592	75%	75%	\$1.71	30
Wyoming	Single Family	Heat Room	Thermal Shell - Infiltration @0.2 ACH w/HRV	0.2 ACH w/HRV	Standard New Construction Home 0.35 ACH	Per installation	New	2,023	30	\$832	85%	95%	\$0.04	3,748
Wyoming	Single Family	Heat Room	Wall Insulation 2x6 (WY) above code	R-21+R-5 sheathing	R-21	Per installation	New	721	30	\$1,006	50%	95%	\$0.13	581
Wyoming	Single Family	Heat Room	Windows (Same for all Building Types)	CL22	CL30	Per installation	New	49	30	\$494	95%	75%	\$0.96	61
Wyoming	Single Family	Heat Room	Windows (Same for all Building Types)	CL25	CL30	Per installation	New	33	30	\$426	95%	75%	\$1.24	41
Wyoming	Single Family	Lighting Exterior	CFL, Flood (17 W)	CFL, Flood	Standard Incandescent Flood	Per installation	Existing	53	5	\$0.91	100%	N/A	\$0.00	1,003
Wyoming	Single Family	Lighting Exterior	Time Clocks (Exterior Lighting)	Exterior Lighting on a Time Clock	Exterior Lighting (Manual Control)	Per installation	Existing	13	10	\$16	80%	85%	\$0.21	962
Wyoming	Single Family	Lighting Exterior	CFL, Flood (17 W)	CFL, Flood	Standard Incandescent Flood	Per installation	New	53	5	\$0.91	100%	N/A	\$0.00	39
Wyoming	Single Family	Lighting Exterior	Time Clocks (Exterior Lighting)	Exterior Lighting on a Time Clock	Exterior Lighting (Manual Control)	Per installation	New	13	10	\$16	80%	85%	\$0.21	319
Wyoming	Single Family	Lighting Interior Specialty	CFL (13 W, 20 W, 25 W)	CFL (3-Way)	Standard Incandescent (3-Way)	Per installation	Existing	43	5	\$3	100%	N/A	\$0.02	9,100
Wyoming	Single Family	Lighting Interior Specialty	CFL (13 W, 20 W, 25 W)	CFL (3-Way)	Standard Incandescent (3-Way)	Per installation	New	43	5	\$3	100%	N/A	\$0.02	262
Wyoming	Single Family	Lighting Interior Standard	Daylighting Controls (Photocell) - Indoor/Outdoors	Install Photocell	No Daylighting Controls	Per installation	Existing	9	20	\$135	60%	95%	\$1.63	147
Wyoming	Single Family	Lighting Interior Standard	Lighting CFL 15 W	15 W CFL	Standard 60 W Incandescent	Per installation	Existing	40	5	\$2	100%	N/A	\$0.02	4,145
Wyoming	Single Family	Lighting Interior Standard	Lighting LED 7 W	7 W LED	Standard 60 W Incandescent	Per installation	Existing	51	20	\$36	50%	N/A	\$0.08	32,144
Wyoming	Single Family	Lighting Interior Standard	Occupancy Sensors	Wall-Switch Occupancy Sensors	No Occupancy Sensor	Per installation	Existing	5	10	\$29	85%	95%	\$0.88	1,279
Wyoming	Single Family	Lighting Interior Standard	Daylighting Controls (Photocell) - Indoor/Outdoors	Install Photocell	No Daylighting Controls	Per installation	New	9	20	\$135	60%	95%	\$1.63	48
Wyoming	Single Family	Lighting Interior Standard	Lighting CFL 15 W	15 W CFL	Standard 60 W Incandescent	Per installation	New	40	5	\$2	100%	N/A	\$0.02	162
Wyoming	Single Family	Lighting Interior Standard	Lighting LED 7 W	7 W LED	Standard 60 W Incandescent	Per installation	New	51	20	\$36	50%	N/A	\$0.08	1,057
Wyoming	Single Family	Lighting Interior Standard	Occupancy Sensors	Wall-Switch Occupancy Sensors	No Occupancy Sensor	Per installation	New	5	10	\$29	85%	95%	\$0.88	422
Wyoming	Single Family	Microwave	Microwave, High Efficiency	High Efficiency Microwave	Standard Microwave	Per installation	Existing	9	15	\$79	100%	N/A	\$1.05	608
Wyoming	Single Family	Microwave	Microwave, High Efficiency	High Efficiency Microwave	Standard Microwave	Per installation	New	9	15	\$79	100%	N/A	\$1.05	164
Wyoming	Single Family	Monitor	Monitor, Energy Star	Energy Star Monitor	Standard Monitor	Per installation	Existing	36	5	\$3	100%	N/A	\$0.03	2,617
Wyoming	Single Family	Monitor	Monitor, Energy Star	Energy Star Monitor	Standard Monitor	Per installation	New	36	5	\$3	100%	N/A	\$0.03	198
Wyoming	Single Family	Plug Load Other	1-Watt Standby Power	1W or less standby power use for small appliances	Standard plug load appliance.	Per installation	Existing	17	7	\$30	50%	50%	\$0.36	3,543
Wyoming	Single Family	Plug Load Other	Energy Star Battery Chargers	Energy Star Battery Chargers	Standard Battery Chargers	Per installation	Existing	1	7	\$33	50%	80%	\$6.94	461
Wyoming	Single Family	Plug Load Other	Office Copier	Office Copier	Standard Copier	Per installation	Existing	39	6	\$5	20%	50%	\$0.03	428
Wyoming	Single Family	Plug Load Other	Office Printer	Office Printer	Standard Printer	Per installation	Existing	5	5	\$5	50%	50%	\$0.28	137

Table C.2.1. Residential Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Wyoming	Single Family	Plug Load Other	Smart Strip	Smart Strip	Standard PowerStrip	Per installation	Existing	103	5	\$22	50%	85%	\$0.06	4,711
Wyoming	Single Family	Plug Load Other	1-Watt Standby Power	1W or less standby power use for small appliances	Standard plug load appliance.	Per installation	New	17	7	\$30	50%	50%	\$0.37	1,038
Wyoming	Single Family	Plug Load Other	Energy Star Battery Chargers	Energy Star Battery Chargers	Standard Battery Chargers	Per installation	New	1	7	\$2	50%	80%	\$0.53	137
Wyoming	Single Family	Plug Load Other	Office Copier	Office Copier	Standard Copier	Per installation	New	38	6	\$5	20%	50%	\$0.03	125
Wyoming	Single Family	Plug Load Other	Office Printer	Office Printer	Standard Printer	Per installation	New	4	5	\$5	50%	50%	\$0.29	40
Wyoming	Single Family	Plug Load Other	Smart Strip	Smart Strip	Standard PowerStrip	Per installation	New	101	5	\$22	50%	85%	\$0.06	1,378
Wyoming	Single Family	Pool Pump	Pool Pump Timers	Pool Pump Timers	Pool Pump No Timers	Per installation	Existing	295	10	\$45	95%	50%	\$0.03	35
Wyoming	Single Family	Pool Pump	Pool Pump, 2 Speed	2 Speed Pool Pump	Standard 1 Speed Pool Pump	Per installation	Existing	570	10	\$110	75%	N/A	\$0.03	36
Wyoming	Single Family	Pool Pump	Pool Pump, VSD	VSD Pool Pump	Standard 1 Speed Pool Pump	Per installation	Existing	630	10	\$819	75%	N/A	\$0.22	91
Wyoming	Single Family	Pool Pump	Pool Pump Timers	Pool Pump Timers	Pool Pump No Timers	Per installation	New	296	10	\$45	95%	50%	\$0.03	10
Wyoming	Single Family	Pool Pump	Pool Pump, 2 Speed	2 Speed Pool Pump	Standard 1 Speed Pool Pump	Per installation	New	570	10	\$110	75%	N/A	\$0.03	6
Wyoming	Single Family	Pool Pump	Pool Pump, VSD	VSD Pool Pump	Standard 1 Speed Pool Pump	Per installation	New	630	10	\$819	75%	N/A	\$0.22	13
Wyoming	Single Family	Refrigerator	Refrigerator, Energy Star	Energy Star Refrigerator	Standard Refrigerator	Per installation	Existing	122	20	\$15	89%	N/A	\$0.01	1,271
Wyoming	Single Family	Refrigerator	Refrigerator/Freezer - Removal of Secondary	Proper Disposal of Refrigerator/Freezer	Existing Non-Efficient Refrigerator/Freezer	Per installation	Existing	1,410	9	\$76	8%	99%	\$0.01	2,232
Wyoming	Single Family	Refrigerator	Refrigerator, Energy Star	Energy Star Refrigerator	Standard Refrigerator	Per installation	New	122	20	\$15	100%	N/A	\$0.01	751
Wyoming	Single Family	Set Top Box	Set Top Box, Energy Star	Energy Star Set Top Box	Standard Set Top Box	Per installation	Existing	164	5	\$12	100%	N/A	\$0.02	8,493
Wyoming	Single Family	Set Top Box	Set Top Box, Energy Star	Energy Star Set Top Box	Standard Set Top Box	Per installation	New	164	5	\$12	100%	N/A	\$0.02	589
Wyoming	Single Family	Tv	TV CRT, Energy Star	Energy Star CRT TV	Standard CRT TV	Per installation	Existing	112	10	\$19	100%	N/A	\$0.03	14,618
Wyoming	Single Family	Tv	TV CRT, Energy Star	Energy Star CRT TV	Standard CRT TV	Per installation	New	112	10	\$19	100%	N/A	\$0.03	2,448
Wyoming	Single Family	Tv Bigscreen	TV LCD, Energy Star	Energy Star LCD TV	Standard LCD TV	Per installation	Existing	223	10	\$19	100%	N/A	\$0.01	5,620
Wyoming	Single Family	Tv Bigscreen	TV LCD, Energy Star	Energy Star LCD TV	Standard LCD TV	Per installation	New	223	10	\$19	100%	N/A	\$0.01	941
Wyoming	Single Family	Ventilation And Circulation	Motor, ECM	ECM Motor	Standard Motor	Per installation	Existing	188	20	\$172	50%	N/A	\$0.10	2,199
Wyoming	Single Family	Ventilation And Circulation	Motor, ECM - VFD	ECMVFD Motor	Standard Motor	Per installation	Existing	566	20	\$194	50%	N/A	\$0.04	6,597
Wyoming	Single Family	Ventilation And Circulation	Motor, ECM	ECM Motor	Standard Motor	Per installation	New	157	20	\$172	50%	N/A	\$0.12	686
Wyoming	Single Family	Ventilation And Circulation	Motor, ECM - VFD	ECMVFD Motor	Standard Motor	Per installation	New	471	20	\$194	50%	N/A	\$0.05	2,060
Wyoming	Single Family	Water Heat	Clothes Washer	Energy Star - Tier 1 (MEF 2.0 - 2.19) - Electric DHW & Dryer	MEF = 1.66 - Electric DHW & Dryer	Per installation	Existing	112	14	\$227	100%	88%	\$-0.27	699
Wyoming	Single Family	Water Heat	Clothes Washer	Energy Star - Tier 2 (MEF 2.2 - 2.45) - Electric DHW & Dryer	MEF = 1.66 - Electric DHW & Dryer	Per installation	Existing	150	14	\$296	100%	90%	\$-0.25	952
Wyoming	Single Family	Water Heat	Clothes Washer	Energy Star - Tier 3 (MEF 2.46 or higher) Top 10% of Energy Star Model - Electric DHW & Dryer	MEF = 1.66 - Electric DHW & Dryer	Per installation	Existing	171	14	\$317	100%	95%	\$-0.23	1,145
Wyoming	Single Family	Water Heat	Dishwasher	Energy Star, July 1st 2011, <= 307 kWh/year, <= 5.0 gallons/cycle	Energy Star - EF65 (6th Plan Baseline)	Per installation	Existing	33	12	\$42	87%	50%	\$0.17	304
Wyoming	Single Family	Water Heat	Drain Water Heat Recovery (GFX)	Gravity Film Heat Exchanger	No Heat Exchanger	Per installation	Existing	403	40	\$498	29%	90%	\$0.11	1,836
Wyoming	Single Family	Water Heat	Faucet Aerators	0.5 GPM	2.2 GPM	Per installation	Existing	82	9	\$0.71	95%	95%	\$-0.08	2,360
Wyoming	Single Family	Water Heat	Faucet Aerators	1.5 GPM	2.2 GPM	Per installation	Existing	34	9	\$0.46	95%	65%	\$-0.08	669
Wyoming	Single Family	Water Heat	Faucet Aerators	2.2 GPM	Existing Faucet Aerator (3.0 GPM)	Per installation	Existing	38	9	\$1	95%	25%	\$-0.07	575
Wyoming	Single Family	Water Heat	Hot Water Pipe Insulation	R-4 Wrap	No insulation	Per installation	Existing	40	5	\$17	95%	75%	\$0.12	475
Wyoming	Single Family	Water Heat	Low-Flow Showerheads	2.0 GPM	2.5 GPM	Per installation	Existing	112	10	\$16	95%	65%	\$-0.06	2,941
Wyoming	Single Family	Water Heat	Water Heater, Heat Pump EF = 2.2	Heat Pump Water Heater EF = 2.2	Standard Storage Water Heater EF = 0.92	Per installation	Existing	1,653	15	\$1,286	59%	N/A	\$0.10	9,697

Table C.2.1. Residential Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Wyoming	Single Family	Water Heat	Water Heater, Storage EF 0.95	Standard Storage Water Heater EF = 0.95	Standard Storage Water Heater EF = 0.92	Per installation	Existing	92	15	\$41	100%	N/A	\$0.06	85
Wyoming	Single Family	Water Heat	Water_Heater Tank Blanke/Insulation	Install Insulation (R-5)	No Tank Insulation	Per installation	Existing	187	10	\$11	50%	20%	\$0.01	324
Wyoming	Single Family	Water Heat	Water_Heater Thermostat Setback	120 degrees	135 degrees	Per installation	Existing	172	5	\$6	95%	45%	\$0.01	1,312
Wyoming	Single Family	Water Heat	Clothes Washer	Energy Star - Tier 1 (MEF 2.0 - 2.19) - Electric DHW & Dryer	MEF = 1.66 - Electric DHW & Dryer	Per installation	New	110	14	\$227	100%	88%	\$-0.28	209
Wyoming	Single Family	Water Heat	Clothes Washer	Energy Star - Tier 2 (MEF 2.2 - 2.45) - Electric DHW & Dryer	MEF = 1.66 - Electric DHW & Dryer	Per installation	New	147	14	\$296	100%	90%	\$-0.25	285
Wyoming	Single Family	Water Heat	Clothes Washer	Energy Star - Tier 3 (MEF 2.46 or higher) Top 10% of Energy Star Model - Electric DHW & Dryer	MEF = 1.66 - Electric DHW & Dryer	Per installation	New	167	14	\$317	100%	95%	\$-0.23	343
Wyoming	Single Family	Water Heat	Dishwasher	Energy Star, July 1st 2011, <= 307 kWh/year , <= 5.0 gallons/cycle	Energy Star - EF65 (6th Plan Baseline)	Per installation	New	32	12	\$42	87%	50%	\$0.17	91
Wyoming	Single Family	Water Heat	Drain Water Heat Recovery (GFX)	Gravity Film Heat Exchanger	No Heat Exchanger	Per installation	New	401	40	\$488	59%	90%	\$0.11	1,141
Wyoming	Single Family	Water Heat	Faucet Aerators	0.5 GPM	2.2 GPM	Per installation	New	80	9	\$0.71	95%	95%	\$-0.08	707
Wyoming	Single Family	Water Heat	Faucet Aerators	1.5 GPM	2.2 GPM	Per installation	New	33	9	\$0.46	95%	65%	\$-0.08	200
Wyoming	Single Family	Water Heat	Hot Water Pipe Insulation	R-4 Wrap	No insulation	Per installation	New	39	5	\$17	95%	75%	\$0.13	139
Wyoming	Single Family	Water Heat	Low-Flow Showerheads	2.0 GPM	2.5 GPM	Per installation	New	110	10	\$9	95%	65%	\$-0.07	882
Wyoming	Single Family	Water Heat	Water Heater, Heat Pump EF 2.2	Heat Pump Water Heater EF = 2.2	Standard Storage Water Heater EF = 0.92	Per installation	New	1,653	15	\$1,286	59%	N/A	\$0.10	2,497
Wyoming	Single Family	Water Heat	Water Heater, Storage EF 0.95	Standard Storage Water Heater EF = 0.95	Standard Storage Water Heater EF = 0.92	Per installation	New	92	15	\$41	100%	N/A	\$0.06	22
Wyoming	Single Family	Water Heat	Water_Heater Thermostat Setback	120 degrees	135 degrees	Per installation	New	172	5	\$6	95%	45%	\$0.01	405

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
California	Grocery	Computers	Computer ENERGY STAR	Computer ENERGY STAR	Computer standard non-ENERGY STAR	Per installation	Existing	136	4	\$28	100%	N/A	\$0.07	18
California	Grocery	Computers	Computer ENERGY STAR	Computer ENERGY STAR	Computer standard non-ENERGY STAR	Per installation	New	136	4	\$28	100%	N/A	\$0.07	0.62
California	Grocery	Cooking	Combination Oven	60% cooking efficiency	Non ENERGY STAR	per installation	Existing	11,249	12	\$1,894	90%	90%	\$0.02	1
California	Grocery	Cooking	Fryers - New CEE Efficient Electric Deep Fat Fryers	15 inch width Deep Fryer CEE 2006 rating; 80% under heavy load, Less than 1000 watt at idle	15 inch width standard electric deep fat fryers	per installation	Existing	966	12	\$1,307	35%	90%	\$0.20	0.18
California	Grocery	Cooking	Griddle	70% cooking efficiency	Non ENERGY STAR	per installation	Existing	2,171	12	\$819	95%	85%	\$0.06	2
California	Grocery	Cooking	High Efficiency Convection Oven	Convection Oven	Standard Oven	per installation	Existing	1,797	12	\$2,025	19%	55%	\$0.17	0.47
California	Grocery	Cooking	Hot Food Holding Cabinet	ENERGY STAR	Non ENERGY STAR	per installation	Existing	3,771	12	\$1,754	55%	21%	\$0.07	1
California	Grocery	Cooking	Steam Cooker	ENERGY STAR	Non ENERGY STAR	per installation	Existing	4,036	12	\$2,552	14%	75%	\$0.09	1
California	Grocery	Cooking	Combination Oven	60% cooking efficiency	Non ENERGY STAR	per installation	New	11,249	12	\$1,894	90%	90%	\$0.02	0.20
California	Grocery	Cooking	Fryers - New CEE Efficient Electric Deep Fat Fryers	15 inch width Deep Fryer CEE 2006 rating; 80% under heavy load, Less than 1000 watt at idle	15 inch width standard electric deep fat fryers	per installation	New	966	12	\$1,307	35%	90%	\$0.20	0.03
California	Grocery	Cooking	Griddle	70% cooking efficiency	Non ENERGY STAR	per installation	New	2,171	12	\$819	95%	85%	\$0.06	0.53
California	Grocery	Cooking	High Efficiency Convection Oven	Convection Oven	Standard Oven	per installation	New	1,797	12	\$2,025	19%	55%	\$0.17	0.08
California	Grocery	Cooking	Hot Food Holding Cabinet	ENERGY STAR	Non ENERGY STAR	per installation	New	3,771	12	\$1,754	55%	21%	\$0.07	0.26
California	Grocery	Cooking	Steam Cooker	ENERGY STAR	Non ENERGY STAR	per installation	New	4,036	12	\$2,552	14%	75%	\$0.09	0.26
California	Grocery	Cooling Dx Evap	Cool Roof	Light color Coating; ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	Existing	0.36	15	\$0.69	80%	98%	\$0.25	34
California	Grocery	Cooling Dx Evap	DX Package 65 to 135 kBtu/hr - High Efficiency	DX Package 65 to 135 kBtu/hr - High Efficiency - 11.5 EER	DX Package 65 to 135 kBtu/hr - Standard Efficiency - 11.2 EER	Per installation	Existing	461	15	\$279	100%	N/A	\$0.08	0.51
California	Grocery	Cooling Dx Evap	DX Package 65 to 135 kBtu/hr - Premium Efficiency	DX Package 65 to 135 kBtu/hr - Premium Efficiency - 12.0 EER	DX Package 65 to 135 kBtu/hr - Standard Efficiency - 11.2 EER	Per installation	Existing	1,209	15	\$561	100%	N/A	\$0.06	21
California	Grocery	Cooling Dx Evap	DX Package-Air Side Economizer	Air-Side Economizer	No Economizer	per DX ton	Existing	162	10	\$178	10%	90%	\$0.18	7
California	Grocery	Cooling Dx Evap	DX Tune-Up / Diagnostics	DX Tune-Up / Diagnostics	No DX Tune-Up / Diagnostics	per installation	Existing	813	4	\$397	95%	72%	\$0.19	35
California	Grocery	Cooling Dx Evap	Direct / Indirect Evaporative Cooling, Pre-Cooling	Evaporative Cooler	Standard DX cooling	per building CFM	Existing	0.90	15	\$2	50%	94%	\$0.32	53
California	Grocery	Cooling Dx Evap	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	Existing	361	15	\$186	75%	76%	\$0.07	36
California	Grocery	Cooling Dx Evap	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	Existing	0.09	18	\$0.26	45%	65%	\$0.34	2
California	Grocery	Cooling Dx Evap	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	Existing	0.36	40	\$10	4%	98%	\$2.72	0.13
California	Grocery	Cooling Dx Evap	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	2	13	\$0.37	10%	39%	\$0.02	1
California	Grocery	Cooling Dx Evap	Insulation - Ceiling	R-25 (CA State Code)	R-7 (Average Existing Conditions)	per roof sqft	Existing	0.00	25	\$0.72	75%	60%	\$17.61	0.20
California	Grocery	Cooling Dx Evap	Insulation - Duct	R-8 (CA State Code)	No Insulation	per surface area of duct insul	Existing	2	20	\$2	75%	62%	\$0.15	12
California	Grocery	Cooling Dx Evap	Insulation - Floor (non-slab)	R-30	R-25 (CA State Code)	per floor area	Existing	0.00	25	\$0.11	35%	90%	\$1.48	0.27
California	Grocery	Cooling Dx Evap	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	Existing	22	30	\$6	50%	95%	\$0.03	50

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
California	Grocery	Cooling Dx Evap	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	Existing	325	10	\$146	95%	33%	\$0.08	5
California	Grocery	Cooling Dx Evap	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	0.45	7	\$0.21	90%	85%	\$0.10	57
California	Grocery	Cooling Dx Evap	Window Film	Window Film	No Film	per 100 sqft of window glazing	Existing	2	10	\$163	90%	68%	\$13.52	0.07
California	Grocery	Cooling Dx Evap	Windows-High Efficiency	U-0.47 (CA State Code)	U-0.65 (Average Existing Conditions)	per window sqft	Existing	9	25	\$39	15%	75%	\$0.41	7
California	Grocery	Cooling Dx Evap	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	New	0.21	15	\$0.69	80%	98%	\$0.43	4
California	Grocery	Cooling Dx Evap	DX Package 65 to 135 kBTU/hr - High Efficiency	DX Package 65 to 135 kBTU/hr - High Efficiency - 11.5 EER	DX Package 65 to 135 kBTU/hr - Standard Efficiency - 11.2 EER	Per installation	New	310	15	\$223	100%	N/A	\$0.09	0.05
California	Grocery	Cooling Dx Evap	DX Package 65 to 135 kBTU/hr - Premium Efficiency	DX Package 65 to 135 kBTU/hr - Premium Efficiency - 12.0 EER	DX Package 65 to 135 kBTU/hr - Standard Efficiency - 11.2 EER	Per installation	New	770	15	\$449	100%	N/A	\$0.08	2
California	Grocery	Cooling Dx Evap	Direct / Indirect Evaporative Cooling, Pre-Cooling	Evaporative Cooler	Standard DX cooling	per building CFM	New	0.52	15	\$2	50%	94%	\$0.55	7
California	Grocery	Cooling Dx Evap	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	New	210	15	\$186	75%	76%	\$0.11	4
California	Grocery	Cooling Dx Evap	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	New	0.05	18	\$0.26	45%	65%	\$0.59	0.41
California	Grocery	Cooling Dx Evap	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	New	0.21	40	\$10	4%	98%	\$4.67	0.01
California	Grocery	Cooling Dx Evap	Insulation - Floor (non-slab)	R-30	R-25 (CA State Code)	per floor area	New	0.00	25	\$0.11	35%	90%	\$2.54	0.03
California	Grocery	Cooling Dx Evap	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	New	12	30	\$6	50%	95%	\$0.05	5
California	Grocery	Cooling Dx Evap	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	New	189	10	\$146	95%	16%	\$0.13	0.32
California	Grocery	Cooling Room	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	Existing	0.48	15	\$0.69	80%	98%	\$0.18	1
California	Grocery	Cooling Room	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	Existing	489	15	\$186	75%	76%	\$0.05	1
California	Grocery	Cooling Room	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	Existing	0.48	40	\$10	4%	98%	\$2.01	0.00
California	Grocery	Cooling Room	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	3	13	\$0.37	10%	39%	\$0.02	0.02
California	Grocery	Cooling Room	Insulation - Ceiling	R-25 (CA State Code)	R-7 (Average Existing Conditions)	per roof sqft	Existing	0.00	25	\$0.72	75%	60%	\$13.01	0.00
California	Grocery	Cooling Room	Insulation - Floor (non-slab)	R-30	R-25 (CA State Code)	per floor area	Existing	0.01	25	\$0.11	35%	90%	\$1.09	0.01
California	Grocery	Cooling Room	PTAC (10,000 BTU/HR) - Premium-Efficiency	11.4 EER	Room AC (10,000 BTU/HR) Standard-Efficiency 9.8 EER	Per installation	Existing	2,484	15	\$14,371	75%	N/A	\$0.75	1
California	Grocery	Cooling Room	Room AC (10,000 BTU/HR) High-Efficiency	High Efficiency 10.8 EER (ENERGY STAR)	Room AC (10,000 BTU/HR) Standard-Efficiency 9.8 EER	Per installation	Existing	1,539	9	\$615	100%	N/A	\$0.07	0.34
California	Grocery	Cooling Room	Window Film	Window Film	No Film	per 100 sqft of window glazing	Existing	0.10	10	\$163	90%	68%	\$269.92	0.00
California	Grocery	Cooling Room	Windows-High Efficiency	U-0.47 (CA State Code)	U-0.65 (Average Existing Conditions)	per window sqft	Existing	13	25	\$39	15%	75%	\$0.30	0.31

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
California	Grocery	Cooling Room	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	New	0.29	15	\$0.69	80%	98%	\$0.30	0.15
California	Grocery	Cooling Room	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	New	296	15	\$186	75%	76%	\$0.08	0.13
California	Grocery	Cooling Room	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	New	0.29	40	\$10	4%	98%	\$3.31	0.00
California	Grocery	Cooling Room	Insulation - Floor (non-slab)	R-30	R-25 (CA State Code)	per floor area	New	0.00	25	\$0.11	35%	90%	\$1.80	0.00
California	Grocery	Cooling Room	PTAC (10,000 BTU/HR) - Premium-Efficiency	11.4 EER	Room AC (10,000 BTU/HR) Standard-Efficiency 9.8 EER	Per installation	New	1,569	15	\$10,030	75%	N/A	\$0.83	0.11
California	Grocery	Cooling Room	Room AC (10,000 BTU/HR) High-Efficiency	High Efficiency 10.8 EER (ENERGY STAR)	Room AC (10,000 BTU/HR) Standard-Efficiency 9.8 EER	Per installation	New	986	9	\$492	100%	N/A	\$0.09	0.02
California	Grocery	Heat Pump	Air Source Heat Pump 65 to 135 kBtu/hr - High Efficiency	11.5 EER, 3.4 COP	11.0 EER, 3.3 COP	Per installation	Existing	705	15	\$1,038	100%	N/A	\$0.19	0.23
California	Grocery	Heat Pump	Air Source Heat Pump 65 to 135 kBtu/hr - Premium Efficiency	12.0 EER, 3.8 COP	11.0 EER, 3.3 COP	Per installation	Existing	2,665	15	\$2,077	100%	N/A	\$0.10	9
California	Grocery	Heat Pump	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	Existing	0.44	15	\$0.69	80%	98%	\$0.20	5
California	Grocery	Heat Pump	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	Existing	815	15	\$186	75%	76%	\$0.03	9
California	Grocery	Heat Pump	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	Existing	0.20	18	\$0.26	45%	65%	\$0.15	1
California	Grocery	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	Existing	0.56	14	\$1	5%	94%	\$0.42	0.42
California	Grocery	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	Existing	0.44	40	\$10	4%	98%	\$2.23	0.02
California	Grocery	Heat Pump	Ground Source Heat Pump Replacing Air Source Heat Pump 65 to 135 kBtu/hr - Advanced Efficiency	16.2 EER 4.0 COP	11.0 EER, 3.3 COP	Per installation	Existing	6,350	30	\$67,095	5%	N/A	\$1.00	1
California	Grocery	Heat Pump	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	7	13	\$0.37	10%	39%	\$0.01	0.39
California	Grocery	Heat Pump	Insulation - Ceiling	R-25 (CA State Code)	R-7 (Average Existing Conditions)	per roof sqft	Existing	0.37	25	\$0.72	75%	60%	\$0.20	2
California	Grocery	Heat Pump	Insulation - Ceiling	R-30	R-25 (CA State Code)	per roof sqft	Existing	0.03	25	\$0.10	75%	85%	\$0.31	0.36
California	Grocery	Heat Pump	Insulation - Duct	R-8 (CA State Code)	No Insulation	per surface area of duct insul	Existing	4	20	\$2	75%	62%	\$0.07	3
California	Grocery	Heat Pump	Insulation - Floor (non-slab)	R-25 (CA State Code)	R-11 (Average Existing Conditions)	per floor area	Existing	0.25	25	\$0.87	35%	83%	\$0.35	1
California	Grocery	Heat Pump	Insulation - Floor (non-slab)	R-30	R-25 (CA State Code)	per floor area	Existing	0.12	25	\$0.11	35%	90%	\$0.09	0.71
California	Grocery	Heat Pump	Insulation - Wall	R-16 (CA State Code)	R-3 (Average Existing Conditions)	per floor area	Existing	0.85	25	\$1	10%	67%	\$0.18	0.47
California	Grocery	Heat Pump	Insulation - Wall	R-21	R-16 (CA State Code)	per floor area	Existing	0.44	25	\$0.17	10%	85%	\$0.04	0.36
California	Grocery	Heat Pump	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	Existing	68	30	\$6	50%	95%	\$0.01	19
California	Grocery	Heat Pump	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	Existing	734	10	\$146	95%	33%	\$0.03	1
California	Grocery	Heat Pump	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	1	7	\$0.21	90%	85%	\$0.05	15
California	Grocery	Heat Pump	Window Film	Window Film	No Film	per 100 sqft of window glazing	Existing	2	10	\$163	90%	68%	\$13.39	0.01
California	Grocery	Heat Pump	Windows-High Efficiency	U-0.32	U-0.47 (CA State Code)	per window sqft	Existing	2	25	\$56	15%	90%	\$2.08	0.35
California	Grocery	Heat Pump	Windows-High Efficiency	U-0.47 (CA State Code)	U-0.65 (Average Existing Conditions)	per window sqft	Existing	9	25	\$39	15%	75%	\$0.42	1

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
California	Grocery	Heat Pump	Air Source Heat Pump 65 to 135 kBtu/hr - High Efficiency	11.5 EER, 3.4 COP	11.0 EER, 3.3 COP	Per installation	New	463	15	\$831	100%	N/A	\$0.23	0.02
California	Grocery	Heat Pump	Air Source Heat Pump 65 to 135 kBtu/hr - Premium Efficiency	12.0 EER, 3.8 COP	11.0 EER, 3.3 COP	Per installation	New	1,382	15	\$1,662	100%	N/A	\$0.16	1
California	Grocery	Heat Pump	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	New	0.26	15	\$0.69	80%	98%	\$0.34	0.71
California	Grocery	Heat Pump	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	New	400	15	\$186	75%	76%	\$0.06	0.95
California	Grocery	Heat Pump	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	New	0.10	18	\$0.26	45%	65%	\$0.31	0.11
California	Grocery	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	New	0.20	14	\$1	5%	94%	\$1.16	0.03
California	Grocery	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	New	0.26	40	\$10	4%	98%	\$3.73	0.00
California	Grocery	Heat Pump	Ground Source Heat Pump Replacing Air Source Heat Pump 65 to 135 kBtu/hr - Advanced Efficiency	16.2 EER 4.0 COP	11.0 EER, 3.3 COP	Per installation	New	3,554	30	\$34,310	5%	N/A	\$0.90	0.11
California	Grocery	Heat Pump	Insulation - Ceiling	R-30	R-25 (CA State Code)	per roof sqft	New	0.00	25	\$0.10	75%	85%	\$1.18	0.02
California	Grocery	Heat Pump	Insulation - Floor (non-slab)	R-30	R-25 (CA State Code)	per floor area	New	0.03	25	\$0.11	35%	90%	\$0.33	0.04
California	Grocery	Heat Pump	Insulation - Wall	R-21	R-16 (CA State Code)	per floor area	New	0.11	25	\$0.17	95%	85%	\$0.16	0.16
California	Grocery	Heat Pump	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	New	33	30	\$6	50%	95%	\$0.02	1
California	Grocery	Heat Pump	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	New	360	10	\$146	95%	16%	\$0.07	0.07
California	Grocery	Heat Pump	Windows-High Efficiency	U-0.32	U-0.47 (CA State Code)	per window sqft	New	0.61	25	\$56	80%	90%	\$9.45	0.09
California	Grocery	Hvac Aux	Cooking Hood Controls	Demand-Ventilation Control	No Controls	per installation	Existing	1,784	18	\$4,181	95%	65%	\$0.28	78
California	Grocery	Hvac Aux	Motor - CEE Premium-Efficiency Plus	CEE PE+ Motor for HVAC Applications	NEMA Efficiency Motors	per HP	Existing	42	15	\$6	95%	76%	\$0.02	8
California	Grocery	Hvac Aux	Motor Rewind	>15, <500 HP	No Rewind	per HP	Existing	8	8	\$4	65%	25%	\$0.11	0.31
California	Grocery	Hvac Aux	Cooking Hood Controls	Demand-Ventilation Control	No Controls	per installation	New	1,784	18	\$4,181	95%	65%	\$0.28	14
California	Grocery	Hvac Aux	Motor - CEE Premium-Efficiency Plus	CEE PE+ Motor for HVAC Applications	NEMA Efficiency Motors	per HP	New	40	15	\$6	95%	76%	\$0.02	1
California	Grocery	Lighting Exterior	Covered Parking Lighting	Covered Parking Lighting	Normal Lighting	per building sqft	Existing	0.08	10	\$0.02	80%	95%	\$0.05	24
California	Grocery	Lighting Exterior	Daylighting Controls, Outdoors (Photocell)	Photocell	No Controls	per installation	Existing	29	8	\$28	75%	70%	\$0.19	3
California	Grocery	Lighting Exterior	Exterior Building Lighting	30% savings	Normal Lighting	per installation	Existing	231	15	\$335	62%	90%	\$0.19	32
California	Grocery	Lighting Exterior	Solid State LED White Lighting	Landscape, merchandise, signage, structure & task lighting (2.5 W)	50W 10hrs/day, 365 day/yr	per installation	Existing	3	14	\$35	75%	95%	\$1.49	0.60
California	Grocery	Lighting Exterior	Surface Parking Lighting	Surface Parking Lighting	Normal Lighting	per building sqft	Existing	0.04	19	\$0.07	62%	95%	\$0.17	10
California	Grocery	Lighting Exterior	Covered Parking Lighting	Covered Parking Lighting	Normal Lighting	per building sqft	New	0.08	10	\$0.02	80%	95%	\$0.05	4
California	Grocery	Lighting Exterior	Daylighting Controls, Outdoors (Photocell)	Photocell	No Controls	per installation	New	29	8	\$28	75%	70%	\$0.19	0.69
California	Grocery	Lighting Exterior	Exterior Building Lighting	30% savings	Normal Lighting	per installation	New	231	15	\$335	62%	90%	\$0.19	6
California	Grocery	Lighting Exterior	Solid State LED White Lighting	Landscape, merchandise, signage, structure & task lighting (2.5 W)	50W 10hrs/day, 365 day/yr	per installation	New	3	14	\$35	75%	95%	\$1.49	0.11
California	Grocery	Lighting Exterior	Surface Parking Lighting	Surface Parking Lighting	Normal Lighting	per building sqft	New	0.04	19	\$0.07	62%	95%	\$0.17	1
California	Grocery	Lighting Interior	Cold Cathode Lighting	Cold Cathode Lighting 5 watts	30 W Incandescent Bulb	per installation	Existing	85	5	\$12	15%	94%	\$0.04	1

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
California	Grocery	Lighting Interior	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	Existing	0.34	8	\$1	30%	96%	\$0.61	2
California	Grocery	Lighting Interior	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	Existing	0.25	8	\$0.79	30%	96%	\$0.61	2
California	Grocery	Lighting Interior	Exit Sign - LED	LED Exit Sign (2 Watts)	CFL Exit Sign (9 Watts)	per installation	Existing	92	16	\$16	95%	50%	\$0.02	11
California	Grocery	Lighting Interior	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign (2 Watts)	per installation	Existing	16	13	\$30	95%	98%	\$0.26	1
California	Grocery	Lighting Interior	LED Refrigeration Case Lights	LED Refrigeration Case Lights	Fluorescent Refrigeration Case	per installation	Existing	222	8	\$248	85%	80%	\$0.22	203
California	Grocery	Lighting Interior	Lighting Package, High Efficiency	15% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	Existing	0.71	13	\$0.25	90%	53%	\$0.05	94
California	Grocery	Lighting Interior	Lighting Package, High Efficiency	Code Required LPD And Control Strategies	Existing Lighting Design LPD	per building sqft	Existing	1	13	\$1	90%	59%	\$0.13	292
California	Grocery	Lighting Interior	Lighting Package, Premium Efficiency	25% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	Existing	1	13	\$1	75%	62%	\$0.12	37
California	Grocery	Lighting Interior	Lighting Package, Premium High Bay	35% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	Existing	0.24	13	\$0.16	70%	83%	\$0.09	49
California	Grocery	Lighting Interior	Occupancy Sensor Control, Fluorescent	Occupancy Sensor Control, Fluorescent	No Occupancy Sensor	per occupancy sensor	Existing	990	8	\$73	45%	57%	\$0.01	6
California	Grocery	Lighting Interior	Time Clock	Time Clock	No Controls	per 10,000 Watts	Existing	717	8	\$218	20%	81%	\$0.06	4
California	Grocery	Lighting Interior	Cold Cathode Lighting	Cold Cathode Lighting 5 watts	30 W Incandescent Bulb	per installation	New	75	5	\$12	15%	94%	\$0.05	0.22
California	Grocery	Lighting Interior	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	New	0.30	8	\$1	30%	96%	\$0.69	0.56
California	Grocery	Lighting Interior	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	New	0.56	8	\$0.79	30%	96%	\$0.28	1
California	Grocery	Lighting Interior	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign (2 Watts)	per installation	New	16	13	\$30	95%	98%	\$0.26	1
California	Grocery	Lighting Interior	LED Refrigeration Case Lights	LED Refrigeration Case Lights	Fluorescent Refrigeration Case	per installation	New	222	8	\$248	85%	80%	\$0.22	38
California	Grocery	Lighting Interior	Lighting Package, High Efficiency	15% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	New	0.71	15	\$0.15	90%	53%	\$0.03	17
California	Grocery	Lighting Interior	Lighting Package, Premium Efficiency	25% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	New	1	15	\$0.34	75%	62%	\$0.04	6
California	Grocery	Lighting Interior	Lighting Package, Premium High Bay	35% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	New	0.24	15	\$0.03	70%	83%	\$0.02	9
California	Grocery	Lighting Interior	Occupancy Sensor Control, Fluorescent	Occupancy Sensor Control, Fluorescent	No Occupancy Sensor	per occupancy sensor	New	870	8	\$73	45%	57%	\$0.02	1
California	Grocery	Lighting Interior	Time Clock	Time Clock	No Controls	per 10,000 Watts	New	717	8	\$218	20%	81%	\$0.06	0.79
California	Grocery	Other Office Equipment	ENERGY STAR - Copiers	ENERGY STAR Copiers	Standard Copier	per installation	Existing	69	6	\$160	95%	45%	\$0.56	1
California	Grocery	Other Office Equipment	ENERGY STAR - Fax	ENERGY STAR Fax	Standard Fax	per installation	Existing	74	6	\$1	95%	45%	\$0.01	1
California	Grocery	Other Office Equipment	ENERGY STAR - Monitors	ENERGY STAR Features Enabled	Non-ENERGY STAR Features	per installation	Existing	14	5	\$16	64%	15%	\$0.33	0.21
California	Grocery	Other Office Equipment	ENERGY STAR - Printers	ENERGY STAR Printers	Standard Printers	per installation	Existing	131	6	\$15	95%	40%	\$0.03	4
California	Grocery	Other Office Equipment	ENERGY STAR - Scanners	ENERGY STAR Scanners	Standard Scanner	per installation	Existing	67	6	\$0.87	95%	45%	\$0.00	1
California	Grocery	Other Office Equipment	ENERGY STAR - Copiers	ENERGY STAR Copiers	Standard Copier	per installation	New	69	6	\$160	95%	45%	\$0.56	0.23
California	Grocery	Other Office Equipment	ENERGY STAR - Fax	ENERGY STAR Fax	Standard Fax	per installation	New	74	6	\$1	95%	45%	\$0.01	0.25
California	Grocery	Other Office Equipment	ENERGY STAR - Monitors	ENERGY STAR Features Enabled	Non-ENERGY STAR Features	per installation	New	14	5	\$16	64%	15%	\$0.33	0.03
California	Grocery	Other Office Equipment	ENERGY STAR - Printers	ENERGY STAR Printers	Standard Printers	per installation	New	131	6	\$15	95%	40%	\$0.03	0.83

Table C.2.2. Commercial Measure Details

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California	Grocery	Other Office Equipment	ENERGY STAR - Scanners	ENERGY STAR Scanners	Standard Scanner	per installation	New	67	6	\$0.87	95%	45%	\$0.00	0.22
California	Grocery	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	per installation	Existing	7	7	\$1	20%	90%	\$0.05	0.05
California	Grocery	Other Plug Load	ENERGY STAR - Water Cooler	ENERGY STAR Water Cooler (Hot/Cold Water)	Non-ENERGY STAR Water Cooler	per installation	Existing	345	10	\$0.00	95%	75%	\$0.00	4
California	Grocery	Other Plug Load	Ice Maker	High-Efficiency Ice Maker	Standard Ice Maker	per installation	Existing	402	10	\$141	95%	86%	\$0.03	35
California	Grocery	Other Plug Load	Power Supply Transformer/Converter	80 Plus	85% efficient power supply (> 51W)	1 unit per 2,000 sqft	Existing	5	4	\$0.41	95%	86%	\$0.02	0.84
California	Grocery	Other Plug Load	Residential Refrigerator	ENERGY STAR	Federal Standard	per installation	Existing	76	12	\$123	3%	65%	\$0.24	0.15
California	Grocery	Other Plug Load	Residential Refrigerator/Freezer Recycling	Recycling Existing Refrigerator/Freezer	Existing Refrigerator/Freezer	per installation	Existing	907	4	\$563	25%	35%	\$0.21	2
California	Grocery	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	1 unit per 5,000 sqft	Existing	95	5	\$20	60%	90%	\$0.06	3
California	Grocery	Other Plug Load	Vending Machines- High Efficiency	ENERGY STAR (Tier 2) Vending Machines- High Efficiency 500 can capacity Under 5.92 kWh/day	Vending Machines- Standard 13 kWh/day	per installation	Existing	228	14	\$161	75%	80%	\$0.10	12
California	Grocery	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	per installation	New	7	7	\$1	20%	90%	\$0.05	0.01
California	Grocery	Other Plug Load	ENERGY STAR - Water Cooler	ENERGY STAR Water Cooler (Hot/Cold Water)	Non-ENERGY STAR Water Cooler	per installation	New	345	10	\$0.00	95%	75%	\$0.00	0.82
California	Grocery	Other Plug Load	Ice Maker	High-Efficiency Ice Maker	Standard Ice Maker	per installation	New	402	10	\$141	95%	86%	\$0.03	6
California	Grocery	Other Plug Load	Power Supply Transformer/Converter	80 Plus	85% efficient power supply (> 51W)	1 unit per 2,000 sqft	New	5	4	\$0.41	95%	86%	\$0.02	0.15
California	Grocery	Other Plug Load	Residential Refrigerator	ENERGY STAR	Federal Standard	per installation	New	76	12	\$123	3%	65%	\$0.24	0.03
California	Grocery	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	1 unit per 5,000 sqft	New	95	5	\$20	60%	90%	\$0.06	0.69
California	Grocery	Other Plug Load	Vending Machines- High Efficiency	ENERGY STAR (Tier 2) Vending Machines- High Efficiency 500 can capacity Under 5.92 kWh/day	Vending Machines- Standard 13 kWh/day	per installation	New	228	14	\$161	75%	80%	\$0.10	2
California	Grocery	Refrigeration	Anti-Sweat (Humidistat) Controls	Anti-Sweat (Humidistat) Controls	No Anti-Sweat (Humidistat) Controls	1 unit per 1,000 sqft	Existing	935	12	\$89	90%	45%	\$0.01	79
California	Grocery	Refrigeration	Case Electronically Commutated Motor	ECM Case Fans	Standard Efficiency Motor	1 unit per 1,000 sqft	Existing	974	12	\$242	100%	77%	\$0.04	192
California	Grocery	Refrigeration	Case Replacement Low Temp	Case Replacement Low Temp	No replacement	per square foot	Existing	0.93	15	\$0.10	95%	95%	\$0.02	217
California	Grocery	Refrigeration	Case Replacement Med Temp	Case Replacement Med Temp	No replacement	per square foot	Existing	0.07	15	\$0.05	95%	95%	\$0.09	18
California	Grocery	Refrigeration	Compressor VSD Retrofit	VSD Compressor	Constant Speed Compressor	per refrigeration ton	Existing	1,441	13	\$284	60%	77%	\$0.03	215
California	Grocery	Refrigeration	Demand Control Defrost - Hot Gas	Refrigerant Defrost	Defrost - Electric	per installation	Existing	836	10	\$10	95%	68%	\$0.00	46
California	Grocery	Refrigeration	Floating Condenser Head Pressure Controls	Floating Condenser Head Pressure Controls	No Floating Condenser Head Pressure Controls	1 unit per 1,000 sqft	Existing	1,712	15	\$195	50%	81%	\$0.01	142
California	Grocery	Refrigeration	Glass Door ES Refrigerators/Freezers	Glass Door ES Refrigerators/Freezers	Standard Glass Doors	per installation	Existing	2,440	12	\$722	95%	77%	\$0.04	152
California	Grocery	Refrigeration	Night Covers for Display Cases	Night Covers for Display Cases	No Night Covers	per installation	Existing	385	5	\$66	95%	85%	\$0.05	129
California	Grocery	Refrigeration	Refrigeration Commissioning or Re-commissioning	Commissioning / Re-commissioning	No Commissioning / Re-commissioning	per refrigeration ton	Existing	780	3	\$141	95%	85%	\$0.08	195
California	Grocery	Refrigeration	Solid Door ES Refrigerators/Freezers	Solid Door ES Refrigerators/Freezers	Standard Solid Door	per installation	Existing	1,106	12	\$190	95%	81%	\$0.03	72
California	Grocery	Refrigeration	Standalone to Multiplex Compressor	Standalone to Multiplex Compressor	Standalone compressor	per building sqft	Existing	0.58	13	\$0.09	80%	90%	\$0.02	84
California	Grocery	Refrigeration	Strip Curtains for Walk-Ins	Strip Curtains for Walk-Ins	No Strip Curtains for Walk-In	per installation	Existing	1,287	4	\$184	95%	20%	\$0.05	21
California	Grocery	Refrigeration	Walk-In Electronically Commutated Motor	ECM Evaporator Fans	Standard Efficiency Motor	per installation	Existing	0.82	12	\$0.17	95%	95%	\$0.03	192

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
California	Grocery	Refrigeration	Anti-Sweat (Humidistat) Controls	Anti-Sweat (Humidistat) Controls	No Anti-Sweat (Humidistat) Controls	1 unit per 1,000 sqft	New	935	12	\$89	90%	45%	\$0.01	15
California	Grocery	Refrigeration	Case Electronically Commutated Motor	ECM Case Fans	Standard Efficiency Motor	1 unit per 1,000 sqft	New	974	12	\$242	100%	77%	\$0.04	36
California	Grocery	Refrigeration	Demand Control Defrost - Hot Gas	Refrigerant Defrost	Defrost - Electric	per installation	New	836	10	\$10	95%	68%	\$0.00	8
California	Grocery	Refrigeration	Floating Condenser Head Pressure Controls	Floating Condenser Head Pressure Controls	No Floating Condenser Head Pressure Controls	1 unit per 1,000 sqft	New	1,712	15	\$195	50%	81%	\$0.01	28
California	Grocery	Refrigeration	Glass Door ES Refrigerators/Freezers	Glass Door ES Refrigerators/Freezers	Standard Glass Doors	per installation	New	2,440	12	\$722	95%	77%	\$0.04	28
California	Grocery	Refrigeration	Night Covers for Display Cases	Night Covers for Display Cases	No Night Covers	per installation	New	385	5	\$66	95%	85%	\$0.05	23
California	Grocery	Refrigeration	Refrigeration Commissioning or Re-commissioning	Commissioning / Re-commissioning	No Commissioning / Re-commissioning	per refrigeration ton	New	482	3	\$54	80%	90%	\$0.05	22
California	Grocery	Refrigeration	Solid Door ES Refrigerators/Freezers	Solid Door ES Refrigerators/Freezers	Standard Solid Door	per installation	New	1,106	12	\$190	95%	81%	\$0.03	13
California	Grocery	Refrigeration	Strip Curtains for Walk-Ins	Strip Curtains for Walk-Ins	No Strip Curtains for Walk-In	per installation	New	1,287	4	\$184	95%	20%	\$0.05	3
California	Grocery	Refrigeration	Walk-In Electronically Commutated Motor	ECM Evaporator Fans	Standard Efficiency Motor	per installation	New	0.82	12	\$0.17	95%	95%	\$0.03	36
California	Grocery	Space Heat	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	Existing	447	15	\$186	75%	76%	\$0.05	16
California	Grocery	Space Heat	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	Existing	0.11	18	\$0.26	45%	65%	\$0.28	1
California	Grocery	Space Heat	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	Existing	0.67	14	\$1	5%	94%	\$0.35	1
California	Grocery	Space Heat	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	5	13	\$0.37	10%	39%	\$0.01	1
California	Grocery	Space Heat	Insulation - Ceiling	R-25 (CA State Code)	R-7 (Average Existing Conditions)	per roof sqft	Existing	0.96	25	\$0.72	75%	60%	\$0.08	27
California	Grocery	Space Heat	Insulation - Ceiling	R-30	R-25 (CA State Code)	per roof sqft	Existing	0.11	25	\$0.10	75%	85%	\$0.10	3
California	Grocery	Space Heat	Insulation - Duct	R-8 (CA State Code)	No Insulation	per surface area of duct insul	Existing	2	20	\$2	75%	62%	\$0.12	4
California	Grocery	Space Heat	Insulation - Floor (non-slab)	R-25 (CA State Code)	R-11 (Average Existing Conditions)	per floor area	Existing	1	25	\$0.87	35%	83%	\$0.08	18
California	Grocery	Space Heat	Insulation - Floor (non-slab)	R-30	R-25 (CA State Code)	per floor area	Existing	0.32	25	\$0.11	35%	90%	\$0.04	7
California	Grocery	Space Heat	Insulation - Wall	R-16 (CA State Code)	R-3 (Average Existing Conditions)	per floor area	Existing	3	25	\$1	10%	67%	\$0.04	8
California	Grocery	Space Heat	Insulation - Wall	R-21	R-16 (CA State Code)	per floor area	Existing	1	25	\$0.17	10%	85%	\$0.01	4
California	Grocery	Space Heat	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	Existing	37	30	\$6	50%	95%	\$0.02	34
California	Grocery	Space Heat	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	Existing	402	10	\$146	95%	33%	\$0.06	2
California	Grocery	Space Heat	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	0.55	7	\$0.21	90%	85%	\$0.08	22
California	Grocery	Space Heat	Windows-High Efficiency	U-0.32	U-0.47 (CA State Code)	per window sqft	Existing	5	25	\$56	15%	90%	\$1.00	2
California	Grocery	Space Heat	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	New	169	15	\$186	75%	76%	\$0.14	1
California	Grocery	Space Heat	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	New	0.04	18	\$0.26	45%	65%	\$0.73	0.13
California	Grocery	Space Heat	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	New	0.25	14	\$1	5%	94%	\$0.94	0.12
California	Grocery	Space Heat	Insulation - Ceiling	R-30	R-25 (CA State Code)	per roof sqft	New	0.04	25	\$0.10	75%	85%	\$0.26	0.28
California	Grocery	Space Heat	Insulation - Floor (non-slab)	R-30	R-25 (CA State Code)	per floor area	New	0.12	25	\$0.11	35%	90%	\$0.10	0.45
California	Grocery	Space Heat	Insulation - Wall	R-21	R-16 (CA State Code)	per floor area	New	0.49	25	\$0.17	95%	85%	\$0.04	2
California	Grocery	Space Heat	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	New	14	30	\$6	50%	95%	\$0.04	2
California	Grocery	Space Heat	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	New	152	10	\$146	95%	16%	\$0.16	0.08
California	Grocery	Space Heat	Windows-High Efficiency	U-0.32	U-0.47 (CA State Code)	per window sqft	New	2	25	\$56	80%	90%	\$2.63	0.97

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
California	Grocery	Water Heat	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	per building sqft	Existing	0.01	10	\$0.29	75%	94%	\$2.88	1
California	Grocery	Water Heat	Dishwasher Residential	ENERGY STAR <= 324 kWh/yr, <= 5.8 gal/cycle	Federal Standard <= 355 kWh/yr, <= 6.5 gal/cycle	per installation	Existing	29	11	\$30	95%	25%	\$0.10	0.11
California	Grocery	Water Heat	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	per installation	Existing	7,015	10	\$2,637	95%	95%	\$0.02	4
California	Grocery	Water Heat	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	per installation	Existing	3,277	10	\$822	95%	94%	\$-0.02	1
California	Grocery	Water Heat	Electric Water Heater - High Efficiency	EF = 0.95	EF = 0.92	Per installation	Existing	33	15	\$87	100%	N/A	\$0.33	0.20
California	Grocery	Water Heat	Heat Pump Water Heater - Advanced-Efficiency	EF = 2.2	EF = 0.92	Per installation	Existing	626	15	\$1,774	75%	N/A	\$0.37	13
California	Grocery	Water Heat	Hot Water (SHW) Pipe Insulation	1.0" of Insulation, assuming R-4 (CA State Code)	No Insulation	per linear foot	Existing	1	12	\$3	80%	90%	\$0.41	0.39
California	Grocery	Water Heat	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	per installation	Existing	16	9	\$0.00	95%	25%	\$-0.09	0.51
California	Grocery	Water Heat	Low-Flow Faucet Aerators	2.2 GPM (Federal Code)	3.0 GPM	per installation	Existing	13	9	\$2	95%	25%	\$-0.05	0.42
California	Grocery	Water Heat	Low-Flow Pre-Rinse Spray Valves	0.6 GPM	1.6 GPM (Federal Standard)	per installation	Existing	62	5	\$5	95%	74%	\$-0.08	4
California	Grocery	Water Heat	Water Cooled Refrigeration with Heat Recovery	Heat Recovery from refrigeration system. Applied to Water Heating Electric End use	No heat recovery	per sqft of refrigerated area	Existing	0.03	10	\$0.97	55%	94%	\$4.15	3
California	Grocery	Water Heat	Water Heater Temperature Setback	Water Heater Temperature Setback (120 F)	No Change in Water Temperature	per installation	Existing	79	5	\$112	75%	50%	\$0.40	1
California	Grocery	Water Heat	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	per building sqft	New	0.01	10	\$0.29	75%	94%	\$2.98	0.35
California	Grocery	Water Heat	Dishwasher Residential	ENERGY STAR <= 324 kWh/yr, <= 5.8 gal/cycle	Federal Standard <= 355 kWh/yr, <= 6.5 gal/cycle	per installation	New	29	11	\$30	95%	55%	\$0.10	0.04
California	Grocery	Water Heat	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	per installation	New	7,049	10	\$2,630	95%	95%	\$0.02	0.90
California	Grocery	Water Heat	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	per installation	New	3,293	10	\$813	95%	94%	\$-0.02	0.20
California	Grocery	Water Heat	Electric Water Heater - High Efficiency	EF = 0.95	EF = 0.92	Per installation	New	33	15	\$87	100%	N/A	\$0.33	0.03
California	Grocery	Water Heat	Heat Pump Water Heater - Advanced-Efficiency	EF = 2.2	EF = 0.92	Per installation	New	626	15	\$1,464	75%	N/A	\$0.30	2
California	Grocery	Water Heat	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	per installation	New	15	9	\$0.00	95%	25%	\$-0.09	0.09
California	Grocery	Water Heat	Low-Flow Pre-Rinse Spray Valves	0.6 GPM	1.6 GPM (Federal Standard)	per installation	New	63	5	\$5	95%	74%	\$-0.08	0.83
California	Grocery	Water Heat	Water Cooled Refrigeration with Heat Recovery	Heat Recovery from refrigeration system. Applied to Water Heating Electric End use	No heat recovery	per sqft of refrigerated area	New	0.03	10	\$0.97	55%	94%	\$4.29	0.57
California	Grocery	Water Heat	Water Heater Temperature Setback	Water Heater Temperature Setback (120 F)	No Change in Water Temperature	per installation	New	76	5	\$112	75%	50%	\$0.42	0.30
California	Health	Computers	Computer ENERGY STAR	Computer ENERGY STAR	Computer standard non-ENERGY STAR	Per installation	Existing	136	4	\$28	100%	N/A	\$0.07	680
California	Health	Computers	Network PC Power Management	Network PC Power Management	No Power Management	per computer	Existing	84	5	\$12	95%	30%	\$0.04	142
California	Health	Computers	Computer ENERGY STAR	Computer ENERGY STAR	Computer standard non-ENERGY STAR	Per installation	New	136	4	\$28	100%	N/A	\$0.07	22
California	Health	Computers	Network PC Power Management	Network PC Power Management	No Power Management	per computer	New	84	5	\$12	95%	30%	\$0.04	26
California	Health	Cooking	Combination Oven	60% cooking efficiency	Non ENERGY STAR	per installation	Existing	11,272	12	\$2,015	90%	90%	\$0.03	0.01

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
California	Health	Cooking	Fryers - New CEE Efficient Electric Deep Fat Fryers	15 inch width Deep Fryer CEE 2006 rating: 80% under heavy load, Less than 1000 watt at idle	15 inch width standard electric deep fat fryers	per installation	Existing	905	12	\$1,007	25%	90%	\$0.16	0.00
California	Health	Cooking	Griddle	70% cooking efficiency	Non ENERGY STAR	per installation	Existing	2,176	12	\$846	95%	85%	\$0.06	0.08
California	Health	Cooking	High Efficiency Convection Oven	Convection Oven	Standard Oven	per installation	Existing	1,801	12	\$2,010	7%	55%	\$0.17	0.00
California	Health	Cooking	Hot Food Holding Cabinet	ENERGY STAR	Non ENERGY STAR	per installation	Existing	3,779	12	\$1,763	15%	21%	\$0.07	0.01
California	Health	Cooking	Steam Cooker	ENERGY STAR	Non ENERGY STAR	per installation	Existing	4,044	12	\$2,524	11%	75%	\$0.09	0.03
California	Health	Cooking	Combination Oven	60% cooking efficiency	Non ENERGY STAR	per installation	New	11,272	12	\$2,015	90%	90%	\$0.03	0.00
California	Health	Cooking	Fryers - New CEE Efficient Electric Deep Fat Fryers	15 inch width Deep Fryer CEE 2006 rating: 80% under heavy load, Less than 1000 watt at idle	15 inch width standard electric deep fat fryers	per installation	New	905	12	\$1,007	25%	90%	\$0.16	0.00
California	Health	Cooking	Griddle	70% cooking efficiency	Non ENERGY STAR	per installation	New	2,176	12	\$846	95%	85%	\$0.06	0.01
California	Health	Cooking	High Efficiency Convection Oven	Convection Oven	Standard Oven	per installation	New	1,801	12	\$2,010	7%	55%	\$0.17	0.00
California	Health	Cooking	Hot Food Holding Cabinet	ENERGY STAR	Non ENERGY STAR	per installation	New	3,779	12	\$1,763	15%	21%	\$0.07	0.00
California	Health	Cooking	Steam Cooker	ENERGY STAR	Non ENERGY STAR	per installation	New	4,044	12	\$2,524	11%	75%	\$0.09	0.00
California	Health	Cooling Chillers	Automated Ventilation VFD Control(Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	1 unit per 3,000 sqft	Existing	487	15	\$788	5%	94%	\$0.21	1
California	Health	Cooling Chillers	Chilled Water / Condenser Water Settings-Optimization	Additional Control Features	EMS already installed - No Optimization	1 control point per 1000 sqft	Existing	20	5	\$182	95%	81%	\$2.55	2
California	Health	Cooling Chillers	Chilled Water Piping Loop w/ VSD Control	VSD for secondary chilled water loop	Primary loop only w/ constant speed pump	per chiller ton	Existing	33	10	\$224	25%	70%	\$1.13	4
California	Health	Cooling Chillers	Chiller-Water Side Economizer	Install Economizer	No Economizer	per chiller ton	Existing	21	15	\$525	45%	90%	\$3.10	5
California	Health	Cooling Chillers	Chillers 150-300 tons (screw) - Advanced Efficiency	0.50 kW/ton (full load)	0.680 kW/Ton (full load)	Per installation	Existing	11,382	20	\$4,817	100%	N/A	\$0.05	84
California	Health	Cooling Chillers	Chillers 150-300 tons (screw) - High Efficiency	0.65 kW/ton (full load)	0.680 kW/Ton (full load)	Per installation	Existing	4,217	20	\$802	100%	N/A	\$0.02	0.58
California	Health	Cooling Chillers	Chillers 150-300 tons (screw) - Premium Efficiency	0.57 kW/ton (full load)	0.680 kW/Ton (full load)	Per installation	Existing	8,068	20	\$2,944	100%	N/A	\$0.04	4
California	Health	Cooling Chillers	Convert Constant Volume Air System to VAV	Variable Volume Air System	Constant Volume Air System	per building CFM	Existing	0.48	15	\$3	15%	68%	\$0.86	9
California	Health	Cooling Chillers	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	Existing	0.16	15	\$0.69	15%	98%	\$0.56	4
California	Health	Cooling Chillers	Cooling Tower-Decrease Approach Temperature	6 Deg F	10 Deg F	per chiller ton	Existing	35	8	\$26	10%	94%	\$0.16	2
California	Health	Cooling Chillers	Cooling Tower-Two-Speed Fan Motor	Cooling Tower-Two-Speed Fan Motor	Cooling Tower-One-Speed Fan Motor	per chiller ton	Existing	61	15	\$2	95%	35%	\$0.01	19
California	Health	Cooling Chillers	Cooling Tower-VSD Fan Control	Variable-Speed Tower Fans replace Two-Speed	Cooling Tower-Two-Speed Fan Motor	per chiller ton	Existing	17	13	\$19	95%	75%	\$0.16	10
California	Health	Cooling Chillers	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	Existing	162	15	\$186	75%	76%	\$0.15	22
California	Health	Cooling Chillers	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	Existing	0.16	40	\$10	4%	98%	\$6.05	0.09
California	Health	Cooling Chillers	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	1	13	\$0.37	10%	39%	\$0.05	0.76
California	Health	Cooling Chillers	Insulation - Ceiling	R-25 (CA State Code)	R-11 (Average Existing Conditions)	per roof sqft	Existing	0.00	25	\$0.72	75%	64%	\$11.85	0.53
California	Health	Cooling Chillers	Pipe Insulation	1.5" of Insulation, assuming R-6 (CA State Code)	No Insulation	per linear feet of insulation	Existing	4	15	\$4	65%	45%	\$0.12	1
California	Health	Cooling Chillers	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	0.20	7	\$0.21	90%	85%	\$0.23	34

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California	Health	Cooling Chillers	Window Film	Window Film	No Film	per 100 sqft of window glazing	Existing	2	10	\$164	90%	68%	\$12.95	0.17
California	Health	Cooling Chillers	Windows-High Efficiency	U-0.47 (CA State Code)	U-0.67 (Average Existing Conditions)	per window sqft	Existing	3	25	\$39	15%	72%	\$1.19	5
California	Health	Cooling Chillers	Automated Ventilation VFD Control(Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	1 unit per 3,000 sqft	New	285	15	\$420	5%	94%	\$0.19	0.22
California	Health	Cooling Chillers	Chilled Water / Condenser Water Settings-Optimization	Additional Control Features	EMS already installed - No Optimization	1 control point per 1000 sqft	New	11	5	\$182	95%	81%	\$4.35	0.40
California	Health	Cooling Chillers	Chilled Water Piping Loop w/ VSD Control	VSD for secondary chilled water loop	Primary loop only w/ constant speed pump	per chiller ton	New	21	10	\$224	25%	70%	\$1.73	0.56
California	Health	Cooling Chillers	Chillers 150-300 tons (screw) - Advanced Efficiency	0.50 kW/ton (full load)	0.680 kW/Ton (full load)	Per installation	New	7,177	20	\$4,336	100%	N/A	\$0.07	16
California	Health	Cooling Chillers	Chillers 150-300 tons (screw) - High Efficiency	0.65 kW/ton (full load)	0.680 kW/Ton (full load)	Per installation	New	2,658	20	\$723	100%	N/A	\$0.03	0.06
California	Health	Cooling Chillers	Chillers 150-300 tons (screw) - Premium Efficiency	0.57 kW/ton (full load)	0.680 kW/Ton (full load)	Per installation	New	5,087	20	\$2,650	100%	N/A	\$0.06	0.69
California	Health	Cooling Chillers	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	New	0.09	15	\$0.69	15%	98%	\$0.95	0.57
California	Health	Cooling Chillers	Cooling Tower-Decrease Approach Temperature	6 Deg F	10 Deg F	per chiller ton	New	22	8	\$26	10%	94%	\$0.24	0.34
California	Health	Cooling Chillers	Cooling Tower-VSD Fan Control	Variable-Speed Tower Fans replace Two-Speed	Cooling Tower-Two-Speed Fan Motor	per chiller ton	New	11	15	\$19	95%	75%	\$0.22	1
California	Health	Cooling Chillers	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	New	95	15	\$186	75%	76%	\$0.25	2
California	Health	Cooling Chillers	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	New	0.09	40	\$10	4%	98%	\$10.31	0.01
California	Health	Cooling Dx Evap	Automated Ventilation VFD Control(Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	1 unit per 3,000 sqft	Existing	698	15	\$788	5%	94%	\$0.15	22
California	Health	Cooling Dx Evap	Convert Constant Volume Air System to VAV	Variable Volume Air System	Constant Volume Air System	per building CFM	Existing	0.69	15	\$3	15%	68%	\$0.60	104
California	Health	Cooling Dx Evap	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	Existing	0.23	15	\$0.69	15%	98%	\$0.39	52
California	Health	Cooling Dx Evap	DX Package 135 to 240 kBTU/hr - High Efficiency	DX Package 135 to 240 kBTU/hr - High Efficiency - 11.5 EER	DX Package 135 to 240 kBTU/hr - Standard Efficiency 11.0 EER	Per installation	Existing	2,220	15	\$1,183	100%	N/A	\$0.07	6
California	Health	Cooling Dx Evap	DX Package 135 to 240 kBTU/hr - Premium Efficiency	DX Package 135 to 240 kBTU/hr - Premium Efficiency - 12.0 EER	DX Package 135 to 240 kBTU/hr - Standard Efficiency 11.0 EER	Per installation	Existing	4,543	15	\$2,012	100%	N/A	\$0.06	213
California	Health	Cooling Dx Evap	DX Package-Air Side Economizer	Air-Side Economizer	No Economizer	per DX ton	Existing	104	10	\$178	10%	30%	\$0.28	19
California	Health	Cooling Dx Evap	DX Tune-Up / Diagnostics	DX Tune-Up / Diagnostics	No DX Tune-Up / Diagnostics	per installation	Existing	523	4	\$397	95%	72%	\$0.29	292
California	Health	Cooling Dx Evap	Direct / Indirect Evaporative Cooling, Pre-Cooling	Evaporative Cooler	Standard DX cooling	per building CFM	Existing	0.58	15	\$2	50%	94%	\$0.49	460
California	Health	Cooling Dx Evap	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	Existing	232	15	\$186	75%	76%	\$0.10	292
California	Health	Cooling Dx Evap	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	Existing	0.05	18	\$0.26	45%	65%	\$0.53	25
California	Health	Cooling Dx Evap	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	Existing	0.23	40	\$10	4%	98%	\$4.22	1

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
California	Health	Cooling Dx Evap	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	1	13	\$0.37	10%	39%	\$0.04	10
California	Health	Cooling Dx Evap	Insulation - Ceiling	R-25 (CA State Code)	R-11 (Average Existing Conditions)	per roof sqft	Existing	0.00	25	\$0.72	75%	64%	\$27.35	1
California	Health	Cooling Dx Evap	Insulation - Duct	R-8 (CA State Code)	No Insulation	per surface area of duct insul	Existing	1	20	\$2	75%	62%	\$0.23	97
California	Health	Cooling Dx Evap	Insulation - Floor (non-slab)	R-30	R-25 (CA State Code)	per floor area	Existing	0.00	25	\$0.11	35%	90%	\$2.30	2
California	Health	Cooling Dx Evap	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	Existing	14	30	\$6	50%	95%	\$0.04	403
California	Health	Cooling Dx Evap	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	Existing	1,012	10	\$147	95%	27%	\$0.02	43
California	Health	Cooling Dx Evap	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	0.29	7	\$0.21	90%	85%	\$0.16	464
California	Health	Cooling Dx Evap	Window Film	Window Film	No Film	per 100 sqft of window glazing	Existing	2	10	\$164	90%	68%	\$12.98	1
California	Health	Cooling Dx Evap	Windows-High Efficiency	U-0.47 (CA State Code)	U-0.67 (Average Existing Conditions)	per window sqft	Existing	4	25	\$39	15%	72%	\$0.83	56
California	Health	Cooling Dx Evap	Automated Ventilation VFD Control(Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	1 unit per 3,000 sqft	New	412	15	\$420	5%	94%	\$0.13	2
California	Health	Cooling Dx Evap	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	New	0.13	15	\$0.69	15%	98%	\$0.66	7
California	Health	Cooling Dx Evap	DX Package 135 to 240 kBTU/hr - High Efficiency	DX Package 135 to 240 kBTU/hr - High Efficiency - 11.5	DX Package 135 to 240 kBTU/hr - Standard Efficiency 11.0 EER	Per installation	New	1,418	15	\$945	100%	N/A	\$0.09	0.60
California	Health	Cooling Dx Evap	DX Package 135 to 240 kBTU/hr - Premium Efficiency	DX Package 135 to 240 kBTU/hr - Premium Efficiency - 12.0 EER	DX Package 135 to 240 kBTU/hr - Standard Efficiency 11.0 EER	Per installation	New	2,858	15	\$1,609	100%	N/A	\$0.07	30
California	Health	Cooling Dx Evap	Direct / Indirect Evaporative Cooling, Pre-Cooling	Evaporative Cooler	Standard DX cooling	per building CFM	New	0.34	15	\$2	50%	94%	\$0.84	65
California	Health	Cooling Dx Evap	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	New	137	15	\$186	75%	76%	\$0.18	34
California	Health	Cooling Dx Evap	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	New	0.03	18	\$0.26	45%	65%	\$0.90	3
California	Health	Cooling Dx Evap	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	New	0.13	40	\$10	4%	98%	\$7.15	0.16
California	Health	Cooling Dx Evap	Insulation - Floor (non-slab)	R-30	R-25 (CA State Code)	per floor area	New	0.00	25	\$0.11	35%	90%	\$3.89	0.34
California	Health	Cooling Dx Evap	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	New	8	30	\$6	50%	95%	\$0.07	47
California	Health	Cooling Dx Evap	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	New	598	10	\$147	95%	14%	\$0.04	2
California	Health	Cooling Room	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	Existing	0.31	15	\$0.69	15%	98%	\$0.29	0.94
California	Health	Cooling Room	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	Existing	316	15	\$186	75%	76%	\$0.08	4
California	Health	Cooling Room	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	Existing	0.31	40	\$10	4%	98%	\$3.11	0.02
California	Health	Cooling Room	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	2	13	\$0.37	10%	39%	\$0.03	0.14

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
California	Health	Cooling Room	Insulation - Ceiling	R-25 (CA State Code)	R-11 (Average Existing Conditions)	per roof sqft	Existing	0.00	25	\$0.72	75%	64%	\$20.14	0.03
California	Health	Cooling Room	Insulation - Floor (non-slab)	R-30	R-25 (CA State Code)	per floor area	Existing	0.00	25	\$0.11	35%	90%	\$1.69	0.04
California	Health	Cooling Room	PTAC (10,000 BTU/HR) - Premium-Efficiency	11.4 EER	Room AC (10,000 BTU/HR) Standard-Efficiency 9.8 EER	Per installation	Existing	8,588	15	\$69,461	75%	N/A	\$1.05	8
California	Health	Cooling Room	Room AC (10,000 BTU/HR) High-Efficiency	High Efficiency 10.8 EER (ENERGY STAR)	Room AC (10,000 BTU/HR) Standard-Efficiency 9.8 EER	Per installation	Existing	5,655	9	\$2,972	100%	N/A	\$0.09	1
California	Health	Cooling Room	Window Film	Window Film	No Film	per 100 sqft of window glazing	Existing	0.10	10	\$164	90%	68%	\$258.76	0.00
California	Health	Cooling Room	Windows-High Efficiency	U-0.47 (CA State Code)	U-0.67 (Average Existing Conditions)	per window sqft	Existing	6	25	\$39	15%	72%	\$0.61	1
California	Health	Cooling Room	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	New	0.19	15	\$0.69	15%	98%	\$0.46	0.11
California	Health	Cooling Room	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	New	194	15	\$186	75%	76%	\$0.12	0.51
California	Health	Cooling Room	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	New	0.19	40	\$10	4%	98%	\$5.05	0.00
California	Health	Cooling Room	Insulation - Floor (non-slab)	R-30	R-25 (CA State Code)	per floor area	New	0.00	25	\$0.11	35%	90%	\$2.75	0.00
California	Health	Cooling Room	PTAC (10,000 BTU/HR) - Premium-Efficiency	11.4 EER	Room AC (10,000 BTU/HR) Standard-Efficiency 9.8 EER	Per installation	New	5,407	15	\$48,478	75%	N/A	\$1.16	0.49
California	Health	Cooling Room	Room AC (10,000 BTU/HR) High-Efficiency	High Efficiency 10.8 EER (ENERGY STAR)	Room AC (10,000 BTU/HR) Standard-Efficiency 9.8 EER	Per installation	New	3,584	9	\$2,378	100%	N/A	\$0.12	0.10
California	Health	Heat Pump	Air Source Heat Pump 135 to 240 kBtu/hr - High Efficiency	11.5 EER, 3.4 COP	10.6 EER, 3.2 COP	Per installation	Existing	10,710	15	\$4,835	100%	N/A	\$0.06	12
California	Health	Heat Pump	Air Source Heat Pump 65 to 135 kBtu/hr - Premium Efficiency	12.0 EER, 3.8 COP	10.6 EER, 3.2 COP	Per installation	Existing	19,609	15	\$8,288	100%	N/A	\$0.05	262
California	Health	Heat Pump	Automated Ventilation VFD Control(Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	1 unit per 3,000 sqft	Existing	848	15	\$788	5%	94%	\$0.12	4
California	Health	Heat Pump	Convert Constant Volume Air System to VAV	Variable Volume Air System	Constant Volume Air System	per building CFM	Existing	1	15	\$3	15%	68%	\$0.35	35
California	Health	Heat Pump	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	Existing	0.28	15	\$0.69	15%	98%	\$0.32	10
California	Health	Heat Pump	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	Existing	759	15	\$186	75%	76%	\$0.03	162
California	Health	Heat Pump	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	Existing	0.18	18	\$0.26	45%	65%	\$0.16	16
California	Health	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	Existing	0.71	14	\$0.93	5%	94%	\$0.18	9
California	Health	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	Existing	0.28	40	\$10	4%	98%	\$3.47	0.27
California	Health	Heat Pump	Ground Source Heat Pump Replacing Air Source Heat Pump 65 to 135 kBtu/hr - Advanced Efficiency	16.2 EER 4.0 COP	10.6 EER, 3.2 COP	Per installation	Existing	32,160	30	\$26,237	5%	N/A	\$0.96	11
California	Health	Heat Pump	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	9	13	\$0.37	10%	39%	\$0.01	11
California	Health	Heat Pump	Insulation - Ceiling	R-25 (CA State Code)	R-11 (Average Existing Conditions)	per roof sqft	Existing	0.52	25	\$0.72	75%	64%	\$0.14	76
California	Health	Heat Pump	Insulation - Ceiling	R-30	R-25 (CA State Code)	per roof sqft	Existing	0.06	25	\$0.10	75%	85%	\$0.17	11
California	Health	Heat Pump	Insulation - Duct	R-8 (CA State Code)	No Insulation	per surface area of duct insul	Existing	4	20	\$2	75%	62%	\$0.07	53
California	Health	Heat Pump	Insulation - Floor (non-slab)	R-25 (CA State Code)	R-19 (Average Existing Conditions)	per floor area	Existing	0.03	25	\$0.87	35%	82%	\$2.94	2

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
California	Health	Heat Pump	Insulation - Floor (non-slab)	R-30	R-25 (CA State Code)	per floor area	Existing	0.21	25	\$0.11	35%	90%	\$0.05	21
California	Health	Heat Pump	Insulation - Wall	R-16 (CA State Code)	R-0 (Average Existing Conditions)	per floor area	Existing	3	25	\$1	10%	72%	\$0.04	34
California	Health	Heat Pump	Insulation - Wall	R-21	R-16 (CA State Code)	per floor area	Existing	1	25	\$0.17	10%	85%	\$0.02	12
California	Health	Heat Pump	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	Existing	63	30	\$6	50%	95%	\$0.01	318
California	Health	Heat Pump	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	Existing	3,301	10	\$147	95%	27%	\$0.01	24
California	Health	Heat Pump	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	0.94	7	\$0.21	90%	85%	\$0.05	255
California	Health	Heat Pump	Window Film	Window Film	No Film	per 100 sqft of window glazing	Existing	2	10	\$164	90%	68%	\$12.95	0.27
California	Health	Heat Pump	Windows-High Efficiency	U-0.32	U-0.47 (CA State Code)	per window sqft	Existing	3	25	\$56	15%	90%	\$1.63	10
California	Health	Heat Pump	Windows-High Efficiency	U-0.47 (CA State Code)	U-0.67 (Average Existing Conditions)	per window sqft	Existing	3	25	\$39	15%	72%	\$1.04	9
California	Health	Heat Pump	Air Source Heat Pump 135 to 240 kBtu/hr - High Efficiency	11.5 EER, 3.4 COP	10.6 EER, 3.2 COP	Per installation	New	7,202	15	\$3,866	100%	N/A	\$0.07	1
California	Health	Heat Pump	Air Source Heat Pump 65 to 135 kBtu/hr - Premium Efficiency	12.0 EER, 3.8 COP	10.6 EER, 3.2 COP	Per installation	New	13,389	15	\$6,629	100%	N/A	\$0.06	35
California	Health	Heat Pump	Automated Ventilation VFD Control(Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	1 unit per 3,000 sqft	New	508	15	\$420	5%	94%	\$0.11	0.52
California	Health	Heat Pump	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	New	0.16	15	\$0.69	15%	98%	\$0.53	1
California	Health	Heat Pump	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	New	493	15	\$186	75%	76%	\$0.05	19
California	Health	Heat Pump	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	New	0.12	18	\$0.26	45%	65%	\$0.25	2
California	Health	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	New	0.48	14	\$0.93	5%	94%	\$0.26	1
California	Health	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	New	0.16	40	\$10	4%	98%	\$5.81	0.03
California	Health	Heat Pump	Ground Source Heat Pump Replacing Air Source Heat Pump 65 to 135 kBtu/hr - Advanced Efficiency	16.2 EER 4.0 COP	10.6 EER, 3.2 COP	Per installation	New	21,558	30	\$67,051	5%	N/A	\$0.72	1
California	Health	Heat Pump	Insulation - Ceiling	R-30	R-25 (CA State Code)	per roof sqft	New	0.04	25	\$0.10	75%	85%	\$0.24	1
California	Health	Heat Pump	Insulation - Floor (non-slab)	R-30	R-25 (CA State Code)	per floor area	New	0.15	25	\$0.11	35%	90%	\$0.08	3
California	Health	Heat Pump	Insulation - Wall	R-21	R-16 (CA State Code)	per floor area	New	0.75	25	\$0.17	95%	85%	\$0.02	16
California	Health	Heat Pump	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	New	41	30	\$6	50%	95%	\$0.01	40
California	Health	Heat Pump	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	New	2,146	10	\$147	95%	14%	\$0.01	1
California	Health	Heat Pump	Windows-High Efficiency	U-0.32	U-0.47 (CA State Code)	per window sqft	New	2	25	\$56	80%	90%	\$2.32	8
California	Health	Hvac Aux	Convert Constant Volume Air System to VAV	Variable Volume Air System	Constant Volume Air System	per building CFM	Existing	0.77	15	\$3	15%	68%	\$0.54	306
California	Health	Hvac Aux	Cooking Hood Controls	Demand-Ventilation Control	No Controls	per installation	Existing	1,788	18	\$4,438	95%	85%	\$0.29	27
California	Health	Hvac Aux	Motor - CEE Premium-Efficiency Plus	CEE PE+ Motor for HVAC Applications	NEMA Efficiency Motors	per HP	Existing	63	15	\$6	95%	76%	\$0.01	149
California	Health	Hvac Aux	Motor - VAV Box High Efficiency (ECM)	ECM Motor	Standard Efficiency Motor	per installation	Existing	160	15	\$177	8%	77%	\$0.14	81
California	Health	Hvac Aux	Motor Rewind	>15, <500 HP	No Rewind	per HP	Existing	12	8	\$4	65%	25%	\$0.08	5
California	Health	Hvac Aux	Optimized Variable Volume Lab Hood Design	Optimized Variable Volume Lab Hood Design	Constant Volume Lab Hood Design	per installation	Existing	1,492	13	\$1,819	65%	59%	\$0.17	158
California	Health	Hvac Aux	Cooking Hood Controls	Demand-Ventilation Control	No Controls	per installation	New	1,788	18	\$4,714	95%	85%	\$0.31	5

Table C.2.2. Commercial Measure Details

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California	Health	Hvac Aux	Low Pressure Distribution Complex HVAC	Low Pressure Distribution Complex HVAC	VAV/CV	per building sqft	New	0.80	50	\$2	24%	98%	\$0.29	111
California	Health	Hvac Aux	Motor - CEE Premium-Efficiency Plus	CEE PE+ Motor for HVAC Applications	NEMA Efficiency Motors	per HP	New	53	15	\$6	95%	76%	\$0.02	30
California	Health	Hvac Aux	Motor - VAV Box High Efficiency (ECM)	ECM Motor	Standard Efficiency Motor	per installation	New	136	15	\$177	8%	77%	\$0.17	13
California	Health	Hvac Aux	Optimized Variable Volume Lab Hood Design	Optimized Variable Volume Lab Hood Design	Constant Volume Lab Hood Design	per installation	New	1,270	15	\$1,819	65%	59%	\$0.19	25
California	Health	Lighting Exterior	Covered Parking Lighting	Covered Parking Lighting	Normal Lighting	per building sqft	Existing	0.08	10	\$0.02	80%	95%	\$0.05	272
California	Health	Lighting Exterior	Daylighting Controls, Outdoors (Photocell)	Photocell	No Controls	per installation	Existing	36	8	\$28	75%	70%	\$0.15	20
California	Health	Lighting Exterior	Exterior Building Lighting	30% savings	Normal Lighting	per installation	Existing	232	15	\$335	62%	90%	\$0.19	181
California	Health	Lighting Exterior	Solid State LED White Lighting	Landscape, merchandise, signage, structure & task lighting (2.5 W)	50W 10hrs/day, 365 day/yr	per installation	Existing	3	14	\$35	75%	95%	\$1.23	3
California	Health	Lighting Exterior	Surface Parking Lighting	Surface Parking Lighting	Normal Lighting	per building sqft	Existing	0.04	19	\$0.07	62%	95%	\$0.17	114
California	Health	Lighting Exterior	Covered Parking Lighting	Covered Parking Lighting	Normal Lighting	per building sqft	New	0.08	10	\$0.02	80%	95%	\$0.05	51
California	Health	Lighting Exterior	Daylighting Controls, Outdoors (Photocell)	Photocell	No Controls	per installation	New	36	8	\$28	75%	70%	\$0.15	3
California	Health	Lighting Exterior	Exterior Building Lighting	30% savings	Normal Lighting	per installation	New	232	15	\$335	62%	90%	\$0.19	34
California	Health	Lighting Exterior	Solid State LED White Lighting	Landscape, merchandise, signage, structure & task lighting (2.5 W)	50W 10hrs/day, 365 day/yr	per installation	New	3	14	\$35	75%	95%	\$1.23	0.70
California	Health	Lighting Exterior	Surface Parking Lighting	Surface Parking Lighting	Normal Lighting	per building sqft	New	0.04	19	\$0.07	62%	95%	\$0.17	21
California	Health	Lighting Interior	Cold Cathode Lighting	Cold Cathode Lighting 5 watts	30 W Incandescent Bulb	per installation	Existing	1,557	5	\$13	15%	94%	\$0.00	60
California	Health	Lighting Interior	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	Existing	0.41	8	\$1	30%	51%	\$0.50	15
California	Health	Lighting Interior	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	Existing	0.92	8	\$0.79	30%	51%	\$0.17	34
California	Health	Lighting Interior	Exit Sign - LED	LED Exit Sign (2 Watts)	CFL Exit Sign (9 Watts)	per installation	Existing	92	16	\$16	95%	50%	\$0.02	130
California	Health	Lighting Interior	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign (2 Watts)	per installation	Existing	16	13	\$30	95%	98%	\$0.26	15
California	Health	Lighting Interior	LED Refrigeration Case Lights	LED Refrigeration Case Lights	Fluorescent Refrigeration Case	per installation	Existing	205	8	\$248	15%	80%	\$0.24	24
California	Health	Lighting Interior	Lighting Package, High Efficiency	15% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	Existing	0.53	13	\$0.05	90%	53%	\$0.01	818
California	Health	Lighting Interior	Lighting Package, High Efficiency	Code Required LPD And Control Strategies	Existing Lighting Design LPD	per building sqft	Existing	1	13	\$0.88	90%	79%	\$0.07	5,112
California	Health	Lighting Interior	Lighting Package, Premium Efficiency	25% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	Existing	0.89	13	\$0.24	75%	62%	\$0.04	329
California	Health	Lighting Interior	Lighting Package, Premium High Bay	35% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	Existing	0.02	13	\$0.01	70%	83%	\$0.09	59
California	Health	Lighting Interior	Occupancy Sensor Control, Fluorescent	Occupancy Sensor Control, Fluorescent	No Occupancy Sensor	per occupancy sensor	Existing	927	8	\$73	90%	45%	\$0.02	103
California	Health	Lighting Interior	Time Clock	Time Clock	No Controls	per 10,000 Watts	Existing	719	8	\$218	20%	**	\$0.06	50
California	Health	Lighting Interior	Cold Cathode Lighting	Cold Cathode Lighting 5 watts	30 W Incandescent Bulb	per installation	New	975	5	\$13	15%	94%	\$0.00	7
California	Health	Lighting Interior	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	New	0.25	8	\$1	30%	51%	\$0.81	2
California	Health	Lighting Interior	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	New	0.48	8	\$0.79	30%	51%	\$0.32	4

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
California	Health	Lighting Interior	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign (2 Watts)	per installation	New	16	13	\$30	95%	98%	\$0.26	11
California	Health	Lighting Interior	LED Refrigeration Case Lights	LED Refrigeration Case Lights	Fluorescent Refrigeration Case	per installation	New	205	8	\$248	15%	80%	\$0.24	4
California	Health	Lighting Interior	Lighting Package, High Efficiency	15% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	New	0.53	15	\$0.00	90%	53%	\$0.00	154
California	Health	Lighting Interior	Lighting Package, Premium Efficiency	25% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	New	0.89	15	\$0.10	75%	62%	\$0.02	61
California	Health	Lighting Interior	Lighting Package, Premium High Bay	35% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	New	0.02	15	\$0.00	70%	83%	\$0.02	11
California	Health	Lighting Interior	Occupancy Sensor Control, Fluorescent	Occupancy Sensor Control, Fluorescent	No Occupancy Sensor	per occupancy sensor	New	581	8	\$73	90%	45%	\$0.02	15
California	Health	Lighting Interior	Time Clock	Time Clock	No Controls	per 10,000 Watts	New	719	8	\$218	20%	**	\$0.06	7
California	Health	Other Office Equipment	ENERGY STAR - Copiers	ENERGY STAR Copiers	Standard Copier	per installation	Existing	69	6	\$161	95%	45%	\$0.56	7
California	Health	Other Office Equipment	ENERGY STAR - Fax	ENERGY STAR Fax	Standard Fax	per installation	Existing	74	6	\$0.00	95%	45%	\$0.00	7
California	Health	Other Office Equipment	ENERGY STAR - Monitors	ENERGY STAR Features Enabled	Non-ENERGY STAR Features	per installation	Existing	14	5	\$16	64%	15%	\$0.32	8
California	Health	Other Office Equipment	ENERGY STAR - Printers	ENERGY STAR Printers	Standard Printers	per installation	Existing	131	6	\$15	95%	40%	\$0.03	10
California	Health	Other Office Equipment	ENERGY STAR - Scanners	ENERGY STAR Scanners	Standard Scanner	per installation	Existing	68	6	\$1	95%	45%	\$0.01	7
California	Health	Other Office Equipment	ENERGY STAR - Copiers	ENERGY STAR Copiers	Standard Copier	per installation	New	69	6	\$161	95%	45%	\$0.56	1
California	Health	Other Office Equipment	ENERGY STAR - Fax	ENERGY STAR Fax	Standard Fax	per installation	New	74	6	\$0.00	95%	45%	\$0.00	1
California	Health	Other Office Equipment	ENERGY STAR - Monitors	ENERGY STAR Features Enabled	Non-ENERGY STAR Features	per installation	New	14	5	\$16	64%	15%	\$0.32	1
California	Health	Other Office Equipment	ENERGY STAR - Printers	ENERGY STAR Printers	Standard Printers	per installation	New	131	6	\$15	95%	40%	\$0.03	1
California	Health	Other Office Equipment	ENERGY STAR - Scanners	ENERGY STAR Scanners	Standard Scanner	per installation	New	68	6	\$1	95%	45%	\$0.01	1
California	Health	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	per installation	Existing	7	7	\$2	20%	90%	\$0.06	1
California	Health	Other Plug Load	ENERGY STAR - Water Cooler	ENERGY STAR Water Cooler (Hot/Cold Water)	Non-ENERGY STAR Water Cooler	per installation	Existing	346	10	\$0.00	95%	75%	\$0.00	30
California	Health	Other Plug Load	Ice Maker	High-Efficiency Ice Maker	Standard Ice Maker	per installation	Existing	403	10	\$148	95%	86%	\$0.03	4
California	Health	Other Plug Load	Power Supply Transformer/Converter	80 Plus	85% efficient power supply (> 51W)	1 unit per 2,000 sqft	Existing	14	4	\$0.41	95%	86%	\$0.01	23
California	Health	Other Plug Load	Residential Refrigerator	ENERGY STAR	Federal Standard	per installation	Existing	76	12	\$121	13%	65%	\$0.24	1
California	Health	Other Plug Load	Residential Refrigerator/Freezer Recycling	Recycling Existing Refrigerator/Freezer	Existing Refrigerator/Freezer	per installation	Existing	908	4	\$563	25%	35%	\$0.21	5
California	Health	Other Plug Load	Server Virtualization	Server Virtualization	No Virtualization	number of virtualized servers	Existing	2,157	4	\$2,229	72%	85%	\$0.75	58
California	Health	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	1 unit per 1,500 sqft	Existing	95	5	\$20	60%	90%	\$0.06	137
California	Health	Other Plug Load	Vending Machines- High Efficiency	ENERGY STAR (Tier 2) Vending Machines- High Efficiency 500 can capacity Under 5.92 kWh/day	Vending Machines- Standard 13 kWh/day	per installation	Existing	228	14	\$163	10%	80%	\$0.10	0.50
California	Health	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	per installation	New	7	7	\$2	20%	90%	\$0.06	0.28
California	Health	Other Plug Load	ENERGY STAR - Water Cooler	ENERGY STAR Water Cooler (Hot/Cold Water)	Non-ENERGY STAR Water Cooler	per installation	New	346	10	\$0.00	95%	75%	\$0.00	5
California	Health	Other Plug Load	Ice Maker	High-Efficiency Ice Maker	Standard Ice Maker	per installation	New	403	10	\$148	95%	86%	\$0.03	0.85

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
California	Health	Other Plug Load	Power Supply Transformer/Converter	80 Plus	85% efficient power supply (> 51W)	1 unit per 2,000 sqft	New	14	4	\$0.41	95%	86%	\$0.01	4
California	Health	Other Plug Load	Residential Refrigerator	ENERGY STAR	Federal Standard	per installation	New	76	12	\$121	13%	65%	\$0.24	0.34
California	Health	Other Plug Load	Server Virtualization	Server Virtualization	No Virtualization	number of virtualized servers	New	2,157	4	\$2,229	72%	85%	\$0.75	10
California	Health	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	1 unit per 1,500 sqft	New	95	5	\$20	60%	90%	\$0.06	25
California	Health	Other Plug Load	Vending Machines- High Efficiency	ENERGY STAR (Tier 2) Vending Machines- High Efficiency 500 can capacity Under 5.92 kWh/day	Vending Machines- Standard 13 kWh/day	per installation	New	228	14	\$163	10%	80%	\$0.10	0.09
California	Health	Refrigeration	Anti-Sweat (Humidistat) Controls	Anti-Sweat (Humidistat) Controls	No Anti-Sweat (Humidistat) Controls	1 unit per 1,000 sqft	Existing	937	12	\$90	15%	45%	\$0.01	1
California	Health	Refrigeration	Case Electronically Commutated Motor	ECM Case Fans	Standard Efficiency Motor	1 unit per 10,000 sqft	Existing	976	12	\$241	5%	77%	\$0.04	3
California	Health	Refrigeration	Case Replacement Low Temp	Case Replacement Low Temp	No replacement	per square foot	Existing	0.01	15	\$0.10	5%	95%	\$0.75	0.84
California	Health	Refrigeration	Case Replacement Med Temp	Case Replacement Med Temp	No replacement	per square foot	Existing	0.00	15	\$0.05	5%	95%	\$4.55	0.07
California	Health	Refrigeration	Demand Control Defrost - Hot Gas	Refrigerant Defrost	Defrost - Electric	per installation	Existing	128	10	\$50	5%	68%	\$0.07	0.28
California	Health	Refrigeration	Glass Door ES Refrigerators/Freezers	Glass Door ES Refrigerators/Freezers	Standard Glass Doors	per installation	Existing	2,445	12	\$704	95%	77%	\$0.04	3
California	Health	Refrigeration	Refrigeration Commissioning or Re-commissioning	Commissioning / Re-commissioning	No Commissioning / Re-commissioning	per refrigeration ton	Existing	782	3	\$141	10%	85%	\$0.08	3
California	Health	Refrigeration	Solid Door ES Refrigerators/Freezers	Solid Door ES Refrigerators/Freezers	Standard Solid Door	per installation	Existing	1,108	12	\$187	95%	81%	\$0.03	1
California	Health	Refrigeration	Standalone to Multiplex Compressor	Standalone to Multiplex Compressor	Standalone compressor	per building sqft	Existing	0.01	13	\$0.00	5%	90%	\$0.02	0.77
California	Health	Refrigeration	Strip Curtains for Walk-Ins	Strip Curtains for Walk-Ins	No Strip Curtains for Walk-In	per installation	Existing	197	4	\$184	15%	20%	\$0.32	0.38
California	Health	Refrigeration	Walk-In Electronically Commutated Motor	ECM Evaporator Fans	Standard Efficiency Motor	per installation	Existing	0.02	12	\$0.17	5%	95%	\$1.00	1
California	Health	Refrigeration	Anti-Sweat (Humidistat) Controls	Anti-Sweat (Humidistat) Controls	No Anti-Sweat (Humidistat) Controls	1 unit per 1,000 sqft	New	937	12	\$90	15%	45%	\$0.01	0.35
California	Health	Refrigeration	Case Electronically Commutated Motor	ECM Case Fans	Standard Efficiency Motor	1 unit per 10,000 sqft	New	976	12	\$241	5%	77%	\$0.04	0.66
California	Health	Refrigeration	Demand Control Defrost - Hot Gas	Refrigerant Defrost	Defrost - Electric	per installation	New	128	10	\$50	5%	68%	\$0.07	0.05
California	Health	Refrigeration	Glass Door ES Refrigerators/Freezers	Glass Door ES Refrigerators/Freezers	Standard Glass Doors	per installation	New	2,445	12	\$704	95%	77%	\$0.04	0.69
California	Health	Refrigeration	Refrigeration Commissioning or Re-commissioning	Commissioning / Re-commissioning	No Commissioning / Re-commissioning	per refrigeration ton	New	483	3	\$54	5%	90%	\$0.05	0.20
California	Health	Refrigeration	Solid Door ES Refrigerators/Freezers	Solid Door ES Refrigerators/Freezers	Standard Solid Door	per installation	New	1,108	12	\$187	95%	81%	\$0.03	0.33
California	Health	Refrigeration	Strip Curtains for Walk-Ins	Strip Curtains for Walk-Ins	No Strip Curtains for Walk-In	per installation	New	197	4	\$184	15%	20%	\$0.32	0.07
California	Health	Refrigeration	Walk-In Electronically Commutated Motor	ECM Evaporator Fans	Standard Efficiency Motor	per installation	New	0.02	12	\$0.17	5%	95%	\$1.00	0.22
California	Health	Space Heat	Convert Constant Volume Air System to VAV	Variable Volume Air System	Constant Volume Air System	per building CFM	Existing	1	15	\$3	15%	68%	\$0.37	51
California	Health	Space Heat	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	Existing	868	15	\$186	75%	76%	\$0.03	302
California	Health	Space Heat	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	Existing	0.21	18	\$0.26	45%	65%	\$0.14	28
California	Health	Space Heat	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	Existing	1	14	\$0.93	5%	94%	\$0.10	28
California	Health	Space Heat	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	11	13	\$0.37	10%	39%	\$0.00	24
California	Health	Space Heat	Insulation - Ceiling	R-25 (CA State Code)	R-11 (Average Existing Conditions)	per roof sqft	Existing	1	25	\$0.72	75%	64%	\$0.06	313

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
California	Health	Space Heat	Insulation - Ceiling	R-30	R-25 (CA State Code)	per roof sqft	Existing	0.21	25	\$0.10	75%	85%	\$0.05	71
California	Health	Space Heat	Insulation - Duct	R-8 (CA State Code)	No Insulation	per surface area of duct insul	Existing	5	20	\$2	75%	62%	\$0.06	92
California	Health	Space Heat	Insulation - Floor (non-slab)	R-25 (CA State Code)	R-19 (Average Existing Conditions)	per floor area	Existing	0.79	25	\$0.87	35%	82%	\$0.11	106
California	Health	Space Heat	Insulation - Floor (non-slab)	R-30	R-25 (CA State Code)	per floor area	Existing	0.62	25	\$0.11	35%	90%	\$0.02	122
California	Health	Space Heat	Insulation - Wall	R-16 (CA State Code)	R-0 (Average Existing Conditions)	per floor area	Existing	11	25	\$1	10%	72%	\$0.01	204
California	Health	Space Heat	Insulation - Wall	R-21	R-16 (CA State Code)	per floor area	Existing	3	25	\$0.17	10%	85%	\$0.01	76
California	Health	Space Heat	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	Existing	72	30	\$6	50%	95%	\$0.01	627
California	Health	Space Heat	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	Existing	3,778	10	\$147	95%	27%	\$0.01	49
California	Health	Space Heat	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	1	7	\$0.21	90%	85%	\$0.04	482
California	Health	Space Heat	Windows-High Efficiency	U-0.32	U-0.47 (CA State Code)	per window sqft	Existing	8	25	\$56	15%	90%	\$0.67	39
California	Health	Space Heat	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	New	599	15	\$186	75%	76%	\$0.04	36
California	Health	Space Heat	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	New	0.14	18	\$0.26	45%	65%	\$0.21	4
California	Health	Space Heat	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	New	0.89	14	\$0.93	5%	94%	\$0.14	4
California	Health	Space Heat	Insulation - Ceiling	R-30	R-25 (CA State Code)	per roof sqft	New	0.14	25	\$0.10	75%	85%	\$0.07	9
California	Health	Space Heat	Insulation - Floor (non-slab)	R-30	R-25 (CA State Code)	per floor area	New	0.42	25	\$0.11	35%	90%	\$0.03	15
California	Health	Space Heat	Insulation - Wall	R-21	R-16 (CA State Code)	per floor area	New	2	25	\$0.17	95%	85%	\$0.01	94
California	Health	Space Heat	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	New	50	30	\$6	50%	95%	\$0.01	73
California	Health	Space Heat	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	New	2,606	10	\$147	95%	14%	\$0.01	2
California	Health	Space Heat	Windows-High Efficiency	U-0.32	U-0.47 (CA State Code)	per window sqft	New	5	25	\$56	80%	90%	\$0.97	32
California	Health	Water Heat	Clothes Washer Commercial	ENERGY STAR Commercial Clothes Washer MEF=1.80	Standard Clothes Washers	per installation	Existing	520	11	\$127	95%	80%	\$-0.28	1
California	Health	Water Heat	Clothes Washer Residential	Energy Star - CEE Tier 1 (MEF 2.0 - 2.19) - Electric DHW & Dryer	MEF = 1.66 - Electric DHW & Dryer (NWPPC 6th Plan Average Efficiency)	per installation	Existing	126	11	\$344	85%	94%	\$0.11	0.50
California	Health	Water Heat	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	per building sqft	Existing	0.08	10	\$0.29	55%	94%	\$0.61	40
California	Health	Water Heat	Dishwasher Residential	ENERGY STAR <= 324 kWh/yr, <= 5.8 gal/cycle	Federal Standard <= 355 kWh/yr, <= 6.5 gal/cycle	per installation	Existing	29	11	\$31	95%	25%	\$0.10	0.15
California	Health	Water Heat	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	per installation	Existing	7,064	10	\$2,647	95%	95%	\$0.02	9
California	Health	Water Heat	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	per installation	Existing	3,300	10	\$814	95%	94%	\$-0.02	2
California	Health	Water Heat	Electric Water Heater - High Efficiency	EF = 0.95	EF = 0.92	Per installation	Existing	793	15	\$1,094	100%	N/A	\$0.18	5
California	Health	Water Heat	Heat Pump Water Heater - Advanced-Efficiency	EF = 2.2	EF = 0.92	Per installation	Existing	14,616	15	\$22,172	75%	N/A	\$0.20	372
California	Health	Water Heat	Hot Water (SHW) Pipe Insulation	1.0" of Insulation, assuming R-4 (CA State Code)	No Insulation	per linear foot	Existing	5	12	\$3	80%	70%	\$0.09	9
California	Health	Water Heat	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	per installation	Existing	102	9	\$0.00	95%	25%	\$-0.09	15
California	Health	Water Heat	Low-Flow Faucet Aerators	2.2 GPM (Federal Code)	3.0 GPM	per installation	Existing	85	9	\$2	95%	25%	\$-0.08	12
California	Health	Water Heat	Low-Flow Pre-Rinse Spray Valves	0.6 GPM	1.6 GPM (Federal Standard)	per installation	Existing	63	5	\$4	95%	83%	\$-0.08	1
California	Health	Water Heat	Low-Flow Showerheads	2.0 GPM	2.5 GPM (Federal Code)	per installation	Existing	1,634	10	\$5	95%	73%	\$-0.08	98
California	Health	Water Heat	Low-Flow Showerheads	2.5 GPM (Federal Code)	4.5 GPM	per installation	Existing	3,632	10	\$11	95%	62%	\$-0.08	184

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
California	Health	Water Heat	Water Cooled Refrigeration with Heat Recovery	Heat Recovery from refrigeration system. Applied to Water Heating Electric End use	No heat recovery	per sqft of refrigerated area	Existing	0.18	10	\$0.97	3%	94%	\$0.89	0.13
California	Health	Water Heat	Water Heater Temperature Setback	Water Heater Temperature Setback (120 F)	No Change in Water Temperature	per installation	Existing	137	5	\$112	75%	80%	\$0.23	76
California	Health	Water Heat	Clothes Washer Commercial	ENERGY STAR Commercial Clothes Washer MEF=1.80	Standard Clothes Washers	per installation	New	520	11	\$127	95%	80%	\$-0.28	0.36
California	Health	Water Heat	Clothes Washer Residential	Energy Star - CEE Tier 1 (MEF 2.0 - 2.19) - Electric DHW & Dryer	MEF = 1.66 - Electric DHW & Dryer (NWPPC 6th Plan Average Efficiency)	per installation	New	126	11	\$344	85%	94%	\$0.11	0.09
California	Health	Water Heat	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	per building sqft	New	0.07	10	\$0.29	55%	94%	\$0.62	8
California	Health	Water Heat	Dishwasher Residential	ENERGY STAR <= 324 kWh/yr, <= 5.8 gal/cycle	Federal Standard <= 355 kWh/yr, <= 6.5 gal/cycle	per installation	New	29	11	\$31	95%	55%	\$0.10	0.06
California	Health	Water Heat	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	per installation	New	7,064	10	\$2,621	95%	95%	\$0.02	1
California	Health	Water Heat	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	per installation	New	3,300	10	\$819	95%	94%	\$-0.02	0.42
California	Health	Water Heat	Electric Water Heater - High Efficiency	EF = 0.95	EF = 0.92	Per installation	New	788	15	\$1,094	100%	N/A	\$0.18	1
California	Health	Water Heat	Heat Pump Water Heater - Advanced-Efficiency	EF = 2.2	EF = 0.92	Per installation	New	14,529	15	\$18,302	75%	N/A	\$0.16	69
California	Health	Water Heat	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	per installation	New	101	9	\$0.00	95%	25%	\$-0.09	2
California	Health	Water Heat	Low-Flow Pre-Rinse Spray Valves	0.6 GPM	1.6 GPM (Federal Standard)	per installation	New	63	5	\$4	95%	83%	\$-0.08	0.23
California	Health	Water Heat	Low-Flow Showerheads	2.0 GPM	2.5 GPM (Federal Code)	per installation	New	1,624	10	\$5	95%	73%	\$-0.08	18
California	Health	Water Heat	Water Cooled Refrigeration with Heat Recovery	Heat Recovery from refrigeration system. Applied to Water Heating Electric End use	No heat recovery	per sqft of refrigerated area	New	0.18	10	\$0.97	3%	94%	\$0.89	0.02
California	Health	Water Heat	Water Heater Temperature Setback	Water Heater Temperature Setback (120 F)	No Change in Water Temperature	per installation	New	136	5	\$112	75%	80%	\$0.23	15
California	Lodging	Computers	Computer ENERGY STAR	Computer ENERGY STAR	Computer standard non-ENERGY STAR	Per installation	Existing	136	4	\$28	100%	N/A	\$0.07	73
California	Lodging	Computers	Computer ENERGY STAR	Computer ENERGY STAR	Computer standard non-ENERGY STAR	Per installation	New	136	4	\$28	100%	N/A	\$0.07	2
California	Lodging	Cooking	Combination Oven	60% cooking efficiency	Non ENERGY STAR	per installation	Existing	11,270	12	\$1,911	90%	90%	\$0.03	0.05
California	Lodging	Cooking	Fryers - New CEE Efficient Electric Deep Fat Fryers	15 inch width Deep Fryer CEE 2006 rating; 80% under heavy load, Less than 1000 watt at idle	15 inch width standard electric deep fat fryers	per installation	Existing	974	12	\$1,274	55%	90%	\$0.19	0.01
California	Lodging	Cooking	Griddle	70% cooking efficiency	Non ENERGY STAR	per installation	Existing	2,176	12	\$808	95%	85%	\$0.06	0.14
California	Lodging	Cooking	High Efficiency Convection Oven	Convection Oven	Standard Oven	per installation	Existing	1,800	12	\$2,021	19%	55%	\$0.17	0.02
California	Lodging	Cooking	Hot Food Holding Cabinet	ENERGY STAR	Non ENERGY STAR	per installation	Existing	3,778	12	\$1,759	55%	21%	\$0.07	0.07
California	Lodging	Cooking	Steam Cooker	ENERGY STAR	Non ENERGY STAR	per installation	Existing	4,044	12	\$2,553	11%	75%	\$0.09	0.05
California	Lodging	Cooking	Combination Oven	60% cooking efficiency	Non ENERGY STAR	per installation	New	11,270	12	\$1,911	90%	90%	\$0.03	0.01
California	Lodging	Cooking	Fryers - New CEE Efficient Electric Deep Fat Fryers	15 inch width Deep Fryer CEE 2006 rating; 80% under heavy load, Less than 1000 watt at idle	15 inch width standard electric deep fat fryers	per installation	New	974	12	\$1,274	55%	90%	\$0.19	0.00
California	Lodging	Cooking	Griddle	70% cooking efficiency	Non ENERGY STAR	per installation	New	2,176	12	\$808	95%	85%	\$0.06	0.02
California	Lodging	Cooking	High Efficiency Convection Oven	Convection Oven	Standard Oven	per installation	New	1,800	12	\$2,021	19%	55%	\$0.17	0.00
California	Lodging	Cooking	Hot Food Holding Cabinet	ENERGY STAR	Non ENERGY STAR	per installation	New	3,778	12	\$1,759	55%	21%	\$0.07	0.01
California	Lodging	Cooking	Steam Cooker	ENERGY STAR	Non ENERGY STAR	per installation	New	4,044	12	\$2,553	11%	75%	\$0.09	0.01

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
California	Lodging	Cooling Chillers	Automated Ventilation VFD Control(Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	1 unit per 3,000 sqft	Existing	96	15	\$788	50%	94%	\$1.05	1
California	Lodging	Cooling Chillers	Chilled Water / Condenser Water Settings-Optimization	Additional Control Features	EMS already installed - No Optimization	1 control point per 1000 sqft	Existing	20	5	\$182	95%	81%	\$2.57	1
California	Lodging	Cooling Chillers	Chilled Water Piping Loop w/ VSD Control	VSD for secondary chilled water loop	Primary loop only w/ constant speed pump	per chiller ton	Existing	32	10	\$224	25%	70%	\$1.13	1
California	Lodging	Cooling Chillers	Chiller-Water Side Economizer	Install Economizer	No Economizer	per chiller ton	Existing	21	15	\$525	45%	30%	\$3.12	0.82
California	Lodging	Cooling Chillers	Chillers <150 tons (screw) - Advanced Efficiency	0.58 kW/ton (full load)	0.790 kW/Ton (full load)	Per installation	Existing	3,138	20	\$4,803	100%	N/A	\$0.17	18
California	Lodging	Cooling Chillers	Chillers <150 tons (screw) - High Efficiency	0.71 kW/ton (full load)	0.790 kW/Ton (full load)	Per installation	Existing	1,198	20	\$1,601	100%	N/A	\$0.15	0.13
California	Lodging	Cooling Chillers	Chillers <150 tons (screw) - Premium Efficiency	0.63 kW/ton	0.790 kW/Ton (full load)	Per installation	Existing	2,332	20	\$3,571	100%	N/A	\$0.17	1
California	Lodging	Cooling Chillers	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	Existing	0.16	15	\$0.69	45%	98%	\$0.56	5
California	Lodging	Cooling Chillers	Cooling Tower-Decrease Approach Temperature	6 Deg F	10 Deg F	per chiller ton	Existing	34	8	\$26	10%	94%	\$0.16	1
California	Lodging	Cooling Chillers	Cooling Tower-Two-Speed Fan Motor	Cooling Tower-Two-Speed Fan Motor	Cooling Tower-One-Speed Fan Motor	per chiller ton	Existing	61	15	\$2	95%	35%	\$0.01	7
California	Lodging	Cooling Chillers	Cooling Tower-VSD Fan Control	Variable-Speed Tower Fans replace Two-Speed	Cooling Tower-Two-Speed Fan Motor	per chiller ton	Existing	17	13	\$19	95%	75%	\$0.16	4
California	Lodging	Cooling Chillers	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	Existing	161	15	\$186	75%	76%	\$0.15	9
California	Lodging	Cooling Chillers	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	Existing	0.16	40	\$10	4%	98%	\$6.08	0.04
California	Lodging	Cooling Chillers	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	0.51	13	\$0.37	10%	39%	\$0.10	0.31
California	Lodging	Cooling Chillers	Insulation - Ceiling	R-25 (CA State Code)	R-11 (Average Existing Conditions)	per roof sqft	Existing	0.00	25	\$0.72	75%	61%	\$11.93	0.21
California	Lodging	Cooling Chillers	Pipe Insulation	1.5" of Insulation, assuming R-6 (CA State Code)	No Insulation	per linear feet of insulation	Existing	4	15	\$4	65%	45%	\$0.12	0.71
California	Lodging	Cooling Chillers	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	0.20	7	\$0.21	90%	85%	\$0.23	14
California	Lodging	Cooling Chillers	Window Film	Window Film	No Film	per 100 sqft of window glazing	Existing	2	10	\$164	90%	68%	\$12.97	0.15
California	Lodging	Cooling Chillers	Windows-High Efficiency	U-0.47 (CA State Code)	U-0.65 (Average Existing Conditions)	per window sqft	Existing	1	25	\$39	15%	56%	\$2.45	1
California	Lodging	Cooling Chillers	Automated Ventilation VFD Control(Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	1 unit per 3,000 sqft	New	56	15	\$420	50%	94%	\$0.96	0.17
California	Lodging	Cooling Chillers	Chilled Water / Condenser Water Settings-Optimization	Additional Control Features	EMS already installed - No Optimization	1 control point per 1000 sqft	New	11	5	\$182	95%	81%	\$4.39	0.16
California	Lodging	Cooling Chillers	Chilled Water Piping Loop w/ VSD Control	VSD for secondary chilled water loop	Primary loop only w/ constant speed pump	per chiller ton	New	21	10	\$224	25%	70%	\$1.74	0.23
California	Lodging	Cooling Chillers	Chillers <150 tons (screw) - Advanced Efficiency	0.58 kW/ton (full load)	0.790 kW/Ton (full load)	Per installation	New	2,168	20	\$4,322	100%	N/A	\$0.22	3
California	Lodging	Cooling Chillers	Chillers <150 tons (screw) - High Efficiency	0.71 kW/ton (full load)	0.790 kW/Ton (full load)	Per installation	New	828	20	\$1,440	100%	N/A	\$0.19	0.01
California	Lodging	Cooling Chillers	Chillers <150 tons (screw) - Premium Efficiency	0.63 kW/ton	0.790 kW/Ton (full load)	Per installation	New	1,611	20	\$3,214	100%	N/A	\$0.22	0.17

Table C.2.2. Commercial Measure Details

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California	Lodging	Cooling Chillers	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	New	0.09	15	\$0.69	45%	98%	\$0.96	0.74
California	Lodging	Cooling Chillers	Cooling Tower-Decrease Approach Temperature	6 Deg F	10 Deg F	per chiller ton	New	22	8	\$26	10%	94%	\$0.24	0.15
California	Lodging	Cooling Chillers	Cooling Tower-VSD Fan Control	Variable-Speed Tower Fans replace Two-Speed	Cooling Tower-Two-Speed Fan Motor	per chiller ton	New	11	15	\$19	95%	75%	\$0.22	0.59
California	Lodging	Cooling Chillers	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	New	94	15	\$186	75%	76%	\$0.26	1
California	Lodging	Cooling Chillers	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	New	0.09	40	\$10	4%	98%	\$10.40	0.00
California	Lodging	Cooling Chillers	Natural Ventilation	Natural Ventilation Design Reduction in Cooling	None - Standard Ventilation	per building sqft	New	0.09	15	\$1	20%	75%	\$1.46	0.26
California	Lodging	Cooling Dx Evap	Automated Ventilation VFD Control(Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	1 unit per 3,000 sqft	Existing	109	15	\$788	50%	94%	\$0.93	4
California	Lodging	Cooling Dx Evap	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	Existing	0.18	15	\$0.69	45%	98%	\$0.49	20
California	Lodging	Cooling Dx Evap	DX Package 65 to 135 kBTU/hr - High Efficiency	DX Package 65 to 135 kBTU/hr - High Efficiency - 11.5 EER	DX Package 65 to 135 kBTU/hr - Standard Efficiency - 11.2 EER	Per installation	Existing	610	15	\$744	100%	N/A	\$0.16	0.60
California	Lodging	Cooling Dx Evap	DX Package 65 to 135 kBTU/hr - Premium Efficiency	DX Package 65 to 135 kBTU/hr - Premium Efficiency - 12.0 EER	DX Package 65 to 135 kBTU/hr - Standard Efficiency - 11.2 EER	Per installation	Existing	1,600	15	\$1,497	100%	N/A	\$0.12	23
California	Lodging	Cooling Dx Evap	DX Package-Air Side Economizer	Air-Side Economizer	No Economizer	per DX ton	Existing	82	10	\$178	10%	30%	\$0.36	2
California	Lodging	Cooling Dx Evap	DX Tune-Up / Diagnostics	DX Tune-Up / Diagnostics	No DX Tune-Up / Diagnostics	per installation	Existing	410	4	\$397	95%	72%	\$0.37	38
California	Lodging	Cooling Dx Evap	Direct / Indirect Evaporative Cooling, Pre-Cooling	Evaporative Cooler	Standard DX cooling	per building CFM	Existing	0.45	15	\$2	50%	94%	\$0.63	58
California	Lodging	Cooling Dx Evap	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	Existing	182	15	\$186	75%	76%	\$0.13	38
California	Lodging	Cooling Dx Evap	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	Existing	0.04	18	\$0.26	45%	65%	\$0.68	3
California	Lodging	Cooling Dx Evap	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	Existing	0.18	40	\$10	4%	98%	\$5.39	0.14
California	Lodging	Cooling Dx Evap	Hotel Key Card Room Energy Control System	Key card system to control room HVAC and lighting during non-occupied periods	325 sqft room, \$100/room	per room	Existing	148	15	\$147	60%	97%	\$0.13	100
California	Lodging	Cooling Dx Evap	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	0.58	13	\$0.37	10%	39%	\$0.09	1
California	Lodging	Cooling Dx Evap	Insulation - Ceiling	R-25 (CA State Code)	R-11 (Average Existing Conditions)	per roof sqft	Existing	0.00	25	\$0.72	75%	61%	\$34.92	0.22
California	Lodging	Cooling Dx Evap	Insulation - Duct	R-8 (CA State Code)	No Insulation	per surface area of duct insul	Existing	1	20	\$2	75%	62%	\$0.29	12
California	Lodging	Cooling Dx Evap	Insulation - Floor (non-slab)	R-30	R-25 (CA State Code)	per floor area	Existing	0.00	25	\$0.11	35%	90%	\$2.94	0.29
California	Lodging	Cooling Dx Evap	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	Existing	11	30	\$6	50%	95%	\$0.06	61
California	Lodging	Cooling Dx Evap	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	Existing	437	10	\$146	95%	30%	\$0.06	6
California	Lodging	Cooling Dx Evap	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	0.22	7	\$0.21	90%	85%	\$0.21	60

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California	Lodging	Cooling Dx Evap	Window Film	Window Film	No Film	per 100 sqft of window glazing	Existing	2	10	\$164	90%	68%	\$12.89	0.47
California	Lodging	Cooling Dx Evap	Windows-High Efficiency	U-0.47 (CA State Code)	U-0.65 (Average Existing Conditions)	per window sqft	Existing	1	25	\$39	15%	56%	\$2.16	5
California	Lodging	Cooling Dx Evap	Automated Ventilation VFD Control(Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	1 unit per 3,000 sqft	New	70	15	\$420	50%	94%	\$0.77	0.73
California	Lodging	Cooling Dx Evap	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	New	0.11	15	\$0.69	45%	98%	\$0.77	3
California	Lodging	Cooling Dx Evap	DX Package 65 to 135 kBTU/hr - High Efficiency	DX Package 65 to 135 kBTU/hr - High Efficiency - 11.5 EER	DX Package 65 to 135 kBTU/hr - Standard Efficiency - 11.2 EER	Per installation	New	442	15	\$595	100%	N/A	\$0.17	0.06
California	Lodging	Cooling Dx Evap	DX Package 65 to 135 kBTU/hr - Premium Efficiency	DX Package 65 to 135 kBTU/hr - Premium Efficiency - 12.0 EER	DX Package 65 to 135 kBTU/hr - Standard Efficiency - 11.2 EER	Per installation	New	1,105	15	\$1,198	100%	N/A	\$0.14	3
California	Lodging	Cooling Dx Evap	Direct / Indirect Evaporative Cooling, Pre-Cooling	Evaporative Cooler	Standard DX cooling	per building CFM	New	0.29	15	\$2	50%	94%	\$0.98	9
California	Lodging	Cooling Dx Evap	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	New	117	15	\$186	75%	76%	\$0.21	4
California	Lodging	Cooling Dx Evap	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	New	0.02	18	\$0.26	45%	65%	\$1.05	0.50
California	Lodging	Cooling Dx Evap	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	New	0.11	40	\$10	4%	98%	\$8.39	0.02
California	Lodging	Cooling Dx Evap	Hotel Key Card Room Energy Control System	Key card system to control room HVAC and lighting during non-occupied periods	325 sqft room, \$100/room	per room	New	95	15	\$147	60%	97%	\$0.20	12
California	Lodging	Cooling Dx Evap	Insulation - Floor (non-slab)	R-30	R-25 (CA State Code)	per floor area	New	0.00	25	\$0.11	35%	90%	\$4.57	0.04
California	Lodging	Cooling Dx Evap	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	New	7	30	\$6	50%	95%	\$0.09	7
California	Lodging	Cooling Dx Evap	Natural Ventilation	Natural Ventilation Design Reduction in Cooling	None - Standard Ventilation	per building sqft	New	0.11	15	\$1	20%	75%	\$1.18	1
California	Lodging	Cooling Dx Evap	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	New	281	10	\$146	95%	15%	\$0.09	0.42
California	Lodging	Cooling Room	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	Existing	0.24	15	\$0.69	45%	98%	\$0.37	35
California	Lodging	Cooling Room	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	Existing	246	15	\$186	75%	76%	\$0.10	54
California	Lodging	Cooling Room	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	Existing	0.24	40	\$10	4%	98%	\$3.98	0.29
California	Lodging	Cooling Room	Hotel Key Card Room Energy Control System	Key card system to control room HVAC and lighting during non-occupied periods	325 sqft room, \$100/room	per room	Existing	200	15	\$147	60%	97%	\$0.10	143
California	Lodging	Cooling Room	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	0.78	13	\$0.37	10%	39%	\$0.07	2
California	Lodging	Cooling Room	Insulation - Ceiling	R-25 (CA State Code)	R-11 (Average Existing Conditions)	per roof sqft	Existing	0.00	25	\$0.72	75%	61%	\$25.79	0.45
California	Lodging	Cooling Room	Insulation - Floor (non-slab)	R-30	R-25 (CA State Code)	per floor area	Existing	0.00	25	\$0.11	35%	90%	\$2.17	0.59
California	Lodging	Cooling Room	PTAC (10,000 BTU/HR) - Premium-Efficiency	11.4 EER	Room AC (10,000 BTU/HR) Standard-Efficiency 9.8 EER	Per installation	Existing	3,310	15	\$38,323	75%	N/A	\$1.50	97
California	Lodging	Cooling Room	Room AC (10,000 BTU/HR) High-Efficiency	High Efficiency 10.8 EER (ENERGY STAR)	Room AC (10,000 BTU/HR) Standard-Efficiency 9.8 EER	Per installation	Existing	2,057	9	\$1,640	100%	N/A	\$0.14	17

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California	Lodging	Cooling Room	Window Film	Window Film	No Film	per 100 sqft of window glazing	Existing	0.10	10	\$164	90%	68%	\$257.36	0.03
California	Lodging	Cooling Room	Windows-High Efficiency	U-0.47 (CA State Code)	U-0.65 (Average Existing Conditions)	per window sqft	Existing	2	25	\$39	15%	56%	\$1.59	11
California	Lodging	Cooling Room	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	New	0.16	15	\$0.69	45%	98%	\$0.55	4
California	Lodging	Cooling Room	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	New	165	15	\$186	75%	76%	\$0.15	7
California	Lodging	Cooling Room	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	New	0.16	40	\$10	4%	98%	\$5.95	0.03
California	Lodging	Cooling Room	Hotel Key Card Room Energy Control System	Key card system to control room HVAC and lighting during non-occupied periods	325 sqft room, \$100/room	per room	New	134	15	\$147	60%	97%	\$0.14	18
California	Lodging	Cooling Room	Insulation - Floor (non-slab)	R-30	R-25 (CA State Code)	per floor area	New	0.00	25	\$0.11	35%	90%	\$3.24	0.07
California	Lodging	Cooling Room	Natural Ventilation	Natural Ventilation Design Reduction in Cooling	None - Standard Ventilation	per building sqft	New	0.16	15	\$1	20%	75%	\$0.84	1
California	Lodging	Cooling Room	PTAC (10,000 BTU/HR) - Premium-Efficiency	11.4 EER	Room AC (10,000 BTU/HR) Standard-Efficiency 9.8 EER	Per installation	New	2,286	15	\$26,746	75%	N/A	\$1.51	5
California	Lodging	Cooling Room	Room AC (10,000 BTU/HR) High-Efficiency	High Efficiency 10.8 EER (ENERGY STAR)	Room AC (10,000 BTU/HR) Standard-Efficiency 9.8 EER	Per installation	New	1,442	9	\$1,312	100%	N/A	\$0.16	1
California	Lodging	Heat Pump	Air Source Heat Pump 65 to 135 kBtu/hr - High Efficiency	11.5 EER, 3.4 COP	11.0 EER, 3.3 COP	Per installation	Existing	2,959	15	\$2,770	100%	N/A	\$0.12	3
California	Lodging	Heat Pump	Air Source Heat Pump 65 to 135 kBtu/hr - Premium Efficiency	12.0 EER, 3.8 COP	11.0 EER, 3.3 COP	Per installation	Existing	6,567	15	\$5,540	100%	N/A	\$0.11	88
California	Lodging	Heat Pump	Automated Ventilation VFD Control(Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	1 unit per 3,000 sqft	Existing	132	15	\$788	50%	94%	\$0.77	3
California	Lodging	Heat Pump	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	Existing	0.22	15	\$0.69	45%	98%	\$0.41	14
California	Lodging	Heat Pump	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	Existing	556	15	\$186	75%	76%	\$0.04	66
California	Lodging	Heat Pump	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	Existing	0.13	18	\$0.26	45%	65%	\$0.22	6
California	Lodging	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	Existing	0.50	14	\$1	5%	94%	\$0.47	3
California	Lodging	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	Existing	0.22	40	\$10	4%	98%	\$4.44	0.11
California	Lodging	Heat Pump	Ground Source Heat Pump Replacing Air Source Heat Pump 65 to 135 kBtu/hr - Advanced Efficiency	16.2 EER 4.0 COP	11.0 EER, 3.3 COP	Per installation	Existing	11,938	30	\$78,920	5%	N/A	\$1.42	2
California	Lodging	Heat Pump	Hotel Key Card Room Energy Control System	Key card system to control room HVAC and lighting during non-occupied periods	325 sqft room, \$100/room	per room	Existing	451	15	\$147	60%	97%	\$0.04	174
California	Lodging	Heat Pump	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	3	13	\$0.37	10%	39%	\$0.02	4
California	Lodging	Heat Pump	Insulation - Ceiling	R-25 (CA State Code)	R-11 (Average Existing Conditions)	per roof sqft	Existing	0.35	25	\$0.72	75%	61%	\$0.21	26
California	Lodging	Heat Pump	Insulation - Ceiling	R-30	R-25 (CA State Code)	per roof sqft	Existing	0.04	25	\$0.10	75%	85%	\$0.26	4
California	Lodging	Heat Pump	Insulation - Duct	R-8 (CA State Code)	No Insulation	per surface area of duct insul	Existing	3	20	\$2	75%	62%	\$0.10	21
California	Lodging	Heat Pump	Insulation - Floor (non-slab)	R-25 (CA State Code)	R-7 (Average Existing Conditions)	per floor area	Existing	0.56	25	\$0.87	35%	76%	\$0.16	26
California	Lodging	Heat Pump	Insulation - Floor (non-slab)	R-30	R-25 (CA State Code)	per floor area	Existing	0.14	25	\$0.11	35%	90%	\$0.08	8

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
California	Lodging	Heat Pump	Insulation - Wall	R-16 (CA State Code)	R-3 (Average Existing Conditions)	per floor area	Existing	0.90	25	\$1	10%	68%	\$0.17	5
California	Lodging	Heat Pump	Insulation - Wall	R-21	R-16 (CA State Code)	per floor area	Existing	0.46	25	\$0.17	10%	85%	\$0.04	5
California	Lodging	Heat Pump	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	Existing	46	30	\$6	50%	95%	\$0.01	150
California	Lodging	Heat Pump	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	Existing	1,334	10	\$146	95%	30%	\$0.02	11
California	Lodging	Heat Pump	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	0.69	7	\$0.21	90%	85%	\$0.07	105
California	Lodging	Heat Pump	Window Film	Window Film	No Film	per 100 sqft of window glazing	Existing	2	10	\$164	90%	68%	\$12.88	0.31
California	Lodging	Heat Pump	Windows-High Efficiency	U-0.32	U-0.47 (CA State Code)	per window sqft	Existing	1	25	\$56	15%	90%	\$4.91	3
California	Lodging	Heat Pump	Windows-High Efficiency	U-0.47 (CA State Code)	U-0.65 (Average Existing Conditions)	per window sqft	Existing	1	25	\$39	15%	56%	\$2.81	2
California	Lodging	Heat Pump	Air Source Heat Pump 65 to 135 kBtu/hr - High Efficiency	11.5 EER, 3.4 COP	11.0 EER, 3.3 COP	Per installation	New	2,075	15	\$2,216	100%	N/A	\$0.14	0.41
California	Lodging	Heat Pump	Air Source Heat Pump 65 to 135 kBtu/hr - Premium Efficiency	12.0 EER, 3.8 COP	11.0 EER, 3.3 COP	Per installation	New	4,601	15	\$4,432	100%	N/A	\$0.12	12
California	Lodging	Heat Pump	Automated Ventilation VFD Control(Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	1 unit per 3,000 sqft	New	86	15	\$420	50%	94%	\$0.63	0.48
California	Lodging	Heat Pump	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	New	0.14	15	\$0.69	45%	98%	\$0.63	2
California	Lodging	Heat Pump	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	New	366	15	\$186	75%	76%	\$0.07	8
California	Lodging	Heat Pump	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	New	0.09	18	\$0.26	45%	65%	\$0.34	1
California	Lodging	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	New	0.33	14	\$1	5%	94%	\$0.71	0.56
California	Lodging	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	New	0.14	40	\$10	4%	98%	\$6.85	0.01
California	Lodging	Heat Pump	Ground Source Heat Pump Replacing Air Source Heat Pump 65 to 135 kBtu/hr - Advanced Efficiency	16.2 EER 4.0 COP	11.0 EER, 3.3 COP	Per installation	New	8,333	30	\$91,495	5%	N/A	\$1.02	0.34
California	Lodging	Heat Pump	Hotel Key Card Room Energy Control System	Key card system to control room HVAC and lighting during non-occupied periods	325 sqft room, \$100/room	per room	New	297	15	\$147	60%	97%	\$0.06	22
California	Lodging	Heat Pump	Insulation - Ceiling	R-30	R-25 (CA State Code)	per roof sqft	New	0.02	25	\$0.10	75%	85%	\$0.38	0.66
California	Lodging	Heat Pump	Insulation - Floor (non-slab)	R-30	R-25 (CA State Code)	per floor area	New	0.09	25	\$0.11	35%	90%	\$0.12	1
California	Lodging	Heat Pump	Insulation - Wall	R-21	R-16 (CA State Code)	per floor area	New	0.31	25	\$0.17	95%	85%	\$0.06	6
California	Lodging	Heat Pump	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	New	30	30	\$6	50%	95%	\$0.02	19
California	Lodging	Heat Pump	Natural Ventilation	Natural Ventilation Design Reduction in Cooling	None - Standard Ventilation	per building sqft	New	0.36	15	\$1	20%	75%	\$0.38	2
California	Lodging	Heat Pump	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	New	879	10	\$146	95%	15%	\$0.03	0.75
California	Lodging	Heat Pump	Windows-High Efficiency	U-0.32	U-0.47 (CA State Code)	per window sqft	New	0.79	25	\$56	80%	90%	\$7.31	3
California	Lodging	Hvac Aux	Cooking Hood Controls	Demand-Ventilation Control	No Controls	per installation	Existing	1,787	18	\$9,145	95%	45%	\$0.60	130
California	Lodging	Hvac Aux	Motor - CEE Premium-Efficiency Plus	CEE PE+ Motor for HVAC Applications	NEMA Efficiency Motors	per HP	Existing	24	15	\$6	95%	76%	\$0.03	32
California	Lodging	Hvac Aux	Motor Rewind	>15, <500 HP	No Rewind	per HP	Existing	4	8	\$4	65%	25%	\$0.20	1
California	Lodging	Hvac Aux	Cooking Hood Controls	Demand-Ventilation Control	No Controls	per installation	New	1,787	18	\$9,145	95%	45%	\$0.60	24
California	Lodging	Hvac Aux	Motor - CEE Premium-Efficiency Plus	CEE PE+ Motor for HVAC Applications	NEMA Efficiency Motors	per HP	New	23	15	\$6	95%	76%	\$0.04	7

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
California	Lodging	Lighting Exterior	Covered Parking Lighting	Covered Parking Lighting	Normal Lighting	per building sqft	Existing	0.08	10	\$0.02	80%	95%	\$0.05	155
California	Lodging	Lighting Exterior	Daylighting Controls, Outdoors (Photocell)	Photocell	No Controls	per installation	Existing	30	8	\$28	75%	70%	\$0.18	13
California	Lodging	Lighting Exterior	Exterior Building Lighting	30% savings	Normal Lighting	per installation	Existing	231	15	\$335	62%	90%	\$0.19	120
California	Lodging	Lighting Exterior	Solid State LED White Lighting	Landscape, merchandise, signage, structure & task lighting (2.5 W)	50W 10hrs/day, 365 day/yr	per installation	Existing	3	14	\$35	75%	95%	\$1.44	2
California	Lodging	Lighting Exterior	Surface Parking Lighting	Surface Parking Lighting	Normal Lighting	per building sqft	Existing	0.04	19	\$0.07	62%	95%	\$0.17	64
California	Lodging	Lighting Exterior	Covered Parking Lighting	Covered Parking Lighting	Normal Lighting	per building sqft	New	0.08	10	\$0.02	80%	95%	\$0.05	29
California	Lodging	Lighting Exterior	Daylighting Controls, Outdoors (Photocell)	Photocell	No Controls	per installation	New	30	8	\$28	75%	70%	\$0.18	2
California	Lodging	Lighting Exterior	Exterior Building Lighting	30% savings	Normal Lighting	per installation	New	231	15	\$335	62%	90%	\$0.19	22
California	Lodging	Lighting Exterior	Solid State LED White Lighting	Landscape, merchandise, signage, structure & task lighting (2.5 W)	50W 10hrs/day, 365 day/yr	per installation	New	3	14	\$35	75%	95%	\$1.44	0.45
California	Lodging	Lighting Exterior	Surface Parking Lighting	Surface Parking Lighting	Normal Lighting	per building sqft	New	0.04	19	\$0.07	62%	95%	\$0.17	12
California	Lodging	Lighting Interior	Cold Cathode Lighting	Cold Cathode Lighting 5 watts	30 W Incandescent Bulb	per installation	Existing	125	5	\$12	15%	94%	\$0.03	4
California	Lodging	Lighting Interior	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	Existing	0.21	8	\$1	30%	92%	\$0.95	11
California	Lodging	Lighting Interior	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	Existing	0.16	8	\$0.79	30%	92%	\$0.95	8
California	Lodging	Lighting Interior	Exit Sign - LED	LED Exit Sign (2 Watts)	CFL Exit Sign (9 Watts)	per installation	Existing	92	16	\$16	95%	50%	\$0.02	73
California	Lodging	Lighting Interior	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign (2 Watts)	per installation	Existing	16	13	\$30	95%	98%	\$0.26	8
California	Lodging	Lighting Interior	Lighting Package, High Efficiency	15% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	Existing	0.41	13	\$0.00	90%	53%	\$0.00	355
California	Lodging	Lighting Interior	Lighting Package, High Efficiency	Code Required LPD And Control Strategies	Existing Lighting Design LPD	per building sqft	Existing	1	13	\$0.02	90%	41%	\$0.00	1,283
California	Lodging	Lighting Interior	Lighting Package, Premium Efficiency	25% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	Existing	0.69	13	\$0.00	75%	62%	\$0.00	143
California	Lodging	Lighting Interior	Lighting Package, Premium High Bay	35% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	Existing	0.01	13	\$0.01	70%	83%	\$0.12	16
California	Lodging	Lighting Interior	Occupancy Sensor Control, Fluorescent	Occupancy Sensor Control, Fluorescent	No Occupancy Sensor	per occupancy sensor	Existing	542	8	\$73	90%	47%	\$0.03	45
California	Lodging	Lighting Interior	Time Clock	Time Clock	No Controls	per 10,000 Watts	Existing	718	8	\$218	20%	**	\$0.06	21
California	Lodging	Lighting Interior	Cold Cathode Lighting	Cold Cathode Lighting 5 watts	30 W Incandescent Bulb	per installation	New	99	5	\$12	15%	94%	\$0.04	0.73
California	Lodging	Lighting Interior	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	New	0.17	8	\$1	30%	92%	\$1.20	2
California	Lodging	Lighting Interior	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	New	0.13	8	\$0.79	30%	92%	\$1.20	1
California	Lodging	Lighting Interior	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign (2 Watts)	per installation	New	16	13	\$30	95%	98%	\$0.26	6
California	Lodging	Lighting Interior	Lighting Package, High Efficiency	15% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	New	0.39	15	\$0.00	90%	53%	\$0.00	63
California	Lodging	Lighting Interior	Lighting Package, Premium Efficiency	25% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	New	0.65	15	\$0.00	75%	62%	\$0.00	25
California	Lodging	Lighting Interior	Lighting Package, Premium High Bay	35% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	New	0.01	15	\$0.00	70%	83%	\$0.03	3
California	Lodging	Lighting Interior	Occupancy Sensor Control, Fluorescent	Occupancy Sensor Control, Fluorescent	No Occupancy Sensor	per occupancy sensor	New	429	8	\$73	90%	47%	\$0.03	8

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
California	Lodging	Lighting Interior	Time Clock	Time Clock	No Controls	per 10,000 Watts	New	718	8	\$218	20%	**%	\$0.06	3
California	Lodging	Other Office Equipment	ENERGY STAR - Copiers	ENERGY STAR Copiers	Standard Copier	per installation	Existing	69	6	\$161	95%	45%	\$0.56	7
California	Lodging	Other Office Equipment	ENERGY STAR - Fax	ENERGY STAR Fax	Standard Fax	per installation	Existing	74	6	\$0.91	95%	45%	\$0.00	8
California	Lodging	Other Office Equipment	ENERGY STAR - Monitors	ENERGY STAR Features Enabled	Non-ENERGY STAR Features	per installation	Existing	14	5	\$16	64%	15%	\$0.33	0.82
California	Lodging	Other Office Equipment	ENERGY STAR - Printers	ENERGY STAR Printers	Standard Printers	per installation	Existing	131	6	\$15	95%	40%	\$0.03	10
California	Lodging	Other Office Equipment	ENERGY STAR - Scanners	ENERGY STAR Scanners	Standard Scanner	per installation	Existing	68	6	\$0.91	95%	45%	\$0.00	7
California	Lodging	Other Office Equipment	ENERGY STAR - Copiers	ENERGY STAR Copiers	Standard Copier	per installation	New	69	6	\$161	95%	45%	\$0.56	1
California	Lodging	Other Office Equipment	ENERGY STAR - Fax	ENERGY STAR Fax	Standard Fax	per installation	New	74	6	\$0.91	95%	45%	\$0.00	1
California	Lodging	Other Office Equipment	ENERGY STAR - Monitors	ENERGY STAR Features Enabled	Non-ENERGY STAR Features	per installation	New	14	5	\$16	64%	15%	\$0.33	0.15
California	Lodging	Other Office Equipment	ENERGY STAR - Printers	ENERGY STAR Printers	Standard Printers	per installation	New	131	6	\$15	95%	40%	\$0.03	2
California	Lodging	Other Office Equipment	ENERGY STAR - Scanners	ENERGY STAR Scanners	Standard Scanner	per installation	New	68	6	\$0.91	95%	45%	\$0.00	1
California	Lodging	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	per installation	Existing	7	7	\$2	20%	90%	\$0.07	0.38
California	Lodging	Other Plug Load	ENERGY STAR - Water Cooler	ENERGY STAR Water Cooler (Hot/Cold Water)	Non-ENERGY STAR Water Cooler	per installation	Existing	346	10	\$0.00	95%	75%	\$0.00	3
California	Lodging	Other Plug Load	Ice Maker	High-Efficiency Ice Maker	Standard Ice Maker	per installation	Existing	403	10	\$141	95%	86%	\$0.03	83
California	Lodging	Other Plug Load	Power Supply Transformer/Converter	80 Plus	85% efficient power supply (> 51W)	1 unit per 2,000 sqft	Existing	6	4	\$0.41	95%	86%	\$0.02	5
California	Lodging	Other Plug Load	Residential Refrigerator	ENERGY STAR	Federal Standard	per installation	Existing	76	12	\$123	24%	65%	\$0.24	3
California	Lodging	Other Plug Load	Residential Refrigerator/Freezer Recycling	Recycling Existing Refrigerator/Freezer	Existing Refrigerator/Freezer	per installation	Existing	908	4	\$564	25%	35%	\$0.21	5
California	Lodging	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	1 unit per 4,000 sqft	Existing	95	5	\$20	60%	90%	\$0.06	29
California	Lodging	Other Plug Load	Vending Machines- High Efficiency	ENERGY STAR (Tier 2) Vending Machines- High Efficiency 500 can capacity Under 5.92 kWh/day	Vending Machines- Standard 13 kWh/day	per installation	Existing	228	14	\$162	90%	80%	\$0.10	42
California	Lodging	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	per installation	New	7	7	\$2	20%	90%	\$0.07	0.07
California	Lodging	Other Plug Load	ENERGY STAR - Water Cooler	ENERGY STAR Water Cooler (Hot/Cold Water)	Non-ENERGY STAR Water Cooler	per installation	New	346	10	\$0.00	95%	75%	\$0.00	0.66
California	Lodging	Other Plug Load	Ice Maker	High-Efficiency Ice Maker	Standard Ice Maker	per installation	New	403	10	\$141	95%	86%	\$0.03	15
California	Lodging	Other Plug Load	Power Supply Transformer/Converter	80 Plus	85% efficient power supply (> 51W)	1 unit per 2,000 sqft	New	6	4	\$0.41	95%	86%	\$0.02	1
California	Lodging	Other Plug Load	Residential Refrigerator	ENERGY STAR	Federal Standard	per installation	New	76	12	\$123	24%	65%	\$0.24	0.64
California	Lodging	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	1 unit per 4,000 sqft	New	95	5	\$20	60%	90%	\$0.06	5
California	Lodging	Other Plug Load	Vending Machines- High Efficiency	ENERGY STAR (Tier 2) Vending Machines- High Efficiency 500 can capacity Under 5.92 kWh/day	Vending Machines- Standard 13 kWh/day	per installation	New	228	14	\$162	90%	80%	\$0.10	7
California	Lodging	Space Heat	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	Existing	580	15	\$186	75%	76%	\$0.04	174
California	Lodging	Space Heat	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	Existing	0.14	18	\$0.26	45%	65%	\$0.21	17

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
California	Lodging	Space Heat	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	Existing	0.87	14	\$1	5%	94%	\$0.27	16
California	Lodging	Space Heat	Hotel Key Card Room Energy Control System	Key card system to control room HVAC and lighting during non-occupied periods	325 sqft room, \$100/room	per room	Existing	471	15	\$147	60%	97%	\$0.04	458
California	Lodging	Space Heat	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	3	13	\$0.37	10%	39%	\$0.01	16
California	Lodging	Space Heat	Insulation - Ceiling	R-25 (CA State Code)	R-11 (Average Existing Conditions)	per roof sqft	Existing	0.85	25	\$0.72	75%	61%	\$0.09	172
California	Lodging	Space Heat	Insulation - Ceiling	R-30	R-25 (CA State Code)	per roof sqft	Existing	0.14	25	\$0.10	75%	85%	\$0.08	41
California	Lodging	Space Heat	Insulation - Duct	R-8 (CA State Code)	No Insulation	per surface area of duct insul	Existing	3	20	\$2	75%	62%	\$0.09	53
California	Lodging	Space Heat	Insulation - Floor (non-slab)	R-25 (CA State Code)	R-7 (Average Existing Conditions)	per floor area	Existing	2	25	\$0.87	35%	76%	\$0.04	403
California	Lodging	Space Heat	Insulation - Floor (non-slab)	R-30	R-25 (CA State Code)	per floor area	Existing	0.41	25	\$0.11	35%	90%	\$0.03	93
California	Lodging	Space Heat	Insulation - Wall	R-16 (CA State Code)	R-3 (Average Existing Conditions)	per floor area	Existing	4	25	\$1	10%	68%	\$0.04	113
California	Lodging	Space Heat	Insulation - Wall	R-21	R-16 (CA State Code)	per floor area	Existing	1	25	\$0.17	10%	85%	\$0.01	55
California	Lodging	Space Heat	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	Existing	48	30	\$6	50%	95%	\$0.01	463
California	Lodging	Space Heat	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	Existing	1,394	10	\$146	95%	30%	\$0.02	35
California	Lodging	Space Heat	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	0.72	7	\$0.21	90%	85%	\$0.06	277
California	Lodging	Space Heat	Windows-High Efficiency	U-0.32	U-0.47 (CA State Code)	per window sqft	Existing	2	25	\$56	15%	90%	\$2.06	23
California	Lodging	Space Heat	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	New	387	15	\$186	75%	76%	\$0.06	22
California	Lodging	Space Heat	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	New	0.09	18	\$0.26	45%	65%	\$0.32	2
California	Lodging	Space Heat	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	New	0.58	14	\$1	5%	94%	\$0.41	2
California	Lodging	Space Heat	Hotel Key Card Room Energy Control System	Key card system to control room HVAC and lighting during non-occupied periods	325 sqft room, \$100/room	per room	New	314	15	\$147	60%	97%	\$0.06	59
California	Lodging	Space Heat	Insulation - Ceiling	R-30	R-25 (CA State Code)	per roof sqft	New	0.09	25	\$0.10	75%	85%	\$0.11	5
California	Lodging	Space Heat	Insulation - Floor (non-slab)	R-30	R-25 (CA State Code)	per floor area	New	0.27	25	\$0.11	35%	90%	\$0.04	10
California	Lodging	Space Heat	Insulation - Wall	R-21	R-16 (CA State Code)	per floor area	New	0.95	25	\$0.17	95%	85%	\$0.02	66
California	Lodging	Space Heat	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	New	32	30	\$6	50%	95%	\$0.02	52
California	Lodging	Space Heat	Natural Ventilation	Natural Ventilation Design Reduction in Cooling	None - Standard Ventilation	per building sqft	New	0.38	15	\$1	20%	75%	\$0.36	5
California	Lodging	Space Heat	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	New	929	10	\$146	95%	15%	\$0.03	2
California	Lodging	Space Heat	Windows-High Efficiency	U-0.32	U-0.47 (CA State Code)	per window sqft	New	1	25	\$56	80%	90%	\$3.09	19
California	Lodging	Water Heat	Clothes Washer Commercial	ENERGY STAR Commercial Clothes Washer MEF=1.80	Standard Clothes Washers	per installation	Existing	518	11	\$127	95%	80%	\$-0.28	18
California	Lodging	Water Heat	Clothes Washer Residential	Energy Star - CEE Tier 1 (MEF 2.0 - 2.19) - Electric DHW & Dryer	MEF = 1.66 - Electric DHW & Dryer (NWPPC 6th Plan Average Efficiency)	per installation	Existing	126	11	\$329	85%	94%	\$0.09	4
California	Lodging	Water Heat	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	per building sqft	Existing	0.07	10	\$0.29	55%	80%	\$0.63	19
California	Lodging	Water Heat	Dishwasher Residential	ENERGY STAR <= 324 kWh/yr, <= 5.8 gal/cycle	Federal Standard <= 355 kWh/yr, <= 6.5 gal/cycle	per installation	Existing	29	11	\$31	95%	25%	\$0.10	0.15
California	Lodging	Water Heat	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	per installation	Existing	7,029	10	\$2,641	95%	95%	\$0.02	18
California	Lodging	Water Heat	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	per installation	Existing	3,284	10	\$825	95%	94%	\$-0.02	4

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California	Lodging	Water Heat	Electric Water Heater - High Efficiency	EF = 0.95	EF = 0.92	Per installation	Existing	414	15	\$546	100%	N/A	\$0.17	3
California	Lodging	Water Heat	Heat Pump Water Heater - Advanced-Efficiency	EF = 2.2	EF = 0.92	Per installation	Existing	7,634	15	\$11,086	75%	N/A	\$0.19	205
California	Lodging	Water Heat	Hot Water (SHW) Pipe Insulation	1.0" of Insulation, assuming R-4 (CA State Code)	No Insulation	per linear foot	Existing	6	12	\$3	80%	90%	\$0.08	6
California	Lodging	Water Heat	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	per installation	Existing	19	9	\$0.08	95%	25%	-\$0.08	8
California	Lodging	Water Heat	Low-Flow Faucet Aerators	2.2 GPM (Federal Code)	3.0 GPM	per installation	Existing	16	9	\$2	95%	25%	-\$0.06	7
California	Lodging	Water Heat	Low-Flow Pre-Rinse Spray Valves	0.6 GPM	1.6 GPM (Federal Standard)	per installation	Existing	62	5	\$4	95%	93%	-\$0.08	7
California	Lodging	Water Heat	Low-Flow Showerheads	2.0 GPM	2.5 GPM (Federal Code)	per installation	Existing	44	10	\$6	95%	73%	-\$0.06	54
California	Lodging	Water Heat	Low-Flow Showerheads	2.5 GPM (Federal Code)	4.5 GPM	per installation	Existing	99	10	\$11	95%	62%	-\$0.07	103
California	Lodging	Water Heat	Water Heater Temperature Setback	Water Heater Temperature Setback (120 F)	No Change in Water Temperature	per installation	Existing	138	5	\$112	75%	5%	\$0.23	2
California	Lodging	Water Heat	Clothes Washer Commercial	ENERGY STAR Commercial Clothes Washer MEF=1.80	Standard Clothes Washers	per installation	New	520	11	\$127	95%	80%	-\$0.28	3
California	Lodging	Water Heat	Clothes Washer Residential	Energy Star - CEE Tier 1 (MEF 2.0 - 2.19) - Electric DHW & Dryer	MEF = 1.66 - Electric DHW & Dryer (NWPPC 6th Plan Average Efficiency)	per installation	New	126	11	\$329	85%	94%	\$0.09	0.93
California	Lodging	Water Heat	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	per building sqft	New	0.07	10	\$0.29	55%	80%	\$0.65	4
California	Lodging	Water Heat	Dishwasher Residential	ENERGY STAR <= 324 kWh/yr, <= 5.8 gal/cycle	Federal Standard <= 355 kWh/yr, <= 6.5 gal/cycle	per installation	New	29	11	\$31	95%	55%	\$0.10	0.06
California	Lodging	Water Heat	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	per installation	New	7,063	10	\$2,637	95%	95%	\$0.02	3
California	Lodging	Water Heat	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	per installation	New	3,299	10	\$817	95%	94%	-\$0.02	0.77
California	Lodging	Water Heat	Electric Water Heater - High Efficiency	EF = 0.95	EF = 0.92	Per installation	New	414	15	\$546	100%	N/A	\$0.17	0.58
California	Lodging	Water Heat	Heat Pump Water Heater - Advanced-Efficiency	EF = 2.2	EF = 0.92	Per installation	New	7,634	15	\$9,151	75%	N/A	\$0.16	39
California	Lodging	Water Heat	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	per installation	New	19	9	\$0.08	95%	25%	-\$0.08	1
California	Lodging	Water Heat	Low-Flow Pre-Rinse Spray Valves	0.6 GPM	1.6 GPM (Federal Standard)	per installation	New	63	5	\$4	95%	93%	-\$0.08	1
California	Lodging	Water Heat	Low-Flow Showerheads	2.0 GPM	2.5 GPM (Federal Code)	per installation	New	43	10	\$6	95%	73%	-\$0.06	10
California	Lodging	Water Heat	Water Heater Temperature Setback	Water Heater Temperature Setback (120 F)	No Change in Water Temperature	per installation	New	133	5	\$112	75%	5%	\$0.24	0.52
California	Miscellaneous	Computers	Computer ENERGY STAR	Computer ENERGY STAR	Computer standard non-ENERGY STAR	Per installation	Existing	136	4	\$28	100%	N/A	\$0.07	106
California	Miscellaneous	Computers	Network PC Power Management	Network PC Power Management	No Power Management	per computer	Existing	84	5	\$12	95%	30%	\$0.04	24
California	Miscellaneous	Computers	Computer ENERGY STAR	Computer ENERGY STAR	Computer standard non-ENERGY STAR	Per installation	New	136	4	\$28	100%	N/A	\$0.07	3
California	Miscellaneous	Computers	Network PC Power Management	Network PC Power Management	No Power Management	per computer	New	84	5	\$12	95%	30%	\$0.04	4
California	Miscellaneous	Cooling Dx Evap	Automated Ventilation VFD Control (Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	1 unit per 3,000 sqft	Existing	791	15	\$788	50%	94%	\$0.13	16
California	Miscellaneous	Cooling Dx Evap	Convert Constant Volume Air System to VAV	Variable Volume Air System	Constant Volume Air System	per building CFM	Existing	0.79	15	\$3	15%	68%	\$0.53	6
California	Miscellaneous	Cooling Dx Evap	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	Existing	0.26	15	\$0.69	45%	98%	\$0.34	10

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
California	Miscellaneous	Cooling Dx Evap	DX Package 65 to 135 kBTU/hr - High Efficiency	DX Package 65 to 135 kBTU/hr - High Efficiency - 11.5 EER	DX Package 65 to 135 kBTU/hr - Standard Efficiency - 11.2 EER	Per installation	Existing	285	15	\$258	100%	N/A	\$0.12	0.28
California	Miscellaneous	Cooling Dx Evap	DX Package 65 to 135 kBTU/hr - Premium Efficiency	DX Package 65 to 135 kBTU/hr - Premium Efficiency - 12.0 EER	DX Package 65 to 135 kBTU/hr - Standard Efficiency - 11.2 EER	Per installation	Existing	729	15	\$520	100%	N/A	\$0.09	11
California	Miscellaneous	Cooling Dx Evap	DX Package-Air Side Economizer	Air-Side Economizer	No Economizer	per DX ton	Existing	106	10	\$178	10%	70%	\$0.28	3
California	Miscellaneous	Cooling Dx Evap	DX Tune-Up / Diagnostics	DX Tune-Up / Diagnostics	No DX Tune-Up / Diagnostics	per installation	Existing	534	4	\$398	95%	72%	\$0.29	19
California	Miscellaneous	Cooling Dx Evap	Direct / Indirect Evaporative Cooling, Pre-Cooling	Evaporative Cooler	Standard DX cooling	per building CFM	Existing	0.65	15	\$2	50%	94%	\$0.44	29
California	Miscellaneous	Cooling Dx Evap	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	Existing	263	15	\$186	75%	76%	\$0.09	20
California	Miscellaneous	Cooling Dx Evap	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	Existing	0.06	18	\$0.26	45%	65%	\$0.47	1
California	Miscellaneous	Cooling Dx Evap	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	Existing	0.26	40	\$10	4%	98%	\$3.72	0.07
California	Miscellaneous	Cooling Dx Evap	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	2	13	\$0.37	10%	39%	\$0.03	0.46
California	Miscellaneous	Cooling Dx Evap	Insulation - Ceiling	R-25 (CA State Code)	R-11 (Average Existing Conditions)	per roof sqft	Existing	0.00	25	\$0.72	75%	61%	\$24.13	0.11
California	Miscellaneous	Cooling Dx Evap	Insulation - Duct	R-8 (CA State Code)	No Insulation	per surface area of duct insul	Existing	1	20	\$2	75%	62%	\$0.20	6
California	Miscellaneous	Cooling Dx Evap	Insulation - Floor (non-slab)	R-30	R-25 (CA State Code)	per floor area	Existing	0.00	25	\$0.11	35%	90%	\$2.03	0.14
California	Miscellaneous	Cooling Dx Evap	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	Existing	16	30	\$6	50%	95%	\$0.04	28
California	Miscellaneous	Cooling Dx Evap	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	Existing	197	10	\$146	95%	33%	\$0.12	3
California	Miscellaneous	Cooling Dx Evap	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	0.32	7	\$0.21	90%	85%	\$0.14	31
California	Miscellaneous	Cooling Dx Evap	Window Film	Window Film	No Film	per 100 sqft of window glazing	Existing	2	10	\$164	90%	68%	\$12.07	0.04
California	Miscellaneous	Cooling Dx Evap	Windows-High Efficiency	U-0.47 (CA State Code)	U-0.65 (Average Existing Conditions)	per window sqft	Existing	10	25	\$39	15%	72%	\$0.37	4
California	Miscellaneous	Cooling Dx Evap	Automated Ventilation VFD Control(Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	1 unit per 3,000 sqft	New	502	15	\$420	50%	94%	\$0.11	2
California	Miscellaneous	Cooling Dx Evap	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	New	0.16	15	\$0.69	45%	98%	\$0.54	1
California	Miscellaneous	Cooling Dx Evap	DX Package 65 to 135 kBTU/hr - High Efficiency	DX Package 65 to 135 kBTU/hr - High Efficiency - 11.5 EER	DX Package 65 to 135 kBTU/hr - Standard Efficiency - 11.2 EER	Per installation	New	193	15	\$206	100%	N/A	\$0.14	0.02
California	Miscellaneous	Cooling Dx Evap	DX Package 65 to 135 kBTU/hr - Premium Efficiency	DX Package 65 to 135 kBTU/hr - Premium Efficiency - 12.0 EER	DX Package 65 to 135 kBTU/hr - Standard Efficiency - 11.2 EER	Per installation	New	507	15	\$415	100%	N/A	\$0.11	1
California	Miscellaneous	Cooling Dx Evap	Direct / Indirect Evaporative Cooling, Pre-Cooling	Evaporative Cooler	Standard DX cooling	per building CFM	New	0.41	15	\$2	50%	94%	\$0.69	4
California	Miscellaneous	Cooling Dx Evap	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	New	167	15	\$186	75%	76%	\$0.14	2
California	Miscellaneous	Cooling Dx Evap	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	New	0.04	18	\$0.26	45%	65%	\$0.74	0.25
California	Miscellaneous	Cooling Dx Evap	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	New	0.16	40	\$10	4%	98%	\$5.87	0.01

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
California	Miscellaneous	Cooling Dx Evap	Insulation - Floor (non-slab)	R-30	R-25 (CA State Code)	per floor area	New	0.00	25	\$0.11	35%	90%	\$3.20	0.02
California	Miscellaneous	Cooling Dx Evap	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	New	10	30	\$6	50%	95%	\$0.06	3
California	Miscellaneous	Cooling Dx Evap	Natural Ventilation	Natural Ventilation Design Reduction in Cooling	None - Standard Ventilation	per building sqft	New	0.16	15	\$1	20%	75%	\$0.82	0.51
California	Miscellaneous	Cooling Dx Evap	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	New	125	10	\$146	95%	16%	\$0.19	0.19
California	Miscellaneous	Cooling Room	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	Existing	0.35	15	\$0.69	45%	98%	\$0.25	2
California	Miscellaneous	Cooling Room	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	Existing	357	15	\$186	75%	76%	\$0.07	3
California	Miscellaneous	Cooling Room	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	Existing	0.35	40	\$10	4%	98%	\$2.75	0.02
California	Miscellaneous	Cooling Room	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	2	13	\$0.37	10%	39%	\$0.02	0.08
California	Miscellaneous	Cooling Room	Insulation - Ceiling	R-25 (CA State Code)	R-11 (Average Existing Conditions)	per roof sqft	Existing	0.00	25	\$0.72	75%	61%	\$17.82	0.03
California	Miscellaneous	Cooling Room	Insulation - Floor (non-slab)	R-30	R-25 (CA State Code)	per floor area	Existing	0.00	25	\$0.11	35%	90%	\$1.50	0.04
California	Miscellaneous	Cooling Room	PTAC (10,000 BTU/HR) - Premium-Efficiency	11.4 EER	Room AC (10,000 BTU/HR) Standard-Efficiency 9.8 EER	Per installation	Existing	1,503	15	\$13,306	75%	N/A	\$1.15	6
California	Miscellaneous	Cooling Room	Room AC (10,000 BTU/HR) High-Efficiency	High Efficiency 10.8 EER (ENERGY STAR)	Room AC (10,000 BTU/HR) Standard-Efficiency 9.8 EER	Per installation	Existing	940	9	\$569	100%	N/A	\$0.11	1
California	Miscellaneous	Cooling Room	Window Film	Window Film	No Film	per 100 sqft of window glazing	Existing	0.11	10	\$164	90%	68%	\$240.91	0.00
California	Miscellaneous	Cooling Room	Windows-High Efficiency	U-0.47 (CA State Code)	U-0.65 (Average Existing Conditions)	per window sqft	Existing	14	25	\$39	15%	72%	\$0.27	1
California	Miscellaneous	Cooling Room	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	New	0.23	15	\$0.69	45%	98%	\$0.38	0.32
California	Miscellaneous	Cooling Room	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	New	236	15	\$186	75%	76%	\$0.10	0.49
California	Miscellaneous	Cooling Room	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	New	0.23	40	\$10	4%	98%	\$4.16	0.00
California	Miscellaneous	Cooling Room	Insulation - Floor (non-slab)	R-30	R-25 (CA State Code)	per floor area	New	0.00	25	\$0.11	35%	90%	\$2.27	0.00
California	Miscellaneous	Cooling Room	Natural Ventilation	Natural Ventilation Design Reduction in Cooling	None - Standard Ventilation	per building sqft	New	0.23	15	\$1	20%	75%	\$0.58	0.11
California	Miscellaneous	Cooling Room	PTAC (10,000 BTU/HR) - Premium-Efficiency	11.4 EER	Room AC (10,000 BTU/HR) Standard-Efficiency 9.8 EER	Per installation	New	1,036	15	\$9,287	75%	N/A	\$1.16	0.41
California	Miscellaneous	Cooling Room	Room AC (10,000 BTU/HR) High-Efficiency	High Efficiency 10.8 EER (ENERGY STAR)	Room AC (10,000 BTU/HR) Standard-Efficiency 9.8 EER	Per installation	New	640	9	\$455	100%	N/A	\$0.13	0.08
California	Miscellaneous	Heat Pump	Air Source Heat Pump 65 to 135 kBtu/hr - High Efficiency	11.5 EER, 3.4 COP	11.0 EER, 3.3 COP	Per installation	Existing	1,049	15	\$962	100%	N/A	\$0.12	1
California	Miscellaneous	Heat Pump	Air Source Heat Pump 65 to 135 kBtu/hr - Premium Efficiency	12.0 EER, 3.8 COP	11.0 EER, 3.3 COP	Per installation	Existing	1,947	15	\$1,923	100%	N/A	\$0.13	36
California	Miscellaneous	Heat Pump	Automated Ventilation VFD Control(Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	1 unit per 3,000 sqft	Existing	958	15	\$788	50%	94%	\$0.11	11
California	Miscellaneous	Heat Pump	Convert Constant Volume Air System to VAV	Variable Volume Air System	Constant Volume Air System	per building CFM	Existing	0.83	15	\$3	15%	68%	\$0.51	5

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
California	Miscellaneous	Heat Pump	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	Existing	0.31	15	\$0.69	45%	98%	\$0.28	9
California	Miscellaneous	Heat Pump	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	Existing	518	15	\$186	75%	76%	\$0.05	27
California	Miscellaneous	Heat Pump	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	Existing	0.12	18	\$0.26	45%	65%	\$0.24	2
California	Miscellaneous	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	Existing	0.29	14	\$1	5%	94%	\$0.79	0.95
California	Miscellaneous	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	Existing	0.31	40	\$10	4%	98%	\$3.08	0.07
California	Miscellaneous	Heat Pump	Ground Source Heat Pump Replacing Air Source Heat Pump 65 to 135 kBTU/hr - Advanced Efficiency	16.2 EER 4.0 COP	11.0 EER, 3.3 COP	Per installation	Existing	4,066	30	\$62,125	5%	N/A	\$1.44	3
California	Miscellaneous	Heat Pump	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	4	13	\$0.37	10%	39%	\$0.01	0.72
California	Miscellaneous	Heat Pump	Insulation - Ceiling	R-25 (CA State Code)	R-11 (Average Existing Conditions)	per roof sqft	Existing	0.13	25	\$0.72	75%	61%	\$0.55	4
California	Miscellaneous	Heat Pump	Insulation - Ceiling	R-30	R-25 (CA State Code)	per roof sqft	Existing	0.01	25	\$0.10	75%	85%	\$0.71	0.65
California	Miscellaneous	Heat Pump	Insulation - Duct	R-8 (CA State Code)	No Insulation	per surface area of duct insul	Existing	3	20	\$2	75%	62%	\$0.10	9
California	Miscellaneous	Heat Pump	Insulation - Floor (non-slab)	R-25 (CA State Code)	R-7 (Average Existing Conditions)	per floor area	Existing	0.16	25	\$0.87	35%	80%	\$0.53	3
California	Miscellaneous	Heat Pump	Insulation - Floor (non-slab)	R-30	R-25 (CA State Code)	per floor area	Existing	0.05	25	\$0.11	35%	90%	\$0.21	1
California	Miscellaneous	Heat Pump	Insulation - Wall	R-16 (CA State Code)	R-3 (Average Existing Conditions)	per floor area	Existing	0.42	25	\$1	10%	73%	\$0.37	0.88
California	Miscellaneous	Heat Pump	Insulation - Wall	R-21	R-16 (CA State Code)	per floor area	Existing	0.22	25	\$0.17	10%	85%	\$0.08	0.59
California	Miscellaneous	Heat Pump	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	Existing	43	30	\$6	50%	95%	\$0.01	53
California	Miscellaneous	Heat Pump	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	Existing	389	10	\$146	95%	33%	\$0.06	4
California	Miscellaneous	Heat Pump	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	0.64	7	\$0.21	90%	85%	\$0.07	42
California	Miscellaneous	Heat Pump	Window Film	Window Film	No Film	per 100 sqft of window glazing	Existing	2	10	\$164	90%	68%	\$12.04	0.03
California	Miscellaneous	Heat Pump	Windows-High Efficiency	U-0.32	U-0.47 (CA State Code)	per window sqft	Existing	1	25	\$56	15%	90%	\$3.39	0.61
California	Miscellaneous	Heat Pump	Windows-High Efficiency	U-0.47 (CA State Code)	U-0.65 (Average Existing Conditions)	per window sqft	Existing	11	25	\$39	15%	72%	\$0.36	3
California	Miscellaneous	Heat Pump	Air Source Heat Pump 65 to 135 kBTU/hr - High Efficiency	11.5 EER, 3.4 COP	11.0 EER, 3.3 COP	Per installation	New	657	15	\$769	100%	N/A	\$0.15	0.17
California	Miscellaneous	Heat Pump	Air Source Heat Pump 65 to 135 kBTU/hr - Premium Efficiency	12.0 EER, 3.8 COP	11.0 EER, 3.3 COP	Per installation	New	1,189	15	\$1,539	100%	N/A	\$0.17	4
California	Miscellaneous	Heat Pump	Automated Ventilation VFD Control(Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	1 unit per 3,000 sqft	New	619	15	\$420	50%	94%	\$0.09	1
California	Miscellaneous	Heat Pump	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	New	0.20	15	\$0.69	45%	98%	\$0.44	1
California	Miscellaneous	Heat Pump	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	New	300	15	\$186	75%	76%	\$0.08	3
California	Miscellaneous	Heat Pump	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	New	0.07	18	\$0.26	45%	65%	\$0.41	0.36
California	Miscellaneous	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	New	0.14	14	\$1	5%	94%	\$1.68	0.10

Table C.2.2. Commercial Measure Details

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California	Miscellaneous	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	New	0.20	40	\$10	4%	98%	\$4.76	0.01
California	Miscellaneous	Heat Pump	Ground Source Heat Pump Replacing Air Source Heat Pump 65 to 135 kBTU/hr - Advanced Efficiency	16.2 EER 4.0 COP	11.0 EER, 3.3 COP	Per installation	New	2,592	30	\$31,769	5%	N/A	\$1.14	0.39
California	Miscellaneous	Heat Pump	Insulation - Ceiling	R-30	R-25 (CA State Code)	per roof sqft	New	0.00	25	\$0.10	75%	85%	\$1.92	0.05
California	Miscellaneous	Heat Pump	Insulation - Floor (non-slab)	R-30	R-25 (CA State Code)	per floor area	New	0.02	25	\$0.11	35%	90%	\$0.53	0.11
California	Miscellaneous	Heat Pump	Insulation - Wall	R-21	R-16 (CA State Code)	per floor area	New	0.07	25	\$0.17	95%	85%	\$0.22	0.42
California	Miscellaneous	Heat Pump	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	New	25	30	\$6	50%	95%	\$0.02	6
California	Miscellaneous	Heat Pump	Natural Ventilation	Natural Ventilation Design Reduction in Cooling	None - Standard Ventilation	per building sqft	New	0.30	15	\$1	20%	75%	\$0.46	0.71
California	Miscellaneous	Heat Pump	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	New	225	10	\$146	95%	16%	\$0.11	0.23
California	Miscellaneous	Heat Pump	Windows-High Efficiency	U-0.32	U-0.47 (CA State Code)	per window sqft	New	0.47	25	\$56	80%	90%	\$12.17	0.20
California	Miscellaneous	Hvac Aux	Convert Constant Volume Air System to VAV	Variable Volume Air System	Constant Volume Air System	per building CFM	Existing	0.35	15	\$3	15%	68%	\$1.19	49
California	Miscellaneous	Hvac Aux	Cooking Hood Controls	Demand-Ventilation Control	No Controls	per installation	Existing	1,787	18	\$4,182	95%	65%	\$0.28	31
California	Miscellaneous	Hvac Aux	Motor - CEE Premium-Efficiency Plus	CEE PE+ Motor for HVAC Applications	NEMA Efficiency Motors	per HP	Existing	28	15	\$6	95%	76%	\$0.03	24
California	Miscellaneous	Hvac Aux	Motor - VAV Box High Efficiency (ECM)	ECM Motor	Standard Efficiency Motor	per installation	Existing	73	15	\$177	13%	77%	\$0.31	21
California	Miscellaneous	Hvac Aux	Motor Rewind	>15, <500 HP	No Rewind	per HP	Existing	5	8	\$4	65%	25%	\$0.19	0.88
California	Miscellaneous	Hvac Aux	Optimized Variable Volume Lab Hood Design	Optimized Variable Volume Lab Hood Design	Constant Volume Lab Hood Design	per installation	Existing	117	13	\$1,818	5%	59%	\$2.18	1
California	Miscellaneous	Hvac Aux	Cooking Hood Controls	Demand-Ventilation Control	No Controls	per installation	New	1,787	18	\$4,180	95%	50%	\$0.28	27
California	Miscellaneous	Hvac Aux	Low Pressure Distribution Complex HVAC	Low Pressure Distribution Complex HVAC	VAV/CV	per building sqft	New	0.80	50	\$2	16%	98%	\$0.29	25
California	Miscellaneous	Hvac Aux	Motor - CEE Premium-Efficiency Plus	CEE PE+ Motor for HVAC Applications	NEMA Efficiency Motors	per HP	New	24	15	\$6	95%	76%	\$0.03	4
California	Miscellaneous	Hvac Aux	Motor - VAV Box High Efficiency (ECM)	ECM Motor	Standard Efficiency Motor	per installation	New	62	15	\$177	13%	77%	\$0.37	3
California	Miscellaneous	Hvac Aux	Optimized Variable Volume Lab Hood Design	Optimized Variable Volume Lab Hood Design	Constant Volume Lab Hood Design	per installation	New	99	15	\$1,818	5%	59%	\$2.36	0.31
California	Miscellaneous	Lighting Exterior	Covered Parking Lighting	Covered Parking Lighting	Normal Lighting	per building sqft	Existing	0.08	10	\$0.02	80%	95%	\$0.05	96
California	Miscellaneous	Lighting Exterior	Daylighting Controls, Outdoors (Photocell)	Photocell	No Controls	per installation	Existing	31	8	\$28	75%	70%	\$0.17	17
California	Miscellaneous	Lighting Exterior	Exterior Building Lighting	30% savings	Normal Lighting	per installation	Existing	231	15	\$335	62%	90%	\$0.19	152
California	Miscellaneous	Lighting Exterior	Solid State LED White Lighting	Landscape, merchandise, signage, structure & task lighting (2.5 W)	50W 10hrs/day, 365 day/yr	per installation	Existing	3	14	\$35	75%	95%	\$1.39	2
California	Miscellaneous	Lighting Exterior	Surface Parking Lighting	Surface Parking Lighting	Normal Lighting	per building sqft	Existing	0.04	19	\$0.07	62%	95%	\$0.17	40
California	Miscellaneous	Lighting Exterior	Covered Parking Lighting	Covered Parking Lighting	Normal Lighting	per building sqft	New	0.08	10	\$0.02	80%	95%	\$0.05	18
California	Miscellaneous	Lighting Exterior	Daylighting Controls, Outdoors (Photocell)	Photocell	No Controls	per installation	New	31	8	\$28	75%	70%	\$0.17	3
California	Miscellaneous	Lighting Exterior	Exterior Building Lighting	30% savings	Normal Lighting	per installation	New	231	15	\$335	62%	90%	\$0.19	28
California	Miscellaneous	Lighting Exterior	Solid State LED White Lighting	Landscape, merchandise, signage, structure & task lighting (2.5 W)	50W 10hrs/day, 365 day/yr	per installation	New	3	14	\$35	75%	95%	\$1.39	0.53
California	Miscellaneous	Lighting Exterior	Surface Parking Lighting	Surface Parking Lighting	Normal Lighting	per building sqft	New	0.04	19	\$0.07	62%	95%	\$0.17	7
California	Miscellaneous	Lighting Interior	Cold Cathode Lighting	Cold Cathode Lighting 5 watts	30 W Incandescent Bulb	per installation	Existing	281	5	\$12	15%	94%	\$0.01	21

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
California	Miscellaneous	Lighting Interior	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	Existing	0.75	8	\$1	30%	84%	\$0.27	26
California	Miscellaneous	Lighting Interior	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	Existing	0.56	8	\$0.79	30%	84%	\$0.27	19
California	Miscellaneous	Lighting Interior	Exit Sign - LED	LED Exit Sign (2 Watts)	CFL Exit Sign (9 Watts)	per installation	Existing	92	16	\$16	95%	50%	\$0.02	44
California	Miscellaneous	Lighting Interior	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign (2 Watts)	per installation	Existing	16	13	\$30	95%	98%	\$0.26	5
California	Miscellaneous	Lighting Interior	LED Refrigeration Case Lights	LED Refrigeration Case Lights	Fluorescent Refrigeration Case	per installation	Existing	119	8	\$248	10%	80%	\$0.41	4
California	Miscellaneous	Lighting Interior	Lighting Package, High Efficiency	15% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	Existing	0.48	13	\$0.07	90%	53%	\$0.02	250
California	Miscellaneous	Lighting Interior	Lighting Package, High Efficiency	Code Required LPD And Control Strategies	Existing Lighting Design LPD	per building sqft	Existing	1	13	\$0.89	90%	41%	\$0.08	768
California	Miscellaneous	Lighting Interior	Lighting Package, Premium Efficiency	25% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	Existing	0.81	13	\$0.31	75%	62%	\$0.06	100
California	Miscellaneous	Lighting Interior	Lighting Package, Premium High Bay	35% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	Existing	0.37	13	\$0.22	70%	83%	\$0.09	293
California	Miscellaneous	Lighting Interior	Occupancy Sensor Control, Fluorescent	Occupancy Sensor Control, Fluorescent	No Occupancy Sensor	per occupancy sensor	Existing	971	8	\$73	90%	50%	\$0.01	49
California	Miscellaneous	Lighting Interior	Time Clock	Time Clock	No Controls	per 10,000 Watts	Existing	718	8	\$218	20%	**	\$0.06	21
California	Miscellaneous	Lighting Interior	Cold Cathode Lighting	Cold Cathode Lighting 5 watts	30 W Incandescent Bulb	per installation	New	197	5	\$12	15%	94%	\$0.02	2
California	Miscellaneous	Lighting Interior	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	New	0.53	8	\$1	30%	84%	\$0.39	3
California	Miscellaneous	Lighting Interior	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	New	0.40	8	\$0.79	30%	84%	\$0.39	2
California	Miscellaneous	Lighting Interior	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign (2 Watts)	per installation	New	16	13	\$30	95%	98%	\$0.26	3
California	Miscellaneous	Lighting Interior	LED Refrigeration Case Lights	LED Refrigeration Case Lights	Fluorescent Refrigeration Case	per installation	New	119	8	\$248	10%	80%	\$0.41	0.80
California	Miscellaneous	Lighting Interior	Lighting Package, High Efficiency	15% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	New	0.48	15	\$0.02	90%	53%	\$0.01	47
California	Miscellaneous	Lighting Interior	Lighting Package, Premium Efficiency	25% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	New	0.81	15	\$0.14	75%	62%	\$0.02	19
California	Miscellaneous	Lighting Interior	Lighting Package, Premium High Bay	35% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	New	0.37	15	\$0.05	70%	83%	\$0.02	55
California	Miscellaneous	Lighting Interior	Occupancy Sensor Control, Fluorescent	Occupancy Sensor Control, Fluorescent	No Occupancy Sensor	per occupancy sensor	New	683	8	\$73	90%	50%	\$0.02	6
California	Miscellaneous	Lighting Interior	Time Clock	Time Clock	No Controls	per 10,000 Watts	New	718	8	\$218	20%	**	\$0.06	2
California	Miscellaneous	Other Office Equipment	ENERGY STAR - Copiers	ENERGY STAR Copiers	Standard Copier	per installation	Existing	69	6	\$158	95%	45%	\$0.55	1
California	Miscellaneous	Other Office Equipment	ENERGY STAR - Fax	ENERGY STAR Fax	Standard Fax	per installation	Existing	74	6	\$0.00	95%	45%	\$0.00	1
California	Miscellaneous	Other Office Equipment	ENERGY STAR - Monitors	ENERGY STAR Features Enabled	Non-ENERGY STAR Features	per installation	Existing	14	5	\$16	64%	15%	\$0.32	1
California	Miscellaneous	Other Office Equipment	ENERGY STAR - Printers	ENERGY STAR Printers	Standard Printers	per installation	Existing	131	6	\$15	95%	40%	\$0.03	21
California	Miscellaneous	Other Office Equipment	ENERGY STAR - Scanners	ENERGY STAR Scanners	Standard Scanner	per installation	Existing	68	6	\$0.00	95%	45%	\$0.00	1
California	Miscellaneous	Other Office Equipment	ENERGY STAR - Copiers	ENERGY STAR Copiers	Standard Copier	per installation	New	69	6	\$158	95%	45%	\$0.55	0.31
California	Miscellaneous	Other Office Equipment	ENERGY STAR - Fax	ENERGY STAR Fax	Standard Fax	per installation	New	74	6	\$0.00	95%	45%	\$0.00	0.34
California	Miscellaneous	Other Office Equipment	ENERGY STAR - Monitors	ENERGY STAR Features Enabled	Non-ENERGY STAR Features	per installation	New	14	5	\$16	64%	15%	\$0.32	0.26
California	Miscellaneous	Other Office Equipment	ENERGY STAR - Printers	ENERGY STAR Printers	Standard Printers	per installation	New	131	6	\$15	95%	40%	\$0.03	3

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
California	Miscellaneous	Other Office Equipment	ENERGY STAR - Scanners	ENERGY STAR Scanners	Standard Scanner	per installation	New	68	6	\$0.00	95%	45%	\$0.00	0.31
California	Miscellaneous	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	per installation	Existing	7	7	\$1	20%	90%	\$0.05	0.23
California	Miscellaneous	Other Plug Load	ENERGY STAR - Water Cooler	ENERGY STAR Water Cooler (Hot/Cold Water)	Non-ENERGY STAR Water Cooler	per installation	Existing	346	10	\$0.00	95%	75%	\$0.00	13
California	Miscellaneous	Other Plug Load	Power Supply Transformer/Converter	80 Plus	85% efficient power supply (> 51W)	1 unit per 2,000 sqft	Existing	6	4	\$0.41	95%	86%	\$0.02	3
California	Miscellaneous	Other Plug Load	Residential Refrigerator	ENERGY STAR	Federal Standard	per installation	Existing	76	12	\$123	10%	65%	\$0.24	2
California	Miscellaneous	Other Plug Load	Residential Refrigerator/Freezer Recycling	Recycling Existing Refrigerator/Freezer	Existing Refrigerator/Freezer	per installation	Existing	908	4	\$563	25%	35%	\$0.21	10
California	Miscellaneous	Other Plug Load	Server Virtualization	Server Virtualization	No Virtualization	number of virtualized servers	Existing	2,156	4	\$2,229	72%	85%	\$0.75	119
California	Miscellaneous	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	1 unit per 5,000 sqft	Existing	95	5	\$20	60%	90%	\$0.06	14
California	Miscellaneous	Other Plug Load	Vending Machines- High Efficiency	ENERGY STAR (Tier 2) Vending Machines- High Efficiency 500 can capacity Under 5.92 kWh/day	Vending Machines- Standard 13 kWh/day	per installation	Existing	228	14	\$161	10%	80%	\$0.10	1
California	Miscellaneous	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	per installation	New	7	7	\$1	20%	90%	\$0.05	0.04
California	Miscellaneous	Other Plug Load	ENERGY STAR - Water Cooler	ENERGY STAR Water Cooler (Hot/Cold Water)	Non-ENERGY STAR Water Cooler	per installation	New	346	10	\$0.00	95%	75%	\$0.00	2
California	Miscellaneous	Other Plug Load	Power Supply Transformer/Converter	80 Plus	85% efficient power supply (> 51W)	1 unit per 2,000 sqft	New	6	4	\$0.41	95%	86%	\$0.02	0.67
California	Miscellaneous	Other Plug Load	Residential Refrigerator	ENERGY STAR	Federal Standard	per installation	New	76	12	\$123	10%	65%	\$0.24	0.53
California	Miscellaneous	Other Plug Load	Server Virtualization	Server Virtualization	No Virtualization	number of virtualized servers	New	2,156	4	\$2,229	72%	85%	\$0.75	22
California	Miscellaneous	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	1 unit per 5,000 sqft	New	95	5	\$20	60%	90%	\$0.06	2
California	Miscellaneous	Other Plug Load	Vending Machines- High Efficiency	ENERGY STAR (Tier 2) Vending Machines- High Efficiency 500 can capacity Under 5.92 kWh/day	Vending Machines- Standard 13 kWh/day	per installation	New	228	14	\$161	10%	80%	\$0.10	0.19
California	Miscellaneous	Refrigeration	Case Electronically Commutated Motor	ECM Case Fans	Standard Efficiency Motor	1 unit per 10,000 sqft	Existing	975	12	\$241	3%	77%	\$0.04	0.32
California	Miscellaneous	Refrigeration	Case Replacement Low Temp	Case Replacement Low Temp	No replacement	per square foot	Existing	0.01	15	\$0.10	3%	95%	\$0.75	0.07
California	Miscellaneous	Refrigeration	Case Replacement Med Temp	Case Replacement Med Temp	No replacement	per square foot	Existing	0.00	15	\$0.05	3%	95%	\$4.55	0.00
California	Miscellaneous	Refrigeration	Night Covers for Display Cases	Night Covers for Display Cases	No Night Covers	per installation	Existing	386	5	\$65	5%	85%	\$0.05	0.19
California	Miscellaneous	Refrigeration	Standalone to Multiplex Compressor	Standalone to Multiplex Compressor	Standalone compressor	per building sqft	Existing	0.02	13	\$0.00	3%	90%	\$0.02	0.09
California	Miscellaneous	Refrigeration	Walk-In Electronically Commutated Motor	ECM Evaporator Fans	Standard Efficiency Motor	per installation	Existing	0.03	12	\$0.17	3%	95%	\$0.75	0.14
California	Miscellaneous	Refrigeration	Case Electronically Commutated Motor	ECM Case Fans	Standard Efficiency Motor	1 unit per 10,000 sqft	New	975	12	\$241	3%	77%	\$0.04	0.06
California	Miscellaneous	Refrigeration	Night Covers for Display Cases	Night Covers for Display Cases	No Night Covers	per installation	New	386	5	\$66	5%	85%	\$0.05	0.04
California	Miscellaneous	Refrigeration	Walk-In Electronically Commutated Motor	ECM Evaporator Fans	Standard Efficiency Motor	per installation	New	0.03	12	\$0.17	3%	95%	\$0.75	0.02
California	Miscellaneous	Space Heat	Convert Constant Volume Air System to VAV	Variable Volume Air System	Constant Volume Air System	per building CFM	Existing	0.39	15	\$3	15%	68%	\$1.07	6
California	Miscellaneous	Space Heat	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	Existing	300	15	\$186	75%	76%	\$0.08	37
California	Miscellaneous	Space Heat	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	Existing	0.07	18	\$0.26	45%	65%	\$0.41	3
California	Miscellaneous	Space Heat	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	Existing	0.45	14	\$1	5%	94%	\$0.53	3

Table C.2.2. Commercial Measure Details

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California	Miscellaneous	Space Heat	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	4	13	\$0.37	10%	39%	\$0.01	2
California	Miscellaneous	Space Heat	Insulation - Ceiling	R-25 (CA State Code)	R-11 (Average Existing Conditions)	per roof sqft	Existing	0.44	25	\$0.72	75%	61%	\$0.17	36
California	Miscellaneous	Space Heat	Insulation - Ceiling	R-30	R-25 (CA State Code)	per roof sqft	Existing	0.07	25	\$0.10	75%	85%	\$0.14	8
California	Miscellaneous	Space Heat	Insulation - Duct	R-8 (CA State Code)	No Insulation	per surface area of duct insul	Existing	1	20	\$2	75%	62%	\$0.18	11
California	Miscellaneous	Space Heat	Insulation - Floor (non-slab)	R-25 (CA State Code)	R-7 (Average Existing Conditions)	per floor area	Existing	1	25	\$0.87	35%	80%	\$0.08	80
California	Miscellaneous	Space Heat	Insulation - Floor (non-slab)	R-30	R-25 (CA State Code)	per floor area	Existing	0.21	25	\$0.11	35%	90%	\$0.06	17
California	Miscellaneous	Space Heat	Insulation - Wall	R-16 (CA State Code)	R-3 (Average Existing Conditions)	per floor area	Existing	3	25	\$1	10%	73%	\$0.05	23
California	Miscellaneous	Space Heat	Insulation - Wall	R-21	R-16 (CA State Code)	per floor area	Existing	1	25	\$0.17	10%	85%	\$0.02	10
California	Miscellaneous	Space Heat	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	Existing	25	30	\$6	50%	95%	\$0.02	86
California	Miscellaneous	Space Heat	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	Existing	225	10	\$146	95%	33%	\$0.11	5
California	Miscellaneous	Space Heat	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	0.37	7	\$0.21	90%	85%	\$0.13	59
California	Miscellaneous	Space Heat	Windows-High Efficiency	U-0.32	U-0.47 (CA State Code)	per window sqft	Existing	5	25	\$56	15%	90%	\$0.99	5
California	Miscellaneous	Space Heat	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	New	158	15	\$186	75%	76%	\$0.15	3
California	Miscellaneous	Space Heat	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	New	0.03	18	\$0.26	45%	65%	\$0.78	0.46
California	Miscellaneous	Space Heat	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	New	0.23	14	\$1	5%	94%	\$1.00	0.43
California	Miscellaneous	Space Heat	Insulation - Ceiling	R-30	R-25 (CA State Code)	per roof sqft	New	0.03	25	\$0.10	75%	85%	\$0.28	1
California	Miscellaneous	Space Heat	Insulation - Floor (non-slab)	R-30	R-25 (CA State Code)	per floor area	New	0.11	25	\$0.11	35%	90%	\$0.11	1
California	Miscellaneous	Space Heat	Insulation - Wall	R-21	R-16 (CA State Code)	per floor area	New	0.54	25	\$0.17	95%	85%	\$0.03	9
California	Miscellaneous	Space Heat	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	New	13	30	\$6	50%	95%	\$0.05	7
California	Miscellaneous	Space Heat	Natural Ventilation	Natural Ventilation Design Reduction in Cooling	None - Standard Ventilation	per building sqft	New	0.15	15	\$1	20%	75%	\$0.87	0.93
California	Miscellaneous	Space Heat	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	New	118	10	\$146	95%	16%	\$0.21	0.29
California	Miscellaneous	Space Heat	Windows-High Efficiency	U-0.32	U-0.47 (CA State Code)	per window sqft	New	3	25	\$56	80%	90%	\$1.89	3
California	Miscellaneous	Water Heat	Clothes Washer Commercial	ENERGY STAR Commercial Clothes Washer MEF=1.80	Standard Clothes Washers	per installation	Existing	519	11	\$125	95%	80%	\$-0.28	2
California	Miscellaneous	Water Heat	Clothes Washer Residential	Energy Star - CEE Tier 1 (MEF 2.0 - 2.19) - Electric DHW & Dryer	MEF = 1.66 - Electric DHW & Dryer (NWPPC 6th Plan Average Efficiency)	per installation	Existing	126	11	\$329	85%	94%	\$0.09	0.67
California	Miscellaneous	Water Heat	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	per building sqft	Existing	0.02	10	\$0.29	55%	94%	\$2.44	6
California	Miscellaneous	Water Heat	Dishwasher Residential	ENERGY STAR <= 324 kWh/yr, <= 5.8 gal/cycle	Federal Standard <= 355 kWh/yr, <= 6.5 gal/cycle	per installation	Existing	29	11	\$30	95%	25%	\$0.10	0.60
California	Miscellaneous	Water Heat	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	per installation	Existing	7,045	10	\$2,724	95%	95%	\$0.03	1
California	Miscellaneous	Water Heat	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	per installation	Existing	3,291	10	\$778	95%	94%	\$-0.02	0.33
California	Miscellaneous	Water Heat	Electric Water Heater - High Efficiency	EF = 0.95	EF = 0.92	Per installation	Existing	33	15	\$65	100%	N/A	\$0.25	1
California	Miscellaneous	Water Heat	Heat Pump Water Heater - Advanced-Efficiency	EF = 2.2	EF = 0.92	Per installation	Existing	626	15	\$1,330	75%	N/A	\$0.28	69
California	Miscellaneous	Water Heat	Hot Water (SHW) Pipe Insulation	1.0" of Insulation, assuming R-4 (CA State Code)	No Insulation	per linear foot	Existing	1	12	\$3	80%	90%	\$0.42	1
California	Miscellaneous	Water Heat	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	per installation	Existing	16	9	\$0.12	95%	25%	\$-0.08	2
California	Miscellaneous	Water Heat	Low-Flow Faucet Aerators	2.2 GPM (Federal Code)	3.0 GPM	per installation	Existing	13	9	\$2	95%	25%	\$-0.05	2

Table C.2.2. Commercial Measure Details

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California	Miscellaneous	Water Heat	Low-Flow Pre-Rinse Spray Valves	0.6 GPM	1.6 GPM (Federal Standard)	per installation	Existing	63	5	\$5	95%	93%	\$-0.08	19
California	Miscellaneous	Water Heat	Low-Flow Showerheads	2.0 GPM	2.5 GPM (Federal Code)	per installation	Existing	240	10	\$5	95%	73%	\$-0.08	17
California	Miscellaneous	Water Heat	Low-Flow Showerheads	2.5 GPM (Federal Code)	4.5 GPM	per installation	Existing	533	10	\$11	95%	62%	\$-0.08	32
California	Miscellaneous	Water Heat	Water Cooled Refrigeration with Heat Recovery	Heat Recovery from refrigeration system. Applied to Water Heating Electric End use	No heat recovery	per sqft of refrigerated area	Existing	0.04	10	\$0.97	3%	94%	\$3.53	0.02
California	Miscellaneous	Water Heat	Water Heater Temperature Setback	Water Heater Temperature Setback (120 F)	No Change in Water Temperature	per installation	Existing	77	5	\$112	75%	55%	\$0.41	8
California	Miscellaneous	Water Heat	Clothes Washer Commercial	ENERGY STAR Commercial Clothes Washer MEF=1.80	Standard Clothes Washers	per installation	New	520	11	\$125	95%	80%	\$-0.28	0.49
California	Miscellaneous	Water Heat	Clothes Washer Residential	Energy Star - CEE Tier 1 (MEF 2.0 - 2.19) - Electric DHW & Dryer	MEF = 1.66 - Electric DHW & Dryer (NWPPC 6th Plan Average Efficiency)	per installation	New	126	11	\$329	85%	94%	\$0.09	0.12
California	Miscellaneous	Water Heat	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	per building sqft	New	0.01	10	\$0.29	55%	94%	\$2.48	1
California	Miscellaneous	Water Heat	Dishwasher Residential	ENERGY STAR <= 324 kWh/yr, <= 5.8 gal/cycle	Federal Standard <= 355 kWh/yr, <= 6.5 gal/cycle	per installation	New	29	11	\$30	95%	55%	\$0.10	0.25
California	Miscellaneous	Water Heat	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	per installation	New	7,060	10	\$2,571	95%	95%	\$0.02	0.26
California	Miscellaneous	Water Heat	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	per installation	New	3,298	10	\$791	95%	94%	\$-0.02	0.06
California	Miscellaneous	Water Heat	Electric Water Heater - High Efficiency	EF = 0.95	EF = 0.92	Per installation	New	33	15	\$65	100%	N/A	\$0.25	0.17
California	Miscellaneous	Water Heat	Heat Pump Water Heater - Advanced-Efficiency	EF = 2.2	EF = 0.92	Per installation	New	626	15	\$1,098	75%	N/A	\$0.23	13
California	Miscellaneous	Water Heat	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	per installation	New	15	9	\$0.12	95%	25%	\$-0.08	0.48
California	Miscellaneous	Water Heat	Low-Flow Pre-Rinse Spray Valves	0.6 GPM	1.6 GPM (Federal Standard)	per installation	New	63	5	\$5	95%	93%	\$-0.08	3
California	Miscellaneous	Water Heat	Low-Flow Showerheads	2.0 GPM	2.5 GPM (Federal Code)	per installation	New	236	10	\$5	95%	73%	\$-0.08	3
California	Miscellaneous	Water Heat	Water Cooled Refrigeration with Heat Recovery	Heat Recovery from refrigeration system. Applied to Water Heating Electric End use	No heat recovery	per sqft of refrigerated area	New	0.04	10	\$0.97	3%	94%	\$3.58	0.00
California	Miscellaneous	Water Heat	Water Heater Temperature Setback	Water Heater Temperature Setback (120 F)	No Change in Water Temperature	per installation	New	76	5	\$112	75%	55%	\$0.42	1
California	Restaurant	Computers	Computer ENERGY STAR	Computer ENERGY STAR	Computer standard non-ENERGY STAR	Per installation	Existing	155	4	\$32	100%	N/A	\$0.07	43
California	Restaurant	Computers	Computer ENERGY STAR	Computer ENERGY STAR	Computer standard non-ENERGY STAR	Per installation	New	155	4	\$32	100%	N/A	\$0.07	1
California	Restaurant	Cooking	Combination Oven	60% cooking efficiency	Non ENERGY STAR	per installation	Existing	12,874	12	\$2,169	90%	90%	\$0.02	117
California	Restaurant	Cooking	Fryers - New CEE Efficient Electric Deep Fat Fryers	15 inch width Deep Fryer CEE 2006 rating; 80% under heavy load, Less than 1000 watt at idle	15 inch width standard electric deep fat fryers	per installation	Existing	1,113	12	\$1,489	70%	86%	\$0.20	37
California	Restaurant	Cooking	Griddle	70% cooking efficiency	Non ENERGY STAR	per installation	Existing	2,485	12	\$937	95%	85%	\$0.06	142
California	Restaurant	Cooking	High Efficiency Convection Oven	Convection Oven	Standard Oven	per installation	Existing	2,057	12	\$2,315	40%	45%	\$0.17	41
California	Restaurant	Cooking	Hot Food Holding Cabinet	ENERGY STAR	Non ENERGY STAR	per installation	Existing	4,316	12	\$2,006	35%	21%	\$0.07	45
California	Restaurant	Cooking	Steam Cooker	ENERGY STAR	Non ENERGY STAR	per installation	Existing	4,619	12	\$2,917	39%	75%	\$0.09	199
California	Restaurant	Cooking	Combination Oven	60% cooking efficiency	Non ENERGY STAR	per installation	New	12,874	12	\$2,169	90%	90%	\$0.02	22
California	Restaurant	Cooking	Fryers - New CEE Efficient Electric Deep Fat Fryers	15 inch width Deep Fryer CEE 2006 rating; 80% under heavy load, Less than 1000 watt at idle	15 inch width standard electric deep fat fryers	per installation	New	1,113	12	\$1,489	70%	86%	\$0.20	7
California	Restaurant	Cooking	Griddle	70% cooking efficiency	Non ENERGY STAR	per installation	New	2,485	12	\$937	95%	85%	\$0.06	26
California	Restaurant	Cooking	High Efficiency Convection Oven	Convection Oven	Standard Oven	per installation	New	2,057	12	\$2,315	40%	45%	\$0.17	7

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
California	Restaurant	Cooking	Hot Food Holding Cabinet	ENERGY STAR	Non ENERGY STAR	per installation	New	4,316	12	\$2,006	35%	21%	\$0.07	8
California	Restaurant	Cooking	Steam Cooker	ENERGY STAR	Non ENERGY STAR	per installation	New	4,619	12	\$2,917	39%	75%	\$0.09	37
California	Restaurant	Cooling Dx Evap	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	Existing	0.47	15	\$0.79	45%	98%	\$0.22	62
California	Restaurant	Cooling Dx Evap	DX Package 65 to 135 kBTU/hr - High Efficiency	DX Package 65 to 135 kBTU/hr - High Efficiency - 11.5 EER	DX Package 65 to 135 kBTU/hr - Standard Efficiency - 11.2 EER	Per installation	Existing	368	15	\$372	100%	N/A	\$0.13	1
California	Restaurant	Cooling Dx Evap	DX Package 65 to 135 kBTU/hr - Premium Efficiency	DX Package 65 to 135 kBTU/hr - Premium Efficiency - 12.0 EER	DX Package 65 to 135 kBTU/hr - Standard Efficiency - 11.2 EER	Per installation	Existing	948	15	\$748	100%	N/A	\$0.10	66
California	Restaurant	Cooling Dx Evap	DX Package-Air Side Economizer	Air-Side Economizer	No Economizer	per DX ton	Existing	107	10	\$204	10%	50%	\$0.32	10
California	Restaurant	Cooling Dx Evap	DX Tune-Up / Diagnostics	DX Tune-Up / Diagnostics	No DX Tune-Up / Diagnostics	per installation	Existing	538	4	\$454	95%	72%	\$0.32	90
California	Restaurant	Cooling Dx Evap	Direct / Indirect Evaporative Cooling, Pre-Cooling	Evaporative Cooler	Standard DX cooling	per building CFM	Existing	1	15	\$2	50%	94%	\$0.27	179
California	Restaurant	Cooling Dx Evap	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	Existing	0.11	18	\$0.29	45%	65%	\$0.29	9
California	Restaurant	Cooling Dx Evap	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	Existing	0.47	40	\$12	4%	98%	\$2.35	0.41
California	Restaurant	Cooling Dx Evap	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	1	13	\$0.42	40%	39%	\$0.03	14
California	Restaurant	Cooling Dx Evap	Insulation - Ceiling	R-25 (CA State Code)	R-11 (Average Existing Conditions)	per roof sqft	Existing	0.00	25	\$0.82	75%	63%	\$15.19	0.66
California	Restaurant	Cooling Dx Evap	Insulation - Duct	R-8 (CA State Code)	No Insulation	per surface area of duct insul	Existing	2	20	\$3	75%	62%	\$0.13	36
California	Restaurant	Cooling Dx Evap	Insulation - Floor (non-slab)	R-30	R-25 (CA State Code)	per floor area	Existing	0.01	25	\$0.13	35%	90%	\$1.28	0.84
California	Restaurant	Cooling Dx Evap	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	Existing	29	30	\$7	50%	95%	\$0.02	142
California	Restaurant	Cooling Dx Evap	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	Existing	251	10	\$167	95%	24%	\$0.11	11
California	Restaurant	Cooling Dx Evap	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	0.59	7	\$0.24	90%	85%	\$0.09	173
California	Restaurant	Cooling Dx Evap	Window Film	Window Film	No Film	per 100 sqft of window glazing	Existing	1	10	\$187	90%	68%	\$15.95	0.36
California	Restaurant	Cooling Dx Evap	Windows-High Efficiency	U-0.47 (CA State Code)	U-0.65 (Average Existing Conditions)	per window sqft	Existing	6	25	\$44	15%	65%	\$0.72	19
California	Restaurant	Cooling Dx Evap	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	New	0.26	15	\$0.79	45%	98%	\$0.38	8
California	Restaurant	Cooling Dx Evap	DX Package 65 to 135 kBTU/hr - High Efficiency	DX Package 65 to 135 kBTU/hr - High Efficiency - 11.5 EER	DX Package 65 to 135 kBTU/hr - Standard Efficiency - 11.2 EER	Per installation	New	239	15	\$297	100%	N/A	\$0.16	0.14
California	Restaurant	Cooling Dx Evap	DX Package 65 to 135 kBTU/hr - Premium Efficiency	DX Package 65 to 135 kBTU/hr - Premium Efficiency - 12.0 EER	DX Package 65 to 135 kBTU/hr - Standard Efficiency - 11.2 EER	Per installation	New	569	15	\$598	100%	N/A	\$0.14	8
California	Restaurant	Cooling Dx Evap	Direct / Indirect Evaporative Cooling, Pre-Cooling	Evaporative Cooler	Standard DX cooling	per building CFM	New	0.67	15	\$2	50%	94%	\$0.49	22
California	Restaurant	Cooling Dx Evap	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	New	0.06	18	\$0.29	45%	65%	\$0.52	1
California	Restaurant	Cooling Dx Evap	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	New	0.26	40	\$12	4%	98%	\$4.17	0.05

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
California	Restaurant	Cooling Dx Evap	Insulation - Floor (non-slab)	R-30	R-25 (CA State Code)	per floor area	New	0.00	25	\$0.13	35%	90%	\$2.27	0.11
California	Restaurant	Cooling Dx Evap	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	New	16	30	\$7	50%	95%	\$0.04	15
California	Restaurant	Cooling Dx Evap	Natural Ventilation	Natural Ventilation Design Reduction in Cooling	None - Standard Ventilation	per building sqft	New	0.26	15	\$1	20%	75%	\$0.59	2
California	Restaurant	Cooling Dx Evap	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	New	141	10	\$167	95%	12%	\$0.20	0.69
California	Restaurant	Cooling Room	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	Existing	0.64	15	\$0.79	45%	98%	\$0.16	8
California	Restaurant	Cooling Room	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	Existing	0.64	40	\$12	4%	98%	\$1.73	0.07
California	Restaurant	Cooling Room	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	2	13	\$0.42	40%	39%	\$0.02	1
California	Restaurant	Cooling Room	Insulation - Ceiling	R-25 (CA State Code)	R-11 (Average Existing Conditions)	per roof sqft	Existing	0.00	25	\$0.82	75%	63%	\$11.21	0.11
California	Restaurant	Cooling Room	Insulation - Floor (non-slab)	R-30	R-25 (CA State Code)	per floor area	Existing	0.01	25	\$0.13	35%	90%	\$0.94	0.14
California	Restaurant	Cooling Room	PTAC (10,000 BTU/HR) - Premium-Efficiency	11.4 EER	Room AC (10,000 BTU/HR) Standard-Efficiency 9.8 EER	Per installation	Existing	1,934	15	\$19,161	75%	N/A	\$1.28	24
California	Restaurant	Cooling Room	Room AC (10,000 BTU/HR) High-Efficiency	High Efficiency 10.8 EER (ENERGY STAR)	Room AC (10,000 BTU/HR) Standard-Efficiency 9.8 EER	Per installation	Existing	1,201	9	\$820	100%	N/A	\$0.12	4
California	Restaurant	Cooling Room	Window Film	Window Film	No Film	per 100 sqft of window glazing	Existing	0.09	10	\$187	90%	68%	\$318.46	0.00
California	Restaurant	Cooling Room	Windows-High Efficiency	U-0.47 (CA State Code)	U-0.65 (Average Existing Conditions)	per window sqft	Existing	8	25	\$44	15%	65%	\$0.53	3
California	Restaurant	Cooling Room	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	New	0.37	15	\$0.79	45%	98%	\$0.27	1
California	Restaurant	Cooling Room	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	New	0.37	40	\$12	4%	98%	\$2.96	0.00
California	Restaurant	Cooling Room	Insulation - Floor (non-slab)	R-30	R-25 (CA State Code)	per floor area	New	0.00	25	\$0.13	35%	90%	\$1.61	0.01
California	Restaurant	Cooling Room	PTAC (10,000 BTU/HR) - Premium-Efficiency	11.4 EER	Room AC (10,000 BTU/HR) Standard-Efficiency 9.8 EER	Per installation	New	1,164	15	\$13,373	75%	N/A	\$1.49	1
California	Restaurant	Cooling Room	Room AC (10,000 BTU/HR) High-Efficiency	High Efficiency 10.8 EER (ENERGY STAR)	Room AC (10,000 BTU/HR) Standard-Efficiency 9.8 EER	Per installation	New	743	9	\$656	100%	N/A	\$0.16	0.27
California	Restaurant	Heat Pump	Air Source Heat Pump 65 to 135 kBtu/hr - High Efficiency	11.5 EER, 3.4 COP	11.0 EER, 3.3 COP	Per installation	Existing	1,354	15	\$1,385	100%	N/A	\$0.13	2
California	Restaurant	Heat Pump	Air Source Heat Pump 65 to 135 kBtu/hr - Premium Efficiency	12.0 EER, 3.8 COP	11.0 EER, 3.3 COP	Per installation	Existing	2,401	15	\$2,770	100%	N/A	\$0.15	64
California	Restaurant	Heat Pump	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	Existing	0.57	15	\$0.79	45%	98%	\$0.18	16
California	Restaurant	Heat Pump	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	Existing	0.22	18	\$0.29	45%	65%	\$0.16	4
California	Restaurant	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	Existing	0.45	14	\$2	5%	94%	\$0.60	1
California	Restaurant	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	Existing	0.57	40	\$12	4%	98%	\$1.94	0.13
California	Restaurant	Heat Pump	Ground Source Heat Pump Replacing Air Source Heat Pump 65 to 135 kBtu/hr - Advanced Efficiency	16.2 EER 4.0 COP	11.0 EER, 3.3 COP	Per installation	Existing	5,042	30	\$89,460	5%	N/A	\$1.68	6

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
California	Restaurant	Heat Pump	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	3	13	\$0.42	40%	39%	\$0.02	5
California	Restaurant	Heat Pump	Insulation - Ceiling	R-25 (CA State Code)	R-11 (Average Existing Conditions)	per roof sqft	Existing	0.18	25	\$0.82	75%	63%	\$0.46	6
California	Restaurant	Heat Pump	Insulation - Ceiling	R-30	R-25 (CA State Code)	per roof sqft	Existing	0.02	25	\$0.11	75%	85%	\$0.61	0.89
California	Restaurant	Heat Pump	Insulation - Duct	R-8 (CA State Code)	No Insulation	per surface area of duct insul	Existing	5	20	\$3	75%	62%	\$0.07	14
California	Restaurant	Heat Pump	Insulation - Floor (non-slab)	R-25 (CA State Code)	R-11 (Average Existing Conditions)	per floor area	Existing	0.12	25	\$1	35%	72%	\$0.80	2
California	Restaurant	Heat Pump	Insulation - Floor (non-slab)	R-30	R-25 (CA State Code)	per floor area	Existing	0.07	25	\$0.13	35%	90%	\$0.17	1
California	Restaurant	Heat Pump	Insulation - Wall	R-16 (CA State Code)	R-3 (Average Existing Conditions)	per floor area	Existing	0.30	25	\$1	10%	64%	\$0.58	1
California	Restaurant	Heat Pump	Insulation - Wall	R-21	R-16 (CA State Code)	per floor area	Existing	0.16	25	\$0.19	10%	85%	\$0.13	0.73
California	Restaurant	Heat Pump	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	Existing	74	30	\$7	50%	95%	\$0.01	82
California	Restaurant	Heat Pump	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	Existing	463	10	\$167	95%	24%	\$0.06	4
California	Restaurant	Heat Pump	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	1	7	\$0.24	90%	85%	\$0.05	70
California	Restaurant	Heat Pump	Window Film	Window Film	No Film	per 100 sqft of window glazing	Existing	1	10	\$187	90%	68%	\$15.91	0.09
California	Restaurant	Heat Pump	Windows-High Efficiency	U-0.32	U-0.47 (CA State Code)	per window sqft	Existing	0.66	25	\$64	15%	90%	\$9.96	0.73
California	Restaurant	Heat Pump	Windows-High Efficiency	U-0.47 (CA State Code)	U-0.65 (Average Existing Conditions)	per window sqft	Existing	6	25	\$44	15%	65%	\$0.68	5
California	Restaurant	Heat Pump	Air Source Heat Pump 65 to 135 kBtu/hr - High Efficiency	11.5 EER, 3.4 COP	11.0 EER, 3.3 COP	Per installation	New	812	15	\$1,108	100%	N/A	\$0.18	0.30
California	Restaurant	Heat Pump	Air Source Heat Pump 65 to 135 kBtu/hr - Premium Efficiency	12.0 EER, 3.8 COP	11.0 EER, 3.3 COP	Per installation	New	1,403	15	\$2,216	100%	N/A	\$0.20	7
California	Restaurant	Heat Pump	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	New	0.33	15	\$0.79	45%	98%	\$0.31	2
California	Restaurant	Heat Pump	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	New	0.12	18	\$0.29	45%	65%	\$0.29	0.58
California	Restaurant	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	New	0.24	14	\$2	5%	94%	\$1.12	0.17
California	Restaurant	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	New	0.33	40	\$12	4%	98%	\$3.38	0.01
California	Restaurant	Heat Pump	Ground Source Heat Pump Replacing Air Source Heat Pump 65 to 135 kBtu/hr - Advanced Efficiency	16.2 EER 4.0 COP	11.0 EER, 3.3 COP	Per installation	New	2,989	30	\$45,747	5%	N/A	\$1.43	0.72
California	Restaurant	Heat Pump	Insulation - Ceiling	R-30	R-25 (CA State Code)	per roof sqft	New	0.01	25	\$0.11	75%	85%	\$1.21	0.10
California	Restaurant	Heat Pump	Insulation - Floor (non-slab)	R-30	R-25 (CA State Code)	per floor area	New	0.04	25	\$0.13	35%	90%	\$0.34	0.19
California	Restaurant	Heat Pump	Insulation - Wall	R-21	R-16 (CA State Code)	per floor area	New	0.08	25	\$0.19	95%	85%	\$0.25	0.77
California	Restaurant	Heat Pump	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	New	41	30	\$7	50%	95%	\$0.02	9
California	Restaurant	Heat Pump	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	New	259	10	\$167	95%	12%	\$0.11	0.27
California	Restaurant	Heat Pump	Windows-High Efficiency	U-0.32	U-0.47 (CA State Code)	per window sqft	New	0.31	25	\$64	80%	90%	\$21.27	0.41
California	Restaurant	Hvac Aux	Cooking Hood Controls	Demand-Ventilation Control	No Controls	per installation	Existing	2,042	18	\$7,466	95%	25%	\$0.43	298
California	Restaurant	Hvac Aux	Motor - CEE Premium-Efficiency Plus	Motor - CEE Premium-Efficiency Plus	NEMA Efficiency Motors	per HP	Existing	48	15	\$7	95%	76%	\$0.02	29
California	Restaurant	Hvac Aux	Motor Rewind	>15, <500 HP	No Rewind	per HP	Existing	4	8	\$5	65%	25%	\$0.23	1
California	Restaurant	Hvac Aux	Cooking Hood Controls	Demand-Ventilation Control	No Controls	per installation	New	2,042	18	\$7,466	95%	25%	\$0.43	56
California	Restaurant	Hvac Aux	Motor - CEE Premium-Efficiency Plus	Motor - CEE Premium-Efficiency Plus	NEMA Efficiency Motors	per HP	New	44	15	\$7	95%	76%	\$0.02	6

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
California	Restaurant	Lighting Exterior	Covered Parking Lighting	Covered Parking Lighting	Normal Lighting	per building sqft	Existing	0.10	10	\$0.03	80%	95%	\$0.05	84
California	Restaurant	Lighting Exterior	Daylighting Controls, Outdoors (Photocell)	Photocell	No Controls	per installation	Existing	58	8	\$32	75%	70%	\$0.11	30
California	Restaurant	Lighting Exterior	Exterior Building Lighting	30% savings	Normal Lighting	per installation	Existing	264	15	\$383	62%	90%	\$0.19	264
California	Restaurant	Lighting Exterior	Solid State LED White Lighting	Landscape, merchandise, signage, structure & task lighting (2.5 W)	50W 10hrs/day, 365 day/yr	per installation	Existing	6	14	\$40	75%	95%	\$0.86	4
California	Restaurant	Lighting Exterior	Surface Parking Lighting	Surface Parking Lighting	Normal Lighting	per building sqft	Existing	0.05	19	\$0.08	62%	95%	\$0.17	35
California	Restaurant	Lighting Exterior	Covered Parking Lighting	Covered Parking Lighting	Normal Lighting	per building sqft	New	0.10	10	\$0.03	80%	95%	\$0.05	15
California	Restaurant	Lighting Exterior	Daylighting Controls, Outdoors (Photocell)	Photocell	No Controls	per installation	New	58	8	\$32	75%	70%	\$0.11	5
California	Restaurant	Lighting Exterior	Exterior Building Lighting	30% savings	Normal Lighting	per installation	New	264	15	\$383	62%	90%	\$0.19	49
California	Restaurant	Lighting Exterior	Solid State LED White Lighting	Landscape, merchandise, signage, structure & task lighting (2.5 W)	50W 10hrs/day, 365 day/yr	per installation	New	6	14	\$40	75%	95%	\$0.86	0.88
California	Restaurant	Lighting Exterior	Surface Parking Lighting	Surface Parking Lighting	Normal Lighting	per building sqft	New	0.05	19	\$0.08	62%	95%	\$0.17	6
California	Restaurant	Lighting Interior	Cold Cathode Lighting	Cold Cathode Lighting 5 watts	30 W Incandescent Bulb	per installation	Existing	234	5	\$14	15%	94%	\$0.02	19
California	Restaurant	Lighting Interior	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	Existing	0.41	8	\$1	30%	98%	\$0.57	13
California	Restaurant	Lighting Interior	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	Existing	0.15	8	\$0.91	30%	98%	\$1.15	4
California	Restaurant	Lighting Interior	Exit Sign - LED	LED Exit Sign (2 Watts)	CFL Exit Sign (9 Watts)	per installation	Existing	105	16	\$18	95%	50%	\$0.02	38
California	Restaurant	Lighting Interior	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign (2 Watts)	per installation	Existing	19	13	\$35	95%	98%	\$0.26	4
California	Restaurant	Lighting Interior	LED Refrigeration Case Lights	LED Refrigeration Case Lights	Fluorescent Refrigeration Case	per installation	Existing	180	8	\$283	25%	80%	\$0.31	31
California	Restaurant	Lighting Interior	Lighting Package, High Efficiency	15% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	Existing	0.68	13	\$0.00	90%	53%	\$0.00	269
California	Restaurant	Lighting Interior	Lighting Package, High Efficiency	Code Required LPD And Control Strategies	Existing Lighting Design LPD	per building sqft	Existing	1	13	\$0.02	90%	37%	\$0.00	597
California	Restaurant	Lighting Interior	Lighting Package, Premium Efficiency	25% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	Existing	1	13	\$0.01	75%	62%	\$0.00	108
California	Restaurant	Lighting Interior	Lighting Package, Premium High Bay	35% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	Existing	0.07	13	\$0.05	70%	83%	\$0.11	43
California	Restaurant	Lighting Interior	Occupancy Sensor Control, Fluorescent	Occupancy Sensor Control, Fluorescent	No Occupancy Sensor	per occupancy sensor	Existing	1,158	8	\$83	45%	55%	\$0.01	29
California	Restaurant	Lighting Interior	Time Clock	Time Clock	No Controls	per 10,000 Watts	Existing	821	8	\$249	20%	**%	\$0.06	22
California	Restaurant	Lighting Interior	Cold Cathode Lighting	Cold Cathode Lighting 5 watts	30 W Incandescent Bulb	per installation	New	163	5	\$14	15%	94%	\$0.03	2
California	Restaurant	Lighting Interior	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	New	0.28	8	\$1	30%	98%	\$0.82	1
California	Restaurant	Lighting Interior	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	New	0.10	8	\$0.91	30%	98%	\$1.65	0.69
California	Restaurant	Lighting Interior	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign (2 Watts)	per installation	New	19	13	\$35	95%	98%	\$0.26	3
California	Restaurant	Lighting Interior	LED Refrigeration Case Lights	LED Refrigeration Case Lights	Fluorescent Refrigeration Case	per installation	New	180	8	\$283	25%	80%	\$0.31	6
California	Restaurant	Lighting Interior	Lighting Package, High Efficiency	15% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	New	0.68	15	\$0.00	90%	53%	\$0.00	50
California	Restaurant	Lighting Interior	Lighting Package, Premium Efficiency	25% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	New	1	15	\$0.01	75%	62%	\$0.00	20
California	Restaurant	Lighting Interior	Lighting Package, Premium High Bay	35% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	New	0.07	15	\$0.01	70%	83%	\$0.02	8

Table C.2.2. Commercial Measure Details

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California	Restaurant	Lighting Interior	Occupancy Sensor Control, Fluorescent	Occupancy Sensor Control, Fluorescent	No Occupancy Sensor	per occupancy sensor	New	807	8	\$83	45%	55%	\$0.02	4
California	Restaurant	Lighting Interior	Time Clock	Time Clock	No Controls	per 10,000 Watts	New	821	8	\$249	20%	**	\$0.06	3
California	Restaurant	Other Office Equipment	ENERGY STAR - Copiers	ENERGY STAR Copiers	Standard Copier	per installation	Existing	79	6	\$184	95%	45%	\$0.56	1
California	Restaurant	Other Office Equipment	ENERGY STAR - Fax	ENERGY STAR Fax	Standard Fax	per installation	Existing	85	6	\$0.00	95%	45%	\$0.00	1
California	Restaurant	Other Office Equipment	ENERGY STAR - Monitors	ENERGY STAR Features Enabled	Non-ENERGY STAR Features	per installation	Existing	16	5	\$18	64%	15%	\$0.32	0.53
California	Restaurant	Other Office Equipment	ENERGY STAR - Printers	ENERGY STAR Printers	Standard Printers	per installation	Existing	150	6	\$17	95%	40%	\$0.03	26
California	Restaurant	Other Office Equipment	ENERGY STAR - Scanners	ENERGY STAR Scanners	Standard Scanner	per installation	Existing	77	6	\$0.00	95%	45%	\$0.00	1
California	Restaurant	Other Office Equipment	ENERGY STAR - Copiers	ENERGY STAR Copiers	Standard Copier	per installation	New	79	6	\$184	95%	45%	\$0.56	0.19
California	Restaurant	Other Office Equipment	ENERGY STAR - Fax	ENERGY STAR Fax	Standard Fax	per installation	New	85	6	\$0.00	95%	45%	\$0.00	0.21
California	Restaurant	Other Office Equipment	ENERGY STAR - Monitors	ENERGY STAR Features Enabled	Non-ENERGY STAR Features	per installation	New	16	5	\$18	64%	15%	\$0.32	0.10
California	Restaurant	Other Office Equipment	ENERGY STAR - Printers	ENERGY STAR Printers	Standard Printers	per installation	New	150	6	\$17	95%	40%	\$0.03	4
California	Restaurant	Other Office Equipment	ENERGY STAR - Scanners	ENERGY STAR Scanners	Standard Scanner	per installation	New	77	6	\$0.00	95%	45%	\$0.00	0.19
California	Restaurant	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	per installation	Existing	8	7	\$2	20%	90%	\$0.06	0.25
California	Restaurant	Other Plug Load	ENERGY STAR - Water Cooler	ENERGY STAR Water Cooler (Hot/Cold Water)	Non-ENERGY STAR Water Cooler	per installation	Existing	395	10	\$1	95%	75%	\$0.00	60
California	Restaurant	Other Plug Load	Ice Maker	High-Efficiency Ice Maker	Standard Ice Maker	per installation	Existing	461	10	\$161	95%	86%	\$0.03	196
California	Restaurant	Other Plug Load	Power Supply Transformer/Converter	80 Plus	85% efficient power supply (> 51W)	1 unit per 2,000 sqft	Existing	9	4	\$0.46	95%	86%	\$0.02	4
California	Restaurant	Other Plug Load	Residential Refrigerator	ENERGY STAR	Federal Standard	per installation	Existing	87	12	\$140	19%	65%	\$0.24	6
California	Restaurant	Other Plug Load	Residential Refrigerator/Freezer Recycling	Recycling Existing Refrigerator/Freezer	Existing Refrigerator/Freezer	per installation	Existing	1,038	4	\$644	25%	35%	\$0.21	13
California	Restaurant	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	1 unit per 5,000 sqft	Existing	109	5	\$23	60%	90%	\$0.06	12
California	Restaurant	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	per installation	New	8	7	\$2	20%	90%	\$0.06	0.04
California	Restaurant	Other Plug Load	ENERGY STAR - Water Cooler	ENERGY STAR Water Cooler (Hot/Cold Water)	Non-ENERGY STAR Water Cooler	per installation	New	395	10	\$1	95%	75%	\$0.00	11
California	Restaurant	Other Plug Load	Ice Maker	High-Efficiency Ice Maker	Standard Ice Maker	per installation	New	461	10	\$161	95%	86%	\$0.03	36
California	Restaurant	Other Plug Load	Power Supply Transformer/Converter	80 Plus	85% efficient power supply (> 51W)	1 unit per 2,000 sqft	New	9	4	\$0.46	95%	86%	\$0.02	0.75
California	Restaurant	Other Plug Load	Residential Refrigerator	ENERGY STAR	Federal Standard	per installation	New	87	12	\$140	19%	65%	\$0.24	1
California	Restaurant	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	1 unit per 5,000 sqft	New	109	5	\$23	60%	90%	\$0.06	2
California	Restaurant	Refrigeration	Anti-Sweat (Humidistat) Controls	Anti-Sweat (Humidistat) Controls	No Anti-Sweat (Humidistat) Controls	1 unit per 1,000 sqft	Existing	1,070	12	\$102	25%	45%	\$0.01	30
California	Restaurant	Refrigeration	Case Electronically Commutated Motor	ECM Case Fans	Standard Efficiency Motor	1 unit per 5,000 sqft	Existing	1,114	12	\$276	10%	77%	\$0.04	11
California	Restaurant	Refrigeration	Case Replacement Low Temp	Case Replacement Low Temp	No replacement	per square foot	Existing	0.05	15	\$0.12	10%	95%	\$0.30	3
California	Restaurant	Refrigeration	Case Replacement Med Temp	Case Replacement Med Temp	No replacement	per square foot	Existing	0.00	15	\$0.06	10%	95%	\$1.82	0.28
California	Restaurant	Refrigeration	Demand Control Defrost - Hot Gas	Refrigerant Defrost	Defrost - Electric	per installation	Existing	245	10	\$6	5%	68%	\$0.00	3
California	Restaurant	Refrigeration	Glass Door ES Refrigerators/Freezers	Glass Door ES Refrigerators/Freezers	Standard Glass Doors	per installation	Existing	2,792	12	\$825	95%	77%	\$0.04	330

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California	Restaurant	Refrigeration	Night Covers for Display Cases	Night Covers for Display Cases	No Night Covers	per installation	Existing	441	5	\$75	30%	85%	\$0.05	51
California	Restaurant	Refrigeration	Refrigeration Commissioning or Re-commissioning	Commissioning / Re-commissioning	No Commissioning / Re-commissioning	per refrigeration ton	Existing	893	3	\$161	10%	85%	\$0.08	32
California	Restaurant	Refrigeration	Solid Door ES Refrigerators/Freezers	Solid Door ES Refrigerators/Freezers	Standard Solid Door	per installation	Existing	1,266	12	\$217	95%	81%	\$0.03	158
California	Restaurant	Refrigeration	Standalone to Multiplex Compressor	Standalone to Multiplex Compressor	Standalone compressor	per building sqft	Existing	0.29	13	\$0.04	10%	90%	\$0.02	15
California	Restaurant	Refrigeration	Strip Curtains for Walk-Ins	Strip Curtains for Walk-Ins	No Strip Curtains for Walk-In	per installation	Existing	378	4	\$210	5%	20%	\$0.19	1
California	Restaurant	Refrigeration	Walk-In Electronically Commutated Motor	ECM Evaporator Fans	Standard Efficiency Motor	per installation	Existing	0.41	12	\$0.20	75%	95%	\$0.07	192
California	Restaurant	Refrigeration	Anti-Sweat (Humidistat) Controls	Anti-Sweat (Humidistat) Controls	No Anti-Sweat (Humidistat) Controls	1 unit per 1,000 sqft	New	1,070	12	\$102	25%	45%	\$0.01	5
California	Restaurant	Refrigeration	Case Electronically Commutated Motor	ECM Case Fans	Standard Efficiency Motor	1 unit per 5,000 sqft	New	1,114	12	\$276	10%	77%	\$0.04	2
California	Restaurant	Refrigeration	Demand Control Defrost - Hot Gas	Refrigerant Defrost	Defrost - Electric	per installation	New	245	10	\$6	5%	68%	\$0.00	0.57
California	Restaurant	Refrigeration	Glass Door ES Refrigerators/Freezers	Glass Door ES Refrigerators/Freezers	Standard Glass Doors	per installation	New	2,792	12	\$825	95%	77%	\$0.04	62
California	Restaurant	Refrigeration	Night Covers for Display Cases	Night Covers for Display Cases	No Night Covers	per installation	New	441	5	\$75	30%	85%	\$0.05	11
California	Restaurant	Refrigeration	Refrigeration Commissioning or Re-commissioning	Commissioning / Re-commissioning	No Commissioning / Re-commissioning	per refrigeration ton	New	552	3	\$62	5%	90%	\$0.05	1
California	Restaurant	Refrigeration	Solid Door ES Refrigerators/Freezers	Solid Door ES Refrigerators/Freezers	Standard Solid Door	per installation	New	1,266	12	\$217	95%	81%	\$0.03	29
California	Restaurant	Refrigeration	Strip Curtains for Walk-Ins	Strip Curtains for Walk-Ins	No Strip Curtains for Walk-In	per installation	New	378	4	\$210	5%	20%	\$0.19	0.26
California	Restaurant	Refrigeration	Walk-In Electronically Commutated Motor	ECM Evaporator Fans	Standard Efficiency Motor	per installation	New	0.41	12	\$0.20	75%	95%	\$0.07	36
California	Restaurant	Space Heat	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	Existing	0.10	18	\$0.29	45%	65%	\$0.33	6
California	Restaurant	Space Heat	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	Existing	0.64	14	\$2	5%	94%	\$0.42	5
California	Restaurant	Space Heat	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	3	13	\$0.42	40%	39%	\$0.02	21
California	Restaurant	Space Heat	Insulation - Ceiling	R-25 (CA State Code)	R-11 (Average Existing Conditions)	per roof sqft	Existing	0.63	25	\$0.82	75%	63%	\$0.13	64
California	Restaurant	Space Heat	Insulation - Ceiling	R-30	R-25 (CA State Code)	per roof sqft	Existing	0.10	25	\$0.11	75%	85%	\$0.12	15
California	Restaurant	Space Heat	Insulation - Duct	R-8 (CA State Code)	No Insulation	per surface area of duct insul	Existing	2	20	\$3	75%	62%	\$0.14	19
California	Restaurant	Space Heat	Insulation - Floor (non-slab)	R-25 (CA State Code)	R-11 (Average Existing Conditions)	per floor area	Existing	1	25	\$1	35%	72%	\$0.09	73
California	Restaurant	Space Heat	Insulation - Floor (non-slab)	R-30	R-25 (CA State Code)	per floor area	Existing	0.30	25	\$0.13	35%	90%	\$0.04	26
California	Restaurant	Space Heat	Insulation - Wall	R-16 (CA State Code)	R-3 (Average Existing Conditions)	per floor area	Existing	2	25	\$1	10%	64%	\$0.07	30
California	Restaurant	Space Heat	Insulation - Wall	R-21	R-16 (CA State Code)	per floor area	Existing	0.82	25	\$0.19	10%	85%	\$0.02	14
California	Restaurant	Space Heat	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	Existing	36	30	\$7	50%	95%	\$0.02	133
California	Restaurant	Space Heat	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	Existing	225	10	\$167	95%	24%	\$0.12	6
California	Restaurant	Space Heat	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	0.53	7	\$0.24	90%	85%	\$0.10	101
California	Restaurant	Space Heat	Windows-High Efficiency	U-0.32	U-0.47 (CA State Code)	per window sqft	Existing	2	25	\$64	15%	90%	\$2.43	8
California	Restaurant	Space Heat	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	New	0.05	18	\$0.29	45%	65%	\$0.63	0.75
California	Restaurant	Space Heat	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	New	0.33	14	\$2	5%	94%	\$0.81	0.71
California	Restaurant	Space Heat	Insulation - Ceiling	R-30	R-25 (CA State Code)	per roof sqft	New	0.05	25	\$0.11	75%	85%	\$0.22	1
California	Restaurant	Space Heat	Insulation - Floor (non-slab)	R-30	R-25 (CA State Code)	per floor area	New	0.16	25	\$0.13	35%	90%	\$0.08	2
California	Restaurant	Space Heat	Insulation - Wall	R-21	R-16 (CA State Code)	per floor area	New	0.43	25	\$0.19	95%	85%	\$0.05	13

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California	Restaurant	Space Heat	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	New	18	30	\$7	50%	95%	\$0.04	13
California	Restaurant	Space Heat	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	New	117	10	\$167	95%	12%	\$0.24	0.35
California	Restaurant	Space Heat	Windows-High Efficiency	U-0.32	U-0.47 (CA State Code)	per window sqft	New	1	25	\$64	80%	90%	\$4.66	5
California	Restaurant	Water Heat	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	per building sqft	Existing	0.45	10	\$0.33	75%	94%	\$0.13	124
California	Restaurant	Water Heat	Dishwasher Residential	ENERGY STAR <= 324 kWh/yr, <= 5.8 gal/cycle	Federal Standard <= 355 kWh/yr, <= 6.5 gal/cycle	per installation	Existing	33	11	\$35	95%	25%	\$0.10	0.64
California	Restaurant	Water Heat	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	per installation	Existing	8,029	10	\$3,010	95%	95%	\$0.02	841
California	Restaurant	Water Heat	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	per installation	Existing	3,751	10	\$937	95%	94%	\$-0.02	194
California	Restaurant	Water Heat	Electric Water Heater - High Efficiency	EF = 0.95	EF = 0.92	Per installation	Existing	519	15	\$124	100%	N/A	\$0.03	15
California	Restaurant	Water Heat	Heat Pump Water Heater - Advanced-Efficiency	EF = 2.2	EF = 0.92	Per installation	Existing	9,579	15	\$2,533	75%	N/A	\$0.03	775
California	Restaurant	Water Heat	Hot Water (SHW) Pipe Insulation	1.0" of Insulation, assuming R-4 (CA State Code)	No Insulation	per linear foot	Existing	19	12	\$4	80%	90%	\$0.03	26
California	Restaurant	Water Heat	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	per installation	Existing	250	9	\$0.10	95%	25%	\$-0.09	38
California	Restaurant	Water Heat	Low-Flow Faucet Aerators	2.2 GPM (Federal Code)	3.0 GPM	per installation	Existing	210	9	\$2	95%	25%	\$-0.08	32
California	Restaurant	Water Heat	Low-Flow Pre-Rinse Spray Valves	0.6 GPM	1.6 GPM (Federal Standard)	per installation	Existing	978	5	\$5	95%	46%	\$-0.10	263
California	Restaurant	Water Heat	Water Cooled Refrigeration with Heat Recovery	Heat Recovery from refrigeration system. Applied to Water Heating Electric End use	No heat recovery	per sqft of refrigerated area	Existing	0.72	10	\$1	45%	94%	\$0.26	50
California	Restaurant	Water Heat	Water Heater Temperature Setback	Water Heater Temperature Setback (120 F)	No Change in Water Temperature	per installation	Existing	605	5	\$129	75%	75%	\$0.06	159
California	Restaurant	Water Heat	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	per building sqft	New	0.43	10	\$0.33	75%	94%	\$0.13	23
California	Restaurant	Water Heat	Dishwasher Residential	ENERGY STAR <= 324 kWh/yr, <= 5.8 gal/cycle	Federal Standard <= 355 kWh/yr, <= 6.5 gal/cycle	per installation	New	33	11	\$35	95%	55%	\$0.10	0.27
California	Restaurant	Water Heat	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	per installation	New	8,068	10	\$3,011	95%	95%	\$0.02	155
California	Restaurant	Water Heat	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	per installation	New	3,769	10	\$937	95%	94%	\$-0.02	35
California	Restaurant	Water Heat	Electric Water Heater - High Efficiency	EF = 0.95	EF = 0.92	Per installation	New	519	15	\$124	100%	N/A	\$0.03	2
California	Restaurant	Water Heat	Heat Pump Water Heater - Advanced-Efficiency	EF = 2.2	EF = 0.92	Per installation	New	9,579	15	\$2,091	75%	N/A	\$0.03	130
California	Restaurant	Water Heat	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	per installation	New	242	9	\$0.10	95%	25%	\$-0.09	7
California	Restaurant	Water Heat	Low-Flow Pre-Rinse Spray Valves	0.6 GPM	1.6 GPM (Federal Standard)	per installation	New	983	5	\$5	95%	46%	\$-0.10	50
California	Restaurant	Water Heat	Water Cooled Refrigeration with Heat Recovery	Heat Recovery from refrigeration system. Applied to Water Heating Electric End use	No heat recovery	per sqft of refrigerated area	New	0.69	10	\$1	45%	94%	\$0.27	9
California	Restaurant	Water Heat	Water Heater Temperature Setback	Water Heater Temperature Setback (120 F)	No Change in Water Temperature	per installation	New	586	5	\$129	75%	75%	\$0.06	29
California	School	Computers	Computer ENERGY STAR	Computer ENERGY STAR	Computer standard non-ENERGY STAR	Per installation	Existing	136	4	\$29	100%	N/A	\$0.08	71
California	School	Computers	Network PC Power Management	Network PC Power Management	No Power Management	per computer	Existing	84	5	\$12	95%	30%	\$0.04	14
California	School	Computers	Computer ENERGY STAR	Computer ENERGY STAR	Computer standard non-ENERGY STAR	Per installation	New	136	4	\$29	100%	N/A	\$0.08	2

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California	School	Computers	Network PC Power Management	Network PC Power Management	No Power Management	per computer	New	84	5	\$12	95%	30%	\$0.04	2
California	School	Cooking	Combination Oven	60% cooking efficiency	Non ENERGY STAR	per installation	Existing	11,282	12	\$1,806	90%	90%	\$0.02	0.06
California	School	Cooking	Fryers - New CEE Efficient Electric Deep Fat Fryers	15 inch width Deep Fryer CEE 2006 rating: 80% under heavy load, Less than 1000 watt at idle	15 inch width standard electric deep fat fryers	per installation	Existing	420	12	\$1,355	35%	90%	\$0.48	0.00
California	School	Cooking	Griddle	70% cooking efficiency	Non ENERGY STAR	per installation	Existing	2,178	12	\$811	95%	85%	\$0.06	0.11
California	School	Cooking	High Efficiency Convection Oven	Convection Oven	Standard Oven	per installation	Existing	1,802	12	\$2,029	26%	40%	\$0.17	0.01
California	School	Cooking	Hot Food Holding Cabinet	ENERGY STAR	Non ENERGY STAR	per installation	Existing	3,782	12	\$1,739	75%	21%	\$0.07	0.08
California	School	Cooking	Steam Cooker	ENERGY STAR	Non ENERGY STAR	per installation	Existing	4,048	12	\$2,545	14%	75%	\$0.09	0.05
California	School	Cooking	Combination Oven	60% cooking efficiency	Non ENERGY STAR	per installation	New	11,282	12	\$1,806	90%	90%	\$0.02	0.01
California	School	Cooking	Fryers - New CEE Efficient Electric Deep Fat Fryers	15 inch width Deep Fryer CEE 2006 rating: 80% under heavy load, Less than 1000 watt at idle	15 inch width standard electric deep fat fryers	per installation	New	420	12	\$1,355	35%	90%	\$0.48	0.00
California	School	Cooking	Griddle	70% cooking efficiency	Non ENERGY STAR	per installation	New	2,178	12	\$811	95%	85%	\$0.06	0.02
California	School	Cooking	High Efficiency Convection Oven	Convection Oven	Standard Oven	per installation	New	1,802	12	\$2,029	26%	40%	\$0.17	0.00
California	School	Cooking	Hot Food Holding Cabinet	ENERGY STAR	Non ENERGY STAR	per installation	New	3,782	12	\$1,739	75%	21%	\$0.07	0.01
California	School	Cooking	Steam Cooker	ENERGY STAR	Non ENERGY STAR	per installation	New	4,048	12	\$2,545	14%	75%	\$0.09	0.01
California	School	Cooling Chillers	Automated Ventilation VFD Control(Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	1 unit per 3,000 sqft	Existing	248	15	\$789	25%	94%	\$0.41	0.47
California	School	Cooling Chillers	Chilled Water / Condenser Water Settings-Optimization	Additional Control Features	EMS already installed - No Optimization	1 control point per 1000 sqft	Existing	10	5	\$183	95%	81%	\$5.02	0.15
California	School	Cooling Chillers	Chilled Water Piping Loop w/ VSD Control	VSD for secondary chilled water loop	Primary loop only w/ constant speed pump	per chiller ton	Existing	12	10	\$224	25%	70%	\$2.95	0.21
California	School	Cooling Chillers	Chiller-Water Side Economizer	Install Economizer	No Economizer	per chiller ton	Existing	8	15	\$525	45%	90%	\$8.12	0.31
California	School	Cooling Chillers	Chillers 150-300 tons (screw) - Advanced Efficiency	0.50 kW/ton (full load)	0.680 kW/Ton (full load)	Per installation	Existing	7,160	20	\$8,639	100%	N/A	\$0.14	4
California	School	Cooling Chillers	Chillers 150-300 tons (screw) - High Efficiency	0.65 kW/ton (full load)	0.680 kW/Ton (full load)	Per installation	Existing	2,652	20	\$1,439	100%	N/A	\$0.06	0.03
California	School	Cooling Chillers	Chillers 150-300 tons (screw) - Premium Efficiency	0.57 kW/ton (full load)	0.680 kW/Ton (full load)	Per installation	Existing	5,075	20	\$5,279	100%	N/A	\$0.12	0.25
California	School	Cooling Chillers	Convert Constant Volume Air System to VAV	Variable Volume Air System	Constant Volume Air System	per building CFM	Existing	0.24	15	\$3	15%	68%	\$1.69	0.51
California	School	Cooling Chillers	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	Existing	0.08	15	\$0.69	65%	98%	\$1.09	1
California	School	Cooling Chillers	Cooling Tower-Decrease Approach Temperature	6 Deg F	10 Deg F	per chiller ton	Existing	13	8	\$26	10%	94%	\$0.41	0.14
California	School	Cooling Chillers	Cooling Tower-Two-Speed Fan Motor	Cooling Tower-Two-Speed Fan Motor	Cooling Tower-One-Speed Fan Motor	per chiller ton	Existing	23	15	\$2	95%	35%	\$0.01	1
California	School	Cooling Chillers	Cooling Tower-VSD Fan Control	Variable-Speed Tower Fans replace Two-Speed	Cooling Tower-Two-Speed Fan Motor	per chiller ton	Existing	6	13	\$19	95%	75%	\$0.41	0.59
California	School	Cooling Chillers	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	Existing	82	15	\$186	75%	76%	\$0.29	1
California	School	Cooling Chillers	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	Existing	0.08	40	\$10	4%	98%	\$11.89	0.00
California	School	Cooling Chillers	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	0.53	13	\$0.37	10%	39%	\$0.10	0.04
California	School	Cooling Chillers	Insulation - Ceiling	R-25 (CA State Code)	R-7 (Average Existing Conditions)	per roof sqft	Existing	0.00	25	\$0.72	75%	67%	\$15.57	0.04

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
California	School	Cooling Chillers	Pipe Insulation	1.5" of Insulation, assuming R-6 (CA State Code)	No Insulation	per linear feet of insulation	Existing	2	15	\$4	65%	45%	\$0.23	0.09
California	School	Cooling Chillers	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	0.10	7	\$0.21	90%	85%	\$0.46	1
California	School	Cooling Chillers	Window Film	Window Film	No Film	per 100 sqft of window glazing	Existing	3	10	\$164	90%	68%	\$8.37	0.02
California	School	Cooling Chillers	Windows-High Efficiency	U-0.47 (CA State Code)	U-0.67 (Average Existing Conditions)	per window sqft	Existing	1	25	\$39	15%	75%	\$2.39	0.28
California	School	Cooling Chillers	Automated Ventilation VFD Control(Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	1 unit per 3,000 sqft	New	160	15	\$420	25%	94%	\$0.34	0.07
California	School	Cooling Chillers	Chilled Water / Condenser Water Settings-Optimization	Additional Control Features	EMS already installed - No Optimization	1 control point per 1000 sqft	New	6	5	\$183	95%	81%	\$7.77	0.02
California	School	Cooling Chillers	Chilled Water Piping Loop w/ VSD Control	VSD for secondary chilled water loop	Primary loop only w/ constant speed pump	per chiller ton	New	9	10	\$224	25%	70%	\$4.12	0.03
California	School	Cooling Chillers	Chillers 150-300 tons (screw) - Advanced Efficiency	0.50 kW/ton (full load)	0.680 kW/Ton (full load)	Per installation	New	5,403	20	\$7,774	100%	N/A	\$0.16	0.99
California	School	Cooling Chillers	Chillers 150-300 tons (screw) - High Efficiency	0.65 kW/ton (full load)	0.680 kW/Ton (full load)	Per installation	New	2,001	20	\$1,295	100%	N/A	\$0.07	0.00
California	School	Cooling Chillers	Chillers 150-300 tons (screw) - Premium Efficiency	0.57 kW/ton (full load)	0.680 kW/Ton (full load)	Per installation	New	3,830	20	\$4,749	100%	N/A	\$0.14	0.04
California	School	Cooling Chillers	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	New	0.05	15	\$0.69	65%	98%	\$1.69	0.15
California	School	Cooling Chillers	Cooling Tower-Decrease Approach Temperature	6 Deg F	10 Deg F	per chiller ton	New	9	8	\$26	10%	94%	\$0.58	0.02
California	School	Cooling Chillers	Cooling Tower-VSD Fan Control	Variable-Speed Tower Fans replace Two-Speed	Cooling Tower-Two-Speed Fan Motor	per chiller ton	New	4	15	\$19	95%	75%	\$0.52	0.08
California	School	Cooling Chillers	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	New	53	15	\$186	75%	76%	\$0.45	0.17
California	School	Cooling Chillers	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	New	0.05	40	\$10	4%	98%	\$18.42	0.00
California	School	Cooling Chillers	Natural Ventilation	Natural Ventilation Design Reduction in Cooling	None - Standard Ventilation	per building sqft	New	0.05	15	\$1	20%	75%	\$2.58	0.03
California	School	Cooling Dx Evap	Automated Ventilation VFD Control(Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	1 unit per 3,000 sqft	Existing	280	15	\$789	25%	94%	\$0.36	2
California	School	Cooling Dx Evap	Convert Constant Volume Air System to VAV	Variable Volume Air System	Constant Volume Air System	per building CFM	Existing	0.28	15	\$3	15%	68%	\$1.50	2
California	School	Cooling Dx Evap	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	Existing	0.09	15	\$0.69	65%	98%	\$0.97	5
California	School	Cooling Dx Evap	DX Package 135 to 240 kBTU/hr - High Efficiency	DX Package 135 to 240 kBTU/hr - High Efficiency - 11.5 EER	DX Package 135 to 240 kBTU/hr - Standard Efficiency 11.0 EER	Per installation	Existing	1,229	15	\$2,120	100%	N/A	\$0.22	0.15
California	School	Cooling Dx Evap	DX Package 135 to 240 kBTU/hr - Premium Efficiency	DX Package 135 to 240 kBTU/hr - Premium Efficiency - 12.0 EER	DX Package 135 to 240 kBTU/hr - Standard Efficiency 11.0 EER	Per installation	Existing	2,512	15	\$3,608	100%	N/A	\$0.19	4
California	School	Cooling Dx Evap	DX Package-Air Side Economizer	Air-Side Economizer	No Economizer	per DX ton	Existing	31	10	\$178	10%	60%	\$0.95	0.90
California	School	Cooling Dx Evap	DX Tune-Up / Diagnostics	DX Tune-Up / Diagnostics	No DX Tune-Up / Diagnostics	per installation	Existing	157	4	\$398	95%	72%	\$0.97	6
California	School	Cooling Dx Evap	Direct / Indirect Evaporative Cooling, Pre-Cooling	Evaporative Cooler	Standard DX cooling	per building CFM	Existing	0.23	15	\$2	50%	94%	\$1.23	10

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
California	School	Cooling Dx Evap	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	Existing	93	15	\$186	75%	76%	\$0.26	7
California	School	Cooling Dx Evap	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	Existing	0.02	18	\$0.26	45%	65%	\$1.32	0.56
California	School	Cooling Dx Evap	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	Existing	0.09	40	\$10	4%	98%	\$10.52	0.02
California	School	Cooling Dx Evap	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	0.60	13	\$0.37	10%	39%	\$0.09	0.25
California	School	Cooling Dx Evap	Insulation - Ceiling	R-25 (CA State Code)	R-7 (Average Existing Conditions)	per roof sqft	Existing	0.00	25	\$0.72	75%	67%	\$68.13	0.04
California	School	Cooling Dx Evap	Insulation - Duct	R-8 (CA State Code)	No Insulation	per surface area of duct insul	Existing	0.57	20	\$2	75%	62%	\$0.57	2
California	School	Cooling Dx Evap	Insulation - Floor (non-slab)	R-30	R-25 (CA State Code)	per floor area	Existing	0.00	25	\$0.11	35%	90%	\$5.72	0.05
California	School	Cooling Dx Evap	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	Existing	5	30	\$6	50%	95%	\$0.11	9
California	School	Cooling Dx Evap	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	Existing	546	10	\$147	95%	25%	\$0.05	0.96
California	School	Cooling Dx Evap	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	0.11	7	\$0.21	90%	85%	\$0.40	10
California	School	Cooling Dx Evap	Window Film	Window Film	No Film	per 100 sqft of window glazing	Existing	3	10	\$164	90%	68%	\$8.31	0.12
California	School	Cooling Dx Evap	Windows-High Efficiency	U-0.47 (CA State Code)	U-0.67 (Average Existing Conditions)	per window sqft	Existing	1	25	\$39	15%	75%	\$2.10	1
California	School	Cooling Dx Evap	Automated Ventilation VFD Control(Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	1 unit per 3,000 sqft	New	199	15	\$420	25%	94%	\$0.27	0.40
California	School	Cooling Dx Evap	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	New	0.06	15	\$0.69	65%	98%	\$1.36	0.91
California	School	Cooling Dx Evap	DX Package 135 to 240 kBTU/hr - High Efficiency	DX Package 135 to 240 kBTU/hr - High Efficiency - 11.5 EER	DX Package 135 to 240 kBTU/hr - Standard Efficiency 11.0 EER	Per installation	New	776	15	\$1,697	100%	N/A	\$0.28	0.01
California	School	Cooling Dx Evap	DX Package 135 to 240 kBTU/hr - Premium Efficiency	DX Package 135 to 240 kBTU/hr - Premium Efficiency - 12.0 EER	DX Package 135 to 240 kBTU/hr - Standard Efficiency 11.0 EER	Per installation	New	1,774	15	\$2,888	100%	N/A	\$0.21	0.77
California	School	Cooling Dx Evap	Direct / Indirect Evaporative Cooling, Pre-Cooling	Evaporative Cooler	Standard DX cooling	per building CFM	New	0.16	15	\$2	50%	94%	\$1.73	1
California	School	Cooling Dx Evap	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	New	66	15	\$186	75%	76%	\$0.36	0.96
California	School	Cooling Dx Evap	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	New	0.01	18	\$0.26	45%	65%	\$1.86	0.09
California	School	Cooling Dx Evap	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	New	0.06	40	\$10	4%	98%	\$14.82	0.00
California	School	Cooling Dx Evap	Insulation - Floor (non-slab)	R-30	R-25 (CA State Code)	per floor area	New	0.00	25	\$0.11	35%	90%	\$8.06	0.00
California	School	Cooling Dx Evap	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	New	4	30	\$6	50%	95%	\$0.15	1
California	School	Cooling Dx Evap	Natural Ventilation	Natural Ventilation Design Reduction in Cooling	None - Standard Ventilation	per building sqft	New	0.06	15	\$1	20%	75%	\$2.08	0.19
California	School	Cooling Dx Evap	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	New	388	10	\$147	95%	13%	\$0.06	0.06

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
California	School	Cooling Room	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	Existing	0.12	15	\$0.69	65%	98%	\$0.71	1
California	School	Cooling Room	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	Existing	127	15	\$186	75%	76%	\$0.19	1
California	School	Cooling Room	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	Existing	0.12	40	\$10	4%	98%	\$7.74	0.00
California	School	Cooling Room	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	0.81	13	\$0.37	10%	39%	\$0.07	0.04
California	School	Cooling Room	Insulation - Ceiling	R-25 (CA State Code)	R-7 (Average Existing Conditions)	per roof sqft	Existing	0.00	25	\$0.72	75%	67%	\$50.15	0.01
California	School	Cooling Room	Insulation - Floor (non-slab)	R-30	R-25 (CA State Code)	per floor area	Existing	0.00	25	\$0.11	35%	90%	\$4.21	0.01
California	School	Cooling Room	PTAC (10,000 BTU/HR) - Premium-Efficiency	11.4 EER	Room AC (10,000 BTU/HR) Standard-Efficiency 9.8 EER	Per installation	Existing	4,705	15	\$24,551	75%	N/A	\$3.43	2
California	School	Cooling Room	Room AC (10,000 BTU/HR) High-Efficiency	High Efficiency 10.8 EER (ENERGY STAR)	Room AC (10,000 BTU/HR) Standard-Efficiency 9.8 EER	Per installation	Existing	3,091	9	\$5,329	100%	N/A	\$0.31	0.49
California	School	Cooling Room	Window Film	Window Film	No Film	per 100 sqft of window glazing	Existing	0.16	10	\$164	90%	68%	\$165.71	0.00
California	School	Cooling Room	Windows-High Efficiency	U-0.47 (CA State Code)	U-0.67 (Average Existing Conditions)	per window sqft	Existing	2	25	\$39	15%	75%	\$1.54	0.36
California	School	Cooling Room	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	New	0.09	15	\$0.69	65%	98%	\$0.96	0.17
California	School	Cooling Room	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	New	93	15	\$186	75%	76%	\$0.26	0.18
California	School	Cooling Room	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	New	0.09	40	\$10	4%	98%	\$10.49	0.00
California	School	Cooling Room	Insulation - Floor (non-slab)	R-30	R-25 (CA State Code)	per floor area	New	0.00	25	\$0.11	35%	90%	\$5.71	0.00
California	School	Cooling Room	Natural Ventilation	Natural Ventilation Design Reduction in Cooling	None - Standard Ventilation	per building sqft	New	0.09	15	\$1	20%	75%	\$1.47	0.04
California	School	Cooling Room	PTAC (10,000 BTU/HR) - Premium-Efficiency	11.4 EER	Room AC (10,000 BTU/HR) Standard-Efficiency 9.8 EER	Per installation	New	3,422	15	\$86,926	75%	N/A	\$3.29	0.16
California	School	Cooling Room	Room AC (10,000 BTU/HR) High-Efficiency	High Efficiency 10.8 EER (ENERGY STAR)	Room AC (10,000 BTU/HR) Standard-Efficiency 9.8 EER	Per installation	New	2,170	9	\$4,265	100%	N/A	\$0.35	0.03
California	School	Heat Pump	Air Source Heat Pump 135 to 240 kBtu/hr - High Efficiency	11.5 EER, 3.4 COP	10.6 EER, 3.2 COP	Per installation	Existing	9,965	15	\$8,667	100%	N/A	\$0.11	0.45
California	School	Heat Pump	Air Source Heat Pump 65 to 135 kBtu/hr - Premium Efficiency	12.0 EER, 3.8 COP	10.6 EER, 3.2 COP	Per installation	Existing	22,749	15	\$14,860	100%	N/A	\$0.08	10
California	School	Heat Pump	Automated Ventilation VFD Control(Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	1 unit per 3,000 sqft	Existing	350	15	\$789	25%	94%	\$0.29	0.37
California	School	Heat Pump	Convert Constant Volume Air System to VAV	Variable Volume Air System	Constant Volume Air System	per building CFM	Existing	1	15	\$3	15%	68%	\$0.36	1
California	School	Heat Pump	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	Existing	0.11	15	\$0.69	65%	98%	\$0.77	0.90
California	School	Heat Pump	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	Existing	721	15	\$186	75%	76%	\$0.03	7
California	School	Heat Pump	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	Existing	0.18	18	\$0.26	45%	65%	\$0.17	0.73
California	School	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	Existing	0.90	14	\$0.93	5%	94%	\$0.14	0.59
California	School	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	Existing	0.11	40	\$10	4%	98%	\$8.41	0.00

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
California	School	Heat Pump	Ground Source Heat Pump Replacing Air Source Heat Pump 65 to 135 kBtu/hr - Advanced Efficiency	16.2 EER 4.0 COP	10.6 EER, 3.2 COP	Per installation	Existing	32,906	30	\$84,975	5%	N/A	\$1.68	0.72
California	School	Heat Pump	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	11	13	\$0.37	10%	39%	\$0.00	0.78
California	School	Heat Pump	Insulation - Ceiling	R-25 (CA State Code)	R-7 (Average Existing Conditions)	per roof sqft	Existing	1	25	\$0.72	75%	67%	\$0.07	8
California	School	Heat Pump	Insulation - Ceiling	R-30	R-25 (CA State Code)	per roof sqft	Existing	0.10	25	\$0.10	75%	85%	\$0.10	0.96
California	School	Heat Pump	Insulation - Duct	R-8 (CA State Code)	No Insulation	per surface area of duct insul	Existing	4	20	\$2	75%	62%	\$0.07	2
California	School	Heat Pump	Insulation - Floor (non-slab)	R-25 (CA State Code)	R-11 (Average Existing Conditions)	per floor area	Existing	0.92	25	\$0.87	35%	83%	\$0.10	3
California	School	Heat Pump	Insulation - Floor (non-slab)	R-30	R-25 (CA State Code)	per floor area	Existing	0.36	25	\$0.11	35%	90%	\$0.03	2
California	School	Heat Pump	Insulation - Wall	R-16 (CA State Code)	R-0 (Average Existing Conditions)	per floor area	Existing	11	25	\$1	10%	74%	\$0.01	3
California	School	Heat Pump	Insulation - Wall	R-21	R-16 (CA State Code)	per floor area	Existing	3	25	\$0.17	10%	85%	\$0.01	1
California	School	Heat Pump	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	Existing	60	30	\$6	50%	95%	\$0.01	15
California	School	Heat Pump	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	Existing	4,215	10	\$147	95%	25%	\$0.01	1
California	School	Heat Pump	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	0.90	7	\$0.21	90%	85%	\$0.05	12
California	School	Heat Pump	Window Film	Window Film	No Film	per 100 sqft of window glazing	Existing	3	10	\$164	90%	68%	\$8.32	0.02
California	School	Heat Pump	Windows-High Efficiency	U-0.32	U-0.47 (CA State Code)	per window sqft	Existing	5	25	\$56	15%	90%	\$1.12	0.72
California	School	Heat Pump	Air Source Heat Pump 135 to 240 kBtu/hr - High Efficiency	11.5 EER, 3.4 COP	10.6 EER, 3.2 COP	Per installation	New	6,902	15	\$6,934	100%	N/A	\$0.13	0.04
California	School	Heat Pump	Air Source Heat Pump 65 to 135 kBtu/hr - Premium Efficiency	12.0 EER, 3.8 COP	10.6 EER, 3.2 COP	Per installation	New	14,784	15	\$11,888	100%	N/A	\$0.10	1
California	School	Heat Pump	Automated Ventilation VFD Control(Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	1 unit per 3,000 sqft	New	246	15	\$420	25%	94%	\$0.22	0.06
California	School	Heat Pump	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	New	0.08	15	\$0.69	65%	98%	\$1.10	0.15
California	School	Heat Pump	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	New	423	15	\$186	75%	76%	\$0.06	0.89
California	School	Heat Pump	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	New	0.10	18	\$0.26	45%	65%	\$0.29	0.10
California	School	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	New	0.51	14	\$0.93	5%	94%	\$0.24	0.08
California	School	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	New	0.08	40	\$10	4%	98%	\$11.97	0.00
California	School	Heat Pump	Ground Source Heat Pump Replacing Air Source Heat Pump 65 to 135 kBtu/hr - Advanced Efficiency	16.2 EER 4.0 COP	10.6 EER, 3.2 COP	Per installation	New	21,713	30	\$99,542	5%	N/A	\$1.29	0.09
California	School	Heat Pump	Insulation - Ceiling	R-30	R-25 (CA State Code)	per roof sqft	New	0.05	25	\$0.10	75%	85%	\$0.18	0.12
California	School	Heat Pump	Insulation - Floor (non-slab)	R-30	R-25 (CA State Code)	per floor area	New	0.19	25	\$0.11	35%	90%	\$0.06	0.21
California	School	Heat Pump	Insulation - Wall	R-21	R-16 (CA State Code)	per floor area	New	1	25	\$0.17	95%	85%	\$0.01	1
California	School	Heat Pump	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	New	35	30	\$6	50%	95%	\$0.02	1
California	School	Heat Pump	Natural Ventilation	Natural Ventilation Design Reduction in Cooling	None - Standard Ventilation	per building sqft	New	0.42	15	\$1	20%	75%	\$0.33	0.21
California	School	Heat Pump	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	New	2,475	10	\$147	95%	13%	\$0.01	0.06
California	School	Heat Pump	Windows-High Efficiency	U-0.32	U-0.47 (CA State Code)	per window sqft	New	2	25	\$56	80%	90%	\$2.02	0.52

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
California	School	Hvac Aux	Convert Constant Volume Air System to VAV	Variable Volume Air System	Constant Volume Air System	per building CFM	Existing	0.31	15	\$3	15%	68%	\$1.33	15
California	School	Hvac Aux	Cooking Hood Controls	Demand-Ventilation Control	No Controls	per installation	Existing	1,789	18	\$4,707	95%	85%	\$0.31	22
California	School	Hvac Aux	Motor - CEE Premium-Efficiency Plus	Motor - CEE Premium-Efficiency Plus	CEE PE+ Motor for HVAC Applications	per HP	Existing	25	15	\$6	95%	76%	\$0.03	7
California	School	Hvac Aux	Motor - VAV Box High Efficiency (ECM)	ECM Motor	Standard Efficiency Motor	per installation	Existing	65	15	\$177	11%	77%	\$0.35	5
California	School	Hvac Aux	Motor Rewind	>15, <500 HP	No Rewind	per HP	Existing	3	8	\$4	65%	25%	\$0.25	0.27
California	School	Hvac Aux	Optimized Variable Volume Lab Hood Design	Optimized Variable Volume Lab Hood Design	Constant Volume Lab Hood Design	per installation	Existing	819	13	\$1,819	65%	59%	\$0.31	8
California	School	Hvac Aux	Cooking Hood Controls	Demand-Ventilation Control	No Controls	per installation	New	1,789	18	\$4,707	95%	85%	\$0.31	4
California	School	Hvac Aux	Low Pressure Distribution Complex HVAC	Low Pressure Distribution Complex HVAC	VAV/CV	per building sqft	New	0.38	50	\$2	15%	98%	\$0.61	4
California	School	Hvac Aux	Motor - CEE Premium-Efficiency Plus	Motor - CEE Premium-Efficiency Plus	CEE PE+ Motor for HVAC Applications	per HP	New	19	15	\$6	95%	76%	\$0.04	1
California	School	Hvac Aux	Motor - VAV Box High Efficiency (ECM)	ECM Motor	Standard Efficiency Motor	per installation	New	49	15	\$177	11%	77%	\$0.47	0.80
California	School	Hvac Aux	Optimized Variable Volume Lab Hood Design	Optimized Variable Volume Lab Hood Design	Constant Volume Lab Hood Design	per installation	New	616	15	\$1,819	63%	59%	\$0.38	1
California	School	Lighting Exterior	Covered Parking Lighting	Covered Parking Lighting	Normal Lighting	per building sqft	Existing	0.08	10	\$0.02	80%	95%	\$0.05	34
California	School	Lighting Exterior	Daylighting Controls, Outdoors (Photocell)	Photocell	No Controls	per installation	Existing	55	8	\$28	75%	70%	\$0.10	3
California	School	Lighting Exterior	Exterior Building Lighting	30% savings	Normal Lighting	per installation	Existing	232	15	\$335	62%	90%	\$0.19	31
California	School	Lighting Exterior	Solid State LED White Lighting	Landscape, merchandise, signage, structure & task lighting (2.5 W)	50W 10hrs/day, 365 day/yr	per installation	Existing	6	14	\$35	75%	95%	\$0.81	0.62
California	School	Lighting Exterior	Surface Parking Lighting	Surface Parking Lighting	Normal Lighting	per building sqft	Existing	0.04	19	\$0.07	62%	95%	\$0.17	14
California	School	Lighting Exterior	Covered Parking Lighting	Covered Parking Lighting	Normal Lighting	per building sqft	New	0.08	10	\$0.02	80%	95%	\$0.05	6
California	School	Lighting Exterior	Daylighting Controls, Outdoors (Photocell)	Photocell	No Controls	per installation	New	55	8	\$28	75%	70%	\$0.10	0.68
California	School	Lighting Exterior	Exterior Building Lighting	30% savings	Normal Lighting	per installation	New	232	15	\$335	62%	90%	\$0.19	5
California	School	Lighting Exterior	Solid State LED White Lighting	Landscape, merchandise, signage, structure & task lighting (2.5 W)	50W 10hrs/day, 365 day/yr	per installation	New	6	14	\$35	75%	95%	\$0.81	0.11
California	School	Lighting Exterior	Surface Parking Lighting	Surface Parking Lighting	Normal Lighting	per building sqft	New	0.04	19	\$0.07	62%	95%	\$0.17	2
California	School	Lighting Interior	Cold Cathode Lighting	Cold Cathode Lighting 5 watts	30 W Incandescent Bulb	per installation	Existing	503	5	\$13	15%	94%	\$0.01	1
California	School	Lighting Interior	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	Existing	1	8	\$1	30%	81%	\$0.15	10
California	School	Lighting Interior	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	Existing	1	8	\$0.79	30%	81%	\$0.15	7
California	School	Lighting Interior	Exit Sign - LED	LED Exit Sign (2 Watts)	CFL Exit Sign (9 Watts)	per installation	Existing	92	16	\$16	95%	50%	\$0.02	16
California	School	Lighting Interior	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign (2 Watts)	per installation	Existing	16	13	\$30	95%	98%	\$0.26	1
California	School	Lighting Interior	LED Refrigeration Case Lights	LED Refrigeration Case Lights	Fluorescent Refrigeration Case	per installation	Existing	66	8	\$248	10%	80%	\$0.74	0.46
California	School	Lighting Interior	Lighting Package, High Efficiency	15% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	Existing	0.52	13	\$0.21	90%	53%	\$0.06	99
California	School	Lighting Interior	Lighting Package, High Efficiency	Code Required LPD And Control Strategies	Existing Lighting Design LPD	per building sqft	Existing	0.95	13	\$0.44	90%	41%	\$0.07	172
California	School	Lighting Interior	Lighting Package, Premium Efficiency	25% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	Existing	0.87	13	\$0.43	75%	62%	\$0.07	39

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
California	School	Lighting Interior	Lighting Package, Premium High Bay	35% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	Existing	0.13	13	\$0.10	70%	83%	\$0.11	38
California	School	Lighting Interior	Occupancy Sensor Control, Fluorescent	Occupancy Sensor Control, Fluorescent	No Occupancy Sensor	per occupancy sensor	Existing	892	8	\$73	90%	41%	\$0.02	16
California	School	Lighting Interior	Time Clock	Time Clock	No Controls	per 10,000 Watts	Existing	719	8	\$218	20%	95%	\$0.06	8
California	School	Lighting Interior	Cold Cathode Lighting	Cold Cathode Lighting 5 watts	30 W Incandescent Bulb	per installation	New	326	5	\$13	15%	94%	\$0.01	0.22
California	School	Lighting Interior	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	New	0.88	8	\$1	30%	81%	\$0.24	1
California	School	Lighting Interior	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	New	0.79	8	\$0.79	30%	81%	\$0.20	1
California	School	Lighting Interior	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign (2 Watts)	per installation	New	16	13	\$30	95%	98%	\$0.26	1
California	School	Lighting Interior	LED Refrigeration Case Lights	LED Refrigeration Case Lights	Fluorescent Refrigeration Case	per installation	New	66	8	\$248	10%	80%	\$0.74	0.08
California	School	Lighting Interior	Lighting Package, High Efficiency	15% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	New	0.52	15	\$0.01	90%	53%	\$0.00	18
California	School	Lighting Interior	Lighting Package, Premium Efficiency	25% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	New	0.79	15	\$0.13	75%	62%	\$0.02	6
California	School	Lighting Interior	Lighting Package, Premium High Bay	35% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	New	0.13	15	\$0.02	70%	83%	\$0.02	7
California	School	Lighting Interior	Occupancy Sensor Control, Fluorescent	Occupancy Sensor Control, Fluorescent	No Occupancy Sensor	per occupancy sensor	New	579	8	\$73	90%	41%	\$0.02	2
California	School	Lighting Interior	Time Clock	Time Clock	No Controls	per 10,000 Watts	New	719	8	\$218	20%	95%	\$0.06	1
California	School	Other Office Equipment	ENERGY STAR - Copiers	ENERGY STAR Copiers	Standard Copier	per installation	Existing	70	6	\$159	95%	45%	\$0.56	0.69
California	School	Other Office Equipment	ENERGY STAR - Fax	ENERGY STAR Fax	Standard Fax	per installation	Existing	74	6	\$0.00	95%	45%	\$0.00	0.74
California	School	Other Office Equipment	ENERGY STAR - Monitors	ENERGY STAR Features Enabled	Non-ENERGY STAR Features	per installation	Existing	14	5	\$16	64%	15%	\$0.32	0.85
California	School	Other Office Equipment	ENERGY STAR - Printers	ENERGY STAR Printers	Standard Printers	per installation	Existing	131	6	\$15	95%	40%	\$0.03	0.97
California	School	Other Office Equipment	ENERGY STAR - Scanners	ENERGY STAR Scanners	Standard Scanner	per installation	Existing	68	6	\$0.00	95%	45%	\$0.00	0.68
California	School	Other Office Equipment	ENERGY STAR - Copiers	ENERGY STAR Copiers	Standard Copier	per installation	New	70	6	\$159	95%	45%	\$0.56	0.13
California	School	Other Office Equipment	ENERGY STAR - Fax	ENERGY STAR Fax	Standard Fax	per installation	New	74	6	\$0.00	95%	45%	\$0.00	0.14
California	School	Other Office Equipment	ENERGY STAR - Monitors	ENERGY STAR Features Enabled	Non-ENERGY STAR Features	per installation	New	14	5	\$16	64%	15%	\$0.32	0.16
California	School	Other Office Equipment	ENERGY STAR - Printers	ENERGY STAR Printers	Standard Printers	per installation	New	131	6	\$15	95%	40%	\$0.03	0.18
California	School	Other Office Equipment	ENERGY STAR - Scanners	ENERGY STAR Scanners	Standard Scanner	per installation	New	68	6	\$0.00	95%	45%	\$0.00	0.12
California	School	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	per installation	Existing	7	7	\$0.00	20%	90%	\$0.00	0.01
California	School	Other Plug Load	ENERGY STAR - Water Cooler	ENERGY STAR Water Cooler (Hot/Cold Water)	Non-ENERGY STAR Water Cooler	per installation	Existing	346	10	\$0.00	95%	75%	\$0.00	0.64
California	School	Other Plug Load	Ice Maker	High-Efficiency Ice Maker	Standard Ice Maker	per installation	Existing	404	10	\$141	95%	86%	\$0.03	6
California	School	Other Plug Load	Power Supply Transformer/Converter	80 Plus	85% efficient power supply (> 51W)	1 unit per 2,000 sqft	Existing	1	4	\$0.41	95%	86%	\$0.09	0.30
California	School	Other Plug Load	Residential Refrigerator	ENERGY STAR	Federal Standard	per installation	Existing	76	12	\$121	40%	65%	\$0.23	0.52
California	School	Other Plug Load	Residential Refrigerator/Freezer Recycling	Recycling Existing Refrigerator/Freezer	Existing Refrigerator/Freezer	per installation	Existing	909	4	\$563	25%	35%	\$0.21	0.48
California	School	Other Plug Load	Server Virtualization	Server Virtualization	No Virtualization	number of virtualized servers	Existing	2,159	4	\$2,236	72%	85%	\$0.75	5

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
California	School	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	1 unit per 3,000 sqft	Existing	95	5	\$20	60%	90%	\$0.06	8
California	School	Other Plug Load	Vending Machines- High Efficiency	ENERGY STAR (Tier 2) Vending Machines- High Efficiency 500 can capacity Under 5.92 kWh/day	Vending Machines- Standard 13 kWh/day	per installation	Existing	229	14	\$162	75%	80%	\$0.10	2
California	School	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	per installation	New	7	7	\$0.00	20%	90%	\$0.00	0.00
California	School	Other Plug Load	ENERGY STAR - Water Cooler	ENERGY STAR Water Cooler (Hot/Cold Water)	Non-ENERGY STAR Water Cooler	per installation	New	346	10	\$0.00	95%	75%	\$0.00	0.12
California	School	Other Plug Load	Ice Maker	High-Efficiency Ice Maker	Standard Ice Maker	per installation	New	404	10	\$141	95%	86%	\$0.03	1
California	School	Other Plug Load	Power Supply Transformer/Converter	80 Plus	85% efficient power supply (> 51W)	1 unit per 2,000 sqft	New	1	4	\$0.41	95%	86%	\$0.09	0.05
California	School	Other Plug Load	Residential Refrigerator	ENERGY STAR	Federal Standard	per installation	New	76	12	\$121	40%	65%	\$0.23	0.09
California	School	Other Plug Load	Server Virtualization	Server Virtualization	No Virtualization	number of virtualized servers	New	2,159	4	\$2,236	72%	85%	\$0.75	1
California	School	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	1 unit per 3,000 sqft	New	95	5	\$20	60%	90%	\$0.06	1
California	School	Other Plug Load	Vending Machines- High Efficiency	ENERGY STAR (Tier 2) Vending Machines- High Efficiency 500 can capacity Under 5.92 kWh/day	Vending Machines- Standard 13 kWh/day	per installation	New	229	14	\$162	75%	80%	\$0.10	0.50
California	School	Refrigeration	Anti-Sweat (Humidistat) Controls	Anti-Sweat (Humidistat) Controls	No Anti-Sweat (Humidistat) Controls	1 unit per 1,000 sqft	Existing	938	12	\$85	15%	45%	\$0.01	0.29
California	School	Refrigeration	Case Electronically Commutated Motor	ECM Case Fans	Standard Efficiency Motor	1 unit per 10,000 sqft	Existing	976	12	\$242	5%	77%	\$0.04	0.78
California	School	Refrigeration	Case Replacement Low Temp	Case Replacement Low Temp	No replacement	per square foot	Existing	0.04	15	\$0.10	5%	95%	\$0.30	0.47
California	School	Refrigeration	Case Replacement Med Temp	Case Replacement Med Temp	No replacement	per square foot	Existing	0.00	15	\$0.05	5%	95%	\$1.82	0.04
California	School	Refrigeration	Demand Control Defrost - Hot Gas	Refrigerant Defrost	Defrost - Electric	per installation	Existing	123	10	\$67	5%	68%	\$0.09	0.04
California	School	Refrigeration	Glass Door ES Refrigerators/Freezers	Glass Door ES Refrigerators/Freezers	Standard Glass Doors	per installation	Existing	2,447	12	\$703	95%	77%	\$0.04	0.43
California	School	Refrigeration	Refrigeration Commissioning or Re-commissioning	Commissioning / Re-commissioning	No Commissioning / Re-commissioning	per refrigeration ton	Existing	783	3	\$143	10%	85%	\$0.08	0.51
California	School	Refrigeration	Solid Door ES Refrigerators/Freezers	Solid Door ES Refrigerators/Freezers	Standard Solid Door	per installation	Existing	1,109	12	\$175	95%	81%	\$0.02	0.20
California	School	Refrigeration	Standalone to Multiplex Compressor	Standalone to Multiplex Compressor	Standalone compressor	per building sqft	Existing	0.01	13	\$0.00	25%	90%	\$0.02	0.61
California	School	Refrigeration	Strip Curtains for Walk-Ins	Strip Curtains for Walk-Ins	No Strip Curtains for Walk-In	per installation	Existing	190	4	\$183	95%	20%	\$0.33	0.39
California	School	Refrigeration	Walk-In Electronically Commutated Motor	ECM Evaporator Fans	Standard Efficiency Motor	per installation	Existing	0.01	12	\$0.17	10%	95%	\$1.39	0.37
California	School	Refrigeration	Anti-Sweat (Humidistat) Controls	Anti-Sweat (Humidistat) Controls	No Anti-Sweat (Humidistat) Controls	1 unit per 1,000 sqft	New	938	12	\$85	15%	45%	\$0.01	0.05
California	School	Refrigeration	Case Electronically Commutated Motor	ECM Case Fans	Standard Efficiency Motor	1 unit per 10,000 sqft	New	976	12	\$242	5%	77%	\$0.04	0.14
California	School	Refrigeration	Demand Control Defrost - Hot Gas	Refrigerant Defrost	Defrost - Electric	per installation	New	123	10	\$67	5%	68%	\$0.09	0.00
California	School	Refrigeration	Glass Door ES Refrigerators/Freezers	Glass Door ES Refrigerators/Freezers	Standard Glass Doors	per installation	New	2,447	12	\$703	95%	77%	\$0.04	0.08
California	School	Refrigeration	Refrigeration Commissioning or Re-commissioning	Commissioning / Re-commissioning	No Commissioning / Re-commissioning	per refrigeration ton	New	484	3	\$56	5%	90%	\$0.05	0.03
California	School	Refrigeration	Solid Door ES Refrigerators/Freezers	Solid Door ES Refrigerators/Freezers	Standard Solid Door	per installation	New	1,109	12	\$175	95%	81%	\$0.02	0.03
California	School	Refrigeration	Strip Curtains for Walk-Ins	Strip Curtains for Walk-Ins	No Strip Curtains for Walk-In	per installation	New	190	4	\$183	95%	20%	\$0.33	0.07
California	School	Refrigeration	Walk-In Electronically Commutated Motor	ECM Evaporator Fans	Standard Efficiency Motor	per installation	New	0.01	12	\$0.17	10%	95%	\$1.39	0.07

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
California	School	Space Heat	Convert Constant Volume Air System to VAV	Variable Volume Air System	Constant Volume Air System	per building CFM	Existing	1	15	\$3	15%	68%	\$0.27	5
California	School	Space Heat	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	Existing	1,199	15	\$186	75%	76%	\$0.02	35
California	School	Space Heat	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	Existing	0.29	18	\$0.26	45%	65%	\$0.10	3
California	School	Space Heat	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	Existing	1	14	\$0.93	5%	94%	\$0.07	2
California	School	Space Heat	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	15	13	\$0.37	10%	39%	\$0.00	2
California	School	Space Heat	Insulation - Ceiling	R-25 (CA State Code)	R-7 (Average Existing Conditions)	per roof sqft	Existing	2	25	\$0.72	75%	67%	\$0.03	63
California	School	Space Heat	Insulation - Ceiling	R-30	R-25 (CA State Code)	per roof sqft	Existing	0.29	25	\$0.10	75%	85%	\$0.04	6
California	School	Space Heat	Insulation - Duct	R-8 (CA State Code)	No Insulation	per surface area of duct insul	Existing	7	20	\$2	75%	62%	\$0.04	9
California	School	Space Heat	Insulation - Floor (non-slab)	R-25 (CA State Code)	R-11 (Average Existing Conditions)	per floor area	Existing	3	25	\$0.87	35%	83%	\$0.03	38
California	School	Space Heat	Insulation - Floor (non-slab)	R-30	R-25 (CA State Code)	per floor area	Existing	0.85	25	\$0.11	35%	90%	\$0.01	14
California	School	Space Heat	Insulation - Wall	R-16 (CA State Code)	R-0 (Average Existing Conditions)	per floor area	Existing	28	25	\$1	10%	74%	\$0.01	27
California	School	Space Heat	Insulation - Wall	R-21	R-16 (CA State Code)	per floor area	Existing	7	25	\$0.17	10%	85%	\$0.00	8
California	School	Space Heat	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	Existing	100	30	\$6	50%	95%	\$0.01	70
California	School	Space Heat	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	Existing	7,012	10	\$147	95%	25%	\$0.00	5
California	School	Space Heat	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	1	7	\$0.21	90%	85%	\$0.03	46
California	School	Space Heat	Windows-High Efficiency	U-0.32	U-0.47 (CA State Code)	per window sqft	Existing	11	25	\$56	15%	90%	\$0.49	4
California	School	Space Heat	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	New	714	15	\$186	75%	76%	\$0.03	3
California	School	Space Heat	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	New	0.17	18	\$0.26	45%	65%	\$0.17	0.44
California	School	Space Heat	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	New	1	14	\$0.93	5%	94%	\$0.12	0.42
California	School	Space Heat	Insulation - Ceiling	R-30	R-25 (CA State Code)	per roof sqft	New	0.17	25	\$0.10	75%	85%	\$0.06	0.96
California	School	Space Heat	Insulation - Floor (non-slab)	R-30	R-25 (CA State Code)	per floor area	New	0.51	25	\$0.11	35%	90%	\$0.02	1
California	School	Space Heat	Insulation - Wall	R-21	R-16 (CA State Code)	per floor area	New	4	25	\$0.17	95%	85%	\$0.00	9
California	School	Space Heat	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	New	60	30	\$6	50%	95%	\$0.01	7
California	School	Space Heat	Natural Ventilation	Natural Ventilation Design Reduction in Cooling	None - Standard Ventilation	per building sqft	New	0.71	15	\$1	20%	75%	\$0.19	0.89
California	School	Space Heat	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	New	4,179	10	\$147	95%	13%	\$0.01	0.26
California	School	Space Heat	Windows-High Efficiency	U-0.32	U-0.47 (CA State Code)	per window sqft	New	7	25	\$56	80%	90%	\$0.83	3
California	School	Water Heat	Clothes Washer Commercial	ENERGY STAR Commercial Clothes Washer MEF=1.80	Standard Clothes Washers	per installation	Existing	521	11	\$124	95%	80%	\$-0.28	0.51
California	School	Water Heat	Clothes Washer Residential	Energy Star - CEE Tier 1 (MEF 2.0 - 2.19) - Electric DHW & Dryer	MEF = 1.66 - Electric DHW & Dryer (NWPPC 6th Plan Average Efficiency)	per installation	Existing	127	11	\$323	85%	94%	\$0.08	0.13
California	School	Water Heat	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	per building sqft	Existing	0.08	10	\$0.29	55%	94%	\$0.61	6
California	School	Water Heat	Dishwasher Residential	ENERGY STAR <= 324 kWh/yr, <= 5.8 gal/cycle	Federal Standard <= 355 kWh/yr, <= 6.5 gal/cycle	per installation	Existing	29	11	\$29	95%	25%	\$0.10	0.01
California	School	Water Heat	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	per installation	Existing	7,070	10	\$2,626	95%	95%	\$0.02	3
California	School	Water Heat	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	per installation	Existing	3,303	10	\$832	95%	94%	\$-0.02	0.88

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
California	School	Water Heat	Electric Water Heater - High Efficiency	EF = 0.95	EF = 0.92	Per installation	Existing	1,073	15	\$307	100%	N/A	\$0.04	0.92
California	School	Water Heat	Heat Pump Water Heater - Advanced-Efficiency	EF = 2.2	EF = 0.92	Per installation	Existing	19,772	15	\$6,213	75%	N/A	\$0.04	58
California	School	Water Heat	Hot Water (SHW) Pipe Insulation	1.0" of Insulation, assuming R-4 (CA State Code)	No Insulation	per linear foot	Existing	28	12	\$3	80%	8%	\$0.02	0.15
California	School	Water Heat	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	per installation	Existing	257	9	\$0.00	95%	25%	-\$0.09	2
California	School	Water Heat	Low-Flow Faucet Aerators	2.2 GPM (Federal Code)	3.0 GPM	per installation	Existing	215	9	\$2	95%	25%	-\$0.08	1
California	School	Water Heat	Low-Flow Pre-Rinse Spray Valves	0.6 GPM	1.6 GPM (Federal Standard)	per installation	Existing	63	5	\$5	95%	65%	-\$0.07	0.67
California	School	Water Heat	Low-Flow Showerheads	2.0 GPM	2.5 GPM (Federal Code)	per installation	Existing	511	10	\$5	95%	73%	-\$0.08	14
California	School	Water Heat	Low-Flow Showerheads	2.5 GPM (Federal Code)	4.5 GPM	per installation	Existing	1,137	10	\$11	95%	62%	-\$0.08	28
California	School	Water Heat	Water Cooled Refrigeration with Heat Recovery	Heat Recovery from refrigeration system. Applied to Water Heating Electric End use	No heat recovery	per sqft of refrigerated area	Existing	0.18	10	\$0.97	25%	94%	\$0.88	0.14
California	School	Water Heat	Water Heater Temperature Setback	Water Heater Temperature Setback (120 F)	No Change in Water Temperature	per installation	Existing	605	5	\$112	75%	15%	\$0.05	2
California	School	Water Heat	Clothes Washer Commercial	ENERGY STAR Commercial Clothes Washer MEF=1.80	Standard Clothes Washers	per installation	New	521	11	\$124	95%	80%	-\$0.28	0.09
California	School	Water Heat	Clothes Washer Residential	Energy Star - CEE Tier 1 (MEF 2.0 - 2.19) - Electric DHW & Dryer	MEF = 1.66 - Electric DHW & Dryer (NWPPC 6th Plan Average Efficiency)	per installation	New	127	11	\$323	85%	94%	\$0.08	0.02
California	School	Water Heat	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	per building sqft	New	0.08	10	\$0.29	55%	94%	\$0.61	1
California	School	Water Heat	Dishwasher Residential	ENERGY STAR <= 324 kWh/yr, <= 5.8 gal/cycle	Federal Standard <= 355 kWh/yr, <= 6.5 gal/cycle	per installation	New	29	11	\$29	95%	55%	\$0.10	0.00
California	School	Water Heat	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	per installation	New	7,070	10	\$2,625	95%	95%	\$0.02	0.70
California	School	Water Heat	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	per installation	New	3,303	10	\$821	95%	94%	-\$0.02	0.16
California	School	Water Heat	Electric Water Heater - High Efficiency	EF = 0.95	EF = 0.92	Per installation	New	1,066	15	\$307	100%	N/A	\$0.04	0.16
California	School	Water Heat	Heat Pump Water Heater - Advanced-Efficiency	EF = 2.2	EF = 0.92	Per installation	New	19,656	15	\$5,127	75%	N/A	\$0.03	10
California	School	Water Heat	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	per installation	New	255	9	\$0.00	95%	25%	-\$0.09	0.42
California	School	Water Heat	Low-Flow Pre-Rinse Spray Valves	0.6 GPM	1.6 GPM (Federal Standard)	per installation	New	63	5	\$5	95%	65%	-\$0.07	0.12
California	School	Water Heat	Low-Flow Showerheads	2.0 GPM	2.5 GPM (Federal Code)	per installation	New	508	10	\$5	95%	73%	-\$0.08	2
California	School	Water Heat	Water Cooled Refrigeration with Heat Recovery	Heat Recovery from refrigeration system. Applied to Water Heating Electric End use	No heat recovery	per sqft of refrigerated area	New	0.18	10	\$0.97	25%	94%	\$0.89	0.03
California	School	Water Heat	Water Heater Temperature Setback	Water Heater Temperature Setback (120 F)	No Change in Water Temperature	per installation	New	602	5	\$112	75%	15%	\$0.05	0.44
California	Small Office	Computers	Computer ENERGY STAR	Computer ENERGY STAR	Computer standard non-ENERGY STAR	Per installation	Existing	132	4	\$27	100%	N/A	\$0.07	1,018
California	Small Office	Computers	Network PC Power Management	Network PC Power Management	No Power Management	per computer	Existing	82	5	\$11	95%	30%	\$0.04	209
California	Small Office	Computers	Computer ENERGY STAR	Computer ENERGY STAR	Computer standard non-ENERGY STAR	Per installation	New	132	4	\$27	100%	N/A	\$0.07	34
California	Small Office	Computers	Network PC Power Management	Network PC Power Management	No Power Management	per computer	New	82	5	\$11	95%	30%	\$0.04	39
California	Small Office	Cooling Dx Evap	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	Existing	0.24	15	\$0.67	35%	98%	\$0.36	46

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
California	Small Office	Cooling Dx Evap	DX Package 65 to 135 kBtu/hr - High Efficiency	DX Package 65 to 135 kBtu/hr - High Efficiency - 11.5 EER	DX Package 65 to 135 kBtu/hr - Standard Efficiency - 11.2 EER	Per installation	Existing	276	15	\$214	100%	N/A	\$0.10	1
California	Small Office	Cooling Dx Evap	DX Package 65 to 135 kBtu/hr - Premium Efficiency	DX Package 65 to 135 kBtu/hr - Premium Efficiency - 12.0 EER	DX Package 65 to 135 kBtu/hr - Standard Efficiency - 11.2 EER	Per installation	Existing	716	15	\$431	100%	N/A	\$0.08	70
California	Small Office	Cooling Dx Evap	DX Package-Air Side Economizer	Air-Side Economizer	No Economizer	per DX ton	Existing	119	10	\$173	10%	20%	\$0.24	4
California	Small Office	Cooling Dx Evap	DX Tune-Up / Diagnostics	DX Tune-Up / Diagnostics	No DX Tune-Up / Diagnostics	per installation	Existing	596	4	\$387	95%	72%	\$0.25	111
California	Small Office	Cooling Dx Evap	Direct / Indirect Evaporative Cooling, Pre-Cooling	Evaporative Cooler	Standard DX cooling	per building CFM	Existing	0.61	15	\$2	50%	94%	\$0.46	172
California	Small Office	Cooling Dx Evap	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	Existing	0.06	18	\$0.25	45%	65%	\$0.49	9
California	Small Office	Cooling Dx Evap	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	Existing	0.24	40	\$10	4%	98%	\$3.91	0.43
California	Small Office	Cooling Dx Evap	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	1	13	\$0.36	40%	39%	\$0.04	14
California	Small Office	Cooling Dx Evap	Insulation - Ceiling	R-25 (CA State Code)	R-11 (Average Existing Conditions)	per roof sqft	Existing	0.00	25	\$0.70	75%	65%	\$25.31	0.71
California	Small Office	Cooling Dx Evap	Insulation - Duct	R-8 (CA State Code)	No Insulation	per surface area of duct insul	Existing	1	20	\$2	75%	62%	\$0.21	37
California	Small Office	Cooling Dx Evap	Insulation - Floor (non-slab)	R-30	R-25 (CA State Code)	per floor area	Existing	0.00	25	\$0.11	35%	90%	\$2.13	0.88
California	Small Office	Cooling Dx Evap	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	Existing	14	30	\$6	50%	95%	\$0.04	146
California	Small Office	Cooling Dx Evap	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	Existing	188	10	\$142	95%	29%	\$0.13	15
California	Small Office	Cooling Dx Evap	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	0.30	7	\$0.21	90%	85%	\$0.15	176
California	Small Office	Cooling Dx Evap	Window Film	Window Film	No Film	per 100 sqft of window glazing	Existing	1	10	\$159	90%	68%	\$13.40	0.59
California	Small Office	Cooling Dx Evap	Windows-High Efficiency	U-0.47 (CA State Code)	U-0.6 (Average Existing Conditions)	per window sqft	Existing	4	25	\$38	15%	75%	\$0.93	23
California	Small Office	Cooling Dx Evap	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	New	0.15	15	\$0.67	35%	98%	\$0.57	7
California	Small Office	Cooling Dx Evap	DX Package 65 to 135 kBtu/hr - High Efficiency	DX Package 65 to 135 kBtu/hr - High Efficiency - 11.5 EER	DX Package 65 to 135 kBtu/hr - Standard Efficiency - 11.2 EER	Per installation	New	183	15	\$171	100%	N/A	\$0.12	0.15
California	Small Office	Cooling Dx Evap	DX Package 65 to 135 kBtu/hr - Premium Efficiency	DX Package 65 to 135 kBtu/hr - Premium Efficiency - 12.0 EER	DX Package 65 to 135 kBtu/hr - Standard Efficiency - 11.2 EER	Per installation	New	466	15	\$345	100%	N/A	\$0.10	9
California	Small Office	Cooling Dx Evap	Direct / Indirect Evaporative Cooling, Pre-Cooling	Evaporative Cooler	Standard DX cooling	per building CFM	New	0.38	15	\$2	50%	94%	\$0.73	26
California	Small Office	Cooling Dx Evap	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	New	0.03	18	\$0.25	45%	65%	\$0.79	1
California	Small Office	Cooling Dx Evap	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	New	0.15	40	\$10	4%	98%	\$6.26	0.06
California	Small Office	Cooling Dx Evap	Insulation - Floor (non-slab)	R-30	R-25 (CA State Code)	per floor area	New	0.00	25	\$0.11	35%	90%	\$3.41	0.13
California	Small Office	Cooling Dx Evap	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	New	9	30	\$6	50%	95%	\$0.06	18
California	Small Office	Cooling Dx Evap	Natural Ventilation	Natural Ventilation Design Reduction in Cooling	None - Standard Ventilation	per building sqft	New	0.15	15	\$1	20%	75%	\$0.88	2

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
California	Small Office	Cooling Dx Evap	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	New	117	10	\$142	95%	15%	\$0.20	0.97
California	Small Office	Cooling Room	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	Existing	0.33	15	\$0.67	35%	98%	\$0.26	29
California	Small Office	Cooling Room	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	Existing	0.33	40	\$10	4%	98%	\$2.89	0.31
California	Small Office	Cooling Room	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	1	13	\$0.36	40%	39%	\$0.03	7
California	Small Office	Cooling Room	Insulation - Ceiling	R-25 (CA State Code)	R-11 (Average Existing Conditions)	per roof sqft	Existing	0.00	25	\$0.70	75%	65%	\$18.69	0.51
California	Small Office	Cooling Room	Insulation - Floor (non-slab)	R-30	R-25 (CA State Code)	per floor area	Existing	0.00	25	\$0.11	35%	90%	\$1.57	0.63
California	Small Office	Cooling Room	PTAC (10,000 BTU/HR) - Premium-Efficiency	11.4 EER	Room AC (10,000 BTU/HR) Standard-Efficiency 9.8 EER	Per installation	Existing	1,456	15	\$11,054	75%	N/A	\$0.98	106
California	Small Office	Cooling Room	Room AC (10,000 BTU/HR) High-Efficiency	High Efficiency 10.8 EER (ENERGY STAR)	Room AC (10,000 BTU/HR) Standard-Efficiency 9.8 EER	Per installation	Existing	901	9	\$473	100%	N/A	\$0.09	18
California	Small Office	Cooling Room	Window Film	Window Film	No Film	per 100 sqft of window glazing	Existing	0.09	10	\$159	90%	68%	\$267.56	0.01
California	Small Office	Cooling Room	Windows-High Efficiency	U-0.47 (CA State Code)	U-0.6 (Average Existing Conditions)	per window sqft	Existing	5	25	\$38	15%	75%	\$0.68	17
California	Small Office	Cooling Room	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	New	0.21	15	\$0.67	35%	98%	\$0.41	3
California	Small Office	Cooling Room	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	New	0.21	40	\$10	4%	98%	\$4.44	0.03
California	Small Office	Cooling Room	Insulation - Floor (non-slab)	R-30	R-25 (CA State Code)	per floor area	New	0.00	25	\$0.11	35%	90%	\$2.42	0.08
California	Small Office	Cooling Room	Natural Ventilation	Natural Ventilation Design Reduction in Cooling	None - Standard Ventilation	per building sqft	New	0.21	15	\$1	20%	75%	\$0.62	1
California	Small Office	Cooling Room	PTAC (10,000 BTU/HR) - Premium-Efficiency	11.4 EER	Room AC (10,000 BTU/HR) Standard-Efficiency 9.8 EER	Per installation	New	961	15	\$7,715	75%	N/A	\$1.04	6
California	Small Office	Cooling Room	Room AC (10,000 BTU/HR) High-Efficiency	High Efficiency 10.8 EER (ENERGY STAR)	Room AC (10,000 BTU/HR) Standard-Efficiency 9.8 EER	Per installation	New	601	9	\$378	100%	N/A	\$0.11	1
California	Small Office	Heat Pump	Air Source Heat Pump 65 to 135 kBtu/hr - High Efficiency	11.5 EER, 3.4 COP	11.0 EER, 3.3 COP	Per installation	Existing	1,009	15	\$799	100%	N/A	\$0.10	6
California	Small Office	Heat Pump	Air Source Heat Pump 65 to 135 kBtu/hr - Premium Efficiency	12.0 EER, 3.8 COP	11.0 EER, 3.3 COP	Per installation	Existing	2,009	15	\$1,598	100%	N/A	\$0.10	264
California	Small Office	Heat Pump	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	Existing	0.27	15	\$0.67	35%	98%	\$0.32	66
California	Small Office	Heat Pump	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	Existing	0.12	18	\$0.25	45%	65%	\$0.25	28
California	Small Office	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	Existing	0.31	14	\$1	5%	94%	\$0.73	11
California	Small Office	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	Existing	0.27	40	\$10	4%	98%	\$3.50	0.69
California	Small Office	Heat Pump	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	3	13	\$0.36	40%	39%	\$0.02	45
California	Small Office	Heat Pump	Insulation - Ceiling	R-25 (CA State Code)	R-11 (Average Existing Conditions)	per roof sqft	Existing	0.16	25	\$0.70	75%	65%	\$0.44	61
California	Small Office	Heat Pump	Insulation - Ceiling	R-30	R-25 (CA State Code)	per roof sqft	Existing	0.01	25	\$0.10	75%	85%	\$0.56	8
California	Small Office	Heat Pump	Insulation - Duct	R-8 (CA State Code)	No Insulation	per surface area of duct insul	Existing	2	20	\$2	75%	62%	\$0.11	87
California	Small Office	Heat Pump	Insulation - Floor (non-slab)	R-25 (CA State Code)	R-11 (Average Existing Conditions)	per floor area	Existing	0.13	25	\$0.85	35%	83%	\$0.65	29

Table C.2.2. Commercial Measure Details

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California	Small Office	Heat Pump	Insulation - Floor (non-slab)	R-30	R-25 (CA State Code)	per floor area	Existing	0.06	25	\$0.11	35%	90%	\$0.17	17
California	Small Office	Heat Pump	Insulation - Wall	R-16 (CA State Code)	R-3 (Average Existing Conditions)	per floor area	Existing	0.36	25	\$1	10%	74%	\$0.42	12
California	Small Office	Heat Pump	Insulation - Wall	R-21	R-16 (CA State Code)	per floor area	Existing	0.18	25	\$0.16	10%	85%	\$0.09	7
California	Small Office	Heat Pump	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	Existing	40	30	\$6	50%	95%	\$0.01	493
California	Small Office	Heat Pump	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	Existing	374	10	\$142	95%	29%	\$0.06	36
California	Small Office	Heat Pump	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	0.60	7	\$0.21	90%	85%	\$0.08	418
California	Small Office	Heat Pump	Window Film	Window Film	No Film	per 100 sqft of window glazing	Existing	1	10	\$159	90%	68%	\$13.34	0.86
California	Small Office	Heat Pump	Windows-High Efficiency	U-0.32	U-0.47 (CA State Code)	per window sqft	Existing	0.90	25	\$55	15%	90%	\$6.21	8
California	Small Office	Heat Pump	Windows-High Efficiency	U-0.47 (CA State Code)	U-0.6 (Average Existing Conditions)	per window sqft	Existing	3	25	\$38	15%	75%	\$1.17	26
California	Small Office	Heat Pump	Air Source Heat Pump 65 to 135 kBtu/hr - High Efficiency	11.5 EER, 3.4 COP	11.0 EER, 3.3 COP	Per installation	New	541	15	\$639	100%	N/A	\$0.15	0.68
California	Small Office	Heat Pump	Air Source Heat Pump 65 to 135 kBtu/hr - Premium Efficiency	12.0 EER, 3.8 COP	11.0 EER, 3.3 COP	Per installation	New	1,061	15	\$1,278	100%	N/A	\$0.16	38
California	Small Office	Heat Pump	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	New	0.17	15	\$0.67	35%	98%	\$0.50	9
California	Small Office	Heat Pump	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	New	0.06	18	\$0.25	45%	65%	\$0.46	3
California	Small Office	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	New	0.13	14	\$1	5%	94%	\$1.78	1
California	Small Office	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	New	0.17	40	\$10	4%	98%	\$5.49	0.09
California	Small Office	Heat Pump	Insulation - Ceiling	R-30	R-25 (CA State Code)	per roof sqft	New	0.00	25	\$0.10	75%	85%	\$1.88	0.59
California	Small Office	Heat Pump	Insulation - Floor (non-slab)	R-30	R-25 (CA State Code)	per floor area	New	0.02	25	\$0.11	35%	90%	\$0.53	1
California	Small Office	Heat Pump	Insulation - Wall	R-21	R-16 (CA State Code)	per floor area	New	0.05	25	\$0.16	95%	85%	\$0.32	4
California	Small Office	Heat Pump	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	New	21	30	\$6	50%	95%	\$0.03	51
California	Small Office	Heat Pump	Natural Ventilation	Natural Ventilation Design Reduction in Cooling	None - Standard Ventilation	per building sqft	New	0.26	15	\$1	20%	75%	\$0.51	6
California	Small Office	Heat Pump	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	New	201	10	\$142	95%	15%	\$0.12	1
California	Small Office	Heat Pump	Windows-High Efficiency	U-0.32	U-0.47 (CA State Code)	per window sqft	New	0.22	25	\$55	80%	90%	\$25.63	2
California	Small Office	Hvac Aux	Motor - CEE Premium-Efficiency Plus	CEE PE+ Motor for HVAC Applications	NEMA Efficiency Motors	per HP	Existing	23	15	\$6	95%	76%	\$0.03	67
California	Small Office	Hvac Aux	Motor Rewind	>15, <500 HP	No Rewind	per HP	Existing	5	8	\$4	65%	25%	\$0.18	2
California	Small Office	Hvac Aux	Motor - CEE Premium-Efficiency Plus	CEE PE+ Motor for HVAC Applications	NEMA Efficiency Motors	per HP	New	21	15	\$6	95%	76%	\$0.04	14
California	Small Office	Lighting Exterior	Covered Parking Lighting	Covered Parking Lighting	Normal Lighting	per building sqft	Existing	0.08	10	\$0.02	80%	95%	\$0.05	318
California	Small Office	Lighting Exterior	Daylighting Controls, Outdoors (Photocell)	Photocell	No Controls	per installation	Existing	32	8	\$27	75%	70%	\$0.16	60
California	Small Office	Lighting Exterior	Exterior Building Lighting	30% savings	Normal Lighting	per installation	Existing	225	15	\$326	62%	90%	\$0.19	522
California	Small Office	Lighting Exterior	Solid State LED White Lighting	Landscape, merchandise, signage, structure & task lighting (2.5 W)	50W 10hrs/day, 365 day/yr	per installation	Existing	3	14	\$34	75%	95%	\$1.31	9
California	Small Office	Lighting Exterior	Surface Parking Lighting	Surface Parking Lighting	Normal Lighting	per building sqft	Existing	0.04	19	\$0.06	62%	95%	\$0.17	133
California	Small Office	Lighting Exterior	Covered Parking Lighting	Covered Parking Lighting	Normal Lighting	per building sqft	New	0.08	10	\$0.02	80%	95%	\$0.05	60

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
California	Small Office	Lighting Exterior	Daylighting Controls, Outdoors (Photocell)	Photocell	No Controls	per installation	New	32	8	\$27	75%	70%	\$0.16	11
California	Small Office	Lighting Exterior	Exterior Building Lighting	30% savings	Normal Lighting	per installation	New	225	15	\$326	62%	90%	\$0.19	98
California	Small Office	Lighting Exterior	Solid State LED White Lighting	Landscape, merchandise, signage, structure & task lighting (2.5 W)	50W 10hrs/day, 365 day/yr	per installation	New	3	14	\$34	75%	95%	\$1.31	1
California	Small Office	Lighting Exterior	Surface Parking Lighting	Surface Parking Lighting	Normal Lighting	per building sqft	New	0.04	19	\$0.06	62%	95%	\$0.17	25
California	Small Office	Lighting Interior	Cold Cathode Lighting	Cold Cathode Lighting 5 watts	30 W Incandescent Bulb	per installation	Existing	117	5	\$12	15%	94%	\$0.03	29
California	Small Office	Lighting Interior	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	Existing	0.65	8	\$1	30%	78%	\$0.31	65
California	Small Office	Lighting Interior	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	Existing	0.48	8	\$0.77	30%	78%	\$0.31	48
California	Small Office	Lighting Interior	Exit Sign - LED	LED Exit Sign (2 Watts)	CFL Exit Sign (9 Watts)	per installation	Existing	89	16	\$15	95%	50%	\$0.02	145
California	Small Office	Lighting Interior	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign (2 Watts)	per installation	Existing	16	13	\$29	95%	98%	\$0.26	17
California	Small Office	Lighting Interior	Lighting Package, High Efficiency	15% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	Existing	0.45	13	\$0.15	90%	53%	\$0.05	800
California	Small Office	Lighting Interior	Lighting Package, High Efficiency	Code Required LPD And Control Strategies	Existing Lighting Design LPD	per building sqft	Existing	1	13	\$1	90%	73%	\$0.10	4,472
California	Small Office	Lighting Interior	Lighting Package, Premium Efficiency	25% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	Existing	0.76	13	\$0.37	75%	62%	\$0.07	322
California	Small Office	Lighting Interior	Lighting Package, Premium High Bay	35% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	Existing	0.04	13	\$0.03	70%	83%	\$0.10	109
California	Small Office	Lighting Interior	Occupancy Sensor Control, Fluorescent	Occupancy Sensor Control, Fluorescent	No Occupancy Sensor	per occupancy sensor	Existing	790	8	\$71	90%	55%	\$0.02	143
California	Small Office	Lighting Interior	Time Clock	Time Clock	No Controls	per 10,000 Watts	Existing	700	8	\$212	20%	88%	\$0.06	49
California	Small Office	Lighting Interior	Cold Cathode Lighting	Cold Cathode Lighting 5 watts	30 W Incandescent Bulb	per installation	New	72	5	\$12	15%	94%	\$0.05	3
California	Small Office	Lighting Interior	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	New	0.40	8	\$1	30%	78%	\$0.51	9
California	Small Office	Lighting Interior	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	New	0.30	8	\$0.77	30%	78%	\$0.51	6
California	Small Office	Lighting Interior	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign (2 Watts)	per installation	New	16	13	\$29	95%	98%	\$0.26	13
California	Small Office	Lighting Interior	Lighting Package, High Efficiency	15% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	New	0.45	15	\$0.00	90%	53%	\$0.00	150
California	Small Office	Lighting Interior	Lighting Package, Premium Efficiency	25% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	New	0.70	15	\$0.10	75%	62%	\$0.02	56
California	Small Office	Lighting Interior	Lighting Package, Premium High Bay	35% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	New	0.04	15	\$0.00	70%	83%	\$0.02	20
California	Small Office	Lighting Interior	Occupancy Sensor Control, Fluorescent	Occupancy Sensor Control, Fluorescent	No Occupancy Sensor	per occupancy sensor	New	487	8	\$71	90%	55%	\$0.03	20
California	Small Office	Lighting Interior	Time Clock	Time Clock	No Controls	per 10,000 Watts	New	700	8	\$212	20%	88%	\$0.06	6
California	Small Office	Other Office Equipment	ENERGY STAR - Copiers	ENERGY STAR Copiers	Standard Copier	per installation	Existing	68	6	\$156	95%	45%	\$0.56	48
California	Small Office	Other Office Equipment	ENERGY STAR - Fax	ENERGY STAR Fax	Standard Fax	per installation	Existing	72	6	\$1	95%	45%	\$0.00	52
California	Small Office	Other Office Equipment	ENERGY STAR - Monitors	ENERGY STAR Features Enabled	Non-ENERGY STAR Features	per installation	Existing	14	5	\$15	64%	15%	\$0.32	12
California	Small Office	Other Office Equipment	ENERGY STAR - Printers	ENERGY STAR Printers	Standard Printers	per installation	Existing	127	6	\$15	95%	40%	\$0.03	68
California	Small Office	Other Office Equipment	ENERGY STAR - Scanners	ENERGY STAR Scanners	Standard Scanner	per installation	Existing	66	6	\$1	95%	45%	\$0.00	47
California	Small Office	Other Office Equipment	ENERGY STAR - Copiers	ENERGY STAR Copiers	Standard Copier	per installation	New	68	6	\$156	95%	45%	\$0.56	9

Table C.2.2. Commercial Measure Details

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California	Small Office	Other Office Equipment	ENERGY STAR - Fax	ENERGY STAR Fax	Standard Fax	per installation	New	72	6	\$1	95%	45%	\$0.00	9
California	Small Office	Other Office Equipment	ENERGY STAR - Monitors	ENERGY STAR Features Enabled	Non-ENERGY STAR Features	per installation	New	14	5	\$15	64%	15%	\$0.32	2
California	Small Office	Other Office Equipment	ENERGY STAR - Printers	ENERGY STAR Printers	Standard Printers	per installation	New	127	6	\$15	95%	40%	\$0.03	12
California	Small Office	Other Office Equipment	ENERGY STAR - Scanners	ENERGY STAR Scanners	Standard Scanner	per installation	New	66	6	\$1	95%	45%	\$0.00	8
California	Small Office	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	per installation	Existing	6	7	\$1	20%	90%	\$0.05	0.69
California	Small Office	Other Plug Load	ENERGY STAR - Water Cooler	ENERGY STAR Water Cooler (Hot/Cold Water)	Non-ENERGY STAR Water Cooler	per installation	Existing	337	10	\$0.78	95%	75%	\$0.00	291
California	Small Office	Other Plug Load	Power Supply Transformer/Converter	80 Plus	85% efficient power supply (> 51W)	1 unit per 2,000 sqft	Existing	5	4	\$0.39	95%	86%	\$0.02	10
California	Small Office	Other Plug Load	Residential Refrigerator	ENERGY STAR	Federal Standard	per installation	Existing	74	12	\$119	19%	65%	\$0.24	17
California	Small Office	Other Plug Load	Residential Refrigerator/Freezer Recycling	Recycling Existing Refrigerator/Freezer	Existing Refrigerator/Freezer	per installation	Existing	884	4	\$548	25%	35%	\$0.21	33
California	Small Office	Other Plug Load	Server Virtualization	Server Virtualization	No Virtualization	number of virtualized servers	Existing	2,100	4	\$2,172	72%	85%	\$0.75	383
California	Small Office	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	1 unit per 500 sqft	Existing	93	5	\$19	60%	90%	\$0.06	483
California	Small Office	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	per installation	New	6	7	\$1	20%	90%	\$0.05	0.13
California	Small Office	Other Plug Load	ENERGY STAR - Water Cooler	ENERGY STAR Water Cooler (Hot/Cold Water)	Non-ENERGY STAR Water Cooler	per installation	New	337	10	\$0.78	95%	75%	\$0.00	54
California	Small Office	Other Plug Load	Power Supply Transformer/Converter	80 Plus	85% efficient power supply (> 51W)	1 unit per 2,000 sqft	New	5	4	\$0.39	95%	86%	\$0.02	2
California	Small Office	Other Plug Load	Residential Refrigerator	ENERGY STAR	Federal Standard	per installation	New	74	12	\$119	19%	65%	\$0.24	3
California	Small Office	Other Plug Load	Server Virtualization	Server Virtualization	No Virtualization	number of virtualized servers	New	2,100	4	\$2,172	72%	85%	\$0.75	72
California	Small Office	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	1 unit per 500 sqft	New	93	5	\$19	60%	90%	\$0.06	91
California	Small Office	Space Heat	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	Existing	0.09	18	\$0.25	45%	65%	\$0.32	20
California	Small Office	Space Heat	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	Existing	0.55	14	\$1	5%	94%	\$0.42	19
California	Small Office	Space Heat	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	3	13	\$0.36	40%	39%	\$0.01	70
California	Small Office	Space Heat	Insulation - Ceiling	R-25 (CA State Code)	R-11 (Average Existing Conditions)	per roof sqft	Existing	0.54	25	\$0.70	75%	65%	\$0.13	221
California	Small Office	Space Heat	Insulation - Ceiling	R-30	R-25 (CA State Code)	per roof sqft	Existing	0.09	25	\$0.10	75%	85%	\$0.11	49
California	Small Office	Space Heat	Insulation - Duct	R-8 (CA State Code)	No Insulation	per surface area of duct insul	Existing	2	20	\$2	75%	62%	\$0.14	63
California	Small Office	Space Heat	Insulation - Floor (non-slab)	R-25 (CA State Code)	R-11 (Average Existing Conditions)	per floor area	Existing	0.95	25	\$0.85	35%	83%	\$0.09	281
California	Small Office	Space Heat	Insulation - Floor (non-slab)	R-30	R-25 (CA State Code)	per floor area	Existing	0.26	25	\$0.11	35%	90%	\$0.04	90
California	Small Office	Space Heat	Insulation - Wall	R-16 (CA State Code)	R-3 (Average Existing Conditions)	per floor area	Existing	2	25	\$1	10%	74%	\$0.06	120
California	Small Office	Space Heat	Insulation - Wall	R-21	R-16 (CA State Code)	per floor area	Existing	0.86	25	\$0.16	10%	85%	\$0.02	48
California	Small Office	Space Heat	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	Existing	31	30	\$6	50%	95%	\$0.02	448
California	Small Office	Space Heat	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	Existing	285	10	\$142	95%	29%	\$0.08	31
California	Small Office	Space Heat	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	0.46	7	\$0.21	90%	85%	\$0.10	333
California	Small Office	Space Heat	Windows-High Efficiency	U-0.32	U-0.47 (CA State Code)	per window sqft	Existing	2	25	\$55	15%	90%	\$1.91	28

Table C.2.2. Commercial Measure Details

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California	Small Office	Space Heat	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	New	0.04	18	\$0.25	45%	65%	\$0.62	2
California	Small Office	Space Heat	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	New	0.29	14	\$1	5%	94%	\$0.79	2
California	Small Office	Space Heat	Insulation - Ceiling	R-30	R-25 (CA State Code)	per roof sqft	New	0.04	25	\$0.10	75%	85%	\$0.22	5
California	Small Office	Space Heat	Insulation - Floor (non-slab)	R-30	R-25 (CA State Code)	per floor area	New	0.13	25	\$0.11	35%	90%	\$0.08	8
California	Small Office	Space Heat	Insulation - Wall	R-21	R-16 (CA State Code)	per floor area	New	0.45	25	\$0.16	95%	85%	\$0.04	45
California	Small Office	Space Heat	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	New	16	30	\$6	50%	95%	\$0.04	45
California	Small Office	Space Heat	Natural Ventilation	Natural Ventilation Design Reduction in Cooling	None - Standard Ventilation	per building sqft	New	0.19	15	\$1	20%	75%	\$0.69	5
California	Small Office	Space Heat	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	New	149	10	\$142	95%	15%	\$0.16	1
California	Small Office	Space Heat	Windows-High Efficiency	U-0.32	U-0.47 (CA State Code)	per window sqft	New	1	25	\$55	80%	90%	\$3.65	18
California	Small Office	Water Heat	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	per building sqft	Existing	0.02	10	\$0.28	55%	80%	\$2.05	40
California	Small Office	Water Heat	Dishwasher Residential	ENERGY STAR <= 324 kWh/yr, <= 5.8 gal/cycle	Federal Standard <= 355 kWh/yr, <= 6.5 gal/cycle	per installation	Existing	28	11	\$29	95%	25%	\$0.10	10
California	Small Office	Water Heat	Electric Water Heater - High Efficiency	EF = 0.95	EF = 0.92	Per installation	Existing	39	15	\$63	100%	N/A	\$0.21	6
California	Small Office	Water Heat	Heat Pump Water Heater - Advanced-Efficiency	EF = 2.2	EF = 0.92	Per installation	Existing	730	15	\$1,295	75%	N/A	\$0.23	489
California	Small Office	Water Heat	Hot Water (SHW) Pipe Insulation	1.0" of Insulation, assuming R-4 (CA State Code)	No Insulation	per linear foot	Existing	1	12	\$3	80%	30%	\$0.34	4
California	Small Office	Water Heat	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	per installation	Existing	19	9	\$0.12	95%	25%	-\$0.08	14
California	Small Office	Water Heat	Low-Flow Faucet Aerators	2.2 GPM (Federal Code)	3.0 GPM	per installation	Existing	16	9	\$2	95%	25%	-\$0.06	12
California	Small Office	Water Heat	Water Heater Temperature Setback	Water Heater Temperature Setback (120 F)	No Change in Water Temperature	per installation	Existing	92	5	\$109	75%	40%	\$0.34	43
California	Small Office	Water Heat	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	per building sqft	New	0.02	10	\$0.28	55%	80%	\$2.12	7
California	Small Office	Water Heat	Dishwasher Residential	ENERGY STAR <= 324 kWh/yr, <= 5.8 gal/cycle	Federal Standard <= 355 kWh/yr, <= 6.5 gal/cycle	per installation	New	28	11	\$29	95%	55%	\$0.10	4
California	Small Office	Water Heat	Electric Water Heater - High Efficiency	EF = 0.95	EF = 0.92	Per installation	New	39	15	\$63	100%	N/A	\$0.21	1
California	Small Office	Water Heat	Heat Pump Water Heater - Advanced-Efficiency	EF = 2.2	EF = 0.92	Per installation	New	730	15	\$1,068	75%	N/A	\$0.19	81
California	Small Office	Water Heat	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	per installation	New	18	9	\$0.12	95%	25%	-\$0.08	2
California	Small Office	Water Heat	Water Heater Temperature Setback	Water Heater Temperature Setback (120 F)	No Change in Water Temperature	per installation	New	89	5	\$109	75%	40%	\$0.35	8
California	Small Retail	Computers	Computer ENERGY STAR	Computer ENERGY STAR	Computer standard non-ENERGY STAR	Per installation	Existing	146	4	\$30	100%	N/A	\$0.07	506
California	Small Retail	Computers	Computer ENERGY STAR	Computer ENERGY STAR	Computer standard non-ENERGY STAR	Per installation	New	146	4	\$30	100%	N/A	\$0.07	16
California	Small Retail	Cooling Dx Evap	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	Existing	0.30	15	\$0.74	80%	98%	\$0.32	299
California	Small Retail	Cooling Dx Evap	DX Package 65 to 135 kBtu/hr - High Efficiency	DX Package 65 to 135 kBtu/hr - High Efficiency - 11.5 EER	DX Package 65 to 135 kBtu/hr - Standard Efficiency - 11.2 EER	Per installation	Existing	353	15	\$418	100%	N/A	\$0.15	3
California	Small Retail	Cooling Dx Evap	DX Package 65 to 135 kBtu/hr - Premium Efficiency	DX Package 65 to 135 kBtu/hr - Premium Efficiency - 12.0 EER	DX Package 65 to 135 kBtu/hr - Standard Efficiency - 11.2 EER	Per installation	Existing	949	15	\$842	100%	N/A	\$0.11	179
California	Small Retail	Cooling Dx Evap	DX Package-Air Side Economizer	Air-Side Economizer	No Economizer	per DX ton	Existing	90	10	\$191	10%	80%	\$0.35	47

Table C.2.2. Commercial Measure Details

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California	Small Retail	Cooling Dx Evap	DX Tune-Up / Diagnostics	DX Tune-Up / Diagnostics	No DX Tune-Up / Diagnostics	per installation	Existing	454	4	\$426	95%	72%	\$0.36	267
California	Small Retail	Cooling Dx Evap	Direct / Indirect Evaporative Cooling, Pre-Cooling	Evaporative Cooler	Standard DX cooling	per building CFM	Existing	0.75	15	\$2	50%	94%	\$0.41	427
California	Small Retail	Cooling Dx Evap	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	Existing	0.07	18	\$0.28	45%	65%	\$0.44	23
California	Small Retail	Cooling Dx Evap	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	Existing	0.30	40	\$11	4%	98%	\$3.48	1
California	Small Retail	Cooling Dx Evap	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	1	13	\$0.40	10%	39%	\$0.03	9
California	Small Retail	Cooling Dx Evap	Insulation - Ceiling	R-25 (CA State Code)	R-7 (Average Existing Conditions)	per roof sqft	Existing	0.00	25	\$0.77	75%	62%	\$22.53	1
California	Small Retail	Cooling Dx Evap	Insulation - Duct	R-8 (CA State Code)	No Insulation	per surface area of duct insul	Existing	1	20	\$3	75%	62%	\$0.19	96
California	Small Retail	Cooling Dx Evap	Insulation - Floor (non-slab)	R-30	R-25 (CA State Code)	per floor area	Existing	0.00	25	\$0.12	35%	90%	\$1.89	2
California	Small Retail	Cooling Dx Evap	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	Existing	18	30	\$6	50%	95%	\$0.04	379
California	Small Retail	Cooling Dx Evap	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	Existing	254	10	\$156	95%	32%	\$0.10	43
California	Small Retail	Cooling Dx Evap	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	0.37	7	\$0.23	90%	85%	\$0.13	460
California	Small Retail	Cooling Dx Evap	Window Film	Window Film	No Film	per 100 sqft of window glazing	Existing	2	10	\$175	90%	68%	\$11.48	1
California	Small Retail	Cooling Dx Evap	Windows-High Efficiency	U-0.47 (CA State Code)	U-0.68 (Average Existing Conditions)	per window sqft	Existing	5	25	\$41	15%	72%	\$0.74	53
California	Small Retail	Cooling Dx Evap	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	New	0.19	15	\$0.74	80%	98%	\$0.50	43
California	Small Retail	Cooling Dx Evap	DX Package 65 to 135 kBtu/hr - High Efficiency	DX Package 65 to 135 kBtu/hr - High Efficiency - 11.5 EER	DX Package 65 to 135 kBtu/hr - Standard Efficiency - 11.2 EER	Per installation	New	244	15	\$335	100%	N/A	\$0.18	0.41
California	Small Retail	Cooling Dx Evap	DX Package 65 to 135 kBtu/hr - Premium Efficiency	DX Package 65 to 135 kBtu/hr - Premium Efficiency - 12.0 EER	DX Package 65 to 135 kBtu/hr - Standard Efficiency - 11.2 EER	Per installation	New	658	15	\$674	100%	N/A	\$0.13	26
California	Small Retail	Cooling Dx Evap	Direct / Indirect Evaporative Cooling, Pre-Cooling	Evaporative Cooler	Standard DX cooling	per building CFM	New	0.48	15	\$2	50%	94%	\$0.63	67
California	Small Retail	Cooling Dx Evap	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	New	0.04	18	\$0.28	45%	65%	\$0.68	3
California	Small Retail	Cooling Dx Evap	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	New	0.19	40	\$11	4%	98%	\$5.41	0.16
California	Small Retail	Cooling Dx Evap	Insulation - Floor (non-slab)	R-30	R-25 (CA State Code)	per floor area	New	0.00	25	\$0.12	35%	90%	\$2.94	0.34
California	Small Retail	Cooling Dx Evap	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	New	11	30	\$6	50%	95%	\$0.06	48
California	Small Retail	Cooling Dx Evap	Natural Ventilation	Natural Ventilation Design Reduction in Cooling	None - Standard Ventilation	per building sqft	New	0.19	15	\$1	20%	75%	\$0.76	7
California	Small Retail	Cooling Dx Evap	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	New	163	10	\$156	95%	16%	\$0.16	2
California	Small Retail	Cooling Room	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	Existing	0.40	15	\$0.74	80%	98%	\$0.24	1
California	Small Retail	Cooling Room	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	Existing	0.40	40	\$11	4%	98%	\$2.62	0.00

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
California	Small Retail	Cooling Room	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	2	13	\$0.40	10%	39%	\$0.02	0.04
California	Small Retail	Cooling Room	Insulation - Ceiling	R-25 (CA State Code)	R-7 (Average Existing Conditions)	per roof sqft	Existing	0.00	25	\$0.77	75%	62%	\$16.99	0.01
California	Small Retail	Cooling Room	Insulation - Floor (non-slab)	R-30	R-25 (CA State Code)	per floor area	Existing	0.00	25	\$0.12	35%	90%	\$1.43	0.01
California	Small Retail	Cooling Room	PTAC (10,000 BTU/HR) - Premium-Efficiency	11.4 EER	Room AC (10,000 BTU/HR) Standard-Efficiency 9.8 EER	Per installation	Existing	1,925	15	\$21,556	75%	N/A	\$1.45	2
California	Small Retail	Cooling Room	Room AC (10,000 BTU/HR) High-Efficiency	High Efficiency 10.8 EER (ENERGY STAR)	Room AC (10,000 BTU/HR) Standard-Efficiency 9.8 EER	Per installation	Existing	1,177	9	\$922	100%	N/A	\$0.14	0.45
California	Small Retail	Cooling Room	Window Film	Window Film	No Film	per 100 sqft of window glazing	Existing	0.12	10	\$175	90%	68%	\$229.14	0.00
California	Small Retail	Cooling Room	Windows-High Efficiency	U-0.47 (CA State Code)	U-0.68 (Average Existing Conditions)	per window sqft	Existing	7	25	\$41	15%	72%	\$0.56	0.38
California	Small Retail	Cooling Room	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	New	0.26	15	\$0.74	80%	98%	\$0.36	0.22
California	Small Retail	Cooling Room	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	New	0.26	40	\$11	4%	98%	\$3.91	0.00
California	Small Retail	Cooling Room	Insulation - Floor (non-slab)	R-30	R-25 (CA State Code)	per floor area	New	0.00	25	\$0.12	35%	90%	\$2.13	0.00
California	Small Retail	Cooling Room	Natural Ventilation	Natural Ventilation Design Reduction in Cooling	None - Standard Ventilation	per building sqft	New	0.26	15	\$1	20%	75%	\$0.55	0.04
California	Small Retail	Cooling Room	PTAC (10,000 BTU/HR) - Premium-Efficiency	11.4 EER	Room AC (10,000 BTU/HR) Standard-Efficiency 9.8 EER	Per installation	New	1,333	15	\$15,044	75%	N/A	\$1.46	0.15
California	Small Retail	Cooling Room	Room AC (10,000 BTU/HR) High-Efficiency	High Efficiency 10.8 EER (ENERGY STAR)	Room AC (10,000 BTU/HR) Standard-Efficiency 9.8 EER	Per installation	New	814	9	\$738	100%	N/A	\$0.16	0.03
California	Small Retail	Heat Pump	Air Source Heat Pump 65 to 135 kBTU/hr - High Efficiency	11.5 EER, 3.4 COP	11.0 EER, 3.3 COP	Per installation	Existing	1,308	15	\$1,558	100%	N/A	\$0.15	5
California	Small Retail	Heat Pump	Air Source Heat Pump 65 to 135 kBTU/hr - Premium Efficiency	12.0 EER, 3.8 COP	11.0 EER, 3.3 COP	Per installation	Existing	2,323	15	\$3,116	100%	N/A	\$0.17	123
California	Small Retail	Heat Pump	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	Existing	0.35	15	\$0.74	80%	98%	\$0.27	59
California	Small Retail	Heat Pump	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	Existing	0.13	18	\$0.28	45%	65%	\$0.25	9
California	Small Retail	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	Existing	0.25	14	\$1	5%	94%	\$0.98	2
California	Small Retail	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	Existing	0.35	40	\$11	4%	98%	\$2.94	0.26
California	Small Retail	Heat Pump	Ground Source Heat Pump Replacing Air Source Heat Pump 65 to 135 kBTU/hr - Advanced Efficiency	16.2 EER 4.0 COP	11.0 EER, 3.3 COP	Per installation	Existing	4,917	30	\$642	5%	N/A	\$1.93	12
California	Small Retail	Heat Pump	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	3	13	\$0.40	10%	39%	\$0.02	2
California	Small Retail	Heat Pump	Insulation - Ceiling	R-25 (CA State Code)	R-7 (Average Existing Conditions)	per roof sqft	Existing	0.12	25	\$0.77	75%	62%	\$0.65	12
California	Small Retail	Heat Pump	Insulation - Ceiling	R-30	R-25 (CA State Code)	per roof sqft	Existing	0.01	25	\$0.11	75%	85%	\$1.07	1
California	Small Retail	Heat Pump	Insulation - Duct	R-8 (CA State Code)	No Insulation	per surface area of duct insul	Existing	3	20	\$3	75%	62%	\$0.11	28
California	Small Retail	Heat Pump	Insulation - Floor (non-slab)	R-25 (CA State Code)	R-11 (Average Existing Conditions)	per floor area	Existing	0.06	25	\$0.93	35%	83%	\$1.47	4
California	Small Retail	Heat Pump	Insulation - Floor (non-slab)	R-30	R-25 (CA State Code)	per floor area	Existing	0.04	25	\$0.12	35%	90%	\$0.30	3
California	Small Retail	Heat Pump	Insulation - Wall	R-16 (CA State Code)	R-3 (Average Existing Conditions)	per floor area	Existing	0.22	25	\$1	10%	74%	\$0.76	1
California	Small Retail	Heat Pump	insulation - Wall	R-21	R-16 (CA State Code)	per floor area	Existing	0.11	25	\$0.18	10%	85%	\$0.16	1

Table C.2.2. Commercial Measure Details

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California	Small Retail	Heat Pump	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	Existing	44	30	\$6	50%	95%	\$0.01	159
California	Small Retail	Heat Pump	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	Existing	446	10	\$156	95%	32%	\$0.06	12
California	Small Retail	Heat Pump	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	0.66	7	\$0.23	90%	85%	\$0.08	136
California	Small Retail	Heat Pump	Window Film	Window Film	No Film	per 100 sqft of window glazing	Existing	2	10	\$175	90%	68%	\$11.45	0.28
California	Small Retail	Heat Pump	Windows-High Efficiency	U-0.32	U-0.47 (CA State Code)	per window sqft	Existing	0.46	25	\$60	15%	90%	\$13.23	1
California	Small Retail	Heat Pump	Windows-High Efficiency	U-0.47 (CA State Code)	U-0.68 (Average Existing Conditions)	per window sqft	Existing	6	25	\$41	15%	72%	\$0.68	12
California	Small Retail	Heat Pump	Air Source Heat Pump 65 to 135 kBtu/hr - High Efficiency	11.5 EER, 3.4 COP	11.0 EER, 3.3 COP	Per installation	New	898	15	\$1,246	100%	N/A	\$0.18	0.65
California	Small Retail	Heat Pump	Air Source Heat Pump 65 to 135 kBtu/hr - Premium Efficiency	12.0 EER, 3.8 COP	11.0 EER, 3.3 COP	Per installation	New	1,552	15	\$2,493	100%	N/A	\$0.21	16
California	Small Retail	Heat Pump	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	New	0.23	15	\$0.74	80%	98%	\$0.41	8
California	Small Retail	Heat Pump	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	New	0.08	18	\$0.28	45%	65%	\$0.40	1
California	Small Retail	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	New	0.14	14	\$1	5%	94%	\$1.74	0.33
California	Small Retail	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	New	0.23	40	\$11	4%	98%	\$4.47	0.03
California	Small Retail	Heat Pump	Ground Source Heat Pump Replacing Air Source Heat Pump 65 to 135 kBtu/hr - Advanced Efficiency	16.2 EER 4.0 COP	11.0 EER, 3.3 COP	Per installation	New	3,324	30	\$51,466	5%	N/A	\$1.44	1
California	Small Retail	Heat Pump	Insulation - Ceiling	R-30	R-25 (CA State Code)	per roof sqft	New	0.00	25	\$0.11	75%	85%	\$2.15	0.16
California	Small Retail	Heat Pump	Insulation - Floor (non-slab)	R-30	R-25 (CA State Code)	per floor area	New	0.02	25	\$0.12	35%	90%	\$0.58	0.33
California	Small Retail	Heat Pump	Insulation - Wall	R-21	R-16 (CA State Code)	per floor area	New	0.05	25	\$0.18	95%	85%	\$0.33	1
California	Small Retail	Heat Pump	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	New	27	30	\$6	50%	95%	\$0.02	19
California	Small Retail	Heat Pump	Natural Ventilation	Natural Ventilation Design Reduction in Cooling	None - Standard Ventilation	per building sqft	New	0.33	15	\$1	20%	75%	\$0.44	2
California	Small Retail	Heat Pump	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	New	279	10	\$156	95%	16%	\$0.09	0.79
California	Small Retail	Heat Pump	Windows-High Efficiency	U-0.32	U-0.47 (CA State Code)	per window sqft	New	0.17	25	\$60	80%	90%	\$35.90	0.49
California	Small Retail	Hvac Aux	Motor - CEE Premium-Efficiency Plus	CEE PE+ Motor for HVAC Applications	NEMA Efficiency Motors	per HP	Existing	35	15	\$6	95%	76%	\$0.03	128
California	Small Retail	Hvac Aux	Motor Rewind	>15, <500 HP	No Rewind	per HP	Existing	4	8	\$5	65%	25%	\$0.22	4
California	Small Retail	Hvac Aux	Motor - CEE Premium-Efficiency Plus	CEE PE+ Motor for HVAC Applications	NEMA Efficiency Motors	per HP	New	28	15	\$6	95%	76%	\$0.03	24
California	Small Retail	Lighting Exterior	Covered Parking Lighting	Covered Parking Lighting	Normal Lighting	per building sqft	Existing	0.09	10	\$0.02	80%	95%	\$0.05	439
California	Small Retail	Lighting Exterior	Daylighting Controls, Outdoors (Photocell)	Photocell	No Controls	per installation	Existing	32	8	\$30	75%	70%	\$0.18	70
California	Small Retail	Lighting Exterior	Exterior Building Lighting	30% savings	Normal Lighting	per installation	Existing	248	15	\$359	62%	90%	\$0.19	617
California	Small Retail	Lighting Exterior	Solid State LED White Lighting	Landscape, merchandise, signage, structure & task lighting (2.5 W)	50W 10hrs/day, 365 day/yr	per installation	Existing	3	14	\$38	75%	95%	\$1.46	11
California	Small Retail	Lighting Exterior	Surface Parking Lighting	Surface Parking Lighting	Normal Lighting	per building sqft	Existing	0.05	19	\$0.07	62%	95%	\$0.17	184
California	Small Retail	Lighting Exterior	Covered Parking Lighting	Covered Parking Lighting	Normal Lighting	per building sqft	New	0.09	10	\$0.02	80%	95%	\$0.05	82
California	Small Retail	Lighting Exterior	Daylighting Controls, Outdoors (Photocell)	Photocell	No Controls	per installation	New	32	8	\$30	75%	70%	\$0.18	13

Table C.2.2. Commercial Measure Details

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California	Small Retail	Lighting Exterior	Exterior Building Lighting	30% savings	Normal Lighting	per installation	New	248	15	\$359	62%	90%	\$0.19	116
California	Small Retail	Lighting Exterior	Solid State LED White Lighting	Landscape, merchandise, signage, structure & task lighting (2.5 W)	50W 10hrs/day, 365 day/yr	per installation	New	3	14	\$38	75%	95%	\$1.46	2
California	Small Retail	Lighting Exterior	Surface Parking Lighting	Surface Parking Lighting	Normal Lighting	per building sqft	New	0.05	19	\$0.07	62%	95%	\$0.17	34
California	Small Retail	Lighting Interior	Cold Cathode Lighting	Cold Cathode Lighting 5 watts	30 W Incandescent Bulb	per installation	Existing	588	5	\$13	15%	94%	\$0.01	165
California	Small Retail	Lighting Interior	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	Existing	0.35	8	\$1	30%	84%	\$0.62	52
California	Small Retail	Lighting Interior	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	Existing	0.26	8	\$0.85	30%	84%	\$0.62	39
California	Small Retail	Lighting Interior	Exit Sign - LED	LED Exit Sign (2 Watts)	CFL Exit Sign (9 Watts)	per installation	Existing	98	16	\$17	95%	50%	\$0.02	197
California	Small Retail	Lighting Interior	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign (2 Watts)	per installation	Existing	17	13	\$32	95%	98%	\$0.26	23
California	Small Retail	Lighting Interior	Lighting Package, High Efficiency	15% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	Existing	0.75	13	\$0.09	90%	53%	\$0.02	1,625
California	Small Retail	Lighting Interior	Lighting Package, High Efficiency	Code Required LPD And Control Strategies	Existing Lighting Design LPD	per building sqft	Existing	1	13	\$0.95	90%	39%	\$0.07	3,717
California	Small Retail	Lighting Interior	Lighting Package, Premium Efficiency	25% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	Existing	1	13	\$0.55	75%	62%	\$0.06	653
California	Small Retail	Lighting Interior	Lighting Package, Premium High Bay	35% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	Existing	0.28	13	\$0.18	70%	83%	\$0.09	929
California	Small Retail	Lighting Interior	Occupancy Sensor Control, Fluorescent	Occupancy Sensor Control, Fluorescent	No Occupancy Sensor	per occupancy sensor	Existing	1,210	8	\$78	45%	54%	\$0.01	130
California	Small Retail	Lighting Interior	Time Clock	Time Clock	No Controls	per 10,000 Watts	Existing	770	8	\$234	20%	86%	\$0.06	90
California	Small Retail	Lighting Interior	Cold Cathode Lighting	Cold Cathode Lighting 5 watts	30 W Incandescent Bulb	per installation	New	450	5	\$13	15%	94%	\$0.01	23
California	Small Retail	Lighting Interior	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	New	0.27	8	\$1	30%	84%	\$0.81	8
California	Small Retail	Lighting Interior	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	New	0.20	8	\$0.85	30%	84%	\$0.81	6
California	Small Retail	Lighting Interior	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign (2 Watts)	per installation	New	17	13	\$32	95%	98%	\$0.26	17
California	Small Retail	Lighting Interior	Lighting Package, High Efficiency	15% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	New	0.75	15	\$0.03	90%	53%	\$0.01	306
California	Small Retail	Lighting Interior	Lighting Package, Premium Efficiency	25% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	New	1	15	\$0.24	75%	62%	\$0.03	123
California	Small Retail	Lighting Interior	Lighting Package, Premium High Bay	35% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	New	0.28	15	\$0.04	70%	83%	\$0.02	175
California	Small Retail	Lighting Interior	Occupancy Sensor Control, Fluorescent	Occupancy Sensor Control, Fluorescent	No Occupancy Sensor	per occupancy sensor	New	926	8	\$78	45%	54%	\$0.02	20
California	Small Retail	Lighting Interior	Time Clock	Time Clock	No Controls	per 10,000 Watts	New	770	8	\$234	20%	86%	\$0.06	14
California	Small Retail	Other Office Equipment	ENERGY STAR - Copiers	ENERGY STAR Copiers	Standard Copier	per installation	Existing	74	6	\$172	95%	45%	\$0.56	13
California	Small Retail	Other Office Equipment	ENERGY STAR - Fax	ENERGY STAR Fax	Standard Fax	per installation	Existing	80	6	\$1	95%	45%	\$0.00	14
California	Small Retail	Other Office Equipment	ENERGY STAR - Monitors	ENERGY STAR Features Enabled	Non-ENERGY STAR Features	per installation	Existing	15	5	\$17	64%	15%	\$0.32	5
California	Small Retail	Other Office Equipment	ENERGY STAR - Printers	ENERGY STAR Printers	Standard Printers	per installation	Existing	140	6	\$16	95%	40%	\$0.03	86
California	Small Retail	Other Office Equipment	ENERGY STAR - Scanners	ENERGY STAR Scanners	Standard Scanner	per installation	Existing	72	6	\$1	95%	45%	\$0.01	13
California	Small Retail	Other Office Equipment	ENERGY STAR - Copiers	ENERGY STAR Copiers	Standard Copier	per installation	New	74	6	\$172	95%	45%	\$0.56	2
California	Small Retail	Other Office Equipment	ENERGY STAR - Fax	ENERGY STAR Fax	Standard Fax	per installation	New	80	6	\$1	95%	45%	\$0.00	2

Table C.2.2. Commercial Measure Details

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California	Small Retail	Other Office Equipment	ENERGY STAR - Monitors	ENERGY STAR Features Enabled	Non-ENERGY STAR Features	per installation	New	15	5	\$17	64%	15%	\$0.32	0.99
California	Small Retail	Other Office Equipment	ENERGY STAR - Printers	ENERGY STAR Printers	Standard Printers	per installation	New	140	6	\$16	95%	40%	\$0.03	16
California	Small Retail	Other Office Equipment	ENERGY STAR - Scanners	ENERGY STAR Scanners	Standard Scanner	per installation	New	72	6	\$1	95%	45%	\$0.01	2
California	Small Retail	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	per installation	Existing	7	7	\$2	20%	90%	\$0.07	0.77
California	Small Retail	Other Plug Load	ENERGY STAR - Water Cooler	ENERGY STAR Water Cooler (Hot/Cold Water)	Non-ENERGY STAR Water Cooler	per installation	Existing	370	10	\$0.00	95%	75%	\$0.00	85
California	Small Retail	Other Plug Load	Power Supply Transformer/Converter	80 Plus	85% efficient power supply (> 51W)	1 unit per 2,000 sqft	Existing	4	4	\$0.43	95%	86%	\$0.03	12
California	Small Retail	Other Plug Load	Residential Refrigerator	ENERGY STAR	Federal Standard	per installation	Existing	82	12	\$131	3%	65%	\$0.24	3
California	Small Retail	Other Plug Load	Residential Refrigerator/Freezer Recycling	Recycling Existing Refrigerator/Freezer	Existing Refrigerator/Freezer	per installation	Existing	973	4	\$604	25%	35%	\$0.21	43
California	Small Retail	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	1 unit per 5,000 sqft	Existing	102	5	\$21	60%	90%	\$0.06	66
California	Small Retail	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	per installation	New	7	7	\$2	20%	90%	\$0.07	0.14
California	Small Retail	Other Plug Load	ENERGY STAR - Water Cooler	ENERGY STAR Water Cooler (Hot/Cold Water)	Non-ENERGY STAR Water Cooler	per installation	New	370	10	\$0.00	95%	75%	\$0.00	16
California	Small Retail	Other Plug Load	Power Supply Transformer/Converter	80 Plus	85% efficient power supply (> 51W)	1 unit per 2,000 sqft	New	4	4	\$0.43	95%	86%	\$0.03	2
California	Small Retail	Other Plug Load	Residential Refrigerator	ENERGY STAR	Federal Standard	per installation	New	82	12	\$131	3%	65%	\$0.24	0.58
California	Small Retail	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	1 unit per 5,000 sqft	New	102	5	\$21	60%	90%	\$0.06	12
California	Small Retail	Space Heat	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	Existing	0.05	18	\$0.28	45%	65%	\$0.56	8
California	Small Retail	Space Heat	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	Existing	0.35	14	\$1	5%	94%	\$0.71	7
California	Small Retail	Space Heat	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	2	13	\$0.40	10%	39%	\$0.02	6
California	Small Retail	Space Heat	Insulation - Ceiling	R-25 (CA State Code)	R-7 (Average Existing Conditions)	per roof sqft	Existing	0.51	25	\$0.77	75%	62%	\$0.15	153
California	Small Retail	Space Heat	Insulation - Ceiling	R-30	R-25 (CA State Code)	per roof sqft	Existing	0.05	25	\$0.11	75%	85%	\$0.20	18
California	Small Retail	Space Heat	Insulation - Duct	R-8 (CA State Code)	No Insulation	per surface area of duct insul	Existing	1	20	\$3	75%	62%	\$0.24	25
California	Small Retail	Space Heat	Insulation - Floor (non-slab)	R-25 (CA State Code)	R-11 (Average Existing Conditions)	per floor area	Existing	0.61	25	\$0.93	35%	83%	\$0.16	103
California	Small Retail	Space Heat	Insulation - Floor (non-slab)	R-30	R-25 (CA State Code)	per floor area	Existing	0.17	25	\$0.12	35%	90%	\$0.07	36
California	Small Retail	Space Heat	Insulation - Wall	R-16 (CA State Code)	R-3 (Average Existing Conditions)	per floor area	Existing	1	25	\$1	10%	74%	\$0.09	49
California	Small Retail	Space Heat	Insulation - Wall	R-21	R-16 (CA State Code)	per floor area	Existing	0.62	25	\$0.18	10%	85%	\$0.03	21
California	Small Retail	Space Heat	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	Existing	20	30	\$6	50%	95%	\$0.03	181
California	Small Retail	Space Heat	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	Existing	200	10	\$156	95%	32%	\$0.13	13
California	Small Retail	Space Heat	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	0.29	7	\$0.23	90%	85%	\$0.17	122
California	Small Retail	Space Heat	Windows-High Efficiency	U-0.32	U-0.47 (CA State Code)	per window sqft	Existing	2	25	\$60	15%	90%	\$2.82	11
California	Small Retail	Space Heat	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	New	0.03	18	\$0.28	45%	65%	\$1.06	1
California	Small Retail	Space Heat	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	New	0.18	14	\$1	5%	94%	\$1.37	0.95
California	Small Retail	Space Heat	Insulation - Ceiling	R-30	R-25 (CA State Code)	per roof sqft	New	0.03	25	\$0.11	75%	85%	\$0.38	2
California	Small Retail	Space Heat	Insulation - Floor (non-slab)	R-30	R-25 (CA State Code)	per floor area	New	0.08	25	\$0.12	35%	90%	\$0.14	3
California	Small Retail	Space Heat	Insulation - Wall	R-21	R-16 (CA State Code)	per floor area	New	0.32	25	\$0.18	95%	85%	\$0.06	20

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
California	Small Retail	Space Heat	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	New	10	30	\$6	50%	95%	\$0.06	16
California	Small Retail	Space Heat	Natural Ventilation	Natural Ventilation Design Reduction in Cooling	None - Standard Ventilation	per building sqft	New	0.12	15	\$1	20%	75%	\$1.19	2
California	Small Retail	Space Heat	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	New	104	10	\$156	95%	16%	\$0.25	0.63
California	Small Retail	Space Heat	Windows-High Efficiency	U-0.32	U-0.47 (CA State Code)	per window sqft	New	1	25	\$60	80%	90%	\$5.42	7
California	Small Retail	Water Heat	Clothes Washer Commercial	ENERGY STAR Commercial Clothes Washer MEF=1.80	Standard Clothes Washers	per installation	Existing	557	11	\$134	95%	80%	-\$0.28	11
California	Small Retail	Water Heat	Clothes Washer Residential	Energy Star - CEE Tier 1 (MEF 2.0 - 2.19) - Electric DHW & Dryer	MEF = 1.66 - Electric DHW & Dryer (NWPPC 6th Plan Average Efficiency)	per installation	Existing	135	11	\$355	85%	94%	\$0.09	2
California	Small Retail	Water Heat	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	per building sqft	Existing	0.01	10	\$0.31	75%	94%	\$2.97	44
California	Small Retail	Water Heat	Dishwasher Residential	ENERGY STAR <= 324 kWh/yr, <= 5.8 gal/cycle	Federal Standard <= 355 kWh/yr, <= 6.5 gal/cycle	per installation	Existing	31	11	\$32	95%	25%	\$0.10	10
California	Small Retail	Water Heat	Electric Water Heater - High Efficiency	EF = 0.95	EF = 0.92	Per installation	Existing	33	15	\$70	100%	N/A	\$0.27	4
California	Small Retail	Water Heat	Heat Pump Water Heater - Advanced-Efficiency	EF = 2.2	EF = 0.92	Per installation	Existing	626	15	\$1,425	75%	N/A	\$0.29	334
California	Small Retail	Water Heat	Hot Water (SHW) Pipe Insulation	1.0" of Insulation, assuming R-4 (CA State Code)	No Insulation	per linear foot	Existing	1	12	\$3	80%	90%	\$0.45	9
California	Small Retail	Water Heat	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	per installation	Existing	15	9	\$0.15	95%	25%	-\$0.08	10
California	Small Retail	Water Heat	Low-Flow Faucet Aerators	2.2 GPM (Federal Code)	3.0 GPM	per installation	Existing	13	9	\$2	95%	25%	-\$0.05	8
California	Small Retail	Water Heat	Water Heater Temperature Setback	Water Heater Temperature Setback (120 F)	No Change in Water Temperature	per installation	Existing	76	5	\$121	75%	45%	\$0.45	33
California	Small Retail	Water Heat	Clothes Washer Commercial	ENERGY STAR Commercial Clothes Washer MEF=1.80	Standard Clothes Washers	per installation	New	557	11	\$134	95%	80%	-\$0.28	2
California	Small Retail	Water Heat	Clothes Washer Residential	Energy Star - CEE Tier 1 (MEF 2.0 - 2.19) - Electric DHW & Dryer	MEF = 1.66 - Electric DHW & Dryer (NWPPC 6th Plan Average Efficiency)	per installation	New	135	11	\$355	85%	94%	\$0.09	0.53
California	Small Retail	Water Heat	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	per building sqft	New	0.01	10	\$0.31	75%	94%	\$3.06	8
California	Small Retail	Water Heat	Dishwasher Residential	ENERGY STAR <= 324 kWh/yr, <= 5.8 gal/cycle	Federal Standard <= 355 kWh/yr, <= 6.5 gal/cycle	per installation	New	31	11	\$32	95%	55%	\$0.10	4
California	Small Retail	Water Heat	Electric Water Heater - High Efficiency	EF = 0.95	EF = 0.92	Per installation	New	33	15	\$70	100%	N/A	\$0.27	0.73
California	Small Retail	Water Heat	Heat Pump Water Heater - Advanced-Efficiency	EF = 2.2	EF = 0.92	Per installation	New	608	15	\$1,176	75%	N/A	\$0.25	54
California	Small Retail	Water Heat	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	per installation	New	15	9	\$0.15	95%	25%	-\$0.08	1
California	Small Retail	Water Heat	Water Heater Temperature Setback	Water Heater Temperature Setback (120 F)	No Change in Water Temperature	per installation	New	74	5	\$121	75%	45%	\$0.46	6
California	Warehouse	Computers	Computer ENERGY STAR	Computer ENERGY STAR	Computer standard non-ENERGY STAR	Per installation	Existing	136	4	\$28	100%	N/A	\$0.07	1
California	Warehouse	Computers	Computer ENERGY STAR	Computer ENERGY STAR	Computer standard non-ENERGY STAR	Per installation	New	136	4	\$28	100%	N/A	\$0.07	0.04
California	Warehouse	Cooling Chillers	Chilled Water / Condenser Water Settings-Optimization	Additional Control Features	EMS already installed - No Optimization	1 control point per 1000 sqft	Existing	8	5	\$182	95%	81%	\$5.79	0.01
California	Warehouse	Cooling Chillers	Chilled Water Piping Loop w/ VSD Control	VSD for secondary chilled water loop	Primary loop only w/ constant speed pump	per chiller ton	Existing	19	10	\$224	25%	70%	\$1.91	0.01
California	Warehouse	Cooling Chillers	Chiller-Water Side Economizer	Install Economizer	No Economizer	per chiller ton	Existing	12	15	\$525	45%	90%	\$5.27	0.02
California	Warehouse	Cooling Chillers	Chillers <150 tons (screw) - Advanced Efficiency	0.58 kW/ton (full load)	0.790 kW/Ton (full load)	Per installation	Existing	1,739	20	\$4,503	100%	N/A	\$0.29	0.18
California	Warehouse	Cooling Chillers	Chillers <150 tons (screw) - High Efficiency	0.71 kW/ton (full load)	0.790 kW/Ton (full load)	Per installation	Existing	664	20	\$1,500	100%	N/A	\$0.25	0.00
California	Warehouse	Cooling Chillers	Chillers <150 tons (screw) - Premium Efficiency	0.63 kW/ton	0.790 kW/Ton (full load)	Per installation	Existing	1,293	20	\$3,348	100%	N/A	\$0.29	0.01

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
California	Warehouse	Cooling Chillers	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	Existing	0.07	15	\$0.69	80%	98%	\$1.26	0.09
California	Warehouse	Cooling Chillers	Cooling Tower-Decrease Approach Temperature	6 Deg F	10 Deg F	per chiller ton	Existing	20	8	\$26	10%	94%	\$0.27	0.01
California	Warehouse	Cooling Chillers	Cooling Tower-Two-Speed Fan Motor	Cooling Tower-Two-Speed Fan Motor	Cooling Tower-One-Speed Fan Motor	per chiller ton	Existing	36	15	\$2	95%	35%	\$0.01	0.08
California	Warehouse	Cooling Chillers	Cooling Tower-VSD Fan Control	Variable-Speed Tower Fans replace Two-Speed	Cooling Tower-Two-Speed Fan Motor	per chiller ton	Existing	10	13	\$19	95%	75%	\$0.27	0.04
California	Warehouse	Cooling Chillers	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	Existing	71	15	\$186	75%	76%	\$0.34	0.09
California	Warehouse	Cooling Chillers	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	Existing	0.07	40	\$10	4%	98%	\$13.71	0.00
California	Warehouse	Cooling Chillers	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	0.54	13	\$0.37	10%	39%	\$0.10	0.00
California	Warehouse	Cooling Chillers	Insulation - Ceiling	R-25 (CA State Code)	R-8 (Average Existing Conditions)	per roof sqft	Existing	0.00	25	\$0.72	75%	59%	\$53.66	0.00
California	Warehouse	Cooling Chillers	Pipe Insulation	1.5" of Insulation, assuming R-6 (CA State Code)	No Insulation	per linear feet of insulation	Existing	2	15	\$4	65%	45%	\$0.27	0.00
California	Warehouse	Cooling Chillers	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	0.08	7	\$0.21	90%	85%	\$0.53	0.14
California	Warehouse	Cooling Chillers	Window Film	Window Film	No Film	per 100 sqft of window glazing	Existing	1	10	\$163	90%	68%	\$19.70	0.00
California	Warehouse	Cooling Chillers	Windows-High Efficiency	U-0.47 (CA State Code)	U-0.65 (Average Existing Conditions)	per window sqft	Existing	5	25	\$39	15%	71%	\$0.73	0.02
California	Warehouse	Cooling Chillers	Chilled Water / Condenser Water Settings-Optimization	Additional Control Features	EMS already installed - No Optimization	1 control point per 1000 sqft	New	5	5	\$182	95%	81%	\$9.18	0.00
California	Warehouse	Cooling Chillers	Chilled Water Piping Loop w/ VSD Control	VSD for secondary chilled water loop	Primary loop only w/ constant speed pump	per chiller ton	New	13	10	\$224	25%	70%	\$2.73	0.00
California	Warehouse	Cooling Chillers	Chillers <150 tons (screw) - Advanced Efficiency	0.58 kW/ton (full load)	0.790 kW/Ton (full load)	Per installation	New	1,297	20	\$4,052	100%	N/A	\$0.35	0.04
California	Warehouse	Cooling Chillers	Chillers <150 tons (screw) - High Efficiency	0.71 kW/ton (full load)	0.790 kW/Ton (full load)	Per installation	New	495	20	\$1,350	100%	N/A	\$0.31	0.00
California	Warehouse	Cooling Chillers	Chillers <150 tons (screw) - Premium Efficiency	0.63 kW/ton	0.790 kW/Ton (full load)	Per installation	New	964	20	\$3,012	100%	N/A	\$0.35	0.00
California	Warehouse	Cooling Chillers	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	New	0.04	15	\$0.69	80%	98%	\$2.00	0.01
California	Warehouse	Cooling Chillers	Cooling Tower-Decrease Approach Temperature	6 Deg F	10 Deg F	per chiller ton	New	14	8	\$26	10%	94%	\$0.38	0.00
California	Warehouse	Cooling Chillers	Cooling Tower-VSD Fan Control	Variable-Speed Tower Fans replace Two-Speed	Cooling Tower-Two-Speed Fan Motor	per chiller ton	New	7	15	\$19	95%	75%	\$0.35	0.00
California	Warehouse	Cooling Chillers	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	New	45	15	\$186	75%	76%	\$0.53	0.01
California	Warehouse	Cooling Chillers	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	New	0.04	40	\$10	4%	98%	\$21.75	0.00
California	Warehouse	Cooling Chillers	Natural Ventilation	Natural Ventilation Design Reduction in Cooling	None - Standard Ventilation	per building sqft	New	0.04	15	\$1	20%	75%	\$3.05	0.00
California	Warehouse	Cooling Dx Evap	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	Existing	0.08	15	\$0.69	80%	98%	\$1.12	0.60

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
California	Warehouse	Cooling Dx Evap	DX Package 65 to 135 kBtu/hr - High Efficiency	DX Package 65 to 135 kBtu/hr - High Efficiency - 11.5 EER	DX Package 65 to 135 kBtu/hr - Standard Efficiency - 11.2 EER	Per installation	Existing	383	15	\$698	100%	N/A	\$0.24	0.01
California	Warehouse	Cooling Dx Evap	DX Package 65 to 135 kBtu/hr - Premium Efficiency	DX Package 65 to 135 kBtu/hr - Premium Efficiency - 12.0 EER	DX Package 65 to 135 kBtu/hr - Standard Efficiency - 11.2 EER	Per installation	Existing	925	15	\$1,404	100%	N/A	\$0.20	0.39
California	Warehouse	Cooling Dx Evap	DX Package-Air Side Economizer	Air-Side Economizer	No Economizer	per DX ton	Existing	48	10	\$178	10%	40%	\$0.61	0.05
California	Warehouse	Cooling Dx Evap	DX Tune-Up / Diagnostics	DX Tune-Up / Diagnostics	No DX Tune-Up / Diagnostics	per installation	Existing	242	4	\$397	95%	72%	\$0.63	0.66
California	Warehouse	Cooling Dx Evap	Direct / Indirect Evaporative Cooling, Pre-Cooling	Evaporative Cooler	Standard DX cooling	per building CFM	Existing	0.20	15	\$2	50%	94%	\$1.42	0.94
California	Warehouse	Cooling Dx Evap	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	Existing	80	15	\$186	75%	76%	\$0.30	0.64
California	Warehouse	Cooling Dx Evap	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	Existing	0.02	18	\$0.26	45%	65%	\$1.53	0.05
California	Warehouse	Cooling Dx Evap	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	Existing	0.08	40	\$10	4%	98%	\$12.16	0.00
California	Warehouse	Cooling Dx Evap	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	0.60	13	\$0.37	10%	39%	\$0.09	0.00
California	Warehouse	Cooling Dx Evap	Insulation - Duct	R-8 (CA State Code)	No Insulation	per surface area of duct insul	Existing	0.49	20	\$2	75%	60%	\$0.66	0.19
California	Warehouse	Cooling Dx Evap	Insulation - Floor (non-slab)	R-30	R-25 (CA State Code)	per floor area	Existing	0.00	25	\$0.11	35%	90%	\$6.62	0.00
California	Warehouse	Cooling Dx Evap	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	Existing	4	30	\$6	50%	95%	\$0.13	0.88
California	Warehouse	Cooling Dx Evap	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	Existing	242	10	\$146	95%	26%	\$0.10	0.08
California	Warehouse	Cooling Dx Evap	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	0.10	7	\$0.21	90%	85%	\$0.47	1
California	Warehouse	Cooling Dx Evap	Window Film	Window Film	No Film	per 100 sqft of window glazing	Existing	1	10	\$163	90%	68%	\$19.58	0.00
California	Warehouse	Cooling Dx Evap	Windows-High Efficiency	U-0.47 (CA State Code)	U-0.65 (Average Existing Conditions)	per window sqft	Existing	6	25	\$39	15%	71%	\$0.64	0.15
California	Warehouse	Cooling Dx Evap	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	New	0.05	15	\$0.69	80%	98%	\$1.61	0.10
California	Warehouse	Cooling Dx Evap	DX Package 65 to 135 kBtu/hr - High Efficiency	DX Package 65 to 135 kBtu/hr - High Efficiency - 11.5 EER	DX Package 65 to 135 kBtu/hr - Standard Efficiency - 11.2 EER	Per installation	New	191	15	\$557	100%	N/A	\$0.38	0.00
California	Warehouse	Cooling Dx Evap	DX Package 65 to 135 kBtu/hr - Premium Efficiency	DX Package 65 to 135 kBtu/hr - Premium Efficiency - 12.0 EER	DX Package 65 to 135 kBtu/hr - Standard Efficiency - 11.2 EER	Per installation	New	673	15	\$1,122	100%	N/A	\$0.22	0.06
California	Warehouse	Cooling Dx Evap	Direct / Indirect Evaporative Cooling, Pre-Cooling	Evaporative Cooler	Standard DX cooling	per building CFM	New	0.14	15	\$2	50%	94%	\$2.05	0.16
California	Warehouse	Cooling Dx Evap	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	New	56	15	\$186	75%	76%	\$0.43	0.08
California	Warehouse	Cooling Dx Evap	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	New	0.01	18	\$0.26	45%	65%	\$2.20	0.00
California	Warehouse	Cooling Dx Evap	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	New	0.05	40	\$10	4%	98%	\$17.53	0.00
California	Warehouse	Cooling Dx Evap	Insulation - Floor (non-slab)	R-30	R-25 (CA State Code)	per floor area	New	0.00	25	\$0.11	35%	90%	\$9.55	0.00
California	Warehouse	Cooling Dx Evap	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	New	3	30	\$6	50%	95%	\$0.18	0.12

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
California	Warehouse	Cooling Dx Evap	Natural Ventilation	Natural Ventilation Design Reduction in Cooling	None - Standard Ventilation	per building sqft	New	0.05	15	\$1	20%	75%	\$2.46	0.01
California	Warehouse	Cooling Dx Evap	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	New	168	10	\$146	95%	13%	\$0.15	0.00
California	Warehouse	Cooling Room	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	Existing	0.10	15	\$0.69	80%	98%	\$0.82	0.10
California	Warehouse	Cooling Room	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	Existing	109	15	\$186	75%	76%	\$0.22	0.08
California	Warehouse	Cooling Room	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	Existing	0.10	40	\$10	4%	98%	\$8.98	0.00
California	Warehouse	Cooling Room	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	0.82	13	\$0.37	10%	39%	\$0.07	0.00
California	Warehouse	Cooling Room	Insulation - Floor (non-slab)	R-30	R-25 (CA State Code)	per floor area	Existing	0.00	25	\$0.11	35%	90%	\$4.89	0.00
California	Warehouse	Cooling Room	PTAC (10,000 BTU/HR) - Premium-Efficiency	11.4 EER	Room AC (10,000 BTU/HR) Standard-Efficiency 9.8 EER	Per installation	Existing	1,876	15	\$35,928	75%	N/A	\$2.48	0.15
California	Warehouse	Cooling Room	Room AC (10,000 BTU/HR) High-Efficiency	High Efficiency 10.8 EER (ENERGY STAR)	Room AC (10,000 BTU/HR) Standard-Efficiency 9.8 EER	Per installation	Existing	1,188	9	\$1,537	100%	N/A	\$0.23	0.02
California	Warehouse	Cooling Room	Window Film	Window Film	No Film	per 100 sqft of window glazing	Existing	0.06	10	\$163	90%	68%	\$390.86	0.00
California	Warehouse	Cooling Room	Windows-High Efficiency	U-0.47 (CA State Code)	U-0.65 (Average Existing Conditions)	per window sqft	Existing	8	25	\$39	15%	71%	\$0.47	0.02
California	Warehouse	Cooling Room	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	New	0.07	15	\$0.69	80%	98%	\$1.14	0.01
California	Warehouse	Cooling Room	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	New	79	15	\$186	75%	76%	\$0.31	0.01
California	Warehouse	Cooling Room	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	New	0.07	40	\$10	4%	98%	\$12.44	0.00
California	Warehouse	Cooling Room	Insulation - Floor (non-slab)	R-30	R-25 (CA State Code)	per floor area	New	0.00	25	\$0.11	35%	90%	\$6.78	0.00
California	Warehouse	Cooling Room	Natural Ventilation	Natural Ventilation Design Reduction in Cooling	None - Standard Ventilation	per building sqft	New	0.07	15	\$1	20%	75%	\$1.75	0.00
California	Warehouse	Cooling Room	PTAC (10,000 BTU/HR) - Premium-Efficiency	11.4 EER	Room AC (10,000 BTU/HR) Standard-Efficiency 9.8 EER	Per installation	New	1,380	15	\$25,075	75%	N/A	\$2.35	0.01
California	Warehouse	Cooling Room	Room AC (10,000 BTU/HR) High-Efficiency	High Efficiency 10.8 EER (ENERGY STAR)	Room AC (10,000 BTU/HR) Standard-Efficiency 9.8 EER	Per installation	New	785	9	\$1,230	100%	N/A	\$0.28	0.00
California	Warehouse	Heat Pump	Air Source Heat Pump 65 to 135 kBtu/hr - High Efficiency	11.5 EER, 3.4 COP	11.0 EER, 3.3 COP	Per installation	Existing	2,354	15	\$2,596	100%	N/A	\$0.14	0.02
California	Warehouse	Heat Pump	Air Source Heat Pump 65 to 135 kBtu/hr - Premium Efficiency	12.0 EER, 3.8 COP	11.0 EER, 3.3 COP	Per installation	Existing	4,478	15	\$5,194	100%	N/A	\$0.15	0.54
California	Warehouse	Heat Pump	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	Existing	0.10	15	\$0.69	80%	98%	\$0.90	0.12
California	Warehouse	Heat Pump	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	Existing	265	15	\$186	75%	76%	\$0.09	0.36
California	Warehouse	Heat Pump	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	Existing	0.06	18	\$0.26	45%	65%	\$0.46	0.03
California	Warehouse	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	Existing	0.24	14	\$0.93	5%	94%	\$0.50	0.02
California	Warehouse	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	Existing	0.10	40	\$10	4%	98%	\$9.80	0.00

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
California	Warehouse	Heat Pump	Ground Source Heat Pump Replacing Air Source Heat Pump 65 to 135 kBtu/hr - Advanced Efficiency	16.2 EER 4.0 COP	11.0 EER, 3.3 COP	Per installation	Existing	7,501	30	\$67,738	5%	N/A	\$2.11	0.04
California	Warehouse	Heat Pump	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	3	13	\$0.37	10%	39%	\$0.01	0.00
California	Warehouse	Heat Pump	Insulation - Ceiling	R-25 (CA State Code)	R-8 (Average Existing Conditions)	per roof sqft	Existing	0.19	25	\$0.72	75%	59%	\$0.38	0.16
California	Warehouse	Heat Pump	Insulation - Ceiling	R-30	R-25 (CA State Code)	per roof sqft	Existing	0.02	25	\$0.10	75%	85%	\$0.50	0.02
California	Warehouse	Heat Pump	Insulation - Duct	R-8 (CA State Code)	No Insulation	per surface area of duct insul	Existing	1	20	\$2	75%	60%	\$0.20	0.11
California	Warehouse	Heat Pump	Insulation - Floor (non-slab)	R-25 (CA State Code)	R-8 (Average Existing Conditions)	per floor area	Existing	0.28	25	\$0.87	35%	80%	\$0.31	0.16
California	Warehouse	Heat Pump	Insulation - Floor (non-slab)	R-30	R-25 (CA State Code)	per floor area	Existing	0.07	25	\$0.11	35%	90%	\$0.16	0.04
California	Warehouse	Heat Pump	Insulation - Wall	R-16 (CA State Code)	R-3 (Average Existing Conditions)	per floor area	Existing	0.63	25	\$1	10%	65%	\$0.25	0.03
California	Warehouse	Heat Pump	Insulation - Wall	R-21	R-16 (CA State Code)	per floor area	Existing	0.32	25	\$0.17	10%	85%	\$0.06	0.02
California	Warehouse	Heat Pump	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	Existing	22	30	\$6	50%	95%	\$0.03	0.71
California	Warehouse	Heat Pump	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	Existing	797	10	\$146	95%	26%	\$0.03	0.04
California	Warehouse	Heat Pump	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	0.33	7	\$0.21	90%	85%	\$0.14	0.57
California	Warehouse	Heat Pump	Window Film	Window Film	No Film	per 100 sqft of window glazing	Existing	1	10	\$163	90%	68%	\$19.39	0.00
California	Warehouse	Heat Pump	Windows-High Efficiency	U-0.32	U-0.47 (CA State Code)	per window sqft	Existing	4	25	\$56	15%	90%	\$1.28	0.02
California	Warehouse	Heat Pump	Windows-High Efficiency	U-0.47 (CA State Code)	U-0.65 (Average Existing Conditions)	per window sqft	Existing	4	25	\$39	15%	71%	\$0.87	0.01
California	Warehouse	Heat Pump	Air Source Heat Pump 65 to 135 kBtu/hr - High Efficiency	11.5 EER, 3.4 COP	11.0 EER, 3.3 COP	Per installation	New	1,579	15	\$2,077	100%	N/A	\$0.17	0.00
California	Warehouse	Heat Pump	Air Source Heat Pump 65 to 135 kBtu/hr - Premium Efficiency	12.0 EER, 3.8 COP	11.0 EER, 3.3 COP	Per installation	New	3,429	15	\$4,155	100%	N/A	\$0.16	0.08
California	Warehouse	Heat Pump	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	New	0.07	15	\$0.69	80%	98%	\$1.28	0.02
California	Warehouse	Heat Pump	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	New	202	15	\$186	75%	76%	\$0.12	0.05
California	Warehouse	Heat Pump	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	New	0.05	18	\$0.26	45%	65%	\$0.61	0.00
California	Warehouse	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	New	0.19	14	\$0.93	5%	94%	\$0.63	0.00
California	Warehouse	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	New	0.07	40	\$10	4%	98%	\$13.93	0.00
California	Warehouse	Heat Pump	Ground Source Heat Pump Replacing Air Source Heat Pump 65 to 135 kBtu/hr - Advanced Efficiency	16.2 EER 4.0 COP	11.0 EER, 3.3 COP	Per installation	New	5,767	30	\$85,776	5%	N/A	\$1.39	0.00
California	Warehouse	Heat Pump	Insulation - Ceiling	R-30	R-25 (CA State Code)	per roof sqft	New	0.01	25	\$0.10	75%	85%	\$0.59	0.00
California	Warehouse	Heat Pump	Insulation - Floor (non-slab)	R-30	R-25 (CA State Code)	per floor area	New	0.06	25	\$0.11	35%	90%	\$0.19	0.00
California	Warehouse	Heat Pump	Insulation - Wall	R-21	R-16 (CA State Code)	per floor area	New	0.27	25	\$0.17	95%	85%	\$0.07	0.04
California	Warehouse	Heat Pump	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	New	17	30	\$6	50%	95%	\$0.04	0.10
California	Warehouse	Heat Pump	Natural Ventilation	Natural Ventilation Design Reduction in Cooling	None - Standard Ventilation	per building sqft	New	0.20	15	\$1	20%	75%	\$0.68	0.01
California	Warehouse	Heat Pump	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	New	608	10	\$146	95%	13%	\$0.04	0.00
California	Warehouse	Heat Pump	Windows-High Efficiency	U-0.32	U-0.47 (CA State Code)	per window sqft	New	3	25	\$56	80%	90%	\$1.56	0.02

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
California	Warehouse	Hvac Aux	Motor - CEE Premium-Efficiency Plus	CEE PE+ Motor for HVAC Applications	NEMA Efficiency Motors	per HP	Existing	9	15	\$6	95%	76%	\$0.09	0.38
California	Warehouse	Hvac Aux	Motor Rewind	>15, <500 HP	No Rewind	per HP	Existing	2	8	\$4	65%	25%	\$0.37	0.01
California	Warehouse	Hvac Aux	Motor - CEE Premium-Efficiency Plus	CEE PE+ Motor for HVAC Applications	NEMA Efficiency Motors	per HP	New	7	15	\$6	95%	76%	\$0.11	0.07
California	Warehouse	Lighting Exterior	Covered Parking Lighting	Covered Parking Lighting	Normal Lighting	per building sqft	Existing	0.08	10	\$0.02	80%	95%	\$0.05	4
California	Warehouse	Lighting Exterior	Daylighting Controls, Outdoors (Photocell)	Photocell	No Controls	per installation	Existing	14	8	\$28	75%	70%	\$0.38	0.11
California	Warehouse	Lighting Exterior	Exterior Building Lighting	30% savings	Normal Lighting	per installation	Existing	231	15	\$335	62%	90%	\$0.19	1
California	Warehouse	Lighting Exterior	Solid State LED White Lighting	Landscape, merchandise, signage, structure & task lighting (2.5 W)	50W 10hrs/day, 365 day/yr	per installation	Existing	1	14	\$35	75%	95%	\$3.05	0.03
California	Warehouse	Lighting Exterior	Surface Parking Lighting	Surface Parking Lighting	Normal Lighting	per building sqft	Existing	0.04	19	\$0.07	62%	95%	\$0.17	1
California	Warehouse	Lighting Exterior	Covered Parking Lighting	Covered Parking Lighting	Normal Lighting	per building sqft	New	0.08	10	\$0.02	80%	95%	\$0.05	0.85
California	Warehouse	Lighting Exterior	Daylighting Controls, Outdoors (Photocell)	Photocell	No Controls	per installation	New	14	8	\$28	75%	70%	\$0.38	0.02
California	Warehouse	Lighting Exterior	Exterior Building Lighting	30% savings	Normal Lighting	per installation	New	231	15	\$335	62%	90%	\$0.19	0.21
California	Warehouse	Lighting Exterior	Solid State LED White Lighting	Landscape, merchandise, signage, structure & task lighting (2.5 W)	50W 10hrs/day, 365 day/yr	per installation	New	1	14	\$35	75%	95%	\$3.05	0.00
California	Warehouse	Lighting Exterior	Surface Parking Lighting	Surface Parking Lighting	Normal Lighting	per building sqft	New	0.04	19	\$0.07	62%	95%	\$0.17	0.35
California	Warehouse	Lighting Interior	Cold Cathode Lighting	Cold Cathode Lighting 5 watts	30 W Incandescent Bulb	per installation	Existing	158	5	\$13	15%	94%	\$0.02	0.14
California	Warehouse	Lighting Interior	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	Existing	0.19	8	\$1	30%	98%	\$1.07	0.31
California	Warehouse	Lighting Interior	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	Existing	0.07	8	\$0.79	30%	98%	\$2.14	0.11
California	Warehouse	Lighting Interior	Exit Sign - LED	LED Exit Sign (2 Watts)	CFL Exit Sign (9 Watts)	per installation	Existing	92	16	\$16	95%	50%	\$0.02	2
California	Warehouse	Lighting Interior	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign (2 Watts)	per installation	Existing	16	13	\$30	95%	98%	\$0.26	0.25
California	Warehouse	Lighting Interior	Lighting Package, High Efficiency	15% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	Existing	0.19	13	\$0.00	90%	53%	\$0.00	4
California	Warehouse	Lighting Interior	Lighting Package, High Efficiency	Code Required LPD And Control Strategies	Existing Lighting Design LPD	per building sqft	Existing	0.65	13	\$0.55	90%	30%	\$0.12	11
California	Warehouse	Lighting Interior	Lighting Package, Premium Efficiency	25% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	Existing	0.31	13	\$0.12	75%	62%	\$0.06	1
California	Warehouse	Lighting Interior	Lighting Package, Premium High Bay	35% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	Existing	0.32	13	\$0.28	70%	84%	\$0.12	12
California	Warehouse	Lighting Interior	Occupancy Sensor Control, Fluorescent	Occupancy Sensor Control, Fluorescent	No Occupancy Sensor	per occupancy sensor	Existing	548	8	\$73	90%	50%	\$0.03	1
California	Warehouse	Lighting Interior	Time Clock	Time Clock	No Controls	per 10,000 Watts	Existing	718	8	\$218	20%	**	\$0.06	0.53
California	Warehouse	Lighting Interior	Cold Cathode Lighting	Cold Cathode Lighting 5 watts	30 W Incandescent Bulb	per installation	New	106	5	\$13	15%	94%	\$0.04	0.01
California	Warehouse	Lighting Interior	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	New	0.12	8	\$1	30%	98%	\$1.60	0.04
California	Warehouse	Lighting Interior	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	New	0.04	8	\$0.79	30%	98%	\$3.21	0.01
California	Warehouse	Lighting Interior	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign (2 Watts)	per installation	New	16	13	\$30	95%	98%	\$0.26	0.18
California	Warehouse	Lighting Interior	Lighting Package, High Efficiency	15% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	New	0.19	15	\$0.00	90%	53%	\$0.00	0.88

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
California	Warehouse	Lighting Interior	Lighting Package, Premium Efficiency	25% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	New	0.31	15	\$0.06	75%	62%	\$0.03	0.35
California	Warehouse	Lighting Interior	Lighting Package, Premium High Bay	35% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	New	0.32	15	\$0.06	70%	84%	\$0.03	2
California	Warehouse	Lighting Interior	Occupancy Sensor Control, Fluorescent	Occupancy Sensor Control, Fluorescent	No Occupancy Sensor	per occupancy sensor	New	366	8	\$73	90%	50%	\$0.04	0.15
California	Warehouse	Lighting Interior	Time Clock	Time Clock	No Controls	per 10,000 Watts	New	718	8	\$218	20%	**%	\$0.06	0.06
California	Warehouse	Other Office Equipment	ENERGY STAR - Copiers	ENERGY STAR Copiers	Standard Copier	per installation	Existing	69	6	\$164	95%	45%	\$0.57	0.00
California	Warehouse	Other Office Equipment	ENERGY STAR - Fax	ENERGY STAR Fax	Standard Fax	per installation	Existing	74	6	\$0.00	95%	45%	\$0.00	0.01
California	Warehouse	Other Office Equipment	ENERGY STAR - Monitors	ENERGY STAR Features Enabled	Non-ENERGY STAR Features	per installation	Existing	14	5	\$16	64%	15%	\$0.32	0.01
California	Warehouse	Other Office Equipment	ENERGY STAR - Printers	ENERGY STAR Printers	Standard Printers	per installation	Existing	131	6	\$15	95%	40%	\$0.03	0.24
California	Warehouse	Other Office Equipment	ENERGY STAR - Scanners	ENERGY STAR Scanners	Standard Scanner	per installation	Existing	68	6	\$20	95%	45%	\$0.07	0.00
California	Warehouse	Other Office Equipment	ENERGY STAR - Copiers	ENERGY STAR Copiers	Standard Copier	per installation	New	69	6	\$164	95%	45%	\$0.57	0.00
California	Warehouse	Other Office Equipment	ENERGY STAR - Fax	ENERGY STAR Fax	Standard Fax	per installation	New	74	6	\$0.00	95%	45%	\$0.00	0.00
California	Warehouse	Other Office Equipment	ENERGY STAR - Monitors	ENERGY STAR Features Enabled	Non-ENERGY STAR Features	per installation	New	14	5	\$16	64%	15%	\$0.32	0.00
California	Warehouse	Other Office Equipment	ENERGY STAR - Printers	ENERGY STAR Printers	Standard Printers	per installation	New	131	6	\$15	95%	40%	\$0.03	0.04
California	Warehouse	Other Office Equipment	ENERGY STAR - Scanners	ENERGY STAR Scanners	Standard Scanner	per installation	New	68	6	\$20	95%	45%	\$0.07	0.00
California	Warehouse	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	per installation	Existing	7	7	\$2	20%	90%	\$0.06	0.00
California	Warehouse	Other Plug Load	ENERGY STAR - Water Cooler	ENERGY STAR Water Cooler (Hot/Cold Water)	Non-ENERGY STAR Water Cooler	per installation	Existing	345	10	\$0.00	95%	75%	\$0.00	1
California	Warehouse	Other Plug Load	Power Supply Transformer/Converter	80 Plus	85% efficient power supply (> 51W)	1 unit per 2,000 sqft	Existing	2	4	\$0.41	95%	86%	\$0.06	0.06
California	Warehouse	Other Plug Load	Residential Refrigerator	ENERGY STAR	Federal Standard	per installation	Existing	76	12	\$123	20%	65%	\$0.24	0.06
California	Warehouse	Other Plug Load	Residential Refrigerator/Freezer Recycling	Recycling Existing Refrigerator/Freezer	Existing Refrigerator/Freezer	per installation	Existing	907	4	\$563	25%	35%	\$0.21	0.12
California	Warehouse	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	1 unit per 15,000 sqft	Existing	95	5	\$19	60%	90%	\$0.06	0.22
California	Warehouse	Other Plug Load	Vending Machines- High Efficiency	ENERGY STAR (Tier 2) Vending Machines- High Efficiency 500 can capacity Under 5.92 kWh/day	Vending Machines- Standard 13 kWh/day	per installation	Existing	228	14	\$164	10%	80%	\$0.10	0.01
California	Warehouse	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	per installation	New	7	7	\$2	20%	90%	\$0.06	0.00
California	Warehouse	Other Plug Load	ENERGY STAR - Water Cooler	ENERGY STAR Water Cooler (Hot/Cold Water)	Non-ENERGY STAR Water Cooler	per installation	New	345	10	\$0.00	95%	75%	\$0.00	0.23
California	Warehouse	Other Plug Load	Power Supply Transformer/Converter	80 Plus	85% efficient power supply (> 51W)	1 unit per 2,000 sqft	New	2	4	\$0.41	95%	86%	\$0.06	0.01
California	Warehouse	Other Plug Load	Residential Refrigerator	ENERGY STAR	Federal Standard	per installation	New	76	12	\$123	20%	65%	\$0.24	0.01
California	Warehouse	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	1 unit per 15,000 sqft	New	95	5	\$19	60%	90%	\$0.06	0.04
California	Warehouse	Other Plug Load	Vending Machines- High Efficiency	ENERGY STAR (Tier 2) Vending Machines- High Efficiency 500 can capacity Under 5.92 kWh/day	Vending Machines- Standard 13 kWh/day	per installation	New	228	14	\$164	10%	80%	\$0.10	0.00
California	Warehouse	Refrigeration	Refrigeration Commissioning or Re-commissioning	Commissioning / Re-commissioning	No Commissioning / Re-commissioning	per refrigeration ton	Existing	781	3	\$141	5%	85%	\$0.08	0.58

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
California	Warehouse	Refrigeration	Standalone to Multiplex Compressor	Standalone to Multiplex Compressor	Standalone compressor	per building sqft	Existing	0.35	13	\$0.05	3%	90%	\$0.02	0.13
California	Warehouse	Refrigeration	Strip Curtains for Walk-Ins	Strip Curtains for Walk-Ins	No Strip Curtains for Walk-In	per installation	Existing	2,573	4	\$184	5%	20%	\$0.02	0.04
California	Warehouse	Refrigeration	Walk-In Electronically Commutated Motor	ECM Evaporator Fans	Standard Efficiency Motor	per installation	Existing	0.49	12	\$0.17	5%	95%	\$0.05	0.41
California	Warehouse	Refrigeration	Refrigeration Commissioning or Re-commissioning	Commissioning / Re-commissioning	No Commissioning / Re-commissioning	per refrigeration ton	New	482	3	\$54	3%	90%	\$0.05	0.03
California	Warehouse	Refrigeration	Strip Curtains for Walk-Ins	Strip Curtains for Walk-Ins	No Strip Curtains for Walk-In	per installation	New	2,573	4	\$184	5%	20%	\$0.02	0.00
California	Warehouse	Refrigeration	Walk-In Electronically Commutated Motor	ECM Evaporator Fans	Standard Efficiency Motor	per installation	New	0.49	12	\$0.17	5%	95%	\$0.05	0.07
California	Warehouse	Space Heat	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	Existing	215	15	\$186	75%	76%	\$0.11	0.57
California	Warehouse	Space Heat	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	Existing	0.05	18	\$0.26	45%	65%	\$0.57	0.05
California	Warehouse	Space Heat	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	Existing	0.32	14	\$0.93	5%	94%	\$0.39	0.05
California	Warehouse	Space Heat	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	3	13	\$0.37	10%	39%	\$0.02	0.01
California	Warehouse	Space Heat	Insulation - Ceiling	R-25 (CA State Code)	R-8 (Average Existing Conditions)	per roof sqft	Existing	0.40	25	\$0.72	75%	59%	\$0.18	0.73
California	Warehouse	Space Heat	Insulation - Ceiling	R-30	R-25 (CA State Code)	per roof sqft	Existing	0.05	25	\$0.10	75%	85%	\$0.20	0.12
California	Warehouse	Space Heat	Insulation - Duct	R-8 (CA State Code)	No Insulation	per surface area of duct insul	Existing	1	20	\$2	75%	60%	\$0.25	0.16
California	Warehouse	Space Heat	Insulation - Floor (non-slab)	R-25 (CA State Code)	R-8 (Average Existing Conditions)	per floor area	Existing	0.81	25	\$0.87	35%	80%	\$0.11	1
California	Warehouse	Space Heat	Insulation - Floor (non-slab)	R-30	R-25 (CA State Code)	per floor area	Existing	0.15	25	\$0.11	35%	90%	\$0.08	0.26
California	Warehouse	Space Heat	Insulation - Wall	R-16 (CA State Code)	R-3 (Average Existing Conditions)	per floor area	Existing	2	25	\$1	10%	65%	\$0.07	0.32
California	Warehouse	Space Heat	Insulation - Wall	R-21	R-16 (CA State Code)	per floor area	Existing	0.72	25	\$0.17	10%	85%	\$0.02	0.16
California	Warehouse	Space Heat	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	Existing	18	30	\$6	50%	95%	\$0.03	1
California	Warehouse	Space Heat	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	Existing	646	10	\$146	95%	26%	\$0.04	0.08
California	Warehouse	Space Heat	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	0.26	7	\$0.21	90%	85%	\$0.18	0.91
California	Warehouse	Space Heat	Windows-High Efficiency	U-0.32	U-0.47 (CA State Code)	per window sqft	Existing	7	25	\$56	15%	90%	\$0.73	0.07
California	Warehouse	Space Heat	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	New	165	15	\$186	75%	76%	\$0.15	0.08
California	Warehouse	Space Heat	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	New	0.04	18	\$0.26	45%	65%	\$0.74	0.01
California	Warehouse	Space Heat	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	New	0.24	14	\$0.93	5%	94%	\$0.50	0.00
California	Warehouse	Space Heat	Insulation - Ceiling	R-30	R-25 (CA State Code)	per roof sqft	New	0.04	25	\$0.10	75%	85%	\$0.26	0.02
California	Warehouse	Space Heat	Insulation - Floor (non-slab)	R-30	R-25 (CA State Code)	per floor area	New	0.11	25	\$0.11	35%	90%	\$0.10	0.03
California	Warehouse	Space Heat	Insulation - Wall	R-21	R-16 (CA State Code)	per floor area	New	0.55	25	\$0.17	95%	85%	\$0.03	0.22
California	Warehouse	Space Heat	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	New	13	30	\$6	50%	95%	\$0.04	0.17
California	Warehouse	Space Heat	Natural Ventilation	Natural Ventilation Design Reduction in Cooling	None - Standard Ventilation	per building sqft	New	0.16	15	\$1	20%	75%	\$0.83	0.02
California	Warehouse	Space Heat	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	New	496	10	\$146	95%	13%	\$0.05	0.00
California	Warehouse	Space Heat	Windows-High Efficiency	U-0.32	U-0.47 (CA State Code)	per window sqft	New	6	25	\$56	80%	90%	\$0.95	0.07
California	Warehouse	Water Heat	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	per building sqft	Existing	0.01	10	\$0.29	55%	94%	\$4.00	0.15
California	Warehouse	Water Heat	Dishwasher Residential	ENERGY STAR <= 324 kWh/yr, <= 5.8 gal/cycle	Federal Standard <= 355 kWh/yr, <= 6.5 gal/cycle	per installation	Existing	29	11	\$30	95%	25%	\$0.10	0.02
California	Warehouse	Water Heat	Electric Water Heater - High Efficiency	EF = 0.95	EF = 0.92	Per installation	Existing	84	15	\$65	100%	N/A	\$0.10	0.02

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
California	Warehouse	Water Heat	Heat Pump Water Heater - Advanced-Efficiency	EF = 2.2	EF = 0.92	Per installation	Existing	1,550	15	\$1,330	75%	N/A	\$0.11	1
California	Warehouse	Water Heat	Hot Water (SHW) Pipe Insulation	1.0" of Insulation, assuming R-4 (CA State Code)	No Insulation	per linear foot	Existing	3	12	\$3	80%	90%	\$0.17	0.04
California	Warehouse	Water Heat	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	per installation	Existing	39	9	\$0.00	95%	25%	\$-0.09	0.05
California	Warehouse	Water Heat	Low-Flow Faucet Aerators	2.2 GPM (Federal Code)	3.0 GPM	per installation	Existing	32	9	\$2	95%	25%	\$-0.07	0.04
California	Warehouse	Water Heat	Low-Flow Showerheads	2.0 GPM	2.5 GPM (Federal Code)	per installation	Existing	585	10	\$6	95%	73%	\$-0.08	0.35
California	Warehouse	Water Heat	Low-Flow Showerheads	2.5 GPM (Federal Code)	4.5 GPM	per installation	Existing	1,302	10	\$10	95%	62%	\$-0.08	0.67
California	Warehouse	Water Heat	Water Cooled Refrigeration with Heat Recovery	Heat Recovery from refrigeration system. Applied to Water Heating Electric End use	No heat recovery	per sqft of refrigerated area	Existing	0.02	10	\$0.97	3%	94%	\$5.78	0.00
California	Warehouse	Water Heat	Water Heater Temperature Setback	Water Heater Temperature Setback (120 F)	No Change in Water Temperature	per installation	Existing	189	5	\$112	75%	45%	\$0.17	0.15
California	Warehouse	Water Heat	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	per building sqft	New	0.01	10	\$0.29	55%	94%	\$4.00	0.03
California	Warehouse	Water Heat	Dishwasher Residential	ENERGY STAR <= 324 kWh/yr, <= 5.8 gal/cycle	Federal Standard <= 355 kWh/yr, <= 6.5 gal/cycle	per installation	New	29	11	\$30	95%	55%	\$0.10	0.00
California	Warehouse	Water Heat	Electric Water Heater - High Efficiency	EF = 0.95	EF = 0.92	Per installation	New	84	15	\$65	100%	N/A	\$0.10	0.00
California	Warehouse	Water Heat	Heat Pump Water Heater - Advanced-Efficiency	EF = 2.2	EF = 0.92	Per installation	New	1,550	15	\$1,097	75%	N/A	\$0.09	0.29
California	Warehouse	Water Heat	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	per installation	New	39	9	\$0.00	95%	25%	\$-0.09	0.01
California	Warehouse	Water Heat	Low-Flow Showerheads	2.0 GPM	2.5 GPM (Federal Code)	per installation	New	585	10	\$6	95%	73%	\$-0.08	0.06
California	Warehouse	Water Heat	Water Cooled Refrigeration with Heat Recovery	Heat Recovery from refrigeration system. Applied to Water Heating Electric End use	No heat recovery	per sqft of refrigerated area	New	0.02	10	\$0.97	3%	94%	\$5.78	0.00
California	Warehouse	Water Heat	Water Heater Temperature Setback	Water Heater Temperature Setback (120 F)	No Change in Water Temperature	per installation	New	189	5	\$112	75%	45%	\$0.17	0.03
Idaho	Grocery	Computers	Computer ENERGY STAR	Computer ENERGY STAR	Computer standard non-ENERGY STAR	Per installation	Existing	135	4	\$28	100%	N/A	\$0.07	12
Idaho	Grocery	Computers	Computer ENERGY STAR	Computer ENERGY STAR	Computer standard non-ENERGY STAR	Per installation	New	135	4	\$28	100%	N/A	\$0.07	1
Idaho	Grocery	Cooking	Combination Oven	60% cooking efficiency	Non ENERGY STAR	per installation	Existing	11,597	12	\$1,885	90%	90%	\$0.02	0.77
Idaho	Grocery	Cooking	Fryers - New CEE Efficient Electric Deep Fat Fryers	15 inch width Deep Fryer CEE 2006 rating: 80% under heavy load, Less than 1000 watt at idle	15 inch width standard electric deep fat fryers	per installation	Existing	996	12	\$1,301	35%	90%	\$0.19	0.12
Idaho	Grocery	Cooking	Griddle	70% cooking efficiency	Non ENERGY STAR	per installation	Existing	2,239	12	\$815	95%	85%	\$0.05	1
Idaho	Grocery	Cooking	High Efficiency Convection Oven	Convection Oven	Standard Oven	per installation	Existing	1,853	12	\$2,015	19%	55%	\$0.16	0.33
Idaho	Grocery	Cooking	Hot Food Holding Cabinet	ENERGY STAR	Non ENERGY STAR	per installation	Existing	3,888	12	\$1,746	55%	21%	\$0.07	0.99
Idaho	Grocery	Cooking	Steam Cooker	ENERGY STAR	Non ENERGY STAR	per installation	Existing	4,161	12	\$2,539	14%	75%	\$0.09	1
Idaho	Grocery	Cooking	Combination Oven	60% cooking efficiency	Non ENERGY STAR	per installation	New	11,597	12	\$1,885	90%	90%	\$0.02	0.43
Idaho	Grocery	Cooking	Fryers - New CEE Efficient Electric Deep Fat Fryers	15 inch width Deep Fryer CEE 2006 rating: 80% under heavy load, Less than 1000 watt at idle	15 inch width standard electric deep fat fryers	per installation	New	996	12	\$1,301	35%	90%	\$0.19	0.07
Idaho	Grocery	Cooking	Griddle	70% cooking efficiency	Non ENERGY STAR	per installation	New	2,239	12	\$815	95%	85%	\$0.05	1
Idaho	Grocery	Cooking	High Efficiency Convection Oven	Convection Oven	Standard Oven	per installation	New	1,853	12	\$2,015	19%	55%	\$0.16	0.18
Idaho	Grocery	Cooking	Hot Food Holding Cabinet	ENERGY STAR	Non ENERGY STAR	per installation	New	3,888	12	\$1,746	55%	21%	\$0.07	0.56
Idaho	Grocery	Cooking	Steam Cooker	ENERGY STAR	Non ENERGY STAR	per installation	New	4,161	12	\$2,539	14%	75%	\$0.09	0.57
Idaho	Grocery	Cooling Dx Evap	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	Existing	0.33	15	\$0.69	80%	98%	\$0.27	21

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Idaho	Grocery	Cooling Dx Evap	DX Package 65 to 135 kBTU/hr - High Efficiency	DX Package 65 to 135 kBTU/hr - High Efficiency - 11.5 EER	DX Package 65 to 135 kBTU/hr - Standard Efficiency - 11.2 EER	Per installation	Existing	416	15	\$277	100%	N/A	\$0.09	0.41
Idaho	Grocery	Cooling Dx Evap	DX Package 65 to 135 kBTU/hr - Premium Efficiency	DX Package 65 to 135 kBTU/hr - Premium Efficiency - 12.0 EER	DX Package 65 to 135 kBTU/hr - Standard Efficiency - 11.2 EER	Per installation	Existing	1,056	15	\$558	100%	N/A	\$0.07	15
Idaho	Grocery	Cooling Dx Evap	DX Package-Air Side Economizer	Air-Side Economizer	No Economizer	per DX ton	Existing	151	10	\$155	10%	90%	\$0.17	4
Idaho	Grocery	Cooling Dx Evap	DX Tune-Up / Diagnostics	DX Tune-Up / Diagnostics	No DX Tune-Up / Diagnostics	per installation	Existing	757	4	\$249	95%	72%	\$0.13	22
Idaho	Grocery	Cooling Dx Evap	Direct / Indirect Evaporative Cooling, Pre-Cooling	Evaporative Cooler	Standard DX cooling	per building CFM	Existing	0.84	15	\$1	50%	94%	\$0.27	33
Idaho	Grocery	Cooling Dx Evap	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	Existing	336	15	\$149	75%	75%	\$0.06	22
Idaho	Grocery	Cooling Dx Evap	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	Existing	0.08	18	\$0.17	45%	65%	\$0.25	2
Idaho	Grocery	Cooling Dx Evap	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	Existing	0.33	40	\$8	4%	98%	\$2.22	0.08
Idaho	Grocery	Cooling Dx Evap	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	2	13	\$0.24	10%	39%	\$0.02	0.64
Idaho	Grocery	Cooling Dx Evap	Insulation - Ceiling	R-30 (ID State Code)	R-7 (Average Existing Conditions)	per roof sqft	Existing	0.01	25	\$0.67	75%	49%	\$4.49	0.40
Idaho	Grocery	Cooling Dx Evap	Insulation - Duct	R-5 (ID State Code)	No Insulation	per surface area of duct insul	Existing	1	20	\$1	75%	61%	\$0.13	4
Idaho	Grocery	Cooling Dx Evap	Insulation - Duct	R-8	R-5 (ID State Code)	per surface area of duct insul	Existing	0.85	20	\$0.28	75%	85%	\$0.04	5
Idaho	Grocery	Cooling Dx Evap	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	Existing	20	30	\$5	50%	95%	\$0.02	31
Idaho	Grocery	Cooling Dx Evap	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	Existing	302	10	\$123	95%	27%	\$0.07	2
Idaho	Grocery	Cooling Dx Evap	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	0.42	7	\$0.13	90%	85%	\$0.07	35
Idaho	Grocery	Cooling Dx Evap	Window Film	Window Film	No Film	per 100 sqft of window glazing	Existing	1	10	\$130	90%	68%	\$11.56	0.04
Idaho	Grocery	Cooling Dx Evap	Windows-High Efficiency	U-0.32	U-0.35 (ID State Code)	per window sqft	Existing	8	25	\$24	15%	90%	\$0.29	5
Idaho	Grocery	Cooling Dx Evap	Windows-High Efficiency	U-0.35 (ID State Code)	U-0.65 (Average Existing Conditions)	per window sqft	Existing	7	25	\$67	15%	61%	\$0.96	2
Idaho	Grocery	Cooling Dx Evap	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	New	0.19	15	\$0.69	80%	98%	\$0.45	9
Idaho	Grocery	Cooling Dx Evap	DX Package 65 to 135 kBTU/hr - High Efficiency	DX Package 65 to 135 kBTU/hr - High Efficiency - 11.5 EER	DX Package 65 to 135 kBTU/hr - Standard Efficiency - 11.2 EER	Per installation	New	261	15	\$222	100%	N/A	\$0.11	0.10
Idaho	Grocery	Cooling Dx Evap	DX Package 65 to 135 kBTU/hr - Premium Efficiency	DX Package 65 to 135 kBTU/hr - Premium Efficiency - 12.0 EER	DX Package 65 to 135 kBTU/hr - Standard Efficiency - 11.2 EER	Per installation	New	656	15	\$447	100%	N/A	\$0.09	5
Idaho	Grocery	Cooling Dx Evap	Direct / Indirect Evaporative Cooling, Pre-Cooling	Evaporative Cooler	Standard DX cooling	per building CFM	New	0.49	15	\$1	50%	94%	\$0.46	14
Idaho	Grocery	Cooling Dx Evap	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	New	199	15	\$149	75%	75%	\$0.10	7
Idaho	Grocery	Cooling Dx Evap	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	New	0.04	18	\$0.17	45%	65%	\$0.42	0.97
Idaho	Grocery	Cooling Dx Evap	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	New	0.19	40	\$8	4%	98%	\$3.75	0.03
Idaho	Grocery	Cooling Dx Evap	Insulation - Duct	R-8	R-5 (ID State Code)	per surface area of duct insul	New	0.50	20	\$0.28	75%	85%	\$0.06	1

Table C.2.2. Commercial Measure Details

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Idaho	Grocery	Cooling Dx Evap	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	New	12	30	\$5	50%	95%	\$0.04	11
Idaho	Grocery	Cooling Dx Evap	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	New	179	10	\$123	95%	13%	\$0.11	0.51
Idaho	Grocery	Cooling Dx Evap	Windows-High Efficiency	U-0.32	U-0.35 (ID State Code)	per window sqft	New	5	25	\$24	80%	90%	\$0.48	12
Idaho	Grocery	Cooling Room	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	Existing	0.43	15	\$0.69	80%	98%	\$0.21	0.79
Idaho	Grocery	Cooling Room	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	Existing	434	15	\$149	75%	75%	\$0.04	0.67
Idaho	Grocery	Cooling Room	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	Existing	0.43	40	\$8	4%	98%	\$1.72	0.00
Idaho	Grocery	Cooling Room	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	2	13	\$0.24	10%	39%	\$0.01	0.01
Idaho	Grocery	Cooling Room	Insulation - Ceiling	R-30 (ID State Code)	R-7 (Average Existing Conditions)	per roof sqft	Existing	0.01	25	\$0.67	75%	49%	\$3.48	0.01
Idaho	Grocery	Cooling Room	PTAC (10,000 BTU/HR) - Premium-Efficiency	11.4 EER	Room AC (10,000 BTU/HR) Standard-Efficiency 9.8 EER	Per installation	Existing	2,151	15	\$11,973	75%	N/A	\$0.72	1
Idaho	Grocery	Cooling Room	Room AC (10,000 BTU/HR) High-Efficiency	High Efficiency 10.8 EER (ENERGY STAR)	Room AC (10,000 BTU/HR) Standard-Efficiency 9.8 EER	Per installation	Existing	1,341	9	\$612	100%	N/A	\$0.08	0.22
Idaho	Grocery	Cooling Room	Window Film	Window Film	No Film	per 100 sqft of window glazing	Existing	0.09	10	\$130	90%	68%	\$230.73	0.00
Idaho	Grocery	Cooling Room	Windows-High Efficiency	U-0.32	U-0.35 (ID State Code)	per window sqft	Existing	11	25	\$24	15%	90%	\$0.22	0.21
Idaho	Grocery	Cooling Room	Windows-High Efficiency	U-0.35 (ID State Code)	U-0.65 (Average Existing Conditions)	per window sqft	Existing	9	25	\$67	15%	61%	\$0.74	0.11
Idaho	Grocery	Cooling Room	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	New	0.26	15	\$0.69	80%	98%	\$0.33	0.28
Idaho	Grocery	Cooling Room	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	New	268	15	\$149	75%	75%	\$0.07	0.24
Idaho	Grocery	Cooling Room	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	New	0.26	40	\$8	4%	98%	\$2.78	0.00
Idaho	Grocery	Cooling Room	PTAC (10,000 BTU/HR) - Premium-Efficiency	11.4 EER	Room AC (10,000 BTU/HR) Standard-Efficiency 9.8 EER	Per installation	New	1,353	15	\$8,783	75%	N/A	\$0.84	0.19
Idaho	Grocery	Cooling Room	Room AC (10,000 BTU/HR) High-Efficiency	High Efficiency 10.8 EER (ENERGY STAR)	Room AC (10,000 BTU/HR) Standard-Efficiency 9.8 EER	Per installation	New	851	9	\$489	100%	N/A	\$0.10	0.03
Idaho	Grocery	Cooling Room	Windows-High Efficiency	U-0.32	U-0.35 (ID State Code)	per window sqft	New	7	25	\$24	80%	90%	\$0.36	0.42
Idaho	Grocery	Heat Pump	Air Source Heat Pump 65 to 135 kBtu/hr - High Efficiency	11.5 EER, 3.4 COP	11.0 EER, 3.3 COP	Per installation	Existing	1,285	15	\$1,033	100%	N/A	\$0.10	0.32
Idaho	Grocery	Heat Pump	Air Source Heat Pump 65 to 135 kBtu/hr - Premium Efficiency	12.0 EER, 3.8 COP	11.0 EER, 3.3 COP	Per installation	Existing	3,226	15	\$2,067	100%	N/A	\$0.08	8
Idaho	Grocery	Heat Pump	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	Existing	0.38	15	\$0.69	80%	98%	\$0.23	3
Idaho	Grocery	Heat Pump	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	Existing	835	15	\$149	75%	75%	\$0.02	6
Idaho	Grocery	Heat Pump	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	Existing	0.20	18	\$0.17	45%	65%	\$0.10	0.73
Idaho	Grocery	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	Existing	0.67	14	\$1	5%	94%	\$0.35	0.34
Idaho	Grocery	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	Existing	0.38	40	\$8	4%	98%	\$1.92	0.01

Table C.2.2. Commercial Measure Details

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Idaho	Grocery	Heat Pump	Ground Source Heat Pump Replacing Air Source Heat Pump 65 to 135 kBTU/hr - Advanced Efficiency	16.2 EER 4.0 COP	11.0 EER, 3.3 COP	Per installation	Existing	6,490	30	\$38,860	5%	N/A	\$0.56	0.86
Idaho	Grocery	Heat Pump	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	8	13	\$0.24	10%	39%	\$0.00	0.32
Idaho	Grocery	Heat Pump	Insulation - Ceiling	R-30 (ID State Code)	R-7 (Average Existing Conditions)	per roof sqft	Existing	0.55	25	\$0.67	75%	49%	\$0.12	2
Idaho	Grocery	Heat Pump	Insulation - Ceiling	R-38	R-30 (ID State Code)	per roof sqft	Existing	0.06	25	\$0.22	25%	85%	\$0.38	0.13
Idaho	Grocery	Heat Pump	Insulation - Duct	R-5 (ID State Code)	No Insulation	per surface area of duct insul	Existing	3	20	\$1	75%	61%	\$0.05	1
Idaho	Grocery	Heat Pump	Insulation - Duct	R-8	R-5 (ID State Code)	per surface area of duct insul	Existing	2	20	\$0.28	75%	85%	\$0.02	1
Idaho	Grocery	Heat Pump	Insulation - Floor (non-slab)	R-30 (ID State Code)	R-11 (Average Existing Conditions)	per floor area	Existing	0.61	25	\$0.84	35%	84%	\$0.14	2
Idaho	Grocery	Heat Pump	Insulation - Floor (non-slab)	R-38	R-30 (ID State Code)	per floor area	Existing	0.12	25	\$0.29	35%	90%	\$0.25	0.41
Idaho	Grocery	Heat Pump	Insulation - Wall	R-13 (ID State Code)	R-3 (Average Existing Conditions)	per floor area	Existing	1	25	\$0.90	10%	65%	\$0.08	0.44
Idaho	Grocery	Heat Pump	Insulation - Wall	R-21	R-13 (ID State Code)	per floor area	Existing	0.55	25	\$0.20	10%	85%	\$0.04	0.27
Idaho	Grocery	Heat Pump	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	Existing	70	30	\$5	50%	95%	\$0.01	13
Idaho	Grocery	Heat Pump	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	Existing	752	10	\$123	95%	27%	\$0.03	0.86
Idaho	Grocery	Heat Pump	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	1	7	\$0.13	90%	85%	\$0.03	10
Idaho	Grocery	Heat Pump	Window Film	Window Film	No Film	per 100 sqft of window glazing	Existing	1	10	\$130	90%	68%	\$11.53	0.00
Idaho	Grocery	Heat Pump	Windows-High Efficiency	U-0.32	U-0.35 (ID State Code)	per window sqft	Existing	5	25	\$24	15%	90%	\$0.48	0.44
Idaho	Grocery	Heat Pump	Windows-High Efficiency	U-0.35 (ID State Code)	U-0.65 (Average Existing Conditions)	per window sqft	Existing	9	25	\$67	15%	61%	\$0.71	0.56
Idaho	Grocery	Heat Pump	Air Source Heat Pump 65 to 135 kBTU/hr - High Efficiency	11.5 EER, 3.4 COP	11.0 EER, 3.3 COP	Per installation	New	810	15	\$827	100%	N/A	\$0.13	0.08
Idaho	Grocery	Heat Pump	Air Source Heat Pump 65 to 135 kBTU/hr - Premium Efficiency	12.0 EER, 3.8 COP	11.0 EER, 3.3 COP	Per installation	New	1,767	15	\$1,654	100%	N/A	\$0.12	2
Idaho	Grocery	Heat Pump	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	New	0.23	15	\$0.69	80%	98%	\$0.38	1
Idaho	Grocery	Heat Pump	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	New	424	15	\$149	75%	75%	\$0.05	2
Idaho	Grocery	Heat Pump	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	New	0.10	18	\$0.17	45%	65%	\$0.20	0.24
Idaho	Grocery	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	New	0.28	14	\$1	5%	94%	\$0.83	0.09
Idaho	Grocery	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	New	0.23	40	\$8	4%	98%	\$3.17	0.00
Idaho	Grocery	Heat Pump	Ground Source Heat Pump Replacing Air Source Heat Pump 65 to 135 kBTU/hr - Advanced Efficiency	16.2 EER 4.0 COP	11.0 EER, 3.3 COP	Per installation	New	3,740	30	\$20,593	5%	N/A	\$0.50	0.27
Idaho	Grocery	Heat Pump	Insulation - Ceiling	R-38	R-30 (ID State Code)	per roof sqft	New	0.02	25	\$0.22	75%	85%	\$1.07	0.09
Idaho	Grocery	Heat Pump	Insulation - Duct	R-8	R-5 (ID State Code)	per surface area of duct insul	New	1	20	\$0.28	75%	85%	\$0.03	0.46
Idaho	Grocery	Heat Pump	Insulation - Floor (non-slab)	R-38	R-30 (ID State Code)	per floor area	New	0.03	25	\$0.29	35%	90%	\$0.76	0.09
Idaho	Grocery	Heat Pump	Insulation - Wall	R-21	R-13 (ID State Code)	per floor area	New	0.18	25	\$0.20	95%	85%	\$0.11	0.57
Idaho	Grocery	Heat Pump	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	New	35	30	\$5	50%	95%	\$0.01	4
Idaho	Grocery	Heat Pump	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	New	382	10	\$123	95%	13%	\$0.05	0.13

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Idaho	Grocery	Heat Pump	Windows-High Efficiency	U-0.32	U-0.35 (ID State Code)	per window sqft	New	4	25	\$24	80%	90%	\$0.62	1
Idaho	Grocery	Hvac Aux	Cooking Hood Controls	Demand-Ventilation Control	No Controls	per installation	Existing	1,839	18	\$3,752	95%	65%	\$0.24	55
Idaho	Grocery	Hvac Aux	Motor - CEE Premium-Efficiency Plus	CEE PE+ Motor for HVAC Applications	NEMA Efficiency Motors	per HP	Existing	42	15	\$6	95%	76%	\$0.02	5
Idaho	Grocery	Hvac Aux	Motor Rewind	>15, <500 HP	No Rewind	per HP	Existing	8	8	\$4	65%	25%	\$0.12	0.21
Idaho	Grocery	Hvac Aux	Cooking Hood Controls	Demand-Ventilation Control	No Controls	per installation	New	1,839	18	\$3,752	95%	65%	\$0.24	31
Idaho	Grocery	Hvac Aux	Motor - CEE Premium-Efficiency Plus	CEE PE+ Motor for HVAC Applications	NEMA Efficiency Motors	per HP	New	41	15	\$6	95%	76%	\$0.02	4
Idaho	Grocery	Lighting Exterior	Covered Parking Lighting	Covered Parking Lighting	Normal Lighting	per building sqft	Existing	0.09	10	\$0.02	80%	95%	\$0.05	17
Idaho	Grocery	Lighting Exterior	Daylighting Controls, Outdoors (Photocell)	Photocell	No Controls	per installation	Existing	30	8	\$28	75%	70%	\$0.18	2
Idaho	Grocery	Lighting Exterior	Exterior Building Lighting	30% savings	Normal Lighting	per installation	Existing	238	15	\$333	62%	90%	\$0.18	22
Idaho	Grocery	Lighting Exterior	Solid State LED White Lighting	Landscape, merchandise, signage, structure & task lighting (2.5 W)	50W 10hrs/day, 365 day/yr	per installation	Existing	3	14	\$35	75%	95%	\$1.44	0.42
Idaho	Grocery	Lighting Exterior	Surface Parking Lighting	Surface Parking Lighting	Normal Lighting	per building sqft	Existing	0.04	19	\$0.06	62%	95%	\$0.16	7
Idaho	Grocery	Lighting Exterior	Covered Parking Lighting	Covered Parking Lighting	Normal Lighting	per building sqft	New	0.09	10	\$0.02	80%	95%	\$0.05	9
Idaho	Grocery	Lighting Exterior	Daylighting Controls, Outdoors (Photocell)	Photocell	No Controls	per installation	New	30	8	\$28	75%	70%	\$0.18	1
Idaho	Grocery	Lighting Exterior	Exterior Building Lighting	30% savings	Normal Lighting	per installation	New	238	15	\$333	62%	90%	\$0.18	12
Idaho	Grocery	Lighting Exterior	Solid State LED White Lighting	Landscape, merchandise, signage, structure & task lighting (2.5 W)	50W 10hrs/day, 365 day/yr	per installation	New	3	14	\$35	75%	95%	\$1.44	0.24
Idaho	Grocery	Lighting Exterior	Surface Parking Lighting	Surface Parking Lighting	Normal Lighting	per building sqft	New	0.04	19	\$0.06	62%	95%	\$0.16	4
Idaho	Grocery	Lighting Interior	Cold Cathode Lighting	Cold Cathode Lighting 5 watts	30 W Incandescent Bulb	per installation	Existing	88	5	\$12	15%	94%	\$0.04	0.96
Idaho	Grocery	Lighting Interior	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	Existing	0.35	8	\$0.85	30%	96%	\$0.47	2
Idaho	Grocery	Lighting Interior	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	Existing	0.26	8	\$0.64	30%	96%	\$0.47	1
Idaho	Grocery	Lighting Interior	Exit Sign - LED	LED Exit Sign (2 Watts)	CFL Exit Sign (9 Watts)	per installation	Existing	95	16	\$16	95%	50%	\$0.02	7
Idaho	Grocery	Lighting Interior	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign (2 Watts)	per installation	Existing	17	13	\$30	95%	98%	\$0.25	0.93
Idaho	Grocery	Lighting Interior	LED Refrigeration Case Lights	LED Refrigeration Case Lights	Fluorescent Refrigeration Case	per installation	Existing	229	8	\$246	85%	80%	\$0.21	143
Idaho	Grocery	Lighting Interior	Lighting Package, High Efficiency	15% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	Existing	0.73	13	\$0.21	90%	53%	\$0.04	66
Idaho	Grocery	Lighting Interior	Lighting Package, High Efficiency	Code Required LPD And Control Strategies	Existing Lighting Design LPD	per building sqft	Existing	1	13	\$1	90%	59%	\$0.10	205
Idaho	Grocery	Lighting Interior	Lighting Package, Premium Efficiency	25% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	Existing	1	13	\$0.88	75%	62%	\$0.10	26
Idaho	Grocery	Lighting Interior	Lighting Package, Premium High Bay	35% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	Existing	0.25	13	\$0.14	70%	83%	\$0.08	34
Idaho	Grocery	Lighting Interior	Occupancy Sensor Control, Fluorescent	Occupancy Sensor Control, Fluorescent	No Occupancy Sensor	per occupancy sensor	Existing	1,021	8	\$65	45%	55%	\$0.01	4
Idaho	Grocery	Lighting Interior	Time Clock	Time Clock	No Controls	per 10,000 Watts	Existing	739	8	\$175	20%	81%	\$0.05	2
Idaho	Grocery	Lighting Interior	Cold Cathode Lighting	Cold Cathode Lighting 5 watts	30 W Incandescent Bulb	per installation	New	77	5	\$12	15%	94%	\$0.05	0.48
Idaho	Grocery	Lighting Interior	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	New	0.31	8	\$0.85	30%	96%	\$0.54	1
Idaho	Grocery	Lighting Interior	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	New	0.58	8	\$0.64	30%	96%	\$0.22	2

Table C.2.2. Commercial Measure Details

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Idaho	Grocery	Lighting Interior	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign (2 Watts)	per installation	New	17	13	\$30	95%	98%	\$0.25	2
Idaho	Grocery	Lighting Interior	LED Refrigeration Case Lights	LED Refrigeration Case Lights	Fluorescent Refrigeration Case	per installation	New	229	8	\$246	85%	80%	\$0.21	81
Idaho	Grocery	Lighting Interior	Lighting Package, High Efficiency	15% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	New	0.73	15	\$0.12	90%	53%	\$0.02	37
Idaho	Grocery	Lighting Interior	Lighting Package, Premium Efficiency	25% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	New	1	15	\$0.28	75%	62%	\$0.03	14
Idaho	Grocery	Lighting Interior	Lighting Package, Premium High Bay	35% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	New	0.25	15	\$0.02	70%	83%	\$0.01	19
Idaho	Grocery	Lighting Interior	Occupancy Sensor Control, Fluorescent	Occupancy Sensor Control, Fluorescent	No Occupancy Sensor	per occupancy sensor	New	897	8	\$65	45%	55%	\$0.01	2
Idaho	Grocery	Lighting Interior	Time Clock	Time Clock	No Controls	per 10,000 Watts	New	739	8	\$175	20%	81%	\$0.05	1
Idaho	Grocery	Other Office Equipment	ENERGY STAR - Copiers	ENERGY STAR Copiers	Standard Copier	per installation	Existing	72	6	\$160	95%	45%	\$0.54	0.87
Idaho	Grocery	Other Office Equipment	ENERGY STAR - Fax	ENERGY STAR Fax	Standard Fax	per installation	Existing	76	6	\$1	95%	45%	\$0.01	0.93
Idaho	Grocery	Other Office Equipment	ENERGY STAR - Monitors	ENERGY STAR Features Enabled	Non-ENERGY STAR Features	per installation	Existing	14	5	\$16	64%	15%	\$0.32	0.14
Idaho	Grocery	Other Office Equipment	ENERGY STAR - Printers	ENERGY STAR Printers	Standard Printers	per installation	Existing	135	6	\$15	95%	40%	\$0.03	3
Idaho	Grocery	Other Office Equipment	ENERGY STAR - Scanners	ENERGY STAR Scanners	Standard Scanner	per installation	Existing	70	6	\$0.87	95%	45%	\$0.00	0.84
Idaho	Grocery	Other Office Equipment	ENERGY STAR - Copiers	ENERGY STAR Copiers	Standard Copier	per installation	New	72	6	\$160	95%	45%	\$0.54	0.49
Idaho	Grocery	Other Office Equipment	ENERGY STAR - Fax	ENERGY STAR Fax	Standard Fax	per installation	New	76	6	\$1	95%	45%	\$0.01	0.52
Idaho	Grocery	Other Office Equipment	ENERGY STAR - Monitors	ENERGY STAR Features Enabled	Non-ENERGY STAR Features	per installation	New	14	5	\$16	64%	15%	\$0.32	0.08
Idaho	Grocery	Other Office Equipment	ENERGY STAR - Printers	ENERGY STAR Printers	Standard Printers	per installation	New	135	6	\$15	95%	40%	\$0.03	1
Idaho	Grocery	Other Office Equipment	ENERGY STAR - Scanners	ENERGY STAR Scanners	Standard Scanner	per installation	New	70	6	\$0.87	95%	45%	\$0.00	0.48
Idaho	Grocery	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	per installation	Existing	7	7	\$1	20%	90%	\$0.05	0.03
Idaho	Grocery	Other Plug Load	ENERGY STAR - Water Cooler	ENERGY STAR Water Cooler (Hot/Cold Water)	Non-ENERGY STAR Water Cooler	per installation	Existing	356	10	\$0.00	95%	75%	\$0.00	3
Idaho	Grocery	Other Plug Load	Ice Maker	High-Efficiency Ice Maker	Standard Ice Maker	per installation	Existing	415	10	\$140	95%	86%	\$0.03	24
Idaho	Grocery	Other Plug Load	Power Supply Transformer/Converter	80 Plus	85% efficient power supply (> 51W)	1 unit per 2,000 sqft	Existing	6	4	\$0.40	95%	86%	\$0.02	0.59
Idaho	Grocery	Other Plug Load	Residential Refrigerator	ENERGY STAR	Federal Standard	per installation	Existing	78	12	\$122	3%	65%	\$0.23	0.11
Idaho	Grocery	Other Plug Load	Residential Refrigerator/Freezer Recycling	Recycling Existing Refrigerator/Freezer	Existing Refrigerator/Freezer	per installation	Existing	935	4	\$560	25%	35%	\$0.21	2
Idaho	Grocery	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	1 unit per 5,000 sqft	Existing	98	5	\$20	60%	90%	\$0.06	2
Idaho	Grocery	Other Plug Load	Vending Machines- High Efficiency	ENERGY STAR (Tier 2) Vending Machines- High Efficiency 500 can capacity Under 5.92 kWh/day	Vending Machines- Standard 13 kWh/day	per installation	Existing	235	14	\$161	75%	80%	\$0.09	8
Idaho	Grocery	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	per installation	New	7	7	\$1	20%	90%	\$0.05	0.02
Idaho	Grocery	Other Plug Load	ENERGY STAR - Water Cooler	ENERGY STAR Water Cooler (Hot/Cold Water)	Non-ENERGY STAR Water Cooler	per installation	New	356	10	\$0.00	95%	75%	\$0.00	1
Idaho	Grocery	Other Plug Load	Ice Maker	High-Efficiency Ice Maker	Standard Ice Maker	per installation	New	415	10	\$140	95%	86%	\$0.03	13
Idaho	Grocery	Other Plug Load	Power Supply Transformer/Converter	80 Plus	85% efficient power supply (> 51W)	1 unit per 2,000 sqft	New	6	4	\$0.40	95%	86%	\$0.02	0.33
Idaho	Grocery	Other Plug Load	Residential Refrigerator	ENERGY STAR	Federal Standard	per installation	New	78	12	\$122	3%	65%	\$0.23	0.06

Table C.2.2. Commercial Measure Details

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Idaho	Grocery	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	1 unit per 5,000 sqft	New	98	5	\$20	60%	90%	\$0.06	1
Idaho	Grocery	Other Plug Load	Vending Machines- High Efficiency	ENERGY STAR (Tier 2) Vending Machines- High Efficiency 500 can capacity Under 5.92 kWh/day	Vending Machines- Standard 13 kWh/day	per installation	New	235	14	\$161	75%	80%	\$0.09	4
Idaho	Grocery	Refrigeration	Anti-Sweat (Humidistat) Controls	Anti-Sweat (Humidistat) Controls	No Anti-Sweat (Humidistat) Controls	1 unit per 1,000 sqft	Existing	964	12	\$71	90%	45%	\$0.01	55
Idaho	Grocery	Refrigeration	Case Electronically Commutated Motor	ECM Case Fans	Standard Efficiency Motor	1 unit per 1,000 sqft	Existing	1,004	12	\$240	100%	77%	\$0.04	135
Idaho	Grocery	Refrigeration	Case Replacement Low Temp	Case Replacement Low Temp	No replacement	per square foot	Existing	0.96	15	\$0.10	95%	95%	\$0.01	152
Idaho	Grocery	Refrigeration	Case Replacement Med Temp	Case Replacement Med Temp	No replacement	per square foot	Existing	0.08	15	\$0.05	95%	95%	\$0.09	13
Idaho	Grocery	Refrigeration	Compressor VSD Retrofit	VSD Compressor	Constant Speed Compressor	per refrigeration ton	Existing	1,486	13	\$228	60%	77%	\$0.02	151
Idaho	Grocery	Refrigeration	Demand Control Defrost - Hot Gas	Refrigerant Defrost	Defrost - Electric	per installation	Existing	862	10	\$8	95%	68%	\$0.00	32
Idaho	Grocery	Refrigeration	Floating Condenser Head Pressure Controls	Floating Condenser Head Pressure Controls	No Floating Condenser Head Pressure Controls	1 unit per 1,000 sqft	Existing	1,765	15	\$194	50%	81%	\$0.01	99
Idaho	Grocery	Refrigeration	Glass Door ES Refrigerators/Freezers	Glass Door ES Refrigerators/Freezers	Standard Glass Doors	per installation	Existing	2,515	12	\$718	95%	77%	\$0.04	107
Idaho	Grocery	Refrigeration	Night Covers for Display Cases	Night Covers for Display Cases	No Night Covers	per installation	Existing	397	5	\$64	95%	85%	\$0.05	91
Idaho	Grocery	Refrigeration	Refrigeration Commissioning or Re-commissioning	Commissioning / Re-commissioning	No Commissioning / Re-commissioning	per refrigeration ton	Existing	804	3	\$88	95%	85%	\$0.05	136
Idaho	Grocery	Refrigeration	Solid Door ES Refrigerators/Freezers	Solid Door ES Refrigerators/Freezers	Standard Solid Door	per installation	Existing	1,140	12	\$189	95%	81%	\$0.02	51
Idaho	Grocery	Refrigeration	Standalone to Multiplex Compressor	Standalone to Multiplex Compressor	Standalone compressor	per building sqft	Existing	0.60	13	\$0.08	80%	90%	\$0.02	59
Idaho	Grocery	Refrigeration	Strip Curtains for Walk-Ins	Strip Curtains for Walk-Ins	No Strip Curtains for Walk-In	per installation	Existing	1,326	4	\$183	95%	20%	\$0.05	14
Idaho	Grocery	Refrigeration	Walk-In Electronically Commutated Motor	ECM Evaporator Fans	Standard Efficiency Motor	per installation	Existing	0.85	12	\$0.17	95%	95%	\$0.03	135
Idaho	Grocery	Refrigeration	Anti-Sweat (Humidistat) Controls	Anti-Sweat (Humidistat) Controls	No Anti-Sweat (Humidistat) Controls	1 unit per 1,000 sqft	New	964	12	\$71	90%	45%	\$0.01	33
Idaho	Grocery	Refrigeration	Case Electronically Commutated Motor	ECM Case Fans	Standard Efficiency Motor	1 unit per 1,000 sqft	New	1,004	12	\$240	100%	77%	\$0.04	76
Idaho	Grocery	Refrigeration	Demand Control Defrost - Hot Gas	Refrigerant Defrost	Defrost - Electric	per installation	New	862	10	\$8	95%	68%	\$0.00	18
Idaho	Grocery	Refrigeration	Floating Condenser Head Pressure Controls	Floating Condenser Head Pressure Controls	No Floating Condenser Head Pressure Controls	1 unit per 1,000 sqft	New	1,765	15	\$194	50%	81%	\$0.01	59
Idaho	Grocery	Refrigeration	Glass Door ES Refrigerators/Freezers	Glass Door ES Refrigerators/Freezers	Standard Glass Doors	per installation	New	2,515	12	\$718	95%	77%	\$0.04	60
Idaho	Grocery	Refrigeration	Night Covers for Display Cases	Night Covers for Display Cases	No Night Covers	per installation	New	397	5	\$64	95%	85%	\$0.05	49
Idaho	Grocery	Refrigeration	Refrigeration Commissioning or Re-commissioning	Commissioning / Re-commissioning	No Commissioning / Re-commissioning	per refrigeration ton	New	497	3	\$34	80%	90%	\$0.03	48
Idaho	Grocery	Refrigeration	Solid Door ES Refrigerators/Freezers	Solid Door ES Refrigerators/Freezers	Standard Solid Door	per installation	New	1,140	12	\$189	95%	81%	\$0.02	29
Idaho	Grocery	Refrigeration	Strip Curtains for Walk-Ins	Strip Curtains for Walk-Ins	No Strip Curtains for Walk-In	per installation	New	1,326	4	\$183	95%	20%	\$0.05	8
Idaho	Grocery	Refrigeration	Walk-In Electronically Commutated Motor	ECM Evaporator Fans	Standard Efficiency Motor	per installation	New	0.85	12	\$0.17	95%	95%	\$0.03	76
Idaho	Grocery	Space Heat	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	Existing	587	15	\$149	75%	75%	\$0.03	15
Idaho	Grocery	Space Heat	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	Existing	0.14	18	\$0.17	45%	65%	\$0.14	1
Idaho	Grocery	Space Heat	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	Existing	0.88	14	\$1	5%	94%	\$0.27	1
Idaho	Grocery	Space Heat	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	7	13	\$0.24	10%	39%	\$0.00	0.92
Idaho	Grocery	Space Heat	Insulation - Ceiling	R-30 (ID State Code)	R-7 (Average Existing Conditions)	per roof sqft	Existing	1	25	\$0.67	75%	49%	\$0.05	19
Idaho	Grocery	Space Heat	Insulation - Ceiling	R-38	R-30 (ID State Code)	per roof sqft	Existing	0.13	25	\$0.22	25%	85%	\$0.17	0.92

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Idaho	Grocery	Space Heat	Insulation - Duct	R-5 (ID State Code)	No Insulation	per surface area of duct insul	Existing	2	20	\$1	75%	61%	\$0.07	2
Idaho	Grocery	Space Heat	Insulation - Duct	R-8	R-5 (ID State Code)	per surface area of duct insul	Existing	1	20	\$0.28	75%	85%	\$0.02	3
Idaho	Grocery	Space Heat	Insulation - Floor (non-slab)	R-30 (ID State Code)	R-11 (Average Existing Conditions)	per floor area	Existing	1	25	\$0.84	35%	84%	\$0.06	14
Idaho	Grocery	Space Heat	Insulation - Floor (non-slab)	R-38	R-30 (ID State Code)	per floor area	Existing	0.26	25	\$0.29	35%	90%	\$0.12	2
Idaho	Grocery	Space Heat	Insulation - Wall	R-13 (ID State Code)	R-3 (Average Existing Conditions)	per floor area	Existing	3	25	\$0.90	10%	65%	\$0.03	4
Idaho	Grocery	Space Heat	Insulation - Wall	R-21	R-13 (ID State Code)	per floor area	Existing	1	25	\$0.20	10%	85%	\$0.01	2
Idaho	Grocery	Space Heat	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	Existing	49	30	\$5	50%	95%	\$0.01	31
Idaho	Grocery	Space Heat	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	Existing	529	10	\$123	95%	27%	\$0.04	1
Idaho	Grocery	Space Heat	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	0.73	7	\$0.13	90%	85%	\$0.04	24
Idaho	Grocery	Space Heat	Windows-High Efficiency	U-0.35 (ID State Code)	U-0.65 (Average Existing Conditions)	per window sqft	Existing	1	25	\$67	15%	61%	\$4.76	0.24
Idaho	Grocery	Space Heat	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	New	218	15	\$149	75%	75%	\$0.09	2
Idaho	Grocery	Space Heat	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	New	0.05	18	\$0.17	45%	65%	\$0.39	0.36
Idaho	Grocery	Space Heat	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	New	0.32	14	\$1	5%	94%	\$0.72	0.34
Idaho	Grocery	Space Heat	Insulation - Ceiling	R-38	R-30 (ID State Code)	per roof sqft	New	0.05	25	\$0.22	75%	85%	\$0.45	0.71
Idaho	Grocery	Space Heat	Insulation - Duct	R-8	R-5 (ID State Code)	per surface area of duct insul	New	0.55	20	\$0.28	75%	85%	\$0.06	0.68
Idaho	Grocery	Space Heat	Insulation - Floor (non-slab)	R-38	R-30 (ID State Code)	per floor area	New	0.09	25	\$0.29	35%	90%	\$0.31	0.70
Idaho	Grocery	Space Heat	Insulation - Wall	R-21	R-13 (ID State Code)	per floor area	New	0.54	25	\$0.20	95%	85%	\$0.04	5
Idaho	Grocery	Space Heat	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	New	18	30	\$5	50%	95%	\$0.03	6
Idaho	Grocery	Space Heat	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	New	197	10	\$123	95%	13%	\$0.10	0.19
Idaho	Grocery	Water Heat	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	per building sqft	Existing	0.01	10	\$0.23	75%	94%	\$2.37	1
Idaho	Grocery	Water Heat	Dishwasher Residential	ENERGY STAR <= 324 kWh/yr, <= 5.8 gal/cycle	Federal Standard <= 355 kWh/yr, <= 6.5 gal/cycle	per installation	Existing	30	11	\$30	95%	25%	\$0.10	0.08
Idaho	Grocery	Water Heat	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	per installation	Existing	7,230	10	\$2,620	95%	95%	\$0.02	3
Idaho	Grocery	Water Heat	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	per installation	Existing	3,378	10	\$811	95%	94%	\$-0.02	0.72
Idaho	Grocery	Water Heat	Electric Water Heater - High Efficiency	EF = 0.95	EF = 0.92	Per installation	Existing	31	15	\$87	100%	N/A	\$0.35	0.14
Idaho	Grocery	Water Heat	Heat Pump Water Heater - Advanced-Efficiency	EF = 2.2	EF = 0.92	Per installation	Existing	587	15	\$1,564	75%	N/A	\$0.34	10
Idaho	Grocery	Water Heat	Hot Water (SHW) Pipe Insulation	1.0" of Insulation, assuming R-4 (ID State Code)	No Insulation	per linear foot	Existing	1	12	\$2	80%	90%	\$0.25	0.26
Idaho	Grocery	Water Heat	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	per installation	Existing	15	9	\$0.00	95%	25%	\$-0.08	0.33
Idaho	Grocery	Water Heat	Low-Flow Faucet Aerators	2.2 GPM (Federal Code)	3.0 GPM	per installation	Existing	13	9	\$2	95%	25%	\$-0.05	0.28
Idaho	Grocery	Water Heat	Low-Flow Pre-Rinse Spray Valves	0.6 GPM	1.6 GPM (Federal Standard)	per installation	Existing	64	5	\$5	95%	74%	\$-0.07	3
Idaho	Grocery	Water Heat	Water Cooled Refrigeration with Heat Recovery	Heat Recovery from refrigeration system. Applied to Water Heating Electric End use	No heat recovery	per sqft of refrigerated area	Existing	0.03	10	\$0.76	55%	94%	\$3.33	2
Idaho	Grocery	Water Heat	Water Heater Temperature Setback	Water Heater Temperature Setback (120 F)	No Change in Water Temperature	per installation	Existing	77	5	\$71	75%	50%	\$0.26	1

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Idaho	Grocery	Water Heat	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	per building sqft	New	0.01	10	\$0.23	75%	94%	\$2.46	0.70
Idaho	Grocery	Water Heat	Dishwasher Residential	ENERGY STAR <= 324 kWh/yr, <= 5.8 gal/cycle	Federal Standard <= 355 kWh/yr, <= 6.5 gal/cycle	per installation	New	30	11	\$30	95%	55%	\$0.10	0.10
Idaho	Grocery	Water Heat	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	per installation	New	7,267	10	\$2,624	95%	95%	\$0.02	1
Idaho	Grocery	Water Heat	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	per installation	New	3,395	10	\$815	95%	94%	\$-0.02	0.40
Idaho	Grocery	Water Heat	Electric Water Heater - High Efficiency	EF = 0.95	EF = 0.92	Per installation	New	31	15	\$87	100%	N/A	\$0.35	0.06
Idaho	Grocery	Water Heat	Heat Pump Water Heater - Advanced-Efficiency	EF = 2.2	EF = 0.92	Per installation	New	587	15	\$1,397	75%	N/A	\$0.31	4
Idaho	Grocery	Water Heat	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	per installation	New	15	9	\$0.00	95%	25%	\$-0.08	0.18
Idaho	Grocery	Water Heat	Low-Flow Pre-Rinse Spray Valves	0.6 GPM	1.6 GPM (Federal Standard)	per installation	New	65	5	\$5	95%	74%	\$-0.07	1
Idaho	Grocery	Water Heat	Water Cooled Refrigeration with Heat Recovery	Heat Recovery from refrigeration system. Applied to Water Heating Electric End use	No heat recovery	per sqft of refrigerated area	New	0.03	10	\$0.76	55%	94%	\$3.45	1
Idaho	Grocery	Water Heat	Water Heater Temperature Setback	Water Heater Temperature Setback (120 F)	No Change in Water Temperature	per installation	New	74	5	\$71	75%	50%	\$0.27	0.59
Idaho	Health	Computers	Computer ENERGY STAR	Computer ENERGY STAR	Computer standard non-ENERGY STAR	Per installation	Existing	135	4	\$28	100%	N/A	\$0.07	187
Idaho	Health	Computers	Network PC Power Management	Network PC Power Management	No Power Management	per computer	Existing	87	5	\$12	95%	30%	\$0.04	41
Idaho	Health	Computers	Computer ENERGY STAR	Computer ENERGY STAR	Computer standard non-ENERGY STAR	Per installation	New	135	4	\$28	100%	N/A	\$0.07	16
Idaho	Health	Computers	Network PC Power Management	Network PC Power Management	No Power Management	per computer	New	87	5	\$12	95%	30%	\$0.04	23
Idaho	Health	Cooking	Combination Oven	60% cooking efficiency	Non ENERGY STAR	per installation	Existing	11,675	12	\$1,936	90%	90%	\$0.02	0.01
Idaho	Health	Cooking	Fryers - New CEE Efficient Electric Deep Fat Fryers	15 inch width Deep Fryer CEE 2006 rating; 80% under heavy load, Less than 1000 watt at idle	15 inch width standard electric deep fat fryers	per installation	Existing	937	12	\$1,244	25%	90%	\$0.20	0.00
Idaho	Health	Cooking	Griddle	70% cooking efficiency	Non ENERGY STAR	per installation	Existing	2,254	12	\$813	95%	85%	\$0.05	0.08
Idaho	Health	Cooking	High Efficiency Convection Oven	Convection Oven	Standard Oven	per installation	Existing	1,865	12	\$2,013	7%	55%	\$0.16	0.00
Idaho	Health	Cooking	Hot Food Holding Cabinet	ENERGY STAR	Non ENERGY STAR	per installation	Existing	3,914	12	\$1,742	15%	21%	\$0.07	0.01
Idaho	Health	Cooking	Steam Cooker	ENERGY STAR	Non ENERGY STAR	per installation	Existing	4,189	12	\$2,541	11%	75%	\$0.09	0.03
Idaho	Health	Cooking	Combination Oven	60% cooking efficiency	Non ENERGY STAR	per installation	New	11,675	12	\$1,936	90%	90%	\$0.02	0.00
Idaho	Health	Cooking	Fryers - New CEE Efficient Electric Deep Fat Fryers	15 inch width Deep Fryer CEE 2006 rating; 80% under heavy load, Less than 1000 watt at idle	15 inch width standard electric deep fat fryers	per installation	New	937	12	\$1,244	25%	90%	\$0.20	0.00
Idaho	Health	Cooking	Griddle	70% cooking efficiency	Non ENERGY STAR	per installation	New	2,254	12	\$813	95%	85%	\$0.05	0.05
Idaho	Health	Cooking	High Efficiency Convection Oven	Convection Oven	Standard Oven	per installation	New	1,865	12	\$2,013	7%	55%	\$0.16	0.00
Idaho	Health	Cooking	Hot Food Holding Cabinet	ENERGY STAR	Non ENERGY STAR	per installation	New	3,914	12	\$1,742	15%	21%	\$0.07	0.00
Idaho	Health	Cooking	Steam Cooker	ENERGY STAR	Non ENERGY STAR	per installation	New	4,189	12	\$2,541	11%	75%	\$0.09	0.01
Idaho	Health	Cooling Chillers	Automated Ventilation VFD Control(Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	1 unit per 3,000 sqft	Existing	379	15	\$683	5%	94%	\$0.23	0.31
Idaho	Health	Cooling Chillers	Chilled Water / Condenser Water Settings-Optimization	Additional Control Features	EMS already installed - No Optimization	1 control point per 1000 sqft	Existing	15	5	\$139	95%	81%	\$2.51	0.58
Idaho	Health	Cooling Chillers	Chilled Water Piping Loop w/ VSD Control	VSD for secondary chilled water loop	Primary loop only w/ constant speed pump	per chiller ton	Existing	25	10	\$190	25%	70%	\$1.23	0.82
Idaho	Health	Cooling Chillers	Chiller-Water Side Economizer	Install Economizer	No Economizer	per chiller ton	Existing	17	15	\$422	45%	90%	\$3.20	1

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Idaho	Health	Cooling Chillers	Chillers <150 tons (screw) - Advanced Efficiency	0.58 kW/ton (full load)	0.790 kW/Ton (full load)	Per installation	Existing	1,182	20	\$2,573	100%	N/A	\$0.24	9
Idaho	Health	Cooling Chillers	Chillers <150 tons (screw) - High Efficiency	0.71 kW/ton (full load)	0.790 kW/Ton (full load)	Per installation	Existing	451	20	\$980	100%	N/A	\$0.24	0.07
Idaho	Health	Cooling Chillers	Chillers <150 tons (screw) - Premium Efficiency	0.63 kW/ton	0.790 kW/Ton (full load)	Per installation	Existing	878	20	\$1,960	100%	N/A	\$0.25	0.57
Idaho	Health	Cooling Chillers	Convert Constant Volume Air System to VAV	Variable Volume Air System	Constant Volume Air System	per building CFM	Existing	0.37	15	\$2	15%	68%	\$0.89	1
Idaho	Health	Cooling Chillers	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	Existing	0.12	15	\$0.69	15%	98%	\$0.71	0.87
Idaho	Health	Cooling Chillers	Cooling Tower-Decrease Approach Temperature	6 Deg F	10 Deg F	per chiller ton	Existing	27	8	\$26	10%	94%	\$0.20	0.50
Idaho	Health	Cooling Chillers	Cooling Tower-Two-Speed Fan Motor	Cooling Tower-Two-Speed Fan Motor	Cooling Tower-One-Speed Fan Motor	per chiller ton	Existing	47	15	\$2	95%	35%	\$0.01	3
Idaho	Health	Cooling Chillers	Cooling Tower-VSD Fan Control	Variable-Speed Tower Fans replace Two-Speed	Cooling Tower-Two-Speed Fan Motor	per chiller ton	Existing	13	13	\$19	95%	75%	\$0.20	1
Idaho	Health	Cooling Chillers	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	Existing	126	15	\$149	75%	75%	\$0.15	4
Idaho	Health	Cooling Chillers	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	Existing	0.12	40	\$8	4%	98%	\$5.92	0.02
Idaho	Health	Cooling Chillers	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	0.82	13	\$0.24	10%	39%	\$0.04	0.15
Idaho	Health	Cooling Chillers	Insulation - Ceiling	R-30 (ID State Code)	R-11 (Average Existing Conditions)	per roof sqft	Existing	0.00	25	\$0.67	75%	64%	\$23.83	0.06
Idaho	Health	Cooling Chillers	Pipe Insulation	1.5" of Insulation, assuming R-6 (ID State Code)	No Insulation	per linear feet of insulation	Existing	3	15	\$3	65%	45%	\$0.11	0.35
Idaho	Health	Cooling Chillers	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	0.15	7	\$0.13	90%	85%	\$0.19	7
Idaho	Health	Cooling Chillers	Window Film	Window Film	No Film	per 100 sqft of window glazing	Existing	1	10	\$130	90%	68%	\$13.26	0.03
Idaho	Health	Cooling Chillers	Windows-High Efficiency	U-0.32	U-0.35 (ID State Code)	per window sqft	Existing	2	25	\$24	15%	90%	\$0.99	1
Idaho	Health	Cooling Chillers	Windows-High Efficiency	U-0.35 (ID State Code)	U-0.67 (Average Existing Conditions)	per window sqft	Existing	2	25	\$67	15%	62%	\$3.38	0.68
Idaho	Health	Cooling Chillers	Automated Ventilation VFD Control(Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	1 unit per 3,000 sqft	New	181	15	\$366	5%	94%	\$0.26	0.12
Idaho	Health	Cooling Chillers	Chilled Water / Condenser Water Settings-Optimization	Additional Control Features	EMS already installed - No Optimization	1 control point per 1000 sqft	New	7	5	\$139	95%	81%	\$5.24	0.19
Idaho	Health	Cooling Chillers	Chilled Water Piping Loop w/ VSD Control	VSD for secondary chilled water loop	Primary loop only w/ constant speed pump	per chiller ton	New	13	10	\$190	25%	70%	\$2.32	0.26
Idaho	Health	Cooling Chillers	Chillers <150 tons (screw) - Advanced Efficiency	0.58 kW/ton (full load)	0.790 kW/Ton (full load)	Per installation	New	666	20	\$2,316	100%	N/A	\$0.39	4
Idaho	Health	Cooling Chillers	Chillers <150 tons (screw) - High Efficiency	0.71 kW/ton (full load)	0.790 kW/Ton (full load)	Per installation	New	254	20	\$882	100%	N/A	\$0.39	0.02
Idaho	Health	Cooling Chillers	Chillers <150 tons (screw) - Premium Efficiency	0.63 kW/ton	0.790 kW/Ton (full load)	Per installation	New	495	20	\$1,764	100%	N/A	\$0.40	0.17
Idaho	Health	Cooling Chillers	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	New	0.06	15	\$0.69	15%	98%	\$1.48	0.30
Idaho	Health	Cooling Chillers	Cooling Tower-Decrease Approach Temperature	6 Deg F	10 Deg F	per chiller ton	New	14	8	\$26	10%	94%	\$0.38	0.17
Idaho	Health	Cooling Chillers	Cooling Tower-VSD Fan Control	Variable-Speed Tower Fans replace Two-Speed	Cooling Tower-Two-Speed Fan Motor	per chiller ton	New	7	15	\$19	95%	75%	\$0.35	0.68

Table C.2.2. Commercial Measure Details

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Idaho	Health	Cooling Chillers	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	New	60	15	\$149	75%	75%	\$0.32	1
Idaho	Health	Cooling Chillers	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	New	0.06	40	\$8	4%	98%	\$12.36	0.00
Idaho	Health	Cooling Chillers	Windows-High Efficiency	U-0.32	U-0.35 (ID State Code)	per window sqft	New	1	25	\$24	80%	90%	\$2.07	2
Idaho	Health	Cooling Dx Evap	Automated Ventilation VFD Control(Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	1 unit per 3,000 sqft	Existing	448	15	\$683	5%	94%	\$0.20	3
Idaho	Health	Cooling Dx Evap	Convert Constant Volume Air System to VAV	Variable Volume Air System	Constant Volume Air System	per building CFM	Existing	0.44	15	\$2	15%	68%	\$0.75	18
Idaho	Health	Cooling Dx Evap	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	Existing	0.14	15	\$0.69	15%	98%	\$0.60	9
Idaho	Health	Cooling Dx Evap	DX Package 65 to 135 kBtu/hr - High Efficiency	DX Package 65 to 135 kBtu/hr - High Efficiency - 11.5 EER	DX Package 65 to 135 kBtu/hr - Standard Efficiency - 11.2 EER	Per installation	Existing	274	15	\$370	100%	N/A	\$0.18	1
Idaho	Health	Cooling Dx Evap	DX Package 65 to 135 kBtu/hr - Premium Efficiency	DX Package 65 to 135 kBtu/hr - Premium Efficiency - 12.0 EER	DX Package 65 to 135 kBtu/hr - Standard Efficiency - 11.2 EER	Per installation	Existing	652	15	\$745	100%	N/A	\$0.15	37
Idaho	Health	Cooling Dx Evap	DX Package-Air Side Economizer	Air-Side Economizer	No Economizer	per DX ton	Existing	67	10	\$155	10%	30%	\$0.39	3
Idaho	Health	Cooling Dx Evap	DX Tune-Up / Diagnostics	DX Tune-Up / Diagnostics	No DX Tune-Up / Diagnostics	per installation	Existing	336	4	\$249	95%	72%	\$0.28	52
Idaho	Health	Cooling Dx Evap	Direct / Indirect Evaporative Cooling, Pre-Cooling	Evaporative Cooler	Standard DX cooling	per building CFM	Existing	0.37	15	\$1	50%	94%	\$0.62	81
Idaho	Health	Cooling Dx Evap	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	Existing	149	15	\$149	75%	75%	\$0.13	51
Idaho	Health	Cooling Dx Evap	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	Existing	0.03	18	\$0.17	45%	65%	\$0.56	5
Idaho	Health	Cooling Dx Evap	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	Existing	0.14	40	\$8	4%	98%	\$5.00	0.19
Idaho	Health	Cooling Dx Evap	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	0.98	13	\$0.24	10%	39%	\$0.04	1
Idaho	Health	Cooling Dx Evap	Insulation - Ceiling	R-30 (ID State Code)	R-11 (Average Existing Conditions)	per roof sqft	Existing	0.00	25	\$0.67	75%	64%	\$20.15	0.62
Idaho	Health	Cooling Dx Evap	Insulation - Duct	R-5 (ID State Code)	No Insulation	per surface area of duct insul	Existing	0.57	20	\$1	75%	61%	\$0.28	10
Idaho	Health	Cooling Dx Evap	Insulation - Duct	R-8	R-5 (ID State Code)	per surface area of duct insul	Existing	0.38	20	\$0.28	75%	85%	\$0.08	11
Idaho	Health	Cooling Dx Evap	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	Existing	9	30	\$5	50%	95%	\$0.05	72
Idaho	Health	Cooling Dx Evap	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	Existing	179	10	\$123	95%	21%	\$0.11	5
Idaho	Health	Cooling Dx Evap	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	0.18	7	\$0.13	90%	85%	\$0.16	82
Idaho	Health	Cooling Dx Evap	Window Film	Window Film	No Film	per 100 sqft of window glazing	Existing	1	10	\$130	90%	68%	\$13.19	0.29
Idaho	Health	Cooling Dx Evap	Windows-High Efficiency	U-0.32	U-0.35 (ID State Code)	per window sqft	Existing	3	25	\$24	15%	90%	\$0.84	12
Idaho	Health	Cooling Dx Evap	Windows-High Efficiency	U-0.35 (ID State Code)	U-0.67 (Average Existing Conditions)	per window sqft	Existing	2	25	\$67	15%	62%	\$2.86	6
Idaho	Health	Cooling Dx Evap	Automated Ventilation VFD Control(Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	1 unit per 3,000 sqft	New	235	15	\$366	5%	94%	\$0.20	1

Table C.2.2. Commercial Measure Details

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Idaho	Health	Cooling Dx Evap	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	New	0.07	15	\$0.69	15%	98%	\$1.14	3
Idaho	Health	Cooling Dx Evap	DX Package 65 to 135 kBtu/hr - High Efficiency	DX Package 65 to 135 kBtu/hr - High Efficiency - 11.5 EER	DX Package 65 to 135 kBtu/hr - Standard Efficiency - 11.2 EER	Per installation	New	119	15	\$296	100%	N/A	\$0.32	0.17
Idaho	Health	Cooling Dx Evap	DX Package 65 to 135 kBtu/hr - Premium Efficiency	DX Package 65 to 135 kBtu/hr - Premium Efficiency - 12.0 EER	DX Package 65 to 135 kBtu/hr - Standard Efficiency - 11.2 EER	Per installation	New	342	15	\$596	100%	N/A	\$0.23	11
Idaho	Health	Cooling Dx Evap	Direct / Indirect Evaporative Cooling, Pre-Cooling	Evaporative Cooler	Standard DX cooling	per building CFM	New	0.19	15	\$1	50%	94%	\$1.18	31
Idaho	Health	Cooling Dx Evap	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	New	78	15	\$149	75%	75%	\$0.25	16
Idaho	Health	Cooling Dx Evap	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	New	0.01	18	\$0.17	45%	65%	\$1.07	1
Idaho	Health	Cooling Dx Evap	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	New	0.07	40	\$8	4%	98%	\$9.53	0.07
Idaho	Health	Cooling Dx Evap	Insulation - Duct	R-8	R-5 (ID State Code)	per surface area of duct insul	New	0.19	20	\$0.28	75%	85%	\$0.16	3
Idaho	Health	Cooling Dx Evap	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	New	4	30	\$5	50%	95%	\$0.10	22
Idaho	Health	Cooling Dx Evap	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	New	94	10	\$123	95%	11%	\$0.22	0.87
Idaho	Health	Cooling Dx Evap	Windows-High Efficiency	U-0.32	U-0.35 (ID State Code)	per window sqft	New	1	25	\$24	80%	90%	\$1.60	25
Idaho	Health	Cooling Room	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	Existing	0.19	15	\$0.69	15%	98%	\$0.46	0.16
Idaho	Health	Cooling Room	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	Existing	193	15	\$149	75%	75%	\$0.10	0.72
Idaho	Health	Cooling Room	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	Existing	0.19	40	\$8	4%	98%	\$3.87	0.00
Idaho	Health	Cooling Room	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	1	13	\$0.24	10%	39%	\$0.03	0.02
Idaho	Health	Cooling Room	Insulation - Ceiling	R-30 (ID State Code)	R-11 (Average Existing Conditions)	per roof sqft	Existing	0.00	25	\$0.67	75%	64%	\$15.59	0.01
Idaho	Health	Cooling Room	PTAC (10,000 BTU/HR) - Premium-Efficiency	11.4 EER	Room AC (10,000 BTU/HR) Standard-Efficiency 9.8 EER	Per installation	Existing	1,299	15	\$15,964	75%	N/A	\$1.59	1
Idaho	Health	Cooling Room	Room AC (10,000 BTU/HR) High-Efficiency	High Efficiency 10.8 EER (ENERGY STAR)	Room AC (10,000 BTU/HR) Standard-Efficiency 9.8 EER	Per installation	Existing	821	9	\$816	100%	N/A	\$0.18	0.26
Idaho	Health	Cooling Room	Window Film	Window Film	No Film	per 100 sqft of window glazing	Existing	0.08	10	\$130	90%	68%	\$263.01	0.00
Idaho	Health	Cooling Room	Windows-High Efficiency	U-0.32	U-0.35 (ID State Code)	per window sqft	Existing	3	25	\$24	15%	90%	\$0.65	0.24
Idaho	Health	Cooling Room	Windows-High Efficiency	U-0.35 (ID State Code)	U-0.67 (Average Existing Conditions)	per window sqft	Existing	3	25	\$67	15%	62%	\$2.21	0.13
Idaho	Health	Cooling Room	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	New	0.10	15	\$0.69	15%	98%	\$0.85	0.05
Idaho	Health	Cooling Room	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	New	105	15	\$149	75%	75%	\$0.18	0.23
Idaho	Health	Cooling Room	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	New	0.10	40	\$8	4%	98%	\$7.07	0.00

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Idaho	Health	Cooling Room	PTAC (10,000 BTU/HR) - Premium-Efficiency	11.4 EER	Room AC (10,000 BTU/HR) Standard-Efficiency 9.8 EER	Per installation	New	706	15	\$11,711	75%	N/A	\$2.15	0.19
Idaho	Health	Cooling Room	Room AC (10,000 BTU/HR) High-Efficiency	High Efficiency 10.8 EER (ENERGY STAR)	Room AC (10,000 BTU/HR) Standard-Efficiency 9.8 EER	Per installation	New	426	9	\$652	100%	N/A	\$0.28	0.03
Idaho	Health	Cooling Room	Windows-High Efficiency	U-0.32	U-0.35 (ID State Code)	per window sqft	New	2	25	\$24	80%	90%	\$1.19	0.42
Idaho	Health	Heat Pump	Air Source Heat Pump 65 to 135 kBtu/hr - High Efficiency	11.5 EER, 3.4 COP	11.0 EER, 3.3 COP	Per installation	Existing	943	15	\$1,378	100%	N/A	\$0.19	1
Idaho	Health	Heat Pump	Air Source Heat Pump 65 to 135 kBtu/hr - Premium Efficiency	12.0 EER, 3.8 COP	11.0 EER, 3.3 COP	Per installation	Existing	3,582	15	\$2,756	100%	N/A	\$0.10	56
Idaho	Health	Heat Pump	Automated Ventilation VFD Control(Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	1 unit per 3,000 sqft	Existing	523	15	\$683	5%	94%	\$0.17	0.65
Idaho	Health	Heat Pump	Convert Constant Volume Air System to VAV	Variable Volume Air System	Constant Volume Air System	per building CFM	Existing	1	15	\$2	15%	68%	\$0.28	9
Idaho	Health	Heat Pump	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	Existing	0.17	15	\$0.69	15%	98%	\$0.51	1
Idaho	Health	Heat Pump	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	Existing	743	15	\$149	75%	75%	\$0.03	43
Idaho	Health	Heat Pump	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	Existing	0.18	18	\$0.17	45%	65%	\$0.11	4
Idaho	Health	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	Existing	0.85	14	\$1	5%	94%	\$0.28	3
Idaho	Health	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	Existing	0.17	40	\$8	4%	98%	\$4.29	0.04
Idaho	Health	Heat Pump	Ground Source Heat Pump Replacing Air Source Heat Pump 65 to 135 kBtu/hr - Advanced Efficiency	16.2 EER 4.0 COP	11.0 EER, 3.3 COP	Per installation	Existing	6,134	30	\$51,813	5%	N/A	\$0.79	2
Idaho	Health	Heat Pump	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	11	13	\$0.24	100%	39%	\$0.00	3
Idaho	Health	Heat Pump	Insulation - Ceiling	R-30 (ID State Code)	R-11 (Average Existing Conditions)	per roof sqft	Existing	0.71	25	\$0.67	75%	64%	\$0.10	29
Idaho	Health	Heat Pump	Insulation - Ceiling	R-38	R-30 (ID State Code)	per roof sqft	Existing	0.10	25	\$0.22	25%	85%	\$0.21	1
Idaho	Health	Heat Pump	Insulation - Duct	R-5 (ID State Code)	No Insulation	per surface area of duct insul	Existing	2	20	\$1	75%	61%	\$0.06	8
Idaho	Health	Heat Pump	Insulation - Duct	R-8	R-5 (ID State Code)	per surface area of duct insul	Existing	1	20	\$0.28	75%	85%	\$0.02	9
Idaho	Health	Heat Pump	Insulation - Floor (non-slab)	R-30 (ID State Code)	R-19 (Average Existing Conditions)	per floor area	Existing	0.56	25	\$0.84	35%	76%	\$0.15	12
Idaho	Health	Heat Pump	Insulation - Floor (non-slab)	R-38	R-30 (ID State Code)	per floor area	Existing	0.23	25	\$0.29	35%	90%	\$0.13	6
Idaho	Health	Heat Pump	Insulation - Wall	R-21	R-13 (ID State Code)	per floor area	Existing	1	25	\$0.20	10%	85%	\$0.02	4
Idaho	Health	Heat Pump	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	Existing	62	30	\$5	50%	95%	\$0.01	87
Idaho	Health	Heat Pump	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	Existing	892	10	\$123	95%	21%	\$0.02	4
Idaho	Health	Heat Pump	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	0.92	7	\$0.13	90%	85%	\$0.03	69
Idaho	Health	Heat Pump	Window Film	Window Film	No Film	per 100 sqft of window glazing	Existing	1	10	\$130	90%	68%	\$13.17	0.05
Idaho	Health	Heat Pump	Windows-High Efficiency	U-0.35 (ID State Code)	U-0.67 (Average Existing Conditions)	per window sqft	Existing	4	25	\$67	15%	62%	\$1.50	2
Idaho	Health	Heat Pump	Air Source Heat Pump 65 to 135 kBtu/hr - High Efficiency	11.5 EER, 3.4 COP	11.0 EER, 3.3 COP	Per installation	New	566	15	\$1,102	100%	N/A	\$0.25	0.31
Idaho	Health	Heat Pump	Air Source Heat Pump 65 to 135 kBtu/hr - Premium Efficiency	12.0 EER, 3.8 COP	11.0 EER, 3.3 COP	Per installation	New	2,479	15	\$2,205	100%	N/A	\$0.12	22

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Idaho	Health	Heat Pump	Automated Ventilation VFD Control(Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	1 unit per 3,000 sqft	New	277	15	\$366	5%	94%	\$0.17	0.23
Idaho	Health	Heat Pump	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	New	0.09	15	\$0.69	15%	98%	\$0.97	0.64
Idaho	Health	Heat Pump	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	New	491	15	\$149	75%	75%	\$0.04	16
Idaho	Health	Heat Pump	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	New	0.12	18	\$0.17	45%	65%	\$0.17	1
Idaho	Health	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	New	0.59	14	\$1	5%	94%	\$0.39	1
Idaho	Health	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	New	0.09	40	\$8	4%	98%	\$8.09	0.01
Idaho	Health	Heat Pump	Ground Source Heat Pump Replacing Air Source Heat Pump 65 to 135 KBTU/hr - Advanced Efficiency	16.2 EER 4.0 COP	11.0 EER, 3.3 COP	Per installation	New	4,100	30	\$27,458	5%	N/A	\$0.61	0.94
Idaho	Health	Heat Pump	Insulation - Ceiling	R-38	R-30 (ID State Code)	per roof sqft	New	0.08	25	\$0.22	75%	85%	\$0.28	2
Idaho	Health	Heat Pump	Insulation - Duct	R-8	R-5 (ID State Code)	per surface area of duct insul	New	1	20	\$0.28	75%	85%	\$0.03	3
Idaho	Health	Heat Pump	Insulation - Floor (non-slab)	R-38	R-30 (ID State Code)	per floor area	New	0.17	25	\$0.29	35%	90%	\$0.17	3
Idaho	Health	Heat Pump	Insulation - Wall	R-21	R-13 (ID State Code)	per floor area	New	1	25	\$0.20	95%	85%	\$0.02	19
Idaho	Health	Heat Pump	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	New	41	30	\$5	50%	95%	\$0.01	34
Idaho	Health	Heat Pump	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	New	589	10	\$123	95%	11%	\$0.04	0.87
Idaho	Health	Hvac Aux	Convert Constant Volume Air System to VAV	Variable Volume Air System	Constant Volume Air System	per building CFM	Existing	0.76	15	\$2	15%	68%	\$0.44	84
Idaho	Health	Hvac Aux	Cooking Hood Controls	Demand-Ventilation Control	No Controls	per installation	Existing	1,852	18	\$3,987	95%	85%	\$0.25	29
Idaho	Health	Hvac Aux	Motor - CEE Premium-Efficiency Plus	CEE PE+ Motor for HVAC Applications	NEMA Efficiency Motors	per HP	Existing	62	15	\$6	95%	76%	\$0.01	41
Idaho	Health	Hvac Aux	Motor - VAV Box High Efficiency (ECM)	ECM Motor	Standard Efficiency Motor	per installation	Existing	158	15	\$176	8%	77%	\$0.14	22
Idaho	Health	Hvac Aux	Motor Rewind	>15, <500 HP	No Rewind	per HP	Existing	12	8	\$4	65%	25%	\$0.08	1
Idaho	Health	Hvac Aux	Optimized Variable Volume Lab Hood Design	Optimized Variable Volume Lab Hood Design	Constant Volume Lab Hood Design	per installation	Existing	408	13	\$1,450	65%	59%	\$0.50	43
Idaho	Health	Hvac Aux	Cooking Hood Controls	Demand-Ventilation Control	No Controls	per installation	New	1,852	18	\$4,220	95%	85%	\$0.27	16
Idaho	Health	Hvac Aux	Low Pressure Distribution Complex HVAC	Low Pressure Distribution Complex HVAC	VAV/CV	per building sqft	New	0.83	50	\$2	24%	98%	\$0.22	97
Idaho	Health	Hvac Aux	Motor - CEE Premium-Efficiency Plus	CEE PE+ Motor for HVAC Applications	NEMA Efficiency Motors	per HP	New	53	15	\$6	95%	76%	\$0.02	25
Idaho	Health	Hvac Aux	Motor - VAV Box High Efficiency (ECM)	ECM Motor	Standard Efficiency Motor	per installation	New	136	15	\$176	8%	77%	\$0.17	10
Idaho	Health	Hvac Aux	Optimized Variable Volume Lab Hood Design	Optimized Variable Volume Lab Hood Design	Constant Volume Lab Hood Design	per installation	New	349	15	\$1,450	65%	59%	\$0.54	21
Idaho	Health	Lighting Exterior	Covered Parking Lighting	Covered Parking Lighting	Normal Lighting	per building sqft	Existing	0.09	10	\$0.02	80%	95%	\$0.05	79
Idaho	Health	Lighting Exterior	Daylighting Controls, Outdoors (Photocell)	Photocell	No Controls	per installation	Existing	19	8	\$28	75%	70%	\$0.28	5
Idaho	Health	Lighting Exterior	Exterior Building Lighting	30% savings	Normal Lighting	per installation	Existing	240	15	\$333	62%	90%	\$0.18	53
Idaho	Health	Lighting Exterior	Solid State LED White Lighting	Landscape, merchandise, signage, structure & task lighting (2.5 W)	50W 10hrs/day, 365 day/yr	per installation	Existing	2	14	\$35	75%	95%	\$2.24	1
Idaho	Health	Lighting Exterior	Surface Parking Lighting	Surface Parking Lighting	Normal Lighting	per building sqft	Existing	0.05	19	\$0.06	62%	95%	\$0.16	33

Table C.2.2. Commercial Measure Details

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Idaho	Health	Lighting Exterior	Covered Parking Lighting	Covered Parking Lighting	Normal Lighting	per building sqft	New	0.09	10	\$0.02	80%	95%	\$0.05	44
Idaho	Health	Lighting Exterior	Daylighting Controls, Outdoors (Photocell)	Photocell	No Controls	per installation	New	19	8	\$28	75%	70%	\$0.28	3
Idaho	Health	Lighting Exterior	Exterior Building Lighting	30% savings	Normal Lighting	per installation	New	240	15	\$333	62%	90%	\$0.18	30
Idaho	Health	Lighting Exterior	Solid State LED White Lighting	Landscape, merchandise, signage, structure & task lighting (2.5 W)	50W 10hrs/day, 365 day/yr	per installation	New	2	14	\$35	75%	95%	\$2.24	0.61
Idaho	Health	Lighting Exterior	Surface Parking Lighting	Surface Parking Lighting	Normal Lighting	per building sqft	New	0.05	19	\$0.06	62%	95%	\$0.16	18
Idaho	Health	Lighting Interior	Cold Cathode Lighting	Cold Cathode Lighting 5 watts	30 W Incandescent Bulb	per installation	Existing	444	5	\$12	15%	94%	\$0.01	17
Idaho	Health	Lighting Interior	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	Existing	0.28	8	\$0.85	30%	51%	\$0.59	4
Idaho	Health	Lighting Interior	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	Existing	0.63	8	\$0.64	30%	51%	\$0.20	10
Idaho	Health	Lighting Interior	Exit Sign - LED	LED Exit Sign (2 Watts)	CFL Exit Sign (9 Watts)	per installation	Existing	95	16	\$16	95%	50%	\$0.02	37
Idaho	Health	Lighting Interior	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign (2 Watts)	per installation	Existing	17	13	\$30	95%	98%	\$0.25	4
Idaho	Health	Lighting Interior	LED Refrigeration Case Lights	LED Refrigeration Case Lights	Fluorescent Refrigeration Case	per installation	Existing	212	8	\$247	15%	80%	\$0.23	7
Idaho	Health	Lighting Interior	Lighting Package, High Efficiency	15% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	Existing	0.55	13	\$0.04	90%	53%	\$0.01	237
Idaho	Health	Lighting Interior	Lighting Package, High Efficiency	Code Required LPD And Control Strategies	Existing Lighting Design LPD	per building sqft	Existing	1	13	\$0.74	90%	79%	\$0.06	1,482
Idaho	Health	Lighting Interior	Lighting Package, Premium Efficiency	25% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	Existing	0.92	13	\$0.20	75%	62%	\$0.03	95
Idaho	Health	Lighting Interior	Lighting Package, Premium High Bay	35% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	Existing	0.02	13	\$0.01	70%	83%	\$0.08	17
Idaho	Health	Lighting Interior	Occupancy Sensor Control, Fluorescent	Occupancy Sensor Control, Fluorescent	No Occupancy Sensor	per occupancy sensor	Existing	960	8	\$65	90%	36%	\$0.01	24
Idaho	Health	Lighting Interior	Time Clock	Time Clock	No Controls	per 10,000 Watts	Existing	744	8	\$175	20%	**	\$0.05	14
Idaho	Health	Lighting Interior	Cold Cathode Lighting	Cold Cathode Lighting 5 watts	30 W Incandescent Bulb	per installation	New	278	5	\$12	15%	94%	\$0.01	6
Idaho	Health	Lighting Interior	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	New	0.17	8	\$0.85	30%	51%	\$0.94	1
Idaho	Health	Lighting Interior	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	New	0.33	8	\$0.64	30%	51%	\$0.38	3
Idaho	Health	Lighting Interior	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign (2 Watts)	per installation	New	17	13	\$30	95%	98%	\$0.25	10
Idaho	Health	Lighting Interior	LED Refrigeration Case Lights	LED Refrigeration Case Lights	Fluorescent Refrigeration Case	per installation	New	212	8	\$247	15%	80%	\$0.23	4
Idaho	Health	Lighting Interior	Lighting Package, High Efficiency	15% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	New	0.55	15	\$0.00	90%	53%	\$0.00	134
Idaho	Health	Lighting Interior	Lighting Package, Premium Efficiency	25% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	New	0.92	15	\$0.09	75%	62%	\$0.01	54
Idaho	Health	Lighting Interior	Lighting Package, Premium High Bay	35% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	New	0.02	15	\$0.00	70%	83%	\$0.01	9
Idaho	Health	Lighting Interior	Occupancy Sensor Control, Fluorescent	Occupancy Sensor Control, Fluorescent	No Occupancy Sensor	per occupancy sensor	New	602	8	\$65	90%	36%	\$0.02	10
Idaho	Health	Lighting Interior	Time Clock	Time Clock	No Controls	per 10,000 Watts	New	744	8	\$175	20%	**	\$0.05	6
Idaho	Health	Other Office Equipment	ENERGY STAR - Copiers	ENERGY STAR Copiers	Standard Copier	per installation	Existing	72	6	\$160	95%	45%	\$0.54	7
Idaho	Health	Other Office Equipment	ENERGY STAR - Fax	ENERGY STAR Fax	Standard Fax	per installation	Existing	77	6	\$0.90	95%	45%	\$0.00	8
Idaho	Health	Other Office Equipment	ENERGY STAR - Monitors	ENERGY STAR Features Enabled	Non-ENERGY STAR Features	per installation	Existing	14	5	\$16	64%	15%	\$0.31	2

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Idaho	Health	Other Office Equipment	ENERGY STAR - Printers	ENERGY STAR Printers	Standard Printers	per installation	Existing	136	6	\$15	95%	40%	\$0.03	10
Idaho	Health	Other Office Equipment	ENERGY STAR - Scanners	ENERGY STAR Scanners	Standard Scanner	per installation	Existing	70	6	\$1	95%	45%	\$0.00	7
Idaho	Health	Other Office Equipment	ENERGY STAR - Copiers	ENERGY STAR Copiers	Standard Copier	per installation	New	72	6	\$160	95%	45%	\$0.54	4
Idaho	Health	Other Office Equipment	ENERGY STAR - Fax	ENERGY STAR Fax	Standard Fax	per installation	New	77	6	\$0.90	95%	45%	\$0.00	4
Idaho	Health	Other Office Equipment	ENERGY STAR - Monitors	ENERGY STAR Features Enabled	Non-ENERGY STAR Features	per installation	New	14	5	\$16	64%	15%	\$0.31	1
Idaho	Health	Other Office Equipment	ENERGY STAR - Printers	ENERGY STAR Printers	Standard Printers	per installation	New	136	6	\$15	95%	40%	\$0.03	6
Idaho	Health	Other Office Equipment	ENERGY STAR - Scanners	ENERGY STAR Scanners	Standard Scanner	per installation	New	70	6	\$1	95%	45%	\$0.00	4
Idaho	Health	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	per installation	Existing	7	7	\$2	20%	90%	\$0.06	0.44
Idaho	Health	Other Plug Load	ENERGY STAR - Water Cooler	ENERGY STAR Water Cooler (Hot/Cold Water)	Non-ENERGY STAR Water Cooler	per installation	Existing	358	10	\$0.90	95%	75%	\$0.00	32
Idaho	Health	Other Plug Load	Ice Maker	High-Efficiency Ice Maker	Standard Ice Maker	per installation	Existing	418	10	\$138	95%	86%	\$0.03	4
Idaho	Health	Other Plug Load	Power Supply Transformer/Converter	80 Plus	85% efficient power supply (> 51W)	1 unit per 2,000 sqft	Existing	15	4	\$0.40	95%	86%	\$0.01	6
Idaho	Health	Other Plug Load	Residential Refrigerator	ENERGY STAR	Federal Standard	per installation	Existing	79	12	\$122	13%	65%	\$0.23	1
Idaho	Health	Other Plug Load	Residential Refrigerator/Freezer Recycling	Recycling Existing Refrigerator/Freezer	Existing Refrigerator/Freezer	per installation	Existing	941	4	\$561	25%	35%	\$0.20	9
Idaho	Health	Other Plug Load	Server Virtualization	Server Virtualization	No Virtualization	number of virtualized servers	Existing	2,234	4	\$1,879	72%	85%	\$0.67	61
Idaho	Health	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	1 unit per 1,500 sqft	Existing	99	5	\$20	60%	90%	\$0.06	39
Idaho	Health	Other Plug Load	Vending Machines- High Efficiency	ENERGY STAR (Tier 2) Vending Machines- High Efficiency 500 can capacity Under 5.92 kWh/day	Vending Machines- Standard 13 kWh/day	per installation	Existing	237	14	\$163	10%	80%	\$0.09	0.53
Idaho	Health	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	per installation	New	7	7	\$2	20%	90%	\$0.06	0.25
Idaho	Health	Other Plug Load	ENERGY STAR - Water Cooler	ENERGY STAR Water Cooler (Hot/Cold Water)	Non-ENERGY STAR Water Cooler	per installation	New	358	10	\$0.90	95%	75%	\$0.00	18
Idaho	Health	Other Plug Load	Ice Maker	High-Efficiency Ice Maker	Standard Ice Maker	per installation	New	418	10	\$138	95%	86%	\$0.03	2
Idaho	Health	Other Plug Load	Power Supply Transformer/Converter	80 Plus	85% efficient power supply (> 51W)	1 unit per 2,000 sqft	New	15	4	\$0.40	95%	86%	\$0.01	3
Idaho	Health	Other Plug Load	Residential Refrigerator	ENERGY STAR	Federal Standard	per installation	New	79	12	\$122	13%	65%	\$0.23	1
Idaho	Health	Other Plug Load	Server Virtualization	Server Virtualization	No Virtualization	number of virtualized servers	New	2,234	4	\$1,879	72%	85%	\$0.67	34
Idaho	Health	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	1 unit per 1,500 sqft	New	99	5	\$20	60%	90%	\$0.06	22
Idaho	Health	Other Plug Load	Vending Machines- High Efficiency	ENERGY STAR (Tier 2) Vending Machines- High Efficiency 500 can capacity Under 5.92 kWh/day	Vending Machines- Standard 13 kWh/day	per installation	New	237	14	\$163	10%	80%	\$0.09	0.30
Idaho	Health	Refrigeration	Anti-Sweat (Humidistat) Controls	Anti-Sweat (Humidistat) Controls	No Anti-Sweat (Humidistat) Controls	1 unit per 1,000 sqft	Existing	971	12	\$70	15%	45%	\$0.01	0.52
Idaho	Health	Refrigeration	Case Electronically Commutated Motor	ECM Case Fans	Standard Efficiency Motor	1 unit per 10,000 sqft	Existing	1,010	12	\$240	5%	77%	\$0.04	1
Idaho	Health	Refrigeration	Case Replacement Low Temp	Case Replacement Low Temp	No replacement	per square foot	Existing	0.01	15	\$0.10	5%	95%	\$0.72	0.24
Idaho	Health	Refrigeration	Case Replacement Med Temp	Case Replacement Med Temp	No replacement	per square foot	Existing	0.00	15	\$0.05	5%	95%	\$4.37	0.02

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Idaho	Health	Refrigeration	Demand Control Defrost - Hot Gas	Refrigerant Defrost	Defrost - Electric	per installation	Existing	36	10	\$11	5%	68%	\$0.05	0.08
Idaho	Health	Refrigeration	Glass Door ES Refrigerators/Freezers	Glass Door ES Refrigerators/Freezers	Standard Glass Doors	per installation	Existing	2,532	12	\$721	95%	77%	\$0.04	3
Idaho	Health	Refrigeration	Refrigeration Commissioning or Re-commissioning	Commissioning / Re-commissioning	No Commissioning / Re-commissioning	per refrigeration ton	Existing	810	3	\$88	10%	85%	\$0.05	0.92
Idaho	Health	Refrigeration	Solid Door ES Refrigerators/Freezers	Solid Door ES Refrigerators/Freezers	Standard Solid Door	per installation	Existing	1,148	12	\$193	95%	81%	\$0.02	1
Idaho	Health	Refrigeration	Standalone to Multiplex Compressor	Standalone to Multiplex Compressor	Standalone compressor	per building sqft	Existing	0.01	13	\$0.00	5%	90%	\$0.02	0.22
Idaho	Health	Refrigeration	Strip Curtains for Walk-Ins	Strip Curtains for Walk-Ins	No Strip Curtains for Walk-In	per installation	Existing	56	4	\$183	15%	20%	\$1.12	0.11
Idaho	Health	Refrigeration	Walk-In Electronically Commutated Motor	ECM Evaporator Fans	Standard Efficiency Motor	per installation	Existing	0.02	12	\$0.17	5%	95%	\$0.96	0.34
Idaho	Health	Refrigeration	Anti-Sweat (Humidistat) Controls	Anti-Sweat (Humidistat) Controls	No Anti-Sweat (Humidistat) Controls	1 unit per 1,000 sqft	New	971	12	\$70	15%	45%	\$0.01	0.29
Idaho	Health	Refrigeration	Case Electronically Commutated Motor	ECM Case Fans	Standard Efficiency Motor	1 unit per 10,000 sqft	New	1,010	12	\$240	5%	77%	\$0.04	0.58
Idaho	Health	Refrigeration	Demand Control Defrost - Hot Gas	Refrigerant Defrost	Defrost - Electric	per installation	New	36	10	\$11	5%	68%	\$0.05	0.04
Idaho	Health	Refrigeration	Glass Door ES Refrigerators/Freezers	Glass Door ES Refrigerators/Freezers	Standard Glass Doors	per installation	New	2,532	12	\$721	95%	77%	\$0.04	2
Idaho	Health	Refrigeration	Refrigeration Commissioning or Re-commissioning	Commissioning / Re-commissioning	No Commissioning / Re-commissioning	per refrigeration ton	New	500	3	\$34	5%	90%	\$0.03	0.17
Idaho	Health	Refrigeration	Solid Door ES Refrigerators/Freezers	Solid Door ES Refrigerators/Freezers	Standard Solid Door	per installation	New	1,148	12	\$193	95%	81%	\$0.02	1
Idaho	Health	Refrigeration	Strip Curtains for Walk-Ins	Strip Curtains for Walk-Ins	No Strip Curtains for Walk-In	per installation	New	56	4	\$183	15%	20%	\$1.12	0.06
Idaho	Health	Refrigeration	Walk-In Electronically Commutated Motor	ECM Evaporator Fans	Standard Efficiency Motor	per installation	New	0.02	12	\$0.17	5%	95%	\$0.96	0.19
Idaho	Health	Space Heat	Convert Constant Volume Air System to VAV	Variable Volume Air System	Constant Volume Air System	per building CFM	Existing	1	15	\$2	15%	68%	\$0.28	15
Idaho	Health	Space Heat	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	Existing	919	15	\$149	75%	75%	\$0.02	93
Idaho	Health	Space Heat	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	Existing	0.22	18	\$0.17	45%	65%	\$0.09	9
Idaho	Health	Space Heat	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	Existing	1	14	\$1	5%	94%	\$0.17	8
Idaho	Health	Space Heat	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	12	13	\$0.24	10%	39%	\$0.00	7
Idaho	Health	Space Heat	Insulation - Ceiling	R-30 (ID State Code)	R-11 (Average Existing Conditions)	per roof sqft	Existing	1	25	\$0.67	75%	64%	\$0.05	111
Idaho	Health	Space Heat	Insulation - Ceiling	R-38	R-30 (ID State Code)	per roof sqft	Existing	0.21	25	\$0.22	25%	85%	\$0.11	6
Idaho	Health	Space Heat	Insulation - Duct	R-5 (ID State Code)	No Insulation	per surface area of duct insul	Existing	3	20	\$1	75%	61%	\$0.05	17
Idaho	Health	Space Heat	Insulation - Duct	R-8	R-5 (ID State Code)	per surface area of duct insul	Existing	2	20	\$0.28	75%	85%	\$0.01	21
Idaho	Health	Space Heat	Insulation - Floor (non-slab)	R-30 (ID State Code)	R-19 (Average Existing Conditions)	per floor area	Existing	0.98	25	\$0.84	35%	76%	\$0.09	36
Idaho	Health	Space Heat	Insulation - Floor (non-slab)	R-38	R-30 (ID State Code)	per floor area	Existing	0.41	25	\$0.29	35%	90%	\$0.07	18
Idaho	Health	Space Heat	Insulation - Wall	R-21	R-13 (ID State Code)	per floor area	Existing	2	25	\$0.20	10%	85%	\$0.01	17
Idaho	Health	Space Heat	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	Existing	77	30	\$5	50%	95%	\$0.01	189
Idaho	Health	Space Heat	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	Existing	1,103	10	\$123	95%	21%	\$0.02	10
Idaho	Health	Space Heat	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	1	7	\$0.13	90%	85%	\$0.03	150
Idaho	Health	Space Heat	Windows-High Efficiency	U-0.35 (ID State Code)	U-0.67 (Average Existing Conditions)	per window sqft	Existing	2	25	\$67	15%	62%	\$2.87	2
Idaho	Health	Space Heat	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	New	657	15	\$149	75%	75%	\$0.03	34

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Idaho	Health	Space Heat	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	New	0.16	18	\$0.17	45%	65%	\$0.13	4
Idaho	Health	Space Heat	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	New	0.98	14	\$1	5%	94%	\$0.24	3
Idaho	Health	Space Heat	Insulation - Ceiling	R-38	R-30 (ID State Code)	per roof sqft	New	0.15	25	\$0.22	75%	85%	\$0.15	8
Idaho	Health	Space Heat	Insulation - Duct	R-8	R-5 (ID State Code)	per surface area of duct insul	New	1	20	\$0.28	75%	85%	\$0.02	8
Idaho	Health	Space Heat	Insulation - Floor (non-slab)	R-38	R-30 (ID State Code)	per floor area	New	0.29	25	\$0.29	35%	90%	\$0.10	8
Idaho	Health	Space Heat	Insulation - Wall	R-21	R-13 (ID State Code)	per floor area	New	2	25	\$0.20	95%	85%	\$0.01	67
Idaho	Health	Space Heat	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	New	55	30	\$5	50%	95%	\$0.01	77
Idaho	Health	Space Heat	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	New	788	10	\$123	95%	11%	\$0.03	1
Idaho	Health	Water Heat	Clothes Washer Commercial	ENERGY STAR Commercial Clothes Washer MEF=1.80	Standard Clothes Washers	per installation	Existing	539	11	\$129	95%	80%	\$-0.27	2
Idaho	Health	Water Heat	Clothes Washer Residential	Energy Star - CEE Tier 1 (MEF 2.0 - 2.19) - Electric DHW & Dryer	MEF = 1.66 - Electric DHW & Dryer (NWPPC 6th Plan Average Efficiency)	per installation	Existing	131	11	\$286	85%	94%	\$0.04	0.53
Idaho	Health	Water Heat	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	per building sqft	Existing	0.08	10	\$0.23	55%	94%	\$0.47	11
Idaho	Health	Water Heat	Dishwasher Residential	ENERGY STAR <= 324 kWh/yr, <= 5.8 gal/cycle	Federal Standard <= 355 kWh/yr, <= 6.5 gal/cycle	per installation	Existing	30	11	\$30	95%	25%	\$0.10	0.15
Idaho	Health	Water Heat	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	per installation	Existing	7,316	10	\$2,621	95%	95%	\$0.02	10
Idaho	Health	Water Heat	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	per installation	Existing	3,418	10	\$812	95%	94%	\$-0.02	2
Idaho	Health	Water Heat	Electric Water Heater - High Efficiency	EF = 0.95	EF = 0.92	Per installation	Existing	220	15	\$304	100%	N/A	\$0.18	1
Idaho	Health	Water Heat	Heat Pump Water Heater - Advanced-Efficiency	EF = 2.2	EF = 0.92	Per installation	Existing	4,059	15	\$5,476	75%	N/A	\$0.17	144
Idaho	Health	Water Heat	Hot Water (SHW) Pipe Insulation	1.0" of Insulation, assuming R-4 (ID State Code)	No Insulation	per linear foot	Existing	6	12	\$2	80%	70%	\$0.05	2
Idaho	Health	Water Heat	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	per installation	Existing	107	9	\$0.00	95%	25%	\$-0.08	4
Idaho	Health	Water Heat	Low-Flow Faucet Aerators	2.2 GPM (Federal Code)	3.0 GPM	per installation	Existing	89	9	\$2	95%	25%	\$-0.08	3
Idaho	Health	Water Heat	Low-Flow Pre-Rinse Spray Valves	0.6 GPM	1.6 GPM (Federal Standard)	per installation	Existing	65	5	\$4	95%	83%	\$-0.08	1
Idaho	Health	Water Heat	Low-Flow Showerheads	2.0 GPM	2.5 GPM (Federal Code)	per installation	Existing	685	10	\$6	95%	73%	\$-0.08	28
Idaho	Health	Water Heat	Low-Flow Showerheads	2.5 GPM (Federal Code)	4.5 GPM	per installation	Existing	1,522	10	\$11	95%	62%	\$-0.08	54
Idaho	Health	Water Heat	Water Cooled Refrigeration with Heat Recovery	Heat Recovery from refrigeration system. Applied to Water Heating Electric End use	No heat recovery	per sqft of refrigerated area	Existing	0.19	10	\$0.76	3%	94%	\$0.66	0.03
Idaho	Health	Water Heat	Water Heater Temperature Setback	Water Heater Temperature Setback (120 F)	No Change in Water Temperature	per installation	Existing	129	5	\$71	75%	80%	\$0.16	21
Idaho	Health	Water Heat	Clothes Washer Commercial	ENERGY STAR Commercial Clothes Washer MEF=1.80	Standard Clothes Washers	per installation	New	539	11	\$129	95%	80%	\$-0.27	1
Idaho	Health	Water Heat	Clothes Washer Residential	Energy Star - CEE Tier 1 (MEF 2.0 - 2.19) - Electric DHW & Dryer	MEF = 1.66 - Electric DHW & Dryer (NWPPC 6th Plan Average Efficiency)	per installation	New	131	11	\$286	85%	94%	\$0.04	0.29
Idaho	Health	Water Heat	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	per building sqft	New	0.08	10	\$0.23	55%	94%	\$0.47	7
Idaho	Health	Water Heat	Dishwasher Residential	ENERGY STAR <= 324 kWh/yr, <= 5.8 gal/cycle	Federal Standard <= 355 kWh/yr, <= 6.5 gal/cycle	per installation	New	30	11	\$30	95%	55%	\$0.10	0.19
Idaho	Health	Water Heat	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	per installation	New	7,316	10	\$2,625	95%	95%	\$0.02	5

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Idaho	Health	Water Heat	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	per installation	New	3,418	10	\$806	95%	94%	\$-0.02	1
Idaho	Health	Water Heat	Electric Water Heater - High Efficiency	EF = 0.95	EF = 0.92	Per installation	New	219	15	\$304	100%	N/A	\$0.18	0.85
Idaho	Health	Water Heat	Heat Pump Water Heater - Advanced-Efficiency	EF = 2.2	EF = 0.92	Per installation	New	4,035	15	\$4,889	75%	N/A	\$0.16	73
Idaho	Health	Water Heat	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	per installation	New	106	9	\$0.00	95%	25%	\$-0.08	2
Idaho	Health	Water Heat	Low-Flow Pre-Rinse Spray Valves	0.6 GPM	1.6 GPM (Federal Standard)	per installation	New	65	5	\$4	95%	83%	\$-0.08	0.75
Idaho	Health	Water Heat	Low-Flow Showerheads	2.0 GPM	2.5 GPM (Federal Code)	per installation	New	681	10	\$6	95%	73%	\$-0.08	16
Idaho	Health	Water Heat	Water Cooled Refrigeration with Heat Recovery	Heat Recovery from refrigeration system. Applied to Water Heating Electric End use	No heat recovery	per sqft of refrigerated area	New	0.19	10	\$0.76	3%	94%	\$0.66	0.02
Idaho	Health	Water Heat	Water Heater Temperature Setback	Water Heater Temperature Setback (120 F)	No Change in Water Temperature	per installation	New	128	5	\$71	75%	80%	\$0.16	13
Idaho	Large Office	Computers	Computer ENERGY STAR	Computer ENERGY STAR	Computer standard non-ENERGY STAR	Per installation	Existing	136	4	\$28	100%	N/A	\$0.07	238
Idaho	Large Office	Computers	Network PC Power Management	Network PC Power Management	No Power Management	per computer	Existing	87	5	\$12	95%	30%	\$0.04	52
Idaho	Large Office	Computers	Computer ENERGY STAR	Computer ENERGY STAR	Computer standard non-ENERGY STAR	Per installation	New	136	4	\$28	100%	N/A	\$0.07	20
Idaho	Large Office	Computers	Network PC Power Management	Network PC Power Management	No Power Management	per computer	New	87	5	\$12	95%	30%	\$0.04	29
Idaho	Large Office	Cooling Chillers	Automated Ventilation VFD Control(Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	1 unit per 3,000 sqft	Existing	332	15	\$685	75%	94%	\$0.27	18
Idaho	Large Office	Cooling Chillers	Chilled Water / Condenser Water Settings-Optimization	Additional Control Features	EMS already installed - No Optimization	1 control point per 1000 sqft	Existing	13	5	\$140	95%	81%	\$2.87	1
Idaho	Large Office	Cooling Chillers	Chilled Water Piping Loop w/ VSD Control	VSD for secondary chilled water loop	Primary loop only w/ constant speed pump	per chiller ton	Existing	22	10	\$191	25%	70%	\$1.41	2
Idaho	Large Office	Cooling Chillers	Chiller-Water Side Economizer	Install Economizer	No Economizer	per chiller ton	Existing	14	15	\$423	45%	45%	\$3.66	2
Idaho	Large Office	Cooling Chillers	Chillers >300 tons (centrifugal) - High Efficiency	0.55 kW/ton	0.576 kW/ton (full load)	Per installation	Existing	5,602	20	\$1,708	100%	N/A	\$0.03	0.47
Idaho	Large Office	Cooling Chillers	Chillers >300 tons (centrifugal) - Premium Efficiency	0.52 kW/ton (full load)	0.576 kW/ton (full load)	Per installation	Existing	10,720	20	\$3,680	100%	N/A	\$0.04	3
Idaho	Large Office	Cooling Chillers	Chillers >300 tons (centrifugal) with VSD - Advanced Efficiency	0.47 kW/ton w/VSD (full load)	0.576 kW/ton (full load)	Per installation	Existing	15,123	20	\$12,961	100%	N/A	\$0.10	61
Idaho	Large Office	Cooling Chillers	Convert Constant Volume Air System to VAV	Variable Volume Air System	Constant Volume Air System	per building CFM	Existing	0.33	15	\$2	15%	68%	\$1.02	6
Idaho	Large Office	Cooling Chillers	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	Existing	0.11	15	\$0.69	80%	98%	\$0.81	16
Idaho	Large Office	Cooling Chillers	Cooling Tower-Decrease Approach Temperature	6 Deg F	10 Deg F	per chiller ton	Existing	23	8	\$26	10%	94%	\$0.23	1
Idaho	Large Office	Cooling Chillers	Cooling Tower-Two-Speed Fan Motor	Cooling Tower-Two-Speed Fan Motor	Cooling Tower-One-Speed Fan Motor	per chiller ton	Existing	41	15	\$2	95%	35%	\$0.01	15
Idaho	Large Office	Cooling Chillers	Cooling Tower-VSD Fan Control	Variable-Speed Tower Fans replace Two-Speed	Cooling Tower-Two-Speed Fan Motor	per chiller ton	Existing	11	13	\$19	95%	75%	\$0.23	7
Idaho	Large Office	Cooling Chillers	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	Existing	110	15	\$150	75%	75%	\$0.18	17
Idaho	Large Office	Cooling Chillers	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	Existing	0.11	40	\$8	4%	98%	\$6.76	0.06
Idaho	Large Office	Cooling Chillers	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	0.46	13	\$0.24	10%	39%	\$0.08	0.60

Table C.2.2. Commercial Measure Details

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Idaho	Large Office	Cooling Chillers	Insulation - Ceiling	R-30 (ID State Code)	R-11 (Average Existing Conditions)	per roof sqft	Existing	0.00	25	\$0.67	75%	58%	\$27.23	0.20
Idaho	Large Office	Cooling Chillers	Pipe Insulation	1.5" of Insulation, assuming R-6 (ID State Code)	No Insulation	per linear feet of insulation	Existing	3	15	\$3	65%	45%	\$0.12	1
Idaho	Large Office	Cooling Chillers	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	0.13	7	\$0.13	90%	85%	\$0.21	28
Idaho	Large Office	Cooling Chillers	Window Film	Window Film	No Film	per 100 sqft of window glazing	Existing	1	10	\$131	90%	68%	\$18.10	0.16
Idaho	Large Office	Cooling Chillers	Windows-High Efficiency	U-0.32	U-0.35 (ID State Code)	per window sqft	Existing	1	25	\$24	15%	90%	\$1.78	4
Idaho	Large Office	Cooling Chillers	Windows-High Efficiency	U-0.35 (ID State Code)	U-0.6 (Average Existing Conditions)	per window sqft	Existing	1	25	\$68	15%	71%	\$5.76	2
Idaho	Large Office	Cooling Chillers	Automated Ventilation VFD Control(Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	1 unit per 3,000 sqft	New	204	15	\$367	75%	94%	\$0.23	8
Idaho	Large Office	Cooling Chillers	Chilled Water / Condenser Water Settings-Optimization	Additional Control Features	EMS already installed - No Optimization	1 control point per 1000 sqft	New	8	5	\$140	95%	81%	\$4.66	0.79
Idaho	Large Office	Cooling Chillers	Chilled Water Piping Loop w/ VSD Control	VSD for secondary chilled water loop	Primary loop only w/ constant speed pump	per chiller ton	New	15	10	\$191	25%	70%	\$2.06	1
Idaho	Large Office	Cooling Chillers	Chillers >300 tons (centrifugal) - High Efficiency	0.55 kW/ton	0.576 kW/ton (full load)	Per installation	New	3,827	20	\$1,536	100%	N/A	\$0.05	0.16
Idaho	Large Office	Cooling Chillers	Chillers >300 tons (centrifugal) - Premium Efficiency	0.52 kW/ton (full load)	0.576 kW/ton (full load)	Per installation	New	7,322	20	\$3,313	100%	N/A	\$0.05	1
Idaho	Large Office	Cooling Chillers	Chillers >300 tons (centrifugal) with VSD - Advanced Efficiency	0.47 kW/ton w/VSD (full load)	0.576 kW/ton (full load)	Per installation	New	10,331	20	\$11,626	100%	N/A	\$0.13	33
Idaho	Large Office	Cooling Chillers	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	New	0.06	15	\$0.69	80%	98%	\$1.32	7
Idaho	Large Office	Cooling Chillers	Cooling Tower-Decrease Approach Temperature	6 Deg F	10 Deg F	per chiller ton	New	16	8	\$26	10%	94%	\$0.34	0.78
Idaho	Large Office	Cooling Chillers	Cooling Tower-VSD Fan Control	Variable-Speed Tower Fans	Cooling Tower-Two-Speed Fan Motor	per chiller ton	New	8	15	\$19	95%	75%	\$0.31	3
Idaho	Large Office	Cooling Chillers	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	New	68	15	\$150	75%	75%	\$0.29	6
Idaho	Large Office	Cooling Chillers	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	New	0.06	40	\$8	4%	98%	\$10.99	0.02
Idaho	Large Office	Cooling Chillers	Natural Ventilation	Natural Ventilation Design Reduction in Cooling	None - Standard Ventilation	per building sqft	New	0.06	15	\$0.85	20%	75%	\$1.63	1
Idaho	Large Office	Cooling Chillers	Windows-High Efficiency	U-0.32	U-0.35 (ID State Code)	per window sqft	New	0.87	25	\$24	80%	90%	\$2.90	10
Idaho	Large Office	Cooling Dx Evap	Automated Ventilation VFD Control(Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	1 unit per 3,000 sqft	Existing	538	15	\$685	75%	94%	\$0.16	23
Idaho	Large Office	Cooling Dx Evap	Convert Constant Volume Air System to VAV	Variable Volume Air System	Constant Volume Air System	per building CFM	Existing	0.53	15	\$2	15%	68%	\$0.63	7
Idaho	Large Office	Cooling Dx Evap	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	Existing	0.17	15	\$0.69	35%	98%	\$0.50	8
Idaho	Large Office	Cooling Dx Evap	DX Package 240 to 760 kBTU/hr - High Efficiency	DX Package 240 to 760 kBTU/hr - High Efficiency 10.5	DX Package 240 to 760 kBTU/hr - Standard Efficiency 10.0 EER	Per installation	Existing	3,765	15	\$8,795	100%	N/A	\$0.30	0.62
Idaho	Large Office	Cooling Dx Evap	DX Package 240 to 760 kBTU/hr - Premium Efficiency	DX Package 240 to 760 kBTU/hr - Premium Efficiency 10.8 EER	DX Package 240 to 760 kBTU/hr - Standard Efficiency 10.0 EER	Per installation	Existing	6,649	15	\$14,408	100%	N/A	\$0.28	16

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Idaho	Large Office	Cooling Dx Evap	DX Package-Air Side Economizer	Air-Side Economizer	No Economizer	per DX ton	Existing	80	10	\$156	10%	20%	\$0.32	0.85
Idaho	Large Office	Cooling Dx Evap	DX Tune-Up / Diagnostics	DX Tune-Up / Diagnostics	No DX Tune-Up / Diagnostics	per installation	Existing	403	4	\$249	95%	72%	\$0.24	21
Idaho	Large Office	Cooling Dx Evap	Direct / Indirect Evaporative Cooling, Pre-Cooling	Evaporative Cooler	Standard DX cooling	per building CFM	Existing	0.44	15	\$1	50%	94%	\$0.52	32
Idaho	Large Office	Cooling Dx Evap	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	Existing	179	15	\$150	75%	75%	\$0.11	22
Idaho	Large Office	Cooling Dx Evap	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	Existing	0.04	18	\$0.17	45%	65%	\$0.47	2
Idaho	Large Office	Cooling Dx Evap	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	Existing	0.17	40	\$8	4%	98%	\$4.18	0.07
Idaho	Large Office	Cooling Dx Evap	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	0.74	13	\$0.24	10%	39%	\$0.05	0.77
Idaho	Large Office	Cooling Dx Evap	Insulation - Ceiling	R-30 (ID State Code)	R-11 (Average Existing Conditions)	per roof sqft	Existing	0.00	25	\$0.67	75%	58%	\$16.83	0.22
Idaho	Large Office	Cooling Dx Evap	Insulation - Duct	R-5 (ID State Code)	No Insulation	per surface area of duct insul	Existing	0.68	20	\$1	75%	59%	\$0.24	4
Idaho	Large Office	Cooling Dx Evap	Insulation - Duct	R-8	R-5 (ID State Code)	per surface area of duct insul	Existing	0.45	20	\$0.28	75%	85%	\$0.07	5
Idaho	Large Office	Cooling Dx Evap	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	Existing	10	30	\$5	50%	95%	\$0.04	31
Idaho	Large Office	Cooling Dx Evap	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	Existing	1,638	10	\$124	95%	26%	\$0.01	3
Idaho	Large Office	Cooling Dx Evap	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	0.22	7	\$0.13	90%	85%	\$0.13	35
Idaho	Large Office	Cooling Dx Evap	Window Film	Window Film	No Film	per 100 sqft of window glazing	Existing	1	10	\$131	90%	68%	\$17.98	0.11
Idaho	Large Office	Cooling Dx Evap	Windows-High Efficiency	U-0.32	U-0.35 (ID State Code)	per window sqft	Existing	2	25	\$24	15%	90%	\$1.10	4
Idaho	Large Office	Cooling Dx Evap	Windows-High Efficiency	U-0.35 (ID State Code)	U-0.6 (Average Existing Conditions)	per window sqft	Existing	1	25	\$68	15%	71%	\$3.56	3
Idaho	Large Office	Cooling Dx Evap	Automated Ventilation VFD Control(Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	1 unit per 3,000 sqft	New	357	15	\$367	75%	94%	\$0.13	10
Idaho	Large Office	Cooling Dx Evap	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	New	0.11	15	\$0.69	35%	98%	\$0.76	4
Idaho	Large Office	Cooling Dx Evap	DX Package 240 to 760 kBTU/hr - High Efficiency	DX Package 240 to 760 kBTU/hr - High Efficiency 10.5	DX Package 240 to 760 kBTU/hr - Standard Efficiency 10.0 EER	Per installation	New	2,492	15	\$7,037	100%	N/A	\$0.37	0.15
Idaho	Large Office	Cooling Dx Evap	DX Package 240 to 760 kBTU/hr - Premium Efficiency	DX Package 240 to 760 kBTU/hr - Premium Efficiency 10.8 EER	DX Package 240 to 760 kBTU/hr - Standard Efficiency 10.0 EER	Per installation	New	4,446	15	\$11,527	100%	N/A	\$0.34	6
Idaho	Large Office	Cooling Dx Evap	Direct / Indirect Evaporative Cooling, Pre-Cooling	Evaporative Cooler	Standard DX cooling	per building CFM	New	0.29	15	\$1	50%	94%	\$0.78	15
Idaho	Large Office	Cooling Dx Evap	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	New	119	15	\$150	75%	75%	\$0.16	7
Idaho	Large Office	Cooling Dx Evap	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	New	0.02	18	\$0.17	45%	65%	\$0.71	0.97
Idaho	Large Office	Cooling Dx Evap	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	New	0.11	40	\$8	4%	98%	\$6.29	0.03
Idaho	Large Office	Cooling Dx Evap	Insulation - Duct	R-8	R-5 (ID State Code)	per surface area of duct insul	New	0.30	20	\$0.28	75%	85%	\$0.11	1
Idaho	Large Office	Cooling Dx Evap	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	New	7	30	\$5	50%	95%	\$0.07	12

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Idaho	Large Office	Cooling Dx Evap	Natural Ventilation	Natural Ventilation Design Reduction in Cooling	None - Standard Ventilation	per building sqft	New	0.11	15	\$0.85	20%	75%	\$0.93	1
Idaho	Large Office	Cooling Dx Evap	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	New	1,088	10	\$124	95%	13%	\$0.02	0.61
Idaho	Large Office	Cooling Dx Evap	Windows-High Efficiency	U-0.32	U-0.35 (ID State Code)	per window sqft	New	1	25	\$24	80%	90%	\$1.66	12
Idaho	Large Office	Heat Pump	Air Source Heat Pump 135 to 240 kBtu/hr - High Efficiency	11.5 EER, 3.4 COP	10.6 EER, 3.2 COP	Per installation	Existing	13,446	15	\$10,121	100%	N/A	\$0.10	0.99
Idaho	Large Office	Heat Pump	Air Source Heat Pump 65 to 135 kBtu/hr - Premium Efficiency	12.0 EER, 3.8 COP	10.6 EER, 3.2 COP	Per installation	Existing	30,927	15	\$17,348	100%	N/A	\$0.07	40
Idaho	Large Office	Heat Pump	Automated Ventilation VFD Control(Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	1 unit per 3,000 sqft	Existing	596	15	\$685	75%	94%	\$0.15	12
Idaho	Large Office	Heat Pump	Convert Constant Volume Air System to VAV	Variable Volume Air System	Constant Volume Air System	per building CFM	Existing	1	15	\$2	15%	68%	\$0.33	8
Idaho	Large Office	Heat Pump	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	Existing	0.19	15	\$0.69	35%	98%	\$0.45	5
Idaho	Large Office	Heat Pump	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	Existing	647	15	\$150	75%	75%	\$0.03	41
Idaho	Large Office	Heat Pump	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	Existing	0.16	18	\$0.17	45%	65%	\$0.13	4
Idaho	Large Office	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	Existing	0.67	14	\$0.92	5%	94%	\$0.19	2
Idaho	Large Office	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	Existing	0.19	40	\$8	4%	98%	\$3.77	0.05
Idaho	Large Office	Heat Pump	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	5	13	\$0.24	10%	39%	\$0.01	3
Idaho	Large Office	Heat Pump	Insulation - Ceiling	R-30 (ID State Code)	R-11 (Average Existing Conditions)	per roof sqft	Existing	0.50	25	\$0.67	75%	58%	\$0.14	20
Idaho	Large Office	Heat Pump	Insulation - Ceiling	R-38	R-30 (ID State Code)	per roof sqft	Existing	0.07	25	\$0.22	25%	85%	\$0.29	1
Idaho	Large Office	Heat Pump	Insulation - Duct	R-5 (ID State Code)	No Insulation	per surface area of duct insul	Existing	2	20	\$1	75%	59%	\$0.07	8
Idaho	Large Office	Heat Pump	Insulation - Duct	R-8	R-5 (ID State Code)	per surface area of duct insul	Existing	1	20	\$0.28	75%	85%	\$0.02	9
Idaho	Large Office	Heat Pump	Insulation - Floor (non-slab)	R-30 (ID State Code)	R-11 (Average Existing Conditions)	per floor area	Existing	0.85	25	\$0.84	35%	70%	\$0.10	19
Idaho	Large Office	Heat Pump	Insulation - Floor (non-slab)	R-38	R-30 (ID State Code)	per floor area	Existing	0.16	25	\$0.29	35%	90%	\$0.18	4
Idaho	Large Office	Heat Pump	Insulation - Wall	R-13 (ID State Code)	R-3 (Average Existing Conditions)	per floor area	Existing	1	25	\$0.91	10%	66%	\$0.09	4
Idaho	Large Office	Heat Pump	Insulation - Wall	R-21	R-13 (ID State Code)	per floor area	Existing	0.49	25	\$0.20	10%	85%	\$0.04	2
Idaho	Large Office	Heat Pump	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	Existing	54	30	\$5	50%	95%	\$0.01	81
Idaho	Large Office	Heat Pump	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	Existing	5,908	10	\$124	95%	26%	\$0.00	6
Idaho	Large Office	Heat Pump	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	0.80	7	\$0.13	90%	85%	\$0.04	66
Idaho	Large Office	Heat Pump	Window Film	Window Film	No Film	per 100 sqft of window glazing	Existing	1	10	\$131	90%	68%	\$17.94	0.07
Idaho	Large Office	Heat Pump	Windows-High Efficiency	U-0.32	U-0.35 (ID State Code)	per window sqft	Existing	0.09	25	\$24	15%	90%	\$26.10	0.12
Idaho	Large Office	Heat Pump	Windows-High Efficiency	U-0.35 (ID State Code)	U-0.6 (Average Existing Conditions)	per window sqft	Existing	2	25	\$68	15%	71%	\$2.85	2
Idaho	Large Office	Heat Pump	Air Source Heat Pump 135 to 240 kBtu/hr - High Efficiency	11.5 EER, 3.4 COP	10.6 EER, 3.2 COP	Per installation	New	7,620	15	\$8,092	100%	N/A	\$0.14	0.28
Idaho	Large Office	Heat Pump	Air Source Heat Pump 65 to 135 kBtu/hr - Premium Efficiency	12.0 EER, 3.8 COP	10.6 EER, 3.2 COP	Per installation	New	16,075	15	\$13,876	100%	N/A	\$0.11	17

Table C.2.2. Commercial Measure Details

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Idaho	Large Office	Heat Pump	Automated Ventilation VFD Control(Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	1 unit per 3,000 sqft	New	398	15	\$367	75%	94%	\$0.12	5
Idaho	Large Office	Heat Pump	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	New	0.13	15	\$0.69	35%	98%	\$0.68	2
Idaho	Large Office	Heat Pump	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	New	330	15	\$150	75%	75%	\$0.06	12
Idaho	Large Office	Heat Pump	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	New	0.08	18	\$0.17	45%	65%	\$0.26	1
Idaho	Large Office	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	New	0.29	14	\$0.92	5%	94%	\$0.42	0.78
Idaho	Large Office	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	New	0.13	40	\$8	4%	98%	\$5.65	0.02
Idaho	Large Office	Heat Pump	Insulation - Ceiling	R-38	R-30 (ID State Code)	per roof sqft	New	0.02	25	\$0.22	75%	85%	\$0.76	1
Idaho	Large Office	Heat Pump	Insulation - Duct	R-8	R-5 (ID State Code)	per surface area of duct insul	New	0.84	20	\$0.28	75%	85%	\$0.04	2
Idaho	Large Office	Heat Pump	Insulation - Floor (non-slab)	R-38	R-30 (ID State Code)	per floor area	New	0.06	25	\$0.29	35%	90%	\$0.49	1
Idaho	Large Office	Heat Pump	Insulation - Wall	R-21	R-13 (ID State Code)	per floor area	New	0.18	25	\$0.20	95%	85%	\$0.11	6
Idaho	Large Office	Heat Pump	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	New	27	30	\$5	50%	95%	\$0.02	24
Idaho	Large Office	Heat Pump	Natural Ventilation	Natural Ventilation Design Reduction in Cooling	None - Standard Ventilation	per building sqft	New	0.33	15	\$0.85	20%	75%	\$0.34	2
Idaho	Large Office	Heat Pump	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	New	3,018	10	\$124	95%	13%	\$0.01	0.89
Idaho	Large Office	Heat Pump	Windows-High Efficiency	U-0.32	U-0.35 (ID State Code)	per window sqft	New	0.62	25	\$24	80%	90%	\$4.08	2
Idaho	Large Office	Hvac Aux	Convert Constant Volume Air System to VAV	Variable Volume Air System	Constant Volume Air System	per building CFM	Existing	0.38	15	\$2	15%	68%	\$0.87	60
Idaho	Large Office	Hvac Aux	Motor - CEE Premium-Efficiency Plus	CEE PE+ Motor for HVAC Applications	NEMA Efficiency Motors	per HP	Existing	31	15	\$6	95%	76%	\$0.03	29
Idaho	Large Office	Hvac Aux	Motor - VAV Box High Efficiency (ECM)	ECM Motor	Standard Efficiency Motor	per installation	Existing	80	15	\$177	11%	77%	\$0.28	22
Idaho	Large Office	Hvac Aux	Motor Rewind	>15, <500 HP	No Rewind	per HP	Existing	6	8	\$4	65%	25%	\$0.15	1
Idaho	Large Office	Hvac Aux	Low Pressure Distribution Complex HVAC	Low Pressure Distribution Complex HVAC	VAV/CV	per building sqft	New	0.91	50	\$2	17%	98%	\$0.21	106
Idaho	Large Office	Hvac Aux	Motor - CEE Premium-Efficiency Plus	CEE PE+ Motor for HVAC Applications	NEMA Efficiency Motors	per HP	New	27	15	\$6	95%	76%	\$0.03	18
Idaho	Large Office	Hvac Aux	Motor - VAV Box High Efficiency (ECM)	ECM Motor	Standard Efficiency Motor	per installation	New	69	15	\$177	11%	77%	\$0.33	10
Idaho	Large Office	Lighting Exterior	Covered Parking Lighting	Covered Parking Lighting	Normal Lighting	per building sqft	Existing	0.09	10	\$0.02	80%	95%	\$0.05	110
Idaho	Large Office	Lighting Exterior	Daylighting Controls, Outdoors (Photocell)	Photocell	No Controls	per installation	Existing	48	8	\$28	75%	70%	\$0.11	7
Idaho	Large Office	Lighting Exterior	Exterior Building Lighting	30% savings	Normal Lighting	per installation	Existing	241	15	\$334	62%	90%	\$0.18	62
Idaho	Large Office	Lighting Exterior	Solid State LED White Lighting	Landscape, merchandise, signage, structure & task lighting (2.5 W)	50W 10hrs/day, 365 day/yr	per installation	Existing	5	14	\$35	75%	95%	\$0.92	1
Idaho	Large Office	Lighting Exterior	Surface Parking Lighting	Surface Parking Lighting	Normal Lighting	per building sqft	Existing	0.05	19	\$0.06	62%	95%	\$0.16	46
Idaho	Large Office	Lighting Exterior	Covered Parking Lighting	Covered Parking Lighting	Normal Lighting	per building sqft	New	0.09	10	\$0.02	80%	95%	\$0.05	62
Idaho	Large Office	Lighting Exterior	Daylighting Controls, Outdoors (Photocell)	Photocell	No Controls	per installation	New	48	8	\$28	75%	70%	\$0.11	4
Idaho	Large Office	Lighting Exterior	Exterior Building Lighting	30% savings	Normal Lighting	per installation	New	241	15	\$334	62%	90%	\$0.18	35

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Idaho	Large Office	Lighting Exterior	Solid State LED White Lighting	Landscape, merchandise, signage, structure & task lighting (2.5 W)	50W 10hrs/day, 365 day/yr	per installation	New	5	14	\$35	75%	95%	\$0.92	0.75
Idaho	Large Office	Lighting Exterior	Surface Parking Lighting	Surface Parking Lighting	Normal Lighting	per building sqft	New	0.05	19	\$0.06	62%	95%	\$0.16	26
Idaho	Large Office	Lighting Interior	Cold Cathode Lighting	Cold Cathode Lighting 5 watts	30 W Incandescent Bulb	per installation	Existing	1,488	5	\$12	15%	94%	\$0.00	10
Idaho	Large Office	Lighting Interior	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	Existing	1	8	\$0.85	30%	78%	\$0.11	22
Idaho	Large Office	Lighting Interior	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	Existing	1	8	\$0.64	30%	78%	\$0.11	17
Idaho	Large Office	Lighting Interior	Exit Sign - LED	LED Exit Sign (2 Watts)	CFL Exit Sign (9 Watts)	per installation	Existing	96	16	\$16	95%	50%	\$0.02	50
Idaho	Large Office	Lighting Interior	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign (2 Watts)	per installation	Existing	17	13	\$30	95%	98%	\$0.25	5
Idaho	Large Office	Lighting Interior	Lighting Package, High Efficiency	15% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	Existing	0.47	13	\$0.13	90%	53%	\$0.04	267
Idaho	Large Office	Lighting Interior	Lighting Package, High Efficiency	Code Required LPD And Control Strategies	Existing Lighting Design LPD	per building sqft	Existing	1	13	\$0.89	90%	73%	\$0.08	1,492
Idaho	Large Office	Lighting Interior	Lighting Package, Premium Efficiency	25% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	Existing	0.78	13	\$0.32	75%	62%	\$0.06	107
Idaho	Large Office	Lighting Interior	Lighting Package, Premium High Bay	35% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	Existing	0.04	13	\$0.02	70%	83%	\$0.09	36
Idaho	Large Office	Lighting Interior	Occupancy Sensor Control, Fluorescent	Occupancy Sensor Control, Fluorescent	No Occupancy Sensor	per occupancy sensor	Existing	845	8	\$66	90%	42%	\$0.02	37
Idaho	Large Office	Lighting Interior	Time Clock	Time Clock	No Controls	per 10,000 Watts	Existing	748	8	\$175	20%	88%	\$0.05	17
Idaho	Large Office	Lighting Interior	Cold Cathode Lighting	Cold Cathode Lighting 5 watts	30 W Incandescent Bulb	per installation	New	916	5	\$12	15%	94%	\$0.00	3
Idaho	Large Office	Lighting Interior	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	New	0.93	8	\$0.85	30%	78%	\$0.18	9
Idaho	Large Office	Lighting Interior	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	New	0.70	8	\$0.64	30%	78%	\$0.18	7
Idaho	Large Office	Lighting Interior	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign (2 Watts)	per installation	New	17	13	\$30	95%	98%	\$0.25	13
Idaho	Large Office	Lighting Interior	Lighting Package, High Efficiency	15% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	New	0.47	15	\$0.00	90%	53%	\$0.00	151
Idaho	Large Office	Lighting Interior	Lighting Package, Premium Efficiency	25% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	New	0.72	15	\$0.10	75%	62%	\$0.02	56
Idaho	Large Office	Lighting Interior	Lighting Package, Premium High Bay	35% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	New	0.04	15	\$0.00	70%	83%	\$0.02	20
Idaho	Large Office	Lighting Interior	Occupancy Sensor Control, Fluorescent	Occupancy Sensor Control, Fluorescent	No Occupancy Sensor	per occupancy sensor	New	520	8	\$66	90%	42%	\$0.02	15
Idaho	Large Office	Lighting Interior	Time Clock	Time Clock	No Controls	per 10,000 Watts	New	748	8	\$176	20%	88%	\$0.05	7
Idaho	Large Office	Other Office Equipment	ENERGY STAR - Copiers	ENERGY STAR Copiers	Standard Copier	per installation	Existing	72	6	\$162	95%	45%	\$0.54	1
Idaho	Large Office	Other Office Equipment	ENERGY STAR - Fax	ENERGY STAR Fax	Standard Fax	per installation	Existing	77	6	\$0.00	95%	45%	\$0.00	1
Idaho	Large Office	Other Office Equipment	ENERGY STAR - Monitors	ENERGY STAR Features Enabled	Non-ENERGY STAR Features	per installation	Existing	14	5	\$16	64%	15%	\$0.31	3
Idaho	Large Office	Other Office Equipment	ENERGY STAR - Printers	ENERGY STAR Printers	Standard Printers	per installation	Existing	136	6	\$16	95%	40%	\$0.03	1
Idaho	Large Office	Other Office Equipment	ENERGY STAR - Scanners	ENERGY STAR Scanners	Standard Scanner	per installation	Existing	70	6	\$0.00	95%	45%	\$0.00	1
Idaho	Large Office	Other Office Equipment	ENERGY STAR - Copiers	ENERGY STAR Copiers	Standard Copier	per installation	New	72	6	\$162	95%	45%	\$0.54	0.81
Idaho	Large Office	Other Office Equipment	ENERGY STAR - Fax	ENERGY STAR Fax	Standard Fax	per installation	New	77	6	\$0.00	95%	45%	\$0.00	0.86
Idaho	Large Office	Other Office Equipment	ENERGY STAR - Monitors	ENERGY STAR Features Enabled	Non-ENERGY STAR Features	per installation	New	14	5	\$16	64%	15%	\$0.31	1

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Idaho	Large Office	Other Office Equipment	ENERGY STAR - Printers	ENERGY STAR Printers	Standard Printers	per installation	New	136	6	\$16	95%	40%	\$0.03	1
Idaho	Large Office	Other Office Equipment	ENERGY STAR - Scanners	ENERGY STAR Scanners	Standard Scanner	per installation	New	70	6	\$0.00	95%	45%	\$0.00	0.79
Idaho	Large Office	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Chargers	Non-ENERGY STAR Battery Chargers	per installation	Existing	7	7	\$1	20%	90%	\$0.04	0.15
Idaho	Large Office	Other Plug Load	ENERGY STAR - Water Cooler	ENERGY STAR Water Cooler (Hot/Cold Water)	Non-ENERGY STAR Water Cooler	per installation	Existing	360	10	\$0.00	95%	75%	\$0.00	8
Idaho	Large Office	Other Plug Load	Power Supply Transformer/Converter	80 Plus	85% efficient power supply (> 51W)	1 unit per 2,000 sqft	Existing	3	4	\$0.40	95%	86%	\$0.04	2
Idaho	Large Office	Other Plug Load	Residential Refrigerator	ENERGY STAR	Federal Standard	per installation	Existing	79	12	\$124	19%	65%	\$0.23	0.49
Idaho	Large Office	Other Plug Load	Residential Refrigerator/Freezer Recycling	Recycling Existing Refrigerator/Freezer	Existing Refrigerator/Freezer	per installation	Existing	946	4	\$563	25%	35%	\$0.20	1
Idaho	Large Office	Other Plug Load	Server Virtualization	Server Virtualization	No Virtualization	number of virtualized servers	Existing	2,246	4	\$1,886	72%	85%	\$0.67	11
Idaho	Large Office	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	1 unit per 500 sqft	Existing	99	5	\$20	60%	90%	\$0.06	167
Idaho	Large Office	Other Plug Load	Vending Machines- High Efficiency	ENERGY STAR (Tier 2) Vending Machines- High Efficiency 500 can capacity Under 5.92 kWh/day	Vending Machines- Standard 13 kWh/day	per installation	Existing	238	14	\$155	10%	80%	\$0.09	0.09
Idaho	Large Office	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Chargers	Non-ENERGY STAR Battery Chargers	per installation	New	7	7	\$1	20%	90%	\$0.04	0.09
Idaho	Large Office	Other Plug Load	ENERGY STAR - Water Cooler	ENERGY STAR Water Cooler (Hot/Cold Water)	Non-ENERGY STAR Water Cooler	per installation	New	360	10	\$0.00	95%	75%	\$0.00	4
Idaho	Large Office	Other Plug Load	Power Supply Transformer/Converter	80 Plus	85% efficient power supply (> 51W)	1 unit per 2,000 sqft	New	3	4	\$0.40	95%	86%	\$0.04	1
Idaho	Large Office	Other Plug Load	Residential Refrigerator	ENERGY STAR	Federal Standard	per installation	New	79	12	\$124	19%	65%	\$0.23	0.28
Idaho	Large Office	Other Plug Load	Server Virtualization	Server Virtualization	No Virtualization	number of virtualized servers	New	2,246	4	\$1,886	72%	85%	\$0.67	6
Idaho	Large Office	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	1 unit per 500 sqft	New	99	5	\$20	60%	90%	\$0.06	94
Idaho	Large Office	Other Plug Load	Vending Machines- High Efficiency	ENERGY STAR (Tier 2) Vending Machines- High Efficiency 500 can capacity Under 5.92 kWh/day	Vending Machines- Standard 13 kWh/day	per installation	New	238	14	\$155	10%	80%	\$0.09	0.05
Idaho	Large Office	Space Heat	Convert Constant Volume Air System to VAV	Variable Volume Air System	Constant Volume Air System	per building CFM	Existing	0.98	15	\$2	15%	68%	\$0.34	15
Idaho	Large Office	Space Heat	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	Existing	755	15	\$150	75%	75%	\$0.03	96
Idaho	Large Office	Space Heat	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	Existing	0.18	18	\$0.17	45%	65%	\$0.11	8
Idaho	Large Office	Space Heat	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	Existing	1	14	\$0.92	5%	94%	\$0.11	8
Idaho	Large Office	Space Heat	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	6	13	\$0.24	10%	39%	\$0.01	7
Idaho	Large Office	Space Heat	Insulation - Ceiling	R-30 (ID State Code)	R-11 (Average Existing Conditions)	per roof sqft	Existing	1	25	\$0.67	75%	58%	\$0.06	97
Idaho	Large Office	Space Heat	Insulation - Ceiling	R-38	R-30 (ID State Code)	per roof sqft	Existing	0.17	25	\$0.22	25%	85%	\$0.13	5
Idaho	Large Office	Space Heat	Insulation - Duct	R-5 (ID State Code)	No Insulation	per surface area of duct insul	Existing	2	20	\$1	75%	59%	\$0.06	16
Idaho	Large Office	Space Heat	Insulation - Duct	R-8	R-5 (ID State Code)	per surface area of duct insul	Existing	1	20	\$0.28	75%	85%	\$0.02	22
Idaho	Large Office	Space Heat	Insulation - Floor (non-slab)	R-30 (ID State Code)	R-11 (Average Existing Conditions)	per floor area	Existing	1	25	\$0.84	35%	70%	\$0.05	84
Idaho	Large Office	Space Heat	Insulation - Floor (non-slab)	R-38	R-30 (ID State Code)	per floor area	Existing	0.33	25	\$0.29	35%	90%	\$0.09	17

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Idaho	Large Office	Space Heat	Insulation - Wall	R-13 (ID State Code)	R-3 (Average Existing Conditions)	per floor area	Existing	2	25	\$0.91	10%	66%	\$0.03	24
Idaho	Large Office	Space Heat	Insulation - Wall	R-21	R-13 (ID State Code)	per floor area	Existing	1	25	\$0.20	10%	85%	\$0.02	17
Idaho	Large Office	Space Heat	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	Existing	63	30	\$5	50%	95%	\$0.01	194
Idaho	Large Office	Space Heat	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	Existing	6,897	10	\$124	95%	26%	\$0.00	14
Idaho	Large Office	Space Heat	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	0.94	7	\$0.13	90%	85%	\$0.03	155
Idaho	Large Office	Space Heat	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	New	343	15	\$150	75%	75%	\$0.06	22
Idaho	Large Office	Space Heat	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	New	0.08	18	\$0.17	45%	65%	\$0.25	2
Idaho	Large Office	Space Heat	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	New	0.51	14	\$0.92	5%	94%	\$0.24	2
Idaho	Large Office	Space Heat	Insulation - Ceiling	R-38	R-30 (ID State Code)	per roof sqft	New	0.07	25	\$0.22	75%	85%	\$0.29	5
Idaho	Large Office	Space Heat	Insulation - Duct	R-8	R-5 (ID State Code)	per surface area of duct insul	New	0.87	20	\$0.28	75%	85%	\$0.04	5
Idaho	Large Office	Space Heat	Insulation - Floor (non-slab)	R-38	R-30 (ID State Code)	per floor area	New	0.15	25	\$0.29	35%	90%	\$0.20	5
Idaho	Large Office	Space Heat	Insulation - Wall	R-21	R-13 (ID State Code)	per floor area	New	0.56	25	\$0.20	95%	85%	\$0.04	44
Idaho	Large Office	Space Heat	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	New	28	30	\$5	50%	95%	\$0.02	50
Idaho	Large Office	Space Heat	Natural Ventilation	Natural Ventilation Design Reduction in Cooling	None - Standard Ventilation	per building sqft	New	0.34	15	\$0.85	20%	75%	\$0.32	5
Idaho	Large Office	Space Heat	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	New	3,134	10	\$124	95%	13%	\$0.01	1
Idaho	Large Office	Water Heat	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	per building sqft	Existing	0.02	10	\$0.23	55%	80%	\$1.61	3
Idaho	Large Office	Water Heat	Dishwasher Residential	ENERGY STAR <= 324 kWh/yr, <= 5.8 gal/cycle	Federal Standard <= 355 kWh/yr, <= 6.5 gal/cycle	per installation	Existing	30	11	\$31	95%	25%	\$0.10	0.08
Idaho	Large Office	Water Heat	Electric Water Heater - High Efficiency	EF = 0.95	EF = 0.92	Per installation	Existing	471	15	\$413	100%	N/A	\$0.11	0.56
Idaho	Large Office	Water Heat	Heat Pump Water Heater - Advanced-Efficiency	EF = 2.2	EF = 0.92	Per installation	Existing	8,689	15	\$7,451	75%	N/A	\$0.11	42
Idaho	Large Office	Water Heat	Hot Water (SHW) Pipe Insulation	1.0" of Insulation, assuming R-4 (ID State Code)	No Insulation	per linear foot	Existing	9	12	\$2	80%	30%	\$0.03	0.36
Idaho	Large Office	Water Heat	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	per installation	Existing	78	9	\$0.00	95%	25%	-\$0.08	1
Idaho	Large Office	Water Heat	Low-Flow Faucet Aerators	2.2 GPM (Federal Code)	3.0 GPM	per installation	Existing	65	9	\$2	95%	25%	-\$0.08	1
Idaho	Large Office	Water Heat	Low-Flow Showerheads	2.0 GPM	2.5 GPM (Federal Code)	per installation	Existing	1,170	10	\$6	95%	73%	-\$0.08	8
Idaho	Large Office	Water Heat	Low-Flow Showerheads	2.5 GPM (Federal Code)	4.5 GPM	per installation	Existing	2,600	10	\$10	95%	62%	-\$0.08	16
Idaho	Large Office	Water Heat	Water Heater Temperature Setback	Water Heater Temperature Setback (120 F)	No Change in Water Temperature	per installation	Existing	230	5	\$72	75%	40%	\$0.09	3
Idaho	Large Office	Water Heat	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	per building sqft	New	0.02	10	\$0.23	55%	80%	\$1.58	2
Idaho	Large Office	Water Heat	Dishwasher Residential	ENERGY STAR <= 324 kWh/yr, <= 5.8 gal/cycle	Federal Standard <= 355 kWh/yr, <= 6.5 gal/cycle	per installation	New	30	11	\$31	95%	55%	\$0.10	0.11
Idaho	Large Office	Water Heat	Electric Water Heater - High Efficiency	EF = 0.95	EF = 0.92	Per installation	New	501	15	\$413	100%	N/A	\$0.11	0.27
Idaho	Large Office	Water Heat	Heat Pump Water Heater - Advanced-Efficiency	EF = 2.2	EF = 0.92	Per installation	New	9,232	15	\$6,651	75%	N/A	\$0.09	22
Idaho	Large Office	Water Heat	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	per installation	New	80	9	\$0.00	95%	25%	-\$0.08	0.80
Idaho	Large Office	Water Heat	Low-Flow Showerheads	2.0 GPM	2.5 GPM (Federal Code)	per installation	New	1,198	10	\$6	95%	73%	-\$0.08	5
Idaho	Large Office	Water Heat	Water Heater Temperature Setback	Water Heater Temperature Setback (120 F)	No Change in Water Temperature	per installation	New	236	5	\$72	75%	40%	\$0.09	2
Idaho	Large Retail	Computers	Computer ENERGY STAR	Computer ENERGY STAR	Computer standard non-ENERGY STAR	Per installation	Existing	135	4	\$28	100%	N/A	\$0.07	65

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Idaho	Large Retail	Computers	Computer ENERGY STAR	Computer ENERGY STAR	Computer standard non-ENERGY STAR	Per installation	New	135	4	\$28	100%	N/A	\$0.07	5
Idaho	Large Retail	Cooling Dx Evap	Automated Ventilation VFD Control(Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	1 unit per 3,000 sqft	Existing	618	15	\$683	25%	94%	\$0.14	83
Idaho	Large Retail	Cooling Dx Evap	Cooling Constant Volume Air System to VAV	Variable Volume Air System	Constant Volume Air System	per building CFM	Existing	0.61	15	\$2	15%	68%	\$0.54	75
Idaho	Large Retail	Cooling Dx Evap	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	Existing	0.20	15	\$0.69	80%	98%	\$0.44	215
Idaho	Large Retail	Cooling Dx Evap	DX Package 240 to 760 kBTU/hr - High Efficiency	DX Package 240 to 760 kBTU/hr - High Efficiency 10.5	DX Package 240 to 760 kBTU/hr - Standard Efficiency 10.0 EER	Per installation	Existing	4,867	15	\$15,141	100%	N/A	\$0.40	6
Idaho	Large Retail	Cooling Dx Evap	DX Package 240 to 760 kBTU/hr - Premium Efficiency	DX Package 240 to 760 kBTU/hr - Premium Efficiency 10.8 EER	DX Package 240 to 760 kBTU/hr - Standard Efficiency 10.0 EER	Per installation	Existing	8,508	15	\$24,803	100%	N/A	\$0.38	172
Idaho	Large Retail	Cooling Dx Evap	DX Package-Air Side Economizer	Air-Side Economizer	No Economizer	per DX ton	Existing	61	10	\$155	10%	80%	\$0.42	37
Idaho	Large Retail	Cooling Dx Evap	DX Tune-Up / Diagnostics	DX Tune-Up / Diagnostics	No DX Tune-Up / Diagnostics	per installation	Existing	309	4	\$249	95%	72%	\$0.31	229
Idaho	Large Retail	Cooling Dx Evap	Direct / Indirect Evaporative Cooling, Pre-Cooling	Evaporative Cooler	Standard DX cooling	per building CFM	Existing	0.51	15	\$1	50%	94%	\$0.45	333
Idaho	Large Retail	Cooling Dx Evap	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	Existing	206	15	\$149	75%	75%	\$0.09	233
Idaho	Large Retail	Cooling Dx Evap	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	Existing	0.05	18	\$0.17	45%	65%	\$0.41	22
Idaho	Large Retail	Cooling Dx Evap	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	Existing	0.20	40	\$8	4%	98%	\$3.63	0.82
Idaho	Large Retail	Cooling Dx Evap	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	1	13	\$0.24	10%	39%	\$0.02	2
Idaho	Large Retail	Cooling Dx Evap	Insulation - Ceiling	R-30 (ID State Code)	R-7 (Average Existing Conditions)	per roof sqft	Existing	0.00	25	\$0.67	75%	67%	\$7.32	5
Idaho	Large Retail	Cooling Dx Evap	Insulation - Duct	R-5 (ID State Code)	No Insulation	per surface area of duct insul	Existing	0.78	20	\$1	75%	59%	\$0.20	45
Idaho	Large Retail	Cooling Dx Evap	Insulation - Duct	R-8	R-5 (ID State Code)	per surface area of duct insul	Existing	0.52	20	\$0.28	75%	85%	\$0.06	53
Idaho	Large Retail	Cooling Dx Evap	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	Existing	12	30	\$5	50%	95%	\$0.04	328
Idaho	Large Retail	Cooling Dx Evap	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	Existing	2,165	10	\$121	95%	26%	\$0.01	33
Idaho	Large Retail	Cooling Dx Evap	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	0.25	7	\$0.13	90%	85%	\$0.11	375
Idaho	Large Retail	Cooling Dx Evap	Window Film	Window Film	No Film	per 100 sqft of window glazing	Existing	1	10	\$130	90%	68%	\$13.22	0.24
Idaho	Large Retail	Cooling Dx Evap	Windows-High Efficiency	U-0.32	U-0.35 (ID State Code)	per window sqft	Existing	15	25	\$24	15%	90%	\$0.17	71
Idaho	Large Retail	Cooling Dx Evap	Windows-High Efficiency	U-0.35 (ID State Code)	U-0.68 (Average Existing Conditions)	per window sqft	Existing	12	25	\$67	15%	71%	\$0.57	31
Idaho	Large Retail	Cooling Dx Evap	Automated Ventilation VFD Control(Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	1 unit per 3,000 sqft	New	444	15	\$366	25%	94%	\$0.11	40
Idaho	Large Retail	Cooling Dx Evap	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	New	0.14	15	\$0.69	80%	98%	\$0.61	99

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Idaho	Large Retail	Cooling Dx Evap	DX Package 240 to 760 kBTU/hr - High Efficiency	DX Package 240 to 760 kBTU/hr - High Efficiency 10.5	DX Package 240 to 760 kBTU/hr - Standard Efficiency 10.0 EER	Per installation	New	3,387	15	\$12,114	100%	N/A	\$0.46	1
Idaho	Large Retail	Cooling Dx Evap	DX Package 240 to 760 kBTU/hr - Premium Efficiency	DX Package 240 to 760 kBTU/hr - Premium Efficiency 10.8 EER	DX Package 240 to 760 kBTU/hr - Standard Efficiency 10.0 EER	Per installation	New	6,277	15	\$19,844	100%	N/A	\$0.41	71
Idaho	Large Retail	Cooling Dx Evap	Direct / Indirect Evaporative Cooling, Pre-Cooling	Evaporative Cooler	Standard DX cooling	per building CFM	New	0.37	15	\$1	50%	94%	\$0.62	153
Idaho	Large Retail	Cooling Dx Evap	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	New	148	15	\$149	75%	75%	\$0.13	95
Idaho	Large Retail	Cooling Dx Evap	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	New	0.03	18	\$0.17	45%	65%	\$0.57	10
Idaho	Large Retail	Cooling Dx Evap	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	New	0.14	40	\$8	4%	98%	\$5.05	0.39
Idaho	Large Retail	Cooling Dx Evap	Insulation - Duct	R-8	R-5 (ID State Code)	per surface area of duct insul	New	0.37	20	\$0.28	75%	85%	\$0.09	22
Idaho	Large Retail	Cooling Dx Evap	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	New	9	30	\$5	50%	95%	\$0.05	137
Idaho	Large Retail	Cooling Dx Evap	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	New	1,555	10	\$121	95%	13%	\$0.01	6
Idaho	Large Retail	Cooling Dx Evap	Windows-High Efficiency	U-0.32	U-0.35 (ID State Code)	per window sqft	New	11	25	\$24	80%	90%	\$0.23	176
Idaho	Large Retail	Heat Pump	Air Source Heat Pump 135 to 240 kBTU/hr - High Efficiency	11.5 EER, 3.4 COP	10.6 EER, 3.2 COP	Per installation	Existing	16,710	15	\$17,416	100%	N/A	\$0.13	9
Idaho	Large Retail	Heat Pump	Air Source Heat Pump 65 to 135 kBTU/hr - Premium Efficiency	12.0 EER, 3.8 COP	10.6 EER, 3.2 COP	Per installation	Existing	32,209	15	\$29,858	100%	N/A	\$0.12	204
Idaho	Large Retail	Heat Pump	Automated Ventilation VFD Control(Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	1 unit per 3,000 sqft	Existing	752	15	\$683	25%	94%	\$0.12	19
Idaho	Large Retail	Heat Pump	Convert Constant Volume Air System to VAV	Variable Volume Air System	Constant Volume Air System	per building CFM	Existing	0.97	15	\$2	15%	68%	\$0.35	29
Idaho	Large Retail	Heat Pump	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	Existing	0.25	15	\$0.69	80%	98%	\$0.36	51
Idaho	Large Retail	Heat Pump	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	Existing	609	15	\$149	75%	75%	\$0.03	135
Idaho	Large Retail	Heat Pump	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	Existing	0.15	18	\$0.17	45%	65%	\$0.14	14
Idaho	Large Retail	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	Existing	0.53	14	\$0.92	5%	94%	\$0.23	7
Idaho	Large Retail	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	Existing	0.25	40	\$8	4%	98%	\$2.98	0.24
Idaho	Large Retail	Heat Pump	Ground Source Heat Pump Replacing Air Source Heat Pump 65 to 135 kBTU/hr - Advanced Efficiency	16.2 EER 4.0 COP	10.6 EER, 3.2 COP	Per installation	Existing	63,465	30	\$83,072	5%	N/A	\$1.00	19
Idaho	Large Retail	Heat Pump	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	8	13	\$0.24	10%	39%	\$0.00	2
Idaho	Large Retail	Heat Pump	Insulation - Ceiling	R-30 (ID State Code)	R-7 (Average Existing Conditions)	per roof sqft	Existing	0.49	25	\$0.67	75%	67%	\$0.14	79
Idaho	Large Retail	Heat Pump	Insulation - Ceiling	R-38	R-30 (ID State Code)	per roof sqft	Existing	0.05	25	\$0.22	25%	85%	\$0.43	3
Idaho	Large Retail	Heat Pump	Insulation - Duct	R-5 (ID State Code)	No Insulation	per surface area of duct insul	Existing	2	20	\$1	75%	59%	\$0.07	27
Idaho	Large Retail	Heat Pump	Insulation - Duct	R-8	R-5 (ID State Code)	per surface area of duct insul	Existing	1	20	\$0.28	75%	85%	\$0.02	31
Idaho	Large Retail	Heat Pump	Insulation - Floor (non-slab)	R-30 (ID State Code)	R-11 (Average Existing Conditions)	per floor area	Existing	0.55	25	\$0.84	35%	84%	\$0.15	50

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Idaho	Large Retail	Heat Pump	Insulation - Floor (non-slab)	R-38	R-30 (ID State Code)	per floor area	Existing	0.10	25	\$0.29	35%	90%	\$0.28	10
Idaho	Large Retail	Heat Pump	Insulation - Wall	R-13 (ID State Code)	R-3 (Average Existing Conditions)	per floor area	Existing	1	25	\$0.90	10%	66%	\$0.07	11
Idaho	Large Retail	Heat Pump	Insulation - Wall	R-21	R-13 (ID State Code)	per floor area	Existing	0.57	25	\$0.20	10%	85%	\$0.04	7
Idaho	Large Retail	Heat Pump	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	Existing	51	30	\$5	50%	95%	\$0.01	270
Idaho	Large Retail	Heat Pump	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	Existing	6,398	10	\$121	95%	26%	\$0.00	20
Idaho	Large Retail	Heat Pump	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	0.76	7	\$0.13	90%	85%	\$0.04	217
Idaho	Large Retail	Heat Pump	Window Film	Window Film	No Film	per 100 sqft of window glazing	Existing	1	10	\$130	90%	68%	\$13.24	0.05
Idaho	Large Retail	Heat Pump	Windows-High Efficiency	U-0.32	U-0.35 (ID State Code)	per window sqft	Existing	7	25	\$24	15%	90%	\$0.35	6
Idaho	Large Retail	Heat Pump	Windows-High Efficiency	U-0.35 (ID State Code)	U-0.68 (Average Existing Conditions)	per window sqft	Existing	19	25	\$67	15%	71%	\$0.36	12
Idaho	Large Retail	Heat Pump	Air Source Heat Pump 135 to 240 kBTU/hr - High Efficiency	11.5 EER, 3.4 COP	10.6 EER, 3.2 COP	Per installation	New	11,589	15	\$13,935	100%	N/A	\$0.16	2
Idaho	Large Retail	Heat Pump	Air Source Heat Pump 65 to 135 kBTU/hr - Premium Efficiency	12.0 EER, 3.8 COP	10.6 EER, 3.2 COP	Per installation	New	20,717	15	\$23,885	100%	N/A	\$0.15	76
Idaho	Large Retail	Heat Pump	Automated Ventilation VFD Control(Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	1 unit per 3,000 sqft	New	533	15	\$366	25%	94%	\$0.09	8
Idaho	Large Retail	Heat Pump	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	New	0.17	15	\$0.69	80%	98%	\$0.51	25
Idaho	Large Retail	Heat Pump	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	New	364	15	\$149	75%	75%	\$0.05	47
Idaho	Large Retail	Heat Pump	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	New	0.09	18	\$0.17	45%	65%	\$0.23	5
Idaho	Large Retail	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	New	0.27	14	\$0.92	5%	94%	\$0.44	2
Idaho	Large Retail	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	New	0.17	40	\$8	4%	98%	\$4.21	0.11
Idaho	Large Retail	Heat Pump	Ground Source Heat Pump Replacing Air Source Heat Pump 65 to 135 kBTU/hr - Advanced Efficiency	16.2 EER 4.0 COP	10.6 EER, 3.2 COP	Per installation	New	42,728	30	\$62,137	5%	N/A	\$0.77	7
Idaho	Large Retail	Heat Pump	Insulation - Ceiling	R-38	R-30 (ID State Code)	per roof sqft	New	0.02	25	\$0.22	75%	85%	\$0.95	2
Idaho	Large Retail	Heat Pump	Insulation - Duct	R-8	R-5 (ID State Code)	per surface area of duct insul	New	0.92	20	\$0.28	75%	85%	\$0.03	10
Idaho	Large Retail	Heat Pump	Insulation - Floor (non-slab)	R-38	R-30 (ID State Code)	per floor area	New	0.04	25	\$0.29	35%	90%	\$0.64	2
Idaho	Large Retail	Heat Pump	Insulation - Wall	R-21	R-13 (ID State Code)	per floor area	New	0.25	25	\$0.20	95%	85%	\$0.08	18
Idaho	Large Retail	Heat Pump	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	New	30	30	\$5	50%	95%	\$0.02	94
Idaho	Large Retail	Heat Pump	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	New	3,822	10	\$121	95%	13%	\$0.01	3
Idaho	Large Retail	Heat Pump	Windows-High Efficiency	U-0.32	U-0.35 (ID State Code)	per window sqft	New	7	25	\$24	80%	90%	\$0.35	22
Idaho	Large Retail	Hvac Aux	Convert Constant Volume Air System to VAV	Variable Volume Air System	Constant Volume Air System	per building CFM	Existing	0.32	15	\$2	15%	68%	\$1.03	227
Idaho	Large Retail	Hvac Aux	Cooking Hood Controls	Demand-Ventilation Control	No Controls	per installation	Existing	1,850	18	\$4,213	95%	65%	\$0.27	56
Idaho	Large Retail	Hvac Aux	Motor - CEE Premium-Efficiency Plus	CEE PE+ Motor for HVAC Applications	NEMA Efficiency Motors	per HP	Existing	26	15	\$6	95%	76%	\$0.03	110
Idaho	Large Retail	Hvac Aux	Motor - VAV Box High Efficiency (ECM)	ECM Motor	Standard Efficiency Motor	per installation	Existing	68	15	\$176	5%	77%	\$0.34	37
Idaho	Large Retail	Hvac Aux	Motor Rewind	>15, <500 HP	No Rewind	per HP	Existing	3	8	\$4	65%	25%	\$0.27	4
Idaho	Large Retail	Hvac Aux	Cooking Hood Controls	Demand-Ventilation Control	No Controls	per installation	New	1,850	18	\$4,213	95%	65%	\$0.27	32

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Idaho	Large Retail	Hvac Aux	Low Pressure Distribution Complex HVAC	Low Pressure Distribution Complex HVAC	VAV/CV	per building sqft	New	0.83	50	\$2	8%	98%	\$0.22	203
Idaho	Large Retail	Hvac Aux	Motor - CEE Premium-Efficiency Plus	CEE PE+ Motor for HVAC Applications	NEMA Efficiency Motors	per HP	New	21	15	\$6	95%	76%	\$0.04	63
Idaho	Large Retail	Hvac Aux	Motor - VAV Box High Efficiency (ECM)	ECM Motor	Standard Efficiency Motor	per installation	New	55	15	\$176	5%	77%	\$0.41	16
Idaho	Large Retail	Lighting Exterior	Covered Parking Lighting	Covered Parking Lighting	Normal Lighting	per building sqft	Existing	0.09	10	\$0.02	80%	95%	\$0.05	489
Idaho	Large Retail	Lighting Exterior	Daylighting Controls, Outdoors (Photocell)	Photocell	No Controls	per installation	Existing	111	8	\$28	75%	70%	\$0.05	79
Idaho	Large Retail	Lighting Exterior	Exterior Building Lighting	30% savings	Normal Lighting	per installation	Existing	240	15	\$333	62%	90%	\$0.18	687
Idaho	Large Retail	Lighting Exterior	Solid State LED White Lighting	Landscape, merchandise, signage, structure & task lighting (2.5 W)	50W 10hrs/day, 365 day/yr	per installation	Existing	12	14	\$35	75%	95%	\$0.39	12
Idaho	Large Retail	Lighting Exterior	Surface Parking Lighting	Surface Parking Lighting	Normal Lighting	per building sqft	Existing	0.05	19	\$0.06	62%	95%	\$0.16	204
Idaho	Large Retail	Lighting Exterior	Covered Parking Lighting	Covered Parking Lighting	Normal Lighting	per building sqft	New	0.09	10	\$0.02	80%	95%	\$0.05	277
Idaho	Large Retail	Lighting Exterior	Daylighting Controls, Outdoors (Photocell)	Photocell	No Controls	per installation	New	111	8	\$28	75%	70%	\$0.05	44
Idaho	Large Retail	Lighting Exterior	Exterior Building Lighting	30% savings	Normal Lighting	per installation	New	240	15	\$333	62%	90%	\$0.18	389
Idaho	Large Retail	Lighting Exterior	Solid State LED White Lighting	Landscape, merchandise, signage, structure & task lighting (2.5 W)	50W 10hrs/day, 365 day/yr	per installation	New	12	14	\$35	75%	95%	\$0.39	7
Idaho	Large Retail	Lighting Exterior	Surface Parking Lighting	Surface Parking Lighting	Normal Lighting	per building sqft	New	0.05	19	\$0.06	62%	95%	\$0.16	116
Idaho	Large Retail	Lighting Interior	Cold Cathode Lighting	Cold Cathode Lighting 5 watts	30 W Incandescent Bulb	per installation	Existing	2,369	5	\$14	15%	94%	\$0.00	61
Idaho	Large Retail	Lighting Interior	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	Existing	0.80	8	\$0.85	30%	84%	\$0.21	59
Idaho	Large Retail	Lighting Interior	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	Existing	0.60	8	\$0.64	30%	84%	\$0.21	44
Idaho	Large Retail	Lighting Interior	Exit Sign - LED	LED Exit Sign (2 Watts)	CFL Exit Sign (9 Watts)	per installation	Existing	95	16	\$16	95%	50%	\$0.02	219
Idaho	Large Retail	Lighting Interior	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign (2 Watts)	per installation	Existing	17	13	\$30	95%	98%	\$0.25	26
Idaho	Large Retail	Lighting Interior	Lighting Package, High Efficiency	15% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	Existing	0.73	13	\$0.07	90%	53%	\$0.02	1,810
Idaho	Large Retail	Lighting Interior	Lighting Package, High Efficiency	Code Required LPD And Control Strategies	Existing Lighting Design LPD	per building sqft	Existing	1	13	\$0.74	90%	39%	\$0.06	4,140
Idaho	Large Retail	Lighting Interior	Lighting Package, Premium Efficiency	25% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	Existing	1	13	\$0.43	75%	62%	\$0.05	728
Idaho	Large Retail	Lighting Interior	Lighting Package, Premium High Bay	35% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	Existing	0.27	13	\$0.15	70%	83%	\$0.08	1,035
Idaho	Large Retail	Lighting Interior	Occupancy Sensor Control, Fluorescent	Occupancy Sensor Control, Fluorescent	No Occupancy Sensor	per occupancy sensor	Existing	1,169	8	\$65	45%	56%	\$0.01	151
Idaho	Large Retail	Lighting Interior	Time Clock	Time Clock	No Controls	per 10,000 Watts	Existing	744	8	\$175	20%	86%	\$0.05	101
Idaho	Large Retail	Lighting Interior	Cold Cathode Lighting	Cold Cathode Lighting 5 watts	30 W Incandescent Bulb	per installation	New	1,814	5	\$14	15%	94%	\$0.00	26
Idaho	Large Retail	Lighting Interior	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	New	0.61	8	\$0.85	30%	84%	\$0.27	27
Idaho	Large Retail	Lighting Interior	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	New	0.46	8	\$0.64	30%	84%	\$0.27	20
Idaho	Large Retail	Lighting Interior	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign (2 Watts)	per installation	New	17	13	\$30	95%	98%	\$0.25	59
Idaho	Large Retail	Lighting Interior	Lighting Package, High Efficiency	15% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	New	0.73	15	\$0.03	90%	53%	\$0.01	1,026

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Idaho	Large Retail	Lighting Interior	Lighting Package, Premium Efficiency	25% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	New	1	15	\$0.19	75%	62%	\$0.02	412
Idaho	Large Retail	Lighting Interior	Lighting Package, Premium High Bay	35% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	New	0.27	15	\$0.03	70%	83%	\$0.01	586
Idaho	Large Retail	Lighting Interior	Occupancy Sensor Control, Fluorescent	Occupancy Sensor Control, Fluorescent	No Occupancy Sensor	per occupancy sensor	New	895	8	\$65	45%	56%	\$0.01	70
Idaho	Large Retail	Lighting Interior	Time Clock	Time Clock	No Controls	per 10,000 Watts	New	744	8	\$175	20%	86%	\$0.05	47
Idaho	Large Retail	Other Office Equipment	ENERGY STAR - Copiers	ENERGY STAR Copiers	Standard Copier	per installation	Existing	72	6	\$160	95%	45%	\$0.54	1
Idaho	Large Retail	Other Office Equipment	ENERGY STAR - Fax	ENERGY STAR Fax	Standard Fax	per installation	Existing	77	6	\$0.00	95%	45%	\$0.00	1
Idaho	Large Retail	Other Office Equipment	ENERGY STAR - Monitors	ENERGY STAR Features Enabled	Non-ENERGY STAR Features	per installation	Existing	14	5	\$16	64%	15%	\$0.32	0.77
Idaho	Large Retail	Other Office Equipment	ENERGY STAR - Printers	ENERGY STAR Printers	Standard Printers	per installation	Existing	135	6	\$14	95%	40%	\$0.03	7
Idaho	Large Retail	Other Office Equipment	ENERGY STAR - Scanners	ENERGY STAR Scanners	Standard Scanner	per installation	Existing	70	6	\$0.00	95%	45%	\$0.00	1
Idaho	Large Retail	Other Office Equipment	ENERGY STAR - Copiers	ENERGY STAR Copiers	Standard Copier	per installation	New	72	6	\$160	95%	45%	\$0.54	0.69
Idaho	Large Retail	Other Office Equipment	ENERGY STAR - Fax	ENERGY STAR Fax	Standard Fax	per installation	New	77	6	\$0.00	95%	45%	\$0.00	0.74
Idaho	Large Retail	Other Office Equipment	ENERGY STAR - Monitors	ENERGY STAR Features Enabled	Non-ENERGY STAR Features	per installation	New	14	5	\$16	64%	15%	\$0.32	0.43
Idaho	Large Retail	Other Office Equipment	ENERGY STAR - Printers	ENERGY STAR Printers	Standard Printers	per installation	New	135	6	\$14	95%	40%	\$0.03	4
Idaho	Large Retail	Other Office Equipment	ENERGY STAR - Scanners	ENERGY STAR Scanners	Standard Scanner	per installation	New	70	6	\$0.00	95%	45%	\$0.00	0.67
Idaho	Large Retail	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	per installation	Existing	7	7	\$2	20%	90%	\$0.06	0.86
Idaho	Large Retail	Other Plug Load	ENERGY STAR - Water Cooler	ENERGY STAR Water Cooler (Hot/Cold Water)	Non-ENERGY STAR Water Cooler	per installation	Existing	358	10	\$0.00	95%	75%	\$0.00	7
Idaho	Large Retail	Other Plug Load	Power Supply Transformer/Converter	80 Plus	85% efficient power supply (> 51W)	1 unit per 2,000 sqft	Existing	4	4	\$0.40	95%	86%	\$0.03	13
Idaho	Large Retail	Other Plug Load	Residential Refrigerator	ENERGY STAR	Federal Standard	per installation	Existing	79	12	\$121	3%	65%	\$0.23	0.27
Idaho	Large Retail	Other Plug Load	Residential Refrigerator/Freezer Recycling	Recycling Existing Refrigerator/Freezer	Existing Refrigerator/Freezer	per installation	Existing	940	4	\$560	25%	35%	\$0.20	6
Idaho	Large Retail	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	1 unit per 5,000 sqft	Existing	99	5	\$20	60%	90%	\$0.06	74
Idaho	Large Retail	Other Plug Load	Vending Machines- High Efficiency	ENERGY STAR (Tier 2) Vending Machines- High Efficiency 500 can capacity Under 5.92 kWh/day	Vending Machines- Standard 13 kWh/day	per installation	Existing	236	14	\$142	5%	80%	\$0.08	0.09
Idaho	Large Retail	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	per installation	New	7	7	\$2	20%	90%	\$0.06	0.49
Idaho	Large Retail	Other Plug Load	ENERGY STAR - Water Cooler	ENERGY STAR Water Cooler (Hot/Cold Water)	Non-ENERGY STAR Water Cooler	per installation	New	358	10	\$0.00	95%	75%	\$0.00	4
Idaho	Large Retail	Other Plug Load	Power Supply Transformer/Converter	80 Plus	85% efficient power supply (> 51W)	1 unit per 2,000 sqft	New	4	4	\$0.40	95%	86%	\$0.03	7
Idaho	Large Retail	Other Plug Load	Residential Refrigerator	ENERGY STAR	Federal Standard	per installation	New	79	12	\$121	3%	65%	\$0.23	0.15
Idaho	Large Retail	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	1 unit per 5,000 sqft	New	99	5	\$20	60%	90%	\$0.06	42
Idaho	Large Retail	Other Plug Load	Vending Machines- High Efficiency	ENERGY STAR (Tier 2) Vending Machines- High Efficiency 500 can capacity Under 5.92 kWh/day	Vending Machines- Standard 13 kWh/day	per installation	New	236	14	\$142	5%	80%	\$0.08	0.05
Idaho	Large Retail	Space Heat	Convert Constant Volume Air System to VAV	Variable Volume Air System	Constant Volume Air System	per building CFM	Existing	0.71	15	\$2	15%	68%	\$0.47	22

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Idaho	Large Retail	Space Heat	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	Existing	548	15	\$149	75%	75%	\$0.04	143
Idaho	Large Retail	Space Heat	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	Existing	0.13	18	\$0.17	45%	65%	\$0.15	12
Idaho	Large Retail	Space Heat	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	Existing	0.82	14	\$0.92	5%	94%	\$0.15	12
Idaho	Large Retail	Space Heat	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	8	13	\$0.24	10%	39%	\$0.00	3
Idaho	Large Retail	Space Heat	Insulation - Ceiling	R-30 (ID State Code)	R-7 (Average Existing Conditions)	per roof sqft	Existing	1	25	\$0.67	75%	67%	\$0.05	253
Idaho	Large Retail	Space Heat	Insulation - Ceiling	R-38	R-30 (ID State Code)	per roof sqft	Existing	0.12	25	\$0.22	25%	85%	\$0.18	8
Idaho	Large Retail	Space Heat	Insulation - Duct	R-5 (ID State Code)	No Insulation	per surface area of duct insul	Existing	2	20	\$1	75%	59%	\$0.08	23
Idaho	Large Retail	Space Heat	Insulation - Duct	R-8	R-5 (ID State Code)	per surface area of duct insul	Existing	1	20	\$0.28	75%	85%	\$0.02	33
Idaho	Large Retail	Space Heat	Insulation - Floor (non-slab)	R-30 (ID State Code)	R-11 (Average Existing Conditions)	per floor area	Existing	1	25	\$0.84	35%	84%	\$0.07	135
Idaho	Large Retail	Space Heat	Insulation - Floor (non-slab)	R-38	R-30 (ID State Code)	per floor area	Existing	0.24	25	\$0.29	35%	90%	\$0.12	24
Idaho	Large Retail	Space Heat	Insulation - Wall	R-13 (ID State Code)	R-3 (Average Existing Conditions)	per floor area	Existing	3	25	\$0.90	10%	66%	\$0.03	44
Idaho	Large Retail	Space Heat	Insulation - Wall	R-21	R-13 (ID State Code)	per floor area	Existing	1	25	\$0.20	10%	85%	\$0.01	26
Idaho	Large Retail	Space Heat	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	Existing	46	30	\$5	50%	95%	\$0.01	293
Idaho	Large Retail	Space Heat	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	Existing	5,760	10	\$121	95%	26%	\$0.00	21
Idaho	Large Retail	Space Heat	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	0.68	7	\$0.13	90%	85%	\$0.04	230
Idaho	Large Retail	Space Heat	Windows-High Efficiency	U-0.35 (ID State Code)	U-0.68 (Average Existing Conditions)	per window sqft	Existing	6	25	\$67	15%	71%	\$1.15	4
Idaho	Large Retail	Space Heat	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	New	279	15	\$149	75%	75%	\$0.07	38
Idaho	Large Retail	Space Heat	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	New	0.06	18	\$0.17	45%	65%	\$0.30	4
Idaho	Large Retail	Space Heat	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	New	0.41	14	\$0.92	5%	94%	\$0.30	4
Idaho	Large Retail	Space Heat	Insulation - Ceiling	R-38	R-30 (ID State Code)	per roof sqft	New	0.06	25	\$0.22	75%	85%	\$0.35	9
Idaho	Large Retail	Space Heat	Insulation - Duct	R-8	R-5 (ID State Code)	per surface area of duct insul	New	0.71	20	\$0.28	75%	85%	\$0.05	8
Idaho	Large Retail	Space Heat	Insulation - Floor (non-slab)	R-38	R-30 (ID State Code)	per floor area	New	0.12	25	\$0.29	35%	90%	\$0.24	9
Idaho	Large Retail	Space Heat	Insulation - Wall	R-21	R-13 (ID State Code)	per floor area	New	0.80	25	\$0.20	95%	85%	\$0.03	74
Idaho	Large Retail	Space Heat	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	New	23	30	\$5	50%	95%	\$0.02	85
Idaho	Large Retail	Space Heat	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	New	2,937	10	\$121	95%	13%	\$0.01	3
Idaho	Large Retail	Water Heat	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	per building sqft	Existing	0.01	10	\$0.23	75%	94%	\$2.78	23
Idaho	Large Retail	Water Heat	Dishwasher Residential	ENERGY STAR <= 324 kWh/yr, <= 5.8 gal/cycle	Federal Standard <= 355 kWh/yr, <= 6.5 gal/cycle	per installation	Existing	30	11	\$32	95%	25%	\$0.10	0.12
Idaho	Large Retail	Water Heat	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	per installation	Existing	7,309	10	\$2,362	95%	95%	\$0.02	1
Idaho	Large Retail	Water Heat	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	per installation	Existing	3,414	10	\$1,181	95%	94%	\$-0.00	0.32
Idaho	Large Retail	Water Heat	Electric Water Heater - High Efficiency	EF = 0.95	EF = 0.92	Per installation	Existing	326	15	\$392	100%	N/A	\$0.16	2
Idaho	Large Retail	Water Heat	Heat Pump Water Heater - Advanced-Efficiency	EF = 2.2	EF = 0.92	Per installation	Existing	6,024	15	\$7,040	75%	N/A	\$0.15	181

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Idaho	Large Retail	Water Heat	Hot Water (SHW) Pipe Insulation	1.0" of Insulation, assuming R-4 (ID State Code)	No Insulation	per linear foot	Existing	6	12	\$2	80%	90%	\$0.05	4
Idaho	Large Retail	Water Heat	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	per installation	Existing	45	9	\$0.00	95%	25%	\$-0.08	5
Idaho	Large Retail	Water Heat	Low-Flow Faucet Aerators	2.2 GPM (Federal Code)	3.0 GPM	per installation	Existing	38	9	\$2	95%	25%	\$-0.07	4
Idaho	Large Retail	Water Heat	Low-Flow Pre-Rinse Spray Valves	0.6 GPM	1.6 GPM (Federal Standard)	per installation	Existing	65	5	\$0.00	95%	83%	\$-0.09	0.14
Idaho	Large Retail	Water Heat	Water Heater Temperature Setback	Water Heater Temperature Setback (120 F)	No Change in Water Temperature	per installation	Existing	153	5	\$71	75%	45%	\$0.13	17
Idaho	Large Retail	Water Heat	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	per building sqft	New	0.01	10	\$0.23	75%	94%	\$2.88	12
Idaho	Large Retail	Water Heat	Dishwasher Residential	ENERGY STAR <= 324 kWh/yr, <= 5.8 gal/cycle	Federal Standard <= 355 kWh/yr, <= 6.5 gal/cycle	per installation	New	30	11	\$32	95%	55%	\$0.10	0.15
Idaho	Large Retail	Water Heat	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	per installation	New	7,309	10	\$2,446	95%	95%	\$0.02	0.75
Idaho	Large Retail	Water Heat	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	per installation	New	3,414	10	\$611	95%	94%	\$-0.03	0.17
Idaho	Large Retail	Water Heat	Electric Water Heater - High Efficiency	EF = 0.95	EF = 0.92	Per installation	New	315	15	\$392	100%	N/A	\$0.16	1
Idaho	Large Retail	Water Heat	Heat Pump Water Heater - Advanced-Efficiency	EF = 2.2	EF = 0.92	Per installation	New	5,816	15	\$6,287	75%	N/A	\$0.14	82
Idaho	Large Retail	Water Heat	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	per installation	New	43	9	\$0.00	95%	25%	\$-0.08	2
Idaho	Large Retail	Water Heat	Low-Flow Pre-Rinse Spray Valves	0.6 GPM	1.6 GPM (Federal Standard)	per installation	New	65	5	\$0.00	95%	83%	\$-0.09	0.08
Idaho	Large Retail	Water Heat	Water Heater Temperature Setback	Water Heater Temperature Setback (120 F)	No Change in Water Temperature	per installation	New	148	5	\$71	75%	45%	\$0.14	9
Idaho	Lodging	Computers	Computer ENERGY STAR	Computer ENERGY STAR	Computer standard non-ENERGY STAR	Per installation	Existing	135	4	\$28	100%	N/A	\$0.07	43
Idaho	Lodging	Computers	Computer ENERGY STAR	Computer ENERGY STAR	Computer standard non-ENERGY STAR	Per installation	New	135	4	\$28	100%	N/A	\$0.07	3
Idaho	Lodging	Cooking	Combination Oven	60% cooking efficiency	Non ENERGY STAR	per installation	Existing	11,646	12	\$1,901	90%	90%	\$0.02	0.03
Idaho	Lodging	Cooking	Fryers - New CEE Efficient Electric Deep Fat Fryers	15 inch width Deep Fryer CEE 2006 rating; 80% under heavy load, Less than 1000 watt at idle	15 inch width standard electric deep fat fryers	per installation	Existing	1,007	12	\$1,267	55%	90%	\$0.19	0.00
Idaho	Lodging	Cooking	Griddle	70% cooking efficiency	Non ENERGY STAR	per installation	Existing	2,248	12	\$804	95%	85%	\$0.05	0.08
Idaho	Lodging	Cooking	High Efficiency Convection Oven	Convection Oven	Standard Oven	per installation	Existing	1,861	12	\$2,011	19%	55%	\$0.16	0.01
Idaho	Lodging	Cooking	Hot Food Holding Cabinet	ENERGY STAR	Non ENERGY STAR	per installation	Existing	3,904	12	\$1,751	55%	21%	\$0.07	0.04
Idaho	Lodging	Cooking	Steam Cooker	ENERGY STAR	Non ENERGY STAR	per installation	Existing	4,179	12	\$2,541	11%	75%	\$0.09	0.03
Idaho	Lodging	Cooking	Combination Oven	60% cooking efficiency	Non ENERGY STAR	per installation	New	11,646	12	\$1,901	90%	90%	\$0.02	0.01
Idaho	Lodging	Cooking	Fryers - New CEE Efficient Electric Deep Fat Fryers	15 inch width Deep Fryer CEE 2006 rating; 80% under heavy load, Less than 1000 watt at idle	15 inch width standard electric deep fat fryers	per installation	New	1,007	12	\$1,267	55%	90%	\$0.19	0.00
Idaho	Lodging	Cooking	Griddle	70% cooking efficiency	Non ENERGY STAR	per installation	New	2,248	12	\$804	95%	85%	\$0.05	0.05
Idaho	Lodging	Cooking	High Efficiency Convection Oven	Convection Oven	Standard Oven	per installation	New	1,861	12	\$2,011	19%	55%	\$0.16	0.00
Idaho	Lodging	Cooking	Hot Food Holding Cabinet	ENERGY STAR	Non ENERGY STAR	per installation	New	3,904	12	\$1,751	55%	21%	\$0.07	0.02
Idaho	Lodging	Cooking	Steam Cooker	ENERGY STAR	Non ENERGY STAR	per installation	New	4,179	12	\$2,541	11%	75%	\$0.09	0.01
Idaho	Lodging	Cooling Chillers	Automated Ventilation VFD Control(Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	1 unit per 3,000 sqft	Existing	110	15	\$683	50%	94%	\$0.80	0.81
Idaho	Lodging	Cooling Chillers	Chilled Water / Condenser Water Settings-Optimization	Additional Control Features	EMS already installed - No Optimization	1 control point per 1000 sqft	Existing	23	5	\$139	95%	81%	\$1.72	0.79
Idaho	Lodging	Cooling Chillers	Chilled Water Piping Loop w/ VSD Control	VSD for secondary chilled water loop	Primary loop only w/ constant speed pump	per chiller ton	Existing	37	10	\$190	25%	70%	\$0.85	1

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Idaho	Lodging	Cooling Chillers	Chiller-Water Side Economizer	Install Economizer	No Economizer	per chiller ton	Existing	24	15	\$422	45%	30%	\$2.20	0.55
Idaho	Lodging	Cooling Chillers	Chillers <150 tons (screw) - Advanced Efficiency	0.58 kW/ton (full load)	0.790 kW/Ton (full load)	Per installation	Existing	3,449	20	\$5,147	100%	N/A	\$0.17	13
Idaho	Lodging	Cooling Chillers	Chillers <150 tons (screw) - High Efficiency	0.71 kW/ton (full load)	0.790 kW/Ton (full load)	Per installation	Existing	1,317	20	\$1,961	100%	N/A	\$0.17	0.09
Idaho	Lodging	Cooling Chillers	Chillers <150 tons (screw) - Premium Efficiency	0.63 kW/ton	0.790 kW/Ton (full load)	Per installation	Existing	2,564	20	\$3,921	100%	N/A	\$0.17	0.79
Idaho	Lodging	Cooling Chillers	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	Existing	0.18	15	\$0.69	45%	98%	\$0.49	3
Idaho	Lodging	Cooling Chillers	Cooling Tower-Decrease Approach Temperature	6 Deg F	10 Deg F	per chiller ton	Existing	39	8	\$26	10%	94%	\$0.14	0.68
Idaho	Lodging	Cooling Chillers	Cooling Tower-Two-Speed Fan Motor	Cooling Tower-Two-Speed Fan Motor	Cooling Tower-One-Speed Fan Motor	per chiller ton	Existing	69	15	\$2	95%	35%	\$0.00	5
Idaho	Lodging	Cooling Chillers	Cooling Tower-VSD Fan Control	Variable-Speed Tower Fans replace Two-Speed	Cooling Tower-Two-Speed Fan Motor	per chiller ton	Existing	19	13	\$19	95%	75%	\$0.14	2
Idaho	Lodging	Cooling Chillers	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	Existing	184	15	\$149	75%	75%	\$0.11	6
Idaho	Lodging	Cooling Chillers	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	Existing	0.18	40	\$8	4%	98%	\$4.06	0.02
Idaho	Lodging	Cooling Chillers	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	0.58	13	\$0.24	10%	39%	\$0.06	0.21
Idaho	Lodging	Cooling Chillers	Insulation - Ceiling	R-30 (ID State Code)	R-11 (Average Existing Conditions)	per roof sqft	Existing	0.00	25	\$0.67	75%	67%	\$16.35	0.09
Idaho	Lodging	Cooling Chillers	Pipe Insulation	1.5" of Insulation, assuming R-6 (ID State Code)	No Insulation	per linear feet of insulation	Existing	5	15	\$3	65%	45%	\$0.07	0.48
Idaho	Lodging	Cooling Chillers	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	0.23	7	\$0.13	90%	85%	\$0.13	9
Idaho	Lodging	Cooling Chillers	Window Film	Window Film	No Film	per 100 sqft of window glazing	Existing	2	10	\$130	90%	68%	\$9.06	0.10
Idaho	Lodging	Cooling Chillers	Windows-High Efficiency	U-0.32	U-0.35 (ID State Code)	per window sqft	Existing	1	25	\$24	15%	90%	\$1.40	1
Idaho	Lodging	Cooling Chillers	Windows-High Efficiency	U-0.35 (ID State Code)	U-0.65 (Average Existing Conditions)	per window sqft	Existing	1	25	\$67	15%	68%	\$4.70	1
Idaho	Lodging	Cooling Chillers	Automated Ventilation VFD Control(Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	1 unit per 3,000 sqft	New	59	15	\$366	50%	94%	\$0.80	0.33
Idaho	Lodging	Cooling Chillers	Chilled Water / Condenser Water Settings-Optimization	Additional Control Features	EMS already installed - No Optimization	1 control point per 1000 sqft	New	12	5	\$139	95%	81%	\$3.21	0.27
Idaho	Lodging	Cooling Chillers	Chilled Water Piping Loop w/ VSD Control	VSD for secondary chilled water loop	Primary loop only w/ constant speed pump	per chiller ton	New	22	10	\$190	25%	70%	\$1.42	0.43
Idaho	Lodging	Cooling Chillers	Chillers <150 tons (screw) - Advanced Efficiency	0.58 kW/ton (full load)	0.790 kW/Ton (full load)	Per installation	New	2,183	20	\$4,632	100%	N/A	\$0.24	6
Idaho	Lodging	Cooling Chillers	Chillers <150 tons (screw) - High Efficiency	0.71 kW/ton (full load)	0.790 kW/Ton (full load)	Per installation	New	834	20	\$1,765	100%	N/A	\$0.24	0.03
Idaho	Lodging	Cooling Chillers	Chillers <150 tons (screw) - Premium Efficiency	0.63 kW/ton	0.790 kW/Ton (full load)	Per installation	New	1,623	20	\$3,529	100%	N/A	\$0.24	0.26
Idaho	Lodging	Cooling Chillers	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	New	0.09	15	\$0.69	45%	98%	\$0.91	1
Idaho	Lodging	Cooling Chillers	Cooling Tower-Decrease Approach Temperature	6 Deg F	10 Deg F	per chiller ton	New	23	8	\$26	10%	94%	\$0.23	0.26
Idaho	Lodging	Cooling Chillers	Cooling Tower-VSD Fan Control	Variable-Speed Tower Fans replace Two-Speed	Cooling Tower-Two-Speed Fan Motor	per chiller ton	New	11	15	\$19	95%	75%	\$0.21	1

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Idaho	Lodging	Cooling Chillers	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	New	98	15	\$149	75%	75%	\$0.20	2
Idaho	Lodging	Cooling Chillers	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	New	0.09	40	\$8	4%	98%	\$7.57	0.00
Idaho	Lodging	Cooling Chillers	Natural Ventilation	Natural Ventilation Design Reduction in Cooling	None - Standard Ventilation	per building sqft	New	0.09	15	\$0.85	20%	75%	\$1.12	0.50
Idaho	Lodging	Cooling Chillers	Windows-High Efficiency	U-0.32	U-0.35 (ID State Code)	per window sqft	New	0.96	25	\$24	80%	90%	\$2.61	3
Idaho	Lodging	Cooling Dx Evap	Automated Ventilation VFD Control(Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	1 unit per 3,000 sqft	Existing	130	15	\$683	50%	94%	\$0.68	2
Idaho	Lodging	Cooling Dx Evap	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	Existing	0.21	15	\$0.69	45%	98%	\$0.41	14
Idaho	Lodging	Cooling Dx Evap	DX Package 65 to 135 kBtu/hr - High Efficiency	DX Package 65 to 135 kBtu/hr - High Efficiency - 11.5 EER	DX Package 65 to 135 kBtu/hr - Standard Efficiency - 11.2 EER	Per installation	Existing	688	15	\$741	100%	N/A	\$0.14	0.52
Idaho	Lodging	Cooling Dx Evap	DX Package 65 to 135 kBtu/hr - Premium Efficiency	DX Package 65 to 135 kBtu/hr - Premium Efficiency - 12.0 EER	DX Package 65 to 135 kBtu/hr - Standard Efficiency - 11.2 EER	Per installation	Existing	1,809	15	\$1,490	100%	N/A	\$0.11	18
Idaho	Lodging	Cooling Dx Evap	DX Package-Air Side Economizer	Air-Side Economizer	No Economizer	per DX ton	Existing	98	10	\$155	10%	30%	\$0.26	1
Idaho	Lodging	Cooling Dx Evap	DX Tune-Up / Diagnostics	DX Tune-Up / Diagnostics	No DX Tune-Up / Diagnostics	per installation	Existing	490	4	\$249	95%	72%	\$0.20	27
Idaho	Lodging	Cooling Dx Evap	Direct / Indirect Evaporative Cooling, Pre-Cooling	Evaporative Cooler	Standard DX cooling	per building CFM	Existing	0.54	15	\$1	50%	94%	\$0.42	41
Idaho	Lodging	Cooling Dx Evap	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	Existing	218	15	\$149	75%	75%	\$0.09	30
Idaho	Lodging	Cooling Dx Evap	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	Existing	0.05	18	\$0.17	45%	65%	\$0.39	2
Idaho	Lodging	Cooling Dx Evap	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	Existing	0.21	40	\$8	4%	98%	\$3.43	0.10
Idaho	Lodging	Cooling Dx Evap	Hotel Key Card Room Energy Control System	Key card system to control room HVAC and lighting during non-occupied periods	325 sqft room, \$100/room	per room	Existing	177	15	\$126	60%	97%	\$0.09	66
Idaho	Lodging	Cooling Dx Evap	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	0.69	13	\$0.24	10%	39%	\$0.05	1
Idaho	Lodging	Cooling Dx Evap	Insulation - Ceiling	R-30 (ID State Code)	R-11 (Average Existing Conditions)	per roof sqft	Existing	0.00	25	\$0.67	75%	67%	\$13.82	0.33
Idaho	Lodging	Cooling Dx Evap	Insulation - Duct	R-5 (ID State Code)	No Insulation	per surface area of duct insul	Existing	0.83	20	\$1	75%	59%	\$0.19	5
Idaho	Lodging	Cooling Dx Evap	Insulation - Duct	R-8	R-5 (ID State Code)	per surface area of duct insul	Existing	0.55	20	\$0.28	75%	85%	\$0.06	6
Idaho	Lodging	Cooling Dx Evap	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	Existing	13	30	\$5	50%	95%	\$0.04	43
Idaho	Lodging	Cooling Dx Evap	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	Existing	523	10	\$124	95%	29%	\$0.04	4
Idaho	Lodging	Cooling Dx Evap	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	0.27	7	\$0.13	90%	85%	\$0.11	42
Idaho	Lodging	Cooling Dx Evap	Window Film	Window Film	No Film	per 100 sqft of window glazing	Existing	2	10	\$130	90%	68%	\$9.01	0.31
Idaho	Lodging	Cooling Dx Evap	Windows-High Efficiency	U-0.32	U-0.35 (ID State Code)	per window sqft	Existing	2	25	\$24	15%	90%	\$1.18	6
Idaho	Lodging	Cooling Dx Evap	Windows-High Efficiency	U-0.35 (ID State Code)	U-0.65 (Average Existing Conditions)	per window sqft	Existing	1	25	\$67	15%	68%	\$3.97	3

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Idaho	Lodging	Cooling Dx Evap	Automated Ventilation VFD Control(Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	1 unit per 3,000 sqft	New	76	15	\$366	50%	94%	\$0.62	1
Idaho	Lodging	Cooling Dx Evap	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	New	0.12	15	\$0.69	45%	98%	\$0.70	6
Idaho	Lodging	Cooling Dx Evap	DX Package 65 to 135 kBtu/hr - High Efficiency	DX Package 65 to 135 kBtu/hr - High Efficiency - 11.5 EER	DX Package 65 to 135 kBtu/hr - Standard Efficiency - 11.2 EER	Per installation	New	512	15	\$592	100%	N/A	\$0.15	0.14
Idaho	Lodging	Cooling Dx Evap	DX Package 65 to 135 kBtu/hr - Premium Efficiency	DX Package 65 to 135 kBtu/hr - Premium Efficiency - 12.0 EER	DX Package 65 to 135 kBtu/hr - Standard Efficiency - 11.2 EER	Per installation	New	1,166	15	\$1,192	100%	N/A	\$0.13	6
Idaho	Lodging	Cooling Dx Evap	Direct / Indirect Evaporative Cooling, Pre-Cooling	Evaporative Cooler	Standard DX cooling	per building CFM	New	0.32	15	\$1	50%	94%	\$0.72	17
Idaho	Lodging	Cooling Dx Evap	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	New	128	15	\$149	75%	75%	\$0.15	10
Idaho	Lodging	Cooling Dx Evap	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	New	0.03	18	\$0.17	45%	65%	\$0.66	1
Idaho	Lodging	Cooling Dx Evap	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	New	0.12	40	\$8	4%	98%	\$5.84	0.03
Idaho	Lodging	Cooling Dx Evap	Hotel Key Card Room Energy Control System	Key card system to control room HVAC and lighting during non-occupied periods	325 sqft room, \$100/room	per room	New	103	15	\$126	60%	97%	\$0.16	23
Idaho	Lodging	Cooling Dx Evap	Insulation - Duct	R-8	R-5 (ID State Code)	per surface area of duct insul	New	0.32	20	\$0.28	75%	85%	\$0.10	2
Idaho	Lodging	Cooling Dx Evap	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	New	7	30	\$5	50%	95%	\$0.06	15
Idaho	Lodging	Cooling Dx Evap	Natural Ventilation	Natural Ventilation Design Reduction in Cooling	None - Standard Ventilation	per building sqft	New	0.12	15	\$0.85	20%	75%	\$0.87	1
Idaho	Lodging	Cooling Dx Evap	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	New	307	10	\$124	95%	15%	\$0.07	0.81
Idaho	Lodging	Cooling Dx Evap	Windows-High Efficiency	U-0.32	U-0.35 (ID State Code)	per window sqft	New	1	25	\$24	80%	90%	\$2.02	14
Idaho	Lodging	Cooling Room	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	Existing	0.28	15	\$0.69	45%	98%	\$0.32	24
Idaho	Lodging	Cooling Room	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	Existing	281	15	\$149	75%	75%	\$0.07	41
Idaho	Lodging	Cooling Room	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	Existing	0.28	40	\$8	4%	98%	\$2.66	0.19
Idaho	Lodging	Cooling Room	Hotel Key Card Room Energy Control System	Key card system to control room HVAC and lighting during non-occupied periods	325 sqft room, \$100/room	per room	Existing	228	15	\$126	60%	97%	\$0.07	91
Idaho	Lodging	Cooling Room	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	0.89	13	\$0.24	10%	39%	\$0.04	1
Idaho	Lodging	Cooling Room	Insulation - Ceiling	R-30 (ID State Code)	R-11 (Average Existing Conditions)	per roof sqft	Existing	0.00	25	\$0.67	75%	67%	\$10.70	0.65
Idaho	Lodging	Cooling Room	PTAC (10,000 BTU/HR) - Premium-Efficiency	11.4 EER	Room AC (10,000 BTU/HR) Standard-Efficiency 9.8 EER	Per installation	Existing	3,692	15	\$31,929	75%	N/A	\$1.12	74
Idaho	Lodging	Cooling Room	Room AC (10,000 BTU/HR) High-Efficiency	High Efficiency 10.8 EER (ENERGY STAR)	Room AC (10,000 BTU/HR) Standard-Efficiency 9.8 EER	Per installation	Existing	2,279	9	\$1,632	100%	N/A	\$0.13	12
Idaho	Lodging	Cooling Room	Window Film	Window Film	No Film	per 100 sqft of window glazing	Existing	0.12	10	\$130	90%	68%	\$179.72	0.02
Idaho	Lodging	Cooling Room	Windows-High Efficiency	U-0.32	U-0.35 (ID State Code)	per window sqft	Existing	2	25	\$24	15%	90%	\$0.92	12

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Idaho	Lodging	Cooling Room	Windows-High Efficiency	U-0.35 (ID State Code)	U-0.65 (Average Existing Conditions)	per window sqft	Existing	2	25	\$67	15%	68%	\$3.07	7
Idaho	Lodging	Cooling Room	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	New	0.17	15	\$0.69	45%	98%	\$0.52	8
Idaho	Lodging	Cooling Room	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	New	172	15	\$149	75%	75%	\$0.11	15
Idaho	Lodging	Cooling Room	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	New	0.17	40	\$8	4%	98%	\$4.33	0.06
Idaho	Lodging	Cooling Room	Hotel Key Card Room Energy Control System	Key card system to control room HVAC and lighting during non-occupied periods	325 sqft room, \$100/room	per room	New	140	15	\$126	60%	97%	\$0.12	32
Idaho	Lodging	Cooling Room	Natural Ventilation	Natural Ventilation Design Reduction in Cooling	None - Standard Ventilation	per building sqft	New	0.17	15	\$0.85	20%	75%	\$0.64	3
Idaho	Lodging	Cooling Room	PTAC (10,000 BTU/HR) - Premium-Efficiency	11.4 EER	Room AC (10,000 BTU/HR) Standard-Efficiency 9.8 EER	Per installation	New	2,358	15	\$23,423	75%	N/A	\$1.29	10
Idaho	Lodging	Cooling Room	Room AC (10,000 BTU/HR) High-Efficiency	High Efficiency 10.8 EER (ENERGY STAR)	Room AC (10,000 BTU/HR) Standard-Efficiency 9.8 EER	Per installation	New	1,523	9	\$1,305	100%	N/A	\$0.15	2
Idaho	Lodging	Cooling Room	Windows-High Efficiency	U-0.32	U-0.35 (ID State Code)	per window sqft	New	1	25	\$24	80%	90%	\$1.50	22
Idaho	Lodging	Heat Pump	Air Source Heat Pump 65 to 135 kBtu/hr - High Efficiency	11.5 EER, 3.4 COP	11.0 EER, 3.3 COP	Per installation	Existing	1,048	15	\$2,756	100%	N/A	\$0.34	0.89
Idaho	Lodging	Heat Pump	Air Source Heat Pump 65 to 135 kBtu/hr - Premium Efficiency	12.0 EER, 3.8 COP	11.0 EER, 3.3 COP	Per installation	Existing	7,344	15	\$5,513	100%	N/A	\$0.10	66
Idaho	Lodging	Heat Pump	Automated Ventilation VFD Control(Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	1 unit per 3,000 sqft	Existing	149	15	\$683	50%	94%	\$0.59	2
Idaho	Lodging	Heat Pump	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	Existing	0.24	15	\$0.69	45%	98%	\$0.36	9
Idaho	Lodging	Heat Pump	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	Existing	853	15	\$149	75%	75%	\$0.02	69
Idaho	Lodging	Heat Pump	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	Existing	0.21	18	\$0.17	45%	65%	\$0.10	5
Idaho	Lodging	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	Existing	0.90	14	\$1	5%	94%	\$0.26	4
Idaho	Lodging	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	Existing	0.24	40	\$8	4%	98%	\$3.00	0.07
Idaho	Lodging	Heat Pump	Ground Source Heat Pump Replacing Air Source Heat Pump 65 to 135 kBtu/hr - Advanced Efficiency	16.2 EER 4.0 COP	11.0 EER, 3.3 COP	Per installation	Existing	14,211	30	\$3,627	5%	N/A	\$0.68	2
Idaho	Lodging	Heat Pump	Hotel Key Card Room Energy Control System	Key card system to control room HVAC and lighting during non-occupied periods	325 sqft room, \$100/room	per room	Existing	692	15	\$126	60%	97%	\$0.02	152
Idaho	Lodging	Heat Pump	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	5	13	\$0.24	10%	39%	\$0.01	5
Idaho	Lodging	Heat Pump	Insulation - Ceiling	R-30 (ID State Code)	R-11 (Average Existing Conditions)	per roof sqft	Existing	0.70	25	\$0.67	75%	67%	\$0.10	35
Idaho	Lodging	Heat Pump	Insulation - Ceiling	R-38	R-30 (ID State Code)	per roof sqft	Existing	0.10	25	\$0.22	25%	85%	\$0.21	2
Idaho	Lodging	Heat Pump	Insulation - Duct	R-5 (ID State Code)	No Insulation	per surface area of duct insul	Existing	3	20	\$1	75%	59%	\$0.05	12
Idaho	Lodging	Heat Pump	Insulation - Duct	R-8	R-5 (ID State Code)	per surface area of duct insul	Existing	2	20	\$0.28	75%	85%	\$0.01	16
Idaho	Lodging	Heat Pump	Insulation - Floor (non-slab)	R-30 (ID State Code)	R-7 (Average Existing Conditions)	per floor area	Existing	1	25	\$0.84	35%	79%	\$0.05	47
Idaho	Lodging	Heat Pump	Insulation - Floor (non-slab)	R-38	R-30 (ID State Code)	per floor area	Existing	0.22	25	\$0.29	35%	90%	\$0.13	6

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Idaho	Lodging	Heat Pump	Insulation - Wall	R-13 (ID State Code)	R-3 (Average Existing Conditions)	per floor area	Existing	1	25	\$0.90	10%	68%	\$0.05	7
Idaho	Lodging	Heat Pump	Insulation - Wall	R-21	R-13 (ID State Code)	per floor area	Existing	0.87	25	\$0.20	10%	85%	\$0.02	5
Idaho	Lodging	Heat Pump	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	Existing	71	30	\$5	50%	95%	\$0.01	140
Idaho	Lodging	Heat Pump	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	Existing	2,047	10	\$124	95%	29%	\$0.01	10
Idaho	Lodging	Heat Pump	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	1	7	\$0.13	90%	85%	\$0.03	97
Idaho	Lodging	Heat Pump	Window Film	Window Film	No Film	per 100 sqft of window glazing	Existing	2	10	\$130	90%	68%	\$8.87	0.21
Idaho	Lodging	Heat Pump	Windows-High Efficiency	U-0.35 (ID State Code)	U-0.65 (Average Existing Conditions)	per window sqft	Existing	2	25	\$67	15%	68%	\$2.55	4
Idaho	Lodging	Heat Pump	Air Source Heat Pump 65 to 135 kBtu/hr - High Efficiency	11.5 EER, 3.4 COP	11.0 EER, 3.3 COP	Per installation	New	740	15	\$2,205	100%	N/A	\$0.39	0.26
Idaho	Lodging	Heat Pump	Air Source Heat Pump 65 to 135 kBtu/hr - Premium Efficiency	12.0 EER, 3.8 COP	11.0 EER, 3.3 COP	Per installation	New	4,940	15	\$4,410	100%	N/A	\$0.12	25
Idaho	Lodging	Heat Pump	Automated Ventilation VFD Control(Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	1 unit per 3,000 sqft	New	92	15	\$366	50%	94%	\$0.51	0.91
Idaho	Lodging	Heat Pump	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	New	0.15	15	\$0.69	45%	98%	\$0.58	3
Idaho	Lodging	Heat Pump	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	New	559	15	\$149	75%	75%	\$0.03	25
Idaho	Lodging	Heat Pump	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	New	0.13	18	\$0.17	45%	65%	\$0.15	2
Idaho	Lodging	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	New	0.60	14	\$1	5%	94%	\$0.39	1
Idaho	Lodging	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	New	0.15	40	\$8	4%	98%	\$4.85	0.03
Idaho	Lodging	Heat Pump	Ground Source Heat Pump Replacing Air Source Heat Pump 65 to 135 kBtu/hr - Advanced Efficiency	16.2 EER 4.0 COP	11.0 EER, 3.3 COP	Per installation	New	9,394	30	\$54,916	5%	N/A	\$0.53	0.78
Idaho	Lodging	Heat Pump	Hotel Key Card Room Energy Control System	Key card system to control room HVAC and lighting during non-occupied periods	325 sqft room, \$100/room	per room	New	453	15	\$126	60%	97%	\$0.04	55
Idaho	Lodging	Heat Pump	Insulation - Ceiling	R-38	R-30 (ID State Code)	per roof sqft	New	0.07	25	\$0.22	75%	85%	\$0.31	3
Idaho	Lodging	Heat Pump	Insulation - Duct	R-8	R-5 (ID State Code)	per surface area of duct insul	New	1	20	\$0.28	75%	85%	\$0.02	6
Idaho	Lodging	Heat Pump	Insulation - Floor (non-slab)	R-38	R-30 (ID State Code)	per floor area	New	0.15	25	\$0.29	35%	90%	\$0.19	3
Idaho	Lodging	Heat Pump	Insulation - Wall	R-21	R-13 (ID State Code)	per floor area	New	0.59	25	\$0.20	95%	85%	\$0.03	23
Idaho	Lodging	Heat Pump	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	New	46	30	\$5	50%	95%	\$0.01	53
Idaho	Lodging	Heat Pump	Natural Ventilation	Natural Ventilation Design Reduction in Cooling	None - Standard Ventilation	per building sqft	New	0.55	15	\$0.85	20%	75%	\$0.20	5
Idaho	Lodging	Heat Pump	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	New	1,341	10	\$124	95%	15%	\$0.02	2
Idaho	Lodging	Hvac Aux	Cooking Hood Controls	Demand-Ventilation Control	No Controls	per installation	Existing	1,847	18	\$8,208	95%	45%	\$0.52	79
Idaho	Lodging	Hvac Aux	Motor - CEE Premium-Efficiency Plus	CEE PE+ Motor for HVAC Applications	NEMA Efficiency Motors	per HP	Existing	31	15	\$6	95%	76%	\$0.03	25
Idaho	Lodging	Hvac Aux	Motor Rewind	>15, <500 HP	No Rewind	per HP	Existing	6	8	\$4	65%	25%	\$0.15	0.92
Idaho	Lodging	Hvac Aux	Cooking Hood Controls	Demand-Ventilation Control	No Controls	per installation	New	1,847	18	\$8,208	95%	45%	\$0.52	45
Idaho	Lodging	Hvac Aux	Motor - CEE Premium-Efficiency Plus	CEE PE+ Motor for HVAC Applications	NEMA Efficiency Motors	per HP	New	31	15	\$6	95%	76%	\$0.03	17
Idaho	Lodging	Lighting Exterior	Covered Parking Lighting	Covered Parking Lighting	Normal Lighting	per building sqft	Existing	0.09	10	\$0.02	80%	95%	\$0.05	95

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Idaho	Lodging	Lighting Exterior	Daylighting Controls, Outdoors (Photocell)	Photocell	No Controls	per installation	Existing	31	8	\$28	75%	70%	\$0.17	8
Idaho	Lodging	Lighting Exterior	Exterior Building Lighting	30% savings	Normal Lighting	per installation	Existing	239	15	\$333	62%	90%	\$0.18	74
Idaho	Lodging	Lighting Exterior	Solid State LED White Lighting	Landscape, merchandise, signage, structure & task lighting (2.5 W)	50W 10hrs/day, 365 day/yr	per installation	Existing	3	14	\$35	75%	95%	\$1.39	1
Idaho	Lodging	Lighting Exterior	Surface Parking Lighting	Surface Parking Lighting	Normal Lighting	per building sqft	Existing	0.05	19	\$0.06	62%	95%	\$0.16	39
Idaho	Lodging	Lighting Exterior	Covered Parking Lighting	Covered Parking Lighting	Normal Lighting	per building sqft	New	0.09	10	\$0.02	80%	95%	\$0.05	53
Idaho	Lodging	Lighting Exterior	Daylighting Controls, Outdoors (Photocell)	Photocell	No Controls	per installation	New	31	8	\$28	75%	70%	\$0.17	4
Idaho	Lodging	Lighting Exterior	Exterior Building Lighting	30% savings	Normal Lighting	per installation	New	239	15	\$333	62%	90%	\$0.18	41
Idaho	Lodging	Lighting Exterior	Solid State LED White Lighting	Landscape, merchandise, signage, structure & task lighting (2.5 W)	50W 10hrs/day, 365 day/yr	per installation	New	3	14	\$35	75%	95%	\$1.39	0.84
Idaho	Lodging	Lighting Exterior	Surface Parking Lighting	Surface Parking Lighting	Normal Lighting	per building sqft	New	0.05	19	\$0.06	62%	95%	\$0.16	22
Idaho	Lodging	Lighting Interior	Cold Cathode Lighting	Cold Cathode Lighting 5 watts	30 W Incandescent Bulb	per installation	Existing	133	5	\$12	15%	94%	\$0.03	3
Idaho	Lodging	Lighting Interior	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	Existing	0.23	8	\$0.85	30%	92%	\$0.72	7
Idaho	Lodging	Lighting Interior	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	Existing	0.17	8	\$0.64	30%	92%	\$0.72	5
Idaho	Lodging	Lighting Interior	Exit Sign - LED	LED Exit Sign (2 Watts)	CFL Exit Sign (9 Watts)	per installation	Existing	95	16	\$16	95%	50%	\$0.02	45
Idaho	Lodging	Lighting Interior	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign (2 Watts)	per installation	Existing	17	13	\$30	95%	98%	\$0.25	5
Idaho	Lodging	Lighting Interior	Lighting Package, High Efficiency	15% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	Existing	0.42	13	\$0.00	90%	53%	\$0.00	218
Idaho	Lodging	Lighting Interior	Lighting Package, High Efficiency	Code Required LPD And Control Strategies	Existing Lighting Design LPD	per building sqft	Existing	1	13	\$0.02	90%	41%	\$0.00	787
Idaho	Lodging	Lighting Interior	Lighting Package, Premium Efficiency	25% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	Existing	0.71	13	\$0.00	75%	62%	\$0.00	87
Idaho	Lodging	Lighting Interior	Lighting Package, Premium High Bay	35% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	Existing	0.01	13	\$0.00	70%	83%	\$0.10	10
Idaho	Lodging	Lighting Interior	Occupancy Sensor Control, Fluorescent	Occupancy Sensor Control, Fluorescent	No Occupancy Sensor	per occupancy sensor	Existing	576	8	\$65	90%	56%	\$0.02	34
Idaho	Lodging	Lighting Interior	Time Clock	Time Clock	No Controls	per 10,000 Watts	Existing	742	8	\$175	20%	**	\$0.05	13
Idaho	Lodging	Lighting Interior	Cold Cathode Lighting	Cold Cathode Lighting 5 watts	30 W Incandescent Bulb	per installation	New	105	5	\$12	15%	94%	\$0.03	1
Idaho	Lodging	Lighting Interior	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	New	0.18	8	\$0.85	30%	92%	\$0.91	3
Idaho	Lodging	Lighting Interior	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	New	0.13	8	\$0.64	30%	92%	\$0.91	2
Idaho	Lodging	Lighting Interior	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign (2 Watts)	per installation	New	17	13	\$30	95%	98%	\$0.25	12
Idaho	Lodging	Lighting Interior	Lighting Package, High Efficiency	15% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	New	0.42	15	\$0.00	90%	53%	\$0.00	123
Idaho	Lodging	Lighting Interior	Lighting Package, Premium Efficiency	25% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	New	0.71	15	\$0.00	75%	62%	\$0.00	49
Idaho	Lodging	Lighting Interior	Lighting Package, Premium High Bay	35% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	New	0.01	15	\$0.00	70%	83%	\$0.02	5
Idaho	Lodging	Lighting Interior	Occupancy Sensor Control, Fluorescent	Occupancy Sensor Control, Fluorescent	No Occupancy Sensor	per occupancy sensor	New	456	8	\$65	90%	56%	\$0.03	18
Idaho	Lodging	Lighting Interior	Time Clock	Time Clock	No Controls	per 10,000 Watts	New	742	8	\$175	20%	**	\$0.05	7

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Idaho	Lodging	Other Office Equipment	ENERGY STAR - Copiers	ENERGY STAR Copiers	Standard Copier	per installation	Existing	72	6	\$160	95%	45%	\$0.54	4
Idaho	Lodging	Other Office Equipment	ENERGY STAR - Fax	ENERGY STAR Fax	Standard Fax	per installation	Existing	77	6	\$0.90	95%	45%	\$0.00	5
Idaho	Lodging	Other Office Equipment	ENERGY STAR - Monitors	ENERGY STAR Features Enabled	Non-ENERGY STAR Features	per installation	Existing	14	5	\$16	64%	15%	\$0.32	0.50
Idaho	Lodging	Other Office Equipment	ENERGY STAR - Printers	ENERGY STAR Printers	Standard Printers	per installation	Existing	135	6	\$15	95%	40%	\$0.03	6
Idaho	Lodging	Other Office Equipment	ENERGY STAR - Scanners	ENERGY STAR Scanners	Standard Scanner	per installation	Existing	70	6	\$0.90	95%	45%	\$0.00	4
Idaho	Lodging	Other Office Equipment	ENERGY STAR - Copiers	ENERGY STAR Copiers	Standard Copier	per installation	New	72	6	\$160	95%	45%	\$0.54	2
Idaho	Lodging	Other Office Equipment	ENERGY STAR - Fax	ENERGY STAR Fax	Standard Fax	per installation	New	77	6	\$0.90	95%	45%	\$0.00	2
Idaho	Lodging	Other Office Equipment	ENERGY STAR - Monitors	ENERGY STAR Features Enabled	Non-ENERGY STAR Features	per installation	New	14	5	\$16	64%	15%	\$0.32	0.28
Idaho	Lodging	Other Office Equipment	ENERGY STAR - Printers	ENERGY STAR Printers	Standard Printers	per installation	New	135	6	\$15	95%	40%	\$0.03	3
Idaho	Lodging	Other Office Equipment	ENERGY STAR - Scanners	ENERGY STAR Scanners	Standard Scanner	per installation	New	70	6	\$0.90	95%	45%	\$0.00	2
Idaho	Lodging	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	per installation	Existing	7	7	\$2	20%	90%	\$0.07	0.23
Idaho	Lodging	Other Plug Load	ENERGY STAR - Water Cooler	ENERGY STAR Water Cooler (Hot/Cold Water)	Non-ENERGY STAR Water Cooler	per installation	Existing	357	10	\$0.00	95%	75%	\$0.00	2
Idaho	Lodging	Other Plug Load	Ice Maker	High-Efficiency Ice Maker	Standard Ice Maker	per installation	Existing	417	10	\$140	95%	86%	\$0.03	51
Idaho	Lodging	Other Plug Load	Power Supply Transformer/Converter	80 Plus	85% efficient power supply (> 51W)	1 unit per 2,000 sqft	Existing	6	4	\$0.40	95%	86%	\$0.02	3
Idaho	Lodging	Other Plug Load	Residential Refrigerator	ENERGY STAR	Federal Standard	per installation	Existing	79	12	\$123	24%	65%	\$0.23	2
Idaho	Lodging	Other Plug Load	Residential Refrigerator/Freezer Recycling	Recycling Existing Refrigerator/Freezer	Existing Refrigerator/Freezer	per installation	Existing	939	4	\$561	25%	35%	\$0.20	5
Idaho	Lodging	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	1 unit per 4,000 sqft	Existing	99	5	\$20	60%	90%	\$0.06	18
Idaho	Lodging	Other Plug Load	Vending Machines- High Efficiency	ENERGY STAR (Tier 2) Vending Machines- High Efficiency 500 can capacity Under 5.92 kWh/day	Vending Machines- Standard 13 kWh/day	per installation	Existing	236	14	\$161	90%	80%	\$0.09	25
Idaho	Lodging	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	per installation	New	7	7	\$2	20%	90%	\$0.07	0.13
Idaho	Lodging	Other Plug Load	ENERGY STAR - Water Cooler	ENERGY STAR Water Cooler (Hot/Cold Water)	Non-ENERGY STAR Water Cooler	per installation	New	357	10	\$0.00	95%	75%	\$0.00	1
Idaho	Lodging	Other Plug Load	Ice Maker	High-Efficiency Ice Maker	Standard Ice Maker	per installation	New	417	10	\$140	95%	86%	\$0.03	29
Idaho	Lodging	Other Plug Load	Power Supply Transformer/Converter	80 Plus	85% efficient power supply (> 51W)	1 unit per 2,000 sqft	New	6	4	\$0.40	95%	86%	\$0.02	2
Idaho	Lodging	Other Plug Load	Residential Refrigerator	ENERGY STAR	Federal Standard	per installation	New	79	12	\$123	24%	65%	\$0.23	1
Idaho	Lodging	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	1 unit per 4,000 sqft	New	99	5	\$20	60%	90%	\$0.06	10
Idaho	Lodging	Other Plug Load	Vending Machines- High Efficiency	ENERGY STAR (Tier 2) Vending Machines- High Efficiency 500 can capacity Under 5.92 kWh/day	Vending Machines- Standard 13 kWh/day	per installation	New	236	14	\$161	90%	80%	\$0.09	14
Idaho	Lodging	Space Heat	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	Existing	745	15	\$149	75%	75%	\$0.03	175
Idaho	Lodging	Space Heat	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	Existing	0.18	18	\$0.17	45%	65%	\$0.11	13
Idaho	Lodging	Space Heat	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	Existing	1	14	\$1	5%	94%	\$0.21	12

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Idaho	Lodging	Space Heat	Hotel Key Card Room Energy Control System	Key card system to control room HVAC and lighting during non-occupied periods	325 sqft room, \$100/room	per room	Existing	605	15	\$126	60%	97%	\$0.03	383
Idaho	Lodging	Space Heat	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	4	13	\$0.24	10%	39%	\$0.01	13
Idaho	Lodging	Space Heat	Insulation - Ceiling	R-30 (ID State Code)	R-11 (Average Existing Conditions)	per roof sqft	Existing	1	25	\$0.67	75%	67%	\$0.06	168
Idaho	Lodging	Space Heat	Insulation - Ceiling	R-38	R-30 (ID State Code)	per roof sqft	Existing	0.17	25	\$0.22	25%	85%	\$0.13	8
Idaho	Lodging	Space Heat	Insulation - Duct	R-5 (ID State Code)	No Insulation	per surface area of duct insul	Existing	2	20	\$1	75%	59%	\$0.06	25
Idaho	Lodging	Space Heat	Insulation - Duct	R-8	R-5 (ID State Code)	per surface area of duct insul	Existing	1	20	\$0.28	75%	85%	\$0.02	40
Idaho	Lodging	Space Heat	Insulation - Floor (non-slab)	R-30 (ID State Code)	R-7 (Average Existing Conditions)	per floor area	Existing	2	25	\$0.84	35%	79%	\$0.03	219
Idaho	Lodging	Space Heat	Insulation - Floor (non-slab)	R-38	R-30 (ID State Code)	per floor area	Existing	0.33	25	\$0.29	35%	90%	\$0.09	26
Idaho	Lodging	Space Heat	Insulation - Wall	R-13 (ID State Code)	R-3 (Average Existing Conditions)	per floor area	Existing	3	25	\$0.90	10%	68%	\$0.03	44
Idaho	Lodging	Space Heat	Insulation - Wall	R-21	R-13 (ID State Code)	per floor area	Existing	1	25	\$0.20	10%	85%	\$0.01	32
Idaho	Lodging	Space Heat	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	Existing	62	30	\$5	50%	95%	\$0.01	356
Idaho	Lodging	Space Heat	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	Existing	1,790	10	\$124	95%	29%	\$0.01	26
Idaho	Lodging	Space Heat	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	0.93	7	\$0.13	90%	85%	\$0.03	241
Idaho	Lodging	Space Heat	Windows-High Efficiency	U-0.35 (ID State Code)	U-0.65 (Average Existing Conditions)	per window sqft	Existing	0.69	25	\$67	15%	68%	\$10.06	2
Idaho	Lodging	Space Heat	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	New	511	15	\$149	75%	75%	\$0.04	62
Idaho	Lodging	Space Heat	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	New	0.12	18	\$0.17	45%	65%	\$0.17	6
Idaho	Lodging	Space Heat	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	New	0.76	14	\$1	5%	94%	\$0.31	6
Idaho	Lodging	Space Heat	Hotel Key Card Room Energy Control System	Key card system to control room HVAC and lighting during non-occupied periods	325 sqft room, \$100/room	per room	New	415	15	\$126	60%	97%	\$0.04	136
Idaho	Lodging	Space Heat	Insulation - Ceiling	R-38	R-30 (ID State Code)	per roof sqft	New	0.11	25	\$0.22	75%	85%	\$0.19	13
Idaho	Lodging	Space Heat	Insulation - Duct	R-8	R-5 (ID State Code)	per surface area of duct insul	New	1	20	\$0.28	75%	85%	\$0.02	14
Idaho	Lodging	Space Heat	Insulation - Floor (non-slab)	R-38	R-30 (ID State Code)	per floor area	New	0.22	25	\$0.29	35%	90%	\$0.13	12
Idaho	Lodging	Space Heat	Insulation - Wall	R-21	R-13 (ID State Code)	per floor area	New	1	25	\$0.20	95%	85%	\$0.02	120
Idaho	Lodging	Space Heat	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	New	42	30	\$5	50%	95%	\$0.01	139
Idaho	Lodging	Space Heat	Natural Ventilation	Natural Ventilation Design Reduction in Cooling	None - Standard Ventilation	per building sqft	New	0.51	15	\$0.85	20%	75%	\$0.22	13
Idaho	Lodging	Space Heat	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	New	1,226	10	\$124	95%	15%	\$0.02	5
Idaho	Lodging	Water Heat	Clothes Washer Commercial	ENERGY STAR Commercial Clothes Washer MEF=1.80	Standard Clothes Washers	per installation	Existing	535	11	\$126	95%	80%	\$-0.27	11
Idaho	Lodging	Water Heat	Clothes Washer Residential	Energy Star - CEE Tier 1 (MEF 2.0 - 2.19) - Electric DHW & Dryer	MEF = 1.66 - Electric DHW & Dryer (NWPPC 6th Plan Average Efficiency)	per installation	Existing	130	11	\$284	85%	94%	\$0.04	2
Idaho	Lodging	Water Heat	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	per building sqft	Existing	0.08	10	\$0.23	55%	80%	\$0.44	13
Idaho	Lodging	Water Heat	Dishwasher Residential	ENERGY STAR <= 324 kWh/yr, <= 5.8 gal/cycle	Federal Standard <= 355 kWh/yr, <= 6.5 gal/cycle	per installation	Existing	30	11	\$31	95%	25%	\$0.10	0.09
Idaho	Lodging	Water Heat	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	per installation	Existing	7,263	10	\$2,627	95%	95%	\$0.02	11

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Idaho	Lodging	Water Heat	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	per installation	Existing	3,393	10	\$816	95%	94%	\$-0.02	2
Idaho	Lodging	Water Heat	Electric Water Heater - High Efficiency	EF = 0.95	EF = 0.92	Per installation	Existing	456	15	\$543	100%	N/A	\$0.15	2
Idaho	Lodging	Water Heat	Heat Pump Water Heater - Advanced-Efficiency	EF = 2.2	EF = 0.92	Per installation	Existing	8,404	15	\$9,779	75%	N/A	\$0.15	166
Idaho	Lodging	Water Heat	Hot Water (SHW) Pipe Insulation	1.0" of Insulation, assuming R-4 (ID State Code)	No Insulation	per linear foot	Existing	7	12	\$2	80%	90%	\$0.04	4
Idaho	Lodging	Water Heat	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	per installation	Existing	22	9	\$0.08	95%	25%	\$-0.08	5
Idaho	Lodging	Water Heat	Low-Flow Faucet Aerators	2.2 GPM (Federal Code)	3.0 GPM	per installation	Existing	19	9	\$2	95%	25%	\$-0.06	4
Idaho	Lodging	Water Heat	Low-Flow Pre-Rinse Spray Valves	0.6 GPM	1.6 GPM (Federal Standard)	per installation	Existing	65	5	\$4	95%	93%	\$-0.07	4
Idaho	Lodging	Water Heat	Low-Flow Showerheads	2.0 GPM	2.5 GPM (Federal Code)	per installation	Existing	51	10	\$6	95%	73%	\$-0.06	37
Idaho	Lodging	Water Heat	Low-Flow Showerheads	2.5 GPM (Federal Code)	4.5 GPM	per installation	Existing	113	10	\$11	95%	62%	\$-0.07	70
Idaho	Lodging	Water Heat	Water Heater Temperature Setback	Water Heater Temperature Setback (120 F)	No Change in Water Temperature	per installation	Existing	157	5	\$71	75%	5%	\$0.13	1
Idaho	Lodging	Water Heat	Clothes Washer Commercial	ENERGY STAR Commercial Clothes Washer MEF=1.80	Standard Clothes Washers	per installation	New	537	11	\$126	95%	80%	\$-0.27	6
Idaho	Lodging	Water Heat	Clothes Washer Residential	Energy Star - CEE Tier 1 (MEF 2.0 - 2.19) - Electric DHW & Dryer	MEF = 1.66 - Electric DHW & Dryer (NWPPC 6th Plan Average Efficiency)	per installation	New	131	11	\$284	85%	94%	\$0.04	1
Idaho	Lodging	Water Heat	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	per building sqft	New	0.08	10	\$0.23	55%	80%	\$0.46	8
Idaho	Lodging	Water Heat	Dishwasher Residential	ENERGY STAR <= 324 kWh/yr, <= 5.8 gal/cycle	Federal Standard <= 355 kWh/yr, <= 6.5 gal/cycle	per installation	New	30	11	\$31	95%	55%	\$0.10	0.12
Idaho	Lodging	Water Heat	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	per installation	New	7,298	10	\$2,617	95%	95%	\$0.02	6
Idaho	Lodging	Water Heat	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	per installation	New	3,410	10	\$811	95%	94%	\$-0.02	1
Idaho	Lodging	Water Heat	Electric Water Heater - High Efficiency	EF = 0.95	EF = 0.92	Per installation	New	456	15	\$543	100%	N/A	\$0.15	1
Idaho	Lodging	Water Heat	Heat Pump Water Heater - Advanced-Efficiency	EF = 2.2	EF = 0.92	Per installation	New	8,404	15	\$8,730	75%	N/A	\$0.13	85
Idaho	Lodging	Water Heat	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	per installation	New	22	9	\$0.08	95%	25%	\$-0.08	3
Idaho	Lodging	Water Heat	Low-Flow Pre-Rinse Spray Valves	0.6 GPM	1.6 GPM (Federal Standard)	per installation	New	65	5	\$4	95%	93%	\$-0.07	2
Idaho	Lodging	Water Heat	Low-Flow Showerheads	2.0 GPM	2.5 GPM (Federal Code)	per installation	New	49	10	\$6	95%	73%	\$-0.06	20
Idaho	Lodging	Water Heat	Water Heater Temperature Setback	Water Heater Temperature Setback (120 F)	No Change in Water Temperature	per installation	New	152	5	\$71	75%	5%	\$0.13	1
Idaho	Miscellaneous	Computers	Computer ENERGY STAR	Computer ENERGY STAR	Computer standard non-ENERGY STAR	Per installation	Existing	125	4	\$26	100%	N/A	\$0.07	36
Idaho	Miscellaneous	Computers	Network PC Power Management	Network PC Power Management	No Power Management	per computer	Existing	80	5	\$11	95%	30%	\$0.04	7
Idaho	Miscellaneous	Computers	Computer ENERGY STAR	Computer ENERGY STAR	Computer standard non-ENERGY STAR	Per installation	New	125	4	\$26	100%	N/A	\$0.07	3
Idaho	Miscellaneous	Computers	Network PC Power Management	Network PC Power Management	No Power Management	per computer	New	80	5	\$11	95%	30%	\$0.04	4
Idaho	Miscellaneous	Cooling Dx Evap	Automated Ventilation VFD Control (Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	1 unit per 3,000 sqft	Existing	498	15	\$632	50%	94%	\$0.16	4
Idaho	Miscellaneous	Cooling Dx Evap	Convert Constant Volume Air System to VAV	Variable Volume Air System	Constant Volume Air System	per building CFM	Existing	0.49	15	\$2	15%	68%	\$0.63	1

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Idaho	Miscellaneous	Cooling Dx Evap	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	Existing	0.16	15	\$0.64	45%	98%	\$0.50	2
Idaho	Miscellaneous	Cooling Dx Evap	DX Package 65 to 135 kBtu/hr - High Efficiency	DX Package 65 to 135 kBtu/hr - High Efficiency - 11.5 EER	DX Package 65 to 135 kBtu/hr - Standard Efficiency - 11.2 EER	Per installation	Existing	182	15	\$257	100%	N/A	\$0.18	0.09
Idaho	Miscellaneous	Cooling Dx Evap	DX Package 65 to 135 kBtu/hr - Premium Efficiency	DX Package 65 to 135 kBtu/hr - Premium Efficiency - 12.0 EER	DX Package 65 to 135 kBtu/hr - Standard Efficiency - 11.2 EER	Per installation	Existing	490	15	\$517	100%	N/A	\$0.14	4
Idaho	Miscellaneous	Cooling Dx Evap	DX Package-Air Side Economizer	Air-Side Economizer	No Economizer	per DX ton	Existing	67	10	\$144	10%	70%	\$0.36	0.82
Idaho	Miscellaneous	Cooling Dx Evap	DX Tune-Up / Diagnostics	DX Tune-Up / Diagnostics	No DX Tune-Up / Diagnostics	per installation	Existing	336	4	\$230	95%	72%	\$0.26	5
Idaho	Miscellaneous	Cooling Dx Evap	Direct / Indirect Evaporative Cooling, Pre-Cooling	Evaporative Cooler	Standard DX cooling	per building CFM	Existing	0.41	15	\$1	50%	94%	\$0.52	8
Idaho	Miscellaneous	Cooling Dx Evap	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	Existing	166	15	\$138	75%	75%	\$0.11	5
Idaho	Miscellaneous	Cooling Dx Evap	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	Existing	0.04	18	\$0.16	45%	65%	\$0.47	0.55
Idaho	Miscellaneous	Cooling Dx Evap	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	Existing	0.16	40	\$7	4%	98%	\$4.17	0.02
Idaho	Miscellaneous	Cooling Dx Evap	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	1	13	\$0.22	10%	39%	\$0.03	0.13
Idaho	Miscellaneous	Cooling Dx Evap	Insulation - Ceiling	R-30 (ID State Code)	R-11 (Average Existing Conditions)	per roof sqft	Existing	0.00	25	\$0.62	75%	70%	\$16.80	0.07
Idaho	Miscellaneous	Cooling Dx Evap	Insulation - Duct	R-5 (ID State Code)	No Insulation	per surface area of duct insul	Existing	0.63	20	\$1	75%	60%	\$0.23	1
Idaho	Miscellaneous	Cooling Dx Evap	Insulation - Duct	R-8	R-5 (ID State Code)	per surface area of duct insul	Existing	0.42	20	\$0.26	75%	85%	\$0.07	1
Idaho	Miscellaneous	Cooling Dx Evap	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	Existing	10	30	\$4	50%	95%	\$0.04	8
Idaho	Miscellaneous	Cooling Dx Evap	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	Existing	134	10	\$114	95%	31%	\$0.14	0.78
Idaho	Miscellaneous	Cooling Dx Evap	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	0.20	7	\$0.12	90%	85%	\$0.13	9
Idaho	Miscellaneous	Cooling Dx Evap	Window Film	Window Film	No Film	per 100 sqft of window glazing	Existing	1	10	\$121	90%	68%	\$14.15	0.01
Idaho	Miscellaneous	Cooling Dx Evap	Windows-High Efficiency	U-0.32	U-0.35 (ID State Code)	per window sqft	Existing	6	25	\$22	15%	90%	\$0.36	1
Idaho	Miscellaneous	Cooling Dx Evap	Windows-High Efficiency	U-0.35 (ID State Code)	U-0.65 (Average Existing Conditions)	per window sqft	Existing	5	25	\$62	15%	71%	\$1.20	0.82
Idaho	Miscellaneous	Cooling Dx Evap	Automated Ventilation VFD Control(Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	1 unit per 3,000 sqft	New	331	15	\$339	50%	94%	\$0.13	1
Idaho	Miscellaneous	Cooling Dx Evap	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	New	0.11	15	\$0.64	45%	98%	\$0.75	1
Idaho	Miscellaneous	Cooling Dx Evap	DX Package 65 to 135 kBtu/hr - High Efficiency	DX Package 65 to 135 kBtu/hr - High Efficiency - 11.5 EER	DX Package 65 to 135 kBtu/hr - Standard Efficiency - 11.2 EER	Per installation	New	144	15	\$205	100%	N/A	\$0.18	0.02
Idaho	Miscellaneous	Cooling Dx Evap	DX Package 65 to 135 kBtu/hr - Premium Efficiency	DX Package 65 to 135 kBtu/hr - Premium Efficiency - 12.0 EER	DX Package 65 to 135 kBtu/hr - Standard Efficiency - 11.2 EER	Per installation	New	335	15	\$413	100%	N/A	\$0.16	1
Idaho	Miscellaneous	Cooling Dx Evap	Direct / Indirect Evaporative Cooling, Pre-Cooling	Evaporative Cooler	Standard DX cooling	per building CFM	New	0.27	15	\$1	50%	94%	\$0.77	3

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Idaho	Miscellaneous	Cooling Dx Evap	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	New	110	15	\$138	75%	75%	\$0.16	2
Idaho	Miscellaneous	Cooling Dx Evap	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	New	0.02	18	\$0.16	45%	65%	\$0.71	0.24
Idaho	Miscellaneous	Cooling Dx Evap	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	New	0.11	40	\$7	4%	98%	\$6.27	0.00
Idaho	Miscellaneous	Cooling Dx Evap	Insulation - Duct	R-8	R-5 (ID State Code)	per surface area of duct insul	New	0.28	20	\$0.26	75%	85%	\$0.11	0.54
Idaho	Miscellaneous	Cooling Dx Evap	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	New	6	30	\$4	50%	95%	\$0.07	3
Idaho	Miscellaneous	Cooling Dx Evap	Natural Ventilation	Natural Ventilation Design Reduction in Cooling	None - Standard Ventilation	per building sqft	New	0.11	15	\$0.79	20%	75%	\$0.93	0.42
Idaho	Miscellaneous	Cooling Dx Evap	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	New	89	10	\$114	95%	15%	\$0.21	0.16
Idaho	Miscellaneous	Cooling Dx Evap	Windows-High Efficiency	U-0.32	U-0.35 (ID State Code)	per window sqft	New	4	25	\$22	80%	90%	\$0.54	4
Idaho	Miscellaneous	Cooling Room	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	Existing	0.21	15	\$0.64	45%	98%	\$0.38	0.03
Idaho	Miscellaneous	Cooling Room	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	Existing	218	15	\$138	75%	75%	\$0.08	0.04
Idaho	Miscellaneous	Cooling Room	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	Existing	0.21	40	\$7	4%	98%	\$3.17	0.00
Idaho	Miscellaneous	Cooling Room	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	1	13	\$0.22	10%	39%	\$0.02	0.00
Idaho	Miscellaneous	Cooling Room	Insulation - Ceiling	R-30 (ID State Code)	R-11 (Average Existing Conditions)	per roof sqft	Existing	0.00	25	\$0.62	75%	70%	\$12.76	0.00
Idaho	Miscellaneous	Cooling Room	PTAC (10,000 BTU/HR) - Premium-Efficiency	11.4 EER	Room AC (10,000 BTU/HR) Standard-Efficiency 9.8 EER	Per installation	Existing	983	15	\$11,086	75%	N/A	\$1.46	0.09
Idaho	Miscellaneous	Cooling Room	Room AC (10,000 BTU/HR) High-Efficiency	High Efficiency 10.8 EER (ENERGY STAR)	Room AC (10,000 BTU/HR) Standard-Efficiency 9.8 EER	Per installation	Existing	598	9	\$566	100%	N/A	\$0.17	0.01
Idaho	Miscellaneous	Cooling Room	Window Film	Window Film	No Film	per 100 sqft of window glazing	Existing	0.07	10	\$121	90%	68%	\$282.29	0.00
Idaho	Miscellaneous	Cooling Room	Windows-High Efficiency	U-0.32	U-0.35 (ID State Code)	per window sqft	Existing	8	25	\$22	15%	90%	\$0.27	0.01
Idaho	Miscellaneous	Cooling Room	Windows-High Efficiency	U-0.35 (ID State Code)	U-0.65 (Average Existing Conditions)	per window sqft	Existing	7	25	\$62	15%	71%	\$0.91	0.00
Idaho	Miscellaneous	Cooling Room	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	New	0.15	15	\$0.64	45%	98%	\$0.55	0.01
Idaho	Miscellaneous	Cooling Room	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	New	151	15	\$138	75%	75%	\$0.12	0.01
Idaho	Miscellaneous	Cooling Room	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	New	0.15	40	\$7	4%	98%	\$4.57	0.00
Idaho	Miscellaneous	Cooling Room	Natural Ventilation	Natural Ventilation Design Reduction in Cooling	None - Standard Ventilation	per building sqft	New	0.15	15	\$0.79	20%	75%	\$0.68	0.00
Idaho	Miscellaneous	Cooling Room	PTAC (10,000 BTU/HR) - Premium-Efficiency	11.4 EER	Room AC (10,000 BTU/HR) Standard-Efficiency 9.8 EER	Per installation	New	686	15	\$8,133	75%	N/A	\$1.53	0.01
Idaho	Miscellaneous	Cooling Room	Room AC (10,000 BTU/HR) High-Efficiency	High Efficiency 10.8 EER (ENERGY STAR)	Room AC (10,000 BTU/HR) Standard-Efficiency 9.8 EER	Per installation	New	442	9	\$453	100%	N/A	\$0.18	0.00
Idaho	Miscellaneous	Cooling Room	Windows-High Efficiency	U-0.32	U-0.35 (ID State Code)	per window sqft	New	5	25	\$22	80%	90%	\$0.39	0.03
Idaho	Miscellaneous	Heat Pump	Air Source Heat Pump 65 to 135 kBTU/hr - High Efficiency	11.5 EER, 3.4 COP	11.0 EER, 3.3 COP	Per installation	Existing	570	15	\$957	100%	N/A	\$0.22	0.01
Idaho	Miscellaneous	Heat Pump	Air Source Heat Pump 65 to 135 kBTU/hr - Premium Efficiency	12.0 EER, 3.8 COP	11.0 EER, 3.3 COP	Per installation	Existing	1,953	15	\$1,914	100%	N/A	\$0.13	0.66

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Idaho	Miscellaneous	Heat Pump	Automated Ventilation VFD Control(Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	1 unit per 3,000 sqft	Existing	582	15	\$632	50%	94%	\$0.14	0.11
Idaho	Miscellaneous	Heat Pump	Convert Constant Volume Air System to VAV	Variable Volume Air System	Constant Volume Air System	per building CFM	Existing	0.94	15	\$2	15%	68%	\$0.33	0.11
Idaho	Miscellaneous	Heat Pump	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	Existing	0.19	15	\$0.64	45%	98%	\$0.43	0.09
Idaho	Miscellaneous	Heat Pump	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	Existing	591	15	\$138	75%	75%	\$0.03	0.55
Idaho	Miscellaneous	Heat Pump	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	Existing	0.14	18	\$0.16	45%	65%	\$0.13	0.05
Idaho	Miscellaneous	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	Existing	0.59	14	\$1	5%	94%	\$0.37	0.03
Idaho	Miscellaneous	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	Existing	0.19	40	\$7	4%	98%	\$3.56	0.00
Idaho	Miscellaneous	Heat Pump	Ground Source Heat Pump Replacing Air Source Heat Pump 65 to 135 kBTU/hr - Advanced Efficiency	16.2 EER 4.0 COP	11.0 EER, 3.3 COP	Per installation	Existing	3,626	30	\$35,981	5%	N/A	\$0.92	0.05
Idaho	Miscellaneous	Heat Pump	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	9	13	\$0.22	10%	39%	\$0.00	0.02
Idaho	Miscellaneous	Heat Pump	Insulation - Ceiling	R-30 (ID State Code)	R-11 (Average Existing Conditions)	per roof sqft	Existing	0.43	25	\$0.62	75%	70%	\$0.15	0.29
Idaho	Miscellaneous	Heat Pump	Insulation - Ceiling	R-38	R-30 (ID State Code)	per roof sqft	Existing	0.06	25	\$0.20	25%	85%	\$0.31	0.01
Idaho	Miscellaneous	Heat Pump	Insulation - Duct	R-5 (ID State Code)	No Insulation	per surface area of duct insul	Existing	2	20	\$1	75%	60%	\$0.07	0.11
Idaho	Miscellaneous	Heat Pump	Insulation - Duct	R-8	R-5 (ID State Code)	per surface area of duct insul	Existing	1	20	\$0.26	75%	85%	\$0.02	0.12
Idaho	Miscellaneous	Heat Pump	Insulation - Floor (non-slab)	R-30 (ID State Code)	R-7 (Average Existing Conditions)	per floor area	Existing	1	25	\$0.78	35%	83%	\$0.08	0.40
Idaho	Miscellaneous	Heat Pump	Insulation - Floor (non-slab)	R-38	R-30 (ID State Code)	per floor area	Existing	0.14	25	\$0.27	35%	90%	\$0.20	0.05
Idaho	Miscellaneous	Heat Pump	Insulation - Wall	R-13 (ID State Code)	R-3 (Average Existing Conditions)	per floor area	Existing	1	25	\$0.84	10%	67%	\$0.05	0.06
Idaho	Miscellaneous	Heat Pump	Insulation - Wall	R-21	R-13 (ID State Code)	per floor area	Existing	0.75	25	\$0.18	10%	85%	\$0.03	0.04
Idaho	Miscellaneous	Heat Pump	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	Existing	49	30	\$4	50%	95%	\$0.01	1
Idaho	Miscellaneous	Heat Pump	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	Existing	479	10	\$114	95%	31%	\$0.04	0.07
Idaho	Miscellaneous	Heat Pump	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	0.73	7	\$0.12	90%	85%	\$0.04	0.89
Idaho	Miscellaneous	Heat Pump	Window Film	Window Film	No Film	per 100 sqft of window glazing	Existing	1	10	\$121	90%	68%	\$14.09	0.00
Idaho	Miscellaneous	Heat Pump	Windows-High Efficiency	U-0.32	U-0.35 (ID State Code)	per window sqft	Existing	0.98	25	\$22	15%	90%	\$2.38	0.00
Idaho	Miscellaneous	Heat Pump	Windows-High Efficiency	U-0.35 (ID State Code)	U-0.65 (Average Existing Conditions)	per window sqft	Existing	8	25	\$62	15%	71%	\$0.79	0.04
Idaho	Miscellaneous	Heat Pump	Air Source Heat Pump 65 to 135 kBTU/hr - High Efficiency	11.5 EER, 3.4 COP	11.0 EER, 3.3 COP	Per installation	New	373	15	\$765	100%	N/A	\$0.27	0.00
Idaho	Miscellaneous	Heat Pump	Air Source Heat Pump 65 to 135 kBTU/hr - Premium Efficiency	12.0 EER, 3.8 COP	11.0 EER, 3.3 COP	Per installation	New	1,093	15	\$1,531	100%	N/A	\$0.18	0.22
Idaho	Miscellaneous	Heat Pump	Automated Ventilation VFD Control(Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	1 unit per 3,000 sqft	New	398	15	\$339	50%	94%	\$0.11	0.05
Idaho	Miscellaneous	Heat Pump	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	New	0.13	15	\$0.64	45%	98%	\$0.63	0.04

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Idaho	Miscellaneous	Heat Pump	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	New	321	15	\$138	75%	75%	\$0.06	0.17
Idaho	Miscellaneous	Heat Pump	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	New	0.08	18	\$0.16	45%	65%	\$0.24	0.02
Idaho	Miscellaneous	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	New	0.28	14	\$1	5%	94%	\$0.77	0.01
Idaho	Miscellaneous	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	New	0.13	40	\$7	4%	98%	\$5.21	0.00
Idaho	Miscellaneous	Heat Pump	Ground Source Heat Pump Replacing Air Source Heat Pump 65 to 135 KBTU/hr - Advanced Efficiency	16.2 EER 4.0 COP	11.0 EER, 3.3 COP	Per installation	New	2,192	30	\$19,068	5%	N/A	\$0.79	0.01
Idaho	Miscellaneous	Heat Pump	Insulation - Ceiling	R-38	R-30 (ID State Code)	per roof sqft	New	0.02	25	\$0.20	75%	85%	\$0.76	0.01
Idaho	Miscellaneous	Heat Pump	Insulation - Duct	R-8	R-5 (ID State Code)	per surface area of duct insul	New	0.81	20	\$0.26	75%	85%	\$0.04	0.04
Idaho	Miscellaneous	Heat Pump	Insulation - Floor (non-slab)	R-38	R-30 (ID State Code)	per floor area	New	0.05	25	\$0.27	35%	90%	\$0.49	0.01
Idaho	Miscellaneous	Heat Pump	Insulation - Wall	R-21	R-13 (ID State Code)	per floor area	New	0.30	25	\$0.18	95%	85%	\$0.06	0.09
Idaho	Miscellaneous	Heat Pump	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	New	26	30	\$4	50%	95%	\$0.02	0.35
Idaho	Miscellaneous	Heat Pump	Natural Ventilation	Natural Ventilation Design Reduction in Cooling	None - Standard Ventilation	per building sqft	New	0.32	15	\$0.79	20%	75%	\$0.32	0.04
Idaho	Miscellaneous	Heat Pump	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	New	260	10	\$114	95%	15%	\$0.07	0.01
Idaho	Miscellaneous	Heat Pump	Windows-High Efficiency	U-0.32	U-0.35 (ID State Code)	per window sqft	New	2	25	\$22	80%	90%	\$1.13	0.04
Idaho	Miscellaneous	Hvac Aux	Convert Constant Volume Air System to VAV	Variable Volume Air System	Constant Volume Air System	per building CFM	Existing	0.27	15	\$2	15%	68%	\$1.13	9
Idaho	Miscellaneous	Hvac Aux	Cooking Hood Controls	Demand-Ventilation Control	No Controls	per installation	Existing	1,713	18	\$3,478	95%	65%	\$0.24	6
Idaho	Miscellaneous	Hvac Aux	Motor - CEE Premium-Efficiency Plus	CEE PE+ Motor for HVAC Applications	NEMA Efficiency Motors	per HP	Existing	22	15	\$5	95%	76%	\$0.03	4
Idaho	Miscellaneous	Hvac Aux	Motor - VAV Box High Efficiency (ECM)	ECM Motor	Standard Efficiency Motor	per installation	Existing	57	15	\$163	13%	77%	\$0.37	4
Idaho	Miscellaneous	Hvac Aux	Motor Rewind	>15, <500 HP	No Rewind	per HP	Existing	4	8	\$4	65%	25%	\$0.22	0.17
Idaho	Miscellaneous	Hvac Aux	Optimized Variable Volume Lab Hood Design	Optimized Variable Volume Lab Hood Design	Constant Volume Lab Hood Design	per installation	Existing	99	13	\$1,342	5%	59%	\$1.90	0.38
Idaho	Miscellaneous	Hvac Aux	Cooking Hood Controls	Demand-Ventilation Control	No Controls	per installation	New	1,713	18	\$3,475	95%	50%	\$0.24	17
Idaho	Miscellaneous	Hvac Aux	Low Pressure Distribution Complex HVAC	Low Pressure Distribution Complex HVAC	VAV/CV	per building sqft	New	0.77	50	\$1	16%	98%	\$0.22	18
Idaho	Miscellaneous	Hvac Aux	Motor - CEE Premium-Efficiency Plus	CEE PE+ Motor for HVAC Applications	NEMA Efficiency Motors	per HP	New	18	15	\$5	95%	76%	\$0.04	2
Idaho	Miscellaneous	Hvac Aux	Motor - VAV Box High Efficiency (ECM)	ECM Motor	Standard Efficiency Motor	per installation	New	47	15	\$163	13%	77%	\$0.44	1
Idaho	Miscellaneous	Hvac Aux	Optimized Variable Volume Lab Hood Design	Optimized Variable Volume Lab Hood Design	Constant Volume Lab Hood Design	per installation	New	82	15	\$1,342	5%	59%	\$2.09	0.17
Idaho	Miscellaneous	Lighting Exterior	Covered Parking Lighting	Covered Parking Lighting	Normal Lighting	per building sqft	Existing	0.08	10	\$0.02	80%	95%	\$0.05	22
Idaho	Miscellaneous	Lighting Exterior	Daylighting Controls, Outdoors (Photocell)	Photocell	No Controls	per installation	Existing	31	8	\$26	75%	70%	\$0.16	4
Idaho	Miscellaneous	Lighting Exterior	Exterior Building Lighting	30% savings	Normal Lighting	per installation	Existing	222	15	\$308	62%	90%	\$0.18	35
Idaho	Miscellaneous	Lighting Exterior	Solid State LED White Lighting	Landscape, merchandise, signage, structure & task lighting (2.5 W)	50W 10hrs/day, 365 day/yr	per installation	Existing	3	14	\$32	75%	95%	\$1.29	0.66
Idaho	Miscellaneous	Lighting Exterior	Surface Parking Lighting	Surface Parking Lighting	Normal Lighting	per building sqft	Existing	0.04	19	\$0.06	62%	95%	\$0.16	9
Idaho	Miscellaneous	Lighting Exterior	Covered Parking Lighting	Covered Parking Lighting	Normal Lighting	per building sqft	New	0.08	10	\$0.02	80%	95%	\$0.05	12
Idaho	Miscellaneous	Lighting Exterior	Daylighting Controls, Outdoors (Photocell)	Photocell	No Controls	per installation	New	31	8	\$26	75%	70%	\$0.16	2
Idaho	Miscellaneous	Lighting Exterior	Exterior Building Lighting	30% savings	Normal Lighting	per installation	New	222	15	\$308	62%	90%	\$0.18	20

Table C.2.2. Commercial Measure Details

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Idaho	Miscellaneous	Lighting Exterior	Solid State LED White Lighting	Landscape, merchandise, signage, structure & task lighting (2.5 W)	50W 10hrs/day, 365 day/yr	per installation	New	3	14	\$32	75%	95%	\$1.29	0.37
Idaho	Miscellaneous	Lighting Exterior	Surface Parking Lighting	Surface Parking Lighting	Normal Lighting	per building sqft	New	0.04	19	\$0.06	62%	95%	\$0.16	5
Idaho	Miscellaneous	Lighting Interior	Cold Cathode Lighting	Cold Cathode Lighting 5 watts	30 W Incandescent Bulb	per installation	Existing	290	5	\$11	15%	94%	\$0.01	5
Idaho	Miscellaneous	Lighting Interior	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	Existing	0.72	8	\$0.79	30%	84%	\$0.21	6
Idaho	Miscellaneous	Lighting Interior	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	Existing	0.54	8	\$0.59	30%	84%	\$0.21	4
Idaho	Miscellaneous	Lighting Interior	Exit Sign - LED	LED Exit Sign (2 Watts)	CFL Exit Sign (9 Watts)	per installation	Existing	88	16	\$15	95%	50%	\$0.02	10
Idaho	Miscellaneous	Lighting Interior	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign (2 Watts)	per installation	Existing	16	13	\$28	95%	98%	\$0.25	1
Idaho	Miscellaneous	Lighting Interior	LED Refrigeration Case Lights	LED Refrigeration Case Lights	Fluorescent Refrigeration Case	per installation	Existing	114	8	\$228	10%	80%	\$0.39	1
Idaho	Miscellaneous	Lighting Interior	Lighting Package, High Efficiency	15% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	Existing	0.46	13	\$0.06	90%	53%	\$0.02	59
Idaho	Miscellaneous	Lighting Interior	Lighting Package, High Efficiency	Code Required LPD And Control Strategies	Existing Lighting Design LPD	per building sqft	Existing	1	13	\$0.69	90%	41%	\$0.07	180
Idaho	Miscellaneous	Lighting Interior	Lighting Package, Premium Efficiency	25% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	Existing	0.77	13	\$0.24	75%	62%	\$0.05	23
Idaho	Miscellaneous	Lighting Interior	Lighting Package, Premium High Bay	35% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	Existing	0.36	13	\$0.18	70%	83%	\$0.07	69
Idaho	Miscellaneous	Lighting Interior	Occupancy Sensor Control, Fluorescent	Occupancy Sensor Control, Fluorescent	No Occupancy Sensor	per occupancy sensor	Existing	930	8	\$60	90%	49%	\$0.01	11
Idaho	Miscellaneous	Lighting Interior	Time Clock	Time Clock	No Controls	per 10,000 Watts	Existing	689	8	\$162	20%	**%	\$0.05	4
Idaho	Miscellaneous	Lighting Interior	Cold Cathode Lighting	Cold Cathode Lighting 5 watts	30 W Incandescent Bulb	per installation	New	204	5	\$11	15%	94%	\$0.02	1
Idaho	Miscellaneous	Lighting Interior	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	New	0.51	8	\$0.79	30%	84%	\$0.30	2
Idaho	Miscellaneous	Lighting Interior	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	New	0.38	8	\$0.59	30%	84%	\$0.30	1
Idaho	Miscellaneous	Lighting Interior	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign (2 Watts)	per installation	New	16	13	\$28	95%	98%	\$0.25	2
Idaho	Miscellaneous	Lighting Interior	LED Refrigeration Case Lights	LED Refrigeration Case Lights	Fluorescent Refrigeration Case	per installation	New	114	8	\$228	10%	80%	\$0.39	0.57
Idaho	Miscellaneous	Lighting Interior	Lighting Package, High Efficiency	15% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	New	0.46	15	\$0.02	90%	53%	\$0.01	33
Idaho	Miscellaneous	Lighting Interior	Lighting Package, Premium Efficiency	25% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	New	0.77	15	\$0.12	75%	62%	\$0.02	13
Idaho	Miscellaneous	Lighting Interior	Lighting Package, Premium High Bay	35% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	New	0.36	15	\$0.03	70%	83%	\$0.01	39
Idaho	Miscellaneous	Lighting Interior	Occupancy Sensor Control, Fluorescent	Occupancy Sensor Control, Fluorescent	No Occupancy Sensor	per occupancy sensor	New	655	8	\$60	90%	49%	\$0.02	4
Idaho	Miscellaneous	Lighting Interior	Time Clock	Time Clock	No Controls	per 10,000 Watts	New	689	8	\$162	20%	**%	\$0.05	2
Idaho	Miscellaneous	Other Office Equipment	ENERGY STAR - Copiers	ENERGY STAR Copiers	Standard Copier	per installation	Existing	67	6	\$147	95%	45%	\$0.54	0.36
Idaho	Miscellaneous	Other Office Equipment	ENERGY STAR - Fax	ENERGY STAR Fax	Standard Fax	per installation	Existing	71	6	\$0.00	95%	45%	\$0.00	0.39
Idaho	Miscellaneous	Other Office Equipment	ENERGY STAR - Monitors	ENERGY STAR Features Enabled	Non-ENERGY STAR Features	per installation	Existing	13	5	\$15	64%	15%	\$0.31	0.41
Idaho	Miscellaneous	Other Office Equipment	ENERGY STAR - Printers	ENERGY STAR Printers	Standard Printers	per installation	Existing	125	6	\$14	95%	40%	\$0.03	4
Idaho	Miscellaneous	Other Office Equipment	ENERGY STAR - Scanners	ENERGY STAR Scanners	Standard Scanner	per installation	Existing	65	6	\$2	95%	45%	\$0.01	0.35
Idaho	Miscellaneous	Other Office Equipment	ENERGY STAR - Copiers	ENERGY STAR Copiers	Standard Copier	per installation	New	67	6	\$147	95%	45%	\$0.54	0.20

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Idaho	Miscellaneous	Other Office Equipment	ENERGY STAR - Fax	ENERGY STAR Fax	Standard Fax	per installation	New	71	6	\$0.00	95%	45%	\$0.00	0.22
Idaho	Miscellaneous	Other Office Equipment	ENERGY STAR - Monitors	ENERGY STAR Features Enabled	Non-ENERGY STAR Features	per installation	New	13	5	\$15	64%	15%	\$0.31	0.23
Idaho	Miscellaneous	Other Office Equipment	ENERGY STAR - Printers	ENERGY STAR Printers	Standard Printers	per installation	New	125	6	\$14	95%	40%	\$0.03	2
Idaho	Miscellaneous	Other Office Equipment	ENERGY STAR - Scanners	ENERGY STAR Scanners	Standard Scanner	per installation	New	65	6	\$2	95%	45%	\$0.01	0.20
Idaho	Miscellaneous	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	per installation	Existing	6	7	\$1	20%	90%	\$0.05	0.05
Idaho	Miscellaneous	Other Plug Load	ENERGY STAR - Water Cooler	ENERGY STAR Water Cooler (Hot/Cold Water)	Non-ENERGY STAR Water Cooler	per installation	Existing	332	10	\$2	95%	75%	\$0.00	3
Idaho	Miscellaneous	Other Plug Load	Power Supply Transformer/Converter	80 Plus	85% efficient power supply (> 51W)	1 unit per 2,000 sqft	Existing	5	4	\$0.37	95%	86%	\$0.02	0.84
Idaho	Miscellaneous	Other Plug Load	Residential Refrigerator	ENERGY STAR	Federal Standard	per installation	Existing	73	12	\$113	10%	65%	\$0.23	0.61
Idaho	Miscellaneous	Other Plug Load	Residential Refrigerator/Freezer Recycling	Recycling Existing Refrigerator/Freezer	Existing Refrigerator/Freezer	per installation	Existing	871	4	\$519	25%	35%	\$0.20	3
Idaho	Miscellaneous	Other Plug Load	Server Virtualization	Server Virtualization	No Virtualization	number of virtualized servers	Existing	2,067	4	\$1,740	72%	85%	\$0.67	26
Idaho	Miscellaneous	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	1 unit per 5,000 sqft	Existing	91	5	\$18	60%	90%	\$0.06	3
Idaho	Miscellaneous	Other Plug Load	Vending Machines- High Efficiency	ENERGY STAR (Tier 2) Vending Machines- High Efficiency 500 can capacity Under 5.92 kWh/day	Vending Machines- Standard 13 kWh/day	per installation	Existing	219	14	\$150	10%	80%	\$0.09	0.22
Idaho	Miscellaneous	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	per installation	New	6	7	\$1	20%	90%	\$0.05	0.03
Idaho	Miscellaneous	Other Plug Load	ENERGY STAR - Water Cooler	ENERGY STAR Water Cooler (Hot/Cold Water)	Non-ENERGY STAR Water Cooler	per installation	New	332	10	\$2	95%	75%	\$0.00	1
Idaho	Miscellaneous	Other Plug Load	Power Supply Transformer/Converter	80 Plus	85% efficient power supply (> 51W)	1 unit per 2,000 sqft	New	5	4	\$0.37	95%	86%	\$0.02	0.47
Idaho	Miscellaneous	Other Plug Load	Residential Refrigerator	ENERGY STAR	Federal Standard	per installation	New	73	12	\$113	10%	65%	\$0.23	0.34
Idaho	Miscellaneous	Other Plug Load	Server Virtualization	Server Virtualization	No Virtualization	number of virtualized servers	New	2,067	4	\$1,740	72%	85%	\$0.67	14
Idaho	Miscellaneous	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	1 unit per 5,000 sqft	New	91	5	\$18	60%	90%	\$0.06	1
Idaho	Miscellaneous	Other Plug Load	Vending Machines- High Efficiency	ENERGY STAR (Tier 2) Vending Machines- High Efficiency 500 can capacity Under 5.92 kWh/day	Vending Machines- Standard 13 kWh/day	per installation	New	219	14	\$150	10%	80%	\$0.09	0.12
Idaho	Miscellaneous	Refrigeration	Case Electronically Commutated Motor	ECM Case Fans	Standard Efficiency Motor	1 unit per 10,000 sqft	Existing	935	12	\$222	3%	77%	\$0.04	0.03
Idaho	Miscellaneous	Refrigeration	Case Replacement Low Temp	Case Replacement Low Temp	No replacement	per square foot	Existing	0.01	15	\$0.10	3%	95%	\$0.72	0.00
Idaho	Miscellaneous	Refrigeration	Case Replacement Med Temp	Case Replacement Med Temp	No replacement	per square foot	Existing	0.00	15	\$0.05	3%	95%	\$4.38	0.00
Idaho	Miscellaneous	Refrigeration	Night Covers for Display Cases	Night Covers for Display Cases	No Night Covers	per installation	Existing	370	5	\$59	5%	85%	\$0.05	0.02
Idaho	Miscellaneous	Refrigeration	Standalone to Multiplex Compressor	Standalone to Multiplex Compressor	Standalone compressor	per building sqft	Existing	0.02	13	\$0.00	3%	90%	\$0.02	0.01
Idaho	Miscellaneous	Refrigeration	Walk-In Electronically Commutated Motor	ECM Evaporator Fans	Standard Efficiency Motor	per installation	Existing	0.03	12	\$0.16	3%	95%	\$0.72	0.01
Idaho	Miscellaneous	Refrigeration	Case Electronically Commutated Motor	ECM Case Fans	Standard Efficiency Motor	1 unit per 10,000 sqft	New	935	12	\$222	3%	77%	\$0.04	0.01
Idaho	Miscellaneous	Refrigeration	Night Covers for Display Cases	Night Covers for Display Cases	No Night Covers	per installation	New	370	5	\$59	5%	85%	\$0.05	0.01
Idaho	Miscellaneous	Refrigeration	Walk-In Electronically Commutated Motor	ECM Evaporator Fans	Standard Efficiency Motor	per installation	New	0.03	12	\$0.16	3%	95%	\$0.72	0.00
Idaho	Miscellaneous	Space Heat	Convert Constant Volume Air System to VAV	Variable Volume Air System	Constant Volume Air System	per building CFM	Existing	0.78	15	\$2	15%	68%	\$0.40	1

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Idaho	Miscellaneous	Space Heat	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	Existing	601	15	\$138	75%	75%	\$0.03	8
Idaho	Miscellaneous	Space Heat	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	Existing	0.15	18	\$0.16	45%	65%	\$0.13	0.72
Idaho	Miscellaneous	Space Heat	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	Existing	0.90	14	\$1	5%	94%	\$0.24	0.68
Idaho	Miscellaneous	Space Heat	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	9	13	\$0.22	10%	39%	\$0.00	0.39
Idaho	Miscellaneous	Space Heat	Insulation - Ceiling	R-30 (ID State Code)	R-11 (Average Existing Conditions)	per roof sqft	Existing	0.98	25	\$0.62	75%	70%	\$0.06	9
Idaho	Miscellaneous	Space Heat	Insulation - Ceiling	R-38	R-30 (ID State Code)	per roof sqft	Existing	0.13	25	\$0.20	25%	85%	\$0.15	0.48
Idaho	Miscellaneous	Space Heat	Insulation - Duct	R-5 (ID State Code)	No Insulation	per surface area of duct insul	Existing	2	20	\$1	75%	60%	\$0.06	1
Idaho	Miscellaneous	Space Heat	Insulation - Duct	R-8	R-5 (ID State Code)	per surface area of duct insul	Existing	1	20	\$0.26	75%	85%	\$0.02	1
Idaho	Miscellaneous	Space Heat	Insulation - Floor (non-slab)	R-30 (ID State Code)	R-7 (Average Existing Conditions)	per floor area	Existing	2	25	\$0.78	35%	83%	\$0.04	12
Idaho	Miscellaneous	Space Heat	Insulation - Floor (non-slab)	R-38	R-30 (ID State Code)	per floor area	Existing	0.26	25	\$0.27	35%	90%	\$0.10	1
Idaho	Miscellaneous	Space Heat	Insulation - Wall	R-13 (ID State Code)	R-3 (Average Existing Conditions)	per floor area	Existing	3	25	\$0.84	10%	67%	\$0.02	2
Idaho	Miscellaneous	Space Heat	Insulation - Wall	R-21	R-13 (ID State Code)	per floor area	Existing	1	25	\$0.18	10%	85%	\$0.01	1
Idaho	Miscellaneous	Space Heat	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	Existing	50	30	\$4	50%	95%	\$0.01	16
Idaho	Miscellaneous	Space Heat	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	Existing	487	10	\$114	95%	31%	\$0.04	0.97
Idaho	Miscellaneous	Space Heat	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	0.75	7	\$0.12	90%	85%	\$0.04	13
Idaho	Miscellaneous	Space Heat	Windows-High Efficiency	U-0.35 (ID State Code)	U-0.65 (Average Existing Conditions)	per window sqft	Existing	2	25	\$62	15%	71%	\$2.88	0.14
Idaho	Miscellaneous	Space Heat	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	New	287	15	\$138	75%	75%	\$0.06	2
Idaho	Miscellaneous	Space Heat	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	New	0.07	18	\$0.16	45%	65%	\$0.27	0.25
Idaho	Miscellaneous	Space Heat	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	New	0.43	14	\$1	5%	94%	\$0.50	0.23
Idaho	Miscellaneous	Space Heat	Insulation - Ceiling	R-38	R-30 (ID State Code)	per roof sqft	New	0.06	25	\$0.20	75%	85%	\$0.32	0.49
Idaho	Miscellaneous	Space Heat	Insulation - Duct	R-8	R-5 (ID State Code)	per surface area of duct insul	New	0.73	20	\$0.26	75%	85%	\$0.04	0.47
Idaho	Miscellaneous	Space Heat	Insulation - Floor (non-slab)	R-38	R-30 (ID State Code)	per floor area	New	0.12	25	\$0.27	35%	90%	\$0.22	0.48
Idaho	Miscellaneous	Space Heat	Insulation - Wall	R-21	R-13 (ID State Code)	per floor area	New	0.85	25	\$0.18	95%	85%	\$0.02	3
Idaho	Miscellaneous	Space Heat	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	New	24	30	\$4	50%	95%	\$0.02	4
Idaho	Miscellaneous	Space Heat	Natural Ventilation	Natural Ventilation Design Reduction in Cooling	None - Standard Ventilation	per building sqft	New	0.28	15	\$0.79	20%	75%	\$0.36	0.50
Idaho	Miscellaneous	Space Heat	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	New	232	10	\$114	95%	15%	\$0.08	0.15
Idaho	Miscellaneous	Water Heat	Clothes Washer Commercial	ENERGY STAR Commercial Clothes Washer MEF=1.80	Standard Clothes Washers	per installation	Existing	497	11	\$118	95%	80%	\$-0.27	0.43
Idaho	Miscellaneous	Water Heat	Clothes Washer Residential	Energy Star - CEE Tier 1 (MEF 2.0 - 2.19) - Electric DHW & Dryer	MEF = 1.66 - Electric DHW & Dryer (NWPPC 6th Plan Average Efficiency)	per installation	Existing	121	11	\$262	85%	94%	\$0.03	0.11
Idaho	Miscellaneous	Water Heat	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	per building sqft	Existing	0.01	10	\$0.22	55%	94%	\$2.04	1
Idaho	Miscellaneous	Water Heat	Dishwasher Residential	ENERGY STAR <= 324 kWh/yr, <= 5.8 gal/cycle	Federal Standard <= 355 kWh/yr, <= 6.5 gal/cycle	per installation	Existing	28	11	\$28	95%	25%	\$0.10	0.09
Idaho	Miscellaneous	Water Heat	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	per installation	Existing	6,755	10	\$2,374	95%	95%	\$0.02	0.21

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Idaho	Miscellaneous	Water Heat	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	per installation	Existing	3,156	10	\$863	95%	94%	\$-0.01	0.04
Idaho	Miscellaneous	Water Heat	Electric Water Heater - High Efficiency	EF = 0.95	EF = 0.92	Per installation	Existing	31	15	\$60	100%	N/A	\$0.25	0.17
Idaho	Miscellaneous	Water Heat	Heat Pump Water Heater - Advanced-Efficiency	EF = 2.2	EF = 0.92	Per installation	Existing	578	15	\$1,086	75%	N/A	\$0.24	13
Idaho	Miscellaneous	Water Heat	Hot Water (SHW) Pipe Insulation	1.0" of Insulation, assuming R-4 (ID State Code)	No Insulation	per linear foot	Existing	1	12	\$1	80%	90%	\$0.24	0.31
Idaho	Miscellaneous	Water Heat	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	per installation	Existing	15	9	\$0.12	95%	25%	\$-0.08	0.43
Idaho	Miscellaneous	Water Heat	Low-Flow Faucet Aerators	2.2 GPM (Federal Code)	3.0 GPM	per installation	Existing	12	9	\$2	95%	25%	\$-0.05	0.36
Idaho	Miscellaneous	Water Heat	Low-Flow Pre-Rinse Spray Valves	0.6 GPM	1.6 GPM (Federal Standard)	per installation	Existing	60	5	\$4	95%	93%	\$-0.07	3
Idaho	Miscellaneous	Water Heat	Low-Flow Showerheads	2.0 GPM	2.5 GPM (Federal Code)	per installation	Existing	231	10	\$5	95%	73%	\$-0.08	2
Idaho	Miscellaneous	Water Heat	Low-Flow Showerheads	2.5 GPM (Federal Code)	4.5 GPM	per installation	Existing	513	10	\$10	95%	62%	\$-0.08	5
Idaho	Miscellaneous	Water Heat	Water Cooled Refrigeration with Heat Recovery	Heat Recovery from refrigeration system. Applied to Water Heating Electric End use	No heat recovery	per sqft of refrigerated area	Existing	0.04	10	\$0.70	3%	94%	\$2.86	0.00
Idaho	Miscellaneous	Water Heat	Water Heater Temperature Setback	Water Heater Temperature Setback (120 F)	No Change in Water Temperature	per installation	Existing	74	5	\$66	75%	55%	\$0.25	1
Idaho	Miscellaneous	Water Heat	Clothes Washer Commercial	ENERGY STAR Commercial Clothes Washer MEF=1.80	Standard Clothes Washers	per installation	New	498	11	\$118	95%	80%	\$-0.27	0.24
Idaho	Miscellaneous	Water Heat	Clothes Washer Residential	Energy Star - CEE Tier 1 (MEF 2.0 - 2.19) - Electric DHW & Dryer	MEF = 1.66 - Electric DHW & Dryer (NWPPC 6th Plan Average Efficiency)	per installation	New	121	11	\$262	85%	94%	\$0.03	0.06
Idaho	Miscellaneous	Water Heat	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	per building sqft	New	0.01	10	\$0.22	55%	94%	\$2.07	0.69
Idaho	Miscellaneous	Water Heat	Dishwasher Residential	ENERGY STAR <= 324 kWh/yr, <= 5.8 gal/cycle	Federal Standard <= 355 kWh/yr, <= 6.5 gal/cycle	per installation	New	28	11	\$28	95%	55%	\$0.10	0.12
Idaho	Miscellaneous	Water Heat	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	per installation	New	6,770	10	\$2,635	95%	95%	\$0.03	0.11
Idaho	Miscellaneous	Water Heat	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	per installation	New	3,163	10	\$658	95%	94%	\$-0.02	0.02
Idaho	Miscellaneous	Water Heat	Electric Water Heater - High Efficiency	EF = 0.95	EF = 0.92	Per installation	New	31	15	\$60	100%	N/A	\$0.25	0.07
Idaho	Miscellaneous	Water Heat	Heat Pump Water Heater - Advanced-Efficiency	EF = 2.2	EF = 0.92	Per installation	New	578	15	\$969	75%	N/A	\$0.22	6
Idaho	Miscellaneous	Water Heat	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	per installation	New	15	9	\$0.12	95%	25%	\$-0.08	0.24
Idaho	Miscellaneous	Water Heat	Low-Flow Pre-Rinse Spray Valves	0.6 GPM	1.6 GPM (Federal Standard)	per installation	New	60	5	\$4	95%	93%	\$-0.07	1
Idaho	Miscellaneous	Water Heat	Low-Flow Showerheads	2.0 GPM	2.5 GPM (Federal Code)	per installation	New	227	10	\$5	95%	73%	\$-0.08	1
Idaho	Miscellaneous	Water Heat	Water Cooled Refrigeration with Heat Recovery	Heat Recovery from refrigeration system. Applied to Water Heating Electric End use	No heat recovery	per sqft of refrigerated area	New	0.04	10	\$0.70	3%	94%	\$2.90	0.00
Idaho	Miscellaneous	Water Heat	Water Heater Temperature Setback	Water Heater Temperature Setback (120 F)	No Change in Water Temperature	per installation	New	73	5	\$66	75%	55%	\$0.25	0.88
Idaho	Restaurant	Computers	Computer ENERGY STAR	Computer ENERGY STAR	Computer standard non-ENERGY STAR	Per installation	Existing	134	4	\$28	100%	N/A	\$0.07	10
Idaho	Restaurant	Computers	Computer ENERGY STAR	Computer ENERGY STAR	Computer standard non-ENERGY STAR	Per installation	New	134	4	\$28	100%	N/A	\$0.07	0.90
Idaho	Restaurant	Cooking	Combination Oven	60% cooking efficiency	Non ENERGY STAR	per installation	Existing	11,546	12	\$1,875	90%	90%	\$0.02	10
Idaho	Restaurant	Cooking	Fryers - New CEE Efficient Electric Deep Fat Fryers	15 inch width Deep Fryer CEE 2006 rating; 80% under heavy load, Less than 1000 watt at idle	15 inch width standard electric deep fat fryers	per installation	Existing	998	12	\$1,287	70%	86%	\$0.19	3
Idaho	Restaurant	Cooking	Griddle	70% cooking efficiency	Non ENERGY STAR	per installation	Existing	2,229	12	\$810	95%	85%	\$0.05	12

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Idaho	Restaurant	Cooking	High Efficiency Convection Oven	Convection Oven	Standard Oven	per installation	Existing	1,845	12	\$2,001	40%	45%	\$0.16	3
Idaho	Restaurant	Cooking	Hot Food Holding Cabinet	ENERGY STAR	Non ENERGY STAR	per installation	Existing	3,871	12	\$1,734	35%	21%	\$0.07	4
Idaho	Restaurant	Cooking	Steam Cooker	ENERGY STAR	Non ENERGY STAR	per installation	Existing	4,143	12	\$2,521	39%	75%	\$0.09	17
Idaho	Restaurant	Cooking	Combination Oven	60% cooking efficiency	Non ENERGY STAR	per installation	New	11,546	12	\$1,875	90%	90%	\$0.02	5
Idaho	Restaurant	Cooking	Fryers - New CEE Efficient Electric Deep Fat Fryers	15 inch width Deep Fryer CEE 2006 rating; 80% under heavy load, Less than 1000 watt at idle	15 inch width standard electric deep fat fryers	per installation	New	998	12	\$1,287	70%	86%	\$0.19	1
Idaho	Restaurant	Cooking	Griddle	70% cooking efficiency	Non ENERGY STAR	per installation	New	2,229	12	\$810	95%	85%	\$0.05	7
Idaho	Restaurant	Cooking	High Efficiency Convection Oven	Convection Oven	Standard Oven	per installation	New	1,845	12	\$2,001	40%	45%	\$0.16	2
Idaho	Restaurant	Cooking	Hot Food Holding Cabinet	ENERGY STAR	Non ENERGY STAR	per installation	New	3,871	12	\$1,734	35%	21%	\$0.07	2
Idaho	Restaurant	Cooking	Steam Cooker	ENERGY STAR	Non ENERGY STAR	per installation	New	4,143	12	\$2,521	39%	75%	\$0.09	10
Idaho	Restaurant	Cooling Dx Evap	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	Existing	0.32	15	\$0.68	45%	98%	\$0.27	13
Idaho	Restaurant	Cooling Dx Evap	DX Package 65 to 135 kBTU/hr - High Efficiency	DX Package 65 to 135 kBTU/hr - High Efficiency - 11.5 EER	DX Package 65 to 135 kBTU/hr - Standard Efficiency - 11.2 EER	Per installation	Existing	365	15	\$462	100%	N/A	\$0.16	0.31
Idaho	Restaurant	Cooling Dx Evap	DX Package 65 to 135 kBTU/hr - Premium Efficiency	DX Package 65 to 135 kBTU/hr - Premium Efficiency - 12.0 EER	DX Package 65 to 135 kBTU/hr - Standard Efficiency - 11.2 EER	Per installation	Existing	957	15	\$931	100%	N/A	\$0.13	15
Idaho	Restaurant	Cooling Dx Evap	DX Package-Air Side Economizer	Air-Side Economizer	No Economizer	per DX ton	Existing	73	10	\$154	10%	50%	\$0.35	2
Idaho	Restaurant	Cooling Dx Evap	DX Tune-Up / Diagnostics	DX Tune-Up / Diagnostics	No DX Tune-Up / Diagnostics	per installation	Existing	365	4	\$247	95%	72%	\$0.26	24
Idaho	Restaurant	Cooling Dx Evap	Direct / Indirect Evaporative Cooling, Pre-Cooling	Evaporative Cooler	Standard DX cooling	per building CFM	Existing	0.81	15	\$1	50%	94%	\$0.28	37
Idaho	Restaurant	Cooling Dx Evap	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	Existing	0.08	18	\$0.17	45%	65%	\$0.26	2
Idaho	Restaurant	Cooling Dx Evap	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	Existing	0.32	40	\$8	4%	98%	\$2.29	0.09
Idaho	Restaurant	Cooling Dx Evap	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	1	13	\$0.24	40%	39%	\$0.03	3
Idaho	Restaurant	Cooling Dx Evap	Insulation - Ceiling	R-30 (ID State Code)	R-11 (Average Existing Conditions)	per roof sqft	Existing	0.00	25	\$0.66	75%	56%	\$9.21	0.25
Idaho	Restaurant	Cooling Dx Evap	Insulation - Duct	R-5 (ID State Code)	No Insulation	per surface area of duct insul	Existing	1	20	\$1	75%	55%	\$0.13	4
Idaho	Restaurant	Cooling Dx Evap	Insulation - Duct	R-8	R-5 (ID State Code)	per surface area of duct insul	Existing	0.82	20	\$0.28	75%	85%	\$0.04	5
Idaho	Restaurant	Cooling Dx Evap	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	Existing	19	30	\$5	50%	95%	\$0.02	32
Idaho	Restaurant	Cooling Dx Evap	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	Existing	245	10	\$122	95%	24%	\$0.08	2
Idaho	Restaurant	Cooling Dx Evap	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	0.40	7	\$0.13	90%	85%	\$0.07	38
Idaho	Restaurant	Cooling Dx Evap	Window Film	Window Film	No Film	per 100 sqft of window glazing	Existing	1	10	\$129	90%	68%	\$16.28	0.08
Idaho	Restaurant	Cooling Dx Evap	Windows-High Efficiency	U-0.32	U-0.35 (ID State Code)	per window sqft	Existing	4	25	\$24	15%	90%	\$0.60	5
Idaho	Restaurant	Cooling Dx Evap	Windows-High Efficiency	U-0.35 (ID State Code)	U-0.65 (Average Existing Conditions)	per window sqft	Existing	3	25	\$67	15%	72%	\$2.02	3

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Idaho	Restaurant	Cooling Dx Evap	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	New	0.18	15	\$0.68	45%	98%	\$0.47	5
Idaho	Restaurant	Cooling Dx Evap	DX Package 65 to 135 kBtu/hr - High Efficiency	DX Package 65 to 135 kBtu/hr - High Efficiency - 11.5 EER	DX Package 65 to 135 kBtu/hr - Standard Efficiency - 11.2 EER	Per installation	New	206	15	\$370	100%	N/A	\$0.23	0.07
Idaho	Restaurant	Cooling Dx Evap	DX Package 65 to 135 kBtu/hr - Premium Efficiency	DX Package 65 to 135 kBtu/hr - Premium Efficiency - 12.0 EER	DX Package 65 to 135 kBtu/hr - Standard Efficiency - 11.2 EER	Per installation	New	569	15	\$744	100%	N/A	\$0.17	5
Idaho	Restaurant	Cooling Dx Evap	Direct / Indirect Evaporative Cooling, Pre-Cooling	Evaporative Cooler	Standard DX cooling	per building CFM	New	0.47	15	\$1	50%	94%	\$0.49	15
Idaho	Restaurant	Cooling Dx Evap	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	New	0.04	18	\$0.17	45%	65%	\$0.44	1
Idaho	Restaurant	Cooling Dx Evap	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	New	0.18	40	\$8	4%	98%	\$3.94	0.03
Idaho	Restaurant	Cooling Dx Evap	Insulation - Duct	R-8	R-5 (ID State Code)	per surface area of duct insul	New	0.48	20	\$0.28	75%	85%	\$0.07	1
Idaho	Restaurant	Cooling Dx Evap	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	New	11	30	\$5	50%	95%	\$0.04	11
Idaho	Restaurant	Cooling Dx Evap	Natural Ventilation	Natural Ventilation Design Reduction in Cooling	None - Standard Ventilation	per building sqft	New	0.18	15	\$0.84	20%	75%	\$0.58	1
Idaho	Restaurant	Cooling Dx Evap	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	New	142	10	\$122	95%	12%	\$0.14	0.46
Idaho	Restaurant	Cooling Dx Evap	Windows-High Efficiency	U-0.32	U-0.35 (ID State Code)	per window sqft	New	2	25	\$24	80%	90%	\$1.04	12
Idaho	Restaurant	Hvac Aux	Cooking Hood Controls	Demand-Ventilation Control	No Controls	per installation	Existing	1,831	18	\$5,821	95%	25%	\$0.37	30
Idaho	Restaurant	Hvac Aux	Motor - CEE Premium-Efficiency Plus	CEE PE+ Motor for HVAC Applications	NEMA Efficiency Motors	per HP	Existing	40	15	\$6	95%	76%	\$0.02	4
Idaho	Restaurant	Hvac Aux	Motor Rewind	>15, <500 HP	No Rewind	per HP	Existing	4	8	\$4	65%	25%	\$0.24	0.14
Idaho	Restaurant	Hvac Aux	Cooking Hood Controls	Demand-Ventilation Control	No Controls	per installation	New	1,831	18	\$5,821	95%	25%	\$0.37	17
Idaho	Restaurant	Hvac Aux	Motor - CEE Premium-Efficiency Plus	CEE PE+ Motor for HVAC Applications	NEMA Efficiency Motors	per HP	New	37	15	\$6	95%	76%	\$0.02	2
Idaho	Restaurant	Lighting Exterior	Covered Parking Lighting	Covered Parking Lighting	Normal Lighting	per building sqft	Existing	0.09	10	\$0.02	80%	95%	\$0.05	12
Idaho	Restaurant	Lighting Exterior	Daylighting Controls, Outdoors (Photocell)	Photocell	No Controls	per installation	Existing	63	8	\$27	75%	70%	\$0.09	4
Idaho	Restaurant	Lighting Exterior	Exterior Building Lighting	30% savings	Normal Lighting	per installation	Existing	237	15	\$331	62%	90%	\$0.18	39
Idaho	Restaurant	Lighting Exterior	Solid State LED White Lighting	Landscape, merchandise, signage, structure & task lighting (2.5 W)	50W 10hrs/day, 365 day/yr	per installation	Existing	6	14	\$35	75%	95%	\$0.70	0.69
Idaho	Restaurant	Lighting Exterior	Surface Parking Lighting	Surface Parking Lighting	Normal Lighting	per building sqft	Existing	0.04	19	\$0.06	62%	95%	\$0.16	5
Idaho	Restaurant	Lighting Exterior	Covered Parking Lighting	Covered Parking Lighting	Normal Lighting	per building sqft	New	0.09	10	\$0.02	80%	95%	\$0.05	7
Idaho	Restaurant	Lighting Exterior	Daylighting Controls, Outdoors (Photocell)	Photocell	No Controls	per installation	New	63	8	\$27	75%	70%	\$0.09	2
Idaho	Restaurant	Lighting Exterior	Exterior Building Lighting	30% savings	Normal Lighting	per installation	New	237	15	\$331	62%	90%	\$0.18	22
Idaho	Restaurant	Lighting Exterior	Solid State LED White Lighting	Landscape, merchandise, signage, structure & task lighting (2.5 W)	50W 10hrs/day, 365 day/yr	per installation	New	6	14	\$35	75%	95%	\$0.70	0.39
Idaho	Restaurant	Lighting Exterior	Surface Parking Lighting	Surface Parking Lighting	Normal Lighting	per building sqft	New	0.04	19	\$0.06	62%	95%	\$0.16	2
Idaho	Restaurant	Lighting Interior	Cold Cathode Lighting	Cold Cathode Lighting 5 watts	30 W Incandescent Bulb	per installation	Existing	302	5	\$12	15%	94%	\$0.01	2

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Idaho	Restaurant	Lighting Interior	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	Existing	0.37	8	\$0.84	30%	98%	\$0.45	1
Idaho	Restaurant	Lighting Interior	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	Existing	0.13	8	\$0.63	30%	98%	\$0.89	0.73
Idaho	Restaurant	Lighting Interior	Exit Sign - LED	LED Exit Sign (2 Watts)	CFL Exit Sign (9 Watts)	per installation	Existing	94	16	\$16	95%	50%	\$0.02	5
Idaho	Restaurant	Lighting Interior	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign (2 Watts)	per installation	Existing	17	13	\$30	95%	98%	\$0.25	0.67
Idaho	Restaurant	Lighting Interior	LED Refrigeration Case Lights	LED Refrigeration Case Lights	Fluorescent Refrigeration Case	per installation	Existing	161	8	\$245	25%	80%	\$0.30	4
Idaho	Restaurant	Lighting Interior	Lighting Package, High Efficiency	15% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	Existing	0.61	13	\$0.00	90%	53%	\$0.00	39
Idaho	Restaurant	Lighting Interior	Lighting Package, High Efficiency	Code Required LPD And Control Strategies	Existing Lighting Design LPD	per building sqft	Existing	1	13	\$0.02	90%	37%	\$0.00	88
Idaho	Restaurant	Lighting Interior	Lighting Package, Premium Efficiency	25% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	Existing	1	13	\$0.01	75%	62%	\$0.00	16
Idaho	Restaurant	Lighting Interior	Lighting Package, Premium High Bay	35% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	Existing	0.06	13	\$0.04	70%	83%	\$0.09	6
Idaho	Restaurant	Lighting Interior	Occupancy Sensor Control, Fluorescent	Occupancy Sensor Control, Fluorescent	No Occupancy Sensor	per occupancy sensor	Existing	1,039	8	\$64	45%	61%	\$0.01	4
Idaho	Restaurant	Lighting Interior	Time Clock	Time Clock	No Controls	per 10,000 Watts	Existing	736	8	\$174	20%	**	\$0.05	3
Idaho	Restaurant	Lighting Interior	Cold Cathode Lighting	Cold Cathode Lighting 5 watts	30 W Incandescent Bulb	per installation	New	211	5	\$12	15%	94%	\$0.02	1
Idaho	Restaurant	Lighting Interior	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	New	0.25	8	\$0.84	30%	98%	\$0.64	0.82
Idaho	Restaurant	Lighting Interior	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	New	0.09	8	\$0.63	30%	98%	\$1.28	0.30
Idaho	Restaurant	Lighting Interior	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign (2 Watts)	per installation	New	17	13	\$30	95%	98%	\$0.25	1
Idaho	Restaurant	Lighting Interior	LED Refrigeration Case Lights	LED Refrigeration Case Lights	Fluorescent Refrigeration Case	per installation	New	161	8	\$245	25%	80%	\$0.30	2
Idaho	Restaurant	Lighting Interior	Lighting Package, High Efficiency	15% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	New	0.61	15	\$0.00	90%	53%	\$0.00	22
Idaho	Restaurant	Lighting Interior	Lighting Package, Premium Efficiency	25% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	New	1	15	\$0.01	75%	62%	\$0.00	9
Idaho	Restaurant	Lighting Interior	Lighting Package, Premium High Bay	35% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	New	0.06	15	\$0.00	70%	83%	\$0.02	3
Idaho	Restaurant	Lighting Interior	Occupancy Sensor Control, Fluorescent	Occupancy Sensor Control, Fluorescent	No Occupancy Sensor	per occupancy sensor	New	724	8	\$64	45%	61%	\$0.02	1
Idaho	Restaurant	Lighting Interior	Time Clock	Time Clock	No Controls	per 10,000 Watts	New	736	8	\$174	20%	**	\$0.05	1
Idaho	Restaurant	Other Office Equipment	ENERGY STAR - Copiers	ENERGY STAR Copiers	Standard Copier	per installation	Existing	71	6	\$158	95%	45%	\$0.54	0.10
Idaho	Restaurant	Other Office Equipment	ENERGY STAR - Fax	ENERGY STAR Fax	Standard Fax	per installation	Existing	76	6	\$0.00	95%	45%	\$0.00	0.11
Idaho	Restaurant	Other Office Equipment	ENERGY STAR - Monitors	ENERGY STAR Features Enabled	Non-ENERGY STAR Features	per installation	Existing	14	5	\$16	64%	15%	\$0.31	0.09
Idaho	Restaurant	Other Office Equipment	ENERGY STAR - Printers	ENERGY STAR Printers	Standard Printers	per installation	Existing	134	6	\$15	95%	40%	\$0.03	2
Idaho	Restaurant	Other Office Equipment	ENERGY STAR - Scanners	ENERGY STAR Scanners	Standard Scanner	per installation	Existing	69	6	\$0.00	95%	45%	\$0.00	0.10
Idaho	Restaurant	Other Office Equipment	ENERGY STAR - Copiers	ENERGY STAR Copiers	Standard Copier	per installation	New	71	6	\$158	95%	45%	\$0.54	0.06
Idaho	Restaurant	Other Office Equipment	ENERGY STAR - Fax	ENERGY STAR Fax	Standard Fax	per installation	New	76	6	\$0.00	95%	45%	\$0.00	0.06
Idaho	Restaurant	Other Office Equipment	ENERGY STAR - Monitors	ENERGY STAR Features Enabled	Non-ENERGY STAR Features	per installation	New	14	5	\$16	64%	15%	\$0.31	0.05
Idaho	Restaurant	Other Office Equipment	ENERGY STAR - Printers	ENERGY STAR Printers	Standard Printers	per installation	New	134	6	\$15	95%	40%	\$0.03	1

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Idaho	Restaurant	Other Office Equipment	ENERGY STAR - Scanners	ENERGY STAR Scanners	Standard Scanner	per installation	New	69	6	\$0.00	95%	45%	\$0.00	0.05
Idaho	Restaurant	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	per installation	Existing	7	7	\$1	20%	90%	\$0.06	0.03
Idaho	Restaurant	Other Plug Load	ENERGY STAR - Water Cooler	ENERGY STAR Water Cooler (Hot/Cold Water)	Non-ENERGY STAR Water Cooler	per installation	Existing	354	10	\$0.72	95%	75%	\$0.00	6
Idaho	Restaurant	Other Plug Load	Ice Maker	High-Efficiency Ice Maker	Standard Ice Maker	per installation	Existing	413	10	\$139	95%	86%	\$0.03	20
Idaho	Restaurant	Other Plug Load	Power Supply Transformer/Converter	80 Plus	85% efficient power supply (> 51W)	1 unit per 2,000 sqft	Existing	8	4	\$0.40	95%	86%	\$0.02	0.59
Idaho	Restaurant	Other Plug Load	Residential Refrigerator	ENERGY STAR	Federal Standard	per installation	Existing	78	12	\$121	19%	65%	\$0.23	0.68
Idaho	Restaurant	Other Plug Load	Residential Refrigerator/Freezer Recycling	Recycling Existing Refrigerator/Freezer	Existing Refrigerator/Freezer	per installation	Existing	931	4	\$556	25%	35%	\$0.20	2
Idaho	Restaurant	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	1 unit per 5,000 sqft	Existing	98	5	\$20	60%	90%	\$0.06	1
Idaho	Restaurant	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	per installation	New	7	7	\$1	20%	90%	\$0.06	0.02
Idaho	Restaurant	Other Plug Load	ENERGY STAR - Water Cooler	ENERGY STAR Water Cooler (Hot/Cold Water)	Non-ENERGY STAR Water Cooler	per installation	New	354	10	\$0.72	95%	75%	\$0.00	3
Idaho	Restaurant	Other Plug Load	Ice Maker	High-Efficiency Ice Maker	Standard Ice Maker	per installation	New	413	10	\$139	95%	86%	\$0.03	11
Idaho	Restaurant	Other Plug Load	Power Supply Transformer/Converter	80 Plus	85% efficient power supply (> 51W)	1 unit per 2,000 sqft	New	8	4	\$0.40	95%	86%	\$0.02	0.33
Idaho	Restaurant	Other Plug Load	Residential Refrigerator	ENERGY STAR	Federal Standard	per installation	New	78	12	\$121	19%	65%	\$0.23	0.38
Idaho	Restaurant	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	1 unit per 5,000 sqft	New	98	5	\$20	60%	90%	\$0.06	1
Idaho	Restaurant	Refrigeration	Anti-Sweat (Humidistat) Controls	Anti-Sweat (Humidistat) Controls	No Anti-Sweat (Humidistat) Controls	1 unit per 1,000 sqft	Existing	960	12	\$71	25%	45%	\$0.01	5
Idaho	Restaurant	Refrigeration	Case Electronically Commutated Motor	ECM Case Fans	Standard Efficiency Motor	1 unit per 5,000 sqft	Existing	999	12	\$239	10%	77%	\$0.04	1
Idaho	Restaurant	Refrigeration	Case Replacement Low Temp	Case Replacement Low Temp	No replacement	per square foot	Existing	0.04	15	\$0.10	10%	95%	\$0.29	0.56
Idaho	Restaurant	Refrigeration	Case Replacement Med Temp	Case Replacement Med Temp	No replacement	per square foot	Existing	0.00	15	\$0.05	10%	95%	\$1.76	0.04
Idaho	Restaurant	Refrigeration	Demand Control Defrost - Hot Gas	Refrigerant Defrost	Defrost - Electric	per installation	Existing	317	10	\$7	5%	68%	\$0.00	0.53
Idaho	Restaurant	Refrigeration	Glass Door ES Refrigerators/Freezers	Glass Door ES Refrigerators/Freezers	Standard Glass Doors	per installation	Existing	2,504	12	\$713	95%	77%	\$0.04	39
Idaho	Restaurant	Refrigeration	Night Covers for Display Cases	Night Covers for Display Cases	No Night Covers	per installation	Existing	396	5	\$63	30%	85%	\$0.05	8
Idaho	Restaurant	Refrigeration	Refrigeration Commissioning or Re-commissioning	Commissioning / Re-commissioning	No Commissioning / Re-commissioning	per refrigeration ton	Existing	801	3	\$87	10%	85%	\$0.05	5
Idaho	Restaurant	Refrigeration	Solid Door ES Refrigerators/Freezers	Solid Door ES Refrigerators/Freezers	Standard Solid Door	per installation	Existing	1,135	12	\$187	95%	81%	\$0.02	18
Idaho	Restaurant	Refrigeration	Standalone to Multiplex Compressor	Standalone to Multiplex Compressor	Standalone compressor	per building sqft	Existing	0.26	13	\$0.03	10%	90%	\$0.02	2
Idaho	Restaurant	Refrigeration	Strip Curtains for Walk-Ins	Strip Curtains for Walk-Ins	No Strip Curtains for Walk-In	per installation	Existing	488	4	\$182	5%	20%	\$0.13	0.24
Idaho	Restaurant	Refrigeration	Walk-In Electronically Commutated Motor	ECM Evaporator Fans	Standard Efficiency Motor	per installation	Existing	0.37	12	\$0.17	75%	95%	\$0.07	33
Idaho	Restaurant	Refrigeration	Anti-Sweat (Humidistat) Controls	Anti-Sweat (Humidistat) Controls	No Anti-Sweat (Humidistat) Controls	1 unit per 1,000 sqft	New	960	12	\$71	25%	45%	\$0.01	3
Idaho	Restaurant	Refrigeration	Case Electronically Commutated Motor	ECM Case Fans	Standard Efficiency Motor	1 unit per 5,000 sqft	New	999	12	\$239	10%	77%	\$0.04	1
Idaho	Restaurant	Refrigeration	Demand Control Defrost - Hot Gas	Refrigerant Defrost	Defrost - Electric	per installation	New	317	10	\$7	5%	68%	\$0.00	0.30
Idaho	Restaurant	Refrigeration	Glass Door ES Refrigerators/Freezers	Glass Door ES Refrigerators/Freezers	Standard Glass Doors	per installation	New	2,504	12	\$713	95%	77%	\$0.04	22
Idaho	Restaurant	Refrigeration	Night Covers for Display Cases	Night Covers for Display Cases	No Night Covers	per installation	New	396	5	\$63	30%	85%	\$0.05	6
Idaho	Restaurant	Refrigeration	Refrigeration Commissioning or Re-commissioning	Commissioning / Re-commissioning	No Commissioning / Re-commissioning	per refrigeration ton	New	495	3	\$34	5%	90%	\$0.03	1

Table C.2.2. Commercial Measure Details

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Idaho	Restaurant	Refrigeration	Solid Door ES Refrigerators/Freezers	Solid Door ES Refrigerators/Freezers	Standard Solid Door	per installation	New	1,135	12	\$187	95%	81%	\$0.02	10
Idaho	Restaurant	Refrigeration	Strip Curtains for Walk-Ins	Strip Curtains for Walk-Ins	No Strip Curtains for Walk-In	per installation	New	488	4	\$182	5%	20%	\$0.13	0.13
Idaho	Restaurant	Refrigeration	Walk-In Electronically Commutated Motor	ECM Evaporator Fans	Standard Efficiency Motor	per installation	New	0.37	12	\$0.17	75%	95%	\$0.07	18
Idaho	Restaurant	Space Heat	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	Existing	0.10	18	\$0.17	45%	65%	\$0.19	0.34
Idaho	Restaurant	Space Heat	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	Existing	0.64	14	\$1	5%	94%	\$0.36	0.32
Idaho	Restaurant	Space Heat	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	3	13	\$0.24	40%	39%	\$0.01	1
Idaho	Restaurant	Space Heat	Insulation - Ceiling	R-30 (ID State Code)	R-11 (Average Existing Conditions)	per roof sqft	Existing	0.70	25	\$0.66	75%	56%	\$0.10	3
Idaho	Restaurant	Space Heat	Insulation - Ceiling	R-38	R-30 (ID State Code)	per roof sqft	Existing	0.09	25	\$0.22	25%	85%	\$0.23	0.22
Idaho	Restaurant	Space Heat	Insulation - Duct	R-5 (ID State Code)	No Insulation	per surface area of duct insul	Existing	1	20	\$1	75%	55%	\$0.10	0.58
Idaho	Restaurant	Space Heat	Insulation - Duct	R-8	R-5 (ID State Code)	per surface area of duct insul	Existing	1	20	\$0.28	75%	85%	\$0.03	0.80
Idaho	Restaurant	Space Heat	Insulation - Floor (non-slab)	R-30 (ID State Code)	R-11 (Average Existing Conditions)	per floor area	Existing	1	25	\$0.83	35%	84%	\$0.08	3
Idaho	Restaurant	Space Heat	Insulation - Floor (non-slab)	R-38	R-30 (ID State Code)	per floor area	Existing	0.19	25	\$0.29	35%	90%	\$0.16	0.66
Idaho	Restaurant	Space Heat	Insulation - Wall	R-13 (ID State Code)	R-3 (Average Existing Conditions)	per floor area	Existing	1	25	\$0.90	10%	68%	\$0.06	0.99
Idaho	Restaurant	Space Heat	Insulation - Wall	R-21	R-13 (ID State Code)	per floor area	Existing	0.71	25	\$0.19	10%	85%	\$0.03	0.65
Idaho	Restaurant	Space Heat	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	Existing	36	30	\$5	50%	95%	\$0.01	7
Idaho	Restaurant	Space Heat	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	Existing	325	10	\$122	95%	24%	\$0.06	0.37
Idaho	Restaurant	Space Heat	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	0.53	7	\$0.13	90%	85%	\$0.05	6
Idaho	Restaurant	Space Heat	Windows-High Efficiency	U-0.35 (ID State Code)	U-0.65 (Average Existing Conditions)	per window sqft	Existing	0.52	25	\$67	15%	72%	\$13.21	0.07
Idaho	Restaurant	Space Heat	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	New	0.04	18	\$0.17	45%	65%	\$0.49	0.09
Idaho	Restaurant	Space Heat	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	New	0.25	14	\$1	5%	94%	\$0.92	0.08
Idaho	Restaurant	Space Heat	Insulation - Ceiling	R-38	R-30 (ID State Code)	per roof sqft	New	0.03	25	\$0.22	75%	85%	\$0.58	0.18
Idaho	Restaurant	Space Heat	Insulation - Duct	R-8	R-5 (ID State Code)	per surface area of duct insul	New	0.43	20	\$0.28	75%	85%	\$0.07	0.16
Idaho	Restaurant	Space Heat	Insulation - Floor (non-slab)	R-38	R-30 (ID State Code)	per floor area	New	0.07	25	\$0.29	35%	90%	\$0.40	0.18
Idaho	Restaurant	Space Heat	Insulation - Wall	R-21	R-13 (ID State Code)	per floor area	New	0.28	25	\$0.19	95%	85%	\$0.07	1
Idaho	Restaurant	Space Heat	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	New	14	30	\$5	50%	95%	\$0.03	1
Idaho	Restaurant	Space Heat	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	New	128	10	\$122	95%	12%	\$0.16	0.04
Idaho	Restaurant	Water Heat	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	per building sqft	Existing	0.41	10	\$0.23	75%	94%	\$0.09	10
Idaho	Restaurant	Water Heat	Dishwasher Residential	ENERGY STAR <= 324 kWh/yr, <= 5.8 gal/cycle	Federal Standard <= 355 kWh/yr, <= 6.5 gal/cycle	per installation	Existing	30	11	\$30	95%	25%	\$0.10	0.03
Idaho	Restaurant	Water Heat	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	per installation	Existing	7,201	10	\$2,603	95%	95%	\$0.02	41
Idaho	Restaurant	Water Heat	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemmical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	per installation	Existing	3,364	10	\$810	95%	94%	\$-0.02	9
Idaho	Restaurant	Water Heat	Electric Water Heater - High Efficiency	EF = 0.95	EF = 0.92	Per installation	Existing	670	15	\$151	100%	N/A	\$0.03	1
Idaho	Restaurant	Water Heat	Heat Pump Water Heater - Advanced-Efficiency	EF = 2.2	EF = 0.92	Per installation	Existing	12,345	15	\$2,718	75%	N/A	\$0.03	76

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Idaho	Restaurant	Water Heat	Hot Water (SHW) Pipe Insulation	1.0" of Insulation, assuming R-4 (ID State Code)	No Insulation	per linear foot	Existing	26	12	\$2	80%	90%	\$0.01	2
Idaho	Restaurant	Water Heat	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	per installation	Existing	335	9	\$0.00	95%	25%	\$-0.08	2
Idaho	Restaurant	Water Heat	Low-Flow Faucet Aerators	2.2 GPM (Federal Code)	3.0 GPM	per installation	Existing	280	9	\$2	95%	25%	\$-0.08	2
Idaho	Restaurant	Water Heat	Low-Flow Pre-Rinse Spray Valves	0.6 GPM	1.6 GPM (Federal Standard)	per installation	Existing	877	5	\$4	95%	46%	\$-0.09	12
Idaho	Restaurant	Water Heat	Water Cooled Refrigeration with Heat Recovery	Heat Recovery from refrigeration system. Applied to Water Heating Electric End use	No heat recovery	per sqft of refrigerated area	Existing	0.66	10	\$0.75	45%	94%	\$0.19	4
Idaho	Restaurant	Water Heat	Water Heater Temperature Setback	Water Heater Temperature Setback (120 F)	No Change in Water Temperature	per installation	Existing	810	5	\$71	75%	75%	\$0.02	13
Idaho	Restaurant	Water Heat	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	per building sqft	New	0.40	10	\$0.23	75%	94%	\$0.10	5
Idaho	Restaurant	Water Heat	Dishwasher Residential	ENERGY STAR <= 324 kWh/yr, <= 5.8 gal/cycle	Federal Standard <= 355 kWh/yr, <= 6.5 gal/cycle	per installation	New	30	11	\$30	95%	55%	\$0.10	0.04
Idaho	Restaurant	Water Heat	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	per installation	New	7,235	10	\$2,602	95%	95%	\$0.02	23
Idaho	Restaurant	Water Heat	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	per installation	New	3,380	10	\$810	95%	94%	\$-0.02	5
Idaho	Restaurant	Water Heat	Electric Water Heater - High Efficiency	EF = 0.95	EF = 0.92	Per installation	New	670	15	\$151	100%	N/A	\$0.03	0.52
Idaho	Restaurant	Water Heat	Heat Pump Water Heater - Advanced-Efficiency	EF = 2.2	EF = 0.92	Per installation	New	12,345	15	\$2,427	75%	N/A	\$0.03	35
Idaho	Restaurant	Water Heat	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	per installation	New	324	9	\$0.00	95%	25%	\$-0.08	1
Idaho	Restaurant	Water Heat	Low-Flow Pre-Rinse Spray Valves	0.6 GPM	1.6 GPM (Federal Standard)	per installation	New	882	5	\$4	95%	46%	\$-0.09	7
Idaho	Restaurant	Water Heat	Water Cooled Refrigeration with Heat Recovery	Heat Recovery from refrigeration system. Applied to Water Heating Electric End use	No heat recovery	per sqft of refrigerated area	New	0.64	10	\$0.75	45%	94%	\$0.19	2
Idaho	Restaurant	Water Heat	Water Heater Temperature Setback	Water Heater Temperature Setback (120 F)	No Change in Water Temperature	per installation	New	784	5	\$71	75%	75%	\$0.03	7
Idaho	School	Computers	Computer ENERGY STAR	Computer ENERGY STAR	Computer standard non-ENERGY STAR	Per installation	Existing	135	4	\$29	100%	N/A	\$0.08	63
Idaho	School	Computers	Network PC Power Management	Network PC Power Management	No Power Management	per computer	Existing	87	5	\$12	95%	30%	\$0.04	13
Idaho	School	Computers	Computer ENERGY STAR	Computer ENERGY STAR	Computer standard non-ENERGY STAR	Per installation	New	135	4	\$29	100%	N/A	\$0.08	5
Idaho	School	Computers	Network PC Power Management	Network PC Power Management	No Power Management	per computer	New	87	5	\$12	95%	30%	\$0.04	7
Idaho	School	Cooking	Combination Oven	60% cooking efficiency	Non ENERGY STAR	per installation	Existing	11,702	12	\$1,798	90%	90%	\$0.02	0.05
Idaho	School	Cooking	Fryers - New CEE Efficient Electric Deep Fat Fryers	15 inch width Deep Fryer CEE 2006 rating; 80% under heavy load, Less than 1000 watt at idle	15 inch width standard electric deep fat fryers	per installation	Existing	436	12	\$1,348	35%	90%	\$0.46	0.00
Idaho	School	Cooking	Griddle	70% cooking efficiency	Non ENERGY STAR	per installation	Existing	2,259	12	\$807	95%	85%	\$0.05	0.10
Idaho	School	Cooking	High Efficiency Convection Oven	Convection Oven	Standard Oven	per installation	Existing	1,869	12	\$2,019	26%	40%	\$0.16	0.01
Idaho	School	Cooking	Hot Food Holding Cabinet	ENERGY STAR	Non ENERGY STAR	per installation	Existing	3,923	12	\$1,730	75%	21%	\$0.07	0.07
Idaho	School	Cooking	Steam Cooker	ENERGY STAR	Non ENERGY STAR	per installation	Existing	4,199	12	\$2,532	14%	75%	\$0.09	0.05
Idaho	School	Cooking	Combination Oven	60% cooking efficiency	Non ENERGY STAR	per installation	New	11,702	12	\$1,798	90%	90%	\$0.02	0.03
Idaho	School	Cooking	Fryers - New CEE Efficient Electric Deep Fat Fryers	15 inch width Deep Fryer CEE 2006 rating; 80% under heavy load, Less than 1000 watt at idle	15 inch width standard electric deep fat fryers	per installation	New	436	12	\$1,348	35%	90%	\$0.46	0.00
Idaho	School	Cooking	Griddle	70% cooking efficiency	Non ENERGY STAR	per installation	New	2,259	12	\$807	95%	85%	\$0.05	0.06
Idaho	School	Cooking	High Efficiency Convection Oven	Convection Oven	Standard Oven	per installation	New	1,869	12	\$2,019	26%	40%	\$0.16	0.01

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Idaho	School	Cooking	Hot Food Holding Cabinet	ENERGY STAR	Non ENERGY STAR	per installation	New	3,923	12	\$1,730	75%	21%	\$0.07	0.04
Idaho	School	Cooking	Steam Cooker	ENERGY STAR	Non ENERGY STAR	per installation	New	4,199	12	\$2,532	14%	75%	\$0.09	0.03
Idaho	School	Cooling Chillers	Automated Ventilation VFD Control(Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	1 unit per 3,000 sqft	Existing	101	15	\$683	25%	94%	\$0.88	0.16
Idaho	School	Cooling Chillers	Chilled Water / Condenser Water Settings-Optimization	Additional Control Features	EMS already installed - No Optimization	1 control point per 1000 sqft	Existing	4	5	\$139	95%	81%	\$9.43	0.05
Idaho	School	Cooling Chillers	Chilled Water Piping Loop w/ VSD Control	VSD for secondary chilled water loop	Primary loop only w/ constant speed pump	per chiller ton	Existing	5	10	\$190	25%	70%	\$6.18	0.07
Idaho	School	Cooling Chillers	Chiller-Water Side Economizer	Install Economizer	No Economizer	per chiller ton	Existing	3	15	\$422	45%	90%	\$16.04	0.11
Idaho	School	Cooling Chillers	Chillers 150-300 tons (screw) - Advanced Efficiency	0.50 kW/ton (full load)	0.680 kW/Ton (full load)	Per installation	Existing	2,803	20	\$10,363	100%	N/A	\$0.41	1
Idaho	School	Cooling Chillers	Chillers 150-300 tons (screw) - High Efficiency	0.65 kW/ton (full load)	0.680 kW/Ton (full load)	Per installation	Existing	1,038	20	\$3,198	100%	N/A	\$0.34	0.01
Idaho	School	Cooling Chillers	Chillers 150-300 tons (screw) - Premium Efficiency	0.57 kW/ton (full load)	0.680 kW/Ton (full load)	Per installation	Existing	1,987	20	\$7,019	100%	N/A	\$0.40	0.09
Idaho	School	Cooling Chillers	Convert Constant Volume Air System to VAV	Variable Volume Air System	Constant Volume Air System	per building CFM	Existing	0.10	15	\$2	15%	68%	\$3.34	0.18
Idaho	School	Cooling Chillers	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	Existing	0.03	15	\$0.69	65%	98%	\$2.67	0.37
Idaho	School	Cooling Chillers	Cooling Tower-Decrease Approach Temperature	6 Deg F	10 Deg F	per chiller ton	Existing	5	8	\$26	10%	94%	\$1.01	0.04
Idaho	School	Cooling Chillers	Cooling Tower-Two-Speed Fan Motor	Cooling Tower-Two-Speed Fan Motor	Cooling Tower-One-Speed Fan Motor	per chiller ton	Existing	9	15	\$2	95%	35%	\$0.03	0.40
Idaho	School	Cooling Chillers	Cooling Tower-VSD Fan Control	Variable-Speed Tower Fans replace Two-Speed	Cooling Tower-Two-Speed Fan Motor	per chiller ton	Existing	2	13	\$19	95%	75%	\$1.00	0.19
Idaho	School	Cooling Chillers	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	Existing	33	15	\$149	75%	75%	\$0.58	0.45
Idaho	School	Cooling Chillers	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	Existing	0.03	40	\$8	4%	98%	\$22.23	0.00
Idaho	School	Cooling Chillers	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	0.21	13	\$0.24	10%	39%	\$0.16	0.01
Idaho	School	Cooling Chillers	Insulation - Ceiling	R-30 (ID State Code)	R-7 (Average Existing Conditions)	per roof sqft	Existing	0.00	25	\$0.67	75%	70%	\$44.88	0.01
Idaho	School	Cooling Chillers	Pipe Insulation	1.5" of Insulation, assuming R-6 (ID State Code)	No Insulation	per linear feet of insulation	Existing	1	15	\$3	65%	45%	\$0.40	0.03
Idaho	School	Cooling Chillers	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	0.04	7	\$0.13	90%	85%	\$0.70	0.73
Idaho	School	Cooling Chillers	Window Film	Window Film	No Film	per 100 sqft of window glazing	Existing	1	10	\$130	90%	68%	\$16.37	0.01
Idaho	School	Cooling Chillers	Windows-High Efficiency	U-0.32	U-0.35 (ID State Code)	per window sqft	Existing	0.66	25	\$24	15%	90%	\$3.79	0.12
Idaho	School	Cooling Chillers	Windows-High Efficiency	U-0.35 (ID State Code)	U-0.67 (Average Existing Conditions)	per window sqft	Existing	0.53	25	\$68	15%	76%	\$12.91	0.08
Idaho	School	Cooling Chillers	Automated Ventilation VFD Control(Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	1 unit per 3,000 sqft	New	70	15	\$367	25%	94%	\$0.67	0.08
Idaho	School	Cooling Chillers	Chilled Water / Condenser Water Settings-Optimization	Additional Control Features	EMS already installed - No Optimization	1 control point per 1000 sqft	New	2	5	\$139	95%	81%	\$13.52	0.02
Idaho	School	Cooling Chillers	Chilled Water Piping Loop w/ VSD Control	VSD for secondary chilled water loop	Primary loop only w/ constant speed pump	per chiller ton	New	3	10	\$190	25%	70%	\$7.97	0.03
Idaho	School	Cooling Chillers	Chillers 150-300 tons (screw) - Advanced Efficiency	0.50 kW/ton (full load)	0.680 kW/Ton (full load)	Per installation	New	2,279	20	\$9,327	100%	N/A	\$0.46	1
Idaho	School	Cooling Chillers	Chillers 150-300 tons (screw) - High Efficiency	0.65 kW/ton (full load)	0.680 kW/Ton (full load)	Per installation	New	844	20	\$2,880	100%	N/A	\$0.38	0.00

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Idaho	School	Cooling Chillers	Chillers 150-300 tons (screw) - Premium Efficiency	0.57 kW/ton (full load)	0.680 kW/ton (full load)	Per installation	New	1,615	20	\$6,317	100%	N/A	\$0.44	0.04
Idaho	School	Cooling Chillers	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	New	0.02	15	\$0.69	65%	98%	\$3.83	0.19
Idaho	School	Cooling Chillers	Cooling Tower-Decrease Approach Temperature	6 Deg F	10 Deg F	per chiller ton	New	4	8	\$26	10%	94%	\$1.30	0.02
Idaho	School	Cooling Chillers	Cooling Tower-VSD Fan Control	Variable-Speed Tower Fans replace Two-Speed	Cooling Tower-Two-Speed Fan Motor	per chiller ton	New	2	15	\$19	95%	75%	\$1.19	0.09
Idaho	School	Cooling Chillers	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	New	23	15	\$149	75%	75%	\$0.83	0.20
Idaho	School	Cooling Chillers	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	New	0.02	40	\$8	4%	98%	\$31.88	0.00
Idaho	School	Cooling Chillers	Natural Ventilation	Natural Ventilation Design Reduction in Cooling	None - Standard Ventilation	per building sqft	New	0.02	15	\$0.85	20%	75%	\$4.72	0.04
Idaho	School	Cooling Chillers	Windows-High Efficiency	U-0.32	U-0.35 (ID State Code)	per window sqft	New	0.46	25	\$24	80%	90%	\$5.44	0.34
Idaho	School	Cooling Dx Evap	Automated Ventilation VFD Control(Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	1 unit per 3,000 sqft	Existing	119	15	\$683	25%	94%	\$0.74	0.94
Idaho	School	Cooling Dx Evap	Convert Constant Volume Air System to VAV	Variable Volume Air System	Constant Volume Air System	per building CFM	Existing	0.11	15	\$2	15%	68%	\$2.82	0.89
Idaho	School	Cooling Dx Evap	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	Existing	0.03	15	\$0.69	65%	98%	\$2.25	2
Idaho	School	Cooling Dx Evap	DX Package 135 to 240 kBTU/hr - High Efficiency	DX Package 135 to 240 kBTU/hr - High Efficiency - 11.5 EER	DX Package 135 to 240 kBTU/hr - Standard Efficiency 11.0 EER	Per installation	Existing	568	15	\$2,110	100%	N/A	\$0.48	0.08
Idaho	School	Cooling Dx Evap	DX Package 135 to 240 kBTU/hr - Premium Efficiency	DX Package 135 to 240 kBTU/hr - Premium Efficiency - 12.0 EER	DX Package 135 to 240 kBTU/hr - Standard Efficiency 11.0 EER	Per installation	Existing	1,053	15	\$3,590	100%	N/A	\$0.44	2
Idaho	School	Cooling Dx Evap	DX Package-Air Side Economizer	Air-Side Economizer	No Economizer	per DX ton	Existing	13	10	\$155	10%	60%	\$1.93	0.32
Idaho	School	Cooling Dx Evap	DX Tune-Up / Diagnostics	DX Tune-Up / Diagnostics	No DX Tune-Up / Diagnostics	per installation	Existing	67	4	\$249	95%	72%	\$1.43	2
Idaho	School	Cooling Dx Evap	Direct / Indirect Evaporative Cooling, Pre-Cooling	Evaporative Cooler	Standard DX cooling	per building CFM	Existing	0.09	15	\$1	50%	94%	\$2.32	3
Idaho	School	Cooling Dx Evap	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	Existing	39	15	\$149	75%	75%	\$0.49	2
Idaho	School	Cooling Dx Evap	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	Existing	0.00	18	\$0.17	45%	65%	\$2.12	0.26
Idaho	School	Cooling Dx Evap	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	Existing	0.03	40	\$8	4%	98%	\$18.76	0.00
Idaho	School	Cooling Dx Evap	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	0.25	13	\$0.24	10%	39%	\$0.14	0.09
Idaho	School	Cooling Dx Evap	Insulation - Ceiling	R-30 (ID State Code)	R-7 (Average Existing Conditions)	per roof sqft	Existing	0.00	25	\$0.67	75%	70%	\$37.88	0.06
Idaho	School	Cooling Dx Evap	Insulation - Duct	R-5 (ID State Code)	No Insulation	per surface area of duct insul	Existing	0.15	20	\$1	75%	61%	\$1.06	0.53
Idaho	School	Cooling Dx Evap	Insulation - Duct	R-8	R-5 (ID State Code)	per surface area of duct insul	Existing	0.10	20	\$0.28	75%	85%	\$0.32	0.60
Idaho	School	Cooling Dx Evap	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	Existing	2	30	\$5	50%	95%	\$0.20	3

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Idaho	School	Cooling Dx Evap	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	Existing	233	10	\$123	95%	24%	\$0.09	0.35
Idaho	School	Cooling Dx Evap	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	0.04	7	\$0.13	90%	85%	\$0.59	4
Idaho	School	Cooling Dx Evap	Window Film	Window Film	No Film	per 100 sqft of window glazing	Existing	1	10	\$130	90%	68%	\$16.27	0.04
Idaho	School	Cooling Dx Evap	Windows-High Efficiency	U-0.32	U-0.35 (ID State Code)	per window sqft	Existing	0.79	25	\$24	15%	90%	\$3.20	0.59
Idaho	School	Cooling Dx Evap	Windows-High Efficiency	U-0.35 (ID State Code)	U-0.67 (Average Existing Conditions)	per window sqft	Existing	0.63	25	\$68	15%	76%	\$10.90	0.39
Idaho	School	Cooling Dx Evap	Automated Ventilation VFD Control(Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	1 unit per 3,000 sqft	New	91	15	\$367	25%	94%	\$0.52	0.50
Idaho	School	Cooling Dx Evap	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	New	0.03	15	\$0.69	65%	98%	\$2.95	1
Idaho	School	Cooling Dx Evap	DX Package 135 to 240 kBTU/hr - High Efficiency	DX Package 135 to 240 kBTU/hr - High Efficiency - 11.5 EER	DX Package 135 to 240 kBTU/hr - Standard Efficiency 11.0 EER	Per installation	New	414	15	\$1,688	100%	N/A	\$0.53	0.02
Idaho	School	Cooling Dx Evap	DX Package 135 to 240 kBTU/hr - Premium Efficiency	DX Package 135 to 240 kBTU/hr - Premium Efficiency - 12.0 EER	DX Package 135 to 240 kBTU/hr - Standard Efficiency 11.0 EER	Per installation	New	792	15	\$2,874	100%	N/A	\$0.47	0.97
Idaho	School	Cooling Dx Evap	Direct / Indirect Evaporative Cooling, Pre-Cooling	Evaporative Cooler	Standard DX cooling	per building CFM	New	0.07	15	\$1	50%	94%	\$3.03	2
Idaho	School	Cooling Dx Evap	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	New	30	15	\$149	75%	75%	\$0.64	1
Idaho	School	Cooling Dx Evap	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	New	0.00	18	\$0.17	45%	65%	\$2.77	0.14
Idaho	School	Cooling Dx Evap	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	New	0.03	40	\$8	4%	98%	\$24.55	0.00
Idaho	School	Cooling Dx Evap	Insulation - Duct	R-8	R-5 (ID State Code)	per surface area of duct insul	New	0.07	20	\$0.28	75%	85%	\$0.41	0.27
Idaho	School	Cooling Dx Evap	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	New	1	30	\$5	50%	95%	\$0.26	1
Idaho	School	Cooling Dx Evap	Natural Ventilation	Natural Ventilation Design Reduction in Cooling	None - Standard Ventilation	per building sqft	New	0.03	15	\$0.85	20%	75%	\$3.64	0.24
Idaho	School	Cooling Dx Evap	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	New	178	10	\$123	95%	12%	\$0.12	0.08
Idaho	School	Cooling Dx Evap	Windows-High Efficiency	U-0.32	U-0.35 (ID State Code)	per window sqft	New	0.60	25	\$24	80%	90%	\$4.19	1
Idaho	School	Cooling Room	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	Existing	0.05	15	\$0.69	65%	98%	\$1.74	0.46
Idaho	School	Cooling Room	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	Existing	51	15	\$149	75%	75%	\$0.38	0.47
Idaho	School	Cooling Room	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	Existing	0.05	40	\$8	4%	98%	\$14.47	0.00
Idaho	School	Cooling Room	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	0.33	13	\$0.24	10%	39%	\$0.11	0.01
Idaho	School	Cooling Room	Insulation - Ceiling	R-30 (ID State Code)	R-7 (Average Existing Conditions)	per roof sqft	Existing	0.00	25	\$0.67	75%	70%	\$29.22	0.01
Idaho	School	Cooling Room	PTAC (10,000 BTU/HR) - Premium-Efficiency	11.4 EER	Room AC (10,000 BTU/HR) Standard-Efficiency 9.8 EER	Per installation	Existing	1,915	15	\$3,772	75%	N/A	\$7.01	1
Idaho	School	Cooling Room	Room AC (10,000 BTU/HR) High-Efficiency	High Efficiency 10.8 EER (ENERGY STAR)	Room AC (10,000 BTU/HR) Standard-Efficiency 9.8 EER	Per installation	Existing	1,303	9	\$5,303	100%	N/A	\$0.73	0.21

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Idaho	School	Cooling Room	Window Film	Window Film	No Film	per 100 sqft of window glazing	Existing	0.06	10	\$130	90%	68%	\$324.20	0.00
Idaho	School	Cooling Room	Windows-High Efficiency	U-0.32	U-0.35 (ID State Code)	per window sqft	Existing	1	25	\$24	15%	90%	\$2.47	0.15
Idaho	School	Cooling Room	Windows-High Efficiency	U-0.35 (ID State Code)	U-0.67 (Average Existing Conditions)	per window sqft	Existing	0.82	25	\$68	15%	76%	\$8.41	0.10
Idaho	School	Cooling Room	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	New	0.04	15	\$0.69	65%	98%	\$2.18	0.21
Idaho	School	Cooling Room	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	New	41	15	\$149	75%	75%	\$0.47	0.22
Idaho	School	Cooling Room	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	New	0.04	40	\$8	4%	98%	\$18.16	0.00
Idaho	School	Cooling Room	Natural Ventilation	Natural Ventilation Design Reduction in Cooling	None - Standard Ventilation	per building sqft	New	0.04	15	\$0.85	20%	75%	\$2.69	0.05
Idaho	School	Cooling Room	PTAC (10,000 BTU/HR) - Premium-Efficiency	11.4 EER	Room AC (10,000 BTU/HR) Standard-Efficiency 9.8 EER	Per installation	New	1,489	15	\$76,128	75%	N/A	\$6.62	0.19
Idaho	School	Cooling Room	Room AC (10,000 BTU/HR) High-Efficiency	High Efficiency 10.8 EER (ENERGY STAR)	Room AC (10,000 BTU/HR) Standard-Efficiency 9.8 EER	Per installation	New	1,008	9	\$4,244	100%	N/A	\$0.76	0.03
Idaho	School	Cooling Room	Windows-High Efficiency	U-0.32	U-0.35 (ID State Code)	per window sqft	New	0.81	25	\$24	80%	90%	\$3.10	0.38
Idaho	School	Heat Pump	Air Source Heat Pump 135 to 240 kBTU/hr - High Efficiency	11.5 EER, 3.4 COP	10.6 EER, 3.2 COP	Per installation	Existing	2,640	15	\$8,625	100%	N/A	\$0.42	0.12
Idaho	School	Heat Pump	Air Source Heat Pump 65 to 135 kBTU/hr - Premium Efficiency	12.0 EER, 3.8 COP	10.6 EER, 3.2 COP	Per installation	Existing	6,029	15	\$14,787	100%	N/A	\$0.32	3
Idaho	School	Heat Pump	Automated Ventilation VFD Control(Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	1 unit per 3,000 sqft	Existing	139	15	\$683	25%	94%	\$0.63	0.14
Idaho	School	Heat Pump	Convert Constant Volume Air System to VAV	Variable Volume Air System	Constant Volume Air System	per building CFM	Existing	0.32	15	\$2	15%	68%	\$1.05	0.42
Idaho	School	Heat Pump	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	Existing	0.04	15	\$0.69	65%	98%	\$1.93	0.34
Idaho	School	Heat Pump	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	Existing	201	15	\$149	75%	75%	\$0.10	2
Idaho	School	Heat Pump	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	Existing	0.05	18	\$0.17	45%	65%	\$0.42	0.19
Idaho	School	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	Existing	0.23	14	\$0.92	5%	94%	\$0.54	0.14
Idaho	School	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	Existing	0.04	40	\$8	4%	98%	\$16.07	0.00
Idaho	School	Heat Pump	Ground Source Heat Pump Replacing Air Source Heat Pump 65 to 135 kBTU/hr - Advanced Efficiency	16.2 EER 4.0 COP	10.6 EER, 3.2 COP	Per installation	Existing	9,307	30	\$38,284	5%	N/A	\$3.38	0.23
Idaho	School	Heat Pump	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	2	13	\$0.24	10%	39%	\$0.01	0.18
Idaho	School	Heat Pump	Insulation - Ceiling	R-30 (ID State Code)	R-7 (Average Existing Conditions)	per roof sqft	Existing	0.27	25	\$0.67	75%	70%	\$0.25	2
Idaho	School	Heat Pump	Insulation - Ceiling	R-38	R-30 (ID State Code)	per roof sqft	Existing	0.02	25	\$0.22	25%	85%	\$0.76	0.08
Idaho	School	Heat Pump	Insulation - Duct	R-5 (ID State Code)	No Insulation	per surface area of duct insul	Existing	0.76	20	\$1	75%	61%	\$0.21	0.42
Idaho	School	Heat Pump	Insulation - Duct	R-8	R-5 (ID State Code)	per surface area of duct insul	Existing	0.51	20	\$0.28	75%	85%	\$0.06	0.46
Idaho	School	Heat Pump	Insulation - Floor (non-slab)	R-30 (ID State Code)	R-11 (Average Existing Conditions)	per floor area	Existing	0.33	25	\$0.84	35%	84%	\$0.26	1
Idaho	School	Heat Pump	Insulation - Floor (non-slab)	R-38	R-30 (ID State Code)	per floor area	Existing	0.06	25	\$0.29	35%	90%	\$0.47	0.27

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Idaho	School	Heat Pump	Insulation - Wall	R-21	R-13 (ID State Code)	per floor area	Existing	0.64	25	\$0.20	10%	85%	\$0.03	0.21
Idaho	School	Heat Pump	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	Existing	16	30	\$5	50%	95%	\$0.03	4
Idaho	School	Heat Pump	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	Existing	1,175	10	\$123	95%	24%	\$0.02	0.28
Idaho	School	Heat Pump	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	0.25	7	\$0.13	90%	85%	\$0.12	3
Idaho	School	Heat Pump	Window Film	Window Film	No Film	per 100 sqft of window glazing	Existing	1	10	\$130	90%	68%	\$16.24	0.00
Idaho	School	Heat Pump	Windows-High Efficiency	U-0.35 (ID State Code)	U-0.67 (Average Existing Conditions)	per window sqft	Existing	1	25	\$68	15%	76%	\$5.67	0.13
Idaho	School	Heat Pump	Air Source Heat Pump 135 to 240 kBtu/hr - High Efficiency	11.5 EER, 3.4 COP	10.6 EER, 3.2 COP	Per installation	New	2,484	15	\$6,900	100%	N/A	\$0.36	0.04
Idaho	School	Heat Pump	Air Source Heat Pump 65 to 135 kBtu/hr - Premium Efficiency	12.0 EER, 3.8 COP	10.6 EER, 3.2 COP	Per installation	New	5,983	15	\$11,829	100%	N/A	\$0.26	1
Idaho	School	Heat Pump	Automated Ventilation VFD Control(Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	1 unit per 3,000 sqft	New	108	15	\$367	25%	94%	\$0.44	0.07
Idaho	School	Heat Pump	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	New	0.03	15	\$0.69	65%	98%	\$2.48	0.18
Idaho	School	Heat Pump	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	New	194	15	\$149	75%	75%	\$0.10	1
Idaho	School	Heat Pump	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	New	0.04	18	\$0.17	45%	65%	\$0.43	0.13
Idaho	School	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	New	0.23	14	\$0.92	5%	94%	\$0.52	0.10
Idaho	School	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	New	0.03	40	\$8	4%	98%	\$20.69	0.00
Idaho	School	Heat Pump	Ground Source Heat Pump Replacing Air Source Heat Pump 65 to 135 kBtu/hr - Advanced Efficiency	16.2 EER 4.0 COP	10.6 EER, 3.2 COP	Per installation	New	8,987	30	\$79,343	5%	N/A	\$1.82	0.12
Idaho	School	Heat Pump	Insulation - Ceiling	R-38	R-30 (ID State Code)	per roof sqft	New	0.03	25	\$0.22	75%	85%	\$0.70	0.18
Idaho	School	Heat Pump	Insulation - Duct	R-8	R-5 (ID State Code)	per surface area of duct insul	New	0.49	20	\$0.28	75%	85%	\$0.07	0.25
Idaho	School	Heat Pump	Insulation - Floor (non-slab)	R-38	R-30 (ID State Code)	per floor area	New	0.07	25	\$0.29	35%	90%	\$0.43	0.21
Idaho	School	Heat Pump	Insulation - Wall	R-21	R-13 (ID State Code)	per floor area	New	0.70	25	\$0.20	95%	85%	\$0.03	1
Idaho	School	Heat Pump	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	New	16	30	\$5	50%	95%	\$0.03	2
Idaho	School	Heat Pump	Natural Ventilation	Natural Ventilation Design Reduction in Cooling	None - Standard Ventilation	per building sqft	New	0.19	15	\$0.85	20%	75%	\$0.57	0.26
Idaho	School	Heat Pump	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	New	1,134	10	\$123	95%	12%	\$0.02	0.08
Idaho	School	Hvac Aux	Convert Constant Volume Air System to VAV	Variable Volume Air System	Constant Volume Air System	per building CFM	Existing	0.24	15	\$2	15%	68%	\$1.35	11
Idaho	School	Hvac Aux	Cooking Hood Controls	Demand-Ventilation Control	No Controls	per installation	Existing	1,856	18	\$4,227	95%	85%	\$0.27	21
Idaho	School	Hvac Aux	Motor - CEE Premium-Efficiency Plus	CEE PE+ Motor for HVAC Applications	NEMA Efficiency Motors	per HP	Existing	20	15	\$6	95%	76%	\$0.04	5
Idaho	School	Hvac Aux	Motor - VAV Box High Efficiency (ECM)	ECM Motor	Standard Efficiency Motor	per installation	Existing	51	15	\$177	11%	77%	\$0.44	4
Idaho	School	Hvac Aux	Motor Rewind	>15, <500 HP	No Rewind	per HP	Existing	3	8	\$4	65%	25%	\$0.32	0.19
Idaho	School	Hvac Aux	Optimized Variable Volume Lab Hood Design	Optimized Variable Volume Lab Hood Design	Constant Volume Lab Hood Design	per installation	Existing	648	13	\$1,450	65%	59%	\$0.31	5
Idaho	School	Hvac Aux	Cooking Hood Controls	Demand-Ventilation Control	No Controls	per installation	New	1,856	18	\$4,227	95%	85%	\$0.27	11
Idaho	School	Hvac Aux	Low Pressure Distribution Complex HVAC	Low Pressure Distribution Complex HVAC	VAV/CV	per building sqft	New	0.40	50	\$2	15%	98%	\$0.47	11

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Idaho	School	Hvac Aux	Motor - CEE Premium-Efficiency Plus	CEE PE+ Motor for HVAC Applications	NEMA Efficiency Motors	per HP	New	16	15	\$6	95%	76%	\$0.05	3
Idaho	School	Hvac Aux	Motor - VAV Box High Efficiency (ECM)	ECM Motor	Standard Efficiency Motor	per installation	New	42	15	\$177	11%	77%	\$0.54	1
Idaho	School	Hvac Aux	Optimized Variable Volume Lab Hood Design	Optimized Variable Volume Lab Hood Design	Constant Volume Lab Hood Design	per installation	New	533	15	\$1,450	63%	59%	\$0.35	2
Idaho	School	Lighting Exterior	Covered Parking Lighting	Covered Parking Lighting	Normal Lighting	per building sqft	Existing	0.09	10	\$0.02	80%	95%	\$0.05	32
Idaho	School	Lighting Exterior	Daylighting Controls, Outdoors (Photocell)	Photocell	No Controls	per installation	Existing	57	8	\$28	75%	70%	\$0.10	3
Idaho	School	Lighting Exterior	Exterior Building Lighting	30% savings	Normal Lighting	per installation	Existing	240	15	\$333	62%	90%	\$0.18	29
Idaho	School	Lighting Exterior	Solid State LED White Lighting	Landscape, merchandise, signage, structure & task lighting (2.5 W)	50W 10hrs/day, 365 day/yr	per installation	Existing	6	14	\$35	75%	95%	\$0.78	0.58
Idaho	School	Lighting Exterior	Surface Parking Lighting	Surface Parking Lighting	Normal Lighting	per building sqft	Existing	0.05	19	\$0.06	62%	95%	\$0.16	13
Idaho	School	Lighting Exterior	Covered Parking Lighting	Covered Parking Lighting	Normal Lighting	per building sqft	New	0.09	10	\$0.02	80%	95%	\$0.05	18
Idaho	School	Lighting Exterior	Daylighting Controls, Outdoors (Photocell)	Photocell	No Controls	per installation	New	57	8	\$28	75%	70%	\$0.10	1
Idaho	School	Lighting Exterior	Exterior Building Lighting	30% savings	Normal Lighting	per installation	New	240	15	\$333	62%	90%	\$0.18	16
Idaho	School	Lighting Exterior	Solid State LED White Lighting	Landscape, merchandise, signage, structure & task lighting (2.5 W)	50W 10hrs/day, 365 day/yr	per installation	New	6	14	\$35	75%	95%	\$0.78	0.33
Idaho	School	Lighting Exterior	Surface Parking Lighting	Surface Parking Lighting	Normal Lighting	per building sqft	New	0.05	19	\$0.06	62%	95%	\$0.16	7
Idaho	School	Lighting Interior	Cold Cathode Lighting	Cold Cathode Lighting 5 watts	30 W Incandescent Bulb	per installation	Existing	522	5	\$13	15%	94%	\$0.01	1
Idaho	School	Lighting Interior	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	Existing	1	8	\$0.85	30%	81%	\$0.12	9
Idaho	School	Lighting Interior	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	Existing	1	8	\$0.64	30%	81%	\$0.12	7
Idaho	School	Lighting Interior	Exit Sign - LED	LED Exit Sign (2 Watts)	CFL Exit Sign (9 Watts)	per installation	Existing	95	16	\$16	95%	50%	\$0.02	15
Idaho	School	Lighting Interior	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign (2 Watts)	per installation	Existing	17	13	\$30	95%	98%	\$0.25	1
Idaho	School	Lighting Interior	LED Refrigeration Case Lights	LED Refrigeration Case Lights	Fluorescent Refrigeration Case	per installation	Existing	68	8	\$246	10%	80%	\$0.71	0.43
Idaho	School	Lighting Interior	Lighting Package, High Efficiency	15% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	Existing	0.54	13	\$0.18	90%	53%	\$0.05	92
Idaho	School	Lighting Interior	Lighting Package, High Efficiency	Code Required LPD And Control Strategies	Existing Lighting Design LPD	per building sqft	Existing	0.98	13	\$0.37	90%	41%	\$0.05	160
Idaho	School	Lighting Interior	Lighting Package, Premium Efficiency	25% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	Existing	0.90	13	\$0.36	75%	62%	\$0.06	37
Idaho	School	Lighting Interior	Lighting Package, Premium High Bay	35% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	Existing	0.14	13	\$0.08	70%	83%	\$0.09	36
Idaho	School	Lighting Interior	Occupancy Sensor Control, Fluorescent	Occupancy Sensor Control, Fluorescent	No Occupancy Sensor	per occupancy sensor	Existing	925	8	\$65	90%	41%	\$0.01	15
Idaho	School	Lighting Interior	Time Clock	Time Clock	No Controls	per 10,000 Watts	Existing	746	8	\$175	20%	95%	\$0.05	7
Idaho	School	Lighting Interior	Cold Cathode Lighting	Cold Cathode Lighting 5 watts	30 W Incandescent Bulb	per installation	New	338	5	\$13	15%	94%	\$0.01	0.61
Idaho	School	Lighting Interior	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	New	0.91	8	\$0.85	30%	81%	\$0.18	3
Idaho	School	Lighting Interior	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	New	0.82	8	\$0.64	30%	81%	\$0.15	3
Idaho	School	Lighting Interior	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign (2 Watts)	per installation	New	17	13	\$30	95%	98%	\$0.25	4
Idaho	School	Lighting Interior	LED Refrigeration Case Lights	LED Refrigeration Case Lights	Fluorescent Refrigeration Case	per installation	New	68	8	\$246	10%	80%	\$0.71	0.24

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Idaho	School	Lighting Interior	Lighting Package, High Efficiency	15% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	New	0.54	15	\$0.01	90%	53%	\$0.00	52
Idaho	School	Lighting Interior	Lighting Package, Premium Efficiency	25% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	New	0.82	15	\$0.11	75%	62%	\$0.02	19
Idaho	School	Lighting Interior	Lighting Package, Premium High Bay	35% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	New	0.14	15	\$0.01	70%	83%	\$0.02	20
Idaho	School	Lighting Interior	Occupancy Sensor Control, Fluorescent	Occupancy Sensor Control, Fluorescent	No Occupancy Sensor	per occupancy sensor	New	600	8	\$65	90%	41%	\$0.02	5
Idaho	School	Lighting Interior	Time Clock	Time Clock	No Controls	per 10,000 Watts	New	746	8	\$175	20%	95%	\$0.05	2
Idaho	School	Other Office Equipment	ENERGY STAR - Copiers	ENERGY STAR Copiers	Standard Copier	per installation	Existing	72	6	\$159	95%	45%	\$0.54	0.65
Idaho	School	Other Office Equipment	ENERGY STAR - Fax	ENERGY STAR Fax	Standard Fax	per installation	Existing	77	6	\$0.00	95%	45%	\$0.00	0.69
Idaho	School	Other Office Equipment	ENERGY STAR - Monitors	ENERGY STAR Features Enabled	Non-ENERGY STAR Features	per installation	Existing	14	5	\$16	64%	15%	\$0.31	0.79
Idaho	School	Other Office Equipment	ENERGY STAR - Printers	ENERGY STAR Printers	Standard Printers	per installation	Existing	136	6	\$15	95%	40%	\$0.03	0.90
Idaho	School	Other Office Equipment	ENERGY STAR - Scanners	ENERGY STAR Scanners	Standard Scanner	per installation	Existing	70	6	\$0.00	95%	45%	\$0.00	0.63
Idaho	School	Other Office Equipment	ENERGY STAR - Copiers	ENERGY STAR Copiers	Standard Copier	per installation	New	72	6	\$159	95%	45%	\$0.54	0.37
Idaho	School	Other Office Equipment	ENERGY STAR - Fax	ENERGY STAR Fax	Standard Fax	per installation	New	77	6	\$0.00	95%	45%	\$0.00	0.39
Idaho	School	Other Office Equipment	ENERGY STAR - Monitors	ENERGY STAR Features Enabled	Non-ENERGY STAR Features	per installation	New	14	5	\$16	64%	15%	\$0.31	0.45
Idaho	School	Other Office Equipment	ENERGY STAR - Printers	ENERGY STAR Printers	Standard Printers	per installation	New	136	6	\$15	95%	40%	\$0.03	0.51
Idaho	School	Other Office Equipment	ENERGY STAR - Scanners	ENERGY STAR Scanners	Standard Scanner	per installation	New	70	6	\$0.00	95%	45%	\$0.00	0.36
Idaho	School	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	per installation	Existing	7	7	\$0.00	20%	90%	\$0.00	0.01
Idaho	School	Other Plug Load	ENERGY STAR - Water Cooler	ENERGY STAR Water Cooler (Hot/Cold Water)	Non-ENERGY STAR Water Cooler	per installation	Existing	359	10	\$0.00	95%	75%	\$0.00	0.59
Idaho	School	Other Plug Load	Ice Maker	High-Efficiency Ice Maker	Standard Ice Maker	per installation	Existing	419	10	\$140	95%	86%	\$0.03	5
Idaho	School	Other Plug Load	Power Supply Transformer/Converter	80 Plus	85% efficient power supply (> 51W)	1 unit per 2,000 sqft	Existing	1	4	\$0.40	95%	86%	\$0.09	0.28
Idaho	School	Other Plug Load	Residential Refrigerator	ENERGY STAR	Federal Standard	per installation	Existing	79	12	\$121	40%	65%	\$0.23	0.48
Idaho	School	Other Plug Load	Residential Refrigerator/Freezer Recycling	Recycling Existing Refrigerator/Freezer	Existing Refrigerator/Freezer	per installation	Existing	943	4	\$560	25%	35%	\$0.20	0.77
Idaho	School	Other Plug Load	Server Virtualization	Server Virtualization	No Virtualization	number of virtualized servers	Existing	2,239	4	\$1,889	72%	85%	\$0.67	5
Idaho	School	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	1 unit per 3,000 sqft	Existing	99	5	\$20	60%	90%	\$0.06	8
Idaho	School	Other Plug Load	Vending Machines- High Efficiency	ENERGY STAR (Tier 2) Vending Machines- High Efficiency 500 can capacity Under 5.92 kWh/day	Vending Machines- Standard 13 kWh/day	per installation	Existing	237	14	\$161	75%	80%	\$0.09	2
Idaho	School	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	per installation	New	7	7	\$0.00	20%	90%	\$0.00	0.01
Idaho	School	Other Plug Load	ENERGY STAR - Water Cooler	ENERGY STAR Water Cooler (Hot/Cold Water)	Non-ENERGY STAR Water Cooler	per installation	New	359	10	\$0.00	95%	75%	\$0.00	0.33
Idaho	School	Other Plug Load	Ice Maker	High-Efficiency Ice Maker	Standard Ice Maker	per installation	New	419	10	\$140	95%	86%	\$0.03	3
Idaho	School	Other Plug Load	Power Supply Transformer/Converter	80 Plus	85% efficient power supply (> 51W)	1 unit per 2,000 sqft	New	1	4	\$0.40	95%	86%	\$0.09	0.16
Idaho	School	Other Plug Load	Residential Refrigerator	ENERGY STAR	Federal Standard	per installation	New	79	12	\$121	40%	65%	\$0.23	0.27

Table C.2.2. Commercial Measure Details

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Idaho	School	Other Plug Load	Server Virtualization	Server Virtualization	No Virtualization	number of virtualized servers	New	2,239	4	\$1,889	72%	85%	\$0.67	2
Idaho	School	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	1 unit per 3,000 sqft	New	99	5	\$20	60%	90%	\$0.06	4
Idaho	School	Other Plug Load	Vending Machines- High Efficiency	ENERGY STAR (Tier 2) Vending Machines- High Efficiency 500 can capacity Under 5.92 kWh/day	Vending Machines- Standard 13 kWh/day	per installation	New	237	14	\$161	75%	80%	\$0.09	1
Idaho	School	Refrigeration	Anti-Sweat (Humidistat) Controls	Anti-Sweat (Humidistat) Controls	No Anti-Sweat (Humidistat) Controls	1 unit per 1,000 sqft	Existing	973	12	\$71	15%	45%	\$0.01	0.27
Idaho	School	Refrigeration	Case Electronically Commutated Motor	ECM Case Fans	Standard Efficiency Motor	1 unit per 10,000 sqft	Existing	1,013	12	\$240	5%	77%	\$0.04	0.73
Idaho	School	Refrigeration	Case Replacement Low Temp	Case Replacement Low Temp	No replacement	per square foot	Existing	0.04	15	\$0.10	5%	95%	\$0.29	0.43
Idaho	School	Refrigeration	Case Replacement Med Temp	Case Replacement Med Temp	No replacement	per square foot	Existing	0.00	15	\$0.05	5%	95%	\$1.74	0.03
Idaho	School	Refrigeration	Demand Control Defrost - Hot Gas	Refrigerant Defrost	Defrost - Electric	per installation	Existing	128	10	\$55	5%	68%	\$0.07	0.04
Idaho	School	Refrigeration	Glass Door ES Refrigerators/Freezers	Glass Door ES Refrigerators/Freezers	Standard Glass Doors	per installation	Existing	2,538	12	\$699	95%	77%	\$0.04	0.41
Idaho	School	Refrigeration	Refrigeration Commissioning or Re-commissioning	Commissioning / Re-commissioning	No Commissioning / Re-commissioning	per refrigeration ton	Existing	812	3	\$88	10%	85%	\$0.05	0.48
Idaho	School	Refrigeration	Solid Door ES Refrigerators/Freezers	Solid Door ES Refrigerators/Freezers	Standard Solid Door	per installation	Existing	1,150	12	\$174	95%	81%	\$0.02	0.19
Idaho	School	Refrigeration	Standalone to Multiplex Compressor	Standalone to Multiplex Compressor	Standalone compressor	per building sqft	Existing	0.01	13	\$0.00	25%	90%	\$0.02	0.57
Idaho	School	Refrigeration	Strip Curtains for Walk-Ins	Strip Curtains for Walk-Ins	No Strip Curtains for Walk-In	per installation	Existing	197	4	\$183	95%	20%	\$0.32	0.36
Idaho	School	Refrigeration	Walk-In Electronically Commutated Motor	ECM Evaporator Fans	Standard Efficiency Motor	per installation	Existing	0.01	12	\$0.17	10%	95%	\$1.33	0.35
Idaho	School	Refrigeration	Anti-Sweat (Humidistat) Controls	Anti-Sweat (Humidistat) Controls	No Anti-Sweat (Humidistat) Controls	1 unit per 1,000 sqft	New	973	12	\$71	15%	45%	\$0.01	0.15
Idaho	School	Refrigeration	Case Electronically Commutated Motor	ECM Case Fans	Standard Efficiency Motor	1 unit per 10,000 sqft	New	1,013	12	\$240	5%	77%	\$0.04	0.41
Idaho	School	Refrigeration	Demand Control Defrost - Hot Gas	Refrigerant Defrost	Defrost - Electric	per installation	New	128	10	\$55	5%	68%	\$0.07	0.02
Idaho	School	Refrigeration	Glass Door ES Refrigerators/Freezers	Glass Door ES Refrigerators/Freezers	Standard Glass Doors	per installation	New	2,538	12	\$699	95%	77%	\$0.04	0.23
Idaho	School	Refrigeration	Refrigeration Commissioning or Re-commissioning	Commissioning / Re-commissioning	No Commissioning / Re-commissioning	per refrigeration ton	New	502	3	\$35	5%	90%	\$0.03	0.09
Idaho	School	Refrigeration	Solid Door ES Refrigerators/Freezers	Solid Door ES Refrigerators/Freezers	Standard Solid Door	per installation	New	1,150	12	\$174	95%	81%	\$0.02	0.11
Idaho	School	Refrigeration	Strip Curtains for Walk-Ins	Strip Curtains for Walk-Ins	No Strip Curtains for Walk-In	per installation	New	197	4	\$183	95%	20%	\$0.32	0.20
Idaho	School	Refrigeration	Walk-In Electronically Commutated Motor	ECM Evaporator Fans	Standard Efficiency Motor	per installation	New	0.01	12	\$0.17	10%	95%	\$1.33	0.20
Idaho	School	Space Heat	Convert Constant Volume Air System to VAV	Variable Volume Air System	Constant Volume Air System	per building CFM	Existing	2	15	\$2	15%	68%	\$0.15	7
Idaho	School	Space Heat	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	Existing	1,693	15	\$149	75%	75%	\$0.01	46
Idaho	School	Space Heat	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	Existing	0.42	18	\$0.17	45%	65%	\$0.05	4
Idaho	School	Space Heat	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	Existing	2	14	\$0.92	5%	94%	\$0.05	3
Idaho	School	Space Heat	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	21	13	\$0.24	10%	39%	\$0.00	3
Idaho	School	Space Heat	Insulation - Ceiling	R-30 (ID State Code)	R-7 (Average Existing Conditions)	per roof sqft	Existing	3	25	\$0.67	75%	70%	\$0.02	86
Idaho	School	Space Heat	Insulation - Ceiling	R-38	R-30 (ID State Code)	per roof sqft	Existing	0.39	25	\$0.22	25%	85%	\$0.06	2
Idaho	School	Space Heat	Insulation - Duct	R-5 (ID State Code)	No Insulation	per surface area of duct insul	Existing	6	20	\$1	75%	61%	\$0.02	7

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Idaho	School	Space Heat	Insulation - Duct	R-8	R-5 (ID State Code)	per surface area of duct insul	Existing	4	20	\$0.28	75%	85%	\$0.01	10
Idaho	School	Space Heat	Insulation - Floor (non-slab)	R-30 (ID State Code)	R-11 (Average Existing Conditions)	per floor area	Existing	4	25	\$0.84	35%	84%	\$0.02	43
Idaho	School	Space Heat	Insulation - Floor (non-slab)	R-38	R-30 (ID State Code)	per floor area	Existing	0.75	25	\$0.29	35%	90%	\$0.04	8
Idaho	School	Space Heat	Insulation - Wall	R-21	R-13 (ID State Code)	per floor area	Existing	9	25	\$0.20	10%	85%	\$0.00	9
Idaho	School	Space Heat	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	Existing	142	30	\$5	50%	95%	\$0.00	92
Idaho	School	Space Heat	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	Existing	9,896	10	\$123	95%	24%	\$0.00	6
Idaho	School	Space Heat	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	2	7	\$0.13	90%	85%	\$0.01	74
Idaho	School	Space Heat	Windows-High Efficiency	U-0.35 (ID State Code)	U-0.67 (Average Existing Conditions)	per window sqft	Existing	4	25	\$68	15%	76%	\$1.59	1
Idaho	School	Space Heat	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	New	1,012	15	\$149	75%	75%	\$0.02	14
Idaho	School	Space Heat	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	New	0.25	18	\$0.17	45%	65%	\$0.08	1
Idaho	School	Space Heat	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	New	1	14	\$0.92	5%	94%	\$0.08	1
Idaho	School	Space Heat	Insulation - Ceiling	R-38	R-30 (ID State Code)	per roof sqft	New	0.23	25	\$0.22	75%	85%	\$0.10	3
Idaho	School	Space Heat	Insulation - Duct	R-8	R-5 (ID State Code)	per surface area of duct insul	New	2	20	\$0.28	75%	85%	\$0.01	3
Idaho	School	Space Heat	Insulation - Floor (non-slab)	R-38	R-30 (ID State Code)	per floor area	New	0.45	25	\$0.29	35%	90%	\$0.07	3
Idaho	School	Space Heat	Insulation - Wall	R-21	R-13 (ID State Code)	per floor area	New	5	25	\$0.20	95%	85%	\$0.00	31
Idaho	School	Space Heat	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	New	85	30	\$5	50%	95%	\$0.01	28
Idaho	School	Space Heat	Natural Ventilation	Natural Ventilation Design Reduction in Cooling	None - Standard Ventilation	per building sqft	New	1	15	\$0.85	20%	75%	\$0.11	3
Idaho	School	Space Heat	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	New	5,917	10	\$123	95%	12%	\$0.00	1
Idaho	School	Water Heat	Clothes Washer Commercial	ENERGY STAR Commercial Clothes Washer MEF=1.80	Standard Clothes Washers	per installation	Existing	540	11	\$124	95%	80%	\$-0.27	0.48
Idaho	School	Water Heat	Clothes Washer Residential	Energy Star - CEE Tier 1 (MEF 2.0 - 2.19) - Electric DHW & Dryer	MEF = 1.66 - Electric DHW & Dryer (NWPPC 6th Plan Average Efficiency)	per installation	Existing	131	11	\$277	85%	94%	\$0.03	0.12
Idaho	School	Water Heat	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	per building sqft	Existing	0.07	10	\$0.23	55%	94%	\$0.51	5
Idaho	School	Water Heat	Dishwasher Residential	ENERGY STAR <= 324 kWh/yr, <= 5.8 gal/cycle	Federal Standard <= 355 kWh/yr, <= 6.5 gal/cycle	per installation	Existing	30	11	\$29	95%	25%	\$0.09	0.01
Idaho	School	Water Heat	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	per installation	Existing	7,333	10	\$2,611	95%	95%	\$0.02	3
Idaho	School	Water Heat	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	per installation	Existing	3,426	10	\$817	95%	94%	\$-0.02	0.74
Idaho	School	Water Heat	Electric Water Heater - High Efficiency	EF = 0.95	EF = 0.92	Per installation	Existing	992	15	\$306	100%	N/A	\$0.04	0.84
Idaho	School	Water Heat	Heat Pump Water Heater - Advanced-Efficiency	EF = 2.2	EF = 0.92	Per installation	Existing	18,286	15	\$5,480	75%	N/A	\$0.04	60
Idaho	School	Water Heat	Hot Water (SHW) Pipe Insulation	1.0" of Insulation, assuming R-4 (ID State Code)	No Insulation	per linear foot	Existing	27	12	\$2	80%	8%	\$0.01	0.13
Idaho	School	Water Heat	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	per installation	Existing	247	9	\$0.00	95%	25%	\$-0.08	1
Idaho	School	Water Heat	Low-Flow Faucet Aerators	2.2 GPM (Federal Code)	3.0 GPM	per installation	Existing	207	9	\$2	95%	25%	\$-0.08	1
Idaho	School	Water Heat	Low-Flow Pre-Rinse Spray Valves	0.6 GPM	1.6 GPM (Federal Standard)	per installation	Existing	65	5	\$5	95%	65%	\$-0.07	0.63
Idaho	School	Water Heat	Low-Flow Showerheads	2.0 GPM	2.5 GPM (Federal Code)	per installation	Existing	493	10	\$5	95%	73%	\$-0.08	12
Idaho	School	Water Heat	Low-Flow Showerheads	2.5 GPM (Federal Code)	4.5 GPM	per installation	Existing	1,096	10	\$11	95%	62%	\$-0.08	24

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Idaho	School	Water Heat	Water Cooled Refrigeration with Heat Recovery	Heat Recovery from refrigeration system. Applied to Water Heating Electric End use	No heat recovery	per sqft of refrigerated area	Existing	0.17	10	\$0.76	25%	94%	\$0.72	0.12
Idaho	School	Water Heat	Water Heater Temperature Setback	Water Heater Temperature Setback (120 F)	No Change in Water Temperature	per installation	Existing	583	5	\$71	75%	15%	\$0.03	1
Idaho	School	Water Heat	Clothes Washer Commercial	ENERGY STAR Commercial Clothes Washer MEF=1.80	Standard Clothes Washers	per installation	New	540	11	\$124	95%	80%	\$-0.27	0.27
Idaho	School	Water Heat	Clothes Washer Residential	Energy Star - CEE Tier 1 (MEF 2.0 - 2.19) - Electric DHW & Dryer	MEF = 1.66 - Electric DHW & Dryer (NWPPC 6th Plan Average Efficiency)	per installation	New	131	11	\$277	85%	94%	\$0.03	0.06
Idaho	School	Water Heat	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	per building sqft	New	0.07	10	\$0.23	55%	94%	\$0.51	3
Idaho	School	Water Heat	Dishwasher Residential	ENERGY STAR <= 324 kWh/yr, <= 5.8 gal/cycle	Federal Standard <= 355 kWh/yr, <= 6.5 gal/cycle	per installation	New	30	11	\$29	95%	55%	\$0.09	0.01
Idaho	School	Water Heat	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	per installation	New	7,333	10	\$2,611	95%	95%	\$0.02	1
Idaho	School	Water Heat	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	per installation	New	3,426	10	\$817	95%	94%	\$-0.02	0.41
Idaho	School	Water Heat	Electric Water Heater - High Efficiency	EF = 0.95	EF = 0.92	Per installation	New	992	15	\$306	100%	N/A	\$0.04	0.38
Idaho	School	Water Heat	Heat Pump Water Heater - Advanced-Efficiency	EF = 2.2	EF = 0.92	Per installation	New	18,286	15	\$4,893	75%	N/A	\$0.03	30
Idaho	School	Water Heat	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	per installation	New	247	9	\$0.00	95%	25%	\$-0.08	1
Idaho	School	Water Heat	Low-Flow Pre-Rinse Spray Valves	0.6 GPM	1.6 GPM (Federal Standard)	per installation	New	65	5	\$5	95%	65%	\$-0.07	0.35
Idaho	School	Water Heat	Low-Flow Showerheads	2.0 GPM	2.5 GPM (Federal Code)	per installation	New	493	10	\$5	95%	73%	\$-0.08	7
Idaho	School	Water Heat	Water Cooled Refrigeration with Heat Recovery	Heat Recovery from refrigeration system. Applied to Water Heating Electric End use	No heat recovery	per sqft of refrigerated area	New	0.17	10	\$0.76	25%	94%	\$0.72	0.08
Idaho	School	Water Heat	Water Heater Temperature Setback	Water Heater Temperature Setback (120 F)	No Change in Water Temperature	per installation	New	583	5	\$71	75%	15%	\$0.03	1
Idaho	Small Office	Computers	Computer ENERGY STAR	Computer ENERGY STAR	Computer standard non-ENERGY STAR	Per installation	Existing	135	4	\$28	100%	N/A	\$0.07	3,091
Idaho	Small Office	Computers	Network PC Power Management	Network PC Power Management	No Power Management	per computer	Existing	87	5	\$12	95%	30%	\$0.04	534
Idaho	Small Office	Computers	Computer ENERGY STAR	Computer ENERGY STAR	Computer standard non-ENERGY STAR	Per installation	New	135	4	\$28	100%	N/A	\$0.07	269
Idaho	Small Office	Computers	Network PC Power Management	Network PC Power Management	No Power Management	per computer	New	87	5	\$12	95%	30%	\$0.04	302
Idaho	Small Office	Cooling Dx Evap	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	Existing	0.17	15	\$0.69	35%	98%	\$0.50	262
Idaho	Small Office	Cooling Dx Evap	DX Package 65 to 135 kBtu/hr - High Efficiency	DX Package 65 to 135 kBtu/hr - High Efficiency - 11.5 EER	DX Package 65 to 135 kBtu/hr - Standard Efficiency - 11.2 EER	Per installation	Existing	103	15	\$128	100%	N/A	\$0.16	10
Idaho	Small Office	Cooling Dx Evap	DX Package 65 to 135 kBtu/hr - Premium Efficiency	DX Package 65 to 135 kBtu/hr - Premium Efficiency - 12.0 EER	DX Package 65 to 135 kBtu/hr - Standard Efficiency - 11.2 EER	Per installation	Existing	271	15	\$257	100%	N/A	\$0.12	455
Idaho	Small Office	Cooling Dx Evap	DX Package-Air Side Economizer	Air-Side Economizer	No Economizer	per DX ton	Existing	87	10	\$155	10%	20%	\$0.30	25
Idaho	Small Office	Cooling Dx Evap	DX Tune-Up / Diagnostics	DX Tune-Up / Diagnostics	No DX Tune-Up / Diagnostics	per installation	Existing	436	4	\$249	95%	72%	\$0.22	645
Idaho	Small Office	Cooling Dx Evap	Direct / Indirect Evaporative Cooling, Pre-Cooling	Evaporative Cooler	Standard DX cooling	per building CFM	Existing	0.44	15	\$1	50%	94%	\$0.52	967

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Idaho	Small Office	Cooling Dx Evap	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	Existing	0.04	18	\$0.17	45%	65%	\$0.47	62
Idaho	Small Office	Cooling Dx Evap	Evaporative Cooler replaces DX Package 65 to 135 kBtu/hr - Advanced Efficiency	Evaporative Cooler replaces DX Package 65 to 135 kBtu/hr - Advanced Efficiency	DX Package 65 to 135 kBtu/hr - Standard Efficiency - 11.2 EER	Per installation	Existing	1,630	15	\$-2221.9308	25%	N/A	\$-0.24	170
Idaho	Small Office	Cooling Dx Evap	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	Existing	0.17	40	\$8	4%	98%	\$4.18	2
Idaho	Small Office	Cooling Dx Evap	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	0.93	13	\$0.24	40%	39%	\$0.04	88
Idaho	Small Office	Cooling Dx Evap	Insulation - Ceiling	R-30 (ID State Code)	R-11 (Average Existing Conditions)	per roof sqft	Existing	0.00	25	\$0.67	75%	65%	\$16.83	7
Idaho	Small Office	Cooling Dx Evap	Insulation - Duct	R-5 (ID State Code)	No Insulation	per surface area of duct insul	Existing	0.68	20	\$1	75%	61%	\$0.23	119
Idaho	Small Office	Cooling Dx Evap	Insulation - Duct	R-8	R-5 (ID State Code)	per surface area of duct insul	Existing	0.45	20	\$0.28	75%	85%	\$0.07	134
Idaho	Small Office	Cooling Dx Evap	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	Existing	10	30	\$5	50%	95%	\$0.04	823
Idaho	Small Office	Cooling Dx Evap	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	Existing	80	10	\$123	95%	22%	\$0.26	55
Idaho	Small Office	Cooling Dx Evap	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	0.22	7	\$0.13	90%	85%	\$0.13	997
Idaho	Small Office	Cooling Dx Evap	Window Film	Window Film	No Film	per 100 sqft of window glazing	Existing	1	10	\$130	90%	68%	\$15.00	3
Idaho	Small Office	Cooling Dx Evap	Windows-High Efficiency	U-0.32	U-0.35 (ID State Code)	per window sqft	Existing	2	25	\$24	15%	90%	\$0.88	150
Idaho	Small Office	Cooling Dx Evap	Windows-High Efficiency	U-0.35 (ID State Code)	U-0.6 (Average Existing Conditions)	per window sqft	Existing	2	25	\$67	15%	71%	\$2.83	98
Idaho	Small Office	Cooling Dx Evap	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	New	0.11	15	\$0.69	35%	98%	\$0.79	121
Idaho	Small Office	Cooling Dx Evap	DX Package 65 to 135 kBtu/hr - High Efficiency	DX Package 65 to 135 kBtu/hr - High Efficiency - 11.5 EER	DX Package 65 to 135 kBtu/hr - Standard Efficiency - 11.2 EER	Per installation	New	67	15	\$102	100%	N/A	\$0.20	2
Idaho	Small Office	Cooling Dx Evap	DX Package 65 to 135 kBtu/hr - Premium Efficiency	DX Package 65 to 135 kBtu/hr - Premium Efficiency - 12.0 EER	DX Package 65 to 135 kBtu/hr - Standard Efficiency - 11.2 EER	Per installation	New	181	15	\$206	100%	N/A	\$0.15	167
Idaho	Small Office	Cooling Dx Evap	Direct / Indirect Evaporative Cooling, Pre-Cooling	Evaporative Cooler	Standard DX cooling	per building CFM	New	0.28	15	\$1	50%	94%	\$0.82	447
Idaho	Small Office	Cooling Dx Evap	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	New	0.02	18	\$0.17	45%	65%	\$0.75	29
Idaho	Small Office	Cooling Dx Evap	Evaporative Cooler replaces DX Package 65 to 135 kBtu/hr - Advanced Efficiency	Evaporative Cooler replaces DX Package 65 to 135 kBtu/hr - Advanced Efficiency	DX Package 65 to 135 kBtu/hr - Standard Efficiency - 11.2 EER	Per installation	New	1,111	15	\$-1663.7321	25%	N/A	\$-0.27	63
Idaho	Small Office	Cooling Dx Evap	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	New	0.11	40	\$8	4%	98%	\$6.61	1
Idaho	Small Office	Cooling Dx Evap	Insulation - Duct	R-8	R-5 (ID State Code)	per surface area of duct insul	New	0.28	20	\$0.28	75%	85%	\$0.11	51
Idaho	Small Office	Cooling Dx Evap	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	New	6	30	\$5	50%	95%	\$0.07	314
Idaho	Small Office	Cooling Dx Evap	Natural Ventilation	Natural Ventilation Design Reduction in Cooling	None - Standard Ventilation	per building sqft	New	0.11	15	\$0.85	20%	75%	\$0.98	50
Idaho	Small Office	Cooling Dx Evap	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	New	50	10	\$123	95%	11%	\$0.40	12
Idaho	Small Office	Cooling Dx Evap	Windows-High Efficiency	U-0.32	U-0.35 (ID State Code)	per window sqft	New	1	25	\$24	80%	90%	\$1.39	366

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Idaho	Small Office	Cooling Room	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	Existing	0.21	15	\$0.69	35%	98%	\$0.41	6
Idaho	Small Office	Cooling Room	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	Existing	0.21	40	\$8	4%	98%	\$3.40	0.07
Idaho	Small Office	Cooling Room	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	1	13	\$0.24	40%	39%	\$0.03	1
Idaho	Small Office	Cooling Room	Insulation - Ceiling	R-30 (ID State Code)	R-11 (Average Existing Conditions)	per roof sqft	Existing	0.00	25	\$0.67	75%	65%	\$13.71	0.23
Idaho	Small Office	Cooling Room	PTAC (10,000 BTU/HR) - Premium-Efficiency	11.4 EER	Room AC (10,000 BTU/HR) Standard-Efficiency 9.8 EER	Per installation	Existing	545	15	\$5,526	75%	N/A	\$1.31	27
Idaho	Small Office	Cooling Room	Room AC (10,000 BTU/HR) High-Efficiency	High Efficiency 10.8 EER (ENERGY STAR)	Room AC (10,000 BTU/HR) Standard-Efficiency 9.8 EER	Per installation	Existing	335	9	\$282	100%	N/A	\$0.15	4
Idaho	Small Office	Cooling Room	Window Film	Window Film	No Film	per 100 sqft of window glazing	Existing	0.07	10	\$130	90%	68%	\$299.11	0.00
Idaho	Small Office	Cooling Room	Windows-High Efficiency	U-0.32	U-0.35 (ID State Code)	per window sqft	Existing	3	25	\$24	15%	90%	\$0.72	4
Idaho	Small Office	Cooling Room	Windows-High Efficiency	U-0.35 (ID State Code)	U-0.6 (Average Existing Conditions)	per window sqft	Existing	3	25	\$67	15%	71%	\$2.31	2
Idaho	Small Office	Cooling Room	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	New	0.14	15	\$0.69	35%	98%	\$0.62	2
Idaho	Small Office	Cooling Room	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	New	0.14	40	\$8	4%	98%	\$5.14	0.02
Idaho	Small Office	Cooling Room	Natural Ventilation	Natural Ventilation Design Reduction in Cooling	None - Standard Ventilation	per building sqft	New	0.14	15	\$0.85	20%	75%	\$0.76	1
Idaho	Small Office	Cooling Room	PTAC (10,000 BTU/HR) - Premium-Efficiency	11.4 EER	Room AC (10,000 BTU/HR) Standard-Efficiency 9.8 EER	Per installation	New	368	15	\$4,053	75%	N/A	\$1.43	4
Idaho	Small Office	Cooling Room	Room AC (10,000 BTU/HR) High-Efficiency	High Efficiency 10.8 EER (ENERGY STAR)	Room AC (10,000 BTU/HR) Standard-Efficiency 9.8 EER	Per installation	New	225	9	\$225	100%	N/A	\$0.18	0.73
Idaho	Small Office	Cooling Room	Windows-High Efficiency	U-0.32	U-0.35 (ID State Code)	per window sqft	New	2	25	\$24	80%	90%	\$1.08	9
Idaho	Small Office	Heat Pump	Air Source Heat Pump 65 to 135 kBtu/hr - High Efficiency	11.5 EER, 3.4 COP	11.0 EER, 3.3 COP	Per installation	Existing	297	15	\$477	100%	N/A	\$0.21	1
Idaho	Small Office	Heat Pump	Air Source Heat Pump 65 to 135 kBtu/hr - Premium Efficiency	12.0 EER, 3.8 COP	11.0 EER, 3.3 COP	Per installation	Existing	1,210	15	\$954	100%	N/A	\$0.10	93
Idaho	Small Office	Heat Pump	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	Existing	0.18	15	\$0.69	35%	98%	\$0.49	13
Idaho	Small Office	Heat Pump	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	Existing	0.16	18	\$0.17	45%	65%	\$0.13	11
Idaho	Small Office	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	Existing	0.68	14	\$1	5%	94%	\$0.34	7
Idaho	Small Office	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	Existing	0.18	40	\$8	4%	98%	\$4.12	0.14
Idaho	Small Office	Heat Pump	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	7	13	\$0.24	40%	39%	\$0.00	36
Idaho	Small Office	Heat Pump	Insulation - Ceiling	R-30 (ID State Code)	R-11 (Average Existing Conditions)	per roof sqft	Existing	0.53	25	\$0.67	75%	65%	\$0.13	65
Idaho	Small Office	Heat Pump	Insulation - Ceiling	R-38	R-30 (ID State Code)	per roof sqft	Existing	0.08	25	\$0.22	25%	85%	\$0.27	4
Idaho	Small Office	Heat Pump	Insulation - Duct	R-5 (ID State Code)	No Insulation	per surface area of duct insul	Existing	2	20	\$1	75%	61%	\$0.07	23
Idaho	Small Office	Heat Pump	Insulation - Duct	R-8	R-5 (ID State Code)	per surface area of duct insul	Existing	1	20	\$0.28	75%	85%	\$0.02	24
Idaho	Small Office	Heat Pump	Insulation - Floor (non-slab)	R-30 (ID State Code)	R-11 (Average Existing Conditions)	per floor area	Existing	0.91	25	\$0.84	35%	84%	\$0.09	69

Table C.2.2. Commercial Measure Details

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Idaho	Small Office	Heat Pump	Insulation - Floor (non-slab)	R-38	R-30 (ID State Code)	per floor area	Existing	0.17	25	\$0.29	35%	90%	\$0.17	13
Idaho	Small Office	Heat Pump	Insulation - Wall	R-13 (ID State Code)	R-3 (Average Existing Conditions)	per floor area	Existing	1	25	\$0.90	10%	67%	\$0.07	14
Idaho	Small Office	Heat Pump	Insulation - Wall	R-21	R-13 (ID State Code)	per floor area	Existing	0.63	25	\$0.20	10%	85%	\$0.03	9
Idaho	Small Office	Heat Pump	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	Existing	53	30	\$5	50%	95%	\$0.01	213
Idaho	Small Office	Heat Pump	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	Existing	288	10	\$123	95%	22%	\$0.07	10
Idaho	Small Office	Heat Pump	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	0.80	7	\$0.13	90%	85%	\$0.04	181
Idaho	Small Office	Heat Pump	Window Film	Window Film	No Film	per 100 sqft of window glazing	Existing	1	10	\$130	90%	68%	\$14.88	0.19
Idaho	Small Office	Heat Pump	Windows-High Efficiency	U-0.35 (ID State Code)	U-0.6 (Average Existing Conditions)	per window sqft	Existing	2	25	\$67	15%	71%	\$2.44	6
Idaho	Small Office	Heat Pump	Air Source Heat Pump 65 to 135 kBtu/hr - High Efficiency	11.5 EER, 3.4 COP	11.0 EER, 3.3 COP	Per installation	New	177	15	\$381	100%	N/A	\$0.28	0.37
Idaho	Small Office	Heat Pump	Air Source Heat Pump 65 to 135 kBtu/hr - Premium Efficiency	12.0 EER, 3.8 COP	11.0 EER, 3.3 COP	Per installation	New	630	15	\$763	100%	N/A	\$0.16	39
Idaho	Small Office	Heat Pump	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	New	0.12	15	\$0.69	35%	98%	\$0.75	5
Idaho	Small Office	Heat Pump	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	New	0.08	18	\$0.17	45%	65%	\$0.26	3
Idaho	Small Office	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	New	0.30	14	\$1	5%	94%	\$0.77	2
Idaho	Small Office	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	New	0.12	40	\$8	4%	98%	\$6.22	0.06
Idaho	Small Office	Heat Pump	Insulation - Ceiling	R-38	R-30 (ID State Code)	per roof sqft	New	0.03	25	\$0.22	75%	85%	\$0.71	3
Idaho	Small Office	Heat Pump	Insulation - Duct	R-8	R-5 (ID State Code)	per surface area of duct insul	New	0.82	20	\$0.28	75%	85%	\$0.04	7
Idaho	Small Office	Heat Pump	Insulation - Floor (non-slab)	R-38	R-30 (ID State Code)	per floor area	New	0.06	25	\$0.29	35%	90%	\$0.45	3
Idaho	Small Office	Heat Pump	Insulation - Wall	R-21	R-13 (ID State Code)	per floor area	New	0.24	25	\$0.20	95%	85%	\$0.08	20
Idaho	Small Office	Heat Pump	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	New	27	30	\$5	50%	95%	\$0.02	63
Idaho	Small Office	Heat Pump	Natural Ventilation	Natural Ventilation Design Reduction in Cooling	None - Standard Ventilation	per building sqft	New	0.32	15	\$0.85	20%	75%	\$0.34	8
Idaho	Small Office	Heat Pump	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	New	145	10	\$123	95%	11%	\$0.14	1
Idaho	Small Office	Heat Pump	Windows-High Efficiency	U-0.32	U-0.35 (ID State Code)	per window sqft	New	0.54	25	\$24	80%	90%	\$4.68	5
Idaho	Small Office	Hvac Aux	Motor - CEE Premium-Efficiency Plus	CEE PE+ Motor for HVAC Applications	NEMA Efficiency Motors	per HP	Existing	22	15	\$6	95%	76%	\$0.04	136
Idaho	Small Office	Hvac Aux	Motor Rewind	>15, <500 HP	No Rewind	per HP	Existing	4	8	\$4	65%	25%	\$0.20	4
Idaho	Small Office	Hvac Aux	Motor - CEE Premium-Efficiency Plus	CEE PE+ Motor for HVAC Applications	NEMA Efficiency Motors	per HP	New	19	15	\$6	95%	76%	\$0.04	83
Idaho	Small Office	Lighting Exterior	Covered Parking Lighting	Covered Parking Lighting	Normal Lighting	per building sqft	Existing	0.09	10	\$0.02	80%	95%	\$0.05	733
Idaho	Small Office	Lighting Exterior	Daylighting Controls, Outdoors (Photocell)	Photocell	No Controls	per installation	Existing	26	8	\$28	75%	70%	\$0.21	124
Idaho	Small Office	Lighting Exterior	Exterior Building Lighting	30% savings	Normal Lighting	per installation	Existing	240	15	\$333	62%	90%	\$0.18	1,217
Idaho	Small Office	Lighting Exterior	Solid State LED White Lighting	Landscape, merchandise, signage, structure & task lighting (2.5 W)	50W 10hrs/day, 365 day/yr	per installation	Existing	2	14	\$35	75%	95%	\$1.65	22
Idaho	Small Office	Lighting Exterior	Surface Parking Lighting	Surface Parking Lighting	Normal Lighting	per building sqft	Existing	0.05	19	\$0.06	62%	95%	\$0.16	307
Idaho	Small Office	Lighting Exterior	Covered Parking Lighting	Covered Parking Lighting	Normal Lighting	per building sqft	New	0.09	10	\$0.02	80%	95%	\$0.05	415

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Idaho	Small Office	Lighting Exterior	Daylighting Controls, Outdoors (PhotoCell)	PhotoCell	No Controls	per installation	New	26	8	\$28	75%	70%	\$0.21	70
Idaho	Small Office	Lighting Exterior	Exterior Building Lighting	30% savings	Normal Lighting	per installation	New	240	15	\$333	62%	90%	\$0.18	690
Idaho	Small Office	Lighting Exterior	Solid State LED White Lighting	Landscape, merchandise, signage, structure & task lighting (2.5 W)	50W 10hrs/day, 365 day/yr	per installation	New	2	14	\$35	75%	95%	\$1.65	12
Idaho	Small Office	Lighting Exterior	Surface Parking Lighting	Surface Parking Lighting	Normal Lighting	per building sqft	New	0.05	19	\$0.06	62%	95%	\$0.16	174
Idaho	Small Office	Lighting Interior	Cold Cathode Lighting	Cold Cathode Lighting 5 watts	30 W Incandescent Bulb	per installation	Existing	73	5	\$12	15%	94%	\$0.05	67
Idaho	Small Office	Lighting Interior	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	Existing	0.69	8	\$0.85	30%	78%	\$0.24	150
Idaho	Small Office	Lighting Interior	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	Existing	0.52	8	\$0.64	30%	78%	\$0.24	112
Idaho	Small Office	Lighting Interior	Exit Sign - LED	LED Exit Sign (2 Watts)	CFL Exit Sign (9 Watts)	per installation	Existing	95	16	\$16	95%	50%	\$0.02	335
Idaho	Small Office	Lighting Interior	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign (2 Watts)	per installation	Existing	17	13	\$30	95%	98%	\$0.25	39
Idaho	Small Office	Lighting Interior	Lighting Package, High Efficiency	15% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	Existing	0.48	13	\$0.13	90%	53%	\$0.04	1,844
Idaho	Small Office	Lighting Interior	Lighting Package, High Efficiency	Code Required LPD And Control Strategies	Existing Lighting Design LPD	per building sqft	Existing	1	13	\$0.89	90%	73%	\$0.08	10,299
Idaho	Small Office	Lighting Interior	Lighting Package, Premium Efficiency	25% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	Existing	0.81	13	\$0.32	75%	62%	\$0.06	741
Idaho	Small Office	Lighting Interior	Lighting Package, Premium High Bay	35% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	Existing	0.04	13	\$0.02	70%	83%	\$0.09	252
Idaho	Small Office	Lighting Interior	Occupancy Sensor Control, Fluorescent	Occupancy Sensor Control, Fluorescent	No Occupancy Sensor	per occupancy sensor	Existing	843	8	\$65	90%	52%	\$0.02	309
Idaho	Small Office	Lighting Interior	Time Clock	Time Clock	No Controls	per 10,000 Watts	Existing	746	8	\$175	20%	88%	\$0.05	113
Idaho	Small Office	Lighting Interior	Cold Cathode Lighting	Cold Cathode Lighting 5 watts	30 W Incandescent Bulb	per installation	New	45	5	\$12	15%	94%	\$0.08	23
Idaho	Small Office	Lighting Interior	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	New	0.42	8	\$0.85	30%	78%	\$0.39	62
Idaho	Small Office	Lighting Interior	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	New	0.32	8	\$0.64	30%	78%	\$0.39	47
Idaho	Small Office	Lighting Interior	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign (2 Watts)	per installation	New	17	13	\$30	95%	98%	\$0.25	90
Idaho	Small Office	Lighting Interior	Lighting Package, High Efficiency	15% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	New	0.48	15	\$0.00	90%	53%	\$0.00	1,045
Idaho	Small Office	Lighting Interior	Lighting Package, Premium Efficiency	25% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	New	0.75	15	\$0.10	75%	62%	\$0.02	389
Idaho	Small Office	Lighting Interior	Lighting Package, Premium High Bay	35% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	New	0.04	15	\$0.00	70%	83%	\$0.02	142
Idaho	Small Office	Lighting Interior	Occupancy Sensor Control, Fluorescent	Occupancy Sensor Control, Fluorescent	No Occupancy Sensor	per occupancy sensor	New	519	8	\$65	90%	52%	\$0.02	129
Idaho	Small Office	Lighting Interior	Time Clock	Time Clock	No Controls	per 10,000 Watts	New	746	8	\$175	20%	88%	\$0.05	47
Idaho	Small Office	Other Office Equipment	ENERGY STAR - Copiers	ENERGY STAR Copiers	Standard Copier	per installation	Existing	72	6	\$159	95%	45%	\$0.54	192
Idaho	Small Office	Other Office Equipment	ENERGY STAR - Fax	ENERGY STAR Fax	Standard Fax	per installation	Existing	77	6	\$1	95%	45%	\$0.00	206
Idaho	Small Office	Other Office Equipment	ENERGY STAR - Monitors	ENERGY STAR Features Enabled	Non-ENERGY STAR Features	per installation	Existing	14	5	\$16	64%	15%	\$0.31	30
Idaho	Small Office	Other Office Equipment	ENERGY STAR - Printers	ENERGY STAR Printers	Standard Printers	per installation	Existing	136	6	\$15	95%	40%	\$0.03	268
Idaho	Small Office	Other Office Equipment	ENERGY STAR - Scanners	ENERGY STAR Scanners	Standard Scanner	per installation	Existing	70	6	\$1	95%	45%	\$0.00	187
Idaho	Small Office	Other Office Equipment	ENERGY STAR - Copiers	ENERGY STAR Copiers	Standard Copier	per installation	New	72	6	\$159	95%	45%	\$0.54	109

Table C.2.2. Commercial Measure Details

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Idaho	Small Office	Other Office Equipment	ENERGY STAR - Fax	ENERGY STAR Fax	Standard Fax	per installation	New	77	6	\$1	95%	45%	\$0.00	116
Idaho	Small Office	Other Office Equipment	ENERGY STAR - Monitors	ENERGY STAR Features Enabled	Non-ENERGY STAR Features	per installation	New	14	5	\$16	64%	15%	\$0.31	17
Idaho	Small Office	Other Office Equipment	ENERGY STAR - Printers	ENERGY STAR Printers	Standard Printers	per installation	New	136	6	\$15	95%	40%	\$0.03	152
Idaho	Small Office	Other Office Equipment	ENERGY STAR - Scanners	ENERGY STAR Scanners	Standard Scanner	per installation	New	70	6	\$1	95%	45%	\$0.00	106
Idaho	Small Office	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	per installation	Existing	7	7	\$1	20%	90%	\$0.05	1
Idaho	Small Office	Other Plug Load	ENERGY STAR - Water Cooler	ENERGY STAR Water Cooler (Hot/Cold Water)	Non-ENERGY STAR Water Cooler	per installation	Existing	359	10	\$1	95%	75%	\$0.00	1,149
Idaho	Small Office	Other Plug Load	Power Supply Transformer/Converter	80 Plus	85% efficient power supply (> 51W)	1 unit per 2,000 sqft	Existing	5	4	\$0.40	95%	86%	\$0.02	24
Idaho	Small Office	Other Plug Load	Residential Refrigerator	ENERGY STAR	Federal Standard	per installation	Existing	79	12	\$122	19%	65%	\$0.23	67
Idaho	Small Office	Other Plug Load	Residential Refrigerator/Freezer Recycling	Recycling Existing Refrigerator/Freezer	Existing Refrigerator/Freezer	per installation	Existing	943	4	\$561	25%	35%	\$0.20	227
Idaho	Small Office	Other Plug Load	Server Virtualization	Server Virtualization	No Virtualization	number of virtualized servers	Existing	2,240	4	\$1,880	72%	85%	\$0.67	1,513
Idaho	Small Office	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	1 unit per 500 sqft	Existing	99	5	\$20	60%	90%	\$0.06	1,112
Idaho	Small Office	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	per installation	New	7	7	\$1	20%	90%	\$0.05	0.91
Idaho	Small Office	Other Plug Load	ENERGY STAR - Water Cooler	ENERGY STAR Water Cooler (Hot/Cold Water)	Non-ENERGY STAR Water Cooler	per installation	New	359	10	\$1	95%	75%	\$0.00	651
Idaho	Small Office	Other Plug Load	Power Supply Transformer/Converter	80 Plus	85% efficient power supply (> 51W)	1 unit per 2,000 sqft	New	5	4	\$0.40	95%	86%	\$0.02	14
Idaho	Small Office	Other Plug Load	Residential Refrigerator	ENERGY STAR	Federal Standard	per installation	New	79	12	\$122	19%	65%	\$0.23	38
Idaho	Small Office	Other Plug Load	Server Virtualization	Server Virtualization	No Virtualization	number of virtualized servers	New	2,240	4	\$1,880	72%	85%	\$0.67	857
Idaho	Small Office	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	1 unit per 500 sqft	New	99	5	\$20	60%	90%	\$0.06	630
Idaho	Small Office	Space Heat	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	Existing	0.18	18	\$0.17	45%	65%	\$0.11	92
Idaho	Small Office	Space Heat	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	Existing	1	14	\$1	5%	94%	\$0.21	87
Idaho	Small Office	Space Heat	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	7	13	\$0.24	40%	39%	\$0.00	306
Idaho	Small Office	Space Heat	Insulation - Ceiling	R-30 (ID State Code)	R-11 (Average Existing Conditions)	per roof sqft	Existing	1	25	\$0.67	75%	65%	\$0.06	1,137
Idaho	Small Office	Space Heat	Insulation - Ceiling	R-38	R-30 (ID State Code)	per roof sqft	Existing	0.17	25	\$0.22	25%	85%	\$0.13	61
Idaho	Small Office	Space Heat	Insulation - Duct	R-5 (ID State Code)	No Insulation	per surface area of duct insul	Existing	2	20	\$1	75%	61%	\$0.06	177
Idaho	Small Office	Space Heat	Insulation - Duct	R-8	R-5 (ID State Code)	per surface area of duct insul	Existing	1	20	\$0.28	75%	85%	\$0.02	221
Idaho	Small Office	Space Heat	Insulation - Floor (non-slab)	R-30 (ID State Code)	R-11 (Average Existing Conditions)	per floor area	Existing	1	25	\$0.84	35%	84%	\$0.05	1,074
Idaho	Small Office	Space Heat	Insulation - Floor (non-slab)	R-38	R-30 (ID State Code)	per floor area	Existing	0.33	25	\$0.29	35%	90%	\$0.09	179
Idaho	Small Office	Space Heat	Insulation - Wall	R-13 (ID State Code)	R-3 (Average Existing Conditions)	per floor area	Existing	3	25	\$0.90	10%	67%	\$0.03	296
Idaho	Small Office	Space Heat	Insulation - Wall	R-21	R-13 (ID State Code)	per floor area	Existing	1	25	\$0.20	10%	85%	\$0.01	178
Idaho	Small Office	Space Heat	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	Existing	63	30	\$5	50%	95%	\$0.01	1,943
Idaho	Small Office	Space Heat	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	Existing	339	10	\$123	95%	22%	\$0.06	81

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Idaho	Small Office	Space Heat	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	0.94	7	\$0.13	90%	85%	\$0.03	1,615
Idaho	Small Office	Space Heat	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	New	0.08	18	\$0.17	45%	65%	\$0.25	29
Idaho	Small Office	Space Heat	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	New	0.51	14	\$1	5%	94%	\$0.46	27
Idaho	Small Office	Space Heat	Insulation - Ceiling	R-38	R-30 (ID State Code)	per roof sqft	New	0.07	25	\$0.22	75%	85%	\$0.29	58
Idaho	Small Office	Space Heat	Insulation - Duct	R-8	R-5 (ID State Code)	per surface area of duct insul	New	0.87	20	\$0.28	75%	85%	\$0.04	52
Idaho	Small Office	Space Heat	Insulation - Floor (non-slab)	R-38	R-30 (ID State Code)	per floor area	New	0.15	25	\$0.29	35%	90%	\$0.20	57
Idaho	Small Office	Space Heat	Insulation - Wall	R-21	R-13 (ID State Code)	per floor area	New	0.68	25	\$0.20	95%	85%	\$0.03	444
Idaho	Small Office	Space Heat	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	New	28	30	\$5	50%	95%	\$0.02	508
Idaho	Small Office	Space Heat	Natural Ventilation	Natural Ventilation Design Reduction in Cooling	None - Standard Ventilation	per building sqft	New	0.34	15	\$0.85	20%	75%	\$0.32	59
Idaho	Small Office	Space Heat	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	New	154	10	\$123	95%	11%	\$0.13	13
Idaho	Small Office	Water Heat	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	per building sqft	Existing	0.02	10	\$0.23	55%	80%	\$1.62	38
Idaho	Small Office	Water Heat	Dishwasher Residential	ENERGY STAR <= 324 kWh/yr, <= 5.8 gal/cycle	Federal Standard <= 355 kWh/yr, <= 6.5 gal/cycle	per installation	Existing	30	11	\$30	95%	25%	\$0.10	18
Idaho	Small Office	Water Heat	Electric Water Heater - High Efficiency	EF = 0.95	EF = 0.92	Per installation	Existing	23	15	\$65	100%	N/A	\$0.36	6
Idaho	Small Office	Water Heat	Heat Pump Water Heater - Advanced-Efficiency	EF = 2.2	EF = 0.92	Per installation	Existing	427	15	\$1,173	75%	N/A	\$0.36	547
Idaho	Small Office	Water Heat	Hot Water (SHW) Pipe Insulation	1.0" of Insulation, assuming R-4 (ID State Code)	No Insulation	per linear foot	Existing	0.92	12	\$2	80%	30%	\$0.34	4
Idaho	Small Office	Water Heat	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	per installation	Existing	11	9	\$0.15	95%	25%	\$-0.08	13
Idaho	Small Office	Water Heat	Low-Flow Faucet Aerators	2.2 GPM (Federal Code)	3.0 GPM	per installation	Existing	9	9	\$2	95%	25%	\$-0.04	11
Idaho	Small Office	Water Heat	Water Heater Temperature Setback	Water Heater Temperature Setback (120 F)	No Change in Water Temperature	per installation	Existing	56	5	\$71	75%	40%	\$0.36	41
Idaho	Small Office	Water Heat	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	per building sqft	New	0.02	10	\$0.23	55%	80%	\$1.58	22
Idaho	Small Office	Water Heat	Dishwasher Residential	ENERGY STAR <= 324 kWh/yr, <= 5.8 gal/cycle	Federal Standard <= 355 kWh/yr, <= 6.5 gal/cycle	per installation	New	30	11	\$30	95%	55%	\$0.10	23
Idaho	Small Office	Water Heat	Electric Water Heater - High Efficiency	EF = 0.95	EF = 0.92	Per installation	New	24	15	\$65	100%	N/A	\$0.34	2
Idaho	Small Office	Water Heat	Heat Pump Water Heater - Advanced-Efficiency	EF = 2.2	EF = 0.92	Per installation	New	454	15	\$1,047	75%	N/A	\$0.30	266
Idaho	Small Office	Water Heat	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	per installation	New	12	9	\$0.15	95%	25%	\$-0.08	8
Idaho	Small Office	Water Heat	Water Heater Temperature Setback	Water Heater Temperature Setback (120 F)	No Change in Water Temperature	per installation	New	58	5	\$71	75%	40%	\$0.35	24
Idaho	Small Retail	Computers	Computer ENERGY STAR	Computer ENERGY STAR	Computer standard non-ENERGY STAR	Per installation	Existing	135	4	\$28	100%	N/A	\$0.07	121
Idaho	Small Retail	Computers	Computer ENERGY STAR	Computer ENERGY STAR	Computer standard non-ENERGY STAR	Per installation	New	135	4	\$28	100%	N/A	\$0.07	10
Idaho	Small Retail	Cooling Dx Evap	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	Existing	0.19	15	\$0.69	80%	98%	\$0.46	44
Idaho	Small Retail	Cooling Dx Evap	DX Package 65 to 135 kBtu/hr - High Efficiency	DX Package 65 to 135 kBtu/hr - High Efficiency	DX Package 65 to 135 kBtu/hr - Standard Efficiency - 11.2 EER	Per installation	Existing	230	15	\$416	100%	N/A	\$0.23	0.73
Idaho	Small Retail	Cooling Dx Evap	DX Package 65 to 135 kBtu/hr - Premium Efficiency	DX Package 65 to 135 kBtu/hr - Premium Efficiency - 12.0 EER	DX Package 65 to 135 kBtu/hr - Standard Efficiency - 11.2 EER	Per installation	Existing	603	15	\$838	100%	N/A	\$0.18	32

Table C.2.2. Commercial Measure Details

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Idaho	Small Retail	Cooling Dx Evap	DX Package-Air Side Economizer	Air-Side Economizer	No Economizer	per DX ton	Existing	58	10	\$155	10%	80%	\$0.44	7
Idaho	Small Retail	Cooling Dx Evap	DX Tune-Up / Diagnostics	DX Tune-Up / Diagnostics	No DX Tune-Up / Diagnostics	per installation	Existing	294	4	\$249	95%	72%	\$0.33	47
Idaho	Small Retail	Cooling Dx Evap	Direct / Indirect Evaporative Cooling, Pre-Cooling	Evaporative Cooler	Standard DX cooling	per building CFM	Existing	0.49	15	\$1	50%	94%	\$0.47	69
Idaho	Small Retail	Cooling Dx Evap	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	Existing	0.04	18	\$0.17	45%	65%	\$0.43	4
Idaho	Small Retail	Cooling Dx Evap	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	Existing	0.19	40	\$8	4%	98%	\$3.82	0.17
Idaho	Small Retail	Cooling Dx Evap	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	1	13	\$0.24	10%	39%	\$0.03	1
Idaho	Small Retail	Cooling Dx Evap	Insulation - Ceiling	R-30 (ID State Code)	R-7 (Average Existing Conditions)	per roof sqft	Existing	0.00	25	\$0.67	75%	68%	\$7.70	1
Idaho	Small Retail	Cooling Dx Evap	Insulation - Duct	R-5 (ID State Code)	No Insulation	per surface area of duct insul	Existing	0.74	20	\$1	75%	61%	\$0.21	9
Idaho	Small Retail	Cooling Dx Evap	Insulation - Duct	R-8	R-5 (ID State Code)	per surface area of duct insul	Existing	0.49	20	\$0.28	75%	85%	\$0.06	10
Idaho	Small Retail	Cooling Dx Evap	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	Existing	11	30	\$5	50%	95%	\$0.04	62
Idaho	Small Retail	Cooling Dx Evap	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	Existing	176	10	\$123	95%	29%	\$0.12	6
Idaho	Small Retail	Cooling Dx Evap	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	0.24	7	\$0.13	90%	85%	\$0.12	74
Idaho	Small Retail	Cooling Dx Evap	Window Film	Window Film	No Film	per 100 sqft of window glazing	Existing	1	10	\$130	90%	68%	\$13.19	0.21
Idaho	Small Retail	Cooling Dx Evap	Windows-High Efficiency	U-0.32	U-0.35 (ID State Code)	per window sqft	Existing	3	25	\$24	15%	90%	\$0.69	10
Idaho	Small Retail	Cooling Dx Evap	Windows-High Efficiency	U-0.35 (ID State Code)	U-0.68 (Average Existing Conditions)	per window sqft	Existing	2	25	\$67	15%	76%	\$2.37	7
Idaho	Small Retail	Cooling Dx Evap	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	New	0.13	15	\$0.69	80%	98%	\$0.67	22
Idaho	Small Retail	Cooling Dx Evap	DX Package 65 to 135 kBtu/hr - High Efficiency	DX Package 65 to 135 kBtu/hr - High Efficiency - 11.5 EER	DX Package 65 to 135 kBtu/hr - Standard Efficiency - 11.2 EER	Per installation	New	153	15	\$333	100%	N/A	\$0.28	0.19
Idaho	Small Retail	Cooling Dx Evap	DX Package 65 to 135 kBtu/hr - Premium Efficiency	DX Package 65 to 135 kBtu/hr - Premium Efficiency - 12.0 EER	DX Package 65 to 135 kBtu/hr - Standard Efficiency - 11.2 EER	Per installation	New	444	15	\$670	100%	N/A	\$0.20	12
Idaho	Small Retail	Cooling Dx Evap	Direct / Indirect Evaporative Cooling, Pre-Cooling	Evaporative Cooler	Standard DX cooling	per building CFM	New	0.33	15	\$1	50%	94%	\$0.69	34
Idaho	Small Retail	Cooling Dx Evap	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	New	0.03	18	\$0.17	45%	65%	\$0.63	2
Idaho	Small Retail	Cooling Dx Evap	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	New	0.13	40	\$8	4%	98%	\$5.56	0.07
Idaho	Small Retail	Cooling Dx Evap	Insulation - Duct	R-8	R-5 (ID State Code)	per surface area of duct insul	New	0.34	20	\$0.28	75%	85%	\$0.09	4
Idaho	Small Retail	Cooling Dx Evap	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	New	8	30	\$5	50%	95%	\$0.06	25
Idaho	Small Retail	Cooling Dx Evap	Natural Ventilation	Natural Ventilation Design Reduction in Cooling	None - Standard Ventilation	per building sqft	New	0.13	15	\$0.85	20%	75%	\$0.82	3
Idaho	Small Retail	Cooling Dx Evap	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	New	121	10	\$123	95%	15%	\$0.17	1
Idaho	Small Retail	Cooling Dx Evap	Windows-High Efficiency	U-0.32	U-0.35 (ID State Code)	per window sqft	New	2	25	\$24	80%	90%	\$1.01	28

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Idaho	Small Retail	Cooling Room	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	Existing	0.25	15	\$0.69	80%	98%	\$0.35	15
Idaho	Small Retail	Cooling Room	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	Existing	0.25	40	\$8	4%	98%	\$2.96	0.06
Idaho	Small Retail	Cooling Room	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	1	13	\$0.24	10%	39%	\$0.02	0.42
Idaho	Small Retail	Cooling Room	Insulation - Ceiling	R-30 (ID State Code)	R-7 (Average Existing Conditions)	per roof sqft	Existing	0.01	25	\$0.67	75%	68%	\$5.97	0.46
Idaho	Small Retail	Cooling Room	PTAC (10,000 BTU/HR) - Premium-Efficiency	11.4 EER	Room AC (10,000 BTU/HR) Standard-Efficiency 9.8 EER	Per installation	Existing	1,236	15	\$17,960	75%	N/A	\$1.88	26
Idaho	Small Retail	Cooling Room	Room AC (10,000 BTU/HR) High-Efficiency	High Efficiency 10.8 EER (ENERGY STAR)	Room AC (10,000 BTU/HR) Standard-Efficiency 9.8 EER	Per installation	Existing	765	9	\$918	100%	N/A	\$0.22	4
Idaho	Small Retail	Cooling Room	Window Film	Window Film	No Film	per 100 sqft of window glazing	Existing	0.08	10	\$130	90%	68%	\$263.05	0.00
Idaho	Small Retail	Cooling Room	Windows-High Efficiency	U-0.32	U-0.35 (ID State Code)	per window sqft	Existing	4	25	\$24	15%	90%	\$0.54	4
Idaho	Small Retail	Cooling Room	Windows-High Efficiency	U-0.35 (ID State Code)	U-0.68 (Average Existing Conditions)	per window sqft	Existing	3	25	\$67	15%	76%	\$1.84	2
Idaho	Small Retail	Cooling Room	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	New	0.18	15	\$0.69	80%	98%	\$0.50	6
Idaho	Small Retail	Cooling Room	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	New	0.18	40	\$8	4%	98%	\$4.12	0.02
Idaho	Small Retail	Cooling Room	Natural Ventilation	Natural Ventilation Design Reduction in Cooling	None - Standard Ventilation	per building sqft	New	0.18	15	\$0.85	20%	75%	\$0.61	1
Idaho	Small Retail	Cooling Room	PTAC (10,000 BTU/HR) - Premium-Efficiency	11.4 EER	Room AC (10,000 BTU/HR) Standard-Efficiency 9.8 EER	Per installation	New	912	15	\$13,176	75%	N/A	\$1.87	4
Idaho	Small Retail	Cooling Room	Room AC (10,000 BTU/HR) High-Efficiency	High Efficiency 10.8 EER (ENERGY STAR)	Room AC (10,000 BTU/HR) Standard-Efficiency 9.8 EER	Per installation	New	548	9	\$734	100%	N/A	\$0.24	0.75
Idaho	Small Retail	Cooling Room	Windows-High Efficiency	U-0.32	U-0.35 (ID State Code)	per window sqft	New	3	25	\$24	80%	90%	\$0.75	9
Idaho	Small Retail	Hvac Aux	Motor - CEE Premium-Efficiency Plus	CEE PE+ Motor for HVAC Applications	NEMA Efficiency Motors	per HP	Existing	26	15	\$6	95%	76%	\$0.03	27
Idaho	Small Retail	Hvac Aux	Motor Rewind	>15, <500 HP	No Rewind	per HP	Existing	3	8	\$4	65%	25%	\$0.27	0.99
Idaho	Small Retail	Hvac Aux	Motor - CEE Premium-Efficiency Plus	CEE PE+ Motor for HVAC Applications	NEMA Efficiency Motors	per HP	New	21	15	\$6	95%	76%	\$0.04	15
Idaho	Small Retail	Lighting Exterior	Covered Parking Lighting	Covered Parking Lighting	Normal Lighting	per building sqft	Existing	0.09	10	\$0.02	80%	95%	\$0.05	119
Idaho	Small Retail	Lighting Exterior	Daylighting Controls, Outdoors (Photocell)	Photocell	No Controls	per installation	Existing	32	8	\$28	75%	70%	\$0.17	19
Idaho	Small Retail	Lighting Exterior	Exterior Building Lighting	30% savings	Normal Lighting	per installation	Existing	240	15	\$333	62%	90%	\$0.18	168
Idaho	Small Retail	Lighting Exterior	Solid State LED White Lighting	Landscape, merchandise, signage, structure & task lighting (2.5 W)	50W 10hrs/day, 365 day/yr	per installation	Existing	3	14	\$35	75%	95%	\$1.35	3
Idaho	Small Retail	Lighting Exterior	Surface Parking Lighting	Surface Parking Lighting	Normal Lighting	per building sqft	Existing	0.05	19	\$0.06	62%	95%	\$0.16	50
Idaho	Small Retail	Lighting Exterior	Covered Parking Lighting	Covered Parking Lighting	Normal Lighting	per building sqft	New	0.09	10	\$0.02	80%	95%	\$0.05	67
Idaho	Small Retail	Lighting Exterior	Daylighting Controls, Outdoors (Photocell)	Photocell	No Controls	per installation	New	32	8	\$28	75%	70%	\$0.17	10
Idaho	Small Retail	Lighting Exterior	Exterior Building Lighting	30% savings	Normal Lighting	per installation	New	240	15	\$333	62%	90%	\$0.18	95
Idaho	Small Retail	Lighting Exterior	Solid State LED White Lighting	Landscape, merchandise, signage, structure & task lighting (2.5 W)	50W 10hrs/day, 365 day/yr	per installation	New	3	14	\$35	75%	95%	\$1.35	1

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Idaho	Small Retail	Lighting Exterior	Surface Parking Lighting	Surface Parking Lighting	Normal Lighting	per building sqft	New	0.05	19	\$0.06	62%	95%	\$0.16	28
Idaho	Small Retail	Lighting Interior	Cold Cathode Lighting	Cold Cathode Lighting 5 watts	30 W Incandescent Bulb	per installation	Existing	609	5	\$12	15%	94%	\$0.01	45
Idaho	Small Retail	Lighting Interior	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	Existing	0.34	8	\$0.85	30%	84%	\$0.48	14
Idaho	Small Retail	Lighting Interior	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	Existing	0.25	8	\$0.64	30%	84%	\$0.48	10
Idaho	Small Retail	Lighting Interior	Exit Sign - LED	LED Exit Sign (2 Watts)	CFL Exit Sign (9 Watts)	per installation	Existing	95	16	\$16	95%	50%	\$0.02	53
Idaho	Small Retail	Lighting Interior	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign (2 Watts)	per installation	Existing	17	13	\$30	95%	98%	\$0.25	6
Idaho	Small Retail	Lighting Interior	Lighting Package, High Efficiency	15% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	Existing	0.73	13	\$0.07	90%	53%	\$0.02	443
Idaho	Small Retail	Lighting Interior	Lighting Package, High Efficiency	Code Required LPD And Control Strategies	Existing Lighting Design LPD	per building sqft	Existing	1	13	\$0.74	90%	39%	\$0.06	1,014
Idaho	Small Retail	Lighting Interior	Lighting Package, Premium Efficiency	25% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	Existing	1	13	\$0.43	75%	62%	\$0.05	178
Idaho	Small Retail	Lighting Interior	Lighting Package, Premium High Bay	35% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	Existing	0.27	13	\$0.15	70%	83%	\$0.08	253
Idaho	Small Retail	Lighting Interior	Occupancy Sensor Control, Fluorescent	Occupancy Sensor Control, Fluorescent	No Occupancy Sensor	per occupancy sensor	Existing	1,170	8	\$65	45%	56%	\$0.01	37
Idaho	Small Retail	Lighting Interior	Time Clock	Time Clock	No Controls	per 10,000 Watts	Existing	744	8	\$175	20%	86%	\$0.05	24
Idaho	Small Retail	Lighting Interior	Cold Cathode Lighting	Cold Cathode Lighting 5 watts	30 W Incandescent Bulb	per installation	New	466	5	\$12	15%	94%	\$0.01	19
Idaho	Small Retail	Lighting Interior	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	New	0.26	8	\$0.85	30%	84%	\$0.63	6
Idaho	Small Retail	Lighting Interior	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	New	0.19	8	\$0.64	30%	84%	\$0.63	5
Idaho	Small Retail	Lighting Interior	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign (2 Watts)	per installation	New	17	13	\$30	95%	98%	\$0.25	14
Idaho	Small Retail	Lighting Interior	Lighting Package, High Efficiency	15% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	New	0.73	15	\$0.03	90%	53%	\$0.01	251
Idaho	Small Retail	Lighting Interior	Lighting Package, Premium Efficiency	25% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	New	1	15	\$0.19	75%	62%	\$0.02	101
Idaho	Small Retail	Lighting Interior	Lighting Package, Premium High Bay	35% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	New	0.27	15	\$0.03	70%	83%	\$0.01	143
Idaho	Small Retail	Lighting Interior	Occupancy Sensor Control, Fluorescent	Occupancy Sensor Control, Fluorescent	No Occupancy Sensor	per occupancy sensor	New	895	8	\$65	45%	56%	\$0.01	17
Idaho	Small Retail	Lighting Interior	Time Clock	Time Clock	No Controls	per 10,000 Watts	New	744	8	\$175	20%	86%	\$0.05	11
Idaho	Small Retail	Other Office Equipment	ENERGY STAR - Copiers	ENERGY STAR Copiers	Standard Copier	per installation	Existing	72	6	\$159	95%	45%	\$0.54	3
Idaho	Small Retail	Other Office Equipment	ENERGY STAR - Fax	ENERGY STAR Fax	Standard Fax	per installation	Existing	77	6	\$1	95%	45%	\$0.00	3
Idaho	Small Retail	Other Office Equipment	ENERGY STAR - Monitors	ENERGY STAR Features Enabled	Non-ENERGY STAR Features	per installation	Existing	14	5	\$16	64%	15%	\$0.31	1
Idaho	Small Retail	Other Office Equipment	ENERGY STAR - Printers	ENERGY STAR Printers	Standard Printers	per installation	Existing	135	6	\$15	95%	40%	\$0.03	21
Idaho	Small Retail	Other Office Equipment	ENERGY STAR - Scanners	ENERGY STAR Scanners	Standard Scanner	per installation	Existing	70	6	\$1	95%	45%	\$0.01	3
Idaho	Small Retail	Other Office Equipment	ENERGY STAR - Copiers	ENERGY STAR Copiers	Standard Copier	per installation	New	72	6	\$159	95%	45%	\$0.54	1
Idaho	Small Retail	Other Office Equipment	ENERGY STAR - Fax	ENERGY STAR Fax	Standard Fax	per installation	New	77	6	\$1	95%	45%	\$0.00	2
Idaho	Small Retail	Other Office Equipment	ENERGY STAR - Monitors	ENERGY STAR Features Enabled	Non-ENERGY STAR Features	per installation	New	14	5	\$16	64%	15%	\$0.31	0.65
Idaho	Small Retail	Other Office Equipment	ENERGY STAR - Printers	ENERGY STAR Printers	Standard Printers	per installation	New	135	6	\$15	95%	40%	\$0.03	12

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Idaho	Small Retail	Other Office Equipment	ENERGY STAR - Scanners	ENERGY STAR Scanners	Standard Scanner	per installation	New	70	6	\$1	95%	45%	\$0.01	1
Idaho	Small Retail	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	per installation	Existing	7	7	\$2	20%	90%	\$0.06	0.21
Idaho	Small Retail	Other Plug Load	ENERGY STAR - Water Cooler	ENERGY STAR Water Cooler (Hot/Cold Water)	Non-ENERGY STAR Water Cooler	per installation	Existing	358	10	\$0.00	95%	75%	\$0.00	21
Idaho	Small Retail	Other Plug Load	Power Supply Transformer/Converter	80 Plus	85% efficient power supply (> 51W)	1 unit per 2,000 sqft	Existing	4	4	\$0.40	95%	86%	\$0.03	3
Idaho	Small Retail	Other Plug Load	Residential Refrigerator	ENERGY STAR	Federal Standard	per installation	Existing	79	12	\$122	3%	65%	\$0.23	0.78
Idaho	Small Retail	Other Plug Load	Residential Refrigerator/Freezer Recycling	Recycling Existing Refrigerator/Freezer	Existing Refrigerator/Freezer	per installation	Existing	940	4	\$560	25%	35%	\$0.20	18
Idaho	Small Retail	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	1 unit per 5,000 sqft	Existing	99	5	\$20	60%	90%	\$0.06	18
Idaho	Small Retail	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	per installation	New	7	7	\$2	20%	90%	\$0.06	0.12
Idaho	Small Retail	Other Plug Load	ENERGY STAR - Water Cooler	ENERGY STAR Water Cooler (Hot/Cold Water)	Non-ENERGY STAR Water Cooler	per installation	New	358	10	\$0.00	95%	75%	\$0.00	12
Idaho	Small Retail	Other Plug Load	Power Supply Transformer/Converter	80 Plus	85% efficient power supply (> 51W)	1 unit per 2,000 sqft	New	4	4	\$0.40	95%	86%	\$0.03	1
Idaho	Small Retail	Other Plug Load	Residential Refrigerator	ENERGY STAR	Federal Standard	per installation	New	79	12	\$122	3%	65%	\$0.23	0.44
Idaho	Small Retail	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	1 unit per 5,000 sqft	New	99	5	\$20	60%	90%	\$0.06	10
Idaho	Small Retail	Space Heat	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	Existing	0.13	18	\$0.17	45%	65%	\$0.15	8
Idaho	Small Retail	Space Heat	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	Existing	0.82	14	\$1	5%	94%	\$0.29	7
Idaho	Small Retail	Space Heat	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	6	13	\$0.24	10%	39%	\$0.01	6
Idaho	Small Retail	Space Heat	Insulation - Ceiling	R-30 (ID State Code)	R-7 (Average Existing Conditions)	per roof sqft	Existing	1	25	\$0.67	75%	68%	\$0.05	166
Idaho	Small Retail	Space Heat	Insulation - Ceiling	R-38	R-30 (ID State Code)	per roof sqft	Existing	0.12	25	\$0.22	25%	85%	\$0.18	5
Idaho	Small Retail	Space Heat	Insulation - Duct	R-5 (ID State Code)	No Insulation	per surface area of duct insul	Existing	2	20	\$1	75%	61%	\$0.08	15
Idaho	Small Retail	Space Heat	Insulation - Duct	R-8	R-5 (ID State Code)	per surface area of duct insul	Existing	1	20	\$0.28	75%	85%	\$0.02	20
Idaho	Small Retail	Space Heat	Insulation - Floor (non-slab)	R-30 (ID State Code)	R-11 (Average Existing Conditions)	per floor area	Existing	1	25	\$0.84	35%	84%	\$0.07	87
Idaho	Small Retail	Space Heat	Insulation - Floor (non-slab)	R-38	R-30 (ID State Code)	per floor area	Existing	0.24	25	\$0.29	35%	90%	\$0.12	15
Idaho	Small Retail	Space Heat	Insulation - Wall	R-13 (ID State Code)	R-3 (Average Existing Conditions)	per floor area	Existing	2	25	\$0.90	10%	68%	\$0.03	27
Idaho	Small Retail	Space Heat	Insulation - Wall	R-21	R-13 (ID State Code)	per floor area	Existing	1	25	\$0.20	10%	85%	\$0.02	16
Idaho	Small Retail	Space Heat	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	Existing	46	30	\$5	50%	95%	\$0.01	180
Idaho	Small Retail	Space Heat	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	Existing	493	10	\$123	95%	29%	\$0.04	12
Idaho	Small Retail	Space Heat	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	0.68	7	\$0.13	90%	85%	\$0.04	148
Idaho	Small Retail	Space Heat	Windows-High Efficiency	U-0.35 (ID State Code)	U-0.68 (Average Existing Conditions)	per window sqft	Existing	1	25	\$67	15%	76%	\$4.55	2
Idaho	Small Retail	Space Heat	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	New	0.06	18	\$0.17	45%	65%	\$0.30	3
Idaho	Small Retail	Space Heat	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	New	0.41	14	\$1	5%	94%	\$0.56	2
Idaho	Small Retail	Space Heat	Insulation - Ceiling	R-38	R-30 (ID State Code)	per roof sqft	New	0.06	25	\$0.22	75%	85%	\$0.35	6
Idaho	Small Retail	Space Heat	Insulation - Duct	R-8	R-5 (ID State Code)	per surface area of duct insul	New	0.71	20	\$0.28	75%	85%	\$0.05	5
Idaho	Small Retail	Space Heat	Insulation - Floor (non-slab)	R-38	R-30 (ID State Code)	per floor area	New	0.12	25	\$0.29	35%	90%	\$0.24	5
Idaho	Small Retail	Space Heat	Insulation - Wall	R-21	R-13 (ID State Code)	per floor area	New	0.63	25	\$0.20	95%	85%	\$0.03	45

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Idaho	Small Retail	Space Heat	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	New	23	30	\$5	50%	95%	\$0.02	52
Idaho	Small Retail	Space Heat	Natural Ventilation	Natural Ventilation Design Reduction in Cooling	None - Standard Ventilation	per building sqft	New	0.27	15	\$0.85	20%	75%	\$0.40	6
Idaho	Small Retail	Space Heat	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	New	251	10	\$123	95%	15%	\$0.08	1
Idaho	Small Retail	Water Heat	Clothes Washer Commercial	ENERGY STAR Commercial Clothes Washer MEF=1.80	Standard Clothes Washers	per installation	Existing	538	11	\$125	95%	80%	-\$0.27	1
Idaho	Small Retail	Water Heat	Clothes Washer Residential	Energy Star - CEE Tier 1 (MEF 2.0 - 2.19) - Electric DHW & Dryer	MEF = 1.66 - Electric DHW & Dryer (NWPPC 6th Plan Average Efficiency)	per installation	Existing	131	11	\$283	85%	94%	\$0.03	0.30
Idaho	Small Retail	Water Heat	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	per building sqft	Existing	0.01	10	\$0.23	75%	94%	\$2.78	4
Idaho	Small Retail	Water Heat	Dishwasher Residential	ENERGY STAR <= 324 kWh/yr, <= 5.8 gal/cycle	Federal Standard <= 355 kWh/yr, <= 6.5 gal/cycle	per installation	Existing	30	11	\$30	95%	25%	\$0.10	1
Idaho	Small Retail	Water Heat	Electric Water Heater - High Efficiency	EF = 0.95	EF = 0.92	Per installation	Existing	28	15	\$65	100%	N/A	\$0.30	0.42
Idaho	Small Retail	Water Heat	Heat Pump Water Heater - Advanced-Efficiency	EF = 2.2	EF = 0.92	Per installation	Existing	516	15	\$1,173	75%	N/A	\$0.29	36
Idaho	Small Retail	Water Heat	Hot Water (SHW) Pipe Insulation	1.0" of Insulation, assuming R-4 (ID State Code)	No Insulation	per linear foot	Existing	1	12	\$2	80%	90%	\$0.29	0.88
Idaho	Small Retail	Water Heat	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	per installation	Existing	13	9	\$0.00	95%	25%	-\$0.08	0.95
Idaho	Small Retail	Water Heat	Low-Flow Faucet Aerators	2.2 GPM (Federal Code)	3.0 GPM	per installation	Existing	11	9	\$2	95%	25%	-\$0.04	0.80
Idaho	Small Retail	Water Heat	Water Heater Temperature Setback	Water Heater Temperature Setback (120 F)	No Change in Water Temperature	per installation	Existing	65	5	\$71	75%	45%	\$0.31	3
Idaho	Small Retail	Water Heat	Clothes Washer Commercial	ENERGY STAR Commercial Clothes Washer MEF=1.80	Standard Clothes Washers	per installation	New	538	11	\$125	95%	80%	-\$0.27	0.66
Idaho	Small Retail	Water Heat	Clothes Washer Residential	Energy Star - CEE Tier 1 (MEF 2.0 - 2.19) - Electric DHW & Dryer	MEF = 1.66 - Electric DHW & Dryer (NWPPC 6th Plan Average Efficiency)	per installation	New	131	11	\$283	85%	94%	\$0.03	0.16
Idaho	Small Retail	Water Heat	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	per building sqft	New	0.01	10	\$0.23	75%	94%	\$2.88	2
Idaho	Small Retail	Water Heat	Dishwasher Residential	ENERGY STAR <= 324 kWh/yr, <= 5.8 gal/cycle	Federal Standard <= 355 kWh/yr, <= 6.5 gal/cycle	per installation	New	30	11	\$30	95%	55%	\$0.10	1
Idaho	Small Retail	Water Heat	Electric Water Heater - High Efficiency	EF = 0.95	EF = 0.92	Per installation	New	27	15	\$65	100%	N/A	\$0.31	0.18
Idaho	Small Retail	Water Heat	Heat Pump Water Heater - Advanced-Efficiency	EF = 2.2	EF = 0.92	Per installation	New	498	15	\$1,047	75%	N/A	\$0.27	16
Idaho	Small Retail	Water Heat	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	per installation	New	13	9	\$0.00	95%	25%	-\$0.08	0.51
Idaho	Small Retail	Water Heat	Water Heater Temperature Setback	Water Heater Temperature Setback (120 F)	No Change in Water Temperature	per installation	New	63	5	\$71	75%	45%	\$0.32	1
Idaho	Warehouse	Computers	Computer ENERGY STAR	Computer ENERGY STAR	Computer standard non-ENERGY STAR	Per installation	Existing	135	4	\$28	100%	N/A	\$0.07	180
Idaho	Warehouse	Computers	Computer ENERGY STAR	Computer ENERGY STAR	Computer standard non-ENERGY STAR	Per installation	New	135	4	\$28	100%	N/A	\$0.07	15
Idaho	Warehouse	Cooling Chillers	Chilled Water / Condenser Water Settings-Optimization	Additional Control Features	EMS already installed - No Optimization	1 control point per 1000 sqft	Existing	5	5	\$139	95%	81%	\$7.36	1
Idaho	Warehouse	Cooling Chillers	Chilled Water Piping Loop w/ VSD Control	VSD for secondary chilled water loop	Primary loop only w/ constant speed pump	per chiller ton	Existing	11	10	\$190	25%	70%	\$2.71	1
Idaho	Warehouse	Cooling Chillers	Chiller-Water Side Economizer	Install Economizer	No Economizer	per chiller ton	Existing	7	15	\$422	45%	90%	\$7.04	2
Idaho	Warehouse	Cooling Chillers	Chillers <150 tons (screw) - Advanced Efficiency	0.58 kW/ton (full load)	0.790 kW/Ton (full load)	Per installation	Existing	1,012	20	\$4,826	100%	N/A	\$0.53	17
Idaho	Warehouse	Cooling Chillers	Chillers <150 tons (screw) - High Efficiency	0.71 kW/ton (full load)	0.790 kW/Ton (full load)	Per installation	Existing	386	20	\$1,838	100%	N/A	\$0.53	0.13
Idaho	Warehouse	Cooling Chillers	Chillers <150 tons (screw) - Premium Efficiency	0.63 kW/ton	0.790 kW/Ton (full load)	Per installation	Existing	752	20	\$3,676	100%	N/A	\$0.55	1

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Idaho	Warehouse	Cooling Chillers	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	Existing	0.04	15	\$0.69	80%	98%	\$2.08	8
Idaho	Warehouse	Cooling Chillers	Cooling Tower-Decrease Approach Temperature	6 Deg F	10 Deg F	per chiller ton	Existing	12	8	\$26	10%	94%	\$0.44	1
Idaho	Warehouse	Cooling Chillers	Cooling Tower-Two-Speed Fan Motor	Cooling Tower-Two-Speed Fan Motor	Cooling Tower-One-Speed Fan Motor	per chiller ton	Existing	21	15	\$2	95%	35%	\$0.01	7
Idaho	Warehouse	Cooling Chillers	Cooling Tower-VSD Fan Control	Variable-Speed Tower Fans replace Two-Speed	Cooling Tower-Two-Speed Fan Motor	per chiller ton	Existing	6	13	\$19	95%	75%	\$0.44	4
Idaho	Warehouse	Cooling Chillers	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	Existing	43	15	\$149	75%	75%	\$0.45	8
Idaho	Warehouse	Cooling Chillers	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	Existing	0.04	40	\$8	4%	98%	\$17.35	0.03
Idaho	Warehouse	Cooling Chillers	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	0.32	13	\$0.24	10%	39%	\$0.11	0.09
Idaho	Warehouse	Cooling Chillers	Insulation - Ceiling	R-30 (ID State Code)	R-8 (Average Existing Conditions)	per roof sqft	Existing	0.00	25	\$0.67	75%	62%	\$35.02	0.22
Idaho	Warehouse	Cooling Chillers	Pipe Insulation	1.5" of Insulation, assuming R-6 (ID State Code)	No Insulation	per linear feet of insulation	Existing	1	15	\$3	65%	45%	\$0.31	0.67
Idaho	Warehouse	Cooling Chillers	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	0.05	7	\$0.13	90%	85%	\$0.55	13
Idaho	Warehouse	Cooling Chillers	Window Film	Window Film	No Film	per 100 sqft of window glazing	Existing	0.83	10	\$130	90%	68%	\$26.10	0.02
Idaho	Warehouse	Cooling Chillers	Windows-High Efficiency	U-0.32	U-0.35 (ID State Code)	per window sqft	Existing	3	25	\$24	15%	90%	\$0.79	2
Idaho	Warehouse	Cooling Chillers	Windows-High Efficiency	U-0.35 (ID State Code)	U-0.65 (Average Existing Conditions)	per window sqft	Existing	2	25	\$67	15%	71%	\$2.65	1
Idaho	Warehouse	Cooling Chillers	Chilled Water / Condenser Water Settings-Optimization	Additional Control Features	EMS already installed - No Optimization	1 control point per 1000 sqft	New	3	5	\$139	95%	81%	\$11.91	0.43
Idaho	Warehouse	Cooling Chillers	Chilled Water Piping Loop w/ VSD Control	VSD for secondary chilled water loop	Primary loop only w/ constant speed pump	per chiller ton	New	8	10	\$190	25%	70%	\$3.95	0.61
Idaho	Warehouse	Cooling Chillers	Chillers <150 tons (screw) - Advanced Efficiency	0.58 kW/ton (full load)	0.790 kW/Ton (full load)	Per installation	New	735	20	\$4,342	100%	N/A	\$0.66	9
Idaho	Warehouse	Cooling Chillers	Chillers <150 tons (screw) - High Efficiency	0.71 kW/ton (full load)	0.790 kW/Ton (full load)	Per installation	New	280	20	\$1,653	100%	N/A	\$0.66	0.04
Idaho	Warehouse	Cooling Chillers	Chillers <150 tons (screw) - Premium Efficiency	0.63 kW/ton	0.790 kW/Ton (full load)	Per installation	New	546	20	\$3,308	100%	N/A	\$0.68	0.42
Idaho	Warehouse	Cooling Chillers	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	New	0.02	15	\$0.69	80%	98%	\$3.37	3
Idaho	Warehouse	Cooling Chillers	Cooling Tower-Decrease Approach Temperature	6 Deg F	10 Deg F	per chiller ton	New	8	8	\$26	10%	94%	\$0.64	0.45
Idaho	Warehouse	Cooling Chillers	Cooling Tower-VSD Fan Control	Variable-Speed Tower Fans replace Two-Speed	Cooling Tower-Two-Speed Fan Motor	per chiller ton	New	4	15	\$19	95%	75%	\$0.59	1
Idaho	Warehouse	Cooling Chillers	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	New	26	15	\$149	75%	75%	\$0.73	3
Idaho	Warehouse	Cooling Chillers	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	New	0.02	40	\$8	4%	98%	\$28.09	0.01
Idaho	Warehouse	Cooling Chillers	Natural Ventilation	Natural Ventilation Design Reduction in Cooling	None - Standard Ventilation	per building sqft	New	0.02	15	\$0.85	20%	75%	\$4.16	0.68
Idaho	Warehouse	Cooling Chillers	Windows-High Efficiency	U-0.32	U-0.35 (ID State Code)	per window sqft	New	1	25	\$24	80%	90%	\$1.28	6

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Idaho	Warehouse	Cooling Dx Evap	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	Existing	0.05	15	\$0.69	80%	98%	\$1.76	57
Idaho	Warehouse	Cooling Dx Evap	DX Package 65 to 135 kBtu/hr - High Efficiency	DX Package 65 to 135 kBtu/hr - High Efficiency - 11.5 EER	DX Package 65 to 135 kBtu/hr - Standard Efficiency - 11.2 EER	Per installation	Existing	254	15	\$694	100%	N/A	\$0.35	1
Idaho	Warehouse	Cooling Dx Evap	DX Package 65 to 135 kBtu/hr - Premium Efficiency	DX Package 65 to 135 kBtu/hr - Premium Efficiency - 12.0 EER	DX Package 65 to 135 kBtu/hr - Standard Efficiency - 11.2 EER	Per installation	Existing	527	15	\$1,397	100%	N/A	\$0.34	42
Idaho	Warehouse	Cooling Dx Evap	DX Package-Air Side Economizer	Air-Side Economizer	No Economizer	per DX ton	Existing	30	10	\$155	10%	40%	\$0.85	4
Idaho	Warehouse	Cooling Dx Evap	DX Tune-Up / Diagnostics	DX Tune-Up / Diagnostics	No DX Tune-Up / Diagnostics	per installation	Existing	153	4	\$249	95%	72%	\$0.63	62
Idaho	Warehouse	Cooling Dx Evap	Direct / Indirect Evaporative Cooling, Pre-Cooling	Evaporative Cooler	Standard DX cooling	per building CFM	Existing	0.12	15	\$1	50%	94%	\$1.81	88
Idaho	Warehouse	Cooling Dx Evap	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	Existing	51	15	\$149	75%	75%	\$0.38	59
Idaho	Warehouse	Cooling Dx Evap	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	Existing	0.01	18	\$0.17	45%	65%	\$1.65	5
Idaho	Warehouse	Cooling Dx Evap	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	Existing	0.05	40	\$8	4%	98%	\$14.65	0.22
Idaho	Warehouse	Cooling Dx Evap	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	0.38	13	\$0.24	10%	39%	\$0.09	0.71
Idaho	Warehouse	Cooling Dx Evap	Insulation - Ceiling	R-30 (ID State Code)	R-8 (Average Existing Conditions)	per roof sqft	Existing	0.00	25	\$0.67	75%	62%	\$29.57	1
Idaho	Warehouse	Cooling Dx Evap	Insulation - Duct	R-5 (ID State Code)	No Insulation	per surface area of duct insul	Existing	0.19	20	\$1	75%	59%	\$0.82	10
Idaho	Warehouse	Cooling Dx Evap	Insulation - Duct	R-8	R-5 (ID State Code)	per surface area of duct insul	Existing	0.13	20	\$0.28	75%	85%	\$0.25	13
Idaho	Warehouse	Cooling Dx Evap	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	Existing	3	30	\$5	50%	95%	\$0.16	84
Idaho	Warehouse	Cooling Dx Evap	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	Existing	153	10	\$123	95%	24%	\$0.13	7
Idaho	Warehouse	Cooling Dx Evap	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	0.06	7	\$0.13	90%	85%	\$0.46	96
Idaho	Warehouse	Cooling Dx Evap	Window Film	Window Film	No Film	per 100 sqft of window glazing	Existing	0.83	10	\$130	90%	68%	\$25.94	0.13
Idaho	Warehouse	Cooling Dx Evap	Windows-High Efficiency	U-0.32	U-0.35 (ID State Code)	per window sqft	Existing	3	25	\$24	15%	90%	\$0.67	17
Idaho	Warehouse	Cooling Dx Evap	Windows-High Efficiency	U-0.35 (ID State Code)	U-0.65 (Average Existing Conditions)	per window sqft	Existing	3	25	\$67	15%	71%	\$2.24	8
Idaho	Warehouse	Cooling Dx Evap	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	New	0.03	15	\$0.69	80%	98%	\$2.60	25
Idaho	Warehouse	Cooling Dx Evap	DX Package 65 to 135 kBtu/hr - High Efficiency	DX Package 65 to 135 kBtu/hr - High Efficiency - 11.5 EER	DX Package 65 to 135 kBtu/hr - Standard Efficiency - 11.2 EER	Per installation	New	123	15	\$554	100%	N/A	\$0.58	0.24
Idaho	Warehouse	Cooling Dx Evap	DX Package 65 to 135 kBtu/hr - Premium Efficiency	DX Package 65 to 135 kBtu/hr - Premium Efficiency - 12.0 EER	DX Package 65 to 135 kBtu/hr - Standard Efficiency - 11.2 EER	Per installation	New	384	15	\$1,117	100%	N/A	\$0.38	16
Idaho	Warehouse	Cooling Dx Evap	Direct / Indirect Evaporative Cooling, Pre-Cooling	Evaporative Cooler	Standard DX cooling	per building CFM	New	0.08	15	\$1	50%	94%	\$2.68	39
Idaho	Warehouse	Cooling Dx Evap	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	New	34	15	\$149	75%	75%	\$0.56	24

Table C.2.2. Commercial Measure Details

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Idaho	Warehouse	Cooling Dx Evap	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	New	0.00	18	\$0.17	45%	65%	\$2.44	2
Idaho	Warehouse	Cooling Dx Evap	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	New	0.03	40	\$8	4%	98%	\$21.66	0.09
Idaho	Warehouse	Cooling Dx Evap	Insulation - Duct	R-8	R-5 (ID State Code)	per surface area of duct insul	New	0.08	20	\$0.28	75%	85%	\$0.37	5
Idaho	Warehouse	Cooling Dx Evap	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	New	2	30	\$5	50%	95%	\$0.23	34
Idaho	Warehouse	Cooling Dx Evap	Natural Ventilation	Natural Ventilation Design Reduction in Cooling	None - Standard Ventilation	per building sqft	New	0.03	15	\$0.85	20%	75%	\$3.21	4
Idaho	Warehouse	Cooling Dx Evap	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	New	103	10	\$123	95%	12%	\$0.20	1
Idaho	Warehouse	Cooling Dx Evap	Windows-High Efficiency	U-0.32	U-0.35 (ID State Code)	per window sqft	New	2	25	\$24	80%	90%	\$0.99	45
Idaho	Warehouse	Cooling Room	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	Existing	0.06	15	\$0.69	80%	98%	\$1.36	9
Idaho	Warehouse	Cooling Room	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	Existing	65	15	\$149	75%	75%	\$0.29	7
Idaho	Warehouse	Cooling Room	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	Existing	0.06	40	\$8	4%	98%	\$11.35	0.04
Idaho	Warehouse	Cooling Room	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	0.49	13	\$0.24	10%	39%	\$0.07	0.08
Idaho	Warehouse	Cooling Room	Insulation - Ceiling	R-30 (ID State Code)	R-8 (Average Existing Conditions)	per roof sqft	Existing	0.00	25	\$0.67	75%	62%	\$22.91	0.25
Idaho	Warehouse	Cooling Room	PTAC (10,000 BTU/HR) - Premium-Efficiency	11.4 EER	Room AC (10,000 BTU/HR) Standard-Efficiency 9.8 EER	Per installation	Existing	1,079	15	\$29,934	75%	N/A	\$3.59	15
Idaho	Warehouse	Cooling Room	Room AC (10,000 BTU/HR) High-Efficiency	High Efficiency 10.8 EER (ENERGY STAR)	Room AC (10,000 BTU/HR) Standard-Efficiency 9.8 EER	Per installation	Existing	725	9	\$1,530	100%	N/A	\$0.38	2
Idaho	Warehouse	Cooling Room	Window Film	Window Film	No Film	per 100 sqft of window glazing	Existing	0.04	10	\$130	90%	68%	\$517.39	0.00
Idaho	Warehouse	Cooling Room	Windows-High Efficiency	U-0.32	U-0.35 (ID State Code)	per window sqft	Existing	4	25	\$24	15%	90%	\$0.52	2
Idaho	Warehouse	Cooling Room	Windows-High Efficiency	U-0.35 (ID State Code)	U-0.65 (Average Existing Conditions)	per window sqft	Existing	4	25	\$67	15%	71%	\$1.73	1
Idaho	Warehouse	Cooling Room	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	New	0.04	15	\$0.69	80%	98%	\$1.93	3
Idaho	Warehouse	Cooling Room	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	New	46	15	\$149	75%	75%	\$0.42	3
Idaho	Warehouse	Cooling Room	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	New	0.04	40	\$8	4%	98%	\$16.07	0.01
Idaho	Warehouse	Cooling Room	Natural Ventilation	Natural Ventilation Design Reduction in Cooling	None - Standard Ventilation	per building sqft	New	0.04	15	\$0.85	20%	75%	\$2.38	0.67
Idaho	Warehouse	Cooling Room	PTAC (10,000 BTU/HR) - Premium-Efficiency	11.4 EER	Room AC (10,000 BTU/HR) Standard-Efficiency 9.8 EER	Per installation	New	785	15	\$21,959	75%	N/A	\$3.62	2
Idaho	Warehouse	Cooling Room	Room AC (10,000 BTU/HR) High-Efficiency	High Efficiency 10.8 EER (ENERGY STAR)	Room AC (10,000 BTU/HR) Standard-Efficiency 9.8 EER	Per installation	New	460	9	\$1,224	100%	N/A	\$0.48	0.43
Idaho	Warehouse	Cooling Room	Windows-High Efficiency	U-0.32	U-0.35 (ID State Code)	per window sqft	New	3	25	\$24	80%	90%	\$0.73	6
Idaho	Warehouse	Heat Pump	Air Source Heat Pump 65 to 135 kBtu/hr - High Efficiency	11.5 EER, 3.4 COP	11.0 EER, 3.3 COP	Per installation	Existing	999	15	\$2,583	100%	N/A	\$0.33	1
Idaho	Warehouse	Heat Pump	Air Source Heat Pump 65 to 135 kBtu/hr - Premium Efficiency	12.0 EER, 3.8 COP	11.0 EER, 3.3 COP	Per installation	Existing	3,200	15	\$5,168	100%	N/A	\$0.21	67

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Idaho	Warehouse	Heat Pump	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	Existing	0.06	15	\$0.69	80%	98%	\$1.47	10
Idaho	Warehouse	Heat Pump	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	Existing	255	15	\$149	75%	75%	\$0.08	51
Idaho	Warehouse	Heat Pump	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	Existing	0.06	18	\$0.17	45%	65%	\$0.33	4
Idaho	Warehouse	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	Existing	0.29	14	\$0.92	5%	94%	\$0.43	3
Idaho	Warehouse	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	Existing	0.06	40	\$8	4%	98%	\$12.23	0.05
Idaho	Warehouse	Heat Pump	Ground Source Heat Pump Replacing Air Source Heat Pump 65 to 135 kBTU/hr - Advanced Efficiency	16.2 EER 4.0 COP	11.0 EER, 3.3 COP	Per installation	Existing	5,391	30	\$97,151	5%	N/A	\$1.68	5
Idaho	Warehouse	Heat Pump	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	4	13	\$0.24	10%	39%	\$0.01	1
Idaho	Warehouse	Heat Pump	Insulation - Ceiling	R-30 (ID State Code)	R-8 (Average Existing Conditions)	per roof sqft	Existing	0.34	25	\$0.67	75%	62%	\$0.20	44
Idaho	Warehouse	Heat Pump	Insulation - Ceiling	R-38	R-30 (ID State Code)	per roof sqft	Existing	0.03	25	\$0.22	25%	85%	\$0.61	2
Idaho	Warehouse	Heat Pump	Insulation - Duct	R-5 (ID State Code)	No Insulation	per surface area of duct insul	Existing	0.97	20	\$1	75%	59%	\$0.16	9
Idaho	Warehouse	Heat Pump	Insulation - Duct	R-8	R-5 (ID State Code)	per surface area of duct insul	Existing	0.65	20	\$0.28	75%	85%	\$0.05	11
Idaho	Warehouse	Heat Pump	Insulation - Floor (non-slab)	R-30 (ID State Code)	R-8 (Average Existing Conditions)	per floor area	Existing	0.57	25	\$0.84	35%	81%	\$0.15	49
Idaho	Warehouse	Heat Pump	Insulation - Floor (non-slab)	R-38	R-30 (ID State Code)	per floor area	Existing	0.08	25	\$0.29	35%	90%	\$0.38	6
Idaho	Warehouse	Heat Pump	Insulation - Wall	R-13 (ID State Code)	R-3 (Average Existing Conditions)	per floor area	Existing	0.90	25	\$0.90	10%	63%	\$0.10	7
Idaho	Warehouse	Heat Pump	Insulation - Wall	R-21	R-13 (ID State Code)	per floor area	Existing	0.41	25	\$0.20	10%	85%	\$0.05	5
Idaho	Warehouse	Heat Pump	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	Existing	21	30	\$5	50%	95%	\$0.02	103
Idaho	Warehouse	Heat Pump	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	Existing	766	10	\$123	95%	24%	\$0.03	6
Idaho	Warehouse	Heat Pump	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	0.31	7	\$0.13	90%	85%	\$0.09	82
Idaho	Warehouse	Heat Pump	Window Film	Window Film	No Film	per 100 sqft of window glazing	Existing	0.84	10	\$130	90%	68%	\$25.66	0.02
Idaho	Warehouse	Heat Pump	Windows-High Efficiency	U-0.35 (ID State Code)	U-0.65 (Average Existing Conditions)	per window sqft	Existing	5	25	\$67	15%	71%	\$1.27	3
Idaho	Warehouse	Heat Pump	Air Source Heat Pump 65 to 135 kBTU/hr - High Efficiency	11.5 EER, 3.4 COP	11.0 EER, 3.3 COP	Per installation	New	655	15	\$2,067	100%	N/A	\$0.41	0.50
Idaho	Warehouse	Heat Pump	Air Source Heat Pump 65 to 135 kBTU/hr - Premium Efficiency	12.0 EER, 3.8 COP	11.0 EER, 3.3 COP	Per installation	New	2,784	15	\$4,135	100%	N/A	\$0.19	33
Idaho	Warehouse	Heat Pump	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	New	0.04	15	\$0.69	80%	98%	\$2.14	5
Idaho	Warehouse	Heat Pump	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	New	217	15	\$149	75%	75%	\$0.09	24
Idaho	Warehouse	Heat Pump	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	New	0.05	18	\$0.17	45%	65%	\$0.39	2
Idaho	Warehouse	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	New	0.26	14	\$0.92	5%	94%	\$0.47	2
Idaho	Warehouse	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	New	0.04	40	\$8	4%	98%	\$17.85	0.02

Table C.2.2. Commercial Measure Details

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Idaho	Warehouse	Heat Pump	Ground Source Heat Pump Replacing Air Source Heat Pump 65 to 135 kBTU/hr - Advanced Efficiency	16.2 EER 4.0 COP	11.0 EER, 3.3 COP	Per installation	New	4,572	30	\$51,483	5%	N/A	\$1.03	2
Idaho	Warehouse	Heat Pump	Insulation - Ceiling	R-38	R-30 (ID State Code)	per roof sqft	New	0.03	25	\$0.22	75%	85%	\$0.64	4
Idaho	Warehouse	Heat Pump	Insulation - Duct	R-8	R-5 (ID State Code)	per surface area of duct insul	New	0.55	20	\$0.28	75%	85%	\$0.06	5
Idaho	Warehouse	Heat Pump	Insulation - Floor (non-slab)	R-38	R-30 (ID State Code)	per floor area	New	0.07	25	\$0.29	35%	90%	\$0.39	4
Idaho	Warehouse	Heat Pump	Insulation - Wall	R-21	R-13 (ID State Code)	per floor area	New	0.40	25	\$0.20	95%	85%	\$0.05	28
Idaho	Warehouse	Heat Pump	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	New	18	30	\$5	50%	95%	\$0.03	52
Idaho	Warehouse	Heat Pump	Natural Ventilation	Natural Ventilation Design Reduction in Cooling	None - Standard Ventilation	per building sqft	New	0.21	15	\$0.85	20%	75%	\$0.51	6
Idaho	Warehouse	Heat Pump	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	New	653	10	\$123	95%	12%	\$0.03	1
Idaho	Warehouse	Hvac Aux	Motor - CEE Premium-Efficiency Plus	CEE PE+ Motor for HVAC Applications	NEMA Efficiency Motors	per HP	Existing	9	15	\$6	95%	76%	\$0.09	55
Idaho	Warehouse	Hvac Aux	Motor Rewind	>15, <500 HP	No Rewind	per HP	Existing	2	8	\$4	65%	25%	\$0.39	2
Idaho	Warehouse	Hvac Aux	Motor - CEE Premium-Efficiency Plus	CEE PE+ Motor for HVAC Applications	NEMA Efficiency Motors	per HP	New	6	15	\$6	95%	76%	\$0.12	28
Idaho	Warehouse	Lighting Exterior	Covered Parking Lighting	Covered Parking Lighting	Normal Lighting	per building sqft	Existing	0.09	10	\$0.02	80%	95%	\$0.05	702
Idaho	Warehouse	Lighting Exterior	Daylighting Controls, Outdoors (Photocell)	Photocell	No Controls	per installation	Existing	15	8	\$28	75%	70%	\$0.37	18
Idaho	Warehouse	Lighting Exterior	Exterior Building Lighting	30% savings	Normal Lighting	per installation	Existing	239	15	\$333	62%	90%	\$0.18	176
Idaho	Warehouse	Lighting Exterior	Solid State LED White Lighting	Landscape, merchandise, signage, structure & task lighting (2.5 W)	50W 10hrs/day, 365 day/yr	per installation	Existing	1	14	\$35	75%	95%	\$2.94	4
Idaho	Warehouse	Lighting Exterior	Surface Parking Lighting	Surface Parking Lighting	Normal Lighting	per building sqft	Existing	0.05	19	\$0.06	62%	95%	\$0.16	294
Idaho	Warehouse	Lighting Exterior	Covered Parking Lighting	Covered Parking Lighting	Normal Lighting	per building sqft	New	0.09	10	\$0.02	80%	95%	\$0.05	398
Idaho	Warehouse	Lighting Exterior	Daylighting Controls, Outdoors (Photocell)	Photocell	No Controls	per installation	New	15	8	\$28	75%	70%	\$0.37	10
Idaho	Warehouse	Lighting Exterior	Exterior Building Lighting	30% savings	Normal Lighting	per installation	New	239	15	\$333	62%	90%	\$0.18	100
Idaho	Warehouse	Lighting Exterior	Solid State LED White Lighting	Landscape, merchandise, signage, structure & task lighting (2.5 W)	50W 10hrs/day, 365 day/yr	per installation	New	1	14	\$35	75%	95%	\$2.94	2
Idaho	Warehouse	Lighting Exterior	Surface Parking Lighting	Surface Parking Lighting	Normal Lighting	per building sqft	New	0.05	19	\$0.06	62%	95%	\$0.16	166
Idaho	Warehouse	Lighting Interior	Cold Cathode Lighting	Cold Cathode Lighting 5 watts	30 W Incandescent Bulb	per installation	Existing	186	5	\$13	15%	94%	\$0.02	25
Idaho	Warehouse	Lighting Interior	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	Existing	0.22	8	\$0.85	30%	98%	\$0.73	56
Idaho	Warehouse	Lighting Interior	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	Existing	0.08	8	\$0.64	30%	98%	\$1.46	21
Idaho	Warehouse	Lighting Interior	Exit Sign - LED	LED Exit Sign (2 Watts)	CFL Exit Sign (9 Watts)	per installation	Existing	95	16	\$16	95%	50%	\$0.02	328
Idaho	Warehouse	Lighting Interior	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign (2 Watts)	per installation	Existing	17	13	\$30	95%	98%	\$0.25	39
Idaho	Warehouse	Lighting Interior	Lighting Package, High Efficiency	15% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	Existing	0.19	13	\$0.00	90%	53%	\$0.00	732
Idaho	Warehouse	Lighting Interior	Lighting Package, High Efficiency	Code Required LPD And Control Strategies	Existing Lighting Design LPD	per building sqft	Existing	0.68	13	\$0.46	90%	30%	\$0.10	1,778
Idaho	Warehouse	Lighting Interior	Lighting Package, Premium Efficiency	25% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	Existing	0.32	13	\$0.10	75%	62%	\$0.05	294
Idaho	Warehouse	Lighting Interior	Lighting Package, Premium High Bay	35% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	Existing	0.33	13	\$0.25	70%	84%	\$0.10	1,921

Table C.2.2. Commercial Measure Details

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Idaho	Warehouse	Lighting Interior	Occupancy Sensor Control, Fluorescent	Occupancy Sensor Control, Fluorescent	No Occupancy Sensor	per occupancy sensor	Existing	646	8	\$65	90%	50%	\$0.02	223
Idaho	Warehouse	Lighting Interior	Time Clock	Time Clock	No Controls	per 10,000 Watts	Existing	742	8	\$175	20%	**	\$0.05	96
Idaho	Warehouse	Lighting Interior	Cold Cathode Lighting	Cold Cathode Lighting 5 watts	30 W Incandescent Bulb	per installation	New	125	5	\$13	15%	94%	\$0.03	9
Idaho	Warehouse	Lighting Interior	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	New	0.15	8	\$0.85	30%	98%	\$1.09	21
Idaho	Warehouse	Lighting Interior	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	New	0.05	8	\$0.64	30%	98%	\$2.17	8
Idaho	Warehouse	Lighting Interior	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign (2 Watts)	per installation	New	17	13	\$30	95%	98%	\$0.25	88
Idaho	Warehouse	Lighting Interior	Lighting Package, High Efficiency	15% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	New	0.19	15	\$0.00	90%	53%	\$0.00	415
Idaho	Warehouse	Lighting Interior	Lighting Package, Premium Efficiency	25% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	New	0.32	15	\$0.05	75%	62%	\$0.02	167
Idaho	Warehouse	Lighting Interior	Lighting Package, Premium High Bay	35% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	New	0.33	15	\$0.05	70%	84%	\$0.02	1,089
Idaho	Warehouse	Lighting Interior	Occupancy Sensor Control, Fluorescent	Occupancy Sensor Control, Fluorescent	No Occupancy Sensor	per occupancy sensor	New	435	8	\$65	90%	50%	\$0.03	86
Idaho	Warehouse	Lighting Interior	Time Clock	Time Clock	No Controls	per 10,000 Watts	New	742	8	\$175	20%	**	\$0.05	37
Idaho	Warehouse	Other Office Equipment	ENERGY STAR - Copiers	ENERGY STAR Copiers	Standard Copier	per installation	Existing	72	6	\$163	95%	45%	\$0.55	1
Idaho	Warehouse	Other Office Equipment	ENERGY STAR - Fax	ENERGY STAR Fax	Standard Fax	per installation	Existing	77	6	\$0.00	95%	45%	\$0.00	1
Idaho	Warehouse	Other Office Equipment	ENERGY STAR - Monitors	ENERGY STAR Features Enabled	Non-ENERGY STAR Features	per installation	Existing	14	5	\$16	64%	15%	\$0.31	2
Idaho	Warehouse	Other Office Equipment	ENERGY STAR - Printers	ENERGY STAR Printers	Standard Printers	per installation	Existing	135	6	\$14	95%	40%	\$0.03	38
Idaho	Warehouse	Other Office Equipment	ENERGY STAR - Scanners	ENERGY STAR Scanners	Standard Scanner	per installation	Existing	70	6	\$20	95%	45%	\$0.07	1
Idaho	Warehouse	Other Office Equipment	ENERGY STAR - Copiers	ENERGY STAR Copiers	Standard Copier	per installation	New	72	6	\$163	95%	45%	\$0.55	0.87
Idaho	Warehouse	Other Office Equipment	ENERGY STAR - Fax	ENERGY STAR Fax	Standard Fax	per installation	New	77	6	\$0.00	95%	45%	\$0.00	0.93
Idaho	Warehouse	Other Office Equipment	ENERGY STAR - Monitors	ENERGY STAR Features Enabled	Non-ENERGY STAR Features	per installation	New	14	5	\$16	64%	15%	\$0.31	1
Idaho	Warehouse	Other Office Equipment	ENERGY STAR - Printers	ENERGY STAR Printers	Standard Printers	per installation	New	135	6	\$14	95%	40%	\$0.03	21
Idaho	Warehouse	Other Office Equipment	ENERGY STAR - Scanners	ENERGY STAR Scanners	Standard Scanner	per installation	New	70	6	\$20	95%	45%	\$0.07	0.84
Idaho	Warehouse	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	per installation	Existing	7	7	\$2	20%	90%	\$0.06	0.63
Idaho	Warehouse	Other Plug Load	ENERGY STAR - Water Cooler	ENERGY STAR Water Cooler (Hot/Cold Water)	Non-ENERGY STAR Water Cooler	per installation	Existing	357	10	\$0.00	95%	75%	\$0.00	190
Idaho	Warehouse	Other Plug Load	Power Supply Transformer/Converter	80 Plus	85% efficient power supply (> 51W)	1 unit per 2,000 sqft	Existing	2	4	\$0.40	95%	86%	\$0.06	9
Idaho	Warehouse	Other Plug Load	Residential Refrigerator	ENERGY STAR	Federal Standard	per installation	Existing	79	12	\$122	20%	65%	\$0.23	10
Idaho	Warehouse	Other Plug Load	Residential Refrigerator/Freezer Recycling	Recycling Existing Refrigerator/Freezer	Existing Refrigerator/Freezer	per installation	Existing	938	4	\$561	25%	35%	\$0.20	32
Idaho	Warehouse	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	1 unit per 15,000 sqft	Existing	99	5	\$19	60%	90%	\$0.06	35
Idaho	Warehouse	Other Plug Load	Vending Machines- High Efficiency	ENERGY STAR (Tier 2) Vending Machines- High Efficiency 500 can capacity Under 5.92 kWh/day	Vending Machines- Standard 13 kWh/day	per installation	Existing	236	14	\$163	10%	80%	\$0.09	1
Idaho	Warehouse	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	per installation	New	7	7	\$2	20%	90%	\$0.06	0.36

Table C.2.2. Commercial Measure Details

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Idaho	Warehouse	Other Plug Load	ENERGY STAR - Water Cooler	ENERGY STAR Water Cooler (Hot/Cold Water)	Non-ENERGY STAR Water Cooler	per installation	New	357	10	\$0.00	95%	75%	\$0.00	108
Idaho	Warehouse	Other Plug Load	Power Supply Transformer/Converter	80 Plus	85% efficient power supply (> 51W)	1 unit per 2,000 sqft	New	2	4	\$0.40	95%	86%	\$0.06	5
Idaho	Warehouse	Other Plug Load	Residential Refrigerator	ENERGY STAR	Federal Standard	per installation	New	79	12	\$122	20%	65%	\$0.23	5
Idaho	Warehouse	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	1 unit per 15,000 sqft	New	99	5	\$19	60%	90%	\$0.06	20
Idaho	Warehouse	Other Plug Load	Vending Machines- High Efficiency	ENERGY STAR (Tier 2) Vending Machines- High Efficiency 500 can capacity Under 5.92 kWh/day	Vending Machines- Standard 13 kWh/day	per installation	New	236	14	\$163	10%	80%	\$0.09	1
Idaho	Warehouse	Refrigeration	Refrigeration Commissioning or Re-commissioning	Commissioning / Re-commissioning	No Commissioning / Re-commissioning	per refrigeration ton	Existing	808	3	\$88	5%	85%	\$0.05	90
Idaho	Warehouse	Refrigeration	Standalone to Multiplex Compressor	Standalone to Multiplex Compressor	Standalone compressor	per building sqft	Existing	0.36	13	\$0.05	3%	90%	\$0.02	21
Idaho	Warehouse	Refrigeration	Strip Curtains for Walk-Ins	Strip Curtains for Walk-Ins	No Strip Curtains for Walk-In	per installation	Existing	2,662	4	\$183	5%	20%	\$0.02	7
Idaho	Warehouse	Refrigeration	Walk-In Electronically Commutated Motor	ECM Evaporator Fans	Standard Efficiency Motor	per installation	Existing	0.51	12	\$0.17	5%	95%	\$0.05	64
Idaho	Warehouse	Refrigeration	Refrigeration Commissioning or Re-commissioning	Commissioning / Re-commissioning	No Commissioning / Re-commissioning	per refrigeration ton	New	499	3	\$34	3%	90%	\$0.03	16
Idaho	Warehouse	Refrigeration	Strip Curtains for Walk-Ins	Strip Curtains for Walk-Ins	No Strip Curtains for Walk-In	per installation	New	2,662	4	\$183	5%	20%	\$0.02	3
Idaho	Warehouse	Refrigeration	Walk-In Electronically Commutated Motor	ECM Evaporator Fans	Standard Efficiency Motor	per installation	New	0.51	12	\$0.17	5%	95%	\$0.05	36
Idaho	Warehouse	Space Heat	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	Existing	403	15	\$149	75%	75%	\$0.05	183
Idaho	Warehouse	Space Heat	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	Existing	0.10	18	\$0.17	45%	65%	\$0.21	15
Idaho	Warehouse	Space Heat	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	Existing	0.60	14	\$0.92	5%	94%	\$0.21	15
Idaho	Warehouse	Space Heat	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	6	13	\$0.24	10%	39%	\$0.01	4
Idaho	Warehouse	Space Heat	Insulation - Ceiling	R-30 (ID State Code)	R-8 (Average Existing Conditions)	per roof sqft	Existing	0.93	25	\$0.67	75%	62%	\$0.07	270
Idaho	Warehouse	Space Heat	Insulation - Ceiling	R-38	R-30 (ID State Code)	per roof sqft	Existing	0.09	25	\$0.22	25%	85%	\$0.24	10
Idaho	Warehouse	Space Heat	Insulation - Duct	R-5 (ID State Code)	No Insulation	per surface area of duct insul	Existing	1	20	\$1	75%	59%	\$0.10	29
Idaho	Warehouse	Space Heat	Insulation - Duct	R-8	R-5 (ID State Code)	per surface area of duct insul	Existing	1	20	\$0.28	75%	85%	\$0.03	42
Idaho	Warehouse	Space Heat	Insulation - Floor (non-slab)	R-30 (ID State Code)	R-8 (Average Existing Conditions)	per floor area	Existing	1	25	\$0.84	35%	81%	\$0.06	277
Idaho	Warehouse	Space Heat	Insulation - Floor (non-slab)	R-38	R-30 (ID State Code)	per floor area	Existing	0.18	25	\$0.29	35%	90%	\$0.17	31
Idaho	Warehouse	Space Heat	Insulation - Wall	R-13 (ID State Code)	R-3 (Average Existing Conditions)	per floor area	Existing	2	25	\$0.90	10%	63%	\$0.04	54
Idaho	Warehouse	Space Heat	Insulation - Wall	R-21	R-13 (ID State Code)	per floor area	Existing	1	25	\$0.20	10%	85%	\$0.02	34
Idaho	Warehouse	Space Heat	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	Existing	33	30	\$5	50%	95%	\$0.01	379
Idaho	Warehouse	Space Heat	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	Existing	1,209	10	\$123	95%	24%	\$0.02	23
Idaho	Warehouse	Space Heat	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	0.50	7	\$0.13	90%	85%	\$0.06	295
Idaho	Warehouse	Space Heat	Windows-High Efficiency	U-0.35 (ID State Code)	U-0.65 (Average Existing Conditions)	per window sqft	Existing	2	25	\$67	15%	71%	\$2.46	3
Idaho	Warehouse	Space Heat	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	New	317	15	\$149	75%	75%	\$0.06	76
Idaho	Warehouse	Space Heat	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	New	0.07	18	\$0.17	45%	65%	\$0.27	9
Idaho	Warehouse	Space Heat	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	New	0.47	14	\$0.92	5%	94%	\$0.26	8
Idaho	Warehouse	Space Heat	Insulation - Ceiling	R-38	R-30 (ID State Code)	per roof sqft	New	0.07	25	\$0.22	75%	85%	\$0.31	18

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Idaho	Warehouse	Space Heat	Insulation - Duct	R-8	R-5 (ID State Code)	per surface area of duct insul	New	0.81	20	\$0.28	75%	85%	\$0.04	17
Idaho	Warehouse	Space Heat	Insulation - Floor (non-slab)	R-38	R-30 (ID State Code)	per floor area	New	0.14	25	\$0.29	35%	90%	\$0.21	18
Idaho	Warehouse	Space Heat	Insulation - Wall	R-21	R-13 (ID State Code)	per floor area	New	0.91	25	\$0.20	95%	85%	\$0.02	147
Idaho	Warehouse	Space Heat	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	New	26	30	\$5	50%	95%	\$0.02	169
Idaho	Warehouse	Space Heat	Natural Ventilation	Natural Ventilation Design Reduction in Cooling	None - Standard Ventilation	per building sqft	New	0.31	15	\$0.85	20%	75%	\$0.35	18
Idaho	Warehouse	Space Heat	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	New	953	10	\$123	95%	12%	\$0.02	5
Idaho	Warehouse	Water Heat	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	per building sqft	Existing	0.01	10	\$0.23	55%	94%	\$3.37	21
Idaho	Warehouse	Water Heat	Dishwasher Residential	ENERGY STAR <= 324 kWh/yr, <= 5.8 gal/cycle	Federal Standard <= 355 kWh/yr, <= 6.5 gal/cycle	per installation	Existing	30	11	\$30	95%	25%	\$0.10	3
Idaho	Warehouse	Water Heat	Electric Water Heater - High Efficiency	EF = 0.95	EF = 0.92	Per installation	Existing	77	15	\$65	100%	N/A	\$0.11	3
Idaho	Warehouse	Water Heat	Heat Pump Water Heater - Advanced-Efficiency	EF = 2.2	EF = 0.92	Per installation	Existing	1,424	15	\$1,173	75%	N/A	\$0.11	269
Idaho	Warehouse	Water Heat	Hot Water (SHW) Pipe Insulation	1.0" of Insulation, assuming R-4 (ID State Code)	No Insulation	per linear foot	Existing	2	12	\$2	80%	90%	\$0.10	6
Idaho	Warehouse	Water Heat	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	per installation	Existing	37	9	\$0.00	95%	25%	-\$0.08	7
Idaho	Warehouse	Water Heat	Low-Flow Faucet Aerators	2.2 GPM (Federal Code)	3.0 GPM	per installation	Existing	31	9	\$2	95%	25%	-\$0.07	6
Idaho	Warehouse	Water Heat	Low-Flow Showerheads	2.0 GPM	2.5 GPM (Federal Code)	per installation	Existing	559	10	\$6	95%	73%	-\$0.08	51
Idaho	Warehouse	Water Heat	Low-Flow Showerheads	2.5 GPM (Federal Code)	4.5 GPM	per installation	Existing	1,243	10	\$10	95%	62%	-\$0.08	96
Idaho	Warehouse	Water Heat	Water Cooled Refrigeration with Heat Recovery	Heat Recovery from refrigeration system. Applied to Water Heating Electric End use	No heat recovery	per sqft of refrigerated area	Existing	0.02	10	\$0.76	3%	94%	\$4.72	1
Idaho	Warehouse	Water Heat	Water Heater Temperature Setback	Water Heater Temperature Setback (120 F)	No Change in Water Temperature	per installation	Existing	181	5	\$71	75%	45%	\$0.11	22
Idaho	Warehouse	Water Heat	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	per building sqft	New	0.01	10	\$0.23	55%	94%	\$3.37	13
Idaho	Warehouse	Water Heat	Dishwasher Residential	ENERGY STAR <= 324 kWh/yr, <= 5.8 gal/cycle	Federal Standard <= 355 kWh/yr, <= 6.5 gal/cycle	per installation	New	30	11	\$30	95%	55%	\$0.10	3
Idaho	Warehouse	Water Heat	Electric Water Heater - High Efficiency	EF = 0.95	EF = 0.92	Per installation	New	77	15	\$65	100%	N/A	\$0.11	1
Idaho	Warehouse	Water Heat	Heat Pump Water Heater - Advanced-Efficiency	EF = 2.2	EF = 0.92	Per installation	New	1,424	15	\$1,046	75%	N/A	\$0.10	136
Idaho	Warehouse	Water Heat	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	per installation	New	37	9	\$0.00	95%	25%	-\$0.08	4
Idaho	Warehouse	Water Heat	Low-Flow Showerheads	2.0 GPM	2.5 GPM (Federal Code)	per installation	New	559	10	\$6	95%	73%	-\$0.08	28
Idaho	Warehouse	Water Heat	Water Cooled Refrigeration with Heat Recovery	Heat Recovery from refrigeration system. Applied to Water Heating Electric End use	No heat recovery	per sqft of refrigerated area	New	0.02	10	\$0.76	3%	94%	\$4.72	0.83
Idaho	Warehouse	Water Heat	Water Heater Temperature Setback	Water Heater Temperature Setback (120 F)	No Change in Water Temperature	per installation	New	181	5	\$71	75%	45%	\$0.11	14
Utah	Grocery	Computers	Computer ENERGY STAR	Computer ENERGY STAR	Computer standard non-ENERGY STAR	Per installation	Existing	135	4	\$28	100%	N/A	\$0.06	154
Utah	Grocery	Computers	Computer ENERGY STAR	Computer ENERGY STAR	Computer standard non-ENERGY STAR	Per installation	New	135	4	\$28	100%	N/A	\$0.06	15
Utah	Grocery	Cooking	Combination Oven	60% cooking efficiency	Non ENERGY STAR	per installation	Existing	11,906	12	\$1,895	90%	90%	\$0.02	20
Utah	Grocery	Cooking	Fryers - New CEE Efficient Electric Deep Fat Fryers	15 inch width Deep Fryer CEE 2006 rating: 80% under heavy load, Less than 1000 watt at idle	15 inch width standard electric deep fat fryers	per installation	Existing	1,022	12	\$1,288	35%	90%	\$0.16	3
Utah	Grocery	Cooking	Griddle	70% cooking efficiency	Non ENERGY STAR	per installation	Existing	2,298	12	\$817	95%	85%	\$0.05	52
Utah	Grocery	Cooking	High Efficiency Convection Oven	Convection Oven	Standard Oven	per installation	Existing	1,902	12	\$2,016	19%	55%	\$0.14	8
Utah	Grocery	Cooking	Hot Food Holding Cabinet	ENERGY STAR	Non ENERGY STAR	per installation	Existing	3,991	12	\$1,748	55%	21%	\$0.06	26

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Utah	Grocery	Cooking	Steam Cooker	ENERGY STAR	Non ENERGY STAR	per installation	Existing	4,272	12	\$2,538	14%	75%	\$0.08	26
Utah	Grocery	Cooking	Combination Oven	60% cooking efficiency	Non ENERGY STAR	per installation	New	11,906	12	\$1,895	90%	90%	\$0.02	12
Utah	Grocery	Cooking	Fryers - New CEE Efficient Electric Deep Fat Fryers	15 inch width Deep Fryer CEE 2006 rating; 80% under heavy load, Less than 1000 watt at idle	15 inch width standard electric deep fat fryers	per installation	New	1,022	12	\$1,288	35%	90%	\$0.16	2
Utah	Grocery	Cooking	Griddle	70% cooking efficiency	Non ENERGY STAR	per installation	New	2,298	12	\$817	95%	85%	\$0.05	33
Utah	Grocery	Cooking	High Efficiency Convection Oven	Convection Oven	Standard Oven	per installation	New	1,902	12	\$2,016	19%	55%	\$0.14	5
Utah	Grocery	Cooking	Hot Food Holding Cabinet	ENERGY STAR	Non ENERGY STAR	per installation	New	3,991	12	\$1,748	55%	21%	\$0.06	16
Utah	Grocery	Cooking	Steam Cooker	ENERGY STAR	Non ENERGY STAR	per installation	New	4,272	12	\$2,538	14%	75%	\$0.08	16
Utah	Grocery	Cooling Dx Evap	Cool Roof	Light color Coating; ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	Existing	0.44	15	\$0.69	80%	98%	\$0.18	2,449
Utah	Grocery	Cooling Dx Evap	DX Package 65 to 135 kBtu/hr - High Efficiency	DX Package 65 to 135 kBtu/hr - High Efficiency - 11.5 EER	DX Package 65 to 135 kBtu/hr - Standard Efficiency - 11.2 EER	Per installation	Existing	1,220	15	\$648	100%	N/A	\$0.06	49
Utah	Grocery	Cooling Dx Evap	DX Package 65 to 135 kBtu/hr - Premium Efficiency	DX Package 65 to 135 kBtu/hr - Premium Efficiency - 12.0 EER	DX Package 65 to 135 kBtu/hr - Standard Efficiency - 11.2 EER	Per installation	Existing	3,135	15	\$1,303	100%	N/A	\$0.05	1,806
Utah	Grocery	Cooling Dx Evap	DX Package-Air Side Economizer	Air-Side Economizer	No Economizer	per DX ton	Existing	198	10	\$159	10%	90%	\$0.12	475
Utah	Grocery	Cooling Dx Evap	DX Tune-Up / Diagnostics	DX Tune-Up / Diagnostics	No DX Tune-Up / Diagnostics	per installation	Existing	994	4	\$272	95%	72%	\$0.09	2,628
Utah	Grocery	Cooling Dx Evap	Direct / Indirect Evaporative Cooling, Pre-Cooling	Evaporative Cooler	Standard DX cooling	per building CFM	Existing	1	15	\$1	50%	94%	\$0.19	3,683
Utah	Grocery	Cooling Dx Evap	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	Existing	442	15	\$155	75%	76%	\$0.04	2,550
Utah	Grocery	Cooling Dx Evap	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	Existing	0.11	18	\$0.19	45%	65%	\$0.18	236
Utah	Grocery	Cooling Dx Evap	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	Existing	0.44	40	\$8	4%	98%	\$1.54	9
Utah	Grocery	Cooling Dx Evap	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	2	13	\$0.26	10%	39%	\$0.01	73
Utah	Grocery	Cooling Dx Evap	Insulation - Ceiling	R-30 (UT State Code)	R-7 (Average Existing Conditions)	per roof sqft	Existing	0.02	25	\$0.69	75%	61%	\$3.08	56
Utah	Grocery	Cooling Dx Evap	Insulation - Duct	R-5 (UT State Code)	No Insulation	per surface area of duct insul	Existing	1	20	\$1	75%	59%	\$0.09	473
Utah	Grocery	Cooling Dx Evap	Insulation - Duct	R-8	R-5 (UT State Code)	per surface area of duct insul	Existing	1	20	\$0.30	75%	85%	\$0.03	579
Utah	Grocery	Cooling Dx Evap	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	Existing	27	30	\$5	50%	95%	\$0.02	3,583
Utah	Grocery	Cooling Dx Evap	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	Existing	928	10	\$127	95%	25%	\$0.02	323
Utah	Grocery	Cooling Dx Evap	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	0.55	7	\$0.14	90%	85%	\$0.05	4,062
Utah	Grocery	Cooling Dx Evap	Window Film	Window Film	No Film	per 100 sqft of window glazing	Existing	2	10	\$135	90%	68%	\$7.97	5
Utah	Grocery	Cooling Dx Evap	Windows-High Efficiency	U-0.32	U-0.35 (UT State Code)	per window sqft	Existing	12	25	\$24	15%	90%	\$0.18	699
Utah	Grocery	Cooling Dx Evap	Windows-High Efficiency	U-0.35 (UT State Code)	U-0.65 (Average Existing Conditions)	per window sqft	Existing	12	25	\$68	15%	71%	\$0.49	487

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Utah	Grocery	Cooling Dx Evap	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	New	0.28	15	\$0.69	80%	98%	\$0.27	1,305
Utah	Grocery	Cooling Dx Evap	DX Package 65 to 135 kBtu/hr - High Efficiency	DX Package 65 to 135 kBtu/hr - High Efficiency - 11.5 EER	DX Package 65 to 135 kBtu/hr - Standard Efficiency - 11.2 EER	Per installation	New	814	15	\$518	100%	N/A	\$0.07	13
Utah	Grocery	Cooling Dx Evap	DX Package 65 to 135 kBtu/hr - Premium Efficiency	DX Package 65 to 135 kBtu/hr - Premium Efficiency - 12.0 EER	DX Package 65 to 135 kBtu/hr - Standard Efficiency - 11.2 EER	Per installation	New	2,190	15	\$1,043	100%	N/A	\$0.05	768
Utah	Grocery	Cooling Dx Evap	Direct / Indirect Evaporative Cooling, Pre-Cooling	Evaporative Cooler	Standard DX cooling	per building CFM	New	0.71	15	\$1	50%	94%	\$0.29	1,772
Utah	Grocery	Cooling Dx Evap	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	New	287	15	\$155	75%	76%	\$0.06	1,113
Utah	Grocery	Cooling Dx Evap	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	New	0.07	18	\$0.19	45%	65%	\$0.27	126
Utah	Grocery	Cooling Dx Evap	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	New	0.28	40	\$8	4%	98%	\$2.38	4
Utah	Grocery	Cooling Dx Evap	Insulation - Duct	R-8	R-5 (UT State Code)	per surface area of duct insul	New	0.73	20	\$0.30	75%	85%	\$0.04	253
Utah	Grocery	Cooling Dx Evap	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	New	17	30	\$5	50%	95%	\$0.03	1,559
Utah	Grocery	Cooling Dx Evap	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	New	602	10	\$127	95%	12%	\$0.03	70
Utah	Grocery	Cooling Dx Evap	Windows-High Efficiency	U-0.32	U-0.35 (UT State Code)	per window sqft	New	7	25	\$24	80%	90%	\$0.28	1,988
Utah	Grocery	Heat Pump	Air Source Heat Pump 65 to 135 kBtu/hr - High Efficiency	11.5 EER, 3.4 COP	11.0 EER, 3.3 COP	Per installation	Existing	4,274	15	\$2,412	100%	N/A	\$0.06	23
Utah	Grocery	Heat Pump	Air Source Heat Pump 65 to 135 kBtu/hr - Premium Efficiency	12.0 EER, 3.8 COP	11.0 EER, 3.3 COP	Per installation	Existing	7,922	15	\$4,824	100%	N/A	\$0.07	478
Utah	Grocery	Heat Pump	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	Existing	0.50	15	\$0.69	80%	98%	\$0.15	205
Utah	Grocery	Heat Pump	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	Existing	800	15	\$155	75%	76%	\$0.02	311
Utah	Grocery	Heat Pump	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	Existing	0.20	18	\$0.19	45%	65%	\$0.10	33
Utah	Grocery	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	Existing	0.43	14	\$1	5%	94%	\$0.47	10
Utah	Grocery	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	Existing	0.50	40	\$8	4%	98%	\$1.34	0.90
Utah	Grocery	Heat Pump	Ground Source Heat Pump Replacing Air Source Heat Pump 65 to 135 kBtu/hr - Advanced Efficiency	16.2 EER 4.0 COP	11.0 EER, 3.3 COP	Per installation	Existing	16,733	30	\$1,221	5%	N/A	\$0.51	48
Utah	Grocery	Heat Pump	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	5	13	\$0.26	10%	39%	\$0.01	10
Utah	Grocery	Heat Pump	Insulation - Ceiling	R-30 (UT State Code)	R-7 (Average Existing Conditions)	per roof sqft	Existing	0.24	25	\$0.69	75%	61%	\$0.25	61
Utah	Grocery	Heat Pump	Insulation - Ceiling	R-38	R-30 (UT State Code)	per roof sqft	Existing	0.02	25	\$0.23	25%	85%	\$0.78	2
Utah	Grocery	Heat Pump	Insulation - Duct	R-5 (UT State Code)	No Insulation	per surface area of duct insul	Existing	3	20	\$1	75%	59%	\$0.05	62
Utah	Grocery	Heat Pump	Insulation - Duct	R-8	R-5 (UT State Code)	per surface area of duct insul	Existing	2	20	\$0.30	75%	85%	\$0.01	70

Table C.2.2. Commercial Measure Details

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Utah	Grocery	Heat Pump	Insulation - Floor (non-slab)	R-19 (UT State Code)	R-11 (Average Existing Conditions)	per floor area	Existing	0.14	25	\$0.61	35%	82%	\$0.37	22
Utah	Grocery	Heat Pump	Insulation - Floor (non-slab)	R-30	R-19 (UT State Code)	per floor area	Existing	0.11	25	\$0.25	35%	90%	\$0.20	19
Utah	Grocery	Heat Pump	Insulation - Wall	R-13 (UT State Code)	R-3 (Average Existing Conditions)	per floor area	Existing	0.48	25	\$0.99	10%	65%	\$0.18	8
Utah	Grocery	Heat Pump	Insulation - Wall	R-21	R-13 (UT State Code)	per floor area	Existing	0.22	25	\$0.20	10%	85%	\$0.08	5
Utah	Grocery	Heat Pump	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	Existing	67	30	\$5	50%	95%	\$0.01	619
Utah	Grocery	Heat Pump	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	Existing	1,680	10	\$127	95%	25%	\$0.01	39
Utah	Grocery	Heat Pump	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	1	7	\$0.14	90%	85%	\$0.03	495
Utah	Grocery	Heat Pump	Window Film	Window Film	No Film	per 100 sqft of window glazing	Existing	2	10	\$135	90%	68%	\$7.95	0.46
Utah	Grocery	Heat Pump	Windows-High Efficiency	U-0.32	U-0.35 (UT State Code)	per window sqft	Existing	10	25	\$24	15%	90%	\$0.21	45
Utah	Grocery	Heat Pump	Windows-High Efficiency	U-0.35 (UT State Code)	U-0.65 (Average Existing Conditions)	per window sqft	Existing	14	25	\$68	15%	71%	\$0.41	48
Utah	Grocery	Heat Pump	Air Source Heat Pump 65 to 135 kBtu/hr - High Efficiency	11.5 EER, 3.4 COP	11.0 EER, 3.3 COP	Per installation	New	2,947	15	\$1,930	100%	N/A	\$0.07	7
Utah	Grocery	Heat Pump	Air Source Heat Pump 65 to 135 kBtu/hr - Premium Efficiency	12.0 EER, 3.8 COP	11.0 EER, 3.3 COP	Per installation	New	5,087	15	\$3,859	100%	N/A	\$0.09	185
Utah	Grocery	Heat Pump	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	New	0.33	15	\$0.69	80%	98%	\$0.23	101
Utah	Grocery	Heat Pump	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	New	470	15	\$155	75%	76%	\$0.04	121
Utah	Grocery	Heat Pump	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	New	0.11	18	\$0.19	45%	65%	\$0.17	14
Utah	Grocery	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	New	0.19	14	\$1	5%	94%	\$1.03	3
Utah	Grocery	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	New	0.33	40	\$8	4%	98%	\$2.02	0.43
Utah	Grocery	Heat Pump	Ground Source Heat Pump Replacing Air Source Heat Pump 65 to 135 kBtu/hr - Advanced Efficiency	16.2 EER 4.0 COP	11.0 EER, 3.3 COP	Per installation	New	11,058	30	\$53,172	5%	N/A	\$0.40	18
Utah	Grocery	Heat Pump	Insulation - Ceiling	R-38	R-30 (UT State Code)	per roof sqft	New	0.00	25	\$0.23	75%	85%	\$2.21	2
Utah	Grocery	Heat Pump	Insulation - Duct	R-8	R-5 (UT State Code)	per surface area of duct insul	New	1	20	\$0.30	75%	85%	\$0.03	27
Utah	Grocery	Heat Pump	Insulation - Floor (non-slab)	R-30	R-19 (UT State Code)	per floor area	New	0.03	25	\$0.25	35%	90%	\$0.64	4
Utah	Grocery	Heat Pump	Insulation - Wall	R-21	R-13 (UT State Code)	per floor area	New	0.07	25	\$0.20	95%	85%	\$0.25	11
Utah	Grocery	Heat Pump	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	New	39	30	\$5	50%	95%	\$0.01	240
Utah	Grocery	Heat Pump	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	New	987	10	\$127	95%	12%	\$0.02	7
Utah	Grocery	Heat Pump	Windows-High Efficiency	U-0.32	U-0.35 (UT State Code)	per window sqft	New	7	25	\$24	80%	90%	\$0.29	130
Utah	Grocery	Hvac Aux	Cooking Hood Controls	Demand-Ventilation Control	No Controls	per installation	Existing	1,888	18	\$3,819	95%	65%	\$0.21	1,615
Utah	Grocery	Hvac Aux	Motor - CEE Premium-Efficiency Plus	CEE PE+ Motor for HVAC Applications	NEMA Efficiency Motors	per HP	Existing	39	15	\$6	95%	76%	\$0.02	375
Utah	Grocery	Hvac Aux	Motor Rewind	>15, <500 HP	No Rewind	per HP	Existing	8	8	\$4	65%	25%	\$0.11	13
Utah	Grocery	Hvac Aux	Cooking Hood Controls	Demand-Ventilation Control	No Controls	per installation	New	1,888	18	\$3,819	95%	65%	\$0.21	1,024
Utah	Grocery	Hvac Aux	Motor - CEE Premium-Efficiency Plus	CEE PE+ Motor for HVAC Applications	NEMA Efficiency Motors	per HP	New	38	15	\$6	95%	76%	\$0.02	288
Utah	Grocery	Lighting Exterior	Covered Parking Lighting	Covered Parking Lighting	Normal Lighting	per building sqft	Existing	0.09	10	\$0.02	80%	95%	\$0.04	1,164
Utah	Grocery	Lighting Exterior	Daylighting Controls, Outdoors (Photocell)	Photocell	No Controls	per installation	Existing	48	8	\$27	75%	70%	\$0.10	176

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Utah	Grocery	Lighting Exterior	Exterior Building Lighting	30% savings	Normal Lighting	per installation	Existing	245	15	\$333	62%	90%	\$0.15	1,539
Utah	Grocery	Lighting Exterior	Solid State LED White Lighting	Landscape, merchandise, signage, structure & task lighting (2.5 W)	50W 10hrs/day, 365 day/yr	per installation	Existing	5	14	\$35	75%	95%	\$0.80	29
Utah	Grocery	Lighting Exterior	Surface Parking Lighting	Surface Parking Lighting	Normal Lighting	per building sqft	Existing	0.05	19	\$0.06	62%	95%	\$0.14	487
Utah	Grocery	Lighting Exterior	Covered Parking Lighting	Covered Parking Lighting	Normal Lighting	per building sqft	New	0.09	10	\$0.02	80%	95%	\$0.04	738
Utah	Grocery	Lighting Exterior	Daylighting Controls, Outdoors (Photocell)	Photocell	No Controls	per installation	New	48	8	\$27	75%	70%	\$0.10	112
Utah	Grocery	Lighting Exterior	Exterior Building Lighting	30% savings	Normal Lighting	per installation	New	245	15	\$333	62%	90%	\$0.15	976
Utah	Grocery	Lighting Exterior	Solid State LED White Lighting	Landscape, merchandise, signage, structure & task lighting (2.5 W)	50W 10hrs/day, 365 day/yr	per installation	New	5	14	\$35	75%	95%	\$0.80	18
Utah	Grocery	Lighting Exterior	Surface Parking Lighting	Surface Parking Lighting	Normal Lighting	per building sqft	New	0.05	19	\$0.06	62%	95%	\$0.14	309
Utah	Grocery	Lighting Interior	Cold Cathode Lighting	Cold Cathode Lighting 5 watts	30 W Incandescent Bulb	per installation	Existing	212	5	\$12	15%	94%	\$0.01	66
Utah	Grocery	Lighting Interior	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	Existing	0.37	8	\$0.88	30%	96%	\$0.40	141
Utah	Grocery	Lighting Interior	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	Existing	0.28	8	\$0.66	30%	96%	\$0.40	105
Utah	Grocery	Lighting Interior	Exit Sign - LED	LED Exit Sign (2 Watts)	CFL Exit Sign (9 Watts)	per installation	Existing	97	16	\$16	95%	50%	\$0.02	537
Utah	Grocery	Lighting Interior	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign (2 Watts)	per installation	Existing	17	13	\$30	95%	98%	\$0.21	63
Utah	Grocery	Lighting Interior	LED Refrigeration Case Lights	LED Refrigeration Case Lights	Fluorescent Refrigeration Case	per installation	Existing	235	8	\$246	85%	80%	\$0.18	9,774
Utah	Grocery	Lighting Interior	Lighting Package, High Efficiency	15% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	Existing	0.75	13	\$0.22	90%	53%	\$0.04	4,508
Utah	Grocery	Lighting Interior	Lighting Package, High Efficiency	Code Required LPD And Control Strategies	Existing Lighting Design LPD	per building sqft	Existing	1	13	\$1	90%	59%	\$0.09	14,008
Utah	Grocery	Lighting Interior	Lighting Package, Premium Efficiency	25% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	Existing	1	13	\$0.90	75%	62%	\$0.09	1,813
Utah	Grocery	Lighting Interior	Lighting Package, Premium High Bay	35% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	Existing	0.26	13	\$0.14	70%	83%	\$0.07	2,360
Utah	Grocery	Lighting Interior	Occupancy Sensor Control, Fluorescent	Occupancy Sensor Control, Fluorescent	No Occupancy Sensor	per occupancy sensor	Existing	1,048	8	\$66	45%	54%	\$0.01	307
Utah	Grocery	Lighting Interior	Time Clock	Time Clock	No Controls	per 10,000 Watts	Existing	759	8	\$182	20%	81%	\$0.04	200
Utah	Grocery	Lighting Interior	Cold Cathode Lighting	Cold Cathode Lighting 5 watts	30 W Incandescent Bulb	per installation	New	186	5	\$12	15%	94%	\$0.02	36
Utah	Grocery	Lighting Interior	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	New	0.33	8	\$0.88	30%	96%	\$0.45	90
Utah	Grocery	Lighting Interior	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	New	0.62	8	\$0.66	30%	96%	\$0.18	170
Utah	Grocery	Lighting Interior	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign (2 Watts)	per installation	New	17	13	\$30	95%	98%	\$0.21	161
Utah	Grocery	Lighting Interior	LED Refrigeration Case Lights	LED Refrigeration Case Lights	Fluorescent Refrigeration Case	per installation	New	235	8	\$246	85%	80%	\$0.18	6,199
Utah	Grocery	Lighting Interior	Lighting Package, High Efficiency	15% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	New	0.75	15	\$0.12	90%	53%	\$0.02	2,859
Utah	Grocery	Lighting Interior	Lighting Package, Premium Efficiency	25% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	New	1	15	\$0.29	75%	62%	\$0.03	1,126
Utah	Grocery	Lighting Interior	Lighting Package, Premium High Bay	35% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	New	0.26	15	\$0.03	70%	83%	\$0.01	1,496
Utah	Grocery	Lighting Interior	Occupancy Sensor Control, Fluorescent	Occupancy Sensor Control, Fluorescent	No Occupancy Sensor	per occupancy sensor	New	923	8	\$66	45%	54%	\$0.01	197
Utah	Grocery	Lighting Interior	Time Clock	Time Clock	No Controls	per 10,000 Watts	New	759	8	\$182	20%	81%	\$0.04	128

Table C.2.2. Commercial Measure Details

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Utah	Grocery	Other Office Equipment	ENERGY STAR - Copiers	ENERGY STAR Copiers	Standard Copier	per installation	Existing	73	6	\$161	95%	45%	\$0.46	25
Utah	Grocery	Other Office Equipment	ENERGY STAR - Fax	ENERGY STAR Fax	Standard Fax	per installation	Existing	78	6	\$0.00	95%	45%	\$0.00	27
Utah	Grocery	Other Office Equipment	ENERGY STAR - Monitors	ENERGY STAR Features Enabled	Non-ENERGY STAR Features	per installation	Existing	15	5	\$16	64%	15%	\$0.27	3
Utah	Grocery	Other Office Equipment	ENERGY STAR - Printers	ENERGY STAR Printers	Standard Printers	per installation	Existing	138	6	\$15	95%	40%	\$0.02	91
Utah	Grocery	Other Office Equipment	ENERGY STAR - Scanners	ENERGY STAR Scanners	Standard Scanner	per installation	Existing	71	6	\$0.00	95%	45%	\$0.00	24
Utah	Grocery	Other Office Equipment	ENERGY STAR - Copiers	ENERGY STAR Copiers	Standard Copier	per installation	New	73	6	\$161	95%	45%	\$0.46	16
Utah	Grocery	Other Office Equipment	ENERGY STAR - Fax	ENERGY STAR Fax	Standard Fax	per installation	New	78	6	\$0.00	95%	45%	\$0.00	17
Utah	Grocery	Other Office Equipment	ENERGY STAR - Monitors	ENERGY STAR Features Enabled	Non-ENERGY STAR Features	per installation	New	15	5	\$16	64%	15%	\$0.27	2
Utah	Grocery	Other Office Equipment	ENERGY STAR - Printers	ENERGY STAR Printers	Standard Printers	per installation	New	138	6	\$15	95%	40%	\$0.02	57
Utah	Grocery	Other Office Equipment	ENERGY STAR - Scanners	ENERGY STAR Scanners	Standard Scanner	per installation	New	71	6	\$0.00	95%	45%	\$0.00	15
Utah	Grocery	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	per installation	Existing	7	7	\$1	20%	90%	\$0.04	2
Utah	Grocery	Other Plug Load	ENERGY STAR - Water Cooler	ENERGY STAR Water Cooler (Hot/Cold Water)	Non-ENERGY STAR Water Cooler	per installation	Existing	365	10	\$0.00	95%	75%	\$0.00	90
Utah	Grocery	Other Plug Load	Ice Maker	High-Efficiency Ice Maker	Standard Ice Maker	per installation	Existing	426	10	\$140	95%	86%	\$0.05	719
Utah	Grocery	Other Plug Load	Power Supply Transformer/Converter	80 Plus	85% efficient power supply (> 51W)	1 unit per 2,000 sqft	Existing	6	4	\$0.40	95%	86%	\$0.02	40
Utah	Grocery	Other Plug Load	Residential Refrigerator	ENERGY STAR	Federal Standard	per installation	Existing	81	12	\$122	3%	65%	\$0.20	3
Utah	Grocery	Other Plug Load	Residential Refrigerator/Freezer Recycling	Recycling Existing Refrigerator/Freezer	Existing Refrigerator/Freezer	per installation	Existing	960	4	\$561	25%	35%	\$0.17	77
Utah	Grocery	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	1 unit per 5,000 sqft	Existing	101	5	\$20	60%	90%	\$0.05	176
Utah	Grocery	Other Plug Load	Vending Machines- High Efficiency	ENERGY STAR (Tier 2) Vending Machines- High Efficiency 500 can capacity Under 5.92 kWh/day	Vending Machines- Standard 13 kWh/day	per installation	Existing	241	14	\$160	75%	80%	\$0.08	251
Utah	Grocery	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	per installation	New	7	7	\$1	20%	90%	\$0.04	1
Utah	Grocery	Other Plug Load	ENERGY STAR - Water Cooler	ENERGY STAR Water Cooler (Hot/Cold Water)	Non-ENERGY STAR Water Cooler	per installation	New	365	10	\$0.00	95%	75%	\$0.00	57
Utah	Grocery	Other Plug Load	Ice Maker	High-Efficiency Ice Maker	Standard Ice Maker	per installation	New	426	10	\$140	95%	86%	\$0.05	456
Utah	Grocery	Other Plug Load	Power Supply Transformer/Converter	80 Plus	85% efficient power supply (> 51W)	1 unit per 2,000 sqft	New	6	4	\$0.40	95%	86%	\$0.02	25
Utah	Grocery	Other Plug Load	Residential Refrigerator	ENERGY STAR	Federal Standard	per installation	New	81	12	\$122	3%	65%	\$0.20	2
Utah	Grocery	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	1 unit per 5,000 sqft	New	101	5	\$20	60%	90%	\$0.05	112
Utah	Grocery	Other Plug Load	Vending Machines- High Efficiency	ENERGY STAR (Tier 2) Vending Machines- High Efficiency 500 can capacity Under 5.92 kWh/day	Vending Machines- Standard 13 kWh/day	per installation	New	241	14	\$160	75%	80%	\$0.08	159
Utah	Grocery	Refrigeration	Anti-Sweat (Humidistat) Controls	Anti-Sweat (Humidistat) Controls	No Anti-Sweat (Humidistat) Controls	1 unit per 1,000 sqft	Existing	990	12	\$74	90%	45%	\$0.01	3,919
Utah	Grocery	Refrigeration	Case Electronically Commutated Motor	ECM Case Fans	Standard Efficiency Motor	1 unit per 1,000 sqft	Existing	1,030	12	\$240	100%	76%	\$0.03	9,128
Utah	Grocery	Refrigeration	Case Replacement Low Temp	Case Replacement Low Temp	No replacement	per square foot	Existing	0.98	15	\$0.10	95%	90%	\$0.01	9,876
Utah	Grocery	Refrigeration	Case Replacement Med Temp	Case Replacement Med Temp	No replacement	per square foot	Existing	0.08	15	\$0.05	95%	90%	\$0.07	842

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Utah	Grocery	Refrigeration	Compressor VSD Retrofit	VSD Compressor	Constant Speed Compressor	per refrigeration ton	Existing	1,525	13	\$237	60%	77%	\$0.02	10,627
Utah	Grocery	Refrigeration	Demand Control Defrost - Hot Gas	Refrigerant Defrost	Defrost - Electric	per installation	Existing	2,066	10	\$20	95%	68%	\$0.00	2,208
Utah	Grocery	Refrigeration	Floating Condenser Head Pressure Controls	Floating Condenser Head Pressure Controls	No Floating Condenser Head Pressure Controls	1 unit per 1,000 sqft	Existing	1,812	15	\$194	50%	81%	\$0.01	7,022
Utah	Grocery	Refrigeration	Glass Door ES Refrigerators/Freezers	Glass Door ES Refrigerators/Freezers	Standard Glass Doors	per installation	Existing	2,582	12	\$718	95%	77%	\$0.04	3,129
Utah	Grocery	Refrigeration	Night Covers for Display Cases	Night Covers for Display Cases	No Night Covers	per installation	Existing	408	5	\$64	95%	85%	\$0.04	6,209
Utah	Grocery	Refrigeration	Refrigeration Commissioning or Re-commissioning	Commissioning / Re-commissioning	No Commissioning / Re-commissioning	per refrigeration ton	Existing	826	3	\$97	95%	85%	\$0.05	9,634
Utah	Grocery	Refrigeration	Solid Door ES Refrigerators/Freezers	Solid Door ES Refrigerators/Freezers	Standard Solid Door	per installation	Existing	1,170	12	\$189	95%	81%	\$0.02	1,497
Utah	Grocery	Refrigeration	Standalone to Multiplex Compressor	Standalone to Multiplex Compressor	Standalone compressor	per building sqft	Existing	0.62	13	\$0.08	80%	90%	\$0.02	4,164
Utah	Grocery	Refrigeration	Strip Curtains for Walk-Ins	Strip Curtains for Walk-Ins	No Strip Curtains for Walk-In	per installation	Existing	3,178	4	\$183	95%	20%	\$0.02	1,006
Utah	Grocery	Refrigeration	Walk-In Electronically Commutated Motor	ECM Evaporator Fans	Standard Efficiency Motor	per installation	Existing	0.87	12	\$0.17	95%	95%	\$0.03	9,214
Utah	Grocery	Refrigeration	Anti-Sweat (Humidistat) Controls	Anti-Sweat (Humidistat) Controls	No Anti-Sweat (Humidistat) Controls	1 unit per 1,000 sqft	New	990	12	\$74	90%	45%	\$0.01	2,609
Utah	Grocery	Refrigeration	Case Electronically Commutated Motor	ECM Case Fans	Standard Efficiency Motor	1 unit per 1,000 sqft	New	1,030	12	\$240	100%	76%	\$0.03	5,789
Utah	Grocery	Refrigeration	Demand Control Defrost - Hot Gas	Refrigerant Defrost	Defrost - Electric	per installation	New	2,066	10	\$20	95%	68%	\$0.00	1,400
Utah	Grocery	Refrigeration	Floating Condenser Head Pressure Controls	Floating Condenser Head Pressure Controls	No Floating Condenser Head Pressure Controls	1 unit per 1,000 sqft	New	1,812	15	\$194	50%	81%	\$0.01	4,674
Utah	Grocery	Refrigeration	Glass Door ES Refrigerators/Freezers	Glass Door ES Refrigerators/Freezers	Standard Glass Doors	per installation	New	2,582	12	\$718	95%	77%	\$0.04	1,984
Utah	Grocery	Refrigeration	Night Covers for Display Cases	Night Covers for Display Cases	No Night Covers	per installation	New	408	5	\$64	95%	85%	\$0.04	3,752
Utah	Grocery	Refrigeration	Refrigeration Commissioning or Re-commissioning	Commissioning / Re-commissioning	No Commissioning / Re-commissioning	per refrigeration ton	New	510	3	\$37	80%	90%	\$0.03	3,801
Utah	Grocery	Refrigeration	Solid Door ES Refrigerators/Freezers	Solid Door ES Refrigerators/Freezers	Standard Solid Door	per installation	New	1,170	12	\$189	95%	81%	\$0.02	949
Utah	Grocery	Refrigeration	Strip Curtains for Walk-Ins	Strip Curtains for Walk-Ins	No Strip Curtains for Walk-In	per installation	New	3,178	4	\$183	95%	20%	\$0.02	638
Utah	Grocery	Refrigeration	Walk-In Electronically Commutated Motor	ECM Evaporator Fans	Standard Efficiency Motor	per installation	New	0.87	12	\$0.17	95%	95%	\$0.03	5,844
Utah	Grocery	Space Heat	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	Existing	410	15	\$155	75%	76%	\$0.04	632
Utah	Grocery	Space Heat	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	Existing	0.10	18	\$0.19	45%	65%	\$0.19	56
Utah	Grocery	Space Heat	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	Existing	0.61	14	\$1	5%	94%	\$0.33	53
Utah	Grocery	Space Heat	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	5	13	\$0.26	10%	39%	\$0.01	38
Utah	Grocery	Space Heat	Insulation - Ceiling	R-30 (UT State Code)	R-7 (Average Existing Conditions)	per roof sqft	Existing	0.95	25	\$0.69	75%	61%	\$0.07	974
Utah	Grocery	Space Heat	Insulation - Ceiling	R-38	R-30 (UT State Code)	per roof sqft	Existing	0.09	25	\$0.23	25%	85%	\$0.22	37
Utah	Grocery	Space Heat	Insulation - Duct	R-5 (UT State Code)	No Insulation	per surface area of duct insul	Existing	1	20	\$1	75%	59%	\$0.10	104
Utah	Grocery	Space Heat	Insulation - Duct	R-8	R-5 (UT State Code)	per surface area of duct insul	Existing	1	20	\$0.30	75%	85%	\$0.03	146
Utah	Grocery	Space Heat	Insulation - Floor (non-slab)	R-19 (UT State Code)	R-11 (Average Existing Conditions)	per floor area	Existing	0.61	25	\$0.61	35%	82%	\$0.09	351
Utah	Grocery	Space Heat	Insulation - Floor (non-slab)	R-30	R-19 (UT State Code)	per floor area	Existing	0.43	25	\$0.25	35%	90%	\$0.05	354
Utah	Grocery	Space Heat	Insulation - Wall	R-13 (UT State Code)	R-3 (Average Existing Conditions)	per floor area	Existing	2	25	\$0.99	10%	65%	\$0.04	190
Utah	Grocery	Space Heat	Insulation - Wall	R-21	R-13 (UT State Code)	per floor area	Existing	1	25	\$0.20	10%	85%	\$0.02	118

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Utah	Grocery	Space Heat	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	Existing	34	30	\$5	50%	95%	\$0.01	1,293
Utah	Grocery	Space Heat	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	Existing	861	10	\$127	95%	25%	\$0.02	81
Utah	Grocery	Space Heat	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	0.51	7	\$0.14	90%	85%	\$0.05	973
Utah	Grocery	Space Heat	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	New	151	15	\$155	75%	76%	\$0.12	138
Utah	Grocery	Space Heat	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	New	0.03	18	\$0.19	45%	65%	\$0.52	16
Utah	Grocery	Space Heat	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	New	0.22	14	\$1	5%	94%	\$0.90	15
Utah	Grocery	Space Heat	Insulation - Ceiling	R-38	R-30 (UT State Code)	per roof sqft	New	0.03	25	\$0.23	75%	85%	\$0.59	32
Utah	Grocery	Space Heat	Insulation - Duct	R-8	R-5 (UT State Code)	per surface area of duct insul	New	0.38	20	\$0.30	75%	85%	\$0.08	31
Utah	Grocery	Space Heat	Insulation - Floor (non-slab)	R-30	R-19 (UT State Code)	per floor area	New	0.16	25	\$0.25	35%	90%	\$0.14	77
Utah	Grocery	Space Heat	Insulation - Wall	R-21	R-13 (UT State Code)	per floor area	New	0.38	25	\$0.20	95%	85%	\$0.05	265
Utah	Grocery	Space Heat	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	New	12	30	\$5	50%	95%	\$0.03	304
Utah	Grocery	Space Heat	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	New	318	10	\$127	95%	12%	\$0.06	8
Utah	Grocery	Water Heat	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	per building sqft	Existing	0.01	10	\$0.24	75%	94%	\$2.50	36
Utah	Grocery	Water Heat	Dishwasher Residential	ENERGY STAR <= 324 kWh/yr, <= 5.8 gal/cycle	Federal Standard <= 355 kWh/yr, <= 6.5 gal/cycle	per installation	Existing	31	11	\$30	95%	25%	\$0.13	1
Utah	Grocery	Water Heat	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	per installation	Existing	7,438	10	\$2,635	95%	95%	\$0.05	36
Utah	Grocery	Water Heat	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	per installation	Existing	3,475	10	\$814	95%	94%	\$0.03	8
Utah	Grocery	Water Heat	Electric Water Heater - High Efficiency	EF = 0.95	EF = 0.92	Per installation	Existing	63	15	\$195	100%	N/A	\$0.35	4
Utah	Grocery	Water Heat	Heat Pump Water Heater - Advanced-Efficiency	EF = 2.2	EF = 0.92	Per installation	Existing	1,163	15	\$3,593	75%	N/A	\$0.35	308
Utah	Grocery	Water Heat	Hot Water (SHW) Pipe Insulation	1.0" of Insulation, assuming R-4 (UT State Code)	No Insulation	per linear foot	Existing	2	12	\$2	80%	90%	\$0.12	7
Utah	Grocery	Water Heat	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	per installation	Existing	31	9	\$0.00	95%	25%	\$0.00	8
Utah	Grocery	Water Heat	Low-Flow Faucet Aerators	2.2 GPM (Federal Code)	3.0 GPM	per installation	Existing	26	9	\$2	95%	25%	\$0.01	7
Utah	Grocery	Water Heat	Low-Flow Pre-Rinse Spray Valves	0.6 GPM	1.6 GPM (Federal Standard)	per installation	Existing	66	5	\$4	95%	74%	\$0.02	41
Utah	Grocery	Water Heat	Water Cooled Refrigeration with Heat Recovery	Heat Recovery from refrigeration system. Applied to Water Heating Electric End use	No heat recovery	per sqft of refrigerated area	Existing	0.03	10	\$0.79	55%	94%	\$3.52	59
Utah	Grocery	Water Heat	Water Heater Temperature Setback	Water Heater Temperature Setback (120 F)	No Change in Water Temperature	per installation	Existing	51	5	\$78	75%	50%	\$0.37	30
Utah	Grocery	Water Heat	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	per building sqft	New	0.01	10	\$0.24	75%	94%	\$2.64	22
Utah	Grocery	Water Heat	Dishwasher Residential	ENERGY STAR <= 324 kWh/yr, <= 5.8 gal/cycle	Federal Standard <= 355 kWh/yr, <= 6.5 gal/cycle	per installation	New	31	11	\$30	95%	55%	\$0.13	1
Utah	Grocery	Water Heat	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	per installation	New	7,461	10	\$2,635	95%	95%	\$0.05	21
Utah	Grocery	Water Heat	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	per installation	New	3,486	10	\$782	95%	94%	\$0.03	5
Utah	Grocery	Water Heat	Electric Water Heater - High Efficiency	EF = 0.95	EF = 0.92	Per installation	New	60	15	\$195	100%	N/A	\$0.36	1

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Utah	Grocery	Water Heat	Heat Pump Water Heater - Advanced-Efficiency	EF = 2.2	EF = 0.92	Per installation	New	1,121	15	\$3,164	75%	N/A	\$0.32	154
Utah	Grocery	Water Heat	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	per installation	New	30	9	\$0.00	95%	25%	\$0.00	5
Utah	Grocery	Water Heat	Low-Flow Pre-Rinse Spray Valves	0.6 GPM	1.6 GPM (Federal Standard)	per installation	New	66	5	\$4	95%	74%	\$0.02	26
Utah	Grocery	Water Heat	Water Cooled Refrigeration with Heat Recovery	Heat Recovery from refrigeration system. Applied to Water Heating Electric End use	No heat recovery	per sqft of refrigerated area	New	0.03	10	\$0.79	55%	94%	\$3.73	36
Utah	Grocery	Water Heat	Water Heater Temperature Setback	Water Heater Temperature Setback (120 F)	No Change in Water Temperature	per installation	New	48	5	\$78	75%	50%	\$0.40	18
Utah	Health	Computers	Computer ENERGY STAR	Computer ENERGY STAR	Computer standard non-ENERGY STAR	Per installation	Existing	131	4	\$27	100%	N/A	\$0.06	5,897
Utah	Health	Computers	Network PC Power Management	Network PC Power Management	No Power Management	per computer	Existing	87	5	\$11	95%	30%	\$0.03	1,557
Utah	Health	Computers	Computer ENERGY STAR	Computer ENERGY STAR	Computer standard non-ENERGY STAR	Per installation	New	131	4	\$27	100%	N/A	\$0.06	571
Utah	Health	Computers	Network PC Power Management	Network PC Power Management	No Power Management	per computer	New	87	5	\$11	95%	30%	\$0.03	987
Utah	Health	Cooking	Combination Oven	60% cooking efficiency	Non ENERGY STAR	per installation	Existing	11,655	12	\$1,798	90%	90%	\$0.02	0.70
Utah	Health	Cooking	Fryers - New CEE Efficient Electric Deep Fat Fryers	15 inch width Deep Fryer CEE 2006 rating; 80% under heavy load, Less than 1000 watt at idle	15 inch width standard electric deep fat fryers	per installation	Existing	936	12	\$1,348	25%	90%	\$0.19	0.07
Utah	Health	Cooking	Griddle	70% cooking efficiency	Non ENERGY STAR	per installation	Existing	2,250	12	\$786	95%	85%	\$0.05	4
Utah	Health	Cooking	High Efficiency Convection Oven	Convection Oven	Standard Oven	per installation	Existing	1,862	12	\$1,950	7%	55%	\$0.13	0.30
Utah	Health	Cooking	Hot Food Holding Cabinet	ENERGY STAR	Non ENERGY STAR	per installation	Existing	3,907	12	\$1,699	15%	21%	\$0.06	0.66
Utah	Health	Cooking	Steam Cooker	ENERGY STAR	Non ENERGY STAR	per installation	Existing	4,182	12	\$2,462	11%	75%	\$0.08	1
Utah	Health	Cooking	Combination Oven	60% cooking efficiency	Non ENERGY STAR	per installation	New	11,655	12	\$1,798	90%	90%	\$0.02	0.45
Utah	Health	Cooking	Fryers - New CEE Efficient Electric Deep Fat Fryers	15 inch width Deep Fryer CEE 2006 rating; 80% under heavy load, Less than 1000 watt at idle	15 inch width standard electric deep fat fryers	per installation	New	936	12	\$1,348	25%	90%	\$0.19	0.05
Utah	Health	Cooking	Griddle	70% cooking efficiency	Non ENERGY STAR	per installation	New	2,250	12	\$786	95%	85%	\$0.05	3
Utah	Health	Cooking	High Efficiency Convection Oven	Convection Oven	Standard Oven	per installation	New	1,862	12	\$1,950	7%	55%	\$0.13	0.19
Utah	Health	Cooking	Hot Food Holding Cabinet	ENERGY STAR	Non ENERGY STAR	per installation	New	3,907	12	\$1,699	15%	21%	\$0.06	0.42
Utah	Health	Cooking	Steam Cooker	ENERGY STAR	Non ENERGY STAR	per installation	New	4,182	12	\$2,462	11%	75%	\$0.08	1
Utah	Health	Cooling Chillers	Automated Ventilation VFD Control (Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	1 unit per 3,000 sqft	Existing	566	15	\$678	5%	94%	\$0.13	50
Utah	Health	Cooling Chillers	Chilled Water / Condenser Water Settings-Optimization	Additional Control Features	EMS already installed - No Optimization	1 control point per 1000 sqft	Existing	23	5	\$142	95%	81%	\$1.49	95
Utah	Health	Cooling Chillers	Chilled Water Piping Loop w/ VSD Control	VSD for secondary chilled water loop	Primary loop only w/ constant speed pump	per chiller ton	Existing	38	10	\$190	25%	70%	\$0.72	133
Utah	Health	Cooling Chillers	Chiller-Water Side Economizer	Install Economizer	No Economizer	per chiller ton	Existing	25	15	\$425	45%	90%	\$1.88	196
Utah	Health	Cooling Chillers	Chillers <150 tons (screw) - Advanced Efficiency	0.58 kW/ton (full load)	0.790 kW/Ton (full load)	Per installation	Existing	3,052	20	\$4,181	100%	N/A	\$0.13	1,616
Utah	Health	Cooling Chillers	Chillers <150 tons (screw) - High Efficiency	0.71 kW/ton (full load)	0.790 kW/Ton (full load)	Per installation	Existing	1,166	20	\$1,593	100%	N/A	\$0.13	12
Utah	Health	Cooling Chillers	Chillers <150 tons (screw) - Premium Efficiency	0.63 kW/ton	0.790 kW/Ton (full load)	Per installation	Existing	2,269	20	\$3,186	100%	N/A	\$0.14	101
Utah	Health	Cooling Chillers	Convert Constant Volume Air System to VAV	Variable Volume Air System	Constant Volume Air System	per building CFM	Existing	0.56	15	\$2	15%	67%	\$0.52	323

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Utah	Health	Cooling Chillers	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	Existing	0.18	15	\$0.67	15%	98%	\$0.40	142
Utah	Health	Cooling Chillers	Cooling Tower-Decrease Approach Temperature	6 Deg F	10 Deg F	per chiller ton	Existing	40	8	\$25	10%	94%	\$0.11	90
Utah	Health	Cooling Chillers	Cooling Tower-Two-Speed Fan Motor	Cooling Tower-Two-Speed Fan Motor	Cooling Tower-One-Speed Fan Motor	per chiller ton	Existing	71	15	\$2	95%	35%	\$0.00	647
Utah	Health	Cooling Chillers	Cooling Tower-VSD Fan Control	Variable-Speed Tower Fans replace Two-Speed	Cooling Tower-Two-Speed Fan Motor	per chiller ton	Existing	20	13	\$18	95%	75%	\$0.11	354
Utah	Health	Cooling Chillers	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	Existing	188	15	\$150	75%	76%	\$0.09	748
Utah	Health	Cooling Chillers	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	Existing	0.18	40	\$8	4%	98%	\$3.51	3
Utah	Health	Cooling Chillers	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	1	13	\$0.25	10%	39%	\$0.03	25
Utah	Health	Cooling Chillers	Insulation - Ceiling	R-30 (UT State Code)	R-11 (Average Existing Conditions)	per roof sqft	Existing	0.00	25	\$0.67	75%	63%	\$13.96	10
Utah	Health	Cooling Chillers	Pipe Insulation	1.5" of Insulation, assuming R-6 (UT State Code)	No Insulation	per linear feet of insulation	Existing	5	15	\$3	65%	45%	\$0.06	58
Utah	Health	Cooling Chillers	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	0.23	7	\$0.14	90%	85%	\$0.12	1,149
Utah	Health	Cooling Chillers	Window Film	Window Film	No Film	per 100 sqft of window glazing	Existing	2	10	\$131	90%	68%	\$7.80	5
Utah	Health	Cooling Chillers	Windows-High Efficiency	U-0.32	U-0.35 (UT State Code)	per window sqft	Existing	4	25	\$24	15%	90%	\$0.53	225
Utah	Health	Cooling Chillers	Windows-High Efficiency	U-0.35 (UT State Code)	U-0.67 (Average Existing Conditions)	per window sqft	Existing	3	25	\$66	15%	75%	\$1.80	147
Utah	Health	Cooling Chillers	Automated Ventilation VFD Control(Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	1 unit per 3,000 sqft	New	306	15	\$363	5%	94%	\$0.13	23
Utah	Health	Cooling Chillers	Chilled Water / Condenser Water Settings-Optimization	Additional Control Features	EMS already installed - No Optimization	1 control point per 1000 sqft	New	12	5	\$142	95%	81%	\$2.74	38
Utah	Health	Cooling Chillers	Chilled Water Piping Loop w/ VSD Control	VSD for secondary chilled water loop	Primary loop only w/ constant speed pump	per chiller ton	New	23	10	\$190	25%	70%	\$1.19	53
Utah	Health	Cooling Chillers	Chillers <150 tons (screw) - Advanced Efficiency	0.58 kW/ton (full load)	0.790 kW/Ton (full load)	Per installation	New	1,835	20	\$3,764	100%	N/A	\$0.20	878
Utah	Health	Cooling Chillers	Chillers <150 tons (screw) - High Efficiency	0.71 kW/ton (full load)	0.790 kW/Ton (full load)	Per installation	New	700	20	\$1,434	100%	N/A	\$0.20	4
Utah	Health	Cooling Chillers	Chillers <150 tons (screw) - Premium Efficiency	0.63 kW/ton	0.790 kW/Ton (full load)	Per installation	New	1,364	20	\$2,867	100%	N/A	\$0.20	35
Utah	Health	Cooling Chillers	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	New	0.10	15	\$0.67	15%	98%	\$0.74	61
Utah	Health	Cooling Chillers	Cooling Tower-Decrease Approach Temperature	6 Deg F	10 Deg F	per chiller ton	New	24	8	\$25	10%	94%	\$0.19	34
Utah	Health	Cooling Chillers	Cooling Tower-VSD Fan Control	Variable-Speed Tower Fans replace Two-Speed	Cooling Tower-Two-Speed Fan Motor	per chiller ton	New	12	15	\$18	95%	75%	\$0.17	136
Utah	Health	Cooling Chillers	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	New	102	15	\$150	75%	76%	\$0.17	288
Utah	Health	Cooling Chillers	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	New	0.10	40	\$8	4%	98%	\$6.47	1
Utah	Health	Cooling Chillers	Windows-High Efficiency	U-0.32	U-0.35 (UT State Code)	per window sqft	New	2	25	\$24	80%	90%	\$0.98	530

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Utah	Health	Cooling Dx Evap	Automated Ventilation VFD Control(Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	1 unit per 3,000 sqft	Existing	761	15	\$678	5%	94%	\$0.10	394
Utah	Health	Cooling Dx Evap	Convert Constant Volume Air System to VAV	Variable Volume Air System	Constant Volume Air System	per building CFM	Existing	0.76	15	\$2	15%	67%	\$0.39	2,007
Utah	Health	Cooling Dx Evap	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	Existing	0.25	15	\$0.67	15%	98%	\$0.30	1,011
Utah	Health	Cooling Dx Evap	DX Package 65 to 135 kBTU/hr - High Efficiency	DX Package 65 to 135 kBTU/hr - High Efficiency - 11.5 EER	DX Package 65 to 135 kBTU/hr - Standard Efficiency - 11.2 EER	Per installation	Existing	579	15	\$602	100%	N/A	\$0.12	124
Utah	Health	Cooling Dx Evap	DX Package 65 to 135 kBTU/hr - Premium Efficiency	DX Package 65 to 135 kBTU/hr - Premium Efficiency - 12.0 EER	DX Package 65 to 135 kBTU/hr - Standard Efficiency - 11.2 EER	Per installation	Existing	1,454	15	\$1,210	100%	N/A	\$0.09	3,544
Utah	Health	Cooling Dx Evap	DX Package-Air Side Economizer	Air-Side Economizer	No Economizer	per DX ton	Existing	114	10	\$154	10%	30%	\$0.20	345
Utah	Health	Cooling Dx Evap	DX Tune-Up / Diagnostics	DX Tune-Up / Diagnostics	No DX Tune-Up / Diagnostics	per installation	Existing	570	4	\$264	95%	72%	\$0.16	5,739
Utah	Health	Cooling Dx Evap	Direct / Indirect Evaporative Cooling, Pre-Cooling	Evaporative Cooler	Standard DX cooling	per building CFM	Existing	0.63	15	\$1	50%	94%	\$0.32	8,807
Utah	Health	Cooling Dx Evap	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	Existing	253	15	\$150	75%	76%	\$0.07	5,595
Utah	Health	Cooling Dx Evap	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	Existing	0.06	18	\$0.18	45%	65%	\$0.30	554
Utah	Health	Cooling Dx Evap	Evaporative Cooler replaces DX Package 65 to 135 kBTU/hr - Advanced Efficiency	Evaporative Cooler replaces DX Package 65 to 135 kBTU/hr - Advanced Efficiency	DX Package 65 to 135 kBTU/hr - Standard Efficiency - 11.2 EER	Per installation	Existing	8,815	15	\$-10868.298	25%	N/A	\$0.00	7,260
Utah	Health	Cooling Dx Evap	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	Existing	0.25	40	\$8	4%	98%	\$2.61	21
Utah	Health	Cooling Dx Evap	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	1	13	\$0.25	10%	39%	\$0.02	209
Utah	Health	Cooling Dx Evap	Insulation - Ceiling	R-30 (UT State Code)	R-11 (Average Existing Conditions)	per roof sqft	Existing	0.00	25	\$0.67	75%	63%	\$10.39	66
Utah	Health	Cooling Dx Evap	Insulation - Duct	R-5 (UT State Code)	No Insulation	per surface area of duct insul	Existing	0.96	20	\$1	75%	60%	\$0.16	1,047
Utah	Health	Cooling Dx Evap	Insulation - Duct	R-8	R-5 (UT State Code)	per surface area of duct insul	Existing	0.64	20	\$0.30	75%	85%	\$0.05	1,272
Utah	Health	Cooling Dx Evap	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	Existing	15	30	\$5	50%	95%	\$0.03	7,842
Utah	Health	Cooling Dx Evap	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	Existing	509	10	\$123	95%	17%	\$0.04	475
Utah	Health	Cooling Dx Evap	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	0.31	7	\$0.14	90%	85%	\$0.09	8,911
Utah	Health	Cooling Dx Evap	Window Film	Window Film	No Film	per 100 sqft of window glazing	Existing	2	10	\$131	90%	68%	\$7.81	27
Utah	Health	Cooling Dx Evap	Windows-High Efficiency	U-0.32	U-0.35 (UT State Code)	per window sqft	Existing	5	25	\$24	15%	90%	\$0.40	1,400
Utah	Health	Cooling Dx Evap	Windows-High Efficiency	U-0.35 (UT State Code)	U-0.67 (Average Existing Conditions)	per window sqft	Existing	4	25	\$66	15%	75%	\$1.34	934
Utah	Health	Cooling Dx Evap	Automated Ventilation VFD Control(Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	1 unit per 3,000 sqft	New	422	15	\$363	5%	94%	\$0.10	174
Utah	Health	Cooling Dx Evap	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	New	0.14	15	\$0.67	15%	98%	\$0.54	460

Table C.2.2. Commercial Measure Details

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Utah	Health	Cooling Dx Evap	DX Package 65 to 135 kBTU/hr - High Efficiency	DX Package 65 to 135 kBTU/hr - High Efficiency - 11.5 EER	DX Package 65 to 135 kBTU/hr - Standard Efficiency - 11.2 EER	Per installation	New	318	15	\$481	100%	N/A	\$0.17	29
Utah	Health	Cooling Dx Evap	DX Package 65 to 135 kBTU/hr - Premium Efficiency	DX Package 65 to 135 kBTU/hr - Premium Efficiency - 12.0 EER	DX Package 65 to 135 kBTU/hr - Standard Efficiency - 11.2 EER	Per installation	New	890	15	\$968	100%	N/A	\$0.12	1,378
Utah	Health	Cooling Dx Evap	Direct / Indirect Evaporative Cooling, Pre-Cooling	Evaporative Cooler	Standard DX cooling	per building CFM	New	0.35	15	\$1	50%	94%	\$0.57	4,010
Utah	Health	Cooling Dx Evap	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	New	140	15	\$150	75%	76%	\$0.12	2,097
Utah	Health	Cooling Dx Evap	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	New	0.03	18	\$0.18	45%	65%	\$0.54	252
Utah	Health	Cooling Dx Evap	Evaporative Cooler replaces DX Package 65 to 135 kBTU/hr - Advanced Efficiency	Evaporative Cooler replaces DX Package 65 to 135 kBTU/hr - Advanced Efficiency	DX Package 65 to 135 kBTU/hr - Standard Efficiency - 11.2 EER	Per installation	New	5,342	15	\$-8087.4038	25%	N/A	\$0.00	2,802
Utah	Health	Cooling Dx Evap	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	New	0.14	40	\$8	4%	98%	\$4.70	9
Utah	Health	Cooling Dx Evap	Insulation - Duct	R-8	R-5 (UT State Code)	per surface area of duct insul	New	0.35	20	\$0.30	75%	85%	\$0.08	479
Utah	Health	Cooling Dx Evap	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	New	8	30	\$5	50%	95%	\$0.05	2,946
Utah	Health	Cooling Dx Evap	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	New	283	10	\$123	95%	8%	\$0.06	89
Utah	Health	Cooling Dx Evap	Windows-High Efficiency	U-0.32	U-0.35 (UT State Code)	per window sqft	New	2	25	\$24	80%	90%	\$0.71	3,507
Utah	Health	Heat Pump	Air Source Heat Pump 65 to 135 kBTU/hr - High Efficiency	11.5 EER, 3.4 COP	11.0 EER, 3.3 COP	Per installation	Existing	2,369	15	\$2,239	100%	N/A	\$0.11	40
Utah	Health	Heat Pump	Air Source Heat Pump 65 to 135 kBTU/hr - Premium Efficiency	12.0 EER, 3.8 COP	11.0 EER, 3.3 COP	Per installation	Existing	5,208	15	\$4,479	100%	N/A	\$0.10	1,059
Utah	Health	Heat Pump	Automated Ventilation VFD Control(Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	1 unit per 3,000 sqft	Existing	737	15	\$678	5%	94%	\$0.10	20
Utah	Health	Heat Pump	Convert Constant Volume Air System to VAV	Variable Volume Air System	Constant Volume Air System	per building CFM	Existing	0.90	15	\$2	15%	67%	\$0.33	153
Utah	Health	Heat Pump	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	Existing	0.24	15	\$0.67	15%	98%	\$0.31	54
Utah	Health	Heat Pump	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	Existing	567	15	\$150	75%	76%	\$0.03	675
Utah	Health	Heat Pump	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	Existing	0.14	18	\$0.18	45%	65%	\$0.13	72
Utah	Health	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	Existing	0.48	14	\$1	5%	94%	\$0.41	37
Utah	Health	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	Existing	0.24	40	\$8	4%	98%	\$2.70	1
Utah	Health	Heat Pump	Ground Source Heat Pump Replacing Air Source Heat Pump 65 to 135 kBTU/hr - Advanced Efficiency	16.2 EER 4.0 COP	11.0 EER, 3.3 COP	Per installation	Existing	9,713	30	\$93,991	5%	N/A	\$0.81	52
Utah	Health	Heat Pump	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	6	13	\$0.25	10%	39%	\$0.01	44
Utah	Health	Heat Pump	Insulation - Ceiling	R-30 (UT State Code)	R-11 (Average Existing Conditions)	per roof sqft	Existing	0.30	25	\$0.67	75%	63%	\$0.20	242
Utah	Health	Heat Pump	Insulation - Ceiling	R-38	R-30 (UT State Code)	per roof sqft	Existing	0.04	25	\$0.22	25%	85%	\$0.44	15
Utah	Health	Heat Pump	Insulation - Duct	R-5 (UT State Code)	No Insulation	per surface area of duct insul	Existing	2	20	\$1	75%	60%	\$0.07	135

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Utah	Health	Heat Pump	Insulation - Duct	R-8	R-5 (UT State Code)	per surface area of duct insul	Existing	1	20	\$0.30	75%	85%	\$0.02	153
Utah	Health	Heat Pump	Insulation - Floor (non-slab)	R-30	R-19 (UT State Code)	per floor area	Existing	0.22	25	\$0.24	35%	90%	\$0.10	124
Utah	Health	Heat Pump	Insulation - Wall	R-21	R-13 (UT State Code)	per floor area	Existing	0.54	25	\$0.20	10%	85%	\$0.03	34
Utah	Health	Heat Pump	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	Existing	47	30	\$5	50%	95%	\$0.01	1,341
Utah	Health	Heat Pump	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	Existing	1,140	10	\$123	95%	17%	\$0.02	57
Utah	Health	Heat Pump	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	0.70	7	\$0.14	90%	85%	\$0.04	1,072
Utah	Health	Heat Pump	Window Film	Window Film	No Film	per 100 sqft of window glazing	Existing	2	10	\$131	90%	68%	\$7.79	1
Utah	Health	Heat Pump	Windows-High Efficiency	U-0.32	U-0.35 (UT State Code)	per window sqft	Existing	2	25	\$24	15%	90%	\$0.98	36
Utah	Health	Heat Pump	Windows-High Efficiency	U-0.35 (UT State Code)	U-0.67 (Average Existing Conditions)	per window sqft	Existing	4	25	\$66	15%	75%	\$1.21	67
Utah	Health	Heat Pump	Air Source Heat Pump 65 to 135 kBtu/hr - High Efficiency	11.5 EER, 3.4 COP	11.0 EER, 3.3 COP	Per installation	New	1,515	15	\$1,792	100%	N/A	\$0.13	11
Utah	Health	Heat Pump	Air Source Heat Pump 65 to 135 kBtu/hr - Premium Efficiency	12.0 EER, 3.8 COP	11.0 EER, 3.3 COP	Per installation	New	3,633	15	\$3,583	100%	N/A	\$0.11	455
Utah	Health	Heat Pump	Automated Ventilation VFD Control(Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	1 unit per 3,000 sqft	New	419	15	\$363	5%	94%	\$0.10	8
Utah	Health	Heat Pump	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	New	0.13	15	\$0.67	15%	98%	\$0.54	22
Utah	Health	Heat Pump	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	New	375	15	\$150	75%	76%	\$0.05	287
Utah	Health	Heat Pump	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	New	0.09	18	\$0.18	45%	65%	\$0.20	34
Utah	Health	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	New	0.35	14	\$1	5%	94%	\$0.56	20
Utah	Health	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	New	0.13	40	\$8	4%	98%	\$4.74	0.57
Utah	Health	Heat Pump	Ground Source Heat Pump Replacing Air Source Heat Pump 65 to 135 kBtu/hr - Advanced Efficiency	16.2 EER 4.0 COP	11.0 EER, 3.3 COP	Per installation	New	6,510	30	\$49,374	5%	N/A	\$0.64	21
Utah	Health	Heat Pump	Insulation - Ceiling	R-38	R-30 (UT State Code)	per roof sqft	New	0.03	25	\$0.22	75%	85%	\$0.54	29
Utah	Health	Heat Pump	Insulation - Duct	R-8	R-5 (UT State Code)	per surface area of duct insul	New	0.95	20	\$0.30	75%	85%	\$0.03	67
Utah	Health	Heat Pump	Insulation - Floor (non-slab)	R-30	R-19 (UT State Code)	per floor area	New	0.18	25	\$0.24	35%	90%	\$0.12	74
Utah	Health	Heat Pump	Insulation - Wall	R-21	R-13 (UT State Code)	per floor area	New	0.45	25	\$0.20	95%	85%	\$0.04	188
Utah	Health	Heat Pump	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	New	31	30	\$5	50%	95%	\$0.01	590
Utah	Health	Heat Pump	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	New	753	10	\$123	95%	8%	\$0.02	12
Utah	Health	Heat Pump	Windows-High Efficiency	U-0.32	U-0.35 (UT State Code)	per window sqft	New	0.75	25	\$24	80%	90%	\$2.84	50
Utah	Health	Hvac Aux	Convert Constant Volume Air System to VAV	Variable Volume Air System	Constant Volume Air System	per building CFM	Existing	0.73	15	\$2	15%	67%	\$0.40	4,370
Utah	Health	Hvac Aux	Cooking Hood Controls	Demand-Ventilation Control	No Controls	per installation	Existing	1,848	18	\$3,931	95%	85%	\$0.22	939
Utah	Health	Hvac Aux	Motor - CEE Premium-Efficiency Plus	CEE PE+ Motor for HVAC Applications	NEMA Efficiency Motors	per HP	Existing	59	15	\$6	95%	76%	\$0.01	2,132
Utah	Health	Hvac Aux	Motor - VAV Box High Efficiency (ECM)	ECM Motor	Standard Efficiency Motor	per installation	Existing	151	15	\$171	8%	77%	\$0.13	1,159
Utah	Health	Hvac Aux	Motor Rewind	>15, <500 HP	No Rewind	per HP	Existing	12	8	\$4	65%	25%	\$0.07	77
Utah	Health	Hvac Aux	Optimized Variable Volume Lab Hood Design	Optimized Variable Volume Lab Hood Design	Constant Volume Lab Hood Design	per installation	Existing	652	13	\$1,462	65%	59%	\$0.27	2,259

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Utah	Health	Hvac Aux	Cooking Hood Controls	Demand-Ventilation Control	No Controls	per installation	New	1,848	18	\$4,167	95%	85%	\$0.23	595
Utah	Health	Hvac Aux	Low Pressure Distribution Complex HVAC	Low Pressure Distribution Complex HVAC	VAV/CV	per building sqft	New	0.83	50	\$2	24%	98%	\$0.20	5,865
Utah	Health	Hvac Aux	Motor - CEE Premium-Efficiency Plus	CEE PE+ Motor for HVAC Applications	NEMA Efficiency Motors	per HP	New	51	15	\$6	95%	76%	\$0.01	1,448
Utah	Health	Hvac Aux	Motor - VAV Box High Efficiency (ECM)	ECM Motor	Standard Efficiency Motor	per installation	New	130	15	\$171	8%	77%	\$0.15	629
Utah	Health	Hvac Aux	Optimized Variable Volume Lab Hood Design	Optimized Variable Volume Lab Hood Design	Constant Volume Lab Hood Design	per installation	New	558	15	\$1,462	65%	59%	\$0.29	1,227
Utah	Health	Lighting Exterior	Covered Parking Lighting	Covered Parking Lighting	Normal Lighting	per building sqft	Existing	0.09	10	\$0.02	80%	95%	\$0.04	4,248
Utah	Health	Lighting Exterior	Daylighting Controls, Outdoors (Photocell)	Photocell	No Controls	per installation	Existing	25	8	\$27	75%	70%	\$0.18	293
Utah	Health	Lighting Exterior	Exterior Building Lighting	30% savings	Normal Lighting	per installation	Existing	239	15	\$323	62%	90%	\$0.15	2,865
Utah	Health	Lighting Exterior	Solid State LED White Lighting	Landscape, merchandise, signage, structure & task lighting (2.5 W)	50W 10hrs/day, 365 day/yr	per installation	Existing	2	14	\$34	75%	95%	\$1.46	58
Utah	Health	Lighting Exterior	Surface Parking Lighting	Surface Parking Lighting	Normal Lighting	per building sqft	Existing	0.05	19	\$0.06	62%	95%	\$0.14	1,779
Utah	Health	Lighting Exterior	Covered Parking Lighting	Covered Parking Lighting	Normal Lighting	per building sqft	New	0.09	10	\$0.02	80%	95%	\$0.04	2,694
Utah	Health	Lighting Exterior	Daylighting Controls, Outdoors (Photocell)	Photocell	No Controls	per installation	New	25	8	\$27	75%	70%	\$0.18	185
Utah	Health	Lighting Exterior	Exterior Building Lighting	30% savings	Normal Lighting	per installation	New	239	15	\$323	62%	90%	\$0.15	1,817
Utah	Health	Lighting Exterior	Solid State LED White Lighting	Landscape, merchandise, signage, structure & task lighting (2.5 W)	50W 10hrs/day, 365 day/yr	per installation	New	2	14	\$34	75%	95%	\$1.46	37
Utah	Health	Lighting Exterior	Surface Parking Lighting	Surface Parking Lighting	Normal Lighting	per building sqft	New	0.05	19	\$0.06	62%	95%	\$0.14	1,128
Utah	Health	Lighting Interior	Cold Cathode Lighting	Cold Cathode Lighting 5 watts	30 W Incandescent Bulb	per installation	Existing	743	5	\$11	15%	94%	\$0.00	936
Utah	Health	Lighting Interior	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	Existing	0.29	8	\$0.86	30%	51%	\$0.51	239
Utah	Health	Lighting Interior	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	Existing	0.65	8	\$0.64	30%	51%	\$0.17	538
Utah	Health	Lighting Interior	Exit Sign - LED	LED Exit Sign (2 Watts)	CFL Exit Sign (9 Watts)	per installation	Existing	95	16	\$15	95%	50%	\$0.02	2,034
Utah	Health	Lighting Interior	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign (2 Watts)	per installation	Existing	17	13	\$29	95%	98%	\$0.21	241
Utah	Health	Lighting Interior	LED Refrigeration Case Lights	LED Refrigeration Case Lights	Fluorescent Refrigeration Case	per installation	Existing	212	8	\$239	15%	80%	\$0.19	380
Utah	Health	Lighting Interior	Lighting Package, High Efficiency	15% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	Existing	0.55	13	\$0.04	90%	53%	\$0.01	12,768
Utah	Health	Lighting Interior	Lighting Package, High Efficiency	Code Required LPD And Control Strategies	Existing Lighting Design LPD	per building sqft	Existing	1	13	\$0.74	90%	79%	\$0.05	79,705
Utah	Health	Lighting Interior	Lighting Package, Premium Efficiency	25% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	Existing	0.92	13	\$0.20	75%	62%	\$0.03	5,135
Utah	Health	Lighting Interior	Lighting Package, Premium High Bay	35% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	Existing	0.02	13	\$0.01	70%	83%	\$0.07	920
Utah	Health	Lighting Interior	Occupancy Sensor Control, Fluorescent	Occupancy Sensor Control, Fluorescent	No Occupancy Sensor	per occupancy sensor	Existing	959	8	\$64	90%	45%	\$0.01	1,617
Utah	Health	Lighting Interior	Time Clock	Time Clock	No Controls	per 10,000 Watts	Existing	743	8	\$176	20%	**%	\$0.04	784
Utah	Health	Lighting Interior	Cold Cathode Lighting	Cold Cathode Lighting 5 watts	30 W Incandescent Bulb	per installation	New	466	5	\$11	15%	94%	\$0.01	372
Utah	Health	Lighting Interior	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	New	0.18	8	\$0.86	30%	51%	\$0.81	117
Utah	Health	Lighting Interior	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	New	0.34	8	\$0.64	30%	51%	\$0.32	220

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Utah	Health	Lighting Interior	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign (2 Watts)	per installation	New	17	13	\$29	95%	98%	\$0.21	613
Utah	Health	Lighting Interior	LED Refrigeration Case Lights	LED Refrigeration Case Lights	Fluorescent Refrigeration Case	per installation	New	212	8	\$239	15%	80%	\$0.19	241
Utah	Health	Lighting Interior	Lighting Package, High Efficiency	15% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	New	0.55	15	\$0.00	90%	53%	\$0.00	8,098
Utah	Health	Lighting Interior	Lighting Package, Premium Efficiency	25% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	New	0.92	15	\$0.09	75%	62%	\$0.01	3,246
Utah	Health	Lighting Interior	Lighting Package, Premium High Bay	35% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	New	0.02	15	\$0.00	70%	83%	\$0.01	583
Utah	Health	Lighting Interior	Occupancy Sensor Control, Fluorescent	Occupancy Sensor Control, Fluorescent	No Occupancy Sensor	per occupancy sensor	New	600	8	\$64	90%	45%	\$0.02	792
Utah	Health	Lighting Interior	Time Clock	Time Clock	No Controls	per 10,000 Watts	New	743	8	\$176	20%	**	\$0.04	384
Utah	Health	Other Office Equipment	ENERGY STAR - Copiers	ENERGY STAR Copiers	Standard Copier	per installation	Existing	72	6	\$155	95%	45%	\$0.46	250
Utah	Health	Other Office Equipment	ENERGY STAR - Fax	ENERGY STAR Fax	Standard Fax	per installation	Existing	77	6	\$1	95%	45%	\$0.00	267
Utah	Health	Other Office Equipment	ENERGY STAR - Monitors	ENERGY STAR Features Enabled	Non-ENERGY STAR Features	per installation	Existing	14	5	\$15	64%	15%	\$0.26	89
Utah	Health	Other Office Equipment	ENERGY STAR - Printers	ENERGY STAR Printers	Standard Printers	per installation	Existing	135	6	\$15	95%	40%	\$0.02	347
Utah	Health	Other Office Equipment	ENERGY STAR - Scanners	ENERGY STAR Scanners	Standard Scanner	per installation	Existing	70	6	\$0.73	95%	45%	\$0.00	243
Utah	Health	Other Office Equipment	ENERGY STAR - Copiers	ENERGY STAR Copiers	Standard Copier	per installation	New	72	6	\$155	95%	45%	\$0.46	158
Utah	Health	Other Office Equipment	ENERGY STAR - Fax	ENERGY STAR Fax	Standard Fax	per installation	New	77	6	\$1	95%	45%	\$0.00	169
Utah	Health	Other Office Equipment	ENERGY STAR - Monitors	ENERGY STAR Features Enabled	Non-ENERGY STAR Features	per installation	New	14	5	\$15	64%	15%	\$0.26	56
Utah	Health	Other Office Equipment	ENERGY STAR - Printers	ENERGY STAR Printers	Standard Printers	per installation	New	135	6	\$15	95%	40%	\$0.02	220
Utah	Health	Other Office Equipment	ENERGY STAR - Scanners	ENERGY STAR Scanners	Standard Scanner	per installation	New	70	6	\$0.73	95%	45%	\$0.00	154
Utah	Health	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	per installation	Existing	7	7	\$1	20%	90%	\$0.05	23
Utah	Health	Other Plug Load	ENERGY STAR - Water Cooler	ENERGY STAR Water Cooler (Hot/Cold Water)	Non-ENERGY STAR Water Cooler	per installation	Existing	358	10	\$0.00	95%	75%	\$0.00	1,031
Utah	Health	Other Plug Load	Ice Maker	High-Efficiency Ice Maker	Standard Ice Maker	per installation	Existing	417	10	\$132	95%	86%	\$0.05	152
Utah	Health	Other Plug Load	Power Supply Transformer/Converter	80 Plus	85% efficient power supply (> 51W)	1 unit per 2,000 sqft	Existing	15	4	\$0.39	95%	86%	\$0.01	369
Utah	Health	Other Plug Load	Residential Refrigerator	ENERGY STAR	Federal Standard	per installation	Existing	79	12	\$118	13%	65%	\$0.19	62
Utah	Health	Other Plug Load	Residential Refrigerator/Freezer Recycling	Recycling Existing Refrigerator/Freezer	Existing Refrigerator/Freezer	per installation	Existing	939	4	\$544	25%	35%	\$0.17	295
Utah	Health	Other Plug Load	Server Virtualization	Server Virtualization	No Virtualization	number of virtualized servers	Existing	2,230	4	\$1,877	72%	85%	\$0.25	1,962
Utah	Health	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	1 unit per 1,500 sqft	Existing	99	5	\$19	60%	90%	\$0.05	2,148
Utah	Health	Other Plug Load	Vending Machines- High Efficiency	ENERGY STAR (Tier 2) Vending Machines- High Efficiency 500 can capacity Under 5.92 kWh/day	Vending Machines- Standard 13 kWh/day	per installation	Existing	236	14	\$159	10%	80%	\$0.08	17
Utah	Health	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	per installation	New	7	7	\$1	20%	90%	\$0.05	15
Utah	Health	Other Plug Load	ENERGY STAR - Water Cooler	ENERGY STAR Water Cooler (Hot/Cold Water)	Non-ENERGY STAR Water Cooler	per installation	New	358	10	\$0.00	95%	75%	\$0.00	654
Utah	Health	Other Plug Load	Ice Maker	High-Efficiency Ice Maker	Standard Ice Maker	per installation	New	417	10	\$132	95%	86%	\$0.05	96

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Utah	Health	Other Plug Load	Power Supply Transformer/Converter	80 Plus	85% efficient power supply (> 51W)	1 unit per 2,000 sqft	New	15	4	\$0.39	95%	86%	\$0.01	234
Utah	Health	Other Plug Load	Residential Refrigerator	ENERGY STAR	Federal Standard	per installation	New	79	12	\$118	13%	65%	\$0.19	39
Utah	Health	Other Plug Load	Server Virtualization	Server Virtualization	No Virtualization	number of virtualized servers	New	2,230	4	\$1,877	72%	85%	\$0.25	1,244
Utah	Health	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	1 unit per 1,500 sqft	New	99	5	\$19	60%	90%	\$0.05	1,362
Utah	Health	Other Plug Load	Vending Machines- High Efficiency	ENERGY STAR (Tier 2) Vending Machines- High Efficiency 500 can capacity Under 5.92 kWh/day	Vending Machines- Standard 13 kWh/day	per installation	New	236	14	\$159	10%	80%	\$0.08	10
Utah	Health	Refrigeration	Anti-Sweat (Humidistat) Controls	Anti-Sweat (Humidistat) Controls	No Anti-Sweat (Humidistat) Controls	1 unit per 1,000 sqft	Existing	969	12	\$71	15%	45%	\$0.01	36
Utah	Health	Refrigeration	Case Electronically Commutated Motor	ECM Case Fans	Standard Efficiency Motor	1 unit per 10,000 sqft	Existing	1,009	12	\$233	5%	76%	\$0.03	70
Utah	Health	Refrigeration	Case Replacement Low Temp	Case Replacement Low Temp	No replacement	per square foot	Existing	0.01	15	\$0.10	5%	90%	\$0.61	15
Utah	Health	Refrigeration	Case Replacement Med Temp	Case Replacement Med Temp	No replacement	per square foot	Existing	0.00	15	\$0.05	5%	90%	\$3.69	1
Utah	Health	Refrigeration	Demand Control Defrost - Hot Gas	Refrigerant Defrost	Defrost - Electric	per installation	Existing	61	10	\$19	5%	68%	\$0.05	5
Utah	Health	Refrigeration	Glass Door ES Refrigerators/Freezers	Glass Door ES Refrigerators/Freezers	Standard Glass Doors	per installation	Existing	2,528	12	\$690	95%	77%	\$0.04	159
Utah	Health	Refrigeration	Refrigeration Commissioning or Re-commissioning	Commissioning / Re-commissioning	No Commissioning / Re-commissioning	per refrigeration ton	Existing	808	3	\$95	10%	85%	\$0.05	64
Utah	Health	Refrigeration	Solid Door ES Refrigerators/Freezers	Solid Door ES Refrigerators/Freezers	Standard Solid Door	per installation	Existing	1,146	12	\$188	95%	81%	\$0.02	76
Utah	Health	Refrigeration	Standalone to Multiplex Compressor	Standalone to Multiplex Compressor	Standalone compressor	per building sqft	Existing	0.01	13	\$0.00	5%	90%	\$0.02	15
Utah	Health	Refrigeration	Strip Curtains for Walk-Ins	Strip Curtains for Walk-Ins	No Strip Curtains for Walk-In	per installation	Existing	94	4	\$178	15%	20%	\$0.56	7
Utah	Health	Refrigeration	Walk-In Electronically Commutated Motor	ECM Evaporator Fans	Standard Efficiency Motor	per installation	Existing	0.02	12	\$0.17	5%	95%	\$0.81	23
Utah	Health	Refrigeration	Anti-Sweat (Humidistat) Controls	Anti-Sweat (Humidistat) Controls	No Anti-Sweat (Humidistat) Controls	1 unit per 1,000 sqft	New	969	12	\$71	15%	45%	\$0.01	23
Utah	Health	Refrigeration	Case Electronically Commutated Motor	ECM Case Fans	Standard Efficiency Motor	1 unit per 10,000 sqft	New	1,009	12	\$233	5%	76%	\$0.03	44
Utah	Health	Refrigeration	Demand Control Defrost - Hot Gas	Refrigerant Defrost	Defrost - Electric	per installation	New	61	10	\$19	5%	68%	\$0.05	3
Utah	Health	Refrigeration	Glass Door ES Refrigerators/Freezers	Glass Door ES Refrigerators/Freezers	Standard Glass Doors	per installation	New	2,528	12	\$690	95%	77%	\$0.04	100
Utah	Health	Refrigeration	Refrigeration Commissioning or Re-commissioning	Commissioning / Re-commissioning	No Commissioning / Re-commissioning	per refrigeration ton	New	500	3	\$35	5%	90%	\$0.03	13
Utah	Health	Refrigeration	Solid Door ES Refrigerators/Freezers	Solid Door ES Refrigerators/Freezers	Standard Solid Door	per installation	New	1,146	12	\$188	95%	81%	\$0.02	48
Utah	Health	Refrigeration	Strip Curtains for Walk-Ins	Strip Curtains for Walk-Ins	No Strip Curtains for Walk-In	per installation	New	94	4	\$178	15%	20%	\$0.56	4
Utah	Health	Refrigeration	Walk-In Electronically Commutated Motor	ECM Evaporator Fans	Standard Efficiency Motor	per installation	New	0.02	12	\$0.17	5%	95%	\$0.81	14
Utah	Health	Space Heat	Convert Constant Volume Air System to VAV	Variable Volume Air System	Constant Volume Air System	per building CFM	Existing	0.69	15	\$2	15%	67%	\$0.42	499
Utah	Health	Space Heat	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	Existing	538	15	\$150	75%	76%	\$0.03	2,929
Utah	Health	Space Heat	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	Existing	0.13	18	\$0.18	45%	65%	\$0.14	284
Utah	Health	Space Heat	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	Existing	0.80	14	\$1	5%	94%	\$0.25	269
Utah	Health	Space Heat	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	7	13	\$0.25	10%	39%	\$0.00	229
Utah	Health	Space Heat	Insulation - Ceiling	R-30 (UT State Code)	R-11 (Average Existing Conditions)	per roof sqft	Existing	0.88	25	\$0.67	75%	63%	\$0.07	3,271

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Utah	Health	Space Heat	Insulation - Ceiling	R-38	R-30 (UT State Code)	per roof sqft	Existing	0.12	25	\$0.22	25%	85%	\$0.16	188
Utah	Health	Space Heat	Insulation - Duct	R-5 (UT State Code)	No Insulation	per surface area of duct insul	Existing	2	20	\$1	75%	60%	\$0.07	527
Utah	Health	Space Heat	Insulation - Duct	R-8	R-5 (UT State Code)	per surface area of duct insul	Existing	1	20	\$0.30	75%	85%	\$0.02	666
Utah	Health	Space Heat	Insulation - Floor (non-slab)	R-30	R-19 (UT State Code)	per floor area	Existing	0.57	25	\$0.24	35%	90%	\$0.04	1,642
Utah	Health	Space Heat	Insulation - Wall	R-21	R-13 (UT State Code)	per floor area	Existing	1	25	\$0.20	10%	85%	\$0.01	539
Utah	Health	Space Heat	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	Existing	45	30	\$5	50%	95%	\$0.01	5,875
Utah	Health	Space Heat	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	Existing	1,081	10	\$123	95%	17%	\$0.02	248
Utah	Health	Space Heat	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	0.67	7	\$0.14	90%	85%	\$0.04	4,507
Utah	Health	Space Heat	Windows-High Efficiency	U-0.35 (UT State Code)	U-0.67 (Average Existing Conditions)	per window sqft	Existing	2	25	\$66	15%	75%	\$2.23	157
Utah	Health	Space Heat	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	New	411	15	\$150	75%	76%	\$0.04	1,304
Utah	Health	Space Heat	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	New	0.10	18	\$0.18	45%	65%	\$0.19	153
Utah	Health	Space Heat	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	New	0.61	14	\$1	5%	94%	\$0.32	144
Utah	Health	Space Heat	Insulation - Ceiling	R-38	R-30 (UT State Code)	per roof sqft	New	0.09	25	\$0.22	75%	85%	\$0.21	305
Utah	Health	Space Heat	Insulation - Duct	R-8	R-5 (UT State Code)	per surface area of duct insul	New	1	20	\$0.30	75%	85%	\$0.03	296
Utah	Health	Space Heat	Insulation - Floor (non-slab)	R-30	R-19 (UT State Code)	per floor area	New	0.44	25	\$0.24	35%	90%	\$0.05	731
Utah	Health	Space Heat	Insulation - Wall	R-21	R-13 (UT State Code)	per floor area	New	1	25	\$0.20	95%	85%	\$0.01	2,495
Utah	Health	Space Heat	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	New	34	30	\$5	50%	95%	\$0.01	2,859
Utah	Health	Space Heat	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	New	826	10	\$123	95%	8%	\$0.02	55
Utah	Health	Water Heat	Clothes Washer Commercial	ENERGY STAR Commercial Clothes Washer MEF=1.80	Standard Clothes Washers	per installation	Existing	538	11	\$119	95%	80%	\$0.03	22
Utah	Health	Water Heat	Clothes Washer Residential	Energy Star - CEE Tier 1 (MEF 2.0 - 2.19) - Electric DHW & Dryer	MEF = 1.66 - Electric DHW & Dryer (NWPPC 6th Plan Average Efficiency)	per installation	Existing	131	11	\$278	85%	94%	\$0.29	5
Utah	Health	Water Heat	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	per building sqft	Existing	0.06	10	\$0.23	55%	94%	\$0.52	166
Utah	Health	Water Heat	Dishwasher Residential	ENERGY STAR <= 324 kWh/yr, <= 5.8 gal/cycle	Federal Standard <= 355 kWh/yr, <= 6.5 gal/cycle	per installation	Existing	30	11	\$29	95%	25%	\$0.13	1
Utah	Health	Water Heat	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	per installation	Existing	7,304	10	\$2,546	95%	95%	\$0.05	87
Utah	Health	Water Heat	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	per installation	Existing	3,412	10	\$779	95%	94%	\$0.03	20
Utah	Health	Water Heat	Electric Water Heater - High Efficiency	EF = 0.95	EF = 0.92	Per installation	Existing	282	15	\$485	100%	N/A	\$0.19	27
Utah	Health	Water Heat	Heat Pump Water Heater - Advanced-Efficiency	EF = 2.2	EF = 0.92	Per installation	Existing	5,208	15	\$8,908	75%	N/A	\$0.19	1,857
Utah	Health	Water Heat	Hot Water (SHW) Pipe Insulation	1.0" of Insulation, assuming R-4 (UT State Code)	No Insulation	per linear foot	Existing	4	12	\$2	80%	70%	\$0.06	37
Utah	Health	Water Heat	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	per installation	Existing	84	9	\$0.00	95%	25%	\$0.00	62
Utah	Health	Water Heat	Low-Flow Faucet Aerators	2.2 GPM (Federal Code)	3.0 GPM	per installation	Existing	70	9	\$2	95%	25%	\$0.01	51
Utah	Health	Water Heat	Low-Flow Pre-Rinse Spray Valves	0.6 GPM	1.6 GPM (Federal Standard)	per installation	Existing	65	5	\$4	95%	83%	\$0.02	14
Utah	Health	Water Heat	Low-Flow Showerheads	2.0 GPM	2.5 GPM (Federal Code)	per installation	Existing	904	10	\$6	95%	73%	\$0.00	405
Utah	Health	Water Heat	Low-Flow Showerheads	2.5 GPM (Federal Code)	4.5 GPM	per installation	Existing	2,009	10	\$10	95%	62%	\$0.00	762

Table C.2.2. Commercial Measure Details

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Utah	Health	Water Heat	Water Cooled Refrigeration with Heat Recovery	Heat Recovery from refrigeration system. Applied to Water Heating Electric End use	No heat recovery	per sqft of refrigerated area	Existing	0.15	10	\$0.76	3%	94%	\$0.74	0.53
Utah	Health	Water Heat	Water Heater Temperature Setback	Water Heater Temperature Setback (120 F)	No Change in Water Temperature	per installation	Existing	113	5	\$75	75%	80%	\$0.16	310
Utah	Health	Water Heat	Clothes Washer Commercial	ENERGY STAR Commercial Clothes Washer MEF=1.80	Standard Clothes Washers	per installation	New	538	11	\$119	95%	80%	\$0.03	13
Utah	Health	Water Heat	Clothes Washer Residential	Energy Star - CEE Tier 1 (MEF 2.0 - 2.19) - Electric DHW & Dryer	MEF = 1.66 - Electric DHW & Dryer (NWPPC 6th Plan Average Efficiency)	per installation	New	131	11	\$278	85%	94%	\$0.29	3
Utah	Health	Water Heat	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	per building sqft	New	0.06	10	\$0.23	55%	94%	\$0.52	117
Utah	Health	Water Heat	Dishwasher Residential	ENERGY STAR <= 324 kWh/yr, <= 5.8 gal/cycle	Federal Standard <= 355 kWh/yr, <= 6.5 gal/cycle	per installation	New	30	11	\$29	95%	55%	\$0.13	2
Utah	Health	Water Heat	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	per installation	New	7,304	10	\$2,546	95%	95%	\$0.05	55
Utah	Health	Water Heat	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	per installation	New	3,412	10	\$779	95%	94%	\$0.03	12
Utah	Health	Water Heat	Electric Water Heater - High Efficiency	EF = 0.95	EF = 0.92	Per installation	New	282	15	\$485	100%	N/A	\$0.19	13
Utah	Health	Water Heat	Heat Pump Water Heater - Advanced-Efficiency	EF = 2.2	EF = 0.92	Per installation	New	5,208	15	\$7,846	75%	N/A	\$0.17	1,047
Utah	Health	Water Heat	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	per installation	New	84	9	\$0.00	95%	25%	\$0.00	38
Utah	Health	Water Heat	Low-Flow Pre-Rinse Spray Valves	0.6 GPM	1.6 GPM (Federal Standard)	per installation	New	65	5	\$4	95%	83%	\$0.02	8
Utah	Health	Water Heat	Low-Flow Showerheads	2.0 GPM	2.5 GPM (Federal Code)	per installation	New	904	10	\$6	95%	73%	\$0.00	254
Utah	Health	Water Heat	Water Cooled Refrigeration with Heat Recovery	Heat Recovery from refrigeration system. Applied to Water Heating Electric End use	No heat recovery	per sqft of refrigerated area	New	0.15	10	\$0.76	3%	94%	\$0.74	0.37
Utah	Health	Water Heat	Water Heater Temperature Setback	Water Heater Temperature Setback (120 F)	No Change in Water Temperature	per installation	New	113	5	\$75	75%	80%	\$0.16	219
Utah	Large Office	Computers	Computer ENERGY STAR	Computer ENERGY STAR	Computer standard non-ENERGY STAR	Per installation	Existing	136	4	\$28	100%	N/A	\$0.06	23,136
Utah	Large Office	Computers	Network PC Power Management	Network PC Power Management	No Power Management	per computer	Existing	90	5	\$12	95%	30%	\$0.03	5,524
Utah	Large Office	Computers	Computer ENERGY STAR	Computer ENERGY STAR	Computer standard non-ENERGY STAR	Per installation	New	136	4	\$28	100%	N/A	\$0.06	2,243
Utah	Large Office	Computers	Network PC Power Management	Network PC Power Management	No Power Management	per computer	New	90	5	\$12	95%	30%	\$0.03	3,503
Utah	Large Office	Cooling Chillers	Automated Ventilation VFD Control(Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	1 unit per 3,000 sqft	Existing	741	15	\$701	75%	94%	\$0.11	4,111
Utah	Large Office	Cooling Chillers	Chilled Water / Condenser Water Settings-Optimization	Additional Control Features	EMS already installed - No Optimization	1 control point per 1000 sqft	Existing	30	5	\$147	95%	81%	\$1.17	452
Utah	Large Office	Cooling Chillers	Chilled Water Piping Loop w/ VSD Control	VSD for secondary chilled water loop	Primary loop only w/ constant speed pump	per chiller ton	Existing	50	10	\$196	25%	70%	\$0.57	646
Utah	Large Office	Cooling Chillers	Chiller-Water Side Economizer	Install Economizer	No Economizer	per chiller ton	Existing	33	15	\$439	45%	45%	\$1.48	472
Utah	Large Office	Cooling Chillers	Chillers >300 tons (centrifugal) - High Efficiency	0.55 kW/ton	0.576 kW/ton (full load)	Per installation	Existing	12,098	20	\$1,708	100%	N/A	\$0.01	112
Utah	Large Office	Cooling Chillers	Chillers >300 tons (centrifugal) - Premium Efficiency	0.52 kW/ton (full load)	0.576 kW/ton (full load)	Per installation	Existing	23,148	20	\$3,680	100%	N/A	\$0.02	906
Utah	Large Office	Cooling Chillers	Chillers >300 tons (centrifugal) with VSD - Advanced Efficiency	0.47 kW/ton w/VSD (full load)	0.576 kW/ton (full load)	Per installation	Existing	32,657	20	\$13,067	100%	N/A	\$0.04	14,109
Utah	Large Office	Cooling Chillers	Convert Constant Volume Air System to VAV	Variable Volume Air System	Constant Volume Air System	per building CFM	Existing	0.74	15	\$2	15%	68%	\$0.41	1,530

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Utah	Large Office	Cooling Chillers	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	Existing	0.24	15	\$0.69	80%	98%	\$0.32	3,824
Utah	Large Office	Cooling Chillers	Cooling Tower-Decrease Approach Temperature	6 Deg F	10 Deg F	per chiller ton	Existing	53	8	\$26	10%	94%	\$0.09	488
Utah	Large Office	Cooling Chillers	Cooling Tower-Two-Speed Fan Motor	Cooling Tower-Two-Speed Fan Motor	Cooling Tower-One-Speed Fan Motor	per chiller ton	Existing	93	15	\$2	95%	35%	\$0.00	3,485
Utah	Large Office	Cooling Chillers	Cooling Tower-VSD Fan Control	Variable-Speed Tower Fans replace Two-Speed	Cooling Tower-Two-Speed Fan Motor	per chiller ton	Existing	26	13	\$19	95%	75%	\$0.09	1,906
Utah	Large Office	Cooling Chillers	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	Existing	247	15	\$156	75%	76%	\$0.07	4,029
Utah	Large Office	Cooling Chillers	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	Existing	0.24	40	\$8	4%	98%	\$2.77	15
Utah	Large Office	Cooling Chillers	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	1	13	\$0.26	10%	39%	\$0.03	138
Utah	Large Office	Cooling Chillers	Insulation - Ceiling	R-30 (UT State Code)	R-11 (Average Existing Conditions)	per roof sqft	Existing	0.00	25	\$0.69	75%	57%	\$11.03	44
Utah	Large Office	Cooling Chillers	Pipe Insulation	1.5" of Insulation, assuming R-6 (UT State Code)	No Insulation	per linear feet of insulation	Existing	7	15	\$3	65%	45%	\$0.05	312
Utah	Large Office	Cooling Chillers	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	0.30	7	\$0.14	90%	85%	\$0.09	6,186
Utah	Large Office	Cooling Chillers	Window Film	Window Film	No Film	per 100 sqft of window glazing	Existing	2	10	\$136	90%	68%	\$7.35	36
Utah	Large Office	Cooling Chillers	Windows-High Efficiency	U-0.32	U-0.35 (UT State Code)	per window sqft	Existing	3	25	\$24	15%	90%	\$0.66	1,053
Utah	Large Office	Cooling Chillers	Windows-High Efficiency	U-0.35 (UT State Code)	U-0.6 (Average Existing Conditions)	per window sqft	Existing	2	25	\$68	15%	70%	\$2.13	677
Utah	Large Office	Cooling Chillers	Automated Ventilation VFD Control(Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	1 unit per 3,000 sqft	New	446	15	\$376	75%	94%	\$0.09	2,154
Utah	Large Office	Cooling Chillers	Chilled Water / Condenser Water Settings-Optimization	Additional Control Features	EMS already installed - No Optimization	1 control point per 1000 sqft	New	18	5	\$147	95%	81%	\$1.95	197
Utah	Large Office	Cooling Chillers	Chilled Water Piping Loop w/ VSD Control	VSD for secondary chilled water loop	Primary loop only w/ constant speed pump	per chiller ton	New	33	10	\$196	25%	70%	\$0.84	312
Utah	Large Office	Cooling Chillers	Chillers >300 tons (centrifugal) - High Efficiency	0.55 kW/ton	0.576 kW/ton (full load)	Per installation	New	8,121	20	\$1,536	100%	N/A	\$0.02	42
Utah	Large Office	Cooling Chillers	Chillers >300 tons (centrifugal) - Premium Efficiency	0.52 kW/ton (full load)	0.576 kW/ton (full load)	Per installation	New	15,538	20	\$3,313	100%	N/A	\$0.02	329
Utah	Large Office	Cooling Chillers	Chillers >300 tons (centrifugal) with VSD - Advanced Efficiency	0.47 kW/ton w/VSD (full load)	0.576 kW/ton (full load)	Per installation	New	21,920	20	\$11,717	100%	N/A	\$0.05	8,267
Utah	Large Office	Cooling Chillers	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	New	0.14	15	\$0.69	80%	98%	\$0.53	1,822
Utah	Large Office	Cooling Chillers	Cooling Tower-Decrease Approach Temperature	6 Deg F	10 Deg F	per chiller ton	New	35	8	\$26	10%	94%	\$0.13	195
Utah	Large Office	Cooling Chillers	Cooling Tower-VSD Fan Control	Variable-Speed Tower Fans replace Two-Speed	Cooling Tower-Two-Speed Fan Motor	per chiller ton	New	17	15	\$19	95%	75%	\$0.12	763
Utah	Large Office	Cooling Chillers	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	New	148	15	\$156	75%	76%	\$0.12	1,613
Utah	Large Office	Cooling Chillers	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	New	0.14	40	\$8	4%	98%	\$4.60	7
Utah	Large Office	Cooling Chillers	Natural Ventilation	Natural Ventilation Design Reduction in Cooling	None - Standard Ventilation	per building sqft	New	0.14	15	\$0.89	20%	75%	\$0.67	360
Utah	Large Office	Cooling Chillers	Windows-High Efficiency	U-0.32	U-0.35 (UT State Code)	per window sqft	New	2	25	\$24	80%	90%	\$1.10	2,718

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Utah	Large Office	Cooling Dx Evap	Automated Ventilation VFD Control(Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	1 unit per 3,000 sqft	Existing	928	15	\$701	75%	94%	\$0.09	4,148
Utah	Large Office	Cooling Dx Evap	Convert Constant Volume Air System to VAV	Variable Volume Air System	Constant Volume Air System	per building CFM	Existing	0.92	15	\$2	15%	68%	\$0.33	1,291
Utah	Large Office	Cooling Dx Evap	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	Existing	0.30	15	\$0.69	35%	98%	\$0.25	1,546
Utah	Large Office	Cooling Dx Evap	DX Package 240 to 760 kBTU/hr - High Efficiency	DX Package 240 to 760 kBTU/hr - High Efficiency 10.5	DX Package 240 to 760 kBTU/hr - Standard Efficiency 10.0 EER	Per installation	Existing	6,041	15	\$8,795	100%	N/A	\$0.16	123
Utah	Large Office	Cooling Dx Evap	DX Package 240 to 760 kBTU/hr - Premium Efficiency	DX Package 240 to 760 kBTU/hr - Premium Efficiency 10.8 EER	DX Package 240 to 760 kBTU/hr - Standard Efficiency 10.0 EER	Per installation	Existing	10,310	15	\$14,408	100%	N/A	\$0.16	2,849
Utah	Large Office	Cooling Dx Evap	DX Package-Air Side Economizer	Air-Side Economizer	No Economizer	per DX ton	Existing	139	10	\$159	10%	20%	\$0.17	150
Utah	Large Office	Cooling Dx Evap	DX Tune-Up / Diagnostics	DX Tune-Up / Diagnostics	No DX Tune-Up / Diagnostics	per installation	Existing	696	4	\$273	95%	72%	\$0.13	3,753
Utah	Large Office	Cooling Dx Evap	Direct / Indirect Evaporative Cooling, Pre-Cooling	Evaporative Cooler	Standard DX cooling	per building CFM	Existing	0.77	15	\$1	50%	94%	\$0.27	5,664
Utah	Large Office	Cooling Dx Evap	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	Existing	309	15	\$156	75%	76%	\$0.06	3,919
Utah	Large Office	Cooling Dx Evap	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	Existing	0.07	18	\$0.19	45%	65%	\$0.26	356
Utah	Large Office	Cooling Dx Evap	Evaporative Cooler replaces DX Package - Advanced Efficiency	Evaporative Cooler replaces DX Package - Advanced Efficiency	DX Package 240 to 760 kBTU/hr - Standard Efficiency 10.0 EER	Per installation	Existing	63,611	15	\$-50039.118	25%	N/A	\$0.00	1,191
Utah	Large Office	Cooling Dx Evap	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	Existing	0.30	40	\$8	4%	98%	\$2.21	13
Utah	Large Office	Cooling Dx Evap	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	1	13	\$0.26	10%	39%	\$0.03	135
Utah	Large Office	Cooling Dx Evap	Insulation - Ceiling	R-30 (UT State Code)	R-11 (Average Existing Conditions)	per roof sqft	Existing	0.00	25	\$0.69	75%	57%	\$8.80	38
Utah	Large Office	Cooling Dx Evap	Insulation - Duct	R-5 (UT State Code)	No Insulation	per surface area of duct insul	Existing	1	20	\$1	75%	61%	\$0.13	701
Utah	Large Office	Cooling Dx Evap	Insulation - Duct	R-8	R-5 (UT State Code)	per surface area of duct insul	Existing	0.78	20	\$0.31	75%	85%	\$0.04	891
Utah	Large Office	Cooling Dx Evap	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	Existing	18	30	\$5	50%	95%	\$0.02	5,477
Utah	Large Office	Cooling Dx Evap	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	Existing	2,822	10	\$127	95%	24%	\$0.01	530
Utah	Large Office	Cooling Dx Evap	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	0.38	7	\$0.14	90%	85%	\$0.07	6,241
Utah	Large Office	Cooling Dx Evap	Window Film	Window Film	No Film	per 100 sqft of window glazing	Existing	2	10	\$136	90%	68%	\$7.30	25
Utah	Large Office	Cooling Dx Evap	Windows-High Efficiency	U-0.32	U-0.35 (UT State Code)	per window sqft	Existing	4	25	\$24	15%	90%	\$0.53	900
Utah	Large Office	Cooling Dx Evap	Windows-High Efficiency	U-0.35 (UT State Code)	U-0.6 (Average Existing Conditions)	per window sqft	Existing	3	25	\$68	15%	70%	\$1.70	590
Utah	Large Office	Cooling Dx Evap	Automated Ventilation VFD Control(Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	1 unit per 3,000 sqft	New	604	15	\$376	75%	94%	\$0.07	2,064
Utah	Large Office	Cooling Dx Evap	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	New	0.20	15	\$0.69	35%	98%	\$0.39	792

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Utah	Large Office	Cooling Dx Evap	DX Package 240 to 760 kBTU/hr - High Efficiency	DX Package 240 to 760 kBTU/hr - High Efficiency 10.5	DX Package 240 to 760 kBTU/hr - Standard Efficiency 10.0 EER	Per installation	New	4,020	15	\$7,037	100%	N/A	\$0.20	33
Utah	Large Office	Cooling Dx Evap	DX Package 240 to 760 kBTU/hr - Premium Efficiency	DX Package 240 to 760 kBTU/hr - Premium Efficiency 10.8 EER	DX Package 240 to 760 kBTU/hr - Standard Efficiency 10.0 EER	Per installation	New	6,949	15	\$11,527	100%	N/A	\$0.19	1,176
Utah	Large Office	Cooling Dx Evap	Direct / Indirect Evaporative Cooling, Pre-Cooling	Evaporative Cooler	Standard DX cooling	per building CFM	New	0.50	15	\$1	50%	94%	\$0.41	2,903
Utah	Large Office	Cooling Dx Evap	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	New	201	15	\$156	75%	76%	\$0.09	1,545
Utah	Large Office	Cooling Dx Evap	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	New	0.05	18	\$0.19	45%	65%	\$0.39	182
Utah	Large Office	Cooling Dx Evap	Evaporative Cooler replaces DX Package - Advanced Efficiency	Evaporative Cooler replaces DX Package - Advanced Efficiency	DX Package 240 to 760 kBTU/hr - Standard Efficiency 10.0 EER	Per installation	New	42,683	15	\$-38502.399	25%	N/A	\$0.00	492
Utah	Large Office	Cooling Dx Evap	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	New	0.20	40	\$8	4%	98%	\$3.40	6
Utah	Large Office	Cooling Dx Evap	Insulation - Duct	R-8	R-5 (UT State Code)	per surface area of duct insul	New	0.51	20	\$0.31	75%	85%	\$0.06	378
Utah	Large Office	Cooling Dx Evap	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	New	12	30	\$5	50%	95%	\$0.04	2,319
Utah	Large Office	Cooling Dx Evap	Natural Ventilation	Natural Ventilation Design Reduction in Cooling	None - Standard Ventilation	per building sqft	New	0.20	15	\$0.89	20%	75%	\$0.50	326
Utah	Large Office	Cooling Dx Evap	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	New	1,839	10	\$127	95%	12%	\$0.01	111
Utah	Large Office	Cooling Dx Evap	Windows-High Efficiency	U-0.32	U-0.35 (UT State Code)	per window sqft	New	2	25	\$24	80%	90%	\$0.81	2,500
Utah	Large Office	Heat Pump	Air Source Heat Pump 135 to 240 kBTU/hr - High Efficiency	11.5 EER, 3.4 COP	10.6 EER, 3.2 COP	Per installation	Existing	11,936	15	\$10,121	100%	N/A	\$0.10	98
Utah	Large Office	Heat Pump	Air Source Heat Pump 65 to 135 kBTU/hr - Premium Efficiency	12.0 EER, 3.8 COP	10.6 EER, 3.2 COP	Per installation	Existing	23,096	15	\$17,348	100%	N/A	\$0.08	3,315
Utah	Large Office	Heat Pump	Automated Ventilation VFD Control(Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	1 unit per 3,000 sqft	Existing	944	15	\$701	75%	94%	\$0.08	2,166
Utah	Large Office	Heat Pump	Convert Constant Volume Air System to VAV	Variable Volume Air System	Constant Volume Air System	per building CFM	Existing	0.84	15	\$2	15%	68%	\$0.36	773
Utah	Large Office	Heat Pump	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	Existing	0.31	15	\$0.69	35%	98%	\$0.25	895
Utah	Large Office	Heat Pump	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	Existing	530	15	\$156	75%	76%	\$0.03	3,497
Utah	Large Office	Heat Pump	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	Existing	0.13	18	\$0.19	45%	65%	\$0.15	363
Utah	Large Office	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	Existing	0.32	14	\$0.92	5%	94%	\$0.33	137
Utah	Large Office	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	Existing	0.31	40	\$8	4%	98%	\$2.17	9
Utah	Large Office	Heat Pump	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	2	13	\$0.26	10%	39%	\$0.01	147
Utah	Large Office	Heat Pump	Insulation - Ceiling	R-30 (UT State Code)	R-11 (Average Existing Conditions)	per roof sqft	Existing	0.14	25	\$0.69	75%	57%	\$0.43	550
Utah	Large Office	Heat Pump	Insulation - Ceiling	R-38	R-30 (UT State Code)	per roof sqft	Existing	0.02	25	\$0.23	25%	85%	\$0.94	40
Utah	Large Office	Heat Pump	Insulation - Duct	R-5 (UT State Code)	No Insulation	per surface area of duct insul	Existing	2	20	\$1	75%	61%	\$0.08	723
Utah	Large Office	Heat Pump	Insulation - Duct	R-8	R-5 (UT State Code)	per surface area of duct insul	Existing	1	20	\$0.31	75%	85%	\$0.02	795

Table C.2.2. Commercial Measure Details

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Utah	Large Office	Heat Pump	Insulation - Floor (non-slab)	R-19 (UT State Code)	R-11 (Average Existing Conditions)	per floor area	Existing	0.12	25	\$0.61	35%	68%	\$0.42	273
Utah	Large Office	Heat Pump	Insulation - Floor (non-slab)	R-30	R-19 (UT State Code)	per floor area	Existing	0.09	25	\$0.25	35%	90%	\$0.23	285
Utah	Large Office	Heat Pump	Insulation - Wall	R-13 (UT State Code)	R-3 (Average Existing Conditions)	per floor area	Existing	0.27	25	\$0.99	10%	67%	\$0.32	121
Utah	Large Office	Heat Pump	Insulation - Wall	R-21	R-13 (UT State Code)	per floor area	Existing	0.12	25	\$0.20	10%	85%	\$0.15	72
Utah	Large Office	Heat Pump	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	Existing	44	30	\$5	50%	95%	\$0.01	6,926
Utah	Large Office	Heat Pump	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	Existing	4,841	10	\$127	95%	24%	\$0.00	487
Utah	Large Office	Heat Pump	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	0.66	7	\$0.14	90%	85%	\$0.04	5,569
Utah	Large Office	Heat Pump	Window Film	Window Film	No Film	per 100 sqft of window glazing	Existing	2	10	\$136	90%	68%	\$7.30	16
Utah	Large Office	Heat Pump	Windows-High Efficiency	U-0.32	U-0.35 (UT State Code)	per window sqft	Existing	2	25	\$24	15%	90%	\$0.75	415
Utah	Large Office	Heat Pump	Windows-High Efficiency	U-0.35 (UT State Code)	U-0.6 (Average Existing Conditions)	per window sqft	Existing	3	25	\$68	15%	70%	\$1.71	388
Utah	Large Office	Heat Pump	Air Source Heat Pump 135 to 240 kBtu/hr - High Efficiency	11.5 EER, 3.4 COP	10.6 EER, 3.2 COP	Per installation	New	7,974	15	\$8,092	100%	N/A	\$0.11	34
Utah	Large Office	Heat Pump	Air Source Heat Pump 65 to 135 kBtu/hr - Premium Efficiency	12.0 EER, 3.8 COP	10.6 EER, 3.2 COP	Per installation	New	13,052	15	\$13,876	100%	N/A	\$0.12	1,537
Utah	Large Office	Heat Pump	Automated Ventilation VFD Control(Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	1 unit per 3,000 sqft	New	623	15	\$376	75%	94%	\$0.07	1,024
Utah	Large Office	Heat Pump	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	New	0.20	15	\$0.69	35%	98%	\$0.38	415
Utah	Large Office	Heat Pump	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	New	280	15	\$156	75%	76%	\$0.06	1,180
Utah	Large Office	Heat Pump	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	New	0.07	18	\$0.19	45%	65%	\$0.28	136
Utah	Large Office	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	New	0.10	14	\$0.92	5%	94%	\$1.00	29
Utah	Large Office	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	New	0.20	40	\$8	4%	98%	\$3.30	4
Utah	Large Office	Heat Pump	Insulation - Ceiling	R-38	R-30 (UT State Code)	per roof sqft	New	0.00	25	\$0.23	75%	85%	\$4.41	17
Utah	Large Office	Heat Pump	Insulation - Duct	R-8	R-5 (UT State Code)	per surface area of duct insul	New	0.71	20	\$0.31	75%	85%	\$0.04	268
Utah	Large Office	Heat Pump	Insulation - Floor (non-slab)	R-30	R-19 (UT State Code)	per floor area	New	0.01	25	\$0.25	35%	90%	\$1.36	30
Utah	Large Office	Heat Pump	Insulation - Wall	R-21	R-13 (UT State Code)	per floor area	New	0.02	25	\$0.20	95%	85%	\$0.79	86
Utah	Large Office	Heat Pump	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	New	23	30	\$5	50%	95%	\$0.02	2,332
Utah	Large Office	Heat Pump	Natural Ventilation	Natural Ventilation Design Reduction in Cooling	None - Standard Ventilation	per building sqft	New	0.28	15	\$0.89	20%	75%	\$0.36	276
Utah	Large Office	Heat Pump	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	New	2,555	10	\$127	95%	12%	\$0.01	81
Utah	Large Office	Heat Pump	Windows-High Efficiency	U-0.32	U-0.35 (UT State Code)	per window sqft	New	2	25	\$24	80%	90%	\$0.93	1,289
Utah	Large Office	Hvac Aux	Convert Constant Volume Air System to VAV	Variable Volume Air System	Constant Volume Air System	per building CFM	Existing	0.39	15	\$2	15%	68%	\$0.76	6,337
Utah	Large Office	Hvac Aux	Motor - CEE Premium-Efficiency Plus	CEE PE+ Motor for HVAC Applications	NEMA Efficiency Motors	per HP	Existing	32	15	\$6	95%	76%	\$0.02	3,095
Utah	Large Office	Hvac Aux	Motor - VAV Box High Efficiency (ECM)	ECM Motor	Standard Efficiency Motor	per installation	Existing	82	15	\$177	11%	77%	\$0.24	2,314
Utah	Large Office	Hvac Aux	Motor Rewind	>15, <500 HP	No Rewind	per HP	Existing	6	8	\$4	65%	25%	\$0.13	112
Utah	Large Office	Hvac Aux	Low Pressure Distribution Complex HVAC	Low Pressure Distribution Complex HVAC	VAV/CV	per building sqft	New	0.93	50	\$2	17%	98%	\$0.18	12,483

Table C.2.2. Commercial Measure Details

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Utah	Large Office	Hvac Aux	Motor - CEE Premium-Efficiency Plus	CEE PE+ Motor for HVAC Applications	NEMA Efficiency Motors	per HP	New	29	15	\$6	95%	76%	\$0.03	2,198
Utah	Large Office	Hvac Aux	Motor - VAV Box High Efficiency (ECM)	ECM Motor	Standard Efficiency Motor	per installation	New	74	15	\$177	11%	77%	\$0.27	1,258
Utah	Large Office	Lighting Exterior	Covered Parking Lighting	Covered Parking Lighting	Normal Lighting	per building sqft	Existing	0.09	10	\$0.02	80%	95%	\$0.04	11,582
Utah	Large Office	Lighting Exterior	Daylighting Controls, Outdoors (Photocell)	Photocell	No Controls	per installation	Existing	49	8	\$28	75%	70%	\$0.10	758
Utah	Large Office	Lighting Exterior	Exterior Building Lighting	30% savings	Normal Lighting	per installation	Existing	248	15	\$334	62%	90%	\$0.15	6,593
Utah	Large Office	Lighting Exterior	Solid State LED White Lighting	Landscape, merchandise, signage, structure & task lighting (2.5 W)	50W 10hrs/day, 365 day/yr	per installation	Existing	5	14	\$35	75%	95%	\$0.78	140
Utah	Large Office	Lighting Exterior	Surface Parking Lighting	Surface Parking Lighting	Normal Lighting	per building sqft	Existing	0.05	19	\$0.06	62%	95%	\$0.14	4,850
Utah	Large Office	Lighting Exterior	Covered Parking Lighting	Covered Parking Lighting	Normal Lighting	per building sqft	New	0.09	10	\$0.02	80%	95%	\$0.04	7,345
Utah	Large Office	Lighting Exterior	Daylighting Controls, Outdoors (Photocell)	Photocell	No Controls	per installation	New	49	8	\$28	75%	70%	\$0.10	480
Utah	Large Office	Lighting Exterior	Exterior Building Lighting	30% savings	Normal Lighting	per installation	New	248	15	\$334	62%	90%	\$0.15	4,181
Utah	Large Office	Lighting Exterior	Solid State LED White Lighting	Landscape, merchandise, signage, structure & task lighting (2.5 W)	50W 10hrs/day, 365 day/yr	per installation	New	5	14	\$35	75%	95%	\$0.78	89
Utah	Large Office	Lighting Exterior	Surface Parking Lighting	Surface Parking Lighting	Normal Lighting	per building sqft	New	0.05	19	\$0.06	62%	95%	\$0.14	3,076
Utah	Large Office	Lighting Interior	Cold Cathode Lighting	Cold Cathode Lighting 5 watts	30 W Incandescent Bulb	per installation	Existing	1,529	5	\$12	15%	94%	\$0.00	1,065
Utah	Large Office	Lighting Interior	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	Existing	1	8	\$0.89	30%	78%	\$0.10	2,398
Utah	Large Office	Lighting Interior	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	Existing	1	8	\$0.66	30%	78%	\$0.10	1,803
Utah	Large Office	Lighting Interior	Exit Sign - LED	LED Exit Sign (2 Watts)	CFL Exit Sign (9 Watts)	per installation	Existing	98	16	\$16	95%	50%	\$0.02	5,293
Utah	Large Office	Lighting Interior	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign (2 Watts)	per installation	Existing	17	13	\$30	95%	98%	\$0.21	628
Utah	Large Office	Lighting Interior	Lighting Package, High Efficiency	15% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	Existing	0.48	13	\$0.13	90%	53%	\$0.03	28,046
Utah	Large Office	Lighting Interior	Lighting Package, High Efficiency	Code Required LPD And Control Strategies	Existing Lighting Design LPD	per building sqft	Existing	1	13	\$0.91	90%	73%	\$0.07	56,627
Utah	Large Office	Lighting Interior	Lighting Package, Premium Efficiency	25% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	Existing	0.80	13	\$0.33	75%	62%	\$0.05	11,279
Utah	Large Office	Lighting Interior	Lighting Package, Premium High Bay	35% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	Existing	0.04	13	\$0.02	70%	83%	\$0.08	3,833
Utah	Large Office	Lighting Interior	Occupancy Sensor Control, Fluorescent	Occupancy Sensor Control, Fluorescent	No Occupancy Sensor	per occupancy sensor	Existing	869	8	\$67	90%	42%	\$0.01	3,965
Utah	Large Office	Lighting Interior	Time Clock	Time Clock	No Controls	per 10,000 Watts	Existing	769	8	\$182	20%	88%	\$0.04	1,821
Utah	Large Office	Lighting Interior	Cold Cathode Lighting	Cold Cathode Lighting 5 watts	30 W Incandescent Bulb	per installation	New	941	5	\$12	15%	94%	\$0.00	416
Utah	Large Office	Lighting Interior	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	New	0.95	8	\$0.89	30%	78%	\$0.16	1,114
Utah	Large Office	Lighting Interior	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	New	0.71	8	\$0.66	30%	78%	\$0.16	837
Utah	Large Office	Lighting Interior	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign (2 Watts)	per installation	New	17	13	\$30	95%	98%	\$0.21	1,595
Utah	Large Office	Lighting Interior	Lighting Package, High Efficiency	15% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	New	0.48	15	\$0.00	90%	53%	\$0.00	17,788
Utah	Large Office	Lighting Interior	Lighting Package, Premium Efficiency	25% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	New	0.75	15	\$0.10	75%	62%	\$0.02	6,629

Table C.2.2. Commercial Measure Details

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Utah	Large Office	Lighting Interior	Lighting Package, Premium High Bay	35% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	New	0.04	15	\$0.00	70%	83%	\$0.01	2,431
Utah	Large Office	Lighting Interior	Occupancy Sensor Control, Fluorescent	Occupancy Sensor Control, Fluorescent	No Occupancy Sensor	per occupancy sensor	New	535	8	\$67	90%	42%	\$0.02	1,842
Utah	Large Office	Lighting Interior	Time Clock	Time Clock	No Controls	per 10,000 Watts	New	769	8	\$182	20%	88%	\$0.04	846
Utah	Large Office	Other Office Equipment	ENERGY STAR - Copiers	ENERGY STAR Copiers	Standard Copier	per installation	Existing	74	6	\$162	95%	45%	\$0.46	150
Utah	Large Office	Other Office Equipment	ENERGY STAR - Fax	ENERGY STAR Fax	Standard Fax	per installation	Existing	80	6	\$0.00	95%	45%	\$0.00	160
Utah	Large Office	Other Office Equipment	ENERGY STAR - Monitors	ENERGY STAR Features Enabled	Non-ENERGY STAR Features	per installation	Existing	15	5	\$16	64%	15%	\$0.26	317
Utah	Large Office	Other Office Equipment	ENERGY STAR - Printers	ENERGY STAR Printers	Standard Printers	per installation	Existing	140	6	\$16	95%	40%	\$0.03	208
Utah	Large Office	Other Office Equipment	ENERGY STAR - Scanners	ENERGY STAR Scanners	Standard Scanner	per installation	Existing	72	6	\$0.00	95%	45%	\$0.00	146
Utah	Large Office	Other Office Equipment	ENERGY STAR - Copiers	ENERGY STAR Copiers	Standard Copier	per installation	New	74	6	\$162	95%	45%	\$0.46	95
Utah	Large Office	Other Office Equipment	ENERGY STAR - Fax	ENERGY STAR Fax	Standard Fax	per installation	New	80	6	\$0.00	95%	45%	\$0.00	101
Utah	Large Office	Other Office Equipment	ENERGY STAR - Monitors	ENERGY STAR Features Enabled	Non-ENERGY STAR Features	per installation	New	15	5	\$16	64%	15%	\$0.26	201
Utah	Large Office	Other Office Equipment	ENERGY STAR - Printers	ENERGY STAR Printers	Standard Printers	per installation	New	140	6	\$16	95%	40%	\$0.03	132
Utah	Large Office	Other Office Equipment	ENERGY STAR - Scanners	ENERGY STAR Scanners	Standard Scanner	per installation	New	72	6	\$0.00	95%	45%	\$0.00	92
Utah	Large Office	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	per installation	Existing	7	7	\$1	20%	90%	\$0.03	16
Utah	Large Office	Other Plug Load	ENERGY STAR - Water Cooler	ENERGY STAR Water Cooler (Hot/Cold Water)	Non-ENERGY STAR Water Cooler	per installation	Existing	370	10	\$0.00	95%	75%	\$0.00	895
Utah	Large Office	Other Plug Load	Power Supply Transformer/Converter	80 Plus	85% efficient power supply (> 51W)	1 unit per 2,000 sqft	Existing	4	4	\$0.40	95%	86%	\$0.03	257
Utah	Large Office	Other Plug Load	Residential Refrigerator	ENERGY STAR	Federal Standard	per installation	Existing	82	12	\$124	19%	65%	\$0.19	52
Utah	Large Office	Other Plug Load	Residential Refrigerator/Freezer Recycling	Recycling Existing Refrigerator/Freezer	Existing Refrigerator/Freezer	per installation	Existing	973	4	\$563	25%	35%	\$0.17	177
Utah	Large Office	Other Plug Load	Server Virtualization	Server Virtualization	No Virtualization	number of virtualized servers	Existing	2,309	4	\$1,944	72%	85%	\$0.25	1,178
Utah	Large Office	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	1 unit per 500 sqft	Existing	102	5	\$20	60%	90%	\$0.05	17,571
Utah	Large Office	Other Plug Load	Vending Machines- High Efficiency	ENERGY STAR (Tier 2) Vending Machines- High Efficiency 500 can capacity Under 5.92 kWh/day	Vending Machines- Standard 13 kWh/day	per installation	Existing	245	14	\$155	10%	80%	\$0.07	10
Utah	Large Office	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	per installation	New	7	7	\$1	20%	90%	\$0.03	10
Utah	Large Office	Other Plug Load	ENERGY STAR - Water Cooler	ENERGY STAR Water Cooler (Hot/Cold Water)	Non-ENERGY STAR Water Cooler	per installation	New	370	10	\$0.00	95%	75%	\$0.00	567
Utah	Large Office	Other Plug Load	Power Supply Transformer/Converter	80 Plus	85% efficient power supply (> 51W)	1 unit per 2,000 sqft	New	4	4	\$0.40	95%	86%	\$0.03	163
Utah	Large Office	Other Plug Load	Residential Refrigerator	ENERGY STAR	Federal Standard	per installation	New	82	12	\$124	19%	65%	\$0.19	33
Utah	Large Office	Other Plug Load	Server Virtualization	Server Virtualization	No Virtualization	number of virtualized servers	New	2,309	4	\$1,944	72%	85%	\$0.25	747
Utah	Large Office	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	1 unit per 500 sqft	New	102	5	\$20	60%	90%	\$0.05	11,144

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Utah	Large Office	Other Plug Load	Vending Machines- High Efficiency	ENERGY STAR (Tier 2) Vending Machines- High Efficiency 500 can capacity Under 5.92 kWh/day	Vending Machines- Standard 13 kWh/day	per installation	New	245	14	\$155	10%	80%	\$0.07	6
Utah	Large Office	Space Heat	Convert Constant Volume Air System to VAV	Variable Volume Air System	Constant Volume Air System	per building CFM	Existing	0.35	15	\$2	15%	68%	\$0.87	578
Utah	Large Office	Space Heat	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	Existing	269	15	\$156	75%	76%	\$0.07	3,557
Utah	Large Office	Space Heat	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	Existing	0.06	18	\$0.19	45%	65%	\$0.29	326
Utah	Large Office	Space Heat	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	Existing	0.40	14	\$0.92	5%	94%	\$0.27	316
Utah	Large Office	Space Heat	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	2	13	\$0.26	10%	39%	\$0.01	276
Utah	Large Office	Space Heat	Insulation - Ceiling	R-30 (UT State Code)	R-11 (Average Existing Conditions)	per roof sqft	Existing	0.44	25	\$0.69	75%	57%	\$0.14	3,435
Utah	Large Office	Space Heat	Insulation - Ceiling	R-38	R-30 (UT State Code)	per roof sqft	Existing	0.06	25	\$0.23	25%	85%	\$0.33	216
Utah	Large Office	Space Heat	Insulation - Duct	R-5 (UT State Code)	No Insulation	per surface area of duct insul	Existing	1	20	\$1	75%	61%	\$0.15	626
Utah	Large Office	Space Heat	Insulation - Duct	R-8	R-5 (UT State Code)	per surface area of duct insul	Existing	0.68	20	\$0.31	75%	85%	\$0.04	808
Utah	Large Office	Space Heat	Insulation - Floor (non-slab)	R-19 (UT State Code)	R-11 (Average Existing Conditions)	per floor area	Existing	0.40	25	\$0.61	35%	68%	\$0.14	1,811
Utah	Large Office	Space Heat	Insulation - Floor (non-slab)	R-30	R-19 (UT State Code)	per floor area	Existing	0.28	25	\$0.25	35%	90%	\$0.08	1,994
Utah	Large Office	Space Heat	Insulation - Wall	R-13 (UT State Code)	R-3 (Average Existing Conditions)	per floor area	Existing	0.96	25	\$0.99	10%	67%	\$0.09	896
Utah	Large Office	Space Heat	Insulation - Wall	R-21	R-13 (UT State Code)	per floor area	Existing	0.44	25	\$0.20	10%	85%	\$0.04	652
Utah	Large Office	Space Heat	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	Existing	22	30	\$5	50%	95%	\$0.02	7,100
Utah	Large Office	Space Heat	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	Existing	2,463	10	\$127	95%	24%	\$0.01	501
Utah	Large Office	Space Heat	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	0.33	7	\$0.14	90%	85%	\$0.08	5,473
Utah	Large Office	Space Heat	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	New	84	15	\$156	75%	76%	\$0.21	646
Utah	Large Office	Space Heat	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	New	0.02	18	\$0.19	45%	65%	\$0.94	75
Utah	Large Office	Space Heat	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	New	0.12	14	\$0.92	5%	94%	\$0.86	73
Utah	Large Office	Space Heat	Insulation - Ceiling	R-38	R-30 (UT State Code)	per roof sqft	New	0.01	25	\$0.23	75%	85%	\$1.07	150
Utah	Large Office	Space Heat	Insulation - Duct	R-8	R-5 (UT State Code)	per surface area of duct insul	New	0.21	20	\$0.31	75%	85%	\$0.14	147
Utah	Large Office	Space Heat	Insulation - Floor (non-slab)	R-30	R-19 (UT State Code)	per floor area	New	0.09	25	\$0.25	35%	90%	\$0.25	362
Utah	Large Office	Space Heat	Insulation - Wall	R-21	R-13 (UT State Code)	per floor area	New	0.13	25	\$0.20	95%	85%	\$0.13	1,234
Utah	Large Office	Space Heat	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	New	7	30	\$5	50%	95%	\$0.06	1,414
Utah	Large Office	Space Heat	Natural Ventilation	Natural Ventilation Design Reduction in Cooling	None - Standard Ventilation	per building sqft	New	0.08	15	\$0.89	20%	75%	\$1.19	151
Utah	Large Office	Space Heat	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	New	767	10	\$127	95%	12%	\$0.02	49
Utah	Large Office	Water Heat	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	per building sqft	Existing	0.02	10	\$0.24	55%	80%	\$1.65	294
Utah	Large Office	Water Heat	Dishwasher Residential	ENERGY STAR <= 324 kWh/yr, <= 5.8 gal/cycle	Federal Standard <= 355 kWh/yr, <= 6.5 gal/cycle	per installation	Existing	31	11	\$31	95%	25%	\$0.13	9
Utah	Large Office	Water Heat	Electric Water Heater - High Efficiency	EF = 0.95	EF = 0.92	Per installation	Existing	402	15	\$413	100%	N/A	\$0.12	53
Utah	Large Office	Water Heat	Heat Pump Water Heater - Advanced-Efficiency	EF = 2.2	EF = 0.92	Per installation	Existing	7,421	15	\$7,607	75%	N/A	\$0.12	3,938

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Utah	Large Office	Water Heat	Hot Water (SHW) Pipe Insulation	1.0" of Insulation, assuming R-4 (UT State Code)	No Insulation	per linear foot	Existing	8	12	\$2	80%	30%	\$0.04	32
Utah	Large Office	Water Heat	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	per installation	Existing	69	9	\$0.00	95%	25%	\$0.00	123
Utah	Large Office	Water Heat	Low-Flow Faucet Aerators	2.2 GPM (Federal Code)	3.0 GPM	per installation	Existing	58	9	\$2	95%	25%	\$0.01	103
Utah	Large Office	Water Heat	Low-Flow Showerheads	2.0 GPM	2.5 GPM (Federal Code)	per installation	Existing	1,033	10	\$6	95%	73%	\$0.00	804
Utah	Large Office	Water Heat	Low-Flow Showerheads	2.5 GPM (Federal Code)	4.5 GPM	per installation	Existing	2,296	10	\$10	95%	62%	\$0.00	1,512
Utah	Large Office	Water Heat	Water Heater Temperature Setback	Water Heater Temperature Setback (120 F)	No Change in Water Temperature	per installation	Existing	203	5	\$78	75%	40%	\$0.09	316
Utah	Large Office	Water Heat	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	per building sqft	New	0.02	10	\$0.24	55%	80%	\$1.61	219
Utah	Large Office	Water Heat	Dishwasher Residential	ENERGY STAR <= 324 kWh/yr, <= 5.8 gal/cycle	Federal Standard <= 355 kWh/yr, <= 6.5 gal/cycle	per installation	New	31	11	\$31	95%	55%	\$0.13	13
Utah	Large Office	Water Heat	Electric Water Heater - High Efficiency	EF = 0.95	EF = 0.92	Per installation	New	432	15	\$413	100%	N/A	\$0.11	28
Utah	Large Office	Water Heat	Heat Pump Water Heater - Advanced-Efficiency	EF = 2.2	EF = 0.92	Per installation	New	7,964	15	\$6,698	75%	N/A	\$0.09	2,331
Utah	Large Office	Water Heat	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	per installation	New	71	9	\$0.00	95%	25%	\$0.00	81
Utah	Large Office	Water Heat	Low-Flow Showerheads	2.0 GPM	2.5 GPM (Federal Code)	per installation	New	1,063	10	\$6	95%	73%	\$0.00	535
Utah	Large Office	Water Heat	Water Heater Temperature Setback	Water Heater Temperature Setback (120 F)	No Change in Water Temperature	per installation	New	209	5	\$78	75%	40%	\$0.09	235
Utah	Large Retail	Computers	Computer ENERGY STAR	Computer ENERGY STAR	Computer standard non-ENERGY STAR	Per installation	Existing	135	4	\$28	100%	N/A	\$0.06	639
Utah	Large Retail	Computers	Computer ENERGY STAR	Computer ENERGY STAR	Computer standard non-ENERGY STAR	Per installation	New	135	4	\$28	100%	N/A	\$0.06	62
Utah	Large Retail	Cooling Dx Evap	Automated Ventilation VFD Control(Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	1 unit per 3,000 sqft	Existing	959	15	\$699	25%	94%	\$0.08	1,321
Utah	Large Retail	Cooling Dx Evap	Convert Constant Volume Air System to VAV	Variable Volume Air System	Constant Volume Air System	per building CFM	Existing	0.95	15	\$2	15%	68%	\$0.32	1,188
Utah	Large Retail	Cooling Dx Evap	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	Existing	0.31	15	\$0.69	80%	98%	\$0.24	3,439
Utah	Large Retail	Cooling Dx Evap	DX Package 240 to 760 kBTU/hr - High Efficiency	DX Package 240 to 760 kBTU/hr - High Efficiency 10.5	DX Package 240 to 760 kBTU/hr - Standard Efficiency 10.0 EER	Per installation	Existing	7,224	15	\$15,141	100%	N/A	\$0.24	119
Utah	Large Retail	Cooling Dx Evap	DX Package 240 to 760 kBTU/hr - Premium Efficiency	DX Package 240 to 760 kBTU/hr - Premium Efficiency 10.8 EER	DX Package 240 to 760 kBTU/hr - Standard Efficiency 10.0 EER	Per installation	Existing	12,175	15	\$24,803	100%	N/A	\$0.23	2,756
Utah	Large Retail	Cooling Dx Evap	DX Package-Air Side Economizer	Air-Side Economizer	No Economizer	per DX ton	Existing	95	10	\$159	10%	80%	\$0.24	592
Utah	Large Retail	Cooling Dx Evap	DX Tune-Up / Diagnostics	DX Tune-Up / Diagnostics	No DX Tune-Up / Diagnostics	per installation	Existing	479	4	\$272	95%	72%	\$0.19	3,635
Utah	Large Retail	Cooling Dx Evap	Direct / Indirect Evaporative Cooling, Pre-Cooling	Evaporative Cooler	Standard DX cooling	per building CFM	Existing	0.79	15	\$1	50%	94%	\$0.26	5,286
Utah	Large Retail	Cooling Dx Evap	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	Existing	319	15	\$155	75%	76%	\$0.05	3,745
Utah	Large Retail	Cooling Dx Evap	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	Existing	0.07	18	\$0.19	45%	65%	\$0.25	332
Utah	Large Retail	Cooling Dx Evap	Evaporative Cooler replaces DX Package - Advanced Efficiency	Evaporative Cooler replaces DX Package - Advanced Efficiency	DX Package 240 to 760 kBTU/hr - Standard Efficiency 10.0 EER	Per installation	Existing	75,861	15	\$-99280.722	25%	N/A	\$0.00	1,160
Utah	Large Retail	Cooling Dx Evap	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	Existing	0.31	40	\$8	4%	98%	\$2.14	13
Utah	Large Retail	Cooling Dx Evap	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	2	13	\$0.26	10%	39%	\$0.01	43

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Utah	Large Retail	Cooling Dx Evap	Insulation - Ceiling	R-30 (UT State Code)	R-7 (Average Existing Conditions)	per roof sqft	Existing	0.01	25	\$0.69	75%	69%	\$4.26	88
Utah	Large Retail	Cooling Dx Evap	Insulation - Duct	R-5 (UT State Code)	No Insulation	per surface area of duct insul	Existing	1	20	\$1	75%	61%	\$0.13	740
Utah	Large Retail	Cooling Dx Evap	Insulation - Duct	R-8	R-5 (UT State Code)	per surface area of duct insul	Existing	0.81	20	\$0.30	75%	85%	\$0.04	851
Utah	Large Retail	Cooling Dx Evap	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	Existing	19	30	\$5	50%	95%	\$0.02	5,224
Utah	Large Retail	Cooling Dx Evap	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	Existing	3,357	10	\$124	95%	24%	\$0.01	505
Utah	Large Retail	Cooling Dx Evap	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	0.39	7	\$0.14	90%	85%	\$0.07	5,964
Utah	Large Retail	Cooling Dx Evap	Window Film	Window Film	No Film	per 100 sqft of window glazing	Existing	2	10	\$135	90%	68%	\$7.72	3
Utah	Large Retail	Cooling Dx Evap	Windows-High Efficiency	U-0.32	U-0.35 (UT State Code)	per window sqft	Existing	24	25	\$24	15%	90%	\$0.09	1,199
Utah	Large Retail	Cooling Dx Evap	Windows-High Efficiency	U-0.35 (UT State Code)	U-0.68 (Average Existing Conditions)	per window sqft	Existing	20	25	\$68	15%	70%	\$0.30	551
Utah	Large Retail	Cooling Dx Evap	Automated Ventilation VFD Control(Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	1 unit per 3,000 sqft	New	691	15	\$375	25%	94%	\$0.06	726
Utah	Large Retail	Cooling Dx Evap	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	New	0.23	15	\$0.69	80%	98%	\$0.34	1,776
Utah	Large Retail	Cooling Dx Evap	DX Package 240 to 760 kBTU/hr - High Efficiency	DX Package 240 to 760 kBTU/hr - High Efficiency 10.5	DX Package 240 to 760 kBTU/hr - Standard Efficiency 10.0 EER	Per installation	New	5,153	15	\$12,114	100%	N/A	\$0.26	35
Utah	Large Retail	Cooling Dx Evap	DX Package 240 to 760 kBTU/hr - Premium Efficiency	DX Package 240 to 760 kBTU/hr - Premium Efficiency 10.8 EER	DX Package 240 to 760 kBTU/hr - Standard Efficiency 10.0 EER	Per installation	New	9,220	15	\$19,844	100%	N/A	\$0.24	1,277
Utah	Large Retail	Cooling Dx Evap	Direct / Indirect Evaporative Cooling, Pre-Cooling	Evaporative Cooler	Standard DX cooling	per building CFM	New	0.57	15	\$1	50%	94%	\$0.36	2,730
Utah	Large Retail	Cooling Dx Evap	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	New	230	15	\$155	75%	76%	\$0.08	1,715
Utah	Large Retail	Cooling Dx Evap	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	New	0.05	18	\$0.19	45%	65%	\$0.34	171
Utah	Large Retail	Cooling Dx Evap	Evaporative Cooler replaces DX Package - Advanced Efficiency	Evaporative Cooler replaces DX Package - Advanced Efficiency	DX Package 240 to 760 kBTU/hr - Standard Efficiency 10.0 EER	Per installation	New	56,412	15	\$-76791.088	25%	N/A	\$0.00	532
Utah	Large Retail	Cooling Dx Evap	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	New	0.23	40	\$8	4%	98%	\$2.96	7
Utah	Large Retail	Cooling Dx Evap	Insulation - Duct	R-8	R-5 (UT State Code)	per surface area of duct insul	New	0.58	20	\$0.30	75%	85%	\$0.05	399
Utah	Large Retail	Cooling Dx Evap	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	New	14	30	\$5	50%	95%	\$0.03	2,450
Utah	Large Retail	Cooling Dx Evap	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	New	2,421	10	\$124	95%	12%	\$0.01	118
Utah	Large Retail	Cooling Dx Evap	Windows-High Efficiency	U-0.32	U-0.35 (UT State Code)	per window sqft	New	18	25	\$24	80%	90%	\$0.12	3,319
Utah	Large Retail	Heat Pump	Air Source Heat Pump 135 to 240 kBTU/hr - High Efficiency	11.5 EER, 3.4 COP	10.6 EER, 3.2 COP	Per installation	Existing	14,260	15	\$17,416	100%	N/A	\$0.14	88
Utah	Large Retail	Heat Pump	Air Source Heat Pump 65 to 135 kBTU/hr - Premium Efficiency	12.0 EER, 3.8 COP	10.6 EER, 3.2 COP	Per installation	Existing	28,862	15	\$29,858	100%	N/A	\$0.12	2,003

Table C.2.2. Commercial Measure Details

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Utah	Large Retail	Heat Pump	Automated Ventilation VFD Control(Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	1 unit per 3,000 sqft	Existing	1,064	15	\$699	25%	94%	\$0.07	291
Utah	Large Retail	Heat Pump	Convert Constant Volume Air System to VAV	Variable Volume Air System	Constant Volume Air System	per building CFM	Existing	1	15	\$2	15%	68%	\$0.30	319
Utah	Large Retail	Heat Pump	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	Existing	0.35	15	\$0.69	80%	98%	\$0.22	822
Utah	Large Retail	Heat Pump	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	Existing	636	15	\$155	75%	76%	\$0.03	1,507
Utah	Large Retail	Heat Pump	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	Existing	0.15	18	\$0.19	45%	65%	\$0.12	160
Utah	Large Retail	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	Existing	0.42	14	\$0.92	5%	94%	\$0.26	62
Utah	Large Retail	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	Existing	0.35	40	\$8	4%	98%	\$1.92	3
Utah	Large Retail	Heat Pump	Ground Source Heat Pump Replacing Air Source Heat Pump 65 to 135 kBTU/hr - Advanced Efficiency	16.2 EER 4.0 COP	10.6 EER, 3.2 COP	Per installation	Existing	70,338	30	\$62,826	5%	N/A	\$0.91	236
Utah	Large Retail	Heat Pump	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	6	13	\$0.26	10%	39%	\$0.01	24
Utah	Large Retail	Heat Pump	Insulation - Ceiling	R-30 (UT State Code)	R-7 (Average Existing Conditions)	per roof sqft	Existing	0.29	25	\$0.69	75%	69%	\$0.21	508
Utah	Large Retail	Heat Pump	Insulation - Ceiling	R-38	R-30 (UT State Code)	per roof sqft	Existing	0.03	25	\$0.23	25%	85%	\$0.66	20
Utah	Large Retail	Heat Pump	Insulation - Duct	R-5 (UT State Code)	No Insulation	per surface area of duct insul	Existing	2	20	\$1	75%	61%	\$0.06	311
Utah	Large Retail	Heat Pump	Insulation - Duct	R-8	R-5 (UT State Code)	per surface area of duct insul	Existing	1	20	\$0.30	75%	85%	\$0.02	342
Utah	Large Retail	Heat Pump	Insulation - Floor (non-slab)	R-19 (UT State Code)	R-11 (Average Existing Conditions)	per floor area	Existing	0.18	25	\$0.61	35%	82%	\$0.29	170
Utah	Large Retail	Heat Pump	Insulation - Floor (non-slab)	R-30	R-19 (UT State Code)	per floor area	Existing	0.14	25	\$0.25	35%	90%	\$0.16	153
Utah	Large Retail	Heat Pump	Insulation - Wall	R-13 (UT State Code)	R-3 (Average Existing Conditions)	per floor area	Existing	0.69	25	\$0.99	10%	67%	\$0.13	66
Utah	Large Retail	Heat Pump	Insulation - Wall	R-21	R-13 (UT State Code)	per floor area	Existing	0.32	25	\$0.20	10%	85%	\$0.06	40
Utah	Large Retail	Heat Pump	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	Existing	53	30	\$5	50%	95%	\$0.01	2,978
Utah	Large Retail	Heat Pump	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	Existing	6,686	10	\$124	95%	24%	\$0.00	209
Utah	Large Retail	Heat Pump	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	0.79	7	\$0.14	90%	85%	\$0.04	2,400
Utah	Large Retail	Heat Pump	Window Film	Window Film	No Film	per 100 sqft of window glazing	Existing	2	10	\$135	90%	68%	\$7.69	0.98
Utah	Large Retail	Heat Pump	Windows-High Efficiency	U-0.32	U-0.35 (UT State Code)	per window sqft	Existing	17	25	\$24	15%	90%	\$0.12	173
Utah	Large Retail	Heat Pump	Windows-High Efficiency	U-0.35 (UT State Code)	U-0.68 (Average Existing Conditions)	per window sqft	Existing	24	25	\$68	15%	70%	\$0.25	170
Utah	Large Retail	Heat Pump	Air Source Heat Pump 135 to 240 kBTU/hr - High Efficiency	11.5 EER, 3.4 COP	10.6 EER, 3.2 COP	Per installation	New	10,378	15	\$13,935	100%	N/A	\$0.15	27
Utah	Large Retail	Heat Pump	Air Source Heat Pump 65 to 135 kBTU/hr - Premium Efficiency	12.0 EER, 3.8 COP	10.6 EER, 3.2 COP	Per installation	New	18,835	15	\$23,885	100%	N/A	\$0.14	805
Utah	Large Retail	Heat Pump	Automated Ventilation VFD Control(Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	1 unit per 3,000 sqft	New	786	15	\$375	25%	94%	\$0.05	154
Utah	Large Retail	Heat Pump	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	New	0.26	15	\$0.69	80%	98%	\$0.30	423

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Utah	Large Retail	Heat Pump	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	New	395	15	\$155	75%	76%	\$0.04	598
Utah	Large Retail	Heat Pump	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	New	0.09	18	\$0.19	45%	65%	\$0.20	66
Utah	Large Retail	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	New	0.20	14	\$0.92	5%	94%	\$0.54	20
Utah	Large Retail	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	New	0.26	40	\$8	4%	98%	\$2.60	1
Utah	Large Retail	Heat Pump	Ground Source Heat Pump Replacing Air Source Heat Pump 65 to 135 KBTU/hr - Advanced Efficiency	16.2 EER 4.0 COP	10.6 EER, 3.2 COP	Per installation	New	48,395	30	\$971	5%	N/A	\$0.69	95
Utah	Large Retail	Heat Pump	Insulation - Ceiling	R-38	R-30 (UT State Code)	per roof sqft	New	0.01	25	\$0.23	75%	85%	\$1.83	15
Utah	Large Retail	Heat Pump	Insulation - Duct	R-8	R-5 (UT State Code)	per surface area of duct insul	New	1	20	\$0.30	75%	85%	\$0.03	136
Utah	Large Retail	Heat Pump	Insulation - Floor (non-slab)	R-30	R-19 (UT State Code)	per floor area	New	0.04	25	\$0.25	35%	90%	\$0.48	31
Utah	Large Retail	Heat Pump	Insulation - Wall	R-21	R-13 (UT State Code)	per floor area	New	0.10	25	\$0.20	95%	85%	\$0.17	83
Utah	Large Retail	Heat Pump	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	New	33	30	\$5	50%	95%	\$0.01	1,182
Utah	Large Retail	Heat Pump	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	New	4,153	10	\$124	95%	12%	\$0.00	41
Utah	Large Retail	Heat Pump	Windows-High Efficiency	U-0.32	U-0.35 (UT State Code)	per window sqft	New	15	25	\$24	80%	90%	\$0.14	584
Utah	Large Retail	Hvac Aux	Convert Constant Volume Air System to VAV	Variable Volume Air System	Constant Volume Air System	per building CFM	Existing	0.35	15	\$2	15%	68%	\$0.86	2,526
Utah	Large Retail	Hvac Aux	Cooking Hood Controls	Demand-Ventilation Control	No Controls	per installation	Existing	1,901	18	\$4,298	95%	65%	\$0.23	596
Utah	Large Retail	Hvac Aux	Motor - CEE Premium-Efficiency Plus	CEE PE+ Motor for HVAC Applications	NEMA Efficiency Motors	per HP	Existing	28	15	\$6	95%	76%	\$0.03	1,231
Utah	Large Retail	Hvac Aux	Motor - VAV Box High Efficiency (ECM)	ECM Motor	Standard Efficiency Motor	per installation	Existing	73	15	\$176	5%	77%	\$0.27	418
Utah	Large Retail	Hvac Aux	Motor Rewind	>15, <500 HP	No Rewind	per HP	Existing	3	8	\$4	65%	25%	\$0.22	44
Utah	Large Retail	Hvac Aux	Cooking Hood Controls	Demand-Ventilation Control	No Controls	per installation	New	1,901	18	\$4,298	95%	65%	\$0.23	378
Utah	Large Retail	Hvac Aux	Low Pressure Distribution Complex HVAC	Low Pressure Distribution Complex HVAC	VAV/CV	per building sqft	New	0.85	50	\$2	8%	98%	\$0.20	2,396
Utah	Large Retail	Hvac Aux	Motor - CEE Premium-Efficiency Plus	CEE PE+ Motor for HVAC Applications	NEMA Efficiency Motors	per HP	New	22	15	\$6	95%	76%	\$0.03	770
Utah	Large Retail	Hvac Aux	Motor - VAV Box High Efficiency (ECM)	ECM Motor	Standard Efficiency Motor	per installation	New	58	15	\$176	5%	77%	\$0.34	204
Utah	Large Retail	Lighting Exterior	Covered Parking Lighting	Covered Parking Lighting	Normal Lighting	per building sqft	Existing	0.09	10	\$0.02	80%	95%	\$0.04	5,161
Utah	Large Retail	Lighting Exterior	Daylighting Controls, Outdoors (Photocell)	Photocell	No Controls	per installation	Existing	114	8	\$28	75%	70%	\$0.04	833
Utah	Large Retail	Lighting Exterior	Exterior Building Lighting	30% savings	Normal Lighting	per installation	Existing	246	15	\$333	62%	90%	\$0.15	7,250
Utah	Large Retail	Lighting Exterior	Solid State LED White Lighting	Landscape, merchandise, signage, structure & task lighting (2.5 W)	50W 10hrs/day, 365 day/yr	per installation	Existing	12	14	\$35	75%	95%	\$0.33	136
Utah	Large Retail	Lighting Exterior	Surface Parking Lighting	Surface Parking Lighting	Normal Lighting	per building sqft	Existing	0.05	19	\$0.06	62%	95%	\$0.14	2,161
Utah	Large Retail	Lighting Exterior	Covered Parking Lighting	Covered Parking Lighting	Normal Lighting	per building sqft	New	0.09	10	\$0.02	80%	95%	\$0.04	3,273
Utah	Large Retail	Lighting Exterior	Daylighting Controls, Outdoors (Photocell)	Photocell	No Controls	per installation	New	114	8	\$28	75%	70%	\$0.04	528
Utah	Large Retail	Lighting Exterior	Exterior Building Lighting	30% savings	Normal Lighting	per installation	New	246	15	\$333	62%	90%	\$0.15	4,598
Utah	Large Retail	Lighting Exterior	Solid State LED White Lighting	Landscape, merchandise, signage, structure & task lighting (2.5 W)	50W 10hrs/day, 365 day/yr	per installation	New	12	14	\$35	75%	95%	\$0.33	86
Utah	Large Retail	Lighting Exterior	Surface Parking Lighting	Surface Parking Lighting	Normal Lighting	per building sqft	New	0.05	19	\$0.06	62%	95%	\$0.14	1,370
Utah	Large Retail	Lighting Interior	Cold Cathode Lighting	Cold Cathode Lighting 5 watts	30 W Incandescent Bulb	per installation	Existing	2,435	5	\$14	15%	94%	\$0.00	649

Table C.2.2. Commercial Measure Details

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Utah	Large Retail	Lighting Interior	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	Existing	0.83	8	\$0.88	30%	84%	\$0.18	623
Utah	Large Retail	Lighting Interior	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	Existing	0.62	8	\$0.66	30%	84%	\$0.18	467
Utah	Large Retail	Lighting Interior	Exit Sign - LED	LED Exit Sign (2 Watts)	CFL Exit Sign (9 Watts)	per installation	Existing	98	16	\$16	95%	50%	\$0.02	2,316
Utah	Large Retail	Lighting Interior	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign (2 Watts)	per installation	Existing	17	13	\$30	95%	98%	\$0.21	275
Utah	Large Retail	Lighting Interior	Lighting Package, High Efficiency	15% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	Existing	0.75	13	\$0.08	90%	53%	\$0.01	19,092
Utah	Large Retail	Lighting Interior	Lighting Package, High Efficiency	Code Required LPD And Control Strategies	Existing Lighting Design LPD	per building sqft	Existing	1	13	\$0.77	90%	39%	\$0.05	43,661
Utah	Large Retail	Lighting Interior	Lighting Package, Premium Efficiency	25% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	Existing	1	13	\$0.44	75%	62%	\$0.04	7,678
Utah	Large Retail	Lighting Interior	Lighting Package, Premium High Bay	35% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	Existing	0.28	13	\$0.15	70%	83%	\$0.07	10,917
Utah	Large Retail	Lighting Interior	Occupancy Sensor Control, Fluorescent	Occupancy Sensor Control, Fluorescent	No Occupancy Sensor	per occupancy sensor	Existing	1,202	8	\$66	45%	56%	\$0.01	1,602
Utah	Large Retail	Lighting Interior	Time Clock	Time Clock	No Controls	per 10,000 Watts	Existing	764	8	\$182	20%	86%	\$0.04	1,069
Utah	Large Retail	Lighting Interior	Cold Cathode Lighting	Cold Cathode Lighting 5 watts	30 W Incandescent Bulb	per installation	New	1,864	5	\$14	15%	94%	\$0.00	315
Utah	Large Retail	Lighting Interior	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	New	0.63	8	\$0.88	30%	84%	\$0.24	324
Utah	Large Retail	Lighting Interior	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	New	0.47	8	\$0.66	30%	84%	\$0.24	243
Utah	Large Retail	Lighting Interior	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign (2 Watts)	per installation	New	17	13	\$30	95%	98%	\$0.21	698
Utah	Large Retail	Lighting Interior	Lighting Package, High Efficiency	15% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	New	0.75	15	\$0.03	90%	53%	\$0.01	12,109
Utah	Large Retail	Lighting Interior	Lighting Package, Premium Efficiency	25% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	New	1	15	\$0.20	75%	62%	\$0.02	4,870
Utah	Large Retail	Lighting Interior	Lighting Package, Premium High Bay	35% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	New	0.28	15	\$0.03	70%	83%	\$0.01	6,924
Utah	Large Retail	Lighting Interior	Occupancy Sensor Control, Fluorescent	Occupancy Sensor Control, Fluorescent	No Occupancy Sensor	per occupancy sensor	New	920	8	\$66	45%	56%	\$0.01	833
Utah	Large Retail	Lighting Interior	Time Clock	Time Clock	No Controls	per 10,000 Watts	New	764	8	\$182	20%	86%	\$0.04	556
Utah	Large Retail	Other Office Equipment	ENERGY STAR - Copiers	ENERGY STAR Copiers	Standard Copier	per installation	Existing	74	6	\$160	95%	45%	\$0.46	12
Utah	Large Retail	Other Office Equipment	ENERGY STAR - Fax	ENERGY STAR Fax	Standard Fax	per installation	Existing	79	6	\$0.00	95%	45%	\$0.00	13
Utah	Large Retail	Other Office Equipment	ENERGY STAR - Monitors	ENERGY STAR Features Enabled	Non-ENERGY STAR Features	per installation	Existing	15	5	\$16	64%	15%	\$0.27	8
Utah	Large Retail	Other Office Equipment	ENERGY STAR - Printers	ENERGY STAR Printers	Standard Printers	per installation	Existing	139	6	\$14	95%	40%	\$0.02	80
Utah	Large Retail	Other Office Equipment	ENERGY STAR - Scanners	ENERGY STAR Scanners	Standard Scanner	per installation	Existing	72	6	\$0.00	95%	45%	\$0.00	12
Utah	Large Retail	Other Office Equipment	ENERGY STAR - Copiers	ENERGY STAR Copiers	Standard Copier	per installation	New	74	6	\$160	95%	45%	\$0.46	8
Utah	Large Retail	Other Office Equipment	ENERGY STAR - Fax	ENERGY STAR Fax	Standard Fax	per installation	New	79	6	\$0.00	95%	45%	\$0.00	8
Utah	Large Retail	Other Office Equipment	ENERGY STAR - Monitors	ENERGY STAR Features Enabled	Non-ENERGY STAR Features	per installation	New	15	5	\$16	64%	15%	\$0.27	5
Utah	Large Retail	Other Office Equipment	ENERGY STAR - Printers	ENERGY STAR Printers	Standard Printers	per installation	New	139	6	\$14	95%	40%	\$0.02	51
Utah	Large Retail	Other Office Equipment	ENERGY STAR - Scanners	ENERGY STAR Scanners	Standard Scanner	per installation	New	72	6	\$0.00	95%	45%	\$0.00	7
Utah	Large Retail	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	per installation	Existing	7	7	\$2	20%	90%	\$0.05	9

Table C.2.2. Commercial Measure Details

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Utah	Large Retail	Other Plug Load	ENERGY STAR - Water Cooler	ENERGY STAR Water Cooler (Hot/Cold Water)	Non-ENERGY STAR Water Cooler	per installation	Existing	368	10	\$0.00	95%	75%	\$0.00	80
Utah	Large Retail	Other Plug Load	Power Supply Transformer/Converter	80 Plus	85% efficient power supply (> 51W)	1 unit per 2,000 sqft	Existing	4	4	\$0.40	95%	86%	\$0.02	141
Utah	Large Retail	Other Plug Load	Residential Refrigerator	ENERGY STAR	Federal Standard	per installation	Existing	81	12	\$121	3%	65%	\$0.19	2
Utah	Large Retail	Other Plug Load	Residential Refrigerator/Freezer Recycling	Recycling Existing Refrigerator/Freezer	Existing Refrigerator/Freezer	per installation	Existing	966	4	\$560	25%	35%	\$0.17	68
Utah	Large Retail	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	1 unit per 5,000 sqft	Existing	101	5	\$20	60%	90%	\$0.05	783
Utah	Large Retail	Other Plug Load	Vending Machines- High Efficiency	ENERGY STAR (Tier 2) Vending Machines- High Efficiency 500 can capacity Under 5.92 kWh/day	Vending Machines- Standard 13 kWh/day	per installation	Existing	243	14	\$142	5%	80%	\$0.07	0.98
Utah	Large Retail	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	per installation	New	7	7	\$2	20%	90%	\$0.05	5
Utah	Large Retail	Other Plug Load	ENERGY STAR - Water Cooler	ENERGY STAR Water Cooler (Hot/Cold Water)	Non-ENERGY STAR Water Cooler	per installation	New	368	10	\$0.00	95%	75%	\$0.00	50
Utah	Large Retail	Other Plug Load	Power Supply Transformer/Converter	80 Plus	85% efficient power supply (> 51W)	1 unit per 2,000 sqft	New	4	4	\$0.40	95%	86%	\$0.02	89
Utah	Large Retail	Other Plug Load	Residential Refrigerator	ENERGY STAR	Federal Standard	per installation	New	81	12	\$121	3%	65%	\$0.19	1
Utah	Large Retail	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	1 unit per 5,000 sqft	New	101	5	\$20	60%	90%	\$0.05	496
Utah	Large Retail	Other Plug Load	Vending Machines- High Efficiency	ENERGY STAR (Tier 2) Vending Machines- High Efficiency 500 can capacity Under 5.92 kWh/day	Vending Machines- Standard 13 kWh/day	per installation	New	243	14	\$142	5%	80%	\$0.07	0.62
Utah	Large Retail	Space Heat	Convert Constant Volume Air System to VAV	Variable Volume Air System	Constant Volume Air System	per building CFM	Existing	0.42	15	\$2	15%	68%	\$0.72	137
Utah	Large Retail	Space Heat	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	Existing	327	15	\$155	75%	76%	\$0.05	885
Utah	Large Retail	Space Heat	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	Existing	0.08	18	\$0.19	45%	65%	\$0.24	77
Utah	Large Retail	Space Heat	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	Existing	0.49	14	\$0.92	5%	94%	\$0.22	75
Utah	Large Retail	Space Heat	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	4	13	\$0.26	10%	39%	\$0.01	21
Utah	Large Retail	Space Heat	Insulation - Ceiling	R-30 (UT State Code)	R-7 (Average Existing Conditions)	per roof sqft	Existing	0.75	25	\$0.69	75%	69%	\$0.08	1,533
Utah	Large Retail	Space Heat	Insulation - Ceiling	R-38	R-30 (UT State Code)	per roof sqft	Existing	0.07	25	\$0.23	25%	85%	\$0.27	51
Utah	Large Retail	Space Heat	Insulation - Duct	R-5 (UT State Code)	No Insulation	per surface area of duct insul	Existing	1	20	\$1	75%	61%	\$0.12	149
Utah	Large Retail	Space Heat	Insulation - Duct	R-8	R-5 (UT State Code)	per surface area of duct insul	Existing	0.83	20	\$0.30	75%	85%	\$0.04	204
Utah	Large Retail	Space Heat	Insulation - Floor (non-slab)	R-19 (UT State Code)	R-11 (Average Existing Conditions)	per floor area	Existing	0.48	25	\$0.61	35%	82%	\$0.11	484
Utah	Large Retail	Space Heat	Insulation - Floor (non-slab)	R-30	R-19 (UT State Code)	per floor area	Existing	0.35	25	\$0.25	35%	90%	\$0.06	496
Utah	Large Retail	Space Heat	Insulation - Wall	R-13 (UT State Code)	R-3 (Average Existing Conditions)	per floor area	Existing	2	25	\$0.99	10%	67%	\$0.04	275
Utah	Large Retail	Space Heat	Insulation - Wall	R-21	R-13 (UT State Code)	per floor area	Existing	0.94	25	\$0.20	10%	85%	\$0.02	165
Utah	Large Retail	Space Heat	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	Existing	27	30	\$5	50%	95%	\$0.02	1,798
Utah	Large Retail	Space Heat	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	Existing	3,437	10	\$124	95%	24%	\$0.01	126
Utah	Large Retail	Space Heat	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	0.40	7	\$0.14	90%	85%	\$0.07	1,362
Utah	Large Retail	Space Heat	Windows-High Efficiency	U-0.35 (UT State Code)	U-0.68 (Average Existing Conditions)	per window sqft	Existing	6	25	\$68	15%	70%	\$0.91	46
Utah	Large Retail	Space Heat	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	New	148	15	\$155	75%	76%	\$0.12	238

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Utah	Large Retail	Space Heat	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	New	0.03	18	\$0.19	45%	65%	\$0.53	27
Utah	Large Retail	Space Heat	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	New	0.22	14	\$0.92	5%	94%	\$0.48	26
Utah	Large Retail	Space Heat	Insulation - Ceiling	R-38	R-30 (UT State Code)	per roof sqft	New	0.03	25	\$0.23	75%	85%	\$0.60	55
Utah	Large Retail	Space Heat	Insulation - Duct	R-8	R-5 (UT State Code)	per surface area of duct insul	New	0.37	20	\$0.30	75%	85%	\$0.08	54
Utah	Large Retail	Space Heat	Insulation - Floor (non-slab)	R-30	R-19 (UT State Code)	per floor area	New	0.15	25	\$0.25	35%	90%	\$0.14	133
Utah	Large Retail	Space Heat	Insulation - Wall	R-21	R-13 (UT State Code)	per floor area	New	0.43	25	\$0.20	95%	85%	\$0.04	454
Utah	Large Retail	Space Heat	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	New	12	30	\$5	50%	95%	\$0.04	521
Utah	Large Retail	Space Heat	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	New	1,563	10	\$124	95%	12%	\$0.01	18
Utah	Large Retail	Water Heat	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	per building sqft	Existing	0.01	10	\$0.24	75%	94%	\$2.73	220
Utah	Large Retail	Water Heat	Dishwasher Residential	ENERGY STAR <= 324 kWh/yr, <= 5.8 gal/cycle	Federal Standard <= 355 kWh/yr, <= 6.5 gal/cycle	per installation	Existing	31	11	\$32	95%	25%	\$0.14	1
Utah	Large Retail	Water Heat	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	per installation	Existing	7,513	10	\$2,565	95%	95%	\$0.05	13
Utah	Large Retail	Water Heat	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	per installation	Existing	3,510	10	\$641	95%	94%	\$0.03	3
Utah	Large Retail	Water Heat	Electric Water Heater - High Efficiency	EF = 0.95	EF = 0.92	Per installation	Existing	293	15	\$392	100%	N/A	\$0.15	23
Utah	Large Retail	Water Heat	Heat Pump Water Heater - Advanced-Efficiency	EF = 2.2	EF = 0.92	Per installation	Existing	5,400	15	\$7,187	75%	N/A	\$0.15	1,785
Utah	Large Retail	Water Heat	Hot Water (SHW) Pipe Insulation	1.0" of Insulation, assuming R-4 (UT State Code)	No Insulation	per linear foot	Existing	6	12	\$2	80%	90%	\$0.05	46
Utah	Large Retail	Water Heat	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	per installation	Existing	41	9	\$0.00	95%	25%	\$0.00	49
Utah	Large Retail	Water Heat	Low-Flow Faucet Aerators	2.2 GPM (Federal Code)	3.0 GPM	per installation	Existing	35	9	\$2	95%	25%	\$0.01	41
Utah	Large Retail	Water Heat	Low-Flow Pre-Rinse Spray Valves	0.6 GPM	1.6 GPM (Federal Standard)	per installation	Existing	67	5	\$0.00	95%	83%	\$0.00	1
Utah	Large Retail	Water Heat	Water Heater Temperature Setback	Water Heater Temperature Setback (120 F)	No Change in Water Temperature	per installation	Existing	141	5	\$78	75%	45%	\$0.14	166
Utah	Large Retail	Water Heat	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	per building sqft	New	0.01	10	\$0.24	75%	94%	\$2.73	139
Utah	Large Retail	Water Heat	Dishwasher Residential	ENERGY STAR <= 324 kWh/yr, <= 5.8 gal/cycle	Federal Standard <= 355 kWh/yr, <= 6.5 gal/cycle	per installation	New	31	11	\$32	95%	55%	\$0.14	1
Utah	Large Retail	Water Heat	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	per installation	New	7,513	10	\$2,565	95%	95%	\$0.05	8
Utah	Large Retail	Water Heat	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	per installation	New	3,510	10	\$641	95%	94%	\$0.03	1
Utah	Large Retail	Water Heat	Electric Water Heater - High Efficiency	EF = 0.95	EF = 0.92	Per installation	New	293	15	\$392	100%	N/A	\$0.15	11
Utah	Large Retail	Water Heat	Heat Pump Water Heater - Advanced-Efficiency	EF = 2.2	EF = 0.92	Per installation	New	5,400	15	\$6,330	75%	N/A	\$0.13	923
Utah	Large Retail	Water Heat	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	per installation	New	41	9	\$0.00	95%	25%	\$0.00	31
Utah	Large Retail	Water Heat	Low-Flow Pre-Rinse Spray Valves	0.6 GPM	1.6 GPM (Federal Standard)	per installation	New	67	5	\$0.00	95%	83%	\$0.00	0.95
Utah	Large Retail	Water Heat	Water Heater Temperature Setback	Water Heater Temperature Setback (120 F)	No Change in Water Temperature	per installation	New	141	5	\$78	75%	45%	\$0.14	105
Utah	Lodging	Computers	Computer ENERGY STAR	Computer ENERGY STAR	Computer standard non-ENERGY STAR	Per installation	Existing	133	4	\$27	100%	N/A	\$0.06	605
Utah	Lodging	Computers	Computer ENERGY STAR	Computer ENERGY STAR	Computer standard non-ENERGY STAR	Per installation	New	133	4	\$27	100%	N/A	\$0.06	58

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Utah	Lodging	Cooking	Combination Oven	60% cooking efficiency	Non ENERGY STAR	per installation	Existing	11,838	12	\$1,838	90%	90%	\$0.02	2
Utah	Lodging	Cooking	Fryers - New CEE Efficient Electric Deep Fat Fryers	15 inch width Deep Fryer CEE 2006 rating; 80% under heavy load, Less than 1000 watt at idle	15 inch width standard electric deep fat fryers	per installation	Existing	1,024	12	\$1,267	55%	90%	\$0.16	0.66
Utah	Lodging	Cooking	Griddle	70% cooking efficiency	Non ENERGY STAR	per installation	Existing	2,285	12	\$804	95%	85%	\$0.05	6
Utah	Lodging	Cooking	High Efficiency Convection Oven	Convection Oven	Standard Oven	per installation	Existing	1,891	12	\$1,987	19%	55%	\$0.14	1
Utah	Lodging	Cooking	Hot Food Holding Cabinet	ENERGY STAR	Non ENERGY STAR	per installation	Existing	3,969	12	\$1,727	55%	21%	\$0.06	3
Utah	Lodging	Cooking	Steam Cooker	ENERGY STAR	Non ENERGY STAR	per installation	Existing	4,248	12	\$2,507	11%	75%	\$0.08	2
Utah	Lodging	Cooking	Combination Oven	60% cooking efficiency	Non ENERGY STAR	per installation	New	11,838	12	\$1,838	90%	90%	\$0.02	1
Utah	Lodging	Cooking	Fryers - New CEE Efficient Electric Deep Fat Fryers	15 inch width Deep Fryer CEE 2006 rating; 80% under heavy load, Less than 1000 watt at idle	15 inch width standard electric deep fat fryers	per installation	New	1,024	12	\$1,267	55%	90%	\$0.16	0.42
Utah	Lodging	Cooking	Griddle	70% cooking efficiency	Non ENERGY STAR	per installation	New	2,285	12	\$804	95%	85%	\$0.05	4
Utah	Lodging	Cooking	High Efficiency Convection Oven	Convection Oven	Standard Oven	per installation	New	1,891	12	\$1,987	19%	55%	\$0.14	0.69
Utah	Lodging	Cooking	Hot Food Holding Cabinet	ENERGY STAR	Non ENERGY STAR	per installation	New	3,969	12	\$1,727	55%	21%	\$0.06	2
Utah	Lodging	Cooking	Steam Cooker	ENERGY STAR	Non ENERGY STAR	per installation	New	4,248	12	\$2,507	11%	75%	\$0.08	1
Utah	Lodging	Cooling Chillers	Automated Ventilation VFD Control (Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	1 unit per 3,000 sqft	Existing	112	15	\$690	50%	94%	\$0.69	84
Utah	Lodging	Cooling Chillers	Chilled Water / Condenser Water Settings-Optimization	Additional Control Features	EMS already installed - No Optimization	1 control point per 1000 sqft	Existing	23	5	\$144	95%	81%	\$1.52	82
Utah	Lodging	Cooling Chillers	Chilled Water Piping Loop w/ VSD Control	VSD for secondary chilled water loop	Primary loop only w/ constant speed pump	per chiller ton	Existing	38	10	\$193	25%	70%	\$0.73	118
Utah	Lodging	Cooling Chillers	Chiller-Water Side Economizer	Install Economizer	No Economizer	per chiller ton	Existing	25	15	\$432	45%	30%	\$1.92	57
Utah	Lodging	Cooling Chillers	Chillers <150 tons (screw) - Advanced Efficiency	0.58 kW/ton (full load)	0.790 kW/Ton (full load)	Per installation	Existing	3,670	20	\$5,147	100%	N/A	\$0.14	1,419
Utah	Lodging	Cooling Chillers	Chillers <150 tons (screw) - High Efficiency	0.71 kW/ton (full load)	0.790 kW/Ton (full load)	Per installation	Existing	1,401	20	\$1,961	100%	N/A	\$0.14	10
Utah	Lodging	Cooling Chillers	Chillers <150 tons (screw) - Premium Efficiency	0.63 kW/ton	0.790 kW/Ton (full load)	Per installation	Existing	2,728	20	\$3,921	100%	N/A	\$0.14	89
Utah	Lodging	Cooling Chillers	Cool Roof	Light color Coating; ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	Existing	0.18	15	\$0.68	45%	98%	\$0.41	373
Utah	Lodging	Cooling Chillers	Cooling Tower-Decrease Approach Temperature	6 Deg F	10 Deg F	per chiller ton	Existing	40	8	\$26	10%	94%	\$0.12	78
Utah	Lodging	Cooling Chillers	Cooling Tower-Two-Speed Fan Motor	Cooling Tower-Two-Speed Fan Motor	Cooling Tower-One-Speed Fan Motor	per chiller ton	Existing	70	15	\$2	95%	35%	\$0.00	561
Utah	Lodging	Cooling Chillers	Cooling Tower-VSD Fan Control	Variable-Speed Tower Fans replace Two-Speed	Cooling Tower-Two-Speed Fan Motor	per chiller ton	Existing	20	13	\$19	95%	75%	\$0.12	307
Utah	Lodging	Cooling Chillers	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	Existing	187	15	\$153	75%	76%	\$0.09	649
Utah	Lodging	Cooling Chillers	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	Existing	0.18	40	\$8	4%	98%	\$3.59	2
Utah	Lodging	Cooling Chillers	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	0.59	13	\$0.26	10%	39%	\$0.05	22
Utah	Lodging	Cooling Chillers	Insulation - Ceiling	R-30 (UT State Code)	R-11 (Average Existing Conditions)	per roof sqft	Existing	0.00	25	\$0.68	75%	65%	\$14.29	9
Utah	Lodging	Cooling Chillers	Pipe Insulation	1.5" of Insulation, assuming R-6 (UT State Code)	No Insulation	per linear feet of insulation	Existing	5	15	\$3	65%	45%	\$0.07	50
Utah	Lodging	Cooling Chillers	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	0.23	7	\$0.14	90%	85%	\$0.12	997

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Utah	Lodging	Cooling Chillers	Window Film	Window Film	No Film	per 100 sqft of window glazing	Existing	2	10	\$134	90%	68%	\$7.95	10
Utah	Lodging	Cooling Chillers	Windows-High Efficiency	U-0.32	U-0.35 (UT State Code)	per window sqft	Existing	1	25	\$24	15%	90%	\$1.12	192
Utah	Lodging	Cooling Chillers	Windows-High Efficiency	U-0.35 (UT State Code)	U-0.65 (Average Existing Conditions)	per window sqft	Existing	1	25	\$67	15%	71%	\$3.03	150
Utah	Lodging	Cooling Chillers	Automated Ventilation VFD Control(Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	1 unit per 3,000 sqft	New	67	15	\$370	50%	94%	\$0.62	41
Utah	Lodging	Cooling Chillers	Chilled Water / Condenser Water Settings-Optimization	Additional Control Features	EMS already installed - No Optimization	1 control point per 1000 sqft	New	14	5	\$144	95%	81%	\$2.53	34
Utah	Lodging	Cooling Chillers	Chilled Water Piping Loop w/ VSD Control	VSD for secondary chilled water loop	Primary loop only w/ constant speed pump	per chiller ton	New	25	10	\$193	25%	70%	\$1.10	55
Utah	Lodging	Cooling Chillers	Chillers <150 tons (screw) - Advanced Efficiency	0.58 kW/ton (full load)	0.790 kW/Ton (full load)	Per installation	New	2,454	20	\$4,632	100%	N/A	\$0.18	807
Utah	Lodging	Cooling Chillers	Chillers <150 tons (screw) - High Efficiency	0.71 kW/ton (full load)	0.790 kW/Ton (full load)	Per installation	New	937	20	\$1,765	100%	N/A	\$0.18	4
Utah	Lodging	Cooling Chillers	Chillers <150 tons (screw) - Premium Efficiency	0.63 kW/ton	0.790 kW/Ton (full load)	Per installation	New	1,824	20	\$3,529	100%	N/A	\$0.19	33
Utah	Lodging	Cooling Chillers	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	New	0.11	15	\$0.68	45%	98%	\$0.68	175
Utah	Lodging	Cooling Chillers	Cooling Tower-Decrease Approach Temperature	6 Deg F	10 Deg F	per chiller ton	New	27	8	\$26	10%	94%	\$0.17	33
Utah	Lodging	Cooling Chillers	Cooling Tower-VSD Fan Control	Variable-Speed Tower Fans	Cooling Tower-Two-Speed Fan Motor	per chiller ton	New	13	15	\$19	95%	75%	\$0.16	131
Utah	Lodging	Cooling Chillers	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	New	112	15	\$153	75%	76%	\$0.15	278
Utah	Lodging	Cooling Chillers	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	New	0.11	40	\$8	4%	98%	\$5.97	1
Utah	Lodging	Cooling Chillers	Natural Ventilation	Natural Ventilation Design Reduction in Cooling	None - Standard Ventilation	per building sqft	New	0.11	15	\$0.87	20%	75%	\$0.88	63
Utah	Lodging	Cooling Chillers	Windows-High Efficiency	U-0.32	U-0.35 (UT State Code)	per window sqft	New	1	25	\$24	80%	90%	\$1.87	480
Utah	Lodging	Cooling Dx Evap	Automated Ventilation VFD Control(Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	1 unit per 3,000 sqft	Existing	133	15	\$690	50%	94%	\$0.58	136
Utah	Lodging	Cooling Dx Evap	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	Existing	0.22	15	\$0.68	45%	98%	\$0.35	686
Utah	Lodging	Cooling Dx Evap	DX Package 65 to 135 kBtu/hr - High Efficiency	DX Package 65 to 135 kBtu/hr - High Efficiency - 11.5 EER	DX Package 65 to 135 kBtu/hr - Standard Efficiency - 11.2 EER	Per installation	Existing	727	15	\$741	100%	N/A	\$0.11	30
Utah	Lodging	Cooling Dx Evap	DX Package 65 to 135 kBtu/hr - Premium Efficiency	DX Package 65 to 135 kBtu/hr - Premium Efficiency - 12.0 EER	DX Package 65 to 135 kBtu/hr - Standard Efficiency - 11.2 EER	Per installation	Existing	1,746	15	\$1,490	100%	N/A	\$0.10	898
Utah	Lodging	Cooling Dx Evap	DX Package-Air Side Economizer	Air-Side Economizer	No Economizer	per DX ton	Existing	100	10	\$157	10%	30%	\$0.23	78
Utah	Lodging	Cooling Dx Evap	DX Tune-Up / Diagnostics	DX Tune-Up / Diagnostics	No DX Tune-Up / Diagnostics	per installation	Existing	500	4	\$269	95%	72%	\$0.18	1,297
Utah	Lodging	Cooling Dx Evap	Direct / Indirect Evaporative Cooling, Pre-Cooling	Evaporative Cooler	Standard DX cooling	per building CFM	Existing	0.55	15	\$1	50%	94%	\$0.37	1,939
Utah	Lodging	Cooling Dx Evap	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	Existing	222	15	\$153	75%	76%	\$0.08	1,447

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Utah	Lodging	Cooling Dx Evap	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	Existing	0.05	18	\$0.19	45%	65%	\$0.35	121
Utah	Lodging	Cooling Dx Evap	Evaporative Cooler replaces DX Package 65 to 135 kBtu/hr - Advanced Efficiency	Evaporative Cooler replaces DX Package 65 to 135 kBtu/hr - Advanced Efficiency	DX Package 65 to 135 kBtu/hr - Standard Efficiency - 11.2 EER	Per installation	Existing	10,633	15	\$-13376.367	25%	N/A	\$0.00	373
Utah	Lodging	Cooling Dx Evap	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	Existing	0.22	40	\$8	4%	98%	\$3.03	4
Utah	Lodging	Cooling Dx Evap	Hotel Key Card Room Energy Control System	Key card system to control room HVAC and lighting during non-occupied periods	325 sqft room, \$100/room	per room	Existing	180	15	\$128	60%	97%	\$0.08	3,129
Utah	Lodging	Cooling Dx Evap	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	0.70	13	\$0.26	10%	39%	\$0.05	50
Utah	Lodging	Cooling Dx Evap	Insulation - Ceiling	R-30 (UT State Code)	R-11 (Average Existing Conditions)	per roof sqft	Existing	0.00	25	\$0.68	75%	65%	\$12.07	15
Utah	Lodging	Cooling Dx Evap	Insulation - Duct	R-5 (UT State Code)	No Insulation	per surface area of duct insul	Existing	0.84	20	\$1	75%	56%	\$0.18	222
Utah	Lodging	Cooling Dx Evap	Insulation - Duct	R-8	R-5 (UT State Code)	per surface area of duct insul	Existing	0.56	20	\$0.30	75%	85%	\$0.05	329
Utah	Lodging	Cooling Dx Evap	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	Existing	13	30	\$5	50%	95%	\$0.03	2,037
Utah	Lodging	Cooling Dx Evap	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	Existing	540	10	\$124	95%	26%	\$0.03	189
Utah	Lodging	Cooling Dx Evap	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	0.27	7	\$0.14	90%	85%	\$0.10	2,005
Utah	Lodging	Cooling Dx Evap	Window Film	Window Film	No Film	per 100 sqft of window glazing	Existing	2	10	\$134	90%	68%	\$7.95	14
Utah	Lodging	Cooling Dx Evap	Windows-High Efficiency	U-0.32	U-0.35 (UT State Code)	per window sqft	Existing	2	25	\$24	15%	90%	\$0.95	314
Utah	Lodging	Cooling Dx Evap	Windows-High Efficiency	U-0.35 (UT State Code)	U-0.65 (Average Existing Conditions)	per window sqft	Existing	2	25	\$67	15%	71%	\$2.56	249
Utah	Lodging	Cooling Dx Evap	Automated Ventilation VFD Control(Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	1 unit per 3,000 sqft	New	82	15	\$370	50%	94%	\$0.51	81
Utah	Lodging	Cooling Dx Evap	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	New	0.13	15	\$0.68	45%	98%	\$0.56	341
Utah	Lodging	Cooling Dx Evap	DX Package 65 to 135 kBtu/hr - High Efficiency	DX Package 65 to 135 kBtu/hr - High Efficiency - 11.5 EER	DX Package 65 to 135 kBtu/hr - Standard Efficiency - 11.2 EER	Per installation	New	434	15	\$592	100%	N/A	\$0.15	7
Utah	Lodging	Cooling Dx Evap	DX Package 65 to 135 kBtu/hr - Premium Efficiency	DX Package 65 to 135 kBtu/hr - Premium Efficiency - 12.0 EER	DX Package 65 to 135 kBtu/hr - Standard Efficiency - 11.2 EER	Per installation	New	1,083	15	\$1,192	100%	N/A	\$0.12	337
Utah	Lodging	Cooling Dx Evap	Direct / Indirect Evaporative Cooling, Pre-Cooling	Evaporative Cooler	Standard DX cooling	per building CFM	New	0.34	15	\$1	50%	94%	\$0.60	964
Utah	Lodging	Cooling Dx Evap	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	New	136	15	\$153	75%	76%	\$0.13	601
Utah	Lodging	Cooling Dx Evap	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	New	0.03	18	\$0.19	45%	65%	\$0.57	60
Utah	Lodging	Cooling Dx Evap	Evaporative Cooler replaces DX Package 65 to 135 kBtu/hr - Advanced Efficiency	Evaporative Cooler replaces DX Package 65 to 135 kBtu/hr - Advanced Efficiency	DX Package 65 to 135 kBtu/hr - Standard Efficiency - 11.2 EER	Per installation	New	7,037	15	\$-9953.7278	25%	N/A	\$0.00	148
Utah	Lodging	Cooling Dx Evap	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	New	0.13	40	\$8	4%	98%	\$4.92	2
Utah	Lodging	Cooling Dx Evap	Hotel Key Card Room Energy Control System	Key card system to control room HVAC and lighting during non-occupied periods	325 sqft room, \$100/room	per room	New	111	15	\$128	60%	97%	\$0.13	1,300

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Utah	Lodging	Cooling Dx Evap	Insulation - Duct	R-8	R-5 (UT State Code)	per surface area of duct insul	New	0.34	20	\$0.30	75%	85%	\$0.09	136
Utah	Lodging	Cooling Dx Evap	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	New	8	30	\$5	50%	95%	\$0.05	842
Utah	Lodging	Cooling Dx Evap	Natural Ventilation	Natural Ventilation Design Reduction in Cooling	None - Standard Ventilation	per building sqft	New	0.13	15	\$0.87	20%	75%	\$0.72	108
Utah	Lodging	Cooling Dx Evap	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	New	332	10	\$124	95%	13%	\$0.05	39
Utah	Lodging	Cooling Dx Evap	Windows-High Efficiency	U-0.32	U-0.35 (UT State Code)	per window sqft	New	1	25	\$24	80%	90%	\$1.54	831
Utah	Lodging	Cooling Room	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	Existing	0.27	15	\$0.68	45%	98%	\$0.28	864
Utah	Lodging	Cooling Room	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	Existing	272	15	\$153	75%	76%	\$0.06	1,508
Utah	Lodging	Cooling Room	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	Existing	0.27	40	\$8	4%	98%	\$2.48	6
Utah	Lodging	Cooling Room	Hotel Key Card Room Energy Control System	Key card system to control room HVAC and lighting during non-occupied periods	325 sqft room, \$100/room	per room	Existing	220	15	\$128	60%	97%	\$0.07	3,261
Utah	Lodging	Cooling Room	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	0.86	13	\$0.26	10%	39%	\$0.04	51
Utah	Lodging	Cooling Room	Insulation - Ceiling	R-30 (UT State Code)	R-11 (Average Existing Conditions)	per roof sqft	Existing	0.00	25	\$0.68	75%	65%	\$9.86	22
Utah	Lodging	Cooling Room	PTAC (10,000 BTU/HR) - Premium-Efficiency	11.4 EER	Room AC (10,000 BTU/HR) Standard-Efficiency 9.8 EER	Per installation	Existing	3,537	15	\$32,934	75%	N/A	\$1.05	2,716
Utah	Lodging	Cooling Room	Room AC (10,000 BTU/HR) High-Efficiency	High Efficiency 10.8 EER (ENERGY STAR)	Room AC (10,000 BTU/HR) Standard-Efficiency 9.8 EER	Per installation	Existing	2,245	9	\$1,632	100%	N/A	\$0.11	475
Utah	Lodging	Cooling Room	Window Film	Window Film	No Film	per 100 sqft of window glazing	Existing	0.12	10	\$134	90%	68%	\$158.47	0.87
Utah	Lodging	Cooling Room	Windows-High Efficiency	U-0.32	U-0.35 (UT State Code)	per window sqft	Existing	2	25	\$24	15%	90%	\$0.78	457
Utah	Lodging	Cooling Room	Windows-High Efficiency	U-0.35 (UT State Code)	U-0.65 (Average Existing Conditions)	per window sqft	Existing	2	25	\$67	15%	71%	\$2.09	362
Utah	Lodging	Cooling Room	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	New	0.17	15	\$0.68	45%	98%	\$0.44	364
Utah	Lodging	Cooling Room	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	New	175	15	\$153	75%	76%	\$0.10	636
Utah	Lodging	Cooling Room	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	New	0.17	40	\$8	4%	98%	\$3.84	2
Utah	Lodging	Cooling Room	Hotel Key Card Room Energy Control System	Key card system to control room HVAC and lighting during non-occupied periods	325 sqft room, \$100/room	per room	New	142	15	\$128	60%	97%	\$0.10	1,374
Utah	Lodging	Cooling Room	Natural Ventilation	Natural Ventilation Design Reduction in Cooling	None - Standard Ventilation	per building sqft	New	0.17	15	\$0.87	20%	75%	\$0.56	132
Utah	Lodging	Cooling Room	PTAC (10,000 BTU/HR) - Premium-Efficiency	11.4 EER	Room AC (10,000 BTU/HR) Standard-Efficiency 9.8 EER	Per installation	New	2,271	15	\$23,941	75%	N/A	\$1.19	438
Utah	Lodging	Cooling Room	Room AC (10,000 BTU/HR) High-Efficiency	High Efficiency 10.8 EER (ENERGY STAR)	Room AC (10,000 BTU/HR) Standard-Efficiency 9.8 EER	Per installation	New	1,440	9	\$1,305	100%	N/A	\$0.14	79
Utah	Lodging	Cooling Room	Windows-High Efficiency	U-0.32	U-0.35 (UT State Code)	per window sqft	New	1	25	\$24	80%	90%	\$1.20	1,012
Utah	Lodging	Heat Pump	Air Source Heat Pump 65 to 135 kBtu/hr - High Efficiency	11.5 EER, 3.4 COP	11.0 EER, 3.3 COP	Per installation	Existing	2,763	15	\$2,756	100%	N/A	\$0.11	103
Utah	Lodging	Heat Pump	Air Source Heat Pump 65 to 135 kBtu/hr - Premium Efficiency	12.0 EER, 3.8 COP	11.0 EER, 3.3 COP	Per installation	Existing	5,603	15	\$5,513	100%	N/A	\$0.11	2,185

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Utah	Lodging	Heat Pump	Automated Ventilation VFD Control(Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	1 unit per 3,000 sqft	Existing	145	15	\$690	50%	94%	\$0.53	88
Utah	Lodging	Heat Pump	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	Existing	0.24	15	\$0.68	45%	98%	\$0.32	382
Utah	Lodging	Heat Pump	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	Existing	492	15	\$153	75%	76%	\$0.04	1,616
Utah	Lodging	Heat Pump	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	Existing	0.12	18	\$0.19	45%	65%	\$0.16	148
Utah	Lodging	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	Existing	0.37	14	\$1	5%	94%	\$0.54	68
Utah	Lodging	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	Existing	0.24	40	\$8	4%	98%	\$2.78	3
Utah	Lodging	Heat Pump	Ground Source Heat Pump Replacing Air Source Heat Pump 65 to 135 kBtu/hr - Advanced Efficiency	16.2 EER 4.0 COP	11.0 EER, 3.3 COP	Per installation	Existing	10,809	30	\$15,681	5%	N/A	\$0.90	70
Utah	Lodging	Heat Pump	Hotel Key Card Room Energy Control System	Key card system to control room HVAC and lighting during non-occupied periods	325 sqft room, \$100/room	per room	Existing	399	15	\$128	60%	97%	\$0.04	3,494
Utah	Lodging	Heat Pump	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	2	13	\$0.26	10%	39%	\$0.01	85
Utah	Lodging	Heat Pump	Insulation - Ceiling	R-30 (UT State Code)	R-11 (Average Existing Conditions)	per roof sqft	Existing	0.20	25	\$0.68	75%	65%	\$0.29	413
Utah	Lodging	Heat Pump	Insulation - Ceiling	R-38	R-30 (UT State Code)	per roof sqft	Existing	0.03	25	\$0.23	25%	85%	\$0.64	26
Utah	Lodging	Heat Pump	Insulation - Duct	R-5 (UT State Code)	No Insulation	per surface area of duct insul	Existing	1	20	\$1	75%	56%	\$0.08	266
Utah	Lodging	Heat Pump	Insulation - Duct	R-8	R-5 (UT State Code)	per surface area of duct insul	Existing	1	20	\$0.30	75%	85%	\$0.02	367
Utah	Lodging	Heat Pump	Insulation - Floor (non-slab)	R-19 (UT State Code)	R-7 (Average Existing Conditions)	per floor area	Existing	0.34	25	\$0.60	35%	78%	\$0.16	393
Utah	Lodging	Heat Pump	Insulation - Floor (non-slab)	R-30	R-19 (UT State Code)	per floor area	Existing	0.15	25	\$0.24	35%	90%	\$0.15	201
Utah	Lodging	Heat Pump	Insulation - Wall	R-13 (UT State Code)	R-3 (Average Existing Conditions)	per floor area	Existing	0.53	25	\$0.98	10%	70%	\$0.16	85
Utah	Lodging	Heat Pump	Insulation - Wall	R-21	R-13 (UT State Code)	per floor area	Existing	0.24	25	\$0.20	10%	85%	\$0.07	50
Utah	Lodging	Heat Pump	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	Existing	41	30	\$5	50%	95%	\$0.01	3,227
Utah	Lodging	Heat Pump	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	Existing	1,195	10	\$124	95%	26%	\$0.02	211
Utah	Lodging	Heat Pump	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	0.61	7	\$0.14	90%	85%	\$0.05	2,239
Utah	Lodging	Heat Pump	Window Film	Window Film	No Film	per 100 sqft of window glazing	Existing	2	10	\$134	90%	68%	\$7.93	8
Utah	Lodging	Heat Pump	Windows-High Efficiency	U-0.32	U-0.35 (UT State Code)	per window sqft	Existing	1	25	\$24	15%	90%	\$1.60	111
Utah	Lodging	Heat Pump	Windows-High Efficiency	U-0.35 (UT State Code)	U-0.65 (Average Existing Conditions)	per window sqft	Existing	2	25	\$67	15%	71%	\$2.27	170
Utah	Lodging	Heat Pump	Air Source Heat Pump 65 to 135 kBtu/hr - High Efficiency	11.5 EER, 3.4 COP	11.0 EER, 3.3 COP	Per installation	New	1,824	15	\$2,205	100%	N/A	\$0.14	29
Utah	Lodging	Heat Pump	Air Source Heat Pump 65 to 135 kBtu/hr - Premium Efficiency	12.0 EER, 3.8 COP	11.0 EER, 3.3 COP	Per installation	New	3,621	15	\$4,410	100%	N/A	\$0.14	865
Utah	Lodging	Heat Pump	Automated Ventilation VFD Control(Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	1 unit per 3,000 sqft	New	91	15	\$370	50%	94%	\$0.46	42

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Utah	Lodging	Heat Pump	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	New	0.15	15	\$0.68	45%	98%	\$0.51	180
Utah	Lodging	Heat Pump	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	New	301	15	\$153	75%	76%	\$0.06	660
Utah	Lodging	Heat Pump	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	New	0.07	18	\$0.19	45%	65%	\$0.26	67
Utah	Lodging	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	New	0.22	14	\$1	5%	94%	\$0.90	30
Utah	Lodging	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	New	0.15	40	\$8	4%	98%	\$4.42	1
Utah	Lodging	Heat Pump	Ground Source Heat Pump Replacing Air Source Heat Pump 65 to 135 kBtu/hr - Advanced Efficiency	16.2 EER 4.0 COP	11.0 EER, 3.3 COP	Per installation	New	7,077	30	\$60,768	5%	N/A	\$0.72	27
Utah	Lodging	Heat Pump	Hotel Key Card Room Energy Control System	Key card system to control room HVAC and lighting during non-occupied periods	325 sqft room, \$100/room	per room	New	245	15	\$128	60%	97%	\$0.06	1,427
Utah	Lodging	Heat Pump	Insulation - Ceiling	R-38	R-30 (UT State Code)	per roof sqft	New	0.01	25	\$0.23	75%	85%	\$1.10	34
Utah	Lodging	Heat Pump	Insulation - Duct	R-8	R-5 (UT State Code)	per surface area of duct insul	New	0.76	20	\$0.30	75%	85%	\$0.04	150
Utah	Lodging	Heat Pump	Insulation - Floor (non-slab)	R-30	R-19 (UT State Code)	per floor area	New	0.08	25	\$0.24	35%	90%	\$0.25	85
Utah	Lodging	Heat Pump	Insulation - Wall	R-21	R-13 (UT State Code)	per floor area	New	0.14	25	\$0.20	95%	85%	\$0.13	205
Utah	Lodging	Heat Pump	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	New	25	30	\$5	50%	95%	\$0.02	1,309
Utah	Lodging	Heat Pump	Natural Ventilation	Natural Ventilation Design Reduction in Cooling	None - Standard Ventilation	per building sqft	New	0.30	15	\$0.87	20%	75%	\$0.33	137
Utah	Lodging	Heat Pump	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	New	733	10	\$124	95%	13%	\$0.02	42
Utah	Lodging	Heat Pump	Windows-High Efficiency	U-0.32	U-0.35 (UT State Code)	per window sqft	New	0.88	25	\$24	80%	90%	\$2.45	290
Utah	Lodging	Hvac Aux	Cooking Hood Controls	Demand-Ventilation Control	No Controls	per installation	Existing	1,877	18	\$8,249	95%	45%	\$0.45	2,717
Utah	Lodging	Hvac Aux	Motor - CEE Premium-Efficiency Plus	CEE PE+ Motor for HVAC Applications	NEMA Efficiency Motors	per HP	Existing	25	15	\$6	95%	76%	\$0.03	678
Utah	Lodging	Hvac Aux	Motor Rewind	>15, <500 HP	No Rewind	per HP	Existing	5	8	\$4	65%	25%	\$0.16	24
Utah	Lodging	Hvac Aux	Cooking Hood Controls	Demand-Ventilation Control	No Controls	per installation	New	1,877	18	\$8,249	95%	45%	\$0.45	1,723
Utah	Lodging	Hvac Aux	Motor - CEE Premium-Efficiency Plus	CEE PE+ Motor for HVAC Applications	NEMA Efficiency Motors	per HP	New	25	15	\$6	95%	76%	\$0.03	533
Utah	Lodging	Lighting Exterior	Covered Parking Lighting	Covered Parking Lighting	Normal Lighting	per building sqft	Existing	0.09	10	\$0.02	80%	95%	\$0.04	3,276
Utah	Lodging	Lighting Exterior	Daylighting Controls, Outdoors (Photocell)	Photocell	No Controls	per installation	Existing	32	8	\$27	75%	70%	\$0.15	293
Utah	Lodging	Lighting Exterior	Exterior Building Lighting	30% savings	Normal Lighting	per installation	Existing	243	15	\$329	62%	90%	\$0.15	2,549
Utah	Lodging	Lighting Exterior	Solid State LED White Lighting	Landscape, merchandise, signage, structure & task lighting (2.5 W)	50W 10hrs/day, 365 day/yr	per installation	Existing	3	14	\$34	75%	95%	\$1.17	51
Utah	Lodging	Lighting Exterior	Surface Parking Lighting	Surface Parking Lighting	Normal Lighting	per building sqft	Existing	0.05	19	\$0.06	62%	95%	\$0.14	1,371
Utah	Lodging	Lighting Exterior	Covered Parking Lighting	Covered Parking Lighting	Normal Lighting	per building sqft	New	0.09	10	\$0.02	80%	95%	\$0.04	2,077
Utah	Lodging	Lighting Exterior	Daylighting Controls, Outdoors (Photocell)	Photocell	No Controls	per installation	New	32	8	\$27	75%	70%	\$0.15	185
Utah	Lodging	Lighting Exterior	Exterior Building Lighting	30% savings	Normal Lighting	per installation	New	243	15	\$329	62%	90%	\$0.15	1,616
Utah	Lodging	Lighting Exterior	Solid State LED White Lighting	Landscape, merchandise, signage, structure & task lighting (2.5 W)	50W 10hrs/day, 365 day/yr	per installation	New	3	14	\$34	75%	95%	\$1.17	32

Table C.2.2. Commercial Measure Details

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Utah	Lodging	Lighting Exterior	Surface Parking Lighting	Surface Parking Lighting	Normal Lighting	per building sqft	New	0.05	19	\$0.06	62%	95%	\$0.14	870
Utah	Lodging	Lighting Interior	Cold Cathode Lighting	Cold Cathode Lighting 5 watts	30 W Incandescent Bulb	per installation	Existing	134	5	\$13	15%	94%	\$0.02	105
Utah	Lodging	Lighting Interior	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	Existing	0.23	8	\$0.87	30%	92%	\$0.64	246
Utah	Lodging	Lighting Interior	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	Existing	0.17	8	\$0.65	30%	92%	\$0.64	184
Utah	Lodging	Lighting Interior	Exit Sign - LED	LED Exit Sign (2 Watts)	CFL Exit Sign (9 Watts)	per installation	Existing	97	16	\$16	95%	50%	\$0.02	1,550
Utah	Lodging	Lighting Interior	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign (2 Watts)	per installation	Existing	17	13	\$30	95%	98%	\$0.21	184
Utah	Lodging	Lighting Interior	Lighting Package, High Efficiency	15% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	Existing	0.43	13	\$0.00	90%	53%	\$0.00	7,520
Utah	Lodging	Lighting Interior	Lighting Package, High Efficiency	Code Required LPD And Control Strategies	Existing Lighting Design LPD	per building sqft	Existing	1	13	\$0.02	90%	41%	\$0.00	27,122
Utah	Lodging	Lighting Interior	Lighting Package, Premium Efficiency	25% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	Existing	0.72	13	\$0.00	75%	62%	\$0.00	3,024
Utah	Lodging	Lighting Interior	Lighting Package, Premium High Bay	35% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	Existing	0.01	13	\$0.00	70%	83%	\$0.09	352
Utah	Lodging	Lighting Interior	Occupancy Sensor Control, Fluorescent	Occupancy Sensor Control, Fluorescent	No Occupancy Sensor	per occupancy sensor	Existing	575	8	\$66	90%	59%	\$0.02	1,245
Utah	Lodging	Lighting Interior	Time Clock	Time Clock	No Controls	per 10,000 Watts	Existing	755	8	\$179	20%	**%	\$0.04	450
Utah	Lodging	Lighting Interior	Cold Cathode Lighting	Cold Cathode Lighting 5 watts	30 W Incandescent Bulb	per installation	New	107	5	\$13	15%	94%	\$0.03	53
Utah	Lodging	Lighting Interior	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	New	0.18	8	\$0.87	30%	92%	\$0.80	147
Utah	Lodging	Lighting Interior	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	New	0.13	8	\$0.65	30%	92%	\$0.80	110
Utah	Lodging	Lighting Interior	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign (2 Watts)	per installation	New	17	13	\$30	95%	98%	\$0.21	467
Utah	Lodging	Lighting Interior	Lighting Package, High Efficiency	15% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	New	0.41	15	\$0.00	90%	53%	\$0.00	4,531
Utah	Lodging	Lighting Interior	Lighting Package, Premium Efficiency	25% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	New	0.69	15	\$0.00	75%	62%	\$0.00	1,822
Utah	Lodging	Lighting Interior	Lighting Package, Premium High Bay	35% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	New	0.01	15	\$0.00	70%	83%	\$0.02	223
Utah	Lodging	Lighting Interior	Occupancy Sensor Control, Fluorescent	Occupancy Sensor Control, Fluorescent	No Occupancy Sensor	per occupancy sensor	New	456	8	\$66	90%	59%	\$0.02	742
Utah	Lodging	Lighting Interior	Time Clock	Time Clock	No Controls	per 10,000 Watts	New	755	8	\$180	20%	**%	\$0.04	268
Utah	Lodging	Other Office Equipment	ENERGY STAR - Copiers	ENERGY STAR Copiers	Standard Copier	per installation	Existing	73	6	\$157	95%	45%	\$0.46	159
Utah	Lodging	Other Office Equipment	ENERGY STAR - Fax	ENERGY STAR Fax	Standard Fax	per installation	Existing	78	6	\$0.90	95%	45%	\$0.00	170
Utah	Lodging	Other Office Equipment	ENERGY STAR - Monitors	ENERGY STAR Features Enabled	Non-ENERGY STAR Features	per installation	Existing	15	5	\$15	64%	15%	\$0.25	6
Utah	Lodging	Other Office Equipment	ENERGY STAR - Printers	ENERGY STAR Printers	Standard Printers	per installation	Existing	137	6	\$15	95%	40%	\$0.02	221
Utah	Lodging	Other Office Equipment	ENERGY STAR - Scanners	ENERGY STAR Scanners	Standard Scanner	per installation	Existing	71	6	\$0.90	95%	45%	\$0.00	155
Utah	Lodging	Other Office Equipment	ENERGY STAR - Copiers	ENERGY STAR Copiers	Standard Copier	per installation	New	73	6	\$157	95%	45%	\$0.46	101
Utah	Lodging	Other Office Equipment	ENERGY STAR - Fax	ENERGY STAR Fax	Standard Fax	per installation	New	78	6	\$0.90	95%	45%	\$0.00	108
Utah	Lodging	Other Office Equipment	ENERGY STAR - Monitors	ENERGY STAR Features Enabled	Non-ENERGY STAR Features	per installation	New	15	5	\$15	64%	15%	\$0.25	4
Utah	Lodging	Other Office Equipment	ENERGY STAR - Printers	ENERGY STAR Printers	Standard Printers	per installation	New	137	6	\$15	95%	40%	\$0.02	140

Table C.2.2. Commercial Measure Details

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Utah	Lodging	Other Office Equipment	ENERGY STAR - Scanners	ENERGY STAR Scanners	Standard Scanner	per installation	New	71	6	\$0.90	95%	45%	\$0.00	98
Utah	Lodging	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	per installation	Existing	7	7	\$2	20%	90%	\$0.06	8
Utah	Lodging	Other Plug Load	ENERGY STAR - Water Cooler	ENERGY STAR Water Cooler (Hot/Cold Water)	Non-ENERGY STAR Water Cooler	per installation	Existing	363	10	\$0.00	95%	75%	\$0.00	73
Utah	Lodging	Other Plug Load	Ice Maker	High-Efficiency Ice Maker	Standard Ice Maker	per installation	Existing	423	10	\$138	95%	86%	\$0.05	1,748
Utah	Lodging	Other Plug Load	Power Supply Transformer/Converter	80 Plus	85% efficient power supply (> 51W)	1 unit per 2,000 sqft	Existing	6	4	\$0.40	95%	86%	\$0.02	125
Utah	Lodging	Other Plug Load	Residential Refrigerator	ENERGY STAR	Federal Standard	per installation	Existing	80	12	\$120	24%	65%	\$0.19	71
Utah	Lodging	Other Plug Load	Residential Refrigerator/Freezer Recycling	Recycling Existing Refrigerator/Freezer	Existing Refrigerator/Freezer	per installation	Existing	954	4	\$554	25%	35%	\$0.17	188
Utah	Lodging	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	1 unit per 4,000 sqft	Existing	100	5	\$20	60%	90%	\$0.05	621
Utah	Lodging	Other Plug Load	Vending Machines- High Efficiency	ENERGY STAR (Tier 2) Vending Machines- High Efficiency 500 can capacity Under 5.92 kWh/day	Vending Machines- Standard 13 kWh/day	per installation	Existing	240	14	\$159	90%	80%	\$0.08	879
Utah	Lodging	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	per installation	New	7	7	\$2	20%	90%	\$0.06	5
Utah	Lodging	Other Plug Load	ENERGY STAR - Water Cooler	ENERGY STAR Water Cooler (Hot/Cold Water)	Non-ENERGY STAR Water Cooler	per installation	New	363	10	\$0.00	95%	75%	\$0.00	46
Utah	Lodging	Other Plug Load	Ice Maker	High-Efficiency Ice Maker	Standard Ice Maker	per installation	New	423	10	\$138	95%	86%	\$0.05	1,109
Utah	Lodging	Other Plug Load	Power Supply Transformer/Converter	80 Plus	85% efficient power supply (> 51W)	1 unit per 2,000 sqft	New	6	4	\$0.40	95%	86%	\$0.02	79
Utah	Lodging	Other Plug Load	Residential Refrigerator	ENERGY STAR	Federal Standard	per installation	New	80	12	\$120	24%	65%	\$0.19	45
Utah	Lodging	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	1 unit per 4,000 sqft	New	100	5	\$20	60%	90%	\$0.05	394
Utah	Lodging	Other Plug Load	Vending Machines- High Efficiency	ENERGY STAR (Tier 2) Vending Machines- High Efficiency 500 can capacity Under 5.92 kWh/day	Vending Machines- Standard 13 kWh/day	per installation	New	240	14	\$159	90%	80%	\$0.08	557
Utah	Lodging	Space Heat	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	Existing	386	15	\$153	75%	76%	\$0.04	2,568
Utah	Lodging	Space Heat	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	Existing	0.09	18	\$0.19	45%	65%	\$0.20	196
Utah	Lodging	Space Heat	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	Existing	0.57	14	\$1	5%	94%	\$0.35	186
Utah	Lodging	Space Heat	Hotel Key Card Room Energy Control System	Key card system to control room HVAC and lighting during non-occupied periods	325 sqft room, \$100/room	per room	Existing	313	15	\$128	60%	97%	\$0.05	5,551
Utah	Lodging	Space Heat	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	2	13	\$0.26	10%	39%	\$0.01	201
Utah	Lodging	Space Heat	Insulation - Ceiling	R-30 (UT State Code)	R-11 (Average Existing Conditions)	per roof sqft	Existing	0.63	25	\$0.68	75%	65%	\$0.10	2,360
Utah	Lodging	Space Heat	Insulation - Ceiling	R-38	R-30 (UT State Code)	per roof sqft	Existing	0.08	25	\$0.23	25%	85%	\$0.23	130
Utah	Lodging	Space Heat	Insulation - Duct	R-5 (UT State Code)	No Insulation	per surface area of duct insul	Existing	1	20	\$1	75%	56%	\$0.10	342
Utah	Lodging	Space Heat	Insulation - Duct	R-8	R-5 (UT State Code)	per surface area of duct insul	Existing	0.98	20	\$0.30	75%	85%	\$0.03	583
Utah	Lodging	Space Heat	Insulation - Floor (non-slab)	R-19 (UT State Code)	R-7 (Average Existing Conditions)	per floor area	Existing	1	25	\$0.60	35%	78%	\$0.05	2,696
Utah	Lodging	Space Heat	Insulation - Floor (non-slab)	R-30	R-19 (UT State Code)	per floor area	Existing	0.41	25	\$0.24	35%	90%	\$0.05	1,139
Utah	Lodging	Space Heat	Insulation - Wall	R-13 (UT State Code)	R-3 (Average Existing Conditions)	per floor area	Existing	1	25	\$0.98	10%	70%	\$0.05	667
Utah	Lodging	Space Heat	Insulation - Wall	R-21	R-13 (UT State Code)	per floor area	Existing	0.81	25	\$0.20	10%	85%	\$0.02	471

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Utah	Lodging	Space Heat	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	Existing	32	30	\$5	50%	95%	\$0.01	5,163
Utah	Lodging	Space Heat	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	Existing	939	10	\$124	95%	26%	\$0.02	338
Utah	Lodging	Space Heat	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	0.48	7	\$0.14	90%	85%	\$0.06	3,125
Utah	Lodging	Space Heat	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	New	223	15	\$153	75%	76%	\$0.08	865
Utah	Lodging	Space Heat	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	New	0.05	18	\$0.19	45%	65%	\$0.35	88
Utah	Lodging	Space Heat	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	New	0.33	14	\$1	5%	94%	\$0.60	82
Utah	Lodging	Space Heat	Hotel Key Card Room Energy Control System	Key card system to control room HVAC and lighting during non-occupied periods	325 sqft room, \$100/room	per room	New	181	15	\$128	60%	97%	\$0.08	1,871
Utah	Lodging	Space Heat	Insulation - Ceiling	R-38	R-30 (UT State Code)	per roof sqft	New	0.05	25	\$0.23	75%	85%	\$0.40	176
Utah	Lodging	Space Heat	Insulation - Duct	R-8	R-5 (UT State Code)	per surface area of duct insul	New	0.56	20	\$0.30	75%	85%	\$0.05	196
Utah	Lodging	Space Heat	Insulation - Floor (non-slab)	R-30	R-19 (UT State Code)	per floor area	New	0.23	25	\$0.24	35%	90%	\$0.09	422
Utah	Lodging	Space Heat	Insulation - Wall	R-21	R-13 (UT State Code)	per floor area	New	0.47	25	\$0.20	95%	85%	\$0.04	1,653
Utah	Lodging	Space Heat	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	New	18	30	\$5	50%	95%	\$0.02	1,900
Utah	Lodging	Space Heat	Natural Ventilation	Natural Ventilation Design Reduction in Cooling	None - Standard Ventilation	per building sqft	New	0.22	15	\$0.87	20%	75%	\$0.44	177
Utah	Lodging	Space Heat	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	New	543	10	\$124	95%	13%	\$0.03	62
Utah	Lodging	Water Heat	Clothes Washer Commercial	ENERGY STAR Commercial Clothes Washer MEF=1.80	Standard Clothes Washers	per installation	Existing	544	11	\$125	95%	80%	\$0.03	190
Utah	Lodging	Water Heat	Clothes Washer Residential	Energy Star - CEE Tier 1 (MEF 2.0 - 2.19) - Electric DHW & Dryer	MEF = 1.66 - Electric DHW & Dryer (NWPPC 6th Plan Average Efficiency)	per installation	Existing	132	11	\$287	85%	94%	\$0.30	48
Utah	Lodging	Water Heat	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	per building sqft	Existing	0.08	10	\$0.24	55%	80%	\$0.42	200
Utah	Lodging	Water Heat	Dishwasher Residential	ENERGY STAR <= 324 kWh/yr, <= 5.8 gal/cycle	Federal Standard <= 355 kWh/yr, <= 6.5 gal/cycle	per installation	Existing	31	11	\$30	95%	25%	\$0.13	1
Utah	Lodging	Water Heat	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	per installation	Existing	7,384	10	\$2,591	95%	95%	\$0.05	184
Utah	Lodging	Water Heat	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	per installation	Existing	3,450	10	\$801	95%	94%	\$0.03	42
Utah	Lodging	Water Heat	Electric Water Heater - High Efficiency	EF = 0.95	EF = 0.92	Per installation	Existing	420	15	\$559	100%	N/A	\$0.15	39
Utah	Lodging	Water Heat	Heat Pump Water Heater - Advanced-Efficiency	EF = 2.2	EF = 0.92	Per installation	Existing	7,739	15	\$10,253	75%	N/A	\$0.15	2,644
Utah	Lodging	Water Heat	Hot Water (SHW) Pipe Insulation	1.0" of Insulation, assuming R-4 (UT State Code)	No Insulation	per linear foot	Existing	6	12	\$2	80%	90%	\$0.05	66
Utah	Lodging	Water Heat	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	per installation	Existing	21	9	\$0.08	95%	25%	\$0.00	87
Utah	Lodging	Water Heat	Low-Flow Faucet Aerators	2.2 GPM (Federal Code)	3.0 GPM	per installation	Existing	18	9	\$2	95%	25%	\$0.02	73
Utah	Lodging	Water Heat	Low-Flow Pre-Rinse Spray Valves	0.6 GPM	1.6 GPM (Federal Standard)	per installation	Existing	66	5	\$5	95%	93%	\$0.02	73
Utah	Lodging	Water Heat	Low-Flow Showerheads	2.0 GPM	2.5 GPM (Federal Code)	per installation	Existing	48	10	\$6	95%	73%	\$0.02	569
Utah	Lodging	Water Heat	Low-Flow Showerheads	2.5 GPM (Federal Code)	4.5 GPM	per installation	Existing	107	10	\$10	95%	62%	\$0.01	1,071
Utah	Lodging	Water Heat	Water Heater Temperature Setback	Water Heater Temperature Setback (120 F)	No Change in Water Temperature	per installation	Existing	149	5	\$77	75%	5%	\$0.13	26
Utah	Lodging	Water Heat	Clothes Washer Commercial	ENERGY STAR Commercial Clothes Washer MEF=1.80	Standard Clothes Washers	per installation	New	546	11	\$125	95%	80%	\$0.03	123

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Utah	Lodging	Water Heat	Clothes Washer Residential	Energy Star - CEE Tier 1 (MEF 2.0 - 2.19) - Electric DHW & Dryer	MEF = 1.66 - Electric DHW & Dryer (NWPPC 6th Plan Average Efficiency)	per installation	New	133	11	\$287	85%	94%	\$0.29	31
Utah	Lodging	Water Heat	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	per building sqft	New	0.08	10	\$0.24	55%	80%	\$0.44	140
Utah	Lodging	Water Heat	Dishwasher Residential	ENERGY STAR <= 324 kWh/yr, <= 5.8 gal/cycle	Federal Standard <= 355 kWh/yr, <= 6.5 gal/cycle	per installation	New	31	11	\$30	95%	55%	\$0.13	2
Utah	Lodging	Water Heat	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	per installation	New	7,419	10	\$2,585	95%	95%	\$0.05	114
Utah	Lodging	Water Heat	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	per installation	New	3,466	10	\$805	95%	94%	\$0.03	26
Utah	Lodging	Water Heat	Electric Water Heater - High Efficiency	EF = 0.95	EF = 0.92	Per installation	New	420	15	\$559	100%	N/A	\$0.15	18
Utah	Lodging	Water Heat	Heat Pump Water Heater - Advanced-Efficiency	EF = 2.2	EF = 0.92	Per installation	New	7,739	15	\$9,030	75%	N/A	\$0.13	1,496
Utah	Lodging	Water Heat	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	per installation	New	20	9	\$0.08	95%	25%	\$0.00	54
Utah	Lodging	Water Heat	Low-Flow Pre-Rinse Spray Valves	0.6 GPM	1.6 GPM (Federal Standard)	per installation	New	66	5	\$5	95%	93%	\$0.02	47
Utah	Lodging	Water Heat	Low-Flow Showerheads	2.0 GPM	2.5 GPM (Federal Code)	per installation	New	46	10	\$6	95%	73%	\$0.02	354
Utah	Lodging	Water Heat	Water Heater Temperature Setback	Water Heater Temperature Setback (120 F)	No Change in Water Temperature	per installation	New	144	5	\$77	75%	5%	\$0.13	18
Utah	Miscellaneous	Computers	Computer ENERGY STAR	Computer ENERGY STAR	Computer standard non-ENERGY STAR	Per installation	Existing	142	4	\$29	100%	N/A	\$0.06	1,074
Utah	Miscellaneous	Computers	Network PC Power Management	Network PC Power Management	No Power Management	per computer	Existing	94	5	\$12	95%	30%	\$0.03	197
Utah	Miscellaneous	Computers	Computer ENERGY STAR	Computer ENERGY STAR	Computer standard non-ENERGY STAR	Per installation	New	142	4	\$29	100%	N/A	\$0.06	104
Utah	Miscellaneous	Computers	Network PC Power Management	Network PC Power Management	No Power Management	per computer	New	94	5	\$12	95%	30%	\$0.03	125
Utah	Miscellaneous	Cooling Dx Evap	Automated Ventilation VFD Control(Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	1 unit per 3,000 sqft	Existing	914	15	\$734	50%	94%	\$0.09	1,917
Utah	Miscellaneous	Cooling Dx Evap	Convert Constant Volume Air System to VAV	Variable Volume Air System	Constant Volume Air System	per building CFM	Existing	0.91	15	\$2	15%	67%	\$0.35	882
Utah	Miscellaneous	Cooling Dx Evap	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	Existing	0.30	15	\$0.72	45%	98%	\$0.27	1,371
Utah	Miscellaneous	Cooling Dx Evap	DX Package 65 to 135 kBtu/hr - High Efficiency	DX Package 65 to 135 kBtu/hr - High Efficiency - 11.5 EER	DX Package 65 to 135 kBtu/hr - Standard Efficiency - 11.2 EER	Per installation	Existing	493	15	\$462	100%	N/A	\$0.11	50
Utah	Miscellaneous	Cooling Dx Evap	DX Package 65 to 135 kBtu/hr - Premium Efficiency	DX Package 65 to 135 kBtu/hr - Premium Efficiency - 12.0 EER	DX Package 65 to 135 kBtu/hr - Standard Efficiency - 11.2 EER	Per installation	Existing	1,279	15	\$931	100%	N/A	\$0.08	1,866
Utah	Miscellaneous	Cooling Dx Evap	DX Package-Air Side Economizer	Air-Side Economizer	No Economizer	per DX ton	Existing	123	10	\$167	10%	70%	\$0.20	366
Utah	Miscellaneous	Cooling Dx Evap	DX Tune-Up / Diagnostics	DX Tune-Up / Diagnostics	No DX Tune-Up / Diagnostics	per installation	Existing	617	4	\$286	95%	72%	\$0.16	2,631
Utah	Miscellaneous	Cooling Dx Evap	Direct / Indirect Evaporative Cooling, Pre-Cooling	Evaporative Cooler	Standard DX cooling	per building CFM	Existing	0.76	15	\$1	50%	94%	\$0.29	3,872
Utah	Miscellaneous	Cooling Dx Evap	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	Existing	304	15	\$163	75%	76%	\$0.06	2,716
Utah	Miscellaneous	Cooling Dx Evap	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	Existing	0.07	18	\$0.20	45%	65%	\$0.27	243

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Utah	Miscellaneous	Cooling Dx Evap	Evaporative Cooler replaces DX Package 65 to 135 kBtu/hr - Advanced Efficiency	Evaporative Cooler replaces DX Package 65 to 135 kBtu/hr - Advanced Efficiency	DX Package 65 to 135 kBtu/hr - Standard Efficiency - 11.2 EER	Per installation	Existing	7,880	15	\$-8360.5866	25%	N/A	\$0.00	232
Utah	Miscellaneous	Cooling Dx Evap	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	Existing	0.30	40	\$9	4%	98%	\$2.35	9
Utah	Miscellaneous	Cooling Dx Evap	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	2	13	\$0.27	10%	39%	\$0.01	61
Utah	Miscellaneous	Cooling Dx Evap	Insulation - Ceiling	R-30 (UT State Code)	R-11 (Average Existing Conditions)	per roof sqft	Existing	0.00	25	\$0.73	75%	65%	\$9.35	30
Utah	Miscellaneous	Cooling Dx Evap	Insulation - Duct	R-5 (UT State Code)	No Insulation	per surface area of duct insul	Existing	1	20	\$1	75%	61%	\$0.14	535
Utah	Miscellaneous	Cooling Dx Evap	Insulation - Duct	R-8	R-5 (UT State Code)	per surface area of duct insul	Existing	0.77	20	\$0.32	75%	85%	\$0.04	622
Utah	Miscellaneous	Cooling Dx Evap	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	Existing	18	30	\$5	50%	95%	\$0.03	3,816
Utah	Miscellaneous	Cooling Dx Evap	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	Existing	392	10	\$133	95%	25%	\$0.05	336
Utah	Miscellaneous	Cooling Dx Evap	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	0.38	7	\$0.15	90%	85%	\$0.08	4,326
Utah	Miscellaneous	Cooling Dx Evap	Window Film	Window Film	No Film	per 100 sqft of window glazing	Existing	2	10	\$142	90%	68%	\$7.91	5
Utah	Miscellaneous	Cooling Dx Evap	Windows-High Efficiency	U-0.32	U-0.35 (UT State Code)	per window sqft	Existing	12	25	\$25	15%	90%	\$0.18	779
Utah	Miscellaneous	Cooling Dx Evap	Windows-High Efficiency	U-0.35 (UT State Code)	U-0.65 (Average Existing Conditions)	per window sqft	Existing	12	25	\$71	15%	70%	\$0.49	489
Utah	Miscellaneous	Cooling Dx Evap	Automated Ventilation VFD Control(Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	1 unit per 3,000 sqft	New	601	15	\$393	50%	94%	\$0.07	999
Utah	Miscellaneous	Cooling Dx Evap	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	New	0.20	15	\$0.72	45%	98%	\$0.41	667
Utah	Miscellaneous	Cooling Dx Evap	DX Package 65 to 135 kBtu/hr - High Efficiency	DX Package 65 to 135 kBtu/hr - High Efficiency - 11.5 EER	DX Package 65 to 135 kBtu/hr - Standard Efficiency - 11.2 EER	Per installation	New	348	15	\$370	100%	N/A	\$0.12	14
Utah	Miscellaneous	Cooling Dx Evap	DX Package 65 to 135 kBtu/hr - Premium Efficiency	DX Package 65 to 135 kBtu/hr - Premium Efficiency - 12.0 EER	DX Package 65 to 135 kBtu/hr - Standard Efficiency - 11.2 EER	Per installation	New	913	15	\$745	100%	N/A	\$0.09	815
Utah	Miscellaneous	Cooling Dx Evap	Direct / Indirect Evaporative Cooling, Pre-Cooling	Evaporative Cooler	Standard DX cooling	per building CFM	New	0.50	15	\$1	50%	94%	\$0.44	1,885
Utah	Miscellaneous	Cooling Dx Evap	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	New	200	15	\$163	75%	76%	\$0.09	1,146
Utah	Miscellaneous	Cooling Dx Evap	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	New	0.05	18	\$0.20	45%	65%	\$0.41	118
Utah	Miscellaneous	Cooling Dx Evap	Evaporative Cooler replaces DX Package 65 to 135 kBtu/hr - Advanced Efficiency	Evaporative Cooler replaces DX Package 65 to 135 kBtu/hr - Advanced Efficiency	DX Package 65 to 135 kBtu/hr - Standard Efficiency - 11.2 EER	Per installation	New	5,597	15	\$-6221.4369	25%	N/A	\$0.00	101
Utah	Miscellaneous	Cooling Dx Evap	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	New	0.20	40	\$9	4%	98%	\$3.57	4
Utah	Miscellaneous	Cooling Dx Evap	Insulation - Duct	R-8	R-5 (UT State Code)	per surface area of duct insul	New	0.51	20	\$0.32	75%	85%	\$0.06	274
Utah	Miscellaneous	Cooling Dx Evap	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	New	12	30	\$5	50%	95%	\$0.04	1,684
Utah	Miscellaneous	Cooling Dx Evap	Natural Ventilation	Natural Ventilation Design Reduction in Cooling	None - Standard Ventilation	per building sqft	New	0.20	15	\$0.93	20%	75%	\$0.52	212
Utah	Miscellaneous	Cooling Dx Evap	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	New	257	10	\$133	95%	12%	\$0.08	70

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State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Utah	Miscellaneous	Cooling Dx Evap	Windows-High Efficiency	U-0.32	U-0.35 (UT State Code)	per window sqft	New	8	25	\$25	80%	90%	\$0.28	2,218
Utah	Miscellaneous	Heat Pump	Air Source Heat Pump 65 to 135 kBtu/hr - High Efficiency	11.5 EER, 3.4 COP	11.0 EER, 3.3 COP	Per installation	Existing	747	15	\$1,723	100%	N/A	\$0.26	8
Utah	Miscellaneous	Heat Pump	Air Source Heat Pump 65 to 135 kBtu/hr - Premium Efficiency	12.0 EER, 3.8 COP	11.0 EER, 3.3 COP	Per installation	Existing	2,662	15	\$3,446	100%	N/A	\$0.15	332
Utah	Miscellaneous	Heat Pump	Automated Ventilation VFD Control (Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	1 unit per 3,000 sqft	Existing	1,032	15	\$734	50%	94%	\$0.08	122
Utah	Miscellaneous	Heat Pump	Convert Constant Volume Air System to VAV	Variable Volume Air System	Constant Volume Air System	per building CFM	Existing	0.97	15	\$2	15%	67%	\$0.33	68
Utah	Miscellaneous	Heat Pump	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	Existing	0.34	15	\$0.72	45%	98%	\$0.24	97
Utah	Miscellaneous	Heat Pump	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	Existing	606	15	\$163	75%	76%	\$0.03	310
Utah	Miscellaneous	Heat Pump	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	Existing	0.15	18	\$0.20	45%	65%	\$0.14	32
Utah	Miscellaneous	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	Existing	0.39	14	\$1	5%	94%	\$0.55	12
Utah	Miscellaneous	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	Existing	0.34	40	\$9	4%	98%	\$2.08	0.78
Utah	Miscellaneous	Heat Pump	Ground Source Heat Pump Replacing Air Source Heat Pump 65 to 135 kBtu/hr - Advanced Efficiency	16.2 EER 4.0 COP	11.0 EER, 3.3 COP	Per installation	Existing	6,432	30	\$72,301	5%	N/A	\$0.94	35
Utah	Miscellaneous	Heat Pump	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	6	13	\$0.27	10%	39%	\$0.01	9
Utah	Miscellaneous	Heat Pump	Insulation - Ceiling	R-30 (UT State Code)	R-11 (Average Existing Conditions)	per roof sqft	Existing	0.18	25	\$0.73	75%	65%	\$0.35	62
Utah	Miscellaneous	Heat Pump	Insulation - Ceiling	R-38	R-30 (UT State Code)	per roof sqft	Existing	0.02	25	\$0.24	25%	85%	\$0.76	4
Utah	Miscellaneous	Heat Pump	Insulation - Duct	R-5 (UT State Code)	No Insulation	per surface area of duct insul	Existing	2	20	\$1	75%	61%	\$0.07	64
Utah	Miscellaneous	Heat Pump	Insulation - Duct	R-8	R-5 (UT State Code)	per surface area of duct insul	Existing	1	20	\$0.32	75%	85%	\$0.02	71
Utah	Miscellaneous	Heat Pump	Insulation - Floor (non-slab)	R-19 (UT State Code)	R-7 (Average Existing Conditions)	per floor area	Existing	0.29	25	\$0.64	35%	80%	\$0.20	59
Utah	Miscellaneous	Heat Pump	Insulation - Floor (non-slab)	R-30	R-19 (UT State Code)	per floor area	Existing	0.12	25	\$0.26	35%	90%	\$0.18	29
Utah	Miscellaneous	Heat Pump	Insulation - Wall	R-13 (UT State Code)	R-3 (Average Existing Conditions)	per floor area	Existing	0.64	25	\$1	10%	71%	\$0.14	13
Utah	Miscellaneous	Heat Pump	Insulation - Wall	R-21	R-13 (UT State Code)	per floor area	Existing	0.29	25	\$0.21	10%	85%	\$0.07	7
Utah	Miscellaneous	Heat Pump	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	Existing	50	30	\$5	50%	95%	\$0.01	617
Utah	Miscellaneous	Heat Pump	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	Existing	780	10	\$133	95%	25%	\$0.02	38
Utah	Miscellaneous	Heat Pump	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	0.75	7	\$0.15	90%	85%	\$0.04	494
Utah	Miscellaneous	Heat Pump	Window Film	Window Film	No Film	per 100 sqft of window glazing	Existing	2	10	\$142	90%	68%	\$7.84	0.41
Utah	Miscellaneous	Heat Pump	Windows-High Efficiency	U-0.32	U-0.35 (UT State Code)	per window sqft	Existing	9	25	\$25	15%	90%	\$0.25	34
Utah	Miscellaneous	Heat Pump	Windows-High Efficiency	U-0.35 (UT State Code)	U-0.65 (Average Existing Conditions)	per window sqft	Existing	14	25	\$71	15%	70%	\$0.43	41
Utah	Miscellaneous	Heat Pump	Air Source Heat Pump 65 to 135 kBtu/hr - High Efficiency	11.5 EER, 3.4 COP	11.0 EER, 3.3 COP	Per installation	New	528	15	\$1,378	100%	N/A	\$0.29	2
Utah	Miscellaneous	Heat Pump	Air Source Heat Pump 65 to 135 kBtu/hr - Premium Efficiency	12.0 EER, 3.8 COP	11.0 EER, 3.3 COP	Per installation	New	1,534	15	\$2,757	100%	N/A	\$0.20	118

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Utah	Miscellaneous	Heat Pump	Automated Ventilation VFD Control(Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	1 unit per 3,000 sqft	New	698	15	\$393	50%	94%	\$0.06	61
Utah	Miscellaneous	Heat Pump	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	New	0.23	15	\$0.72	45%	98%	\$0.35	45
Utah	Miscellaneous	Heat Pump	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	New	332	15	\$163	75%	76%	\$0.06	111
Utah	Miscellaneous	Heat Pump	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	New	0.08	18	\$0.20	45%	65%	\$0.25	13
Utah	Miscellaneous	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	New	0.14	14	\$1	5%	94%	\$1.44	3
Utah	Miscellaneous	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	New	0.23	40	\$9	4%	98%	\$3.08	0.37
Utah	Miscellaneous	Heat Pump	Ground Source Heat Pump Replacing Air Source Heat Pump 65 to 135 kBTU/hr - Advanced Efficiency	16.2 EER 4.0 COP	11.0 EER, 3.3 COP	Per installation	New	4,057	30	\$37,980	5%	N/A	\$0.79	12
Utah	Miscellaneous	Heat Pump	Insulation - Ceiling	R-38	R-30 (UT State Code)	per roof sqft	New	0.00	25	\$0.24	75%	85%	\$2.90	2
Utah	Miscellaneous	Heat Pump	Insulation - Duct	R-8	R-5 (UT State Code)	per surface area of duct insul	New	0.84	20	\$0.32	75%	85%	\$0.04	25
Utah	Miscellaneous	Heat Pump	Insulation - Floor (non-slab)	R-30	R-19 (UT State Code)	per floor area	New	0.02	25	\$0.26	35%	90%	\$0.81	4
Utah	Miscellaneous	Heat Pump	Insulation - Wall	R-21	R-13 (UT State Code)	per floor area	New	0.07	25	\$0.21	95%	85%	\$0.27	12
Utah	Miscellaneous	Heat Pump	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	New	27	30	\$5	50%	95%	\$0.02	221
Utah	Miscellaneous	Heat Pump	Natural Ventilation	Natural Ventilation Design Reduction in Cooling	None - Standard Ventilation	per building sqft	New	0.33	15	\$0.93	20%	75%	\$0.32	24
Utah	Miscellaneous	Heat Pump	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	New	427	10	\$133	95%	12%	\$0.05	6
Utah	Miscellaneous	Heat Pump	Windows-High Efficiency	U-0.32	U-0.35 (UT State Code)	per window sqft	New	7	25	\$25	80%	90%	\$0.30	117
Utah	Miscellaneous	Hvac Aux	Convert Constant Volume Air System to VAV	Variable Volume Air System	Constant Volume Air System	per building CFM	Existing	0.32	15	\$2	15%	67%	\$0.97	1,572
Utah	Miscellaneous	Hvac Aux	Cooking Hood Controls	Demand-Ventilation Control	No Controls	per installation	Existing	2,000	18	\$4,002	95%	65%	\$0.20	690
Utah	Miscellaneous	Hvac Aux	Motor - CEE Premium-Efficiency Plus	CEE PE+ Motor for HVAC Applications	NEMA Efficiency Motors	per HP	Existing	26	15	\$6	95%	76%	\$0.03	769
Utah	Miscellaneous	Hvac Aux	Motor - VAV Box High Efficiency (ECM)	ECM Motor	Standard Efficiency Motor	per installation	Existing	68	15	\$185	13%	77%	\$0.31	679
Utah	Miscellaneous	Hvac Aux	Motor Rewind	>15, <500 HP	No Rewind	per HP	Existing	4	8	\$5	65%	25%	\$0.18	28
Utah	Miscellaneous	Hvac Aux	Optimized Variable Volume Lab Hood Design	Optimized Variable Volume Lab Hood Design	Constant Volume Lab Hood Design	per installation	Existing	188	13	\$1,582	5%	59%	\$1.03	62
Utah	Miscellaneous	Hvac Aux	Cooking Hood Controls	Demand-Ventilation Control	No Controls	per installation	New	2,000	18	\$4,007	95%	50%	\$0.21	2,022
Utah	Miscellaneous	Hvac Aux	Low Pressure Distribution Complex HVAC	Low Pressure Distribution Complex HVAC	VAV/CV	per building sqft	New	0.90	50	\$2	16%	98%	\$0.20	3,312
Utah	Miscellaneous	Hvac Aux	Motor - CEE Premium-Efficiency Plus	CEE PE+ Motor for HVAC Applications	NEMA Efficiency Motors	per HP	New	22	15	\$6	95%	76%	\$0.03	497
Utah	Miscellaneous	Hvac Aux	Motor - VAV Box High Efficiency (ECM)	ECM Motor	Standard Efficiency Motor	per installation	New	57	15	\$185	13%	77%	\$0.37	333
Utah	Miscellaneous	Hvac Aux	Optimized Variable Volume Lab Hood Design	Optimized Variable Volume Lab Hood Design	Constant Volume Lab Hood Design	per installation	New	157	15	\$1,582	5%	59%	\$1.13	33
Utah	Miscellaneous	Lighting Exterior	Covered Parking Lighting	Covered Parking Lighting	Normal Lighting	per building sqft	Existing	0.10	10	\$0.02	80%	95%	\$0.04	3,662
Utah	Miscellaneous	Lighting Exterior	Daylighting Controls, Outdoors (Photocell)	Photocell	No Controls	per installation	Existing	46	8	\$29	75%	70%	\$0.11	662
Utah	Miscellaneous	Lighting Exterior	Exterior Building Lighting	30% savings	Normal Lighting	per installation	Existing	259	15	\$350	62%	90%	\$0.15	5,757
Utah	Miscellaneous	Lighting Exterior	Solid State LED White Lighting	Landscape, merchandise, signage, structure & task lighting (2.5 W)	50W 10hrs/day, 365 day/yr	per installation	Existing	5	14	\$37	75%	95%	\$0.86	107

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Utah	Miscellaneous	Lighting Exterior	Surface Parking Lighting	Surface Parking Lighting	Normal Lighting	per building sqft	Existing	0.05	19	\$0.07	62%	95%	\$0.14	1,533
Utah	Miscellaneous	Lighting Exterior	Covered Parking Lighting	Covered Parking Lighting	Normal Lighting	per building sqft	New	0.10	10	\$0.02	80%	95%	\$0.04	2,322
Utah	Miscellaneous	Lighting Exterior	Daylighting Controls, Outdoors (Photocell)	Photocell	No Controls	per installation	New	46	8	\$29	75%	70%	\$0.11	419
Utah	Miscellaneous	Lighting Exterior	Exterior Building Lighting	30% savings	Normal Lighting	per installation	New	259	15	\$350	62%	90%	\$0.15	3,651
Utah	Miscellaneous	Lighting Exterior	Solid State LED White Lighting	Landscape, merchandise, signage, structure & task lighting (2.5 W)	50W 10hrs/day, 365 day/yr	per installation	New	5	14	\$37	75%	95%	\$0.86	67
Utah	Miscellaneous	Lighting Exterior	Surface Parking Lighting	Surface Parking Lighting	Normal Lighting	per building sqft	New	0.05	19	\$0.07	62%	95%	\$0.14	972
Utah	Miscellaneous	Lighting Interior	Cold Cathode Lighting	Cold Cathode Lighting 5 watts	30 W Incandescent Bulb	per installation	Existing	538	5	\$13	15%	94%	\$0.01	805
Utah	Miscellaneous	Lighting Interior	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	Existing	0.84	8	\$0.93	30%	84%	\$0.19	1,000
Utah	Miscellaneous	Lighting Interior	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	Existing	0.63	8	\$0.69	30%	84%	\$0.19	752
Utah	Miscellaneous	Lighting Interior	Exit Sign - LED	LED Exit Sign (2 Watts)	CFL Exit Sign (9 Watts)	per installation	Existing	103	16	\$17	95%	50%	\$0.02	1,672
Utah	Miscellaneous	Lighting Interior	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign (2 Watts)	per installation	Existing	18	13	\$32	95%	98%	\$0.21	198
Utah	Miscellaneous	Lighting Interior	LED Refrigeration Case Lights	LED Refrigeration Case Lights	Fluorescent Refrigeration Case	per installation	Existing	133	8	\$259	10%	80%	\$0.33	162
Utah	Miscellaneous	Lighting Interior	Lighting Package, High Efficiency	15% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	Existing	0.54	13	\$0.07	90%	53%	\$0.02	9,499
Utah	Miscellaneous	Lighting Interior	Lighting Package, High Efficiency	Code Required LPD And Control Strategies	Existing Lighting Design LPD	per building sqft	Existing	1	13	\$0.81	90%	41%	\$0.06	29,117
Utah	Miscellaneous	Lighting Interior	Lighting Package, Premium Efficiency	25% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	Existing	0.90	13	\$0.29	75%	62%	\$0.04	3,820
Utah	Miscellaneous	Lighting Interior	Lighting Package, Premium High Bay	35% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	Existing	0.42	13	\$0.21	70%	83%	\$0.06	11,126
Utah	Miscellaneous	Lighting Interior	Occupancy Sensor Control, Fluorescent	Occupancy Sensor Control, Fluorescent	No Occupancy Sensor	per occupancy sensor	Existing	1,085	8	\$70	90%	49%	\$0.01	1,815
Utah	Miscellaneous	Lighting Interior	Time Clock	Time Clock	No Controls	per 10,000 Watts	Existing	804	8	\$191	20%	**%	\$0.04	799
Utah	Miscellaneous	Lighting Interior	Cold Cathode Lighting	Cold Cathode Lighting 5 watts	30 W Incandescent Bulb	per installation	New	378	5	\$13	15%	94%	\$0.01	358
Utah	Miscellaneous	Lighting Interior	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	New	0.59	8	\$0.93	30%	84%	\$0.27	476
Utah	Miscellaneous	Lighting Interior	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	New	0.44	8	\$0.69	30%	84%	\$0.27	358
Utah	Miscellaneous	Lighting Interior	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign (2 Watts)	per installation	New	18	13	\$32	95%	98%	\$0.21	504
Utah	Miscellaneous	Lighting Interior	LED Refrigeration Case Lights	LED Refrigeration Case Lights	Fluorescent Refrigeration Case	per installation	New	133	8	\$259	10%	80%	\$0.33	103
Utah	Miscellaneous	Lighting Interior	Lighting Package, High Efficiency	15% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	New	0.54	15	\$0.02	90%	53%	\$0.01	6,025
Utah	Miscellaneous	Lighting Interior	Lighting Package, Premium Efficiency	25% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	New	0.90	15	\$0.13	75%	62%	\$0.02	2,423
Utah	Miscellaneous	Lighting Interior	Lighting Package, Premium High Bay	35% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	New	0.42	15	\$0.04	70%	83%	\$0.01	7,057
Utah	Miscellaneous	Lighting Interior	Occupancy Sensor Control, Fluorescent	Occupancy Sensor Control, Fluorescent	No Occupancy Sensor	per occupancy sensor	New	762	8	\$70	90%	49%	\$0.02	864
Utah	Miscellaneous	Lighting Interior	Time Clock	Time Clock	No Controls	per 10,000 Watts	New	804	8	\$191	20%	**%	\$0.04	380
Utah	Miscellaneous	Other Office Equipment	ENERGY STAR - Copiers	ENERGY STAR Copiers	Standard Copier	per installation	Existing	78	6	\$169	95%	45%	\$0.46	37
Utah	Miscellaneous	Other Office Equipment	ENERGY STAR - Fax	ENERGY STAR Fax	Standard Fax	per installation	Existing	83	6	\$0.00	95%	45%	\$0.00	40

Table C.2.2. Commercial Measure Details

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Utah	Miscellaneous	Other Office Equipment	ENERGY STAR - Monitors	ENERGY STAR Features Enabled	Non-ENERGY STAR Features	per installation	Existing	16	5	\$16	64%	15%	\$0.26	11
Utah	Miscellaneous	Other Office Equipment	ENERGY STAR - Printers	ENERGY STAR Printers	Standard Printers	per installation	Existing	146	6	\$15	95%	40%	\$0.02	468
Utah	Miscellaneous	Other Office Equipment	ENERGY STAR - Scanners	ENERGY STAR Scanners	Standard Scanner	per installation	Existing	76	6	\$0.00	95%	45%	\$0.00	36
Utah	Miscellaneous	Other Office Equipment	ENERGY STAR - Copiers	ENERGY STAR Copiers	Standard Copier	per installation	New	78	6	\$169	95%	45%	\$0.46	23
Utah	Miscellaneous	Other Office Equipment	ENERGY STAR - Fax	ENERGY STAR Fax	Standard Fax	per installation	New	83	6	\$0.00	95%	45%	\$0.00	25
Utah	Miscellaneous	Other Office Equipment	ENERGY STAR - Monitors	ENERGY STAR Features Enabled	Non-ENERGY STAR Features	per installation	New	16	5	\$16	64%	15%	\$0.26	7
Utah	Miscellaneous	Other Office Equipment	ENERGY STAR - Printers	ENERGY STAR Printers	Standard Printers	per installation	New	146	6	\$15	95%	40%	\$0.02	297
Utah	Miscellaneous	Other Office Equipment	ENERGY STAR - Scanners	ENERGY STAR Scanners	Standard Scanner	per installation	New	76	6	\$0.00	95%	45%	\$0.00	23
Utah	Miscellaneous	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	per installation	Existing	7	7	\$1	20%	90%	\$0.04	8
Utah	Miscellaneous	Other Plug Load	ENERGY STAR - Water Cooler	ENERGY STAR Water Cooler (Hot/Cold Water)	Non-ENERGY STAR Water Cooler	per installation	Existing	387	10	\$4	95%	75%	\$0.00	308
Utah	Miscellaneous	Other Plug Load	Power Supply Transformer/Converter	80 Plus	85% efficient power supply (> 51W)	1 unit per 2,000 sqft	Existing	6	4	\$0.42	95%	86%	\$0.02	135
Utah	Miscellaneous	Other Plug Load	Residential Refrigerator	ENERGY STAR	Federal Standard	per installation	Existing	85	12	\$128	10%	65%	\$0.19	62
Utah	Miscellaneous	Other Plug Load	Residential Refrigerator/Freezer Recycling	Recycling Existing Refrigerator/Freezer	Existing Refrigerator/Freezer	per installation	Existing	1,016	4	\$588	25%	35%	\$0.17	398
Utah	Miscellaneous	Other Plug Load	Server Virtualization	Server Virtualization	No Virtualization	number of virtualized servers	Existing	2,412	4	\$2,031	72%	85%	\$0.25	2,643
Utah	Miscellaneous	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	1 unit per 5,000 sqft	Existing	107	5	\$21	60%	90%	\$0.05	555
Utah	Miscellaneous	Other Plug Load	Vending Machines- High Efficiency	ENERGY STAR (Tier 2) Vending Machines- High Efficiency 500 can capacity Under 5.92 kWh/day	Vending Machines- Standard 13 kWh/day	per installation	Existing	256	14	\$169	10%	80%	\$0.08	22
Utah	Miscellaneous	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	per installation	New	7	7	\$1	20%	90%	\$0.04	5
Utah	Miscellaneous	Other Plug Load	ENERGY STAR - Water Cooler	ENERGY STAR Water Cooler (Hot/Cold Water)	Non-ENERGY STAR Water Cooler	per installation	New	387	10	\$4	95%	75%	\$0.00	195
Utah	Miscellaneous	Other Plug Load	Power Supply Transformer/Converter	80 Plus	85% efficient power supply (> 51W)	1 unit per 2,000 sqft	New	6	4	\$0.42	95%	86%	\$0.02	85
Utah	Miscellaneous	Other Plug Load	Residential Refrigerator	ENERGY STAR	Federal Standard	per installation	New	85	12	\$128	10%	65%	\$0.19	39
Utah	Miscellaneous	Other Plug Load	Server Virtualization	Server Virtualization	No Virtualization	number of virtualized servers	New	2,412	4	\$2,031	72%	85%	\$0.25	1,676
Utah	Miscellaneous	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	1 unit per 5,000 sqft	New	107	5	\$21	60%	90%	\$0.05	352
Utah	Miscellaneous	Other Plug Load	Vending Machines- High Efficiency	ENERGY STAR (Tier 2) Vending Machines- High Efficiency 500 can capacity Under 5.92 kWh/day	Vending Machines- Standard 13 kWh/day	per installation	New	256	14	\$169	10%	80%	\$0.08	14
Utah	Miscellaneous	Refrigeration	Case Electronically Commutated Motor	ECM Case Fans	Standard Efficiency Motor	1 unit per 10,000 sqft	Existing	1,091	12	\$252	3%	77%	\$0.03	11
Utah	Miscellaneous	Refrigeration	Case Replacement Low Temp	Case Replacement Low Temp	No replacement	per square foot	Existing	0.02	15	\$0.11	3%	90%	\$0.61	2
Utah	Miscellaneous	Refrigeration	Case Replacement Med Temp	Case Replacement Med Temp	No replacement	per square foot	Existing	0.00	15	\$0.05	3%	90%	\$3.70	0.21
Utah	Miscellaneous	Refrigeration	Night Covers for Display Cases	Night Covers for Display Cases	No Night Covers	per installation	Existing	432	5	\$67	5%	85%	\$0.04	6
Utah	Miscellaneous	Refrigeration	Standalone to Multiplex Compressor	Standalone to Multiplex Compressor	Standalone compressor	per building sqft	Existing	0.02	13	\$0.00	3%	90%	\$0.02	3

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Utah	Miscellaneous	Refrigeration	Walk-In Electronically Commutated Motor	ECM Evaporator Fans	Standard Efficiency Motor	per installation	Existing	0.03	12	\$0.18	3%	95%	\$0.61	4
Utah	Miscellaneous	Refrigeration	Case Electronically Commutated Motor	ECM Case Fans	Standard Efficiency Motor	1 unit per 10,000 sqft	New	1,091	12	\$252	3%	77%	\$0.03	6
Utah	Miscellaneous	Refrigeration	Night Covers for Display Cases	Night Covers for Display Cases	No Night Covers	per installation	New	432	5	\$67	5%	85%	\$0.04	5
Utah	Miscellaneous	Refrigeration	Walk-In Electronically Commutated Motor	ECM Evaporator Fans	Standard Efficiency Motor	per installation	New	0.03	12	\$0.18	3%	95%	\$0.61	3
Utah	Miscellaneous	Space Heat	Convert Constant Volume Air System to VAV	Variable Volume Air System	Constant Volume Air System	per building CFM	Existing	0.40	15	\$2	15%	67%	\$0.78	189
Utah	Miscellaneous	Space Heat	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	Existing	313	15	\$163	75%	76%	\$0.06	1,206
Utah	Miscellaneous	Space Heat	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	Existing	0.07	18	\$0.20	45%	65%	\$0.26	107
Utah	Miscellaneous	Space Heat	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	Existing	0.46	14	\$1	5%	94%	\$0.46	102
Utah	Miscellaneous	Space Heat	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	4	13	\$0.27	10%	39%	\$0.01	58
Utah	Miscellaneous	Space Heat	Insulation - Ceiling	R-30 (UT State Code)	R-11 (Average Existing Conditions)	per roof sqft	Existing	0.51	25	\$0.73	75%	65%	\$0.13	1,295
Utah	Miscellaneous	Space Heat	Insulation - Ceiling	R-38	R-30 (UT State Code)	per roof sqft	Existing	0.07	25	\$0.24	25%	85%	\$0.30	71
Utah	Miscellaneous	Space Heat	Insulation - Duct	R-5 (UT State Code)	No Insulation	per surface area of duct insul	Existing	1	20	\$1	75%	61%	\$0.14	204
Utah	Miscellaneous	Space Heat	Insulation - Duct	R-8	R-5 (UT State Code)	per surface area of duct insul	Existing	0.79	20	\$0.32	75%	85%	\$0.04	281
Utah	Miscellaneous	Space Heat	Insulation - Floor (non-slab)	R-19 (UT State Code)	R-7 (Average Existing Conditions)	per floor area	Existing	0.84	25	\$0.64	35%	80%	\$0.07	1,530
Utah	Miscellaneous	Space Heat	Insulation - Floor (non-slab)	R-30	R-19 (UT State Code)	per floor area	Existing	0.33	25	\$0.26	35%	90%	\$0.07	624
Utah	Miscellaneous	Space Heat	Insulation - Wall	R-13 (UT State Code)	R-3 (Average Existing Conditions)	per floor area	Existing	2	25	\$1	10%	71%	\$0.05	396
Utah	Miscellaneous	Space Heat	Insulation - Wall	R-21	R-13 (UT State Code)	per floor area	Existing	0.93	25	\$0.21	10%	85%	\$0.02	226
Utah	Miscellaneous	Space Heat	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	Existing	26	30	\$5	50%	95%	\$0.02	2,470
Utah	Miscellaneous	Space Heat	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	Existing	402	10	\$133	95%	25%	\$0.05	149
Utah	Miscellaneous	Space Heat	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	0.39	7	\$0.15	90%	85%	\$0.08	1,714
Utah	Miscellaneous	Space Heat	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	New	122	15	\$163	75%	76%	\$0.15	279
Utah	Miscellaneous	Space Heat	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	New	0.03	18	\$0.20	45%	65%	\$0.68	32
Utah	Miscellaneous	Space Heat	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	New	0.18	14	\$1	5%	94%	\$1.17	30
Utah	Miscellaneous	Space Heat	Insulation - Ceiling	R-38	R-30 (UT State Code)	per roof sqft	New	0.02	25	\$0.24	75%	85%	\$0.77	65
Utah	Miscellaneous	Space Heat	Insulation - Duct	R-8	R-5 (UT State Code)	per surface area of duct insul	New	0.31	20	\$0.32	75%	85%	\$0.10	63
Utah	Miscellaneous	Space Heat	Insulation - Floor (non-slab)	R-30	R-19 (UT State Code)	per floor area	New	0.13	25	\$0.26	35%	90%	\$0.18	156
Utah	Miscellaneous	Space Heat	Insulation - Wall	R-21	R-13 (UT State Code)	per floor area	New	0.36	25	\$0.21	95%	85%	\$0.05	535
Utah	Miscellaneous	Space Heat	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	New	10	30	\$5	50%	95%	\$0.05	613
Utah	Miscellaneous	Space Heat	Natural Ventilation	Natural Ventilation Design Reduction in Cooling	None - Standard Ventilation	per building sqft	New	0.12	15	\$0.93	20%	75%	\$0.86	65
Utah	Miscellaneous	Space Heat	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	New	157	10	\$133	95%	12%	\$0.12	17
Utah	Miscellaneous	Water Heat	Clothes Washer Commercial	ENERGY STAR Commercial Clothes Washer MEF=1.80	Standard Clothes Washers	per installation	Existing	580	11	\$141	95%	80%	\$0.03	18
Utah	Miscellaneous	Water Heat	Clothes Washer Residential	Energy Star - CEE Tier 1 (MEF 2.0 - 2.19) - Electric DHW & Dryer	MEF = 1.66 - Electric DHW & Dryer (NWPPC 6th Plan Average Efficiency)	per installation	Existing	141	11	\$306	85%	94%	\$0.29	4

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Utah	Miscellaneous	Water Heat	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	per building sqft	Existing	0.01	10	\$0.25	55%	94%	\$2.05	67
Utah	Miscellaneous	Water Heat	Dishwasher Residential	ENERGY STAR <= 324 kWh/yr, <= 5.8 gal/cycle	Federal Standard <= 355 kWh/yr, <= 6.5 gal/cycle	per installation	Existing	33	11	\$32	95%	25%	\$0.13	4
Utah	Miscellaneous	Water Heat	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	per installation	Existing	7,881	10	\$3,029	95%	95%	\$0.06	8
Utah	Miscellaneous	Water Heat	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	per installation	Existing	3,682	10	\$865	95%	94%	\$0.03	1
Utah	Miscellaneous	Water Heat	Electric Water Heater - High Efficiency	EF = 0.95	EF = 0.92	Per installation	Existing	49	15	\$91	100%	N/A	\$0.21	11
Utah	Miscellaneous	Water Heat	Heat Pump Water Heater - Advanced-Efficiency	EF = 2.2	EF = 0.92	Per installation	Existing	908	15	\$1,675	75%	N/A	\$0.21	860
Utah	Miscellaneous	Water Heat	Hot Water (SHW) Pipe Insulation	1.0" of Insulation, assuming R-4 (UT State Code)	No Insulation	per linear foot	Existing	1	12	\$2	80%	90%	\$0.16	19
Utah	Miscellaneous	Water Heat	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	per installation	Existing	25	9	\$0.00	95%	25%	\$0.00	25
Utah	Miscellaneous	Water Heat	Low-Flow Faucet Aerators	2.2 GPM (Federal Code)	3.0 GPM	per installation	Existing	21	9	\$2	95%	25%	\$0.02	21
Utah	Miscellaneous	Water Heat	Low-Flow Pre-Rinse Spray Valves	0.6 GPM	1.6 GPM (Federal Standard)	per installation	Existing	70	5	\$5	95%	93%	\$0.02	134
Utah	Miscellaneous	Water Heat	Low-Flow Showerheads	2.0 GPM	2.5 GPM (Federal Code)	per installation	Existing	374	10	\$6	95%	73%	\$0.00	168
Utah	Miscellaneous	Water Heat	Low-Flow Showerheads	2.5 GPM (Federal Code)	4.5 GPM	per installation	Existing	831	10	\$12	95%	62%	\$0.00	316
Utah	Miscellaneous	Water Heat	Water Cooled Refrigeration with Heat Recovery	Heat Recovery from refrigeration system. Applied to Water Heating Electric End use	No heat recovery	per sqft of refrigerated area	Existing	0.04	10	\$0.83	3%	94%	\$2.89	0.28
Utah	Miscellaneous	Water Heat	Water Heater Temperature Setback	Water Heater Temperature Setback (120 F)	No Change in Water Temperature	per installation	Existing	121	5	\$82	75%	55%	\$0.17	85
Utah	Miscellaneous	Water Heat	Clothes Washer Commercial	ENERGY STAR Commercial Clothes Washer MEF=1.80	Standard Clothes Washers	per installation	New	582	11	\$141	95%	80%	\$0.03	11
Utah	Miscellaneous	Water Heat	Clothes Washer Residential	Energy Star - CEE Tier 1 (MEF 2.0 - 2.19) - Electric DHW & Dryer (NWPPC 6th Plan Average Efficiency)	MEF = 1.66 - Electric DHW & Dryer (NWPPC 6th Plan Average Efficiency)	per installation	New	141	11	\$306	85%	94%	\$0.29	3
Utah	Miscellaneous	Water Heat	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	per building sqft	New	0.01	10	\$0.25	55%	94%	\$2.02	48
Utah	Miscellaneous	Water Heat	Dishwasher Residential	ENERGY STAR <= 324 kWh/yr, <= 5.8 gal/cycle	Federal Standard <= 355 kWh/yr, <= 6.5 gal/cycle	per installation	New	33	11	\$32	95%	55%	\$0.13	5
Utah	Miscellaneous	Water Heat	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	per installation	New	7,901	10	\$3,001	95%	95%	\$0.06	5
Utah	Miscellaneous	Water Heat	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	per installation	New	3,691	10	\$857	95%	94%	\$0.03	1
Utah	Miscellaneous	Water Heat	Electric Water Heater - High Efficiency	EF = 0.95	EF = 0.92	Per installation	New	50	15	\$91	100%	N/A	\$0.20	5
Utah	Miscellaneous	Water Heat	Heat Pump Water Heater - Advanced-Efficiency	EF = 2.2	EF = 0.92	Per installation	New	934	15	\$1,476	75%	N/A	\$0.18	493
Utah	Miscellaneous	Water Heat	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	per installation	New	25	9	\$0.00	95%	25%	\$0.00	16
Utah	Miscellaneous	Water Heat	Low-Flow Pre-Rinse Spray Valves	0.6 GPM	1.6 GPM (Federal Standard)	per installation	New	70	5	\$5	95%	93%	\$0.02	85
Utah	Miscellaneous	Water Heat	Low-Flow Showerheads	2.0 GPM	2.5 GPM (Federal Code)	per installation	New	378	10	\$6	95%	73%	\$0.00	108
Utah	Miscellaneous	Water Heat	Water Cooled Refrigeration with Heat Recovery	Heat Recovery from refrigeration system. Applied to Water Heating Electric End use	No heat recovery	per sqft of refrigerated area	New	0.04	10	\$0.83	3%	94%	\$2.85	0.20
Utah	Miscellaneous	Water Heat	Water Heater Temperature Setback	Water Heater Temperature Setback (120 F)	No Change in Water Temperature	per installation	New	122	5	\$82	75%	55%	\$0.17	61
Utah	Restaurant	Computers	Computer ENERGY STAR	Computer ENERGY STAR	Computer standard non-ENERGY STAR	Per installation	Existing	148	4	\$30	100%	N/A	\$0.06	433

Table C.2.2. Commercial Measure Details

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Utah	Restaurant	Computers	Computer ENERGY STAR	Computer ENERGY STAR	Computer standard non-ENERGY STAR	Per installation	New	148	4	\$30	100%	N/A	\$0.06	42
Utah	Restaurant	Cooking	Combination Oven	60% cooking efficiency	Non ENERGY STAR	per installation	Existing	13,049	12	\$2,060	90%	90%	\$0.02	93
Utah	Restaurant	Cooking	Fryers - New CEE Efficient Electric Deep Fat Fryers	15 inch width Deep Fryer CEE 2006 rating: 80% under heavy load, Less than 1000 watt at idle	15 inch width standard electric deep fat fryers	per installation	Existing	1,128	12	\$1,414	70%	86%	\$0.16	29
Utah	Restaurant	Cooking	Griddle	70% cooking efficiency	Non ENERGY STAR	per installation	Existing	2,519	12	\$890	95%	85%	\$0.05	112
Utah	Restaurant	Cooking	High Efficiency Convection Oven	Convection Oven	Standard Oven	per installation	Existing	2,085	12	\$2,199	40%	45%	\$0.14	33
Utah	Restaurant	Cooking	Hot Food Holding Cabinet	ENERGY STAR	Non ENERGY STAR	per installation	Existing	4,375	12	\$1,906	35%	21%	\$0.06	36
Utah	Restaurant	Cooking	Steam Cooker	ENERGY STAR	Non ENERGY STAR	per installation	Existing	4,682	12	\$2,770	39%	75%	\$0.08	157
Utah	Restaurant	Cooking	Combination Oven	60% cooking efficiency	Non ENERGY STAR	per installation	New	13,049	12	\$2,060	90%	90%	\$0.02	59
Utah	Restaurant	Cooking	Fryers - New CEE Efficient Electric Deep Fat Fryers	15 inch width Deep Fryer CEE 2006 rating: 80% under heavy load, Less than 1000 watt at idle	15 inch width standard electric deep fat fryers	per installation	New	1,128	12	\$1,414	70%	86%	\$0.16	18
Utah	Restaurant	Cooking	Griddle	70% cooking efficiency	Non ENERGY STAR	per installation	New	2,519	12	\$890	95%	85%	\$0.05	71
Utah	Restaurant	Cooking	High Efficiency Convection Oven	Convection Oven	Standard Oven	per installation	New	2,085	12	\$2,199	40%	45%	\$0.14	20
Utah	Restaurant	Cooking	Hot Food Holding Cabinet	ENERGY STAR	Non ENERGY STAR	per installation	New	4,375	12	\$1,906	35%	21%	\$0.06	22
Utah	Restaurant	Cooking	Steam Cooker	ENERGY STAR	Non ENERGY STAR	per installation	New	4,682	12	\$2,770	39%	75%	\$0.08	99
Utah	Restaurant	Cooling Dx Evap	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	Existing	0.60	15	\$0.75	45%	98%	\$0.14	756
Utah	Restaurant	Cooling Dx Evap	DX Package 65 to 135 kBtu/hr - High Efficiency	DX Package 65 to 135 kBtu/hr - High Efficiency - 11.5 EER	DX Package 65 to 135 kBtu/hr - Standard Efficiency - 11.2 EER	Per installation	Existing	578	15	\$555	100%	N/A	\$0.11	23
Utah	Restaurant	Cooling Dx Evap	DX Package 65 to 135 kBtu/hr - Premium Efficiency	DX Package 65 to 135 kBtu/hr - Premium Efficiency - 12.0 EER	DX Package 65 to 135 kBtu/hr - Standard Efficiency - 11.2 EER	Per installation	Existing	1,538	15	\$1,117	100%	N/A	\$0.08	877
Utah	Restaurant	Cooling Dx Evap	DX Package-Air Side Economizer	Air-Side Economizer	No Economizer	per DX ton	Existing	135	10	\$173	10%	50%	\$0.19	111
Utah	Restaurant	Cooling Dx Evap	DX Tune-Up / Diagnostics	DX Tune-Up / Diagnostics	No DX Tune-Up / Diagnostics	per installation	Existing	679	4	\$297	95%	72%	\$0.15	1,246
Utah	Restaurant	Cooling Dx Evap	Direct / Indirect Evaporative Cooling, Pre-Cooling	Evaporative Cooler	Standard DX cooling	per building CFM	Existing	1	15	\$2	50%	94%	\$0.15	1,988
Utah	Restaurant	Cooling Dx Evap	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	Existing	0.15	18	\$0.20	45%	65%	\$0.14	134
Utah	Restaurant	Cooling Dx Evap	Evaporative Cooler replaces DX Package 65 to 135 kBtu/hr - Advanced Efficiency	Evaporative Cooler replaces DX Package 65 to 135 kBtu/hr - Advanced Efficiency	DX Package 65 to 135 kBtu/hr - Standard Efficiency - 11.2 EER	Per installation	Existing	9,563	15	\$-10032.275	25%	N/A	\$0.00	639
Utah	Restaurant	Cooling Dx Evap	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	Existing	0.60	40	\$9	4%	98%	\$1.23	4
Utah	Restaurant	Cooling Dx Evap	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	2	13	\$0.28	40%	39%	\$0.01	169
Utah	Restaurant	Cooling Dx Evap	Insulation - Ceiling	R-30 (UT State Code)	R-11 (Average Existing Conditions)	per roof sqft	Existing	0.01	25	\$0.76	75%	58%	\$4.91	14
Utah	Restaurant	Cooling Dx Evap	Insulation - Duct	R-5 (UT State Code)	No Insulation	per surface area of duct insul	Existing	2	20	\$1	75%	58%	\$0.07	250
Utah	Restaurant	Cooling Dx Evap	Insulation - Duct	R-8	R-5 (UT State Code)	per surface area of duct insul	Existing	1	20	\$0.33	75%	85%	\$0.02	277
Utah	Restaurant	Cooling Dx Evap	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	Existing	36	30	\$5	50%	95%	\$0.01	1,714
Utah	Restaurant	Cooling Dx Evap	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	Existing	498	10	\$138	95%	21%	\$0.04	127

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Utah	Restaurant	Cooling Dx Evap	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	0.75	7	\$0.16	90%	85%	\$0.04	2,047
Utah	Restaurant	Cooling Dx Evap	Window Film	Window Film	No Film	per 100 sqft of window glazing	Existing	2	10	\$148	90%	68%	\$8.70	4
Utah	Restaurant	Cooling Dx Evap	Windows-High Efficiency	U-0.32	U-0.35 (UT State Code)	per window sqft	Existing	8	25	\$27	15%	90%	\$0.29	323
Utah	Restaurant	Cooling Dx Evap	Windows-High Efficiency	U-0.35 (UT State Code)	U-0.65 (Average Existing Conditions)	per window sqft	Existing	8	25	\$74	15%	75%	\$0.80	270
Utah	Restaurant	Cooling Dx Evap	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	New	0.34	15	\$0.75	45%	98%	\$0.25	331
Utah	Restaurant	Cooling Dx Evap	DX Package 65 to 135 kBTU/hr - High Efficiency	DX Package 65 to 135 kBTU/hr - High Efficiency - 11.5 EER	DX Package 65 to 135 kBTU/hr - Standard Efficiency - 11.2 EER	Per installation	New	366	15	\$444	100%	N/A	\$0.14	6
Utah	Restaurant	Cooling Dx Evap	DX Package 65 to 135 kBTU/hr - Premium Efficiency	DX Package 65 to 135 kBTU/hr - Premium Efficiency - 12.0 EER	DX Package 65 to 135 kBTU/hr - Standard Efficiency - 11.2 EER	Per installation	New	968	15	\$893	100%	N/A	\$0.10	338
Utah	Restaurant	Cooling Dx Evap	Direct / Indirect Evaporative Cooling, Pre-Cooling	Evaporative Cooler	Standard DX cooling	per building CFM	New	0.86	15	\$2	50%	94%	\$0.26	935
Utah	Restaurant	Cooling Dx Evap	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	New	0.08	18	\$0.20	45%	65%	\$0.25	58
Utah	Restaurant	Cooling Dx Evap	Evaporative Cooler replaces DX Package 65 to 135 kBTU/hr - Advanced Efficiency	Evaporative Cooler replaces DX Package 65 to 135 kBTU/hr - Advanced Efficiency	DX Package 65 to 135 kBTU/hr - Standard Efficiency - 11.2 EER	Per installation	New	5,967	15	\$-7465.9079	25%	N/A	\$0.00	246
Utah	Restaurant	Cooling Dx Evap	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	New	0.34	40	\$9	4%	98%	\$2.14	2
Utah	Restaurant	Cooling Dx Evap	Insulation - Duct	R-8	R-5 (UT State Code)	per surface area of duct insul	New	0.88	20	\$0.33	75%	85%	\$0.04	108
Utah	Restaurant	Cooling Dx Evap	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	New	21	30	\$5	50%	95%	\$0.02	663
Utah	Restaurant	Cooling Dx Evap	Natural Ventilation	Natural Ventilation Design Reduction in Cooling	None - Standard Ventilation	per building sqft	New	0.34	15	\$0.96	20%	75%	\$0.31	105
Utah	Restaurant	Cooling Dx Evap	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	New	286	10	\$138	95%	10%	\$0.07	24
Utah	Restaurant	Cooling Dx Evap	Windows-High Efficiency	U-0.32	U-0.35 (UT State Code)	per window sqft	New	4	25	\$27	80%	90%	\$0.51	805
Utah	Restaurant	Hvac Aux	Cooking Hood Controls	Demand-Ventilation Control	No Controls	per installation	Existing	2,069	18	\$6,508	95%	25%	\$0.32	1,064
Utah	Restaurant	Hvac Aux	Motor - CEE Premium-Efficiency Plus	CEE PE+ Motor for HVAC Applications	NEMA Efficiency Motors	per HP	Existing	45	15	\$7	95%	76%	\$0.02	155
Utah	Restaurant	Hvac Aux	Motor Rewind	>15, <500 HP	No Rewind	per HP	Existing	4	8	\$5	65%	25%	\$0.20	5
Utah	Restaurant	Hvac Aux	Cooking Hood Controls	Demand-Ventilation Control	No Controls	per installation	New	2,069	18	\$6,508	95%	25%	\$0.32	675
Utah	Restaurant	Hvac Aux	Motor - CEE Premium-Efficiency Plus	CEE PE+ Motor for HVAC Applications	NEMA Efficiency Motors	per HP	New	44	15	\$7	95%	76%	\$0.02	122
Utah	Restaurant	Lighting Exterior	Covered Parking Lighting	Covered Parking Lighting	Normal Lighting	per building sqft	Existing	0.10	10	\$0.02	80%	95%	\$0.04	470
Utah	Restaurant	Lighting Exterior	Daylighting Controls, Outdoors (Photocell)	Photocell	No Controls	per installation	Existing	74	8	\$30	75%	70%	\$0.07	170
Utah	Restaurant	Lighting Exterior	Exterior Building Lighting	30% savings	Normal Lighting	per installation	Existing	268	15	\$363	62%	90%	\$0.15	1,480
Utah	Restaurant	Lighting Exterior	Solid State LED White Lighting	Landscape, merchandise, signage, structure & task lighting (2.5 W)	50W 10hrs/day, 365 day/yr	per installation	Existing	8	14	\$38	75%	95%	\$0.56	26
Utah	Restaurant	Lighting Exterior	Surface Parking Lighting	Surface Parking Lighting	Normal Lighting	per building sqft	Existing	0.05	19	\$0.07	62%	95%	\$0.14	197
Utah	Restaurant	Lighting Exterior	Covered Parking Lighting	Covered Parking Lighting	Normal Lighting	per building sqft	New	0.10	10	\$0.02	80%	95%	\$0.04	298

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Utah	Restaurant	Lighting Exterior	Daylighting Controls, Outdoors (Photocell)	Photocell	No Controls	per installation	New	74	8	\$30	75%	70%	\$0.07	107
Utah	Restaurant	Lighting Exterior	Exterior Building Lighting	30% savings	Normal Lighting	per installation	New	268	15	\$363	62%	90%	\$0.15	938
Utah	Restaurant	Lighting Exterior	Solid State LED White Lighting	Landscape, merchandise, signage, structure & task lighting (2.5 W)	50W 10hrs/day, 365 day/yr	per installation	New	8	14	\$38	75%	95%	\$0.56	16
Utah	Restaurant	Lighting Exterior	Surface Parking Lighting	Surface Parking Lighting	Normal Lighting	per building sqft	New	0.05	19	\$0.07	62%	95%	\$0.14	124
Utah	Restaurant	Lighting Interior	Cold Cathode Lighting	Cold Cathode Lighting 5 watts	30 W Incandescent Bulb	per installation	Existing	373	5	\$14	15%	94%	\$0.01	107
Utah	Restaurant	Lighting Interior	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	Existing	0.42	8	\$0.96	30%	98%	\$0.39	74
Utah	Restaurant	Lighting Interior	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	Existing	0.15	8	\$0.72	30%	98%	\$0.78	27
Utah	Restaurant	Lighting Interior	Exit Sign - LED	LED Exit Sign (2 Watts)	CFL Exit Sign (9 Watts)	per installation	Existing	106	16	\$17	95%	50%	\$0.02	214
Utah	Restaurant	Lighting Interior	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign (2 Watts)	per installation	Existing	19	13	\$33	95%	98%	\$0.21	25
Utah	Restaurant	Lighting Interior	LED Refrigeration Case Lights	LED Refrigeration Case Lights	Fluorescent Refrigeration Case	per installation	Existing	182	8	\$269	25%	80%	\$0.25	178
Utah	Restaurant	Lighting Interior	Lighting Package, High Efficiency	15% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	Existing	0.69	13	\$0.00	90%	53%	\$0.00	1,505
Utah	Restaurant	Lighting Interior	Lighting Package, High Efficiency	Code Required LPD And Control Strategies	Existing Lighting Design LPD	per building sqft	Existing	1	13	\$0.02	90%	37%	\$0.00	3,341
Utah	Restaurant	Lighting Interior	Lighting Package, Premium Efficiency	25% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	Existing	1	13	\$0.01	75%	62%	\$0.00	605
Utah	Restaurant	Lighting Interior	Lighting Package, Premium High Bay	35% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	Existing	0.07	13	\$0.04	70%	83%	\$0.08	244
Utah	Restaurant	Lighting Interior	Occupancy Sensor Control, Fluorescent	Occupancy Sensor Control, Fluorescent	No Occupancy Sensor	per occupancy sensor	Existing	1,174	8	\$72	45%	64%	\$0.01	187
Utah	Restaurant	Lighting Interior	Time Clock	Time Clock	No Controls	per 10,000 Watts	Existing	832	8	\$198	20%	**%	\$0.04	127
Utah	Restaurant	Lighting Interior	Cold Cathode Lighting	Cold Cathode Lighting 5 watts	30 W Incandescent Bulb	per installation	New	260	5	\$14	15%	94%	\$0.01	47
Utah	Restaurant	Lighting Interior	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	New	0.29	8	\$0.96	30%	98%	\$0.56	34
Utah	Restaurant	Lighting Interior	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	New	0.10	8	\$0.72	30%	98%	\$1.13	13
Utah	Restaurant	Lighting Interior	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign (2 Watts)	per installation	New	19	13	\$33	95%	98%	\$0.21	64
Utah	Restaurant	Lighting Interior	LED Refrigeration Case Lights	LED Refrigeration Case Lights	Fluorescent Refrigeration Case	per installation	New	182	8	\$269	25%	80%	\$0.25	113
Utah	Restaurant	Lighting Interior	Lighting Package, High Efficiency	15% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	New	0.69	15	\$0.00	90%	53%	\$0.00	954
Utah	Restaurant	Lighting Interior	Lighting Package, Premium Efficiency	25% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	New	1	15	\$0.01	75%	62%	\$0.00	384
Utah	Restaurant	Lighting Interior	Lighting Package, Premium High Bay	35% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	New	0.07	15	\$0.01	70%	83%	\$0.02	154
Utah	Restaurant	Lighting Interior	Occupancy Sensor Control, Fluorescent	Occupancy Sensor Control, Fluorescent	No Occupancy Sensor	per occupancy sensor	New	818	8	\$72	45%	64%	\$0.02	87
Utah	Restaurant	Lighting Interior	Time Clock	Time Clock	No Controls	per 10,000 Watts	New	832	8	\$198	20%	**%	\$0.04	59
Utah	Restaurant	Other Office Equipment	ENERGY STAR - Copiers	ENERGY STAR Copiers	Standard Copier	per installation	Existing	81	6	\$171	95%	45%	\$0.45	3
Utah	Restaurant	Other Office Equipment	ENERGY STAR - Fax	ENERGY STAR Fax	Standard Fax	per installation	Existing	86	6	\$0.00	95%	45%	\$0.00	4
Utah	Restaurant	Other Office Equipment	ENERGY STAR - Monitors	ENERGY STAR Features Enabled	Non-ENERGY STAR Features	per installation	Existing	16	5	\$18	64%	15%	\$0.27	3
Utah	Restaurant	Other Office Equipment	ENERGY STAR - Printers	ENERGY STAR Printers	Standard Printers	per installation	Existing	152	6	\$16	95%	40%	\$0.02	93

Table C.2.2. Commercial Measure Details

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Utah	Restaurant	Other Office Equipment	ENERGY STAR - Scanners	ENERGY STAR Scanners	Standard Scanner	per installation	Existing	78	6	\$0.00	95%	45%	\$0.00	3
Utah	Restaurant	Other Office Equipment	ENERGY STAR - Copiers	ENERGY STAR Copiers	Standard Copier	per installation	New	81	6	\$171	95%	45%	\$0.45	2
Utah	Restaurant	Other Office Equipment	ENERGY STAR - Fax	ENERGY STAR Fax	Standard Fax	per installation	New	86	6	\$0.00	95%	45%	\$0.00	2
Utah	Restaurant	Other Office Equipment	ENERGY STAR - Monitors	ENERGY STAR Features Enabled	Non-ENERGY STAR Features	per installation	New	16	5	\$18	64%	15%	\$0.27	2
Utah	Restaurant	Other Office Equipment	ENERGY STAR - Printers	ENERGY STAR Printers	Standard Printers	per installation	New	152	6	\$16	95%	40%	\$0.02	59
Utah	Restaurant	Other Office Equipment	ENERGY STAR - Scanners	ENERGY STAR Scanners	Standard Scanner	per installation	New	78	6	\$0.00	95%	45%	\$0.00	2
Utah	Restaurant	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	per installation	Existing	8	7	\$2	20%	90%	\$0.05	1
Utah	Restaurant	Other Plug Load	ENERGY STAR - Water Cooler	ENERGY STAR Water Cooler (Hot/Cold Water)	Non-ENERGY STAR Water Cooler	per installation	Existing	401	10	\$0.87	95%	75%	\$0.00	216
Utah	Restaurant	Other Plug Load	Ice Maker	High-Efficiency Ice Maker	Standard Ice Maker	per installation	Existing	467	10	\$153	95%	86%	\$0.05	698
Utah	Restaurant	Other Plug Load	Power Supply Transformer/Converter	80 Plus	85% efficient power supply (> 51W)	1 unit per 2,000 sqft	Existing	9	4	\$0.44	95%	86%	\$0.01	22
Utah	Restaurant	Other Plug Load	Residential Refrigerator	ENERGY STAR	Federal Standard	per installation	Existing	88	12	\$133	19%	65%	\$0.19	23
Utah	Restaurant	Other Plug Load	Residential Refrigerator/Freezer Recycling	Recycling Existing Refrigerator/Freezer	Existing Refrigerator/Freezer	per installation	Existing	1,052	4	\$612	25%	35%	\$0.17	79
Utah	Restaurant	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	1 unit per 5,000 sqft	Existing	110	5	\$22	60%	90%	\$0.05	71
Utah	Restaurant	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	per installation	New	8	7	\$2	20%	90%	\$0.05	0.91
Utah	Restaurant	Other Plug Load	ENERGY STAR - Water Cooler	ENERGY STAR Water Cooler (Hot/Cold Water)	Non-ENERGY STAR Water Cooler	per installation	New	401	10	\$0.87	95%	75%	\$0.00	137
Utah	Restaurant	Other Plug Load	Ice Maker	High-Efficiency Ice Maker	Standard Ice Maker	per installation	New	467	10	\$153	95%	86%	\$0.05	443
Utah	Restaurant	Other Plug Load	Power Supply Transformer/Converter	80 Plus	85% efficient power supply (> 51W)	1 unit per 2,000 sqft	New	9	4	\$0.44	95%	86%	\$0.01	14
Utah	Restaurant	Other Plug Load	Residential Refrigerator	ENERGY STAR	Federal Standard	per installation	New	88	12	\$133	19%	65%	\$0.19	14
Utah	Restaurant	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	1 unit per 5,000 sqft	New	110	5	\$22	60%	90%	\$0.05	45
Utah	Restaurant	Refrigeration	Anti-Sweat (Humidistat) Controls	Anti-Sweat (Humidistat) Controls	No Anti-Sweat (Humidistat) Controls	1 unit per 1,000 sqft	Existing	1,085	12	\$81	25%	45%	\$0.01	226
Utah	Restaurant	Refrigeration	Case Electronically Commutated Motor	ECM Case Fans	Standard Efficiency Motor	1 unit per 5,000 sqft	Existing	1,129	12	\$262	10%	76%	\$0.03	78
Utah	Restaurant	Refrigeration	Case Replacement Low Temp	Case Replacement Low Temp	No replacement	per square foot	Existing	0.05	15	\$0.11	10%	90%	\$0.24	22
Utah	Restaurant	Refrigeration	Case Replacement Med Temp	Case Replacement Med Temp	No replacement	per square foot	Existing	0.00	15	\$0.06	10%	90%	\$1.48	1
Utah	Restaurant	Refrigeration	Demand Control Defrost - Hot Gas	Refrigerant Defrost	Defrost - Electric	per installation	Existing	391	10	\$8	5%	68%	\$0.00	22
Utah	Restaurant	Refrigeration	Glass Door ES Refrigerators/Freezers	Glass Door ES Refrigerators/Freezers	Standard Glass Doors	per installation	Existing	2,830	12	\$784	95%	77%	\$0.04	1,508
Utah	Restaurant	Refrigeration	Night Covers for Display Cases	Night Covers for Display Cases	No Night Covers	per installation	Existing	447	5	\$70	30%	85%	\$0.04	371
Utah	Restaurant	Refrigeration	Refrigeration Commissioning or Re-commissioning	Commissioning / Re-commissioning	No Commissioning / Re-commissioning	per refrigeration ton	Existing	905	3	\$105	10%	85%	\$0.04	236
Utah	Restaurant	Refrigeration	Solid Door ES Refrigerators/Freezers	Solid Door ES Refrigerators/Freezers	Standard Solid Door	per installation	Existing	1,283	12	\$206	95%	81%	\$0.02	721
Utah	Restaurant	Refrigeration	Standalone to Multiplex Compressor	Standalone to Multiplex Compressor	Standalone compressor	per building sqft	Existing	0.30	13	\$0.04	10%	90%	\$0.02	113
Utah	Restaurant	Refrigeration	Strip Curtains for Walk-Ins	Strip Curtains for Walk-Ins	No Strip Curtains for Walk-In	per installation	Existing	602	4	\$200	5%	20%	\$0.10	10
Utah	Restaurant	Refrigeration	Walk-In Electronically Commutated Motor	ECM Evaporator Fans	Standard Efficiency Motor	per installation	Existing	0.42	12	\$0.19	75%	95%	\$0.06	1,377

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Utah	Restaurant	Refrigeration	Anti-Sweat (Humidistat) Controls	Anti-Sweat (Humidistat) Controls	No Anti-Sweat (Humidistat) Controls	1 unit per 1,000 sqft	New	1,085	12	\$81	25%	45%	\$0.01	143
Utah	Restaurant	Refrigeration	Case Electronically Commutated Motor	ECM Case Fans	Standard Efficiency Motor	1 unit per 5,000 sqft	New	1,129	12	\$262	10%	76%	\$0.03	49
Utah	Restaurant	Refrigeration	Demand Control Defrost - Hot Gas	Refrigerant Defrost	Defrost - Electric	per installation	New	391	10	\$8	5%	68%	\$0.00	13
Utah	Restaurant	Refrigeration	Glass Door ES Refrigerators/Freezers	Glass Door ES Refrigerators/Freezers	Standard Glass Doors	per installation	New	2,830	12	\$784	95%	77%	\$0.04	956
Utah	Restaurant	Refrigeration	Night Covers for Display Cases	Night Covers for Display Cases	No Night Covers	per installation	New	447	5	\$70	30%	85%	\$0.04	287
Utah	Restaurant	Refrigeration	Refrigeration Commissioning or Re-commissioning	Commissioning / Re-commissioning	No Commissioning / Re-commissioning	per refrigeration ton	New	559	3	\$41	5%	90%	\$0.03	49
Utah	Restaurant	Refrigeration	Solid Door ES Refrigerators/Freezers	Solid Door ES Refrigerators/Freezers	Standard Solid Door	per installation	New	1,283	12	\$206	95%	81%	\$0.02	457
Utah	Restaurant	Refrigeration	Strip Curtains for Walk-Ins	Strip Curtains for Walk-Ins	No Strip Curtains for Walk-In	per installation	New	602	4	\$200	5%	20%	\$0.10	6
Utah	Restaurant	Refrigeration	Walk-In Electronically Commutated Motor	ECM Evaporator Fans	Standard Efficiency Motor	per installation	New	0.42	12	\$0.19	75%	95%	\$0.06	873
Utah	Restaurant	Space Heat	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	Existing	0.10	18	\$0.20	45%	65%	\$0.21	31
Utah	Restaurant	Space Heat	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	Existing	0.62	14	\$1	5%	94%	\$0.36	30
Utah	Restaurant	Space Heat	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	3	13	\$0.28	40%	39%	\$0.01	103
Utah	Restaurant	Space Heat	Insulation - Ceiling	R-30 (UT State Code)	R-11 (Average Existing Conditions)	per roof sqft	Existing	0.67	25	\$0.76	75%	58%	\$0.10	337
Utah	Restaurant	Space Heat	Insulation - Ceiling	R-38	R-30 (UT State Code)	per roof sqft	Existing	0.09	25	\$0.25	25%	85%	\$0.24	21
Utah	Restaurant	Space Heat	Insulation - Duct	R-5 (UT State Code)	No Insulation	per surface area of duct insul	Existing	1	20	\$1	75%	58%	\$0.11	56
Utah	Restaurant	Space Heat	Insulation - Duct	R-8	R-5 (UT State Code)	per surface area of duct insul	Existing	1	20	\$0.33	75%	85%	\$0.03	74
Utah	Restaurant	Space Heat	Insulation - Floor (non-slab)	R-19 (UT State Code)	R-11 (Average Existing Conditions)	per floor area	Existing	0.61	25	\$0.67	35%	82%	\$0.10	211
Utah	Restaurant	Space Heat	Insulation - Floor (non-slab)	R-30	R-19 (UT State Code)	per floor area	Existing	0.44	25	\$0.27	35%	90%	\$0.06	195
Utah	Restaurant	Space Heat	Insulation - Wall	R-13 (UT State Code)	R-3 (Average Existing Conditions)	per floor area	Existing	1	25	\$1	10%	68%	\$0.07	87
Utah	Restaurant	Space Heat	Insulation - Wall	R-21	R-13 (UT State Code)	per floor area	Existing	0.68	25	\$0.22	10%	85%	\$0.03	60
Utah	Restaurant	Space Heat	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	Existing	34	30	\$5	50%	95%	\$0.01	655
Utah	Restaurant	Space Heat	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	Existing	342	10	\$138	95%	21%	\$0.06	33
Utah	Restaurant	Space Heat	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	0.51	7	\$0.16	90%	85%	\$0.06	532
Utah	Restaurant	Space Heat	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	New	0.04	18	\$0.20	45%	65%	\$0.44	11
Utah	Restaurant	Space Heat	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	New	0.29	14	\$1	5%	94%	\$0.77	10
Utah	Restaurant	Space Heat	Insulation - Ceiling	R-38	R-30 (UT State Code)	per roof sqft	New	0.04	25	\$0.25	75%	85%	\$0.50	22
Utah	Restaurant	Space Heat	Insulation - Duct	R-8	R-5 (UT State Code)	per surface area of duct insul	New	0.49	20	\$0.33	75%	85%	\$0.07	20
Utah	Restaurant	Space Heat	Insulation - Floor (non-slab)	R-30	R-19 (UT State Code)	per floor area	New	0.20	25	\$0.27	35%	90%	\$0.12	53
Utah	Restaurant	Space Heat	Insulation - Wall	R-21	R-13 (UT State Code)	per floor area	New	0.32	25	\$0.22	95%	85%	\$0.06	172
Utah	Restaurant	Space Heat	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	New	16	30	\$5	50%	95%	\$0.03	197
Utah	Restaurant	Space Heat	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	New	160	10	\$138	95%	10%	\$0.13	4
Utah	Restaurant	Water Heat	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	per building sqft	Existing	0.46	10	\$0.26	75%	94%	\$0.08	230
Utah	Restaurant	Water Heat	Dishwasher Residential	ENERGY STAR <= 324 kWh/yr, <= 5.8 gal/cycle	Federal Standard <= 355 kWh/yr, <= 6.5 gal/cycle	per installation	Existing	34	11	\$33	95%	25%	\$0.13	0.66

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Utah	Restaurant	Water Heat	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	per installation	Existing	8,138	10	\$2,859	95%	95%	\$0.05	871
Utah	Restaurant	Water Heat	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	per installation	Existing	3,802	10	\$890	95%	94%	\$0.03	201
Utah	Restaurant	Water Heat	Electric Water Heater - High Efficiency	EF = 0.95	EF = 0.92	Per installation	Existing	782	15	\$165	100%	N/A	\$0.02	28
Utah	Restaurant	Water Heat	Heat Pump Water Heater - Advanced-Efficiency	EF = 2.2	EF = 0.92	Per installation	Existing	14,422	15	\$3,048	75%	N/A	\$0.02	1,772
Utah	Restaurant	Water Heat	Hot Water (SHW) Pipe Insulation	1.0" of Insulation, assuming R-4 (UT State Code)	No Insulation	per linear foot	Existing	31	12	\$2	80%	90%	\$0.01	49
Utah	Restaurant	Water Heat	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	per installation	Existing	402	9	\$0.15	95%	25%	\$0.00	63
Utah	Restaurant	Water Heat	Low-Flow Faucet Aerators	2.2 GPM (Federal Code)	3.0 GPM	per installation	Existing	337	9	\$2	95%	25%	\$0.00	52
Utah	Restaurant	Water Heat	Low-Flow Pre-Rinse Spray Valves	0.6 GPM	1.6 GPM (Federal Standard)	per installation	Existing	992	5	\$5	95%	46%	\$0.00	272
Utah	Restaurant	Water Heat	Water Cooled Refrigeration with Heat Recovery	Heat Recovery from refrigeration system. Applied to Water Heating Electric End use	No heat recovery	per sqft of refrigerated area	Existing	0.73	10	\$0.86	45%	94%	\$0.17	93
Utah	Restaurant	Water Heat	Water Heater Temperature Setback	Water Heater Temperature Setback (120 F)	No Change in Water Temperature	per installation	Existing	974	5	\$85	75%	75%	\$0.02	295
Utah	Restaurant	Water Heat	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	per building sqft	New	0.44	10	\$0.26	75%	94%	\$0.09	145
Utah	Restaurant	Water Heat	Dishwasher Residential	ENERGY STAR <= 324 kWh/yr, <= 5.8 gal/cycle	Federal Standard <= 355 kWh/yr, <= 6.5 gal/cycle	per installation	New	34	11	\$33	95%	55%	\$0.13	0.95
Utah	Restaurant	Water Heat	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	per installation	New	8,177	10	\$2,859	95%	95%	\$0.05	541
Utah	Restaurant	Water Heat	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	per installation	New	3,820	10	\$890	95%	94%	\$0.03	125
Utah	Restaurant	Water Heat	Electric Water Heater - High Efficiency	EF = 0.95	EF = 0.92	Per installation	New	782	15	\$165	100%	N/A	\$0.02	13
Utah	Restaurant	Water Heat	Heat Pump Water Heater - Advanced-Efficiency	EF = 2.2	EF = 0.92	Per installation	New	14,422	15	\$2,685	75%	N/A	\$0.02	905
Utah	Restaurant	Water Heat	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	per installation	New	389	9	\$0.15	95%	25%	\$0.00	39
Utah	Restaurant	Water Heat	Low-Flow Pre-Rinse Spray Valves	0.6 GPM	1.6 GPM (Federal Standard)	per installation	New	996	5	\$5	95%	46%	\$0.00	176
Utah	Restaurant	Water Heat	Water Cooled Refrigeration with Heat Recovery	Heat Recovery from refrigeration system. Applied to Water Heating Electric End use	No heat recovery	per sqft of refrigerated area	New	0.71	10	\$0.86	45%	94%	\$0.18	59
Utah	Restaurant	Water Heat	Water Heater Temperature Setback	Water Heater Temperature Setback (120 F)	No Change in Water Temperature	per installation	New	942	5	\$85	75%	75%	\$0.02	186
Utah	School	Computers	Computer ENERGY STAR	Computer ENERGY STAR	Computer standard non-ENERGY STAR	Per installation	Existing	136	4	\$27	100%	N/A	\$0.06	8,903
Utah	School	Computers	Network PC Power Management	Network PC Power Management	No Power Management	per computer	Existing	90	5	\$12	95%	30%	\$0.03	2,099
Utah	School	Computers	Computer ENERGY STAR	Computer ENERGY STAR	Computer standard non-ENERGY STAR	Per installation	New	136	4	\$27	100%	N/A	\$0.06	863
Utah	School	Computers	Network PC Power Management	Network PC Power Management	No Power Management	per computer	New	90	5	\$12	95%	30%	\$0.03	1,331
Utah	School	Cooking	Combination Oven	60% cooking efficiency	Non ENERGY STAR	per installation	Existing	12,053	12	\$1,728	90%	90%	\$0.02	7
Utah	School	Cooking	Fryers - New CEE Efficient Electric Deep Fat Fryers	15 inch width Deep Fryer CEE 2006 rating; 80% under heavy load, Less than 1000 watt at idle	15 inch width standard electric deep fat fryers	per installation	Existing	449	12	\$1,383	35%	90%	\$0.40	0.56
Utah	School	Cooking	Griddle	70% cooking efficiency	Non ENERGY STAR	per installation	Existing	2,327	12	\$887	95%	85%	\$0.05	14
Utah	School	Cooking	High Efficiency Convection Oven	Convection Oven	Standard Oven	per installation	Existing	1,926	12	\$2,041	26%	40%	\$0.14	2

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Utah	School	Cooking	Hot Food Holding Cabinet	ENERGY STAR	Non ENERGY STAR	per installation	Existing	4,041	12	\$1,774	75%	21%	\$0.06	10
Utah	School	Cooking	Steam Cooker	ENERGY STAR	Non ENERGY STAR	per installation	Existing	4,325	12	\$2,541	14%	75%	\$0.08	7
Utah	School	Cooking	Combination Oven	60% cooking efficiency	Non ENERGY STAR	per installation	New	12,053	12	\$1,728	90%	90%	\$0.02	4
Utah	School	Cooking	Fryers - New CEE Efficient Electric Deep Fat Fryers	15 inch width Deep Fryer CEE 2006 rating; 80% under heavy load, Less than 1000 watt at idle	15 inch width standard electric deep fat fryers	per installation	New	449	12	\$1,383	35%	90%	\$0.40	0.35
Utah	School	Cooking	Griddle	70% cooking efficiency	Non ENERGY STAR	per installation	New	2,327	12	\$887	95%	85%	\$0.05	9
Utah	School	Cooking	High Efficiency Convection Oven	Convection Oven	Standard Oven	per installation	New	1,926	12	\$2,041	26%	40%	\$0.14	1
Utah	School	Cooking	Hot Food Holding Cabinet	ENERGY STAR	Non ENERGY STAR	per installation	New	4,041	12	\$1,774	75%	21%	\$0.06	6
Utah	School	Cooking	Steam Cooker	ENERGY STAR	Non ENERGY STAR	per installation	New	4,325	12	\$2,541	14%	75%	\$0.08	4
Utah	School	Cooling Chillers	Automated Ventilation VFD Control(Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	1 unit per 3,000 sqft	Existing	190	15	\$703	25%	94%	\$0.41	250
Utah	School	Cooling Chillers	Chilled Water / Condenser Water Settings-Optimization	Additional Control Features	EMS already installed - No Optimization	1 control point per 1000 sqft	Existing	7	5	\$147	95%	81%	\$4.57	84
Utah	School	Cooling Chillers	Chilled Water Piping Loop w/ VSD Control	VSD for secondary chilled water loop	Primary loop only w/ constant speed pump	per chiller ton	Existing	9	10	\$196	25%	70%	\$2.93	118
Utah	School	Cooling Chillers	Chiller-Water Side Economizer	Install Economizer	No Economizer	per chiller ton	Existing	6	15	\$440	45%	90%	\$7.70	175
Utah	School	Cooling Chillers	Chillers >300 tons (centrifugal) - High Efficiency	0.55 kW/ton	0.576 kW/ton (full load)	Per installation	Existing	3,075	20	\$2,243	100%	N/A	\$0.07	20
Utah	School	Cooling Chillers	Chillers >300 tons (centrifugal) - Premium Efficiency	0.52 kW/ton (full load)	0.576 kW/ton (full load)	Per installation	Existing	5,884	20	\$4,826	100%	N/A	\$0.08	164
Utah	School	Cooling Chillers	Chillers >300 tons (centrifugal) with VSD - Advanced Efficiency	0.47 kW/ton w/VSD (full load)	0.576 kW/ton (full load)	Per installation	Existing	8,302	20	\$17,140	100%	N/A	\$0.20	2,650
Utah	School	Cooling Chillers	Convert Constant Volume Air System to VAV	Variable Volume Air System	Constant Volume Air System	per building CFM	Existing	0.19	15	\$2	15%	67%	\$1.60	286
Utah	School	Cooling Chillers	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	Existing	0.06	15	\$0.69	65%	98%	\$1.23	574
Utah	School	Cooling Chillers	Cooling Tower-Decrease Approach Temperature	6 Deg F	10 Deg F	per chiller ton	Existing	10	8	\$26	10%	94%	\$0.47	75
Utah	School	Cooling Chillers	Cooling Tower-Two-Speed Fan Motor	Cooling Tower-Two-Speed Fan Motor	Cooling Tower-One-Speed Fan Motor	per chiller ton	Existing	18	15	\$2	95%	35%	\$0.02	613
Utah	School	Cooling Chillers	Cooling Tower-VSD Fan Control	Variable-Speed Tower Fans replace Two-Speed	Cooling Tower-Two-Speed Fan Motor	per chiller ton	Existing	5	13	\$19	95%	75%	\$0.46	296
Utah	School	Cooling Chillers	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	Existing	63	15	\$156	75%	76%	\$0.28	708
Utah	School	Cooling Chillers	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	Existing	0.06	40	\$8	4%	98%	\$10.78	2
Utah	School	Cooling Chillers	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	0.41	13	\$0.26	10%	39%	\$0.08	24
Utah	School	Cooling Chillers	Insulation - Ceiling	R-30 (UT State Code)	R-7 (Average Existing Conditions)	per roof sqft	Existing	0.00	25	\$0.70	75%	69%	\$21.50	19
Utah	School	Cooling Chillers	Pipe Insulation	1.5" of Insulation, assuming R-6 (UT State Code)	No Insulation	per linear feet of insulation	Existing	1	15	\$3	65%	45%	\$0.20	54
Utah	School	Cooling Chillers	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	0.07	7	\$0.15	90%	85%	\$0.36	1,128
Utah	School	Cooling Chillers	Window Film	Window Film	No Film	per 100 sqft of window glazing	Existing	2	10	\$136	90%	68%	\$7.87	15
Utah	School	Cooling Chillers	Windows-High Efficiency	U-0.32	U-0.35 (UT State Code)	per window sqft	Existing	1	25	\$24	15%	90%	\$1.67	200
Utah	School	Cooling Chillers	Windows-High Efficiency	U-0.35 (UT State Code)	U-0.67 (Average Existing Conditions)	per window sqft	Existing	1	25	\$68	15%	64%	\$5.63	110

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Utah	School	Cooling Chillers	Automated Ventilation VFD Control(Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	1 unit per 3,000 sqft	New	130	15	\$377	25%	94%	\$0.32	143
Utah	School	Cooling Chillers	Chilled Water / Condenser Water Settings-Optimization	Additional Control Features	EMS already installed - No Optimization	1 control point per 1000 sqft	New	5	5	\$147	95%	81%	\$6.66	42
Utah	School	Cooling Chillers	Chilled Water Piping Loop w/ VSD Control	VSD for secondary chilled water loop	Primary loop only w/ constant speed pump	per chiller ton	New	7	10	\$196	25%	70%	\$3.85	58
Utah	School	Cooling Chillers	Chillers >300 tons (centrifugal) - High Efficiency	0.52 kW/ton	0.576 kW/ton (full load)	Per installation	New	2,345	20	\$2,016	100%	N/A	\$0.08	8
Utah	School	Cooling Chillers	Chillers >300 tons (centrifugal) - Premium Efficiency	0.52 kW/ton (full load)	0.576 kW/ton (full load)	Per installation	New	4,486	20	\$4,342	100%	N/A	\$0.09	70
Utah	School	Cooling Chillers	Chillers >300 tons (centrifugal) with VSD - Advanced Efficiency	0.47 kW/ton w/VSD (full load)	0.576 kW/ton (full load)	Per installation	New	6,329	20	\$15,362	100%	N/A	\$0.24	1,761
Utah	School	Cooling Chillers	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	New	0.04	15	\$0.69	65%	98%	\$1.80	311
Utah	School	Cooling Chillers	Cooling Tower-Decrease Approach Temperature	6 Deg F	10 Deg F	per chiller ton	New	7	8	\$26	10%	94%	\$0.61	41
Utah	School	Cooling Chillers	Cooling Tower-VSD Fan Control	Variable-Speed Tower Fans replace Two-Speed	Cooling Tower-Two-Speed Fan Motor	per chiller ton	New	3	15	\$19	95%	75%	\$0.56	160
Utah	School	Cooling Chillers	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	New	43	15	\$156	75%	76%	\$0.40	339
Utah	School	Cooling Chillers	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	New	0.04	40	\$8	4%	98%	\$15.72	1
Utah	School	Cooling Chillers	Natural Ventilation	Natural Ventilation Design Reduction in Cooling	None - Standard Ventilation	per building sqft	New	0.04	15	\$0.89	20%	75%	\$2.31	76
Utah	School	Cooling Chillers	Windows-High Efficiency	U-0.32	U-0.35 (UT State Code)	per window sqft	New	0.91	25	\$24	80%	90%	\$2.43	587
Utah	School	Cooling Dx Evap	Automated Ventilation VFD Control(Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	1 unit per 3,000 sqft	Existing	239	15	\$703	25%	94%	\$0.33	545
Utah	School	Cooling Dx Evap	Convert Constant Volume Air System to VAV	Variable Volume Air System	Constant Volume Air System	per building CFM	Existing	0.23	15	\$2	15%	67%	\$1.28	516
Utah	School	Cooling Dx Evap	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	Existing	0.07	15	\$0.69	65%	98%	\$0.98	1,181
Utah	School	Cooling Dx Evap	DX Package 240 to 760 kBTU/hr - High Efficiency	DX Package 240 to 760 kBTU/hr - High Efficiency 10.5	DX Package 240 to 760 kBTU/hr - Standard Efficiency 10.0 EER	Per installation	Existing	1,470	15	\$11,537	100%	N/A	\$0.88	47
Utah	School	Cooling Dx Evap	DX Package 240 to 760 kBTU/hr - Premium Efficiency	DX Package 240 to 760 kBTU/hr - Premium Efficiency 10.8 EER	DX Package 240 to 760 kBTU/hr - Standard Efficiency 10.0 EER	Per installation	Existing	2,624	15	\$18,897	100%	N/A	\$0.81	1,152
Utah	School	Cooling Dx Evap	DX Package-Air Side Economizer	Air-Side Economizer	No Economizer	per DX ton	Existing	26	10	\$160	10%	60%	\$0.86	187
Utah	School	Cooling Dx Evap	DX Tune-Up / Diagnostics	DX Tune-Up / Diagnostics	No DX Tune-Up / Diagnostics	per installation	Existing	134	4	\$274	95%	72%	\$0.68	1,532
Utah	School	Cooling Dx Evap	Direct / Indirect Evaporative Cooling, Pre-Cooling	Evaporative Cooler	Standard DX cooling	per building CFM	Existing	0.19	15	\$1	50%	94%	\$1.05	2,267
Utah	School	Cooling Dx Evap	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	Existing	79	15	\$156	75%	76%	\$0.22	1,544
Utah	School	Cooling Dx Evap	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	Existing	0.01	18	\$0.19	45%	65%	\$0.99	142
Utah	School	Cooling Dx Evap	Evaporative Cooler replaces DX Package - Advanced Efficiency	Evaporative Cooler replaces DX Package - Advanced Efficiency	DX Package 240 to 760 kBTU/hr - Standard Efficiency 10.0 EER	Per installation	Existing	16,173	15	\$-73138.11	25%	N/A	\$0.00	487

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Utah	School	Cooling Dx Evap	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	Existing	0.07	40	\$8	4%	98%	\$8.61	5
Utah	School	Cooling Dx Evap	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	0.51	13	\$0.26	10%	39%	\$0.07	57
Utah	School	Cooling Dx Evap	Insulation - Ceiling	R-30 (UT State Code)	R-7 (Average Existing Conditions)	per roof sqft	Existing	0.00	25	\$0.70	75%	69%	\$17.16	37
Utah	School	Cooling Dx Evap	Insulation - Duct	R-5 (UT State Code)	No Insulation	per surface area of duct insul	Existing	0.30	20	\$1	75%	62%	\$0.51	318
Utah	School	Cooling Dx Evap	Insulation - Duct	R-8	R-5 (UT State Code)	per surface area of duct insul	Existing	0.20	20	\$0.31	75%	85%	\$0.15	351
Utah	School	Cooling Dx Evap	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	Existing	4	30	\$5	50%	95%	\$0.09	2,154
Utah	School	Cooling Dx Evap	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	Existing	713	10	\$128	95%	21%	\$0.03	176
Utah	School	Cooling Dx Evap	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	0.09	7	\$0.15	90%	85%	\$0.28	2,460
Utah	School	Cooling Dx Evap	Window Film	Window Film	No Film	per 100 sqft of window glazing	Existing	2	10	\$136	90%	68%	\$7.82	24
Utah	School	Cooling Dx Evap	Windows-High Efficiency	U-0.32	U-0.35 (UT State Code)	per window sqft	Existing	1	25	\$24	15%	90%	\$1.33	360
Utah	School	Cooling Dx Evap	Windows-High Efficiency	U-0.35 (UT State Code)	U-0.67 (Average Existing Conditions)	per window sqft	Existing	1	25	\$68	15%	64%	\$4.49	204
Utah	School	Cooling Dx Evap	Automated Ventilation VFD Control(Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	1 unit per 3,000 sqft	New	177	15	\$377	25%	94%	\$0.24	308
Utah	School	Cooling Dx Evap	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	New	0.05	15	\$0.69	65%	98%	\$1.33	693
Utah	School	Cooling Dx Evap	DX Package 240 to 760 kBTU/hr - High Efficiency	DX Package 240 to 760 kBTU/hr - High Efficiency 10.5	DX Package 240 to 760 kBTU/hr - Standard Efficiency 10.0 EER	Per installation	New	937	15	\$9,226	100%	N/A	\$1.11	12
Utah	School	Cooling Dx Evap	DX Package 240 to 760 kBTU/hr - Premium Efficiency	DX Package 240 to 760 kBTU/hr - Premium Efficiency 10.8 EER	DX Package 240 to 760 kBTU/hr - Standard Efficiency 10.0 EER	Per installation	New	1,851	15	\$15,117	100%	N/A	\$0.92	497
Utah	School	Cooling Dx Evap	Direct / Indirect Evaporative Cooling, Pre-Cooling	Evaporative Cooler	Standard DX cooling	per building CFM	New	0.14	15	\$1	50%	94%	\$1.42	1,329
Utah	School	Cooling Dx Evap	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	New	59	15	\$156	75%	76%	\$0.30	727
Utah	School	Cooling Dx Evap	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	New	0.01	18	\$0.19	45%	65%	\$1.34	83
Utah	School	Cooling Dx Evap	Evaporative Cooler replaces DX Package - Advanced Efficiency	Evaporative Cooler replaces DX Package - Advanced Efficiency	DX Package 240 to 760 kBTU/hr - Standard Efficiency 10.0 EER	Per installation	New	12,258	15	\$-56502.319	25%	N/A	\$0.00	224
Utah	School	Cooling Dx Evap	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	New	0.05	40	\$8	4%	98%	\$11.60	2
Utah	School	Cooling Dx Evap	Insulation - Duct	R-8	R-5 (UT State Code)	per surface area of duct insul	New	0.15	20	\$0.31	75%	85%	\$0.20	169
Utah	School	Cooling Dx Evap	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	New	3	30	\$5	50%	95%	\$0.12	1,039
Utah	School	Cooling Dx Evap	Natural Ventilation	Natural Ventilation Design Reduction in Cooling	None - Standard Ventilation	per building sqft	New	0.05	15	\$0.89	20%	75%	\$1.70	149
Utah	School	Cooling Dx Evap	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	New	529	10	\$128	95%	10%	\$0.04	42
Utah	School	Cooling Dx Evap	Windows-High Efficiency	U-0.32	U-0.35 (UT State Code)	per window sqft	New	1	25	\$24	80%	90%	\$1.79	1,145

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Utah	School	Hvac Aux	Convert Constant Volume Air System to VAV	Variable Volume Air System	Constant Volume Air System	per building CFM	Existing	0.23	15	\$2	15%	67%	\$1.31	2,197
Utah	School	Hvac Aux	Cooking Hood Controls	Demand-Ventilation Control	No Controls	per installation	Existing	1,911	18	\$4,320	95%	85%	\$0.23	2,979
Utah	School	Hvac Aux	Motor - CEE Premium-Efficiency Plus	Motor - CEE Premium-Efficiency Plus	CEE PE+ Motor for HVAC Applications	NEMA Efficiency Motors	per HP	19	15	\$6	95%	76%	\$0.04	1,073
Utah	School	Hvac Aux	Motor - VAV Box High Efficiency (ECM)	Motor - VAV Box High Efficiency (ECM)	ECM Motor	Standard Efficiency Motor	per installation	48	15	\$177	11%	77%	\$0.41	802
Utah	School	Hvac Aux	Motor Rewind	>15, <500 HP	No Rewind	per HP	Existing	2	8	\$4	65%	25%	\$0.30	39
Utah	School	Hvac Aux	Optimized Variable Volume Lab Hood Design	Optimized Variable Volume Lab Hood Design	Constant Volume Lab Hood Design	per installation	Existing	930	13	\$1,514	65%	59%	\$0.20	1,152
Utah	School	Hvac Aux	Cooking Hood Controls	Demand-Ventilation Control	No Controls	per installation	New	1,911	18	\$4,320	95%	85%	\$0.23	1,889
Utah	School	Hvac Aux	Low Pressure Distribution Complex HVAC	Low Pressure Distribution Complex HVAC	VAV/CV	per building sqft	New	0.41	50	\$2	15%	98%	\$0.41	2,757
Utah	School	Hvac Aux	Motor - CEE Premium-Efficiency Plus	Motor - CEE Premium-Efficiency Plus	CEE PE+ Motor for HVAC Applications	NEMA Efficiency Motors	per HP	15	15	\$6	95%	76%	\$0.05	673
Utah	School	Hvac Aux	Motor - VAV Box High Efficiency (ECM)	Motor - VAV Box High Efficiency (ECM)	ECM Motor	Standard Efficiency Motor	per installation	38	15	\$177	11%	77%	\$0.52	390
Utah	School	Hvac Aux	Optimized Variable Volume Lab Hood Design	Optimized Variable Volume Lab Hood Design	Constant Volume Lab Hood Design	per installation	New	739	15	\$1,514	63%	59%	\$0.23	558
Utah	School	Lighting Exterior	Covered Parking Lighting	Covered Parking Lighting	Normal Lighting	per building sqft	Existing	0.09	10	\$0.02	80%	95%	\$0.04	7,004
Utah	School	Lighting Exterior	Daylighting Controls, Outdoors (Photocell)	Daylighting Controls, Outdoors (Photocell)	Photocell	No Controls	per installation	72	8	\$28	75%	70%	\$0.07	738
Utah	School	Lighting Exterior	Exterior Building Lighting	30% savings	Normal Lighting	per installation	Existing	248	15	\$335	62%	90%	\$0.15	6,425
Utah	School	Lighting Exterior	Solid State LED White Lighting	Landscape, merchandise, signage, structure & task lighting (2.5 W)	50W 10hrs/day, 365 day/yr	per installation	Existing	7	14	\$35	75%	95%	\$0.53	126
Utah	School	Lighting Exterior	Surface Parking Lighting	Surface Parking Lighting	Normal Lighting	per building sqft	Existing	0.05	19	\$0.07	62%	95%	\$0.14	2,933
Utah	School	Lighting Exterior	Covered Parking Lighting	Covered Parking Lighting	Normal Lighting	per building sqft	New	0.09	10	\$0.02	80%	95%	\$0.04	4,442
Utah	School	Lighting Exterior	Daylighting Controls, Outdoors (Photocell)	Daylighting Controls, Outdoors (Photocell)	Photocell	No Controls	per installation	72	8	\$28	75%	70%	\$0.07	468
Utah	School	Lighting Exterior	Exterior Building Lighting	30% savings	Normal Lighting	per installation	New	248	15	\$335	62%	90%	\$0.15	4,075
Utah	School	Lighting Exterior	Solid State LED White Lighting	Landscape, merchandise, signage, structure & task lighting (2.5 W)	50W 10hrs/day, 365 day/yr	per installation	New	7	14	\$35	75%	95%	\$0.53	80
Utah	School	Lighting Exterior	Surface Parking Lighting	Surface Parking Lighting	Normal Lighting	per building sqft	New	0.05	19	\$0.07	62%	95%	\$0.14	1,860
Utah	School	Lighting Interior	Cold Cathode Lighting	Cold Cathode Lighting 5 watts	30 W Incandescent Bulb	per installation	Existing	741	5	\$12	15%	94%	\$0.00	329
Utah	School	Lighting Interior	Dimming-Continuous, Fluorescent Fixtures	Dimming-Continuous, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	Existing	1	8	\$0.89	30%	81%	\$0.09	1,842
Utah	School	Lighting Interior	Dimming-Stepped, Fluorescent Fixtures	Dimming-Stepped, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	Existing	1	8	\$0.67	30%	81%	\$0.09	1,385
Utah	School	Lighting Interior	Exit Sign - LED	LED Exit Sign (2 Watts)	CFL Exit Sign (9 Watts)	per installation	Existing	98	16	\$16	95%	50%	\$0.02	3,302
Utah	School	Lighting Interior	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign (2 Watts)	per installation	Existing	17	13	\$30	95%	98%	\$0.21	392
Utah	School	Lighting Interior	LED Refrigeration Case Lights	LED Refrigeration Case Lights	Fluorescent Refrigeration Case	per installation	Existing	70	8	\$248	10%	80%	\$0.60	94
Utah	School	Lighting Interior	Lighting Package, High Efficiency	15% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	Existing	0.55	13	\$0.19	90%	53%	\$0.04	20,115
Utah	School	Lighting Interior	Lighting Package, High Efficiency	Code Required LPD And Control Strategies	Existing Lighting Design LPD	per building sqft	Existing	1	13	\$0.39	90%	41%	\$0.05	34,897
Utah	School	Lighting Interior	Lighting Package, Premium Efficiency	25% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	Existing	0.92	13	\$0.37	75%	62%	\$0.05	8,090

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Utah	School	Lighting Interior	Lighting Package, Premium High Bay	35% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	Existing	0.14	13	\$0.09	70%	83%	\$0.08	7,864
Utah	School	Lighting Interior	Occupancy Sensor Control, Fluorescent	Occupancy Sensor Control, Fluorescent	No Occupancy Sensor	per occupancy sensor	Existing	859	8	\$66	90%	35%	\$0.01	2,467
Utah	School	Lighting Interior	Time Clock	Time Clock	No Controls	per 10,000 Watts	Existing	768	8	\$183	20%	95%	\$0.04	1,443
Utah	School	Lighting Interior	Cold Cathode Lighting	Cold Cathode Lighting 5 watts	30 W Incandescent Bulb	per installation	New	534	5	\$12	15%	94%	\$0.01	150
Utah	School	Lighting Interior	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	New	1	8	\$0.89	30%	81%	\$0.13	881
Utah	School	Lighting Interior	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	New	1	8	\$0.67	30%	81%	\$0.11	795
Utah	School	Lighting Interior	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign (2 Watts)	per installation	New	17	13	\$30	95%	98%	\$0.21	995
Utah	School	Lighting Interior	LED Refrigeration Case Lights	LED Refrigeration Case Lights	Fluorescent Refrigeration Case	per installation	New	70	8	\$248	10%	80%	\$0.60	60
Utah	School	Lighting Interior	Lighting Package, High Efficiency	15% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	New	0.55	15	\$0.01	90%	53%	\$0.00	12,758
Utah	School	Lighting Interior	Lighting Package, Premium Efficiency	25% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	New	0.84	15	\$0.12	75%	62%	\$0.02	4,687
Utah	School	Lighting Interior	Lighting Package, Premium High Bay	35% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	New	0.14	15	\$0.01	70%	83%	\$0.01	4,988
Utah	School	Lighting Interior	Occupancy Sensor Control, Fluorescent	Occupancy Sensor Control, Fluorescent	No Occupancy Sensor	per occupancy sensor	New	618	8	\$66	90%	35%	\$0.02	1,180
Utah	School	Lighting Interior	Time Clock	Time Clock	No Controls	per 10,000 Watts	New	768	8	\$183	20%	95%	\$0.04	690
Utah	School	Other Office Equipment	ENERGY STAR - Copiers	ENERGY STAR Copiers	Standard Copier	per installation	Existing	74	6	\$163	95%	45%	\$0.46	92
Utah	School	Other Office Equipment	ENERGY STAR - Fax	ENERGY STAR Fax	Standard Fax	per installation	Existing	79	6	\$0.00	95%	45%	\$0.00	98
Utah	School	Other Office Equipment	ENERGY STAR - Monitors	ENERGY STAR Features Enabled	Non-ENERGY STAR Features	per installation	Existing	15	5	\$16	64%	15%	\$0.26	120
Utah	School	Other Office Equipment	ENERGY STAR - Printers	ENERGY STAR Printers	Standard Printers	per installation	Existing	140	6	\$16	95%	40%	\$0.02	128
Utah	School	Other Office Equipment	ENERGY STAR - Scanners	ENERGY STAR Scanners	Standard Scanner	per installation	Existing	72	6	\$0.00	95%	45%	\$0.00	90
Utah	School	Other Office Equipment	ENERGY STAR - Copiers	ENERGY STAR Copiers	Standard Copier	per installation	New	74	6	\$163	95%	45%	\$0.46	58
Utah	School	Other Office Equipment	ENERGY STAR - Fax	ENERGY STAR Fax	Standard Fax	per installation	New	79	6	\$0.00	95%	45%	\$0.00	62
Utah	School	Other Office Equipment	ENERGY STAR - Monitors	ENERGY STAR Features Enabled	Non-ENERGY STAR Features	per installation	New	15	5	\$16	64%	15%	\$0.26	76
Utah	School	Other Office Equipment	ENERGY STAR - Printers	ENERGY STAR Printers	Standard Printers	per installation	New	140	6	\$16	95%	40%	\$0.02	81
Utah	School	Other Office Equipment	ENERGY STAR - Scanners	ENERGY STAR Scanners	Standard Scanner	per installation	New	72	6	\$0.00	95%	45%	\$0.00	57
Utah	School	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	per installation	Existing	7	7	\$0.00	20%	90%	\$0.00	4
Utah	School	Other Plug Load	ENERGY STAR - Water Cooler	ENERGY STAR Water Cooler (Hot/Cold Water)	Non-ENERGY STAR Water Cooler	per installation	Existing	370	10	\$0.00	95%	75%	\$0.00	84
Utah	School	Other Plug Load	Ice Maker	High-Efficiency Ice Maker	Standard Ice Maker	per installation	Existing	431	10	\$142	95%	86%	\$0.05	845
Utah	School	Other Plug Load	Power Supply Transformer/Converter	80 Plus	85% efficient power supply (> 51W)	1 unit per 2,000 sqft	Existing	1	4	\$0.41	95%	86%	\$0.08	62
Utah	School	Other Plug Load	Residential Refrigerator	ENERGY STAR	Federal Standard	per installation	Existing	82	12	\$122	40%	65%	\$0.19	69
Utah	School	Other Plug Load	Residential Refrigerator/Freezer Recycling	Recycling Existing Refrigerator/Freezer	Existing Refrigerator/Freezer	per installation	Existing	971	4	\$563	25%	35%	\$0.17	109
Utah	School	Other Plug Load	Server Virtualization	Server Virtualization	No Virtualization	number of virtualized servers	Existing	2,306	4	\$1,931	72%	85%	\$0.25	726

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Utah	School	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	1 unit per 3,000 sqft	Existing	102	5	\$20	60%	90%	\$0.05	1,771
Utah	School	Other Plug Load	Vending Machines- High Efficiency	ENERGY STAR (Tier 2) Vending Machines- High Efficiency 500 can capacity Under 5.92 kWh/day	Vending Machines- Standard 13 kWh/day	per installation	Existing	244	14	\$163	75%	80%	\$0.08	354
Utah	School	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	per installation	New	7	7	\$0.00	20%	90%	\$0.00	2
Utah	School	Other Plug Load	ENERGY STAR - Water Cooler	ENERGY STAR Water Cooler (Hot/Cold Water)	Non-ENERGY STAR Water Cooler	per installation	New	370	10	\$0.00	95%	75%	\$0.00	53
Utah	School	Other Plug Load	Ice Maker	High-Efficiency Ice Maker	Standard Ice Maker	per installation	New	431	10	\$142	95%	86%	\$0.05	536
Utah	School	Other Plug Load	Power Supply Transformer/Converter	80 Plus	85% efficient power supply (> 51W)	1 unit per 2,000 sqft	New	1	4	\$0.41	95%	86%	\$0.08	39
Utah	School	Other Plug Load	Residential Refrigerator	ENERGY STAR	Federal Standard	per installation	New	82	12	\$122	40%	65%	\$0.19	43
Utah	School	Other Plug Load	Server Virtualization	Server Virtualization	No Virtualization	number of virtualized servers	New	2,306	4	\$1,931	72%	85%	\$0.25	460
Utah	School	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	1 unit per 3,000 sqft	New	102	5	\$20	60%	90%	\$0.05	1,123
Utah	School	Other Plug Load	Vending Machines- High Efficiency	ENERGY STAR (Tier 2) Vending Machines- High Efficiency 500 can capacity Under 5.92 kWh/day	Vending Machines- Standard 13 kWh/day	per installation	New	244	14	\$163	75%	80%	\$0.08	224
Utah	School	Refrigeration	Anti-Sweat (Humidistat) Controls	Anti-Sweat (Humidistat) Controls	No Anti-Sweat (Humidistat) Controls	1 unit per 1,000 sqft	Existing	1,002	12	\$72	15%	45%	\$0.01	50
Utah	School	Refrigeration	Case Electronically Commutated Motor	ECM Case Fans	Standard Efficiency Motor	1 unit per 10,000 sqft	Existing	1,043	12	\$242	5%	76%	\$0.03	133
Utah	School	Refrigeration	Case Replacement Low Temp	Case Replacement Low Temp	No replacement	per square foot	Existing	0.05	15	\$0.10	5%	90%	\$0.24	75
Utah	School	Refrigeration	Case Replacement Med Temp	Case Replacement Med Temp	No replacement	per square foot	Existing	0.00	15	\$0.05	5%	90%	\$1.48	6
Utah	School	Refrigeration	Demand Control Defrost - Hot Gas	Refrigerant Defrost	Defrost - Electric	per installation	Existing	202	10	\$88	5%	68%	\$0.06	7
Utah	School	Refrigeration	Glass Door ES Refrigerators/Freezers	Glass Door ES Refrigerators/Freezers	Standard Glass Doors	per installation	Existing	2,614	12	\$672	95%	77%	\$0.03	48
Utah	School	Refrigeration	Refrigeration Commissioning or Re-commissioning	Commissioning / Re-commissioning	No Commissioning / Re-commissioning	per refrigeration ton	Existing	836	3	\$97	10%	85%	\$0.04	87
Utah	School	Refrigeration	Solid Door ES Refrigerators/Freezers	Solid Door ES Refrigerators/Freezers	Standard Solid Door	per installation	Existing	1,185	12	\$134	95%	81%	\$0.01	23
Utah	School	Refrigeration	Standalone to Multiplex Compressor	Standalone to Multiplex Compressor	Standalone compressor	per building sqft	Existing	0.01	13	\$0.00	25%	90%	\$0.02	105
Utah	School	Refrigeration	Strip Curtains for Walk-Ins	Strip Curtains for Walk-Ins	No Strip Curtains for Walk-In	per installation	Existing	312	4	\$183	95%	20%	\$0.18	66
Utah	School	Refrigeration	Walk-In Electronically Commutated Motor	ECM Evaporator Fans	Standard Efficiency Motor	per installation	Existing	0.02	12	\$0.17	10%	95%	\$1.13	64
Utah	School	Refrigeration	Anti-Sweat (Humidistat) Controls	Anti-Sweat (Humidistat) Controls	No Anti-Sweat (Humidistat) Controls	1 unit per 1,000 sqft	New	1,002	12	\$72	15%	45%	\$0.01	32
Utah	School	Refrigeration	Case Electronically Commutated Motor	ECM Case Fans	Standard Efficiency Motor	1 unit per 10,000 sqft	New	1,043	12	\$242	5%	76%	\$0.03	84
Utah	School	Refrigeration	Demand Control Defrost - Hot Gas	Refrigerant Defrost	Defrost - Electric	per installation	New	202	10	\$88	5%	68%	\$0.06	4
Utah	School	Refrigeration	Glass Door ES Refrigerators/Freezers	Glass Door ES Refrigerators/Freezers	Standard Glass Doors	per installation	New	2,614	12	\$672	95%	77%	\$0.03	30
Utah	School	Refrigeration	Refrigeration Commissioning or Re-commissioning	Commissioning / Re-commissioning	No Commissioning / Re-commissioning	per refrigeration ton	New	517	3	\$37	5%	90%	\$0.03	18
Utah	School	Refrigeration	Solid Door ES Refrigerators/Freezers	Solid Door ES Refrigerators/Freezers	Standard Solid Door	per installation	New	1,185	12	\$134	95%	81%	\$0.01	14
Utah	School	Refrigeration	Strip Curtains for Walk-Ins	Strip Curtains for Walk-Ins	No Strip Curtains for Walk-In	per installation	New	312	4	\$183	95%	20%	\$0.18	42
Utah	School	Refrigeration	Walk-In Electronically Commutated Motor	ECM Evaporator Fans	Standard Efficiency Motor	per installation	New	0.02	12	\$0.17	10%	95%	\$1.13	40

Table C.2.2. Commercial Measure Details

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Utah	School	Water Heat	Clothes Washer Commercial	ENERGY STAR Commercial Clothes Washer MEF=1.80	Standard Clothes Washers	per installation	Existing	556	11	\$123	95%	80%	\$0.03	28
Utah	School	Water Heat	Clothes Washer Residential	Energy Star - CEE Tier 1 (MEF 2.0 - 2.19) - Electric DHW & Dryer	MEF = 1.66 - Electric DHW & Dryer (NWPPC 6th Plan Average Efficiency)	per installation	Existing	135	11	\$281	85%	94%	\$0.28	7
Utah	School	Water Heat	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	per building sqft	Existing	0.07	10	\$0.24	55%	94%	\$0.50	452
Utah	School	Water Heat	Dishwasher Residential	ENERGY STAR <= 324 kWh/yr, <= 5.8 gal/cycle	Federal Standard <= 355 kWh/yr, <= 6.5 gal/cycle	per installation	Existing	31	11	\$30	95%	25%	\$0.13	0.93
Utah	School	Water Heat	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	per installation	Existing	7,553	10	\$2,623	95%	95%	\$0.05	174
Utah	School	Water Heat	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	per installation	Existing	3,529	10	\$834	95%	94%	\$0.03	40
Utah	School	Water Heat	Electric Water Heater - High Efficiency	EF = 0.95	EF = 0.92	Per installation	Existing	1,362	15	\$459	100%	N/A	\$0.04	72
Utah	School	Water Heat	Heat Pump Water Heater - Advanced-Efficiency	EF = 2.2	EF = 0.92	Per installation	Existing	25,105	15	\$8,428	75%	N/A	\$0.04	5,049
Utah	School	Water Heat	Hot Water (SHW) Pipe Insulation	1.0" of Insulation, assuming R-4 (UT State Code)	No Insulation	per linear foot	Existing	25	12	\$2	80%	8%	\$0.01	11
Utah	School	Water Heat	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	per installation	Existing	227	9	\$0.00	95%	25%	\$0.00	160
Utah	School	Water Heat	Low-Flow Faucet Aerators	2.2 GPM (Federal Code)	3.0 GPM	per installation	Existing	191	9	\$2	95%	25%	\$0.00	134
Utah	School	Water Heat	Low-Flow Pre-Rinse Spray Valves	0.6 GPM	1.6 GPM (Federal Standard)	per installation	Existing	67	5	\$5	95%	65%	\$0.02	37
Utah	School	Water Heat	Low-Flow Showerheads	2.0 GPM	2.5 GPM (Federal Code)	per installation	Existing	453	10	\$5	95%	73%	\$0.00	1,050
Utah	School	Water Heat	Low-Flow Showerheads	2.5 GPM (Federal Code)	4.5 GPM	per installation	Existing	1,008	10	\$11	95%	62%	\$0.00	1,974
Utah	School	Water Heat	Water Cooled Refrigeration with Heat Recovery	Heat Recovery from refrigeration system. Applied to Water Heating Electric End use	No heat recovery	per sqft of refrigerated area	Existing	0.16	10	\$0.79	25%	94%	\$0.71	10
Utah	School	Water Heat	Water Heater Temperature Setback	Water Heater Temperature Setback (120 F)	No Change in Water Temperature	per installation	Existing	548	5	\$78	75%	15%	\$0.04	152
Utah	School	Water Heat	Clothes Washer Commercial	ENERGY STAR Commercial Clothes Washer MEF=1.80	Standard Clothes Washers	per installation	New	556	11	\$123	95%	80%	\$0.03	17
Utah	School	Water Heat	Clothes Washer Residential	Energy Star - CEE Tier 1 (MEF 2.0 - 2.19) - Electric DHW & Dryer	MEF = 1.66 - Electric DHW & Dryer (NWPPC 6th Plan Average Efficiency)	per installation	New	135	11	\$281	85%	94%	\$0.28	4
Utah	School	Water Heat	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	per building sqft	New	0.07	10	\$0.24	55%	94%	\$0.50	317
Utah	School	Water Heat	Dishwasher Residential	ENERGY STAR <= 324 kWh/yr, <= 5.8 gal/cycle	Federal Standard <= 355 kWh/yr, <= 6.5 gal/cycle	per installation	New	31	11	\$30	95%	55%	\$0.13	1
Utah	School	Water Heat	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	per installation	New	7,553	10	\$2,623	95%	95%	\$0.05	109
Utah	School	Water Heat	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	per installation	New	3,529	10	\$834	95%	94%	\$0.03	25
Utah	School	Water Heat	Electric Water Heater - High Efficiency	EF = 0.95	EF = 0.92	Per installation	New	1,362	15	\$459	100%	N/A	\$0.04	35
Utah	School	Water Heat	Heat Pump Water Heater - Advanced-Efficiency	EF = 2.2	EF = 0.92	Per installation	New	25,105	15	\$7,424	75%	N/A	\$0.03	2,839
Utah	School	Water Heat	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	per installation	New	227	9	\$0.00	95%	25%	\$0.00	100
Utah	School	Water Heat	Low-Flow Pre-Rinse Spray Valves	0.6 GPM	1.6 GPM (Federal Standard)	per installation	New	67	5	\$5	95%	65%	\$0.02	23
Utah	School	Water Heat	Low-Flow Showerheads	2.0 GPM	2.5 GPM (Federal Code)	per installation	New	453	10	\$5	95%	73%	\$0.00	658
Utah	School	Water Heat	Water Cooled Refrigeration with Heat Recovery	Heat Recovery from refrigeration system. Applied to Water Heating Electric End use	No heat recovery	per sqft of refrigerated area	New	0.16	10	\$0.79	25%	94%	\$0.71	7

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Utah	School	Water Heat	Water Heater Temperature Setback	Water Heater Temperature Setback (120 F)	No Change in Water Temperature	per installation	New	548	5	\$78	75%	15%	\$0.04	107
Utah	Small Office	Computers	Computer ENERGY STAR	Computer ENERGY STAR	Computer standard non-ENERGY STAR	Per installation	Existing	135	4	\$28	100%	N/A	\$0.06	9,676
Utah	Small Office	Computers	Network PC Power Management	Network PC Power Management	No Power Management	per computer	Existing	90	5	\$12	95%	30%	\$0.03	3,966
Utah	Small Office	Computers	Computer ENERGY STAR	Computer ENERGY STAR	Computer standard non-ENERGY STAR	Per installation	New	135	4	\$28	100%	N/A	\$0.06	938
Utah	Small Office	Computers	Network PC Power Management	Network PC Power Management	No Power Management	per computer	New	90	5	\$12	95%	30%	\$0.03	2,515
Utah	Small Office	Cooling Dx Evap	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	Existing	0.33	15	\$0.69	35%	98%	\$0.24	2,204
Utah	Small Office	Cooling Dx Evap	DX Package 65 to 135 kBtu/hr - High Efficiency	DX Package 65 to 135 kBtu/hr - High Efficiency - 11.5 EER	DX Package 65 to 135 kBtu/hr - Standard Efficiency - 11.2 EER	Per installation	Existing	223	15	\$170	100%	N/A	\$0.09	107
Utah	Small Office	Cooling Dx Evap	DX Package 65 to 135 kBtu/hr - Premium Efficiency	DX Package 65 to 135 kBtu/hr - Premium Efficiency - 12.0 EER	DX Package 65 to 135 kBtu/hr - Standard Efficiency - 11.2 EER	Per installation	Existing	559	15	\$343	100%	N/A	\$0.07	3,352
Utah	Small Office	Cooling Dx Evap	DX Package-Air Side Economizer	Air-Side Economizer	No Economizer	per DX ton	Existing	160	10	\$159	10%	20%	\$0.14	214
Utah	Small Office	Cooling Dx Evap	DX Tune-Up / Diagnostics	DX Tune-Up / Diagnostics	No DX Tune-Up / Diagnostics	per installation	Existing	804	4	\$272	95%	72%	\$0.11	5,351
Utah	Small Office	Cooling Dx Evap	Direct / Indirect Evaporative Cooling, Pre-Cooling	Evaporative Cooler	Standard DX cooling	per building CFM	Existing	0.82	15	\$1	50%	94%	\$0.25	8,075
Utah	Small Office	Cooling Dx Evap	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	Existing	0.08	18	\$0.19	45%	65%	\$0.24	507
Utah	Small Office	Cooling Dx Evap	Evaporative Cooler replaces DX Package 65 to 135 kBtu/hr - Advanced Efficiency	Evaporative Cooler replaces DX Package 65 to 135 kBtu/hr - Advanced Efficiency	DX Package 65 to 135 kBtu/hr - Standard Efficiency - 11.2 EER	Per installation	Existing	3,439	15	\$-3086.8226	25%	N/A	\$0.00	6,667
Utah	Small Office	Cooling Dx Evap	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	Existing	0.33	40	\$8	4%	98%	\$2.07	20
Utah	Small Office	Cooling Dx Evap	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	1	13	\$0.26	40%	39%	\$0.02	740
Utah	Small Office	Cooling Dx Evap	Insulation - Ceiling	R-30 (UT State Code)	R-11 (Average Existing Conditions)	per roof sqft	Existing	0.00	25	\$0.69	75%	63%	\$8.23	62
Utah	Small Office	Cooling Dx Evap	Insulation - Duct	R-5 (UT State Code)	No Insulation	per surface area of duct insul	Existing	1	20	\$1	75%	61%	\$0.12	998
Utah	Small Office	Cooling Dx Evap	Insulation - Duct	R-8	R-5 (UT State Code)	per surface area of duct insul	Existing	0.84	20	\$0.30	75%	85%	\$0.04	1,120
Utah	Small Office	Cooling Dx Evap	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	Existing	20	30	\$5	50%	95%	\$0.02	6,875
Utah	Small Office	Cooling Dx Evap	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	Existing	198	10	\$127	95%	22%	\$0.09	491
Utah	Small Office	Cooling Dx Evap	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	0.41	7	\$0.14	90%	85%	\$0.07	8,322
Utah	Small Office	Cooling Dx Evap	Window Film	Window Film	No Film	per 100 sqft of window glazing	Existing	2	10	\$135	90%	68%	\$7.36	27
Utah	Small Office	Cooling Dx Evap	Windows-High Efficiency	U-0.32	U-0.35 (UT State Code)	per window sqft	Existing	5	25	\$24	15%	90%	\$0.39	1,324
Utah	Small Office	Cooling Dx Evap	Windows-High Efficiency	U-0.35 (UT State Code)	U-0.6 (Average Existing Conditions)	per window sqft	Existing	4	25	\$68	15%	68%	\$1.27	844

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Utah	Small Office	Cooling Dx Evap	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	New	0.20	15	\$0.69	35%	98%	\$0.38	1,118
Utah	Small Office	Cooling Dx Evap	DX Package 65 to 135 kBtu/hr - High Efficiency	DX Package 65 to 135 kBtu/hr - High Efficiency - 11.5 EER	DX Package 65 to 135 kBtu/hr - Standard Efficiency - 11.2 EER	Per installation	New	148	15	\$136	100%	N/A	\$0.10	31
Utah	Small Office	Cooling Dx Evap	DX Package 65 to 135 kBtu/hr - Premium Efficiency	DX Package 65 to 135 kBtu/hr - Premium Efficiency - 12.0 EER	DX Package 65 to 135 kBtu/hr - Standard Efficiency - 11.2 EER	Per installation	New	377	15	\$275	100%	N/A	\$0.08	1,365
Utah	Small Office	Cooling Dx Evap	Direct / Indirect Evaporative Cooling, Pre-Cooling	Evaporative Cooler	Standard DX cooling	per building CFM	New	0.50	15	\$1	50%	94%	\$0.41	4,096
Utah	Small Office	Cooling Dx Evap	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	New	0.05	18	\$0.19	45%	65%	\$0.39	257
Utah	Small Office	Cooling Dx Evap	Evaporative Cooler replaces DX Package 65 to 135 kBtu/hr - Advanced Efficiency	Evaporative Cooler replaces DX Package 65 to 135 kBtu/hr - Advanced Efficiency	DX Package 65 to 135 kBtu/hr - Standard Efficiency - 11.2 EER	Per installation	New	2,308	15	\$-2297.0612	25%	N/A	\$0.00	2,710
Utah	Small Office	Cooling Dx Evap	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	New	0.20	40	\$8	4%	98%	\$3.36	9
Utah	Small Office	Cooling Dx Evap	Insulation - Duct	R-8	R-5 (UT State Code)	per surface area of duct insul	New	0.51	20	\$0.30	75%	85%	\$0.06	469
Utah	Small Office	Cooling Dx Evap	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	New	12	30	\$5	50%	95%	\$0.04	2,878
Utah	Small Office	Cooling Dx Evap	Natural Ventilation	Natural Ventilation Design Reduction in Cooling	None - Standard Ventilation	per building sqft	New	0.20	15	\$0.88	20%	75%	\$0.49	461
Utah	Small Office	Cooling Dx Evap	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	New	122	10	\$127	95%	11%	\$0.15	113
Utah	Small Office	Cooling Dx Evap	Windows-High Efficiency	U-0.32	U-0.35 (UT State Code)	per window sqft	New	3	25	\$24	80%	90%	\$0.64	3,528
Utah	Small Office	Cooling Room	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	Existing	0.35	15	\$0.69	35%	98%	\$0.22	5
Utah	Small Office	Cooling Room	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	Existing	0.35	40	\$8	4%	98%	\$1.91	0.05
Utah	Small Office	Cooling Room	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	1	13	\$0.26	40%	39%	\$0.02	1
Utah	Small Office	Cooling Room	Insulation - Ceiling	R-30 (UT State Code)	R-11 (Average Existing Conditions)	per roof sqft	Existing	0.00	25	\$0.69	75%	63%	\$7.59	0.17
Utah	Small Office	Cooling Room	PTAC (10,000 BTU/HR) - Premium-Efficiency	11.4 EER	Room AC (10,000 BTU/HR) Standard-Efficiency 9.8 EER	Per installation	Existing	1,139	15	\$7,600	75%	N/A	\$0.75	21
Utah	Small Office	Cooling Room	Room AC (10,000 BTU/HR) High-Efficiency	High Efficiency 10.8 EER (ENERGY STAR)	Room AC (10,000 BTU/HR) Standard-Efficiency 9.8 EER	Per installation	Existing	714	9	\$376	100%	N/A	\$0.08	3
Utah	Small Office	Cooling Room	Window Film	Window Film	No Film	per 100 sqft of window glazing	Existing	0.13	10	\$135	90%	68%	\$146.54	0.00
Utah	Small Office	Cooling Room	Windows-High Efficiency	U-0.32	U-0.35 (UT State Code)	per window sqft	Existing	6	25	\$24	15%	90%	\$0.36	3
Utah	Small Office	Cooling Room	Windows-High Efficiency	U-0.35 (UT State Code)	U-0.6 (Average Existing Conditions)	per window sqft	Existing	5	25	\$68	15%	68%	\$1.17	2
Utah	Small Office	Cooling Room	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	New	0.23	15	\$0.69	35%	98%	\$0.34	2
Utah	Small Office	Cooling Room	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	New	0.23	40	\$8	4%	98%	\$2.93	0.02
Utah	Small Office	Cooling Room	Natural Ventilation	Natural Ventilation Design Reduction in Cooling	None - Standard Ventilation	per building sqft	New	0.23	15	\$0.88	20%	75%	\$0.43	1

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Utah	Small Office	Cooling Room	PTAC (10,000 BTU/HR) - Premium-Efficiency	11.4 EER	Room AC (10,000 BTU/HR) Standard-Efficiency 9.8 EER	Per installation	New	766	15	\$5,524	75%	N/A	\$0.81	3
Utah	Small Office	Cooling Room	Room AC (10,000 BTU/HR) High-Efficiency	High Efficiency 10.8 EER (ENERGY STAR)	Room AC (10,000 BTU/HR) Standard-Efficiency 9.8 EER	Per installation	New	477	9	\$301	100%	N/A	\$0.10	0.65
Utah	Small Office	Cooling Room	Windows-High Efficiency	U-0.32	U-0.35 (UT State Code)	per window sqft	New	3	25	\$24	80%	90%	\$0.56	8
Utah	Small Office	Hvac Aux	Motor - CEE Premium-Efficiency Plus	CEE PE+ Motor for HVAC Applications	NEMA Efficiency Motors	per HP	Existing	22	15	\$6	95%	76%	\$0.03	596
Utah	Small Office	Hvac Aux	Motor Rewind	>15, <500 HP	No Rewind	per HP	Existing	4	8	\$4	65%	25%	\$0.17	21
Utah	Small Office	Hvac Aux	Motor - CEE Premium-Efficiency Plus	CEE PE+ Motor for HVAC Applications	NEMA Efficiency Motors	per HP	New	19	15	\$6	95%	76%	\$0.04	423
Utah	Small Office	Lighting Exterior	Covered Parking Lighting	Covered Parking Lighting	Normal Lighting	per building sqft	Existing	0.09	10	\$0.02	80%	95%	\$0.04	3,271
Utah	Small Office	Lighting Exterior	Daylighting Controls, Outdoors (Photocell)	Photocell	No Controls	per installation	Existing	31	8	\$28	75%	70%	\$0.15	617
Utah	Small Office	Lighting Exterior	Exterior Building Lighting	30% savings	Normal Lighting	per installation	Existing	247	15	\$333	62%	90%	\$0.15	5,370
Utah	Small Office	Lighting Exterior	Solid State LED White Lighting	Landscape, merchandise, signage, structure & task lighting (2.5 W)	50W 10hrs/day, 365 day/yr	per installation	Existing	3	14	\$35	75%	95%	\$1.21	99
Utah	Small Office	Lighting Exterior	Surface Parking Lighting	Surface Parking Lighting	Normal Lighting	per building sqft	Existing	0.05	19	\$0.06	62%	95%	\$0.14	1,370
Utah	Small Office	Lighting Exterior	Covered Parking Lighting	Covered Parking Lighting	Normal Lighting	per building sqft	New	0.09	10	\$0.02	80%	95%	\$0.04	2,075
Utah	Small Office	Lighting Exterior	Daylighting Controls, Outdoors (Photocell)	Photocell	No Controls	per installation	New	31	8	\$28	75%	70%	\$0.15	391
Utah	Small Office	Lighting Exterior	Exterior Building Lighting	30% savings	Normal Lighting	per installation	New	247	15	\$333	62%	90%	\$0.15	3,406
Utah	Small Office	Lighting Exterior	Solid State LED White Lighting	Landscape, merchandise, signage, structure & task lighting (2.5 W)	50W 10hrs/day, 365 day/yr	per installation	New	3	14	\$35	75%	95%	\$1.21	63
Utah	Small Office	Lighting Exterior	Surface Parking Lighting	Surface Parking Lighting	Normal Lighting	per building sqft	New	0.05	19	\$0.06	62%	95%	\$0.14	868
Utah	Small Office	Lighting Interior	Cold Cathode Lighting	Cold Cathode Lighting 5 watts	30 W Incandescent Bulb	per installation	Existing	100	5	\$12	15%	94%	\$0.03	301
Utah	Small Office	Lighting Interior	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	Existing	0.71	8	\$0.88	30%	78%	\$0.21	669
Utah	Small Office	Lighting Interior	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	Existing	0.53	8	\$0.66	30%	78%	\$0.21	503
Utah	Small Office	Lighting Interior	Exit Sign - LED	LED Exit Sign (2 Watts)	CFL Exit Sign (9 Watts)	per installation	Existing	98	16	\$16	95%	50%	\$0.02	1,495
Utah	Small Office	Lighting Interior	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign (2 Watts)	per installation	Existing	17	13	\$30	95%	98%	\$0.21	177
Utah	Small Office	Lighting Interior	Lighting Package, High Efficiency	15% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	Existing	0.50	13	\$0.13	90%	53%	\$0.03	8,226
Utah	Small Office	Lighting Interior	Lighting Package, High Efficiency	Code Required LPD And Control Strategies	Existing Lighting Design LPD	per building sqft	Existing	1	13	\$0.91	90%	73%	\$0.07	45,940
Utah	Small Office	Lighting Interior	Lighting Package, Premium Efficiency	25% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	Existing	0.83	13	\$0.33	75%	62%	\$0.05	3,308
Utah	Small Office	Lighting Interior	Lighting Package, Premium High Bay	35% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	Existing	0.04	13	\$0.02	70%	83%	\$0.08	1,124
Utah	Small Office	Lighting Interior	Occupancy Sensor Control, Fluorescent	Occupancy Sensor Control, Fluorescent	No Occupancy Sensor	per occupancy sensor	Existing	866	8	\$66	90%	50%	\$0.01	1,345
Utah	Small Office	Lighting Interior	Time Clock	Time Clock	No Controls	per 10,000 Watts	Existing	767	8	\$182	20%	88%	\$0.04	508
Utah	Small Office	Lighting Interior	Cold Cathode Lighting	Cold Cathode Lighting 5 watts	30 W Incandescent Bulb	per installation	New	61	5	\$12	15%	94%	\$0.05	117
Utah	Small Office	Lighting Interior	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	New	0.43	8	\$0.88	30%	78%	\$0.34	313
Utah	Small Office	Lighting Interior	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	New	0.32	8	\$0.66	30%	78%	\$0.34	235

Table C.2.2. Commercial Measure Details

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Utah	Small Office	Lighting Interior	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign (2 Watts)	per installation	New	17	13	\$30	95%	98%	\$0.21	450
Utah	Small Office	Lighting Interior	Lighting Package, High Efficiency	15% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	New	0.50	15	\$0.00	90%	53%	\$0.00	5,217
Utah	Small Office	Lighting Interior	Lighting Package, Premium Efficiency	25% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	New	0.77	15	\$0.10	75%	62%	\$0.02	1,944
Utah	Small Office	Lighting Interior	Lighting Package, Premium High Bay	35% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	New	0.04	15	\$0.00	70%	83%	\$0.01	713
Utah	Small Office	Lighting Interior	Occupancy Sensor Control, Fluorescent	Occupancy Sensor Control, Fluorescent	No Occupancy Sensor	per occupancy sensor	New	533	8	\$66	90%	50%	\$0.02	630
Utah	Small Office	Lighting Interior	Time Clock	Time Clock	No Controls	per 10,000 Watts	New	767	8	\$182	20%	88%	\$0.04	237
Utah	Small Office	Other Office Equipment	ENERGY STAR - Copiers	ENERGY STAR Copiers	Standard Copier	per installation	Existing	74	6	\$159	95%	45%	\$0.45	645
Utah	Small Office	Other Office Equipment	ENERGY STAR - Fax	ENERGY STAR Fax	Standard Fax	per installation	Existing	79	6	\$1	95%	45%	\$0.00	689
Utah	Small Office	Other Office Equipment	ENERGY STAR - Monitors	ENERGY STAR Features Enabled	Non-ENERGY STAR Features	per installation	Existing	15	5	\$16	64%	15%	\$0.26	227
Utah	Small Office	Other Office Equipment	ENERGY STAR - Printers	ENERGY STAR Printers	Standard Printers	per installation	Existing	140	6	\$15	95%	40%	\$0.02	897
Utah	Small Office	Other Office Equipment	ENERGY STAR - Scanners	ENERGY STAR Scanners	Standard Scanner	per installation	Existing	72	6	\$1	95%	45%	\$0.00	627
Utah	Small Office	Other Office Equipment	ENERGY STAR - Copiers	ENERGY STAR Copiers	Standard Copier	per installation	New	74	6	\$159	95%	45%	\$0.45	409
Utah	Small Office	Other Office Equipment	ENERGY STAR - Fax	ENERGY STAR Fax	Standard Fax	per installation	New	79	6	\$1	95%	45%	\$0.00	437
Utah	Small Office	Other Office Equipment	ENERGY STAR - Monitors	ENERGY STAR Features Enabled	Non-ENERGY STAR Features	per installation	New	15	5	\$16	64%	15%	\$0.26	144
Utah	Small Office	Other Office Equipment	ENERGY STAR - Printers	ENERGY STAR Printers	Standard Printers	per installation	New	140	6	\$15	95%	40%	\$0.02	569
Utah	Small Office	Other Office Equipment	ENERGY STAR - Scanners	ENERGY STAR Scanners	Standard Scanner	per installation	New	72	6	\$1	95%	45%	\$0.00	398
Utah	Small Office	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	per installation	Existing	7	7	\$1	20%	90%	\$0.04	7
Utah	Small Office	Other Plug Load	ENERGY STAR - Water Cooler	ENERGY STAR Water Cooler (Hot/Cold Water)	Non-ENERGY STAR Water Cooler	per installation	Existing	369	10	\$1	95%	75%	\$0.00	3,845
Utah	Small Office	Other Plug Load	Power Supply Transformer/Converter	80 Plus	85% efficient power supply (> 51W)	1 unit per 2,000 sqft	Existing	6	4	\$0.40	95%	86%	\$0.02	110
Utah	Small Office	Other Plug Load	Residential Refrigerator	ENERGY STAR	Federal Standard	per installation	Existing	81	12	\$122	19%	65%	\$0.19	225
Utah	Small Office	Other Plug Load	Residential Refrigerator/Freezer Recycling	Recycling Existing Refrigerator/Freezer	Existing Refrigerator/Freezer	per installation	Existing	970	4	\$561	25%	35%	\$0.17	762
Utah	Small Office	Other Plug Load	Server Virtualization	Server Virtualization	No Virtualization	number of virtualized servers	Existing	2,302	4	\$1,935	72%	85%	\$0.25	5,062
Utah	Small Office	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	1 unit per 500 sqft	Existing	102	5	\$20	60%	90%	\$0.05	4,963
Utah	Small Office	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	per installation	New	7	7	\$1	20%	90%	\$0.04	4
Utah	Small Office	Other Plug Load	ENERGY STAR - Water Cooler	ENERGY STAR Water Cooler (Hot/Cold Water)	Non-ENERGY STAR Water Cooler	per installation	New	369	10	\$1	95%	75%	\$0.00	2,439
Utah	Small Office	Other Plug Load	Power Supply Transformer/Converter	80 Plus	85% efficient power supply (> 51W)	1 unit per 2,000 sqft	New	6	4	\$0.40	95%	86%	\$0.02	70
Utah	Small Office	Other Plug Load	Residential Refrigerator	ENERGY STAR	Federal Standard	per installation	New	81	12	\$122	19%	65%	\$0.19	142
Utah	Small Office	Other Plug Load	Server Virtualization	Server Virtualization	No Virtualization	number of virtualized servers	New	2,302	4	\$1,935	72%	85%	\$0.25	3,211
Utah	Small Office	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	1 unit per 500 sqft	New	102	5	\$20	60%	90%	\$0.05	3,148

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Utah	Small Office	Space Heat	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	Existing	0.06	18	\$0.19	45%	65%	\$0.29	135
Utah	Small Office	Space Heat	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	Existing	0.40	14	\$1	5%	94%	\$0.51	128
Utah	Small Office	Space Heat	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	2	13	\$0.26	40%	39%	\$0.01	444
Utah	Small Office	Space Heat	Insulation - Ceiling	R-30 (UT State Code)	R-11 (Average Existing Conditions)	per roof sqft	Existing	0.44	25	\$0.69	75%	63%	\$0.14	1,558
Utah	Small Office	Space Heat	Insulation - Ceiling	R-38	R-30 (UT State Code)	per roof sqft	Existing	0.06	25	\$0.23	25%	85%	\$0.33	89
Utah	Small Office	Space Heat	Insulation - Duct	R-5 (UT State Code)	No Insulation	per surface area of duct insul	Existing	1	20	\$1	75%	61%	\$0.15	257
Utah	Small Office	Space Heat	Insulation - Duct	R-8	R-5 (UT State Code)	per surface area of duct insul	Existing	0.68	20	\$0.30	75%	85%	\$0.04	320
Utah	Small Office	Space Heat	Insulation - Floor (non-slab)	R-19 (UT State Code)	R-11 (Average Existing Conditions)	per floor area	Existing	0.40	25	\$0.61	35%	82%	\$0.14	908
Utah	Small Office	Space Heat	Insulation - Floor (non-slab)	R-30	R-19 (UT State Code)	per floor area	Existing	0.28	25	\$0.25	35%	90%	\$0.08	824
Utah	Small Office	Space Heat	Insulation - Wall	R-13 (UT State Code)	R-3 (Average Existing Conditions)	per floor area	Existing	1	25	\$0.99	10%	67%	\$0.08	428
Utah	Small Office	Space Heat	Insulation - Wall	R-21	R-13 (UT State Code)	per floor area	Existing	0.54	25	\$0.20	10%	85%	\$0.03	258
Utah	Small Office	Space Heat	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	Existing	22	30	\$5	50%	95%	\$0.02	2,817
Utah	Small Office	Space Heat	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	Existing	161	10	\$127	95%	22%	\$0.11	133
Utah	Small Office	Space Heat	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	0.33	7	\$0.14	90%	85%	\$0.08	2,262
Utah	Small Office	Space Heat	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	New	0.02	18	\$0.19	45%	65%	\$0.94	32
Utah	Small Office	Space Heat	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	New	0.12	14	\$1	5%	94%	\$1.63	29
Utah	Small Office	Space Heat	Insulation - Ceiling	R-38	R-30 (UT State Code)	per roof sqft	New	0.01	25	\$0.23	75%	85%	\$1.07	63
Utah	Small Office	Space Heat	Insulation - Duct	R-8	R-5 (UT State Code)	per surface area of duct insul	New	0.21	20	\$0.30	75%	85%	\$0.14	58
Utah	Small Office	Space Heat	Insulation - Floor (non-slab)	R-30	R-19 (UT State Code)	per floor area	New	0.08	25	\$0.25	35%	90%	\$0.25	153
Utah	Small Office	Space Heat	Insulation - Wall	R-21	R-13 (UT State Code)	per floor area	New	0.16	25	\$0.20	95%	85%	\$0.11	493
Utah	Small Office	Space Heat	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	New	7	30	\$5	50%	95%	\$0.06	565
Utah	Small Office	Space Heat	Natural Ventilation	Natural Ventilation Design Reduction in Cooling	None - Standard Ventilation	per building sqft	New	0.08	15	\$0.88	20%	75%	\$1.19	64
Utah	Small Office	Space Heat	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	New	50	10	\$127	95%	11%	\$0.37	13
Utah	Small Office	Water Heat	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	per building sqft	Existing	0.02	10	\$0.24	55%	80%	\$1.65	66
Utah	Small Office	Water Heat	Dishwasher Residential	ENERGY STAR <= 324 kWh/yr, <= 5.8 gal/cycle	Federal Standard <= 355 kWh/yr, <= 6.5 gal/cycle	per installation	Existing	31	11	\$30	95%	25%	\$0.13	27
Utah	Small Office	Water Heat	Electric Water Heater - High Efficiency	EF = 0.95	EF = 0.92	Per installation	Existing	26	15	\$65	100%	N/A	\$0.28	11
Utah	Small Office	Water Heat	Heat Pump Water Heater - Advanced-Efficiency	EF = 2.2	EF = 0.92	Per installation	Existing	486	15	\$1,197	75%	N/A	\$0.28	968
Utah	Small Office	Water Heat	Hot Water (SHW) Pipe Insulation	1.0" of Insulation, assuming R-4 (UT State Code)	No Insulation	per linear foot	Existing	1	12	\$2	80%	30%	\$0.28	7
Utah	Small Office	Water Heat	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	per installation	Existing	13	9	\$0.10	95%	25%	\$0.00	23
Utah	Small Office	Water Heat	Low-Flow Faucet Aerators	2.2 GPM (Federal Code)	3.0 GPM	per installation	Existing	11	9	\$2	95%	25%	\$0.03	19
Utah	Small Office	Water Heat	Water Heater Temperature Setback	Water Heater Temperature Setback (120 F)	No Change in Water Temperature	per installation	Existing	66	5	\$78	75%	40%	\$0.29	71
Utah	Small Office	Water Heat	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	per building sqft	New	0.02	10	\$0.24	55%	80%	\$1.61	43
Utah	Small Office	Water Heat	Dishwasher Residential	ENERGY STAR <= 324 kWh/yr, <= 5.8 gal/cycle	Federal Standard <= 355 kWh/yr, <= 6.5 gal/cycle	per installation	New	31	11	\$30	95%	55%	\$0.13	38

Table C.2.2. Commercial Measure Details

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Utah	Small Office	Water Heat	Electric Water Heater - High Efficiency	EF = 0.95	EF = 0.92	Per installation	New	28	15	\$65	100%	N/A	\$0.26	5
Utah	Small Office	Water Heat	Heat Pump Water Heater - Advanced-Efficiency	EF = 2.2	EF = 0.92	Per installation	New	522	15	\$1,054	75%	N/A	\$0.23	524
Utah	Small Office	Water Heat	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	per installation	New	14	9	\$0.10	95%	25%	\$0.00	15
Utah	Small Office	Water Heat	Water Heater Temperature Setback	Water Heater Temperature Setback (120 F)	No Change in Water Temperature	per installation	New	68	5	\$78	75%	40%	\$0.28	47
Utah	Small Retail	Computers	Computer ENERGY STAR	Computer ENERGY STAR	Computer standard non-ENERGY STAR	Per installation	Existing	125	4	\$26	100%	N/A	\$0.06	1,034
Utah	Small Retail	Computers	Computer ENERGY STAR	Computer ENERGY STAR	Computer standard non-ENERGY STAR	Per installation	New	125	4	\$26	100%	N/A	\$0.06	100
Utah	Small Retail	Cooling Dx Evap	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	Existing	0.21	15	\$0.64	80%	98%	\$0.33	613
Utah	Small Retail	Cooling Dx Evap	DX Package 65 to 135 kBtu/hr - High Efficiency	DX Package 65 to 135 kBtu/hr - High Efficiency - 11.5 EER	DX Package 65 to 135 kBtu/hr - Standard Efficiency - 11.2 EER	Per installation	Existing	291	15	\$347	100%	N/A	\$0.13	6
Utah	Small Retail	Cooling Dx Evap	DX Package 65 to 135 kBtu/hr - Premium Efficiency	DX Package 65 to 135 kBtu/hr - Premium Efficiency - 12.0 EER	DX Package 65 to 135 kBtu/hr - Standard Efficiency - 11.2 EER	Per installation	Existing	719	15	\$698	100%	N/A	\$0.11	356
Utah	Small Retail	Cooling Dx Evap	DX Package-Air Side Economizer	Air-Side Economizer	No Economizer	per DX ton	Existing	64	10	\$147	10%	80%	\$0.33	105
Utah	Small Retail	Cooling Dx Evap	DX Tune-Up / Diagnostics	DX Tune-Up / Diagnostics	No DX Tune-Up / Diagnostics	per installation	Existing	324	4	\$252	95%	72%	\$0.26	648
Utah	Small Retail	Cooling Dx Evap	Direct / Indirect Evaporative Cooling, Pre-Cooling	Evaporative Cooler	Standard DX cooling	per building CFM	Existing	0.54	15	\$1	50%	94%	\$0.36	943
Utah	Small Retail	Cooling Dx Evap	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	Existing	0.05	18	\$0.17	45%	65%	\$0.34	59
Utah	Small Retail	Cooling Dx Evap	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	Existing	0.21	40	\$8	4%	98%	\$2.92	2
Utah	Small Retail	Cooling Dx Evap	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	1	13	\$0.24	10%	39%	\$0.02	22
Utah	Small Retail	Cooling Dx Evap	Insulation - Ceiling	R-30 (UT State Code)	R-7 (Average Existing Conditions)	per roof sqft	Existing	0.00	25	\$0.64	75%	69%	\$5.82	16
Utah	Small Retail	Cooling Dx Evap	Insulation - Duct	R-5 (UT State Code)	No Insulation	per surface area of duct insul	Existing	0.82	20	\$1	75%	62%	\$0.17	134
Utah	Small Retail	Cooling Dx Evap	Insulation - Duct	R-8	R-5 (UT State Code)	per surface area of duct insul	Existing	0.55	20	\$0.28	75%	85%	\$0.05	138
Utah	Small Retail	Cooling Dx Evap	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	Existing	13	30	\$4	50%	95%	\$0.03	846
Utah	Small Retail	Cooling Dx Evap	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	Existing	175	10	\$117	95%	26%	\$0.10	72
Utah	Small Retail	Cooling Dx Evap	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	0.27	7	\$0.13	90%	85%	\$0.10	1,024
Utah	Small Retail	Cooling Dx Evap	Window Film	Window Film	No Film	per 100 sqft of window glazing	Existing	1	10	\$125	90%	68%	\$10.00	2
Utah	Small Retail	Cooling Dx Evap	Windows-High Efficiency	U-0.32	U-0.35 (UT State Code)	per window sqft	Existing	4	25	\$22	15%	90%	\$0.48	154
Utah	Small Retail	Cooling Dx Evap	Windows-High Efficiency	U-0.35 (UT State Code)	U-0.68 (Average Existing Conditions)	per window sqft	Existing	3	25	\$63	15%	73%	\$1.63	99
Utah	Small Retail	Cooling Dx Evap	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	New	0.15	15	\$0.64	80%	98%	\$0.48	348

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Utah	Small Retail	Cooling Dx Evap	DX Package 65 to 135 kBtu/hr - High Efficiency	DX Package 65 to 135 kBtu/hr - High Efficiency - 11.5 EER	DX Package 65 to 135 kBtu/hr - Standard Efficiency - 11.2 EER	Per installation	New	203	15	\$277	100%	N/A	\$0.15	1
Utah	Small Retail	Cooling Dx Evap	DX Package 65 to 135 kBtu/hr - Premium Efficiency	DX Package 65 to 135 kBtu/hr - Premium Efficiency - 12.0 EER	DX Package 65 to 135 kBtu/hr - Standard Efficiency - 11.2 EER	Per installation	New	545	15	\$559	100%	N/A	\$0.12	159
Utah	Small Retail	Cooling Dx Evap	Direct / Indirect Evaporative Cooling, Pre-Cooling	Evaporative Cooler	Standard DX cooling	per building CFM	New	0.37	15	\$1	50%	94%	\$0.51	535
Utah	Small Retail	Cooling Dx Evap	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	New	0.03	18	\$0.17	45%	65%	\$0.48	33
Utah	Small Retail	Cooling Dx Evap	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	New	0.15	40	\$8	4%	98%	\$4.17	1
Utah	Small Retail	Cooling Dx Evap	Insulation - Duct	R-8	R-5 (UT State Code)	per surface area of duct insul	New	0.38	20	\$0.28	75%	85%	\$0.07	64
Utah	Small Retail	Cooling Dx Evap	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	New	9	30	\$4	50%	95%	\$0.04	392
Utah	Small Retail	Cooling Dx Evap	Natural Ventilation	Natural Ventilation Design Reduction in Cooling	None - Standard Ventilation	per building sqft	New	0.15	15	\$0.82	20%	75%	\$0.61	60
Utah	Small Retail	Cooling Dx Evap	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	New	122	10	\$117	95%	13%	\$0.14	18
Utah	Small Retail	Cooling Dx Evap	Windows-High Efficiency	U-0.32	U-0.35 (UT State Code)	per window sqft	New	2	25	\$22	80%	90%	\$0.68	461
Utah	Small Retail	Cooling Room	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	Existing	0.34	15	\$0.64	80%	98%	\$0.21	105
Utah	Small Retail	Cooling Room	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	Existing	0.34	40	\$8	4%	98%	\$1.84	0.46
Utah	Small Retail	Cooling Room	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	2	13	\$0.24	10%	39%	\$0.02	2
Utah	Small Retail	Cooling Room	Insulation - Ceiling	R-30 (UT State Code)	R-7 (Average Existing Conditions)	per roof sqft	Existing	0.01	25	\$0.64	75%	69%	\$3.67	3
Utah	Small Retail	Cooling Room	PTAC (10,000 BTU/HR) - Premium-Efficiency	11.4 EER	Room AC (10,000 BTU/HR) Standard-Efficiency 9.8 EER	Per installation	Existing	1,472	15	\$15,438	75%	N/A	\$1.18	184
Utah	Small Retail	Cooling Room	Room AC (10,000 BTU/HR) High-Efficiency	High Efficiency 10.8 EER (ENERGY STAR)	Room AC (10,000 BTU/HR) Standard-Efficiency 9.8 EER	Per installation	Existing	929	9	\$765	100%	N/A	\$0.13	32
Utah	Small Retail	Cooling Room	Window Film	Window Film	No Film	per 100 sqft of window glazing	Existing	0.09	10	\$125	90%	68%	\$199.88	0.01
Utah	Small Retail	Cooling Room	Windows-High Efficiency	U-0.32	U-0.35 (UT State Code)	per window sqft	Existing	6	25	\$22	15%	90%	\$0.30	30
Utah	Small Retail	Cooling Room	Windows-High Efficiency	U-0.35 (UT State Code)	U-0.68 (Average Existing Conditions)	per window sqft	Existing	5	25	\$63	15%	73%	\$1.03	19
Utah	Small Retail	Cooling Room	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	New	0.24	15	\$0.64	80%	98%	\$0.29	49
Utah	Small Retail	Cooling Room	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	New	0.24	40	\$8	4%	98%	\$2.56	0.19
Utah	Small Retail	Cooling Room	Natural Ventilation	Natural Ventilation Design Reduction in Cooling	None - Standard Ventilation	per building sqft	New	0.24	15	\$0.82	20%	75%	\$0.37	9
Utah	Small Retail	Cooling Room	PTAC (10,000 BTU/HR) - Premium-Efficiency	11.4 EER	Room AC (10,000 BTU/HR) Standard-Efficiency 9.8 EER	Per installation	New	1,105	15	\$11,222	75%	N/A	\$1.14	33
Utah	Small Retail	Cooling Room	Room AC (10,000 BTU/HR) High-Efficiency	High Efficiency 10.8 EER (ENERGY STAR)	Room AC (10,000 BTU/HR) Standard-Efficiency 9.8 EER	Per installation	New	675	9	\$612	100%	N/A	\$0.14	5
Utah	Small Retail	Cooling Room	Windows-High Efficiency	U-0.32	U-0.35 (UT State Code)	per window sqft	New	4	25	\$22	80%	90%	\$0.42	75
Utah	Small Retail	Hvac Aux	Motor - CEE Premium-Efficiency Plus	CEE PE+ Motor for HVAC Applications	NEMA Efficiency Motors	per HP	Existing	26	15	\$5	95%	76%	\$0.03	174
Utah	Small Retail	Hvac Aux	Motor Rewind	>15, <50 HP	No Rewind	per HP	Existing	3	8	\$4	65%	25%	\$0.22	6

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Utah	Small Retail	Hvac Aux	Motor - CEE Premium-Efficiency Plus	CEE PE+ Motor for HVAC Applications	NEMA Efficiency Motors	per HP	New	21	15	\$5	95%	76%	\$0.03	109
Utah	Small Retail	Lighting Exterior	Covered Parking Lighting	Covered Parking Lighting	Normal Lighting	per building sqft	Existing	0.08	10	\$0.02	80%	95%	\$0.04	730
Utah	Small Retail	Lighting Exterior	Daylighting Controls, Outdoors (Photocell)	Photocell	No Controls	per installation	Existing	29	8	\$26	75%	70%	\$0.15	118
Utah	Small Retail	Lighting Exterior	Exterior Building Lighting	30% savings	Normal Lighting	per installation	Existing	228	15	\$308	62%	90%	\$0.15	1,026
Utah	Small Retail	Lighting Exterior	Solid State LED White Lighting	Landscape, merchandise, signage, structure & task lighting (2.5 W)	50W 10hrs/day, 365 day/yr	per installation	Existing	3	14	\$32	75%	95%	\$1.21	19
Utah	Small Retail	Lighting Exterior	Surface Parking Lighting	Surface Parking Lighting	Normal Lighting	per building sqft	Existing	0.04	19	\$0.06	62%	95%	\$0.14	306
Utah	Small Retail	Lighting Exterior	Covered Parking Lighting	Covered Parking Lighting	Normal Lighting	per building sqft	New	0.08	10	\$0.02	80%	95%	\$0.04	463
Utah	Small Retail	Lighting Exterior	Daylighting Controls, Outdoors (Photocell)	Photocell	No Controls	per installation	New	29	8	\$26	75%	70%	\$0.15	74
Utah	Small Retail	Lighting Exterior	Exterior Building Lighting	30% savings	Normal Lighting	per installation	New	228	15	\$308	62%	90%	\$0.15	651
Utah	Small Retail	Lighting Exterior	Solid State LED White Lighting	Landscape, merchandise, signage, structure & task lighting (2.5 W)	50W 10hrs/day, 365 day/yr	per installation	New	3	14	\$32	75%	95%	\$1.21	12
Utah	Small Retail	Lighting Exterior	Surface Parking Lighting	Surface Parking Lighting	Normal Lighting	per building sqft	New	0.04	19	\$0.06	62%	95%	\$0.14	194
Utah	Small Retail	Lighting Interior	Cold Cathode Lighting	Cold Cathode Lighting 5 wats	30 W Incandescent Bulb	per installation	Existing	521	5	\$11	15%	94%	\$0.01	275
Utah	Small Retail	Lighting Interior	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	Existing	0.32	8	\$0.82	30%	84%	\$0.43	88
Utah	Small Retail	Lighting Interior	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	Existing	0.24	8	\$0.61	30%	84%	\$0.43	66
Utah	Small Retail	Lighting Interior	Exit Sign - LED	LED Exit Sign (2 Watts)	CFL Exit Sign (9 Watts)	per installation	Existing	90	16	\$15	95%	50%	\$0.02	327
Utah	Small Retail	Lighting Interior	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign (2 Watts)	per installation	Existing	16	13	\$28	95%	98%	\$0.21	38
Utah	Small Retail	Lighting Interior	Lighting Package, High Efficiency	15% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	Existing	0.69	13	\$0.07	90%	53%	\$0.01	2,703
Utah	Small Retail	Lighting Interior	Lighting Package, High Efficiency	Code Required LPD And Control Strategies	Existing Lighting Design LPD	per building sqft	Existing	1	13	\$0.71	90%	39%	\$0.05	6,182
Utah	Small Retail	Lighting Interior	Lighting Package, Premium Efficiency	25% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	Existing	1	13	\$0.41	75%	62%	\$0.04	1,087
Utah	Small Retail	Lighting Interior	Lighting Package, Premium High Bay	35% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	Existing	0.26	13	\$0.14	70%	83%	\$0.07	1,545
Utah	Small Retail	Lighting Interior	Occupancy Sensor Control, Fluorescent	Occupancy Sensor Control, Fluorescent	No Occupancy Sensor	per occupancy sensor	Existing	1,113	8	\$61	45%	54%	\$0.01	218
Utah	Small Retail	Lighting Interior	Time Clock	Time Clock	No Controls	per 10,000 Watts	Existing	708	8	\$168	20%	86%	\$0.04	150
Utah	Small Retail	Lighting Interior	Cold Cathode Lighting	Cold Cathode Lighting 5 wats	30 W Incandescent Bulb	per installation	New	399	5	\$11	15%	94%	\$0.01	134
Utah	Small Retail	Lighting Interior	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	New	0.25	8	\$0.82	30%	84%	\$0.56	45
Utah	Small Retail	Lighting Interior	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	New	0.18	8	\$0.61	30%	84%	\$0.56	34
Utah	Small Retail	Lighting Interior	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign (2 Watts)	per installation	New	16	13	\$28	95%	98%	\$0.21	98
Utah	Small Retail	Lighting Interior	Lighting Package, High Efficiency	15% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	New	0.69	15	\$0.03	90%	53%	\$0.01	1,714
Utah	Small Retail	Lighting Interior	Lighting Package, Premium Efficiency	25% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	New	1	15	\$0.18	75%	62%	\$0.02	689
Utah	Small Retail	Lighting Interior	Lighting Package, Premium High Bay	35% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	New	0.26	15	\$0.02	70%	83%	\$0.01	980

Table C.2.2. Commercial Measure Details

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Utah	Small Retail	Lighting Interior	Occupancy Sensor Control, Fluorescent	Occupancy Sensor Control, Fluorescent	No Occupancy Sensor	per occupancy sensor	New	852	8	\$61	45%	54%	\$0.01	113
Utah	Small Retail	Lighting Interior	Time Clock	Time Clock	No Controls	per 10,000 Watts	New	708	8	\$168	20%	86%	\$0.04	78
Utah	Small Retail	Other Office Equipment	ENERGY STAR - Copiers	ENERGY STAR Copiers	Standard Copier	per installation	Existing	68	6	\$147	95%	45%	\$0.46	23
Utah	Small Retail	Other Office Equipment	ENERGY STAR - Fax	ENERGY STAR Fax	Standard Fax	per installation	Existing	73	6	\$1	95%	45%	\$0.00	25
Utah	Small Retail	Other Office Equipment	ENERGY STAR - Monitors	ENERGY STAR Features Enabled	Non-ENERGY STAR Features	per installation	Existing	14	5	\$15	64%	15%	\$0.26	10
Utah	Small Retail	Other Office Equipment	ENERGY STAR - Printers	ENERGY STAR Printers	Standard Printers	per installation	Existing	129	6	\$14	95%	40%	\$0.02	148
Utah	Small Retail	Other Office Equipment	ENERGY STAR - Scanners	ENERGY STAR Scanners	Standard Scanner	per installation	Existing	67	6	\$1	95%	45%	\$0.00	23
Utah	Small Retail	Other Office Equipment	ENERGY STAR - Copiers	ENERGY STAR Copiers	Standard Copier	per installation	New	68	6	\$147	95%	45%	\$0.46	15
Utah	Small Retail	Other Office Equipment	ENERGY STAR - Fax	ENERGY STAR Fax	Standard Fax	per installation	New	73	6	\$1	95%	45%	\$0.00	16
Utah	Small Retail	Other Office Equipment	ENERGY STAR - Monitors	ENERGY STAR Features Enabled	Non-ENERGY STAR Features	per installation	New	14	5	\$15	64%	15%	\$0.26	6
Utah	Small Retail	Other Office Equipment	ENERGY STAR - Printers	ENERGY STAR Printers	Standard Printers	per installation	New	129	6	\$14	95%	40%	\$0.02	94
Utah	Small Retail	Other Office Equipment	ENERGY STAR - Scanners	ENERGY STAR Scanners	Standard Scanner	per installation	New	67	6	\$1	95%	45%	\$0.00	14
Utah	Small Retail	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	per installation	Existing	6	7	\$1	20%	90%	\$0.05	1
Utah	Small Retail	Other Plug Load	ENERGY STAR - Water Cooler	ENERGY STAR Water Cooler (Hot/Cold Water)	Non-ENERGY STAR Water Cooler	per installation	Existing	341	10	\$0.00	95%	75%	\$0.00	146
Utah	Small Retail	Other Plug Load	Power Supply Transformer/Converter	80 Plus	85% efficient power supply (> 51W)	1 unit per 2,000 sqft	Existing	4	4	\$0.37	95%	86%	\$0.02	20
Utah	Small Retail	Other Plug Load	Residential Refrigerator	ENERGY STAR	Federal Standard	per installation	Existing	75	12	\$113	3%	65%	\$0.19	5
Utah	Small Retail	Other Plug Load	Residential Refrigerator/Freezer Recycling	Recycling Existing Refrigerator/Freezer	Existing Refrigerator/Freezer	per installation	Existing	894	4	\$519	25%	35%	\$0.17	126
Utah	Small Retail	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	1 unit per 5,000 sqft	Existing	94	5	\$18	60%	90%	\$0.05	110
Utah	Small Retail	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	per installation	New	6	7	\$1	20%	90%	\$0.05	0.82
Utah	Small Retail	Other Plug Load	ENERGY STAR - Water Cooler	ENERGY STAR Water Cooler (Hot/Cold Water)	Non-ENERGY STAR Water Cooler	per installation	New	341	10	\$0.00	95%	75%	\$0.00	93
Utah	Small Retail	Other Plug Load	Power Supply Transformer/Converter	80 Plus	85% efficient power supply (> 51W)	1 unit per 2,000 sqft	New	4	4	\$0.37	95%	86%	\$0.02	12
Utah	Small Retail	Other Plug Load	Residential Refrigerator	ENERGY STAR	Federal Standard	per installation	New	75	12	\$113	3%	65%	\$0.19	3
Utah	Small Retail	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	1 unit per 5,000 sqft	New	94	5	\$18	60%	90%	\$0.05	70
Utah	Small Retail	Space Heat	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	Existing	0.07	18	\$0.17	45%	65%	\$0.24	10
Utah	Small Retail	Space Heat	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	Existing	0.45	14	\$1	5%	94%	\$0.42	10
Utah	Small Retail	Space Heat	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	3	13	\$0.24	10%	39%	\$0.01	9
Utah	Small Retail	Space Heat	Insulation - Ceiling	R-30 (UT State Code)	R-7 (Average Existing Conditions)	per roof sqft	Existing	0.70	25	\$0.64	75%	69%	\$0.08	214
Utah	Small Retail	Space Heat	Insulation - Ceiling	R-38	R-30 (UT State Code)	per roof sqft	Existing	0.06	25	\$0.21	25%	85%	\$0.27	7
Utah	Small Retail	Space Heat	Insulation - Duct	R-5 (UT State Code)	No Insulation	per surface area of duct insul	Existing	1	20	\$1	75%	62%	\$0.12	21
Utah	Small Retail	Space Heat	Insulation - Duct	R-8	R-5 (UT State Code)	per surface area of duct insul	Existing	0.77	20	\$0.28	75%	85%	\$0.04	27

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Utah	Small Retail	Space Heat	Insulation - Floor (non-slab)	R-19 (UT State Code)	R-11 (Average Existing Conditions)	per floor area	Existing	0.45	25	\$0.56	35%	82%	\$0.11	67
Utah	Small Retail	Space Heat	Insulation - Floor (non-slab)	R-30	R-19 (UT State Code)	per floor area	Existing	0.32	25	\$0.23	35%	90%	\$0.06	69
Utah	Small Retail	Space Heat	Insulation - Wall	R-13 (UT State Code)	R-3 (Average Existing Conditions)	per floor area	Existing	1	25	\$0.92	10%	73%	\$0.06	39
Utah	Small Retail	Space Heat	Insulation - Wall	R-21	R-13 (UT State Code)	per floor area	Existing	0.68	25	\$0.19	10%	85%	\$0.03	21
Utah	Small Retail	Space Heat	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	Existing	25	30	\$4	50%	95%	\$0.02	239
Utah	Small Retail	Space Heat	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	Existing	245	10	\$117	95%	26%	\$0.07	13
Utah	Small Retail	Space Heat	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	0.37	7	\$0.13	90%	85%	\$0.07	191
Utah	Small Retail	Space Heat	Windows-High Efficiency	U-0.35 (UT State Code)	U-0.68 (Average Existing Conditions)	per window sqft	Existing	1	25	\$63	15%	73%	\$3.60	6
Utah	Small Retail	Space Heat	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	New	0.03	18	\$0.17	45%	65%	\$0.53	3
Utah	Small Retail	Space Heat	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	New	0.20	14	\$1	5%	94%	\$0.92	3
Utah	Small Retail	Space Heat	Insulation - Ceiling	R-38	R-30 (UT State Code)	per roof sqft	New	0.03	25	\$0.21	75%	85%	\$0.60	7
Utah	Small Retail	Space Heat	Insulation - Duct	R-8	R-5 (UT State Code)	per surface area of duct insul	New	0.35	20	\$0.28	75%	85%	\$0.08	7
Utah	Small Retail	Space Heat	Insulation - Floor (non-slab)	R-30	R-19 (UT State Code)	per floor area	New	0.14	25	\$0.23	35%	90%	\$0.14	18
Utah	Small Retail	Space Heat	Insulation - Wall	R-21	R-13 (UT State Code)	per floor area	New	0.31	25	\$0.19	95%	85%	\$0.06	60
Utah	Small Retail	Space Heat	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	New	11	30	\$4	50%	95%	\$0.04	69
Utah	Small Retail	Space Heat	Natural Ventilation	Natural Ventilation Design Reduction in Cooling	None - Standard Ventilation	per building sqft	New	0.13	15	\$0.82	20%	75%	\$0.67	7
Utah	Small Retail	Space Heat	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	New	111	10	\$117	95%	13%	\$0.15	2
Utah	Small Retail	Water Heat	Clothes Washer Commercial	ENERGY STAR Commercial Clothes Washer MEF=1.80	Standard Clothes Washers	per installation	Existing	512	11	\$118	95%	80%	\$0.03	7
Utah	Small Retail	Water Heat	Clothes Washer Residential	Energy Star - CEE Tier 1 (MEF 2.0 - 2.19) - Electric DHW & Dryer	MEF = 1.66 - Electric DHW & Dryer (NWPPC 6th Plan Average Efficiency)	per installation	Existing	124	11	\$268	85%	94%	\$0.29	1
Utah	Small Retail	Water Heat	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	per building sqft	Existing	0.01	10	\$0.22	75%	94%	\$2.73	21
Utah	Small Retail	Water Heat	Dishwasher Residential	ENERGY STAR <= 324 kWh/yr, <= 5.8 gal/cycle	Federal Standard <= 355 kWh/yr, <= 6.5 gal/cycle	per installation	Existing	29	11	\$28	95%	25%	\$0.13	6
Utah	Small Retail	Water Heat	Electric Water Heater - High Efficiency	EF = 0.95	EF = 0.92	Per installation	Existing	20	15	\$60	100%	N/A	\$0.33	2
Utah	Small Retail	Water Heat	Heat Pump Water Heater - Advanced-Efficiency	EF = 2.2	EF = 0.92	Per installation	Existing	385	15	\$1,109	75%	N/A	\$0.32	189
Utah	Small Retail	Water Heat	Hot Water (SHW) Pipe Insulation	1.0" of Insulation, assuming R-4 (UT State Code)	No Insulation	per linear foot	Existing	0.82	12	\$2	80%	90%	\$0.34	4
Utah	Small Retail	Water Heat	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	per installation	Existing	10	9	\$0.12	95%	25%	\$0.00	4
Utah	Small Retail	Water Heat	Low-Flow Faucet Aerators	2.2 GPM (Federal Code)	3.0 GPM	per installation	Existing	8	9	\$2	95%	25%	\$0.04	4
Utah	Small Retail	Water Heat	Water Heater Temperature Setback	Water Heater Temperature Setback (120 F)	No Change in Water Temperature	per installation	Existing	50	5	\$72	75%	45%	\$0.35	15
Utah	Small Retail	Water Heat	Clothes Washer Commercial	ENERGY STAR Commercial Clothes Washer MEF=1.80	Standard Clothes Washers	per installation	New	512	11	\$118	95%	80%	\$0.03	4
Utah	Small Retail	Water Heat	Clothes Washer Residential	Energy Star - CEE Tier 1 (MEF 2.0 - 2.19) - Electric DHW & Dryer	MEF = 1.66 - Electric DHW & Dryer (NWPPC 6th Plan Average Efficiency)	per installation	New	124	11	\$268	85%	94%	\$0.29	1
Utah	Small Retail	Water Heat	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	per building sqft	New	0.01	10	\$0.22	75%	94%	\$2.73	13
Utah	Small Retail	Water Heat	Dishwasher Residential	ENERGY STAR <= 324 kWh/yr, <= 5.8 gal/cycle	Federal Standard <= 355 kWh/yr, <= 6.5 gal/cycle	per installation	New	29	11	\$28	95%	55%	\$0.13	9

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Utah	Small Retail	Water Heat	Electric Water Heater - High Efficiency	EF = 0.95	EF = 0.92	Per installation	New	20	15	\$60	100%	N/A	\$0.33	1
Utah	Small Retail	Water Heat	Heat Pump Water Heater - Advanced-Efficiency	EF = 2.2	EF = 0.92	Per installation	New	385	15	\$976	75%	N/A	\$0.29	97
Utah	Small Retail	Water Heat	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	per installation	New	10	9	\$0.12	95%	25%	\$0.00	3
Utah	Small Retail	Water Heat	Water Heater Temperature Setback	Water Heater Temperature Setback (120 F)	No Change in Water Temperature	per installation	New	50	5	\$72	75%	45%	\$0.35	10
Utah	Warehouse	Computers	Computer ENERGY STAR	Computer ENERGY STAR	Computer standard non-ENERGY STAR	Per installation	Existing	135	4	\$28	100%	N/A	\$0.06	588
Utah	Warehouse	Computers	Computer ENERGY STAR	Computer ENERGY STAR	Computer standard non-ENERGY STAR	Per installation	New	135	4	\$28	100%	N/A	\$0.06	57
Utah	Warehouse	Cooling Chillers	Chilled Water / Condenser Water Settings-Optimization	Additional Control Features	EMS already installed - No Optimization	1 control point per 1000 sqft	Existing	8	5	\$146	95%	81%	\$4.10	5
Utah	Warehouse	Cooling Chillers	Chilled Water Piping Loop w/ VSD Control	VSD for secondary chilled water loop	Primary loop only w/ constant speed pump	per chiller ton	Existing	19	10	\$195	25%	70%	\$1.48	8
Utah	Warehouse	Cooling Chillers	Chiller-Water Side Economizer	Install Economizer	No Economizer	per chiller ton	Existing	12	15	\$438	45%	90%	\$3.89	12
Utah	Warehouse	Cooling Chillers	Chillers <150 tons (screw) - Advanced Efficiency	0.58 kW/ton (full load)	0.790 kW/Ton (full load)	Per installation	Existing	1,600	20	\$4,826	100%	N/A	\$0.29	100
Utah	Warehouse	Cooling Chillers	Chillers <150 tons (screw) - High Efficiency	0.71 kW/ton (full load)	0.790 kW/Ton (full load)	Per installation	Existing	611	20	\$1,838	100%	N/A	\$0.29	0.78
Utah	Warehouse	Cooling Chillers	Chillers <150 tons (screw) - Premium Efficiency	0.63 kW/ton	0.790 kW/Ton (full load)	Per installation	Existing	1,189	20	\$3,676	100%	N/A	\$0.30	6
Utah	Warehouse	Cooling Chillers	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	Existing	0.07	15	\$0.69	80%	98%	\$1.11	47
Utah	Warehouse	Cooling Chillers	Cooling Tower-Decrease Approach Temperature	6 Deg F	10 Deg F	per chiller ton	Existing	20	8	\$26	10%	94%	\$0.24	6
Utah	Warehouse	Cooling Chillers	Cooling Tower-Two-Speed Fan Motor	Cooling Tower-Two-Speed Fan Motor	Cooling Tower-One-Speed Fan Motor	per chiller ton	Existing	35	15	\$2	95%	35%	\$0.01	41
Utah	Warehouse	Cooling Chillers	Cooling Tower-VSD Fan Control	Variable-Speed Tower Fans replace Two-Speed	Cooling Tower-Two-Speed Fan Motor	per chiller ton	Existing	10	13	\$19	95%	75%	\$0.23	24
Utah	Warehouse	Cooling Chillers	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	Existing	70	15	\$155	75%	76%	\$0.25	46
Utah	Warehouse	Cooling Chillers	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	Existing	0.07	40	\$8	4%	98%	\$9.69	0.20
Utah	Warehouse	Cooling Chillers	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	0.53	13	\$0.26	10%	39%	\$0.06	0.51
Utah	Warehouse	Cooling Chillers	Insulation - Ceiling	R-30 (UT State Code)	R-8 (Average Existing Conditions)	per roof sqft	Existing	0.00	25	\$0.69	75%	63%	\$19.31	1
Utah	Warehouse	Cooling Chillers	Pipe Insulation	1.5" of Insulation, assuming R-6 (UT State Code)	No Insulation	per linear feet of insulation	Existing	2	15	\$3	65%	45%	\$0.18	3
Utah	Warehouse	Cooling Chillers	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	0.08	7	\$0.14	90%	85%	\$0.32	74
Utah	Warehouse	Cooling Chillers	Window Film	Window Film	No Film	per 100 sqft of window glazing	Existing	1	10	\$135	90%	68%	\$14.46	0.14
Utah	Warehouse	Cooling Chillers	Windows-High Efficiency	U-0.32	U-0.35 (UT State Code)	per window sqft	Existing	5	25	\$24	15%	90%	\$0.40	15
Utah	Warehouse	Cooling Chillers	Windows-High Efficiency	U-0.35 (UT State Code)	U-0.65 (Average Existing Conditions)	per window sqft	Existing	5	25	\$68	15%	75%	\$1.08	12
Utah	Warehouse	Cooling Chillers	Chilled Water / Condenser Water Settings-Optimization	Additional Control Features	EMS already installed - No Optimization	1 control point per 1000 sqft	New	5	5	\$146	95%	81%	\$6.52	2
Utah	Warehouse	Cooling Chillers	Chilled Water Piping Loop w/ VSD Control	VSD for secondary chilled water loop	Primary loop only w/ constant speed pump	per chiller ton	New	13	10	\$195	25%	70%	\$2.12	3
Utah	Warehouse	Cooling Chillers	Chillers <150 tons (screw) - Advanced Efficiency	0.58 kW/ton (full load)	0.790 kW/Ton (full load)	Per installation	New	1,193	20	\$4,342	100%	N/A	\$0.35	63

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Utah	Warehouse	Cooling Chillers	Chillers <150 tons (screw) - High Efficiency	0.71 kW/ton (full load)	0.790 kW/Ton (full load)	Per installation	New	455	20	\$1,653	100%	N/A	\$0.35	0.33
Utah	Warehouse	Cooling Chillers	Chillers <150 tons (screw) - Premium Efficiency	0.63 kW/ton	0.790 kW/Ton (full load)	Per installation	New	886	20	\$3,308	100%	N/A	\$0.36	2
Utah	Warehouse	Cooling Chillers	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	New	0.04	15	\$0.69	80%	98%	\$1.76	22
Utah	Warehouse	Cooling Chillers	Cooling Tower-Decrease Approach Temperature	6 Deg F	10 Deg F	per chiller ton	New	14	8	\$26	10%	94%	\$0.34	2
Utah	Warehouse	Cooling Chillers	Cooling Tower-VSD Fan Control	Variable-Speed Tower Fans replace Two-Speed	Cooling Tower-Two-Speed Fan Motor	per chiller ton	New	7	15	\$19	95%	75%	\$0.31	11
Utah	Warehouse	Cooling Chillers	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	New	44	15	\$155	75%	76%	\$0.39	21
Utah	Warehouse	Cooling Chillers	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	New	0.04	40	\$8	4%	98%	\$15.38	0.09
Utah	Warehouse	Cooling Chillers	Natural Ventilation	Natural Ventilation Design Reduction in Cooling	None - Standard Ventilation	per building sqft	New	0.04	15	\$0.88	20%	75%	\$2.26	4
Utah	Warehouse	Cooling Chillers	Windows-High Efficiency	U-0.32	U-0.35 (UT State Code)	per window sqft	New	3	25	\$24	80%	90%	\$0.64	42
Utah	Warehouse	Cooling Dx Evap	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	Existing	0.08	15	\$0.69	80%	98%	\$0.89	330
Utah	Warehouse	Cooling Dx Evap	DX Package 65 to 135 kBTU/hr - High Efficiency	DX Package 65 to 135 kBTU/hr - High Efficiency - 11.5 EER	DX Package 65 to 135 kBTU/hr - Standard Efficiency - 11.2 EER	Per installation	Existing	314	15	\$694	100%	N/A	\$0.25	6
Utah	Warehouse	Cooling Dx Evap	DX Package 65 to 135 kBTU/hr - Premium Efficiency	DX Package 65 to 135 kBTU/hr - Premium Efficiency - 12.0 EER	DX Package 65 to 135 kBTU/hr - Standard Efficiency - 11.2 EER	Per installation	Existing	793	15	\$1,397	100%	N/A	\$0.20	238
Utah	Warehouse	Cooling Dx Evap	DX Package-Air Side Economizer	Air-Side Economizer	No Economizer	per DX ton	Existing	52	10	\$159	10%	40%	\$0.44	29
Utah	Warehouse	Cooling Dx Evap	DX Tune-Up / Diagnostics	DX Tune-Up / Diagnostics	No DX Tune-Up / Diagnostics	per installation	Existing	264	4	\$272	95%	72%	\$0.35	359
Utah	Warehouse	Cooling Dx Evap	Direct / Indirect Evaporative Cooling, Pre-Cooling	Evaporative Cooler	Standard DX cooling	per building CFM	Existing	0.22	15	\$1	50%	94%	\$0.95	508
Utah	Warehouse	Cooling Dx Evap	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	Existing	88	15	\$155	75%	76%	\$0.20	356
Utah	Warehouse	Cooling Dx Evap	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	Existing	0.02	18	\$0.19	45%	65%	\$0.89	31
Utah	Warehouse	Cooling Dx Evap	Evaporative Cooler replaces DX Package 65 to 135 kBTU/hr - Advanced Efficiency	Evaporative Cooler replaces DX Package 65 to 135 kBTU/hr - Advanced Efficiency	DX Package 65 to 135 kBTU/hr - Standard Efficiency - 11.2 EER	Per installation	Existing	5,161	15	\$-12540.089	25%	N/A	\$0.00	103
Utah	Warehouse	Cooling Dx Evap	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	Existing	0.08	40	\$8	4%	98%	\$7.76	1
Utah	Warehouse	Cooling Dx Evap	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	0.66	13	\$0.26	10%	39%	\$0.05	4
Utah	Warehouse	Cooling Dx Evap	Insulation - Ceiling	R-30 (UT State Code)	R-8 (Average Existing Conditions)	per roof sqft	Existing	0.00	25	\$0.69	75%	63%	\$15.47	8
Utah	Warehouse	Cooling Dx Evap	Insulation - Duct	R-5 (UT State Code)	No Insulation	per surface area of duct insul	Existing	0.33	20	\$1	75%	62%	\$0.46	68
Utah	Warehouse	Cooling Dx Evap	Insulation - Duct	R-8	R-5 (UT State Code)	per surface area of duct insul	Existing	0.22	20	\$0.30	75%	85%	\$0.13	81
Utah	Warehouse	Cooling Dx Evap	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	Existing	5	30	\$5	50%	95%	\$0.08	497

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Utah	Warehouse	Cooling Dx Evap	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	Existing	264	10	\$127	95%	24%	\$0.07	47
Utah	Warehouse	Cooling Dx Evap	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	0.11	7	\$0.14	90%	85%	\$0.26	567
Utah	Warehouse	Cooling Dx Evap	Window Film	Window Film	No Film	per 100 sqft of window glazing	Existing	1	10	\$135	90%	68%	\$14.38	0.75
Utah	Warehouse	Cooling Dx Evap	Windows-High Efficiency	U-0.32	U-0.35 (UT State Code)	per window sqft	Existing	6	25	\$24	15%	90%	\$0.32	116
Utah	Warehouse	Cooling Dx Evap	Windows-High Efficiency	U-0.35 (UT State Code)	U-0.65 (Average Existing Conditions)	per window sqft	Existing	7	25	\$68	15%	75%	\$0.86	89
Utah	Warehouse	Cooling Dx Evap	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	New	0.06	15	\$0.69	80%	98%	\$1.29	171
Utah	Warehouse	Cooling Dx Evap	DX Package 65 to 135 kBTU/hr - High Efficiency	DX Package 65 to 135 kBTU/hr - High Efficiency - 11.5 EER	DX Package 65 to 135 kBTU/hr - Standard Efficiency - 11.2 EER	Per installation	New	213	15	\$554	100%	N/A	\$0.29	1
Utah	Warehouse	Cooling Dx Evap	DX Package 65 to 135 kBTU/hr - Premium Efficiency	DX Package 65 to 135 kBTU/hr - Premium Efficiency - 12.0 EER	DX Package 65 to 135 kBTU/hr - Standard Efficiency - 11.2 EER	Per installation	New	625	15	\$1,117	100%	N/A	\$0.20	110
Utah	Warehouse	Cooling Dx Evap	Direct / Indirect Evaporative Cooling, Pre-Cooling	Evaporative Cooler	Standard DX cooling	per building CFM	New	0.15	15	\$1	50%	94%	\$1.38	262
Utah	Warehouse	Cooling Dx Evap	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	New	60	15	\$155	75%	76%	\$0.29	165
Utah	Warehouse	Cooling Dx Evap	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	New	0.01	18	\$0.19	45%	65%	\$1.30	16
Utah	Warehouse	Cooling Dx Evap	Evaporative Cooler replaces DX Package 65 to 135 kBTU/hr - Advanced Efficiency	Evaporative Cooler replaces DX Package 65 to 135 kBTU/hr - Advanced Efficiency	DX Package 65 to 135 kBTU/hr - Standard Efficiency - 11.2 EER	Per installation	New	3,861	15	\$-9331.8748	25%	N/A	\$0.00	46
Utah	Warehouse	Cooling Dx Evap	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	New	0.06	40	\$8	4%	98%	\$11.29	0.66
Utah	Warehouse	Cooling Dx Evap	Insulation - Duct	R-8	R-5 (UT State Code)	per surface area of duct insul	New	0.15	20	\$0.30	75%	85%	\$0.20	37
Utah	Warehouse	Cooling Dx Evap	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	New	3	30	\$5	50%	95%	\$0.12	230
Utah	Warehouse	Cooling Dx Evap	Natural Ventilation	Natural Ventilation Design Reduction in Cooling	None - Standard Ventilation	per building sqft	New	0.06	15	\$0.88	20%	75%	\$1.66	29
Utah	Warehouse	Cooling Dx Evap	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	New	181	10	\$127	95%	12%	\$0.10	10
Utah	Warehouse	Cooling Dx Evap	Windows-High Efficiency	U-0.32	U-0.35 (UT State Code)	per window sqft	New	4	25	\$24	80%	90%	\$0.47	319
Utah	Warehouse	Cooling Room	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	Existing	0.10	15	\$0.69	80%	98%	\$0.73	50
Utah	Warehouse	Cooling Room	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	Existing	107	15	\$155	75%	76%	\$0.16	44
Utah	Warehouse	Cooling Room	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	Existing	0.10	40	\$8	4%	98%	\$6.34	0.22
Utah	Warehouse	Cooling Room	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	0.81	13	\$0.26	10%	39%	\$0.04	0.47
Utah	Warehouse	Cooling Room	Insulation - Ceiling	R-30 (UT State Code)	R-8 (Average Existing Conditions)	per roof sqft	Existing	0.00	25	\$0.69	75%	63%	\$12.65	1
Utah	Warehouse	Cooling Room	PTAC (10,000 BTU/HR) - Premium-Efficiency	11.4 EER	Room AC (10,000 BTU/HR) Standard-Efficiency 9.8 EER	Per installation	Existing	1,664	15	\$30,876	75%	N/A	\$2.09	89
Utah	Warehouse	Cooling Room	Room AC (10,000 BTU/HR) High-Efficiency	High Efficiency 10.8 EER (ENERGY STAR)	Room AC (10,000 BTU/HR) Standard-Efficiency 9.8 EER	Per installation	Existing	1,052	9	\$1,530	100%	N/A	\$0.23	15

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Utah	Warehouse	Cooling Room	Window Film	Window Film	No Film	per 100 sqft of window glazing	Existing	0.06	10	\$135	90%	68%	\$286.84	0.00
Utah	Warehouse	Cooling Room	Windows-High Efficiency	U-0.32	U-0.35 (UT State Code)	per window sqft	Existing	8	25	\$24	15%	90%	\$0.26	16
Utah	Warehouse	Cooling Room	Windows-High Efficiency	U-0.35 (UT State Code)	U-0.65 (Average Existing Conditions)	per window sqft	Existing	8	25	\$68	15%	75%	\$0.71	13
Utah	Warehouse	Cooling Room	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	New	0.07	15	\$0.69	80%	98%	\$1.01	21
Utah	Warehouse	Cooling Room	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	New	77	15	\$155	75%	76%	\$0.23	21
Utah	Warehouse	Cooling Room	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	New	0.07	40	\$8	4%	98%	\$8.80	0.09
Utah	Warehouse	Cooling Room	Natural Ventilation	Natural Ventilation Design Reduction in Cooling	None - Standard Ventilation	per building sqft	New	0.07	15	\$0.88	20%	75%	\$1.29	4
Utah	Warehouse	Cooling Room	PTAC (10,000 BTU/HR) - Premium-Efficiency	11.4 EER	Room AC (10,000 BTU/HR) Standard-Efficiency 9.8 EER	Per installation	New	1,276	15	\$22,444	75%	N/A	\$1.98	16
Utah	Warehouse	Cooling Room	Room AC (10,000 BTU/HR) High-Efficiency	High Efficiency 10.8 EER (ENERGY STAR)	Room AC (10,000 BTU/HR) Standard-Efficiency 9.8 EER	Per installation	New	761	9	\$1,224	100%	N/A	\$0.25	2
Utah	Warehouse	Cooling Room	Windows-High Efficiency	U-0.32	U-0.35 (UT State Code)	per window sqft	New	6	25	\$24	80%	90%	\$0.36	40
Utah	Warehouse	Heat Pump	Air Source Heat Pump 65 to 135 kBtu/hr - High Efficiency	11.5 EER, 3.4 COP	11.0 EER, 3.3 COP	Per installation	Existing	1,503	15	\$2,583	100%	N/A	\$0.19	10
Utah	Warehouse	Heat Pump	Air Source Heat Pump 65 to 135 kBtu/hr - Premium Efficiency	12.0 EER, 3.8 COP	11.0 EER, 3.3 COP	Per installation	Existing	3,141	15	\$5,168	100%	N/A	\$0.19	249
Utah	Warehouse	Heat Pump	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	Existing	0.09	15	\$0.69	80%	98%	\$0.79	64
Utah	Warehouse	Heat Pump	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	Existing	225	15	\$155	75%	76%	\$0.08	157
Utah	Warehouse	Heat Pump	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	Existing	0.05	18	\$0.19	45%	65%	\$0.35	16
Utah	Warehouse	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	Existing	0.19	14	\$0.92	5%	94%	\$0.57	8
Utah	Warehouse	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	Existing	0.09	40	\$8	4%	98%	\$6.91	0.30
Utah	Warehouse	Heat Pump	Ground Source Heat Pump Replacing Air Source Heat Pump 65 to 135 kBtu/hr - Advanced Efficiency	16.2 EER 4.0 COP	11.0 EER, 3.3 COP	Per installation	Existing	5,812	30	\$8,451	5%	N/A	\$1.56	21
Utah	Warehouse	Heat Pump	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	2	13	\$0.26	10%	39%	\$0.01	3
Utah	Warehouse	Heat Pump	Insulation - Ceiling	R-30 (UT State Code)	R-8 (Average Existing Conditions)	per roof sqft	Existing	0.16	25	\$0.69	75%	63%	\$0.37	77
Utah	Warehouse	Heat Pump	Insulation - Ceiling	R-38	R-30 (UT State Code)	per roof sqft	Existing	0.01	25	\$0.23	25%	85%	\$1.15	3
Utah	Warehouse	Heat Pump	Insulation - Duct	R-5 (UT State Code)	No Insulation	per surface area of duct insul	Existing	0.86	20	\$1	75%	62%	\$0.18	33
Utah	Warehouse	Heat Pump	Insulation - Duct	R-8	R-5 (UT State Code)	per surface area of duct insul	Existing	0.57	20	\$0.30	75%	85%	\$0.05	35
Utah	Warehouse	Heat Pump	Insulation - Floor (non-slab)	R-19 (UT State Code)	R-8 (Average Existing Conditions)	per floor area	Existing	0.20	25	\$0.61	35%	82%	\$0.27	58
Utah	Warehouse	Heat Pump	Insulation - Floor (non-slab)	R-30	R-19 (UT State Code)	per floor area	Existing	0.08	25	\$0.25	35%	90%	\$0.25	28
Utah	Warehouse	Heat Pump	Insulation - Wall	R-13 (UT State Code)	R-3 (Average Existing Conditions)	per floor area	Existing	0.41	25	\$0.99	10%	67%	\$0.21	12
Utah	Warehouse	Heat Pump	Insulation - Wall	R-21	R-13 (UT State Code)	per floor area	Existing	0.19	25	\$0.20	10%	85%	\$0.10	7

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Utah	Warehouse	Heat Pump	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	Existing	18	30	\$5	50%	95%	\$0.02	314
Utah	Warehouse	Heat Pump	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	Existing	677	10	\$127	95%	24%	\$0.03	19
Utah	Warehouse	Heat Pump	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	0.28	7	\$0.14	90%	85%	\$0.10	250
Utah	Warehouse	Heat Pump	Window Film	Window Film	No Film	per 100 sqft of window glazing	Existing	1	10	\$135	90%	68%	\$14.25	0.15
Utah	Warehouse	Heat Pump	Windows-High Efficiency	U-0.32	U-0.35 (UT State Code)	per window sqft	Existing	3	25	\$24	15%	90%	\$0.67	8
Utah	Warehouse	Heat Pump	Windows-High Efficiency	U-0.35 (UT State Code)	U-0.65 (Average Existing Conditions)	per window sqft	Existing	8	25	\$68	15%	75%	\$0.74	18
Utah	Warehouse	Heat Pump	Air Source Heat Pump 65 to 135 kBtu/hr - High Efficiency	11.5 EER, 3.4 COP	11.0 EER, 3.3 COP	Per installation	New	1,176	15	\$2,067	100%	N/A	\$0.20	3
Utah	Warehouse	Heat Pump	Air Source Heat Pump 65 to 135 kBtu/hr - Premium Efficiency	12.0 EER, 3.8 COP	11.0 EER, 3.3 COP	Per installation	New	2,712	15	\$4,135	100%	N/A	\$0.17	128
Utah	Warehouse	Heat Pump	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	New	0.06	15	\$0.69	80%	98%	\$1.13	34
Utah	Warehouse	Heat Pump	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	New	183	15	\$155	75%	76%	\$0.10	85
Utah	Warehouse	Heat Pump	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	New	0.04	18	\$0.19	45%	65%	\$0.43	9
Utah	Warehouse	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	New	0.17	14	\$0.92	5%	94%	\$0.63	5
Utah	Warehouse	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	New	0.06	40	\$8	4%	98%	\$9.85	0.16
Utah	Warehouse	Heat Pump	Ground Source Heat Pump Replacing Air Source Heat Pump 65 to 135 kBtu/hr - Advanced Efficiency	16.2 EER 4.0 COP	11.0 EER, 3.3 COP	Per installation	New	4,803	30	\$56,970	5%	N/A	\$0.99	10
Utah	Warehouse	Heat Pump	Insulation - Ceiling	R-38	R-30 (UT State Code)	per roof sqft	New	0.01	25	\$0.23	75%	85%	\$1.16	7
Utah	Warehouse	Heat Pump	Insulation - Duct	R-8	R-5 (UT State Code)	per surface area of duct insul	New	0.46	20	\$0.30	75%	85%	\$0.06	19
Utah	Warehouse	Heat Pump	Insulation - Floor (non-slab)	R-30	R-19 (UT State Code)	per floor area	New	0.08	25	\$0.25	35%	90%	\$0.25	21
Utah	Warehouse	Heat Pump	Insulation - Wall	R-21	R-13 (UT State Code)	per floor area	New	0.19	25	\$0.20	95%	85%	\$0.10	50
Utah	Warehouse	Heat Pump	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	New	15	30	\$5	50%	95%	\$0.03	169
Utah	Warehouse	Heat Pump	Natural Ventilation	Natural Ventilation Design Reduction in Cooling	None - Standard Ventilation	per building sqft	New	0.18	15	\$0.88	20%	75%	\$0.55	20
Utah	Warehouse	Heat Pump	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	New	550	10	\$127	95%	12%	\$0.03	5
Utah	Warehouse	Heat Pump	Windows-High Efficiency	U-0.32	U-0.35 (UT State Code)	per window sqft	New	1	25	\$24	80%	90%	\$1.52	14
Utah	Warehouse	Hvac Aux	Motor - CEE Premium-Efficiency Plus	CEE PE+ Motor for HVAC Applications	NEMA Efficiency Motors	per HP	Existing	8	15	\$6	95%	76%	\$0.09	171
Utah	Warehouse	Hvac Aux	Motor Rewind	>15, <500 HP	No Rewind	per HP	Existing	2	8	\$4	65%	25%	\$0.38	6
Utah	Warehouse	Hvac Aux	Motor - CEE Premium-Efficiency Plus	CEE PE+ Motor for HVAC Applications	NEMA Efficiency Motors	per HP	New	6	15	\$6	95%	76%	\$0.11	106
Utah	Warehouse	Lighting Exterior	Covered Parking Lighting	Covered Parking Lighting	Normal Lighting	per building sqft	Existing	0.09	10	\$0.02	80%	95%	\$0.04	2,478
Utah	Warehouse	Lighting Exterior	Daylighting Controls, Outdoors (Photocell)	Photocell	No Controls	per installation	Existing	15	8	\$28	75%	70%	\$0.31	63
Utah	Warehouse	Lighting Exterior	Exterior Building Lighting	30% savings	Normal Lighting	per installation	Existing	246	15	\$333	62%	90%	\$0.15	624
Utah	Warehouse	Lighting Exterior	Solid State LED White Lighting	Landscape, merchandise, signage, structure & task lighting (2.5 W)	50W 10hrs/day, 365 day/yr	per installation	Existing	1	14	\$35	75%	95%	\$2.49	16
Utah	Warehouse	Lighting Exterior	Surface Parking Lighting	Surface Parking Lighting	Normal Lighting	per building sqft	Existing	0.05	19	\$0.06	62%	95%	\$0.14	1,037

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Utah	Warehouse	Lighting Exterior	Covered Parking Lighting	Covered Parking Lighting	Normal Lighting	per building sqft	New	0.09	10	\$0.02	80%	95%	\$0.04	1,571
Utah	Warehouse	Lighting Exterior	Daylighting Controls, Outdoors (Photocell)	Photocell	No Controls	per installation	New	15	8	\$28	75%	70%	\$0.31	40
Utah	Warehouse	Lighting Exterior	Exterior Building Lighting	30% savings	Normal Lighting	per installation	New	246	15	\$333	62%	90%	\$0.15	395
Utah	Warehouse	Lighting Exterior	Solid State LED White Lighting	Landscape, merchandise, signage, structure & task lighting (2.5 W)	50W 10hrs/day, 365 day/yr	per installation	New	1	14	\$35	75%	95%	\$2.49	10
Utah	Warehouse	Lighting Exterior	Surface Parking Lighting	Surface Parking Lighting	Normal Lighting	per building sqft	New	0.05	19	\$0.06	62%	95%	\$0.14	658
Utah	Warehouse	Lighting Interior	Cold Cathode Lighting	Cold Cathode Lighting 5 watts	30 W Incandescent Bulb	per installation	Existing	192	5	\$13	15%	94%	\$0.02	89
Utah	Warehouse	Lighting Interior	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	Existing	0.23	8	\$0.88	30%	98%	\$0.64	200
Utah	Warehouse	Lighting Interior	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	Existing	0.08	8	\$0.66	30%	98%	\$1.29	74
Utah	Warehouse	Lighting Interior	Exit Sign - LED	LED Exit Sign (2 Watts)	CFL Exit Sign (9 Watts)	per installation	Existing	98	16	\$16	95%	50%	\$0.02	1,158
Utah	Warehouse	Lighting Interior	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign (2 Watts)	per installation	Existing	17	13	\$30	95%	98%	\$0.21	137
Utah	Warehouse	Lighting Interior	Lighting Package, High Efficiency	15% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	Existing	0.20	13	\$0.00	90%	53%	\$0.00	2,585
Utah	Warehouse	Lighting Interior	Lighting Package, High Efficiency	Code Required LPD And Control Strategies	Existing Lighting Design LPD	per building sqft	Existing	0.70	13	\$0.48	90%	30%	\$0.08	6,273
Utah	Warehouse	Lighting Interior	Lighting Package, Premium Efficiency	25% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	Existing	0.33	13	\$0.10	75%	62%	\$0.04	1,039
Utah	Warehouse	Lighting Interior	Lighting Package, Premium High Bay	35% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	Existing	0.34	13	\$0.25	70%	84%	\$0.09	6,777
Utah	Warehouse	Lighting Interior	Occupancy Sensor Control, Fluorescent	Occupancy Sensor Control, Fluorescent	No Occupancy Sensor	per occupancy sensor	Existing	663	8	\$66	90%	53%	\$0.02	837
Utah	Warehouse	Lighting Interior	Time Clock	Time Clock	No Controls	per 10,000 Watts	Existing	763	8	\$182	20%	***	\$0.04	341
Utah	Warehouse	Lighting Interior	Cold Cathode Lighting	Cold Cathode Lighting 5 watts	30 W Incandescent Bulb	per installation	New	129	5	\$13	15%	94%	\$0.03	38
Utah	Warehouse	Lighting Interior	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	New	0.15	8	\$0.88	30%	98%	\$0.96	86
Utah	Warehouse	Lighting Interior	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	New	0.05	8	\$0.66	30%	98%	\$1.91	32
Utah	Warehouse	Lighting Interior	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign (2 Watts)	per installation	New	17	13	\$30	95%	98%	\$0.21	349
Utah	Warehouse	Lighting Interior	Lighting Package, High Efficiency	15% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	New	0.20	15	\$0.00	90%	53%	\$0.00	1,639
Utah	Warehouse	Lighting Interior	Lighting Package, Premium Efficiency	25% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	New	0.33	15	\$0.05	75%	62%	\$0.02	659
Utah	Warehouse	Lighting Interior	Lighting Package, Premium High Bay	35% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	New	0.34	15	\$0.05	70%	84%	\$0.02	4,298
Utah	Warehouse	Lighting Interior	Occupancy Sensor Control, Fluorescent	Occupancy Sensor Control, Fluorescent	No Occupancy Sensor	per occupancy sensor	New	446	8	\$66	90%	53%	\$0.03	362
Utah	Warehouse	Lighting Interior	Time Clock	Time Clock	No Controls	per 10,000 Watts	New	763	8	\$181	20%	***	\$0.04	147
Utah	Warehouse	Other Office Equipment	ENERGY STAR - Copiers	ENERGY STAR Copiers	Standard Copier	per installation	Existing	74	6	\$163	95%	45%	\$0.47	5
Utah	Warehouse	Other Office Equipment	ENERGY STAR - Fax	ENERGY STAR Fax	Standard Fax	per installation	Existing	79	6	\$0.00	95%	45%	\$0.00	5
Utah	Warehouse	Other Office Equipment	ENERGY STAR - Monitors	ENERGY STAR Features Enabled	Non-ENERGY STAR Features	per installation	Existing	15	5	\$16	64%	15%	\$0.26	7
Utah	Warehouse	Other Office Equipment	ENERGY STAR - Printers	ENERGY STAR Printers	Standard Printers	per installation	Existing	139	6	\$14	95%	40%	\$0.02	135
Utah	Warehouse	Other Office Equipment	ENERGY STAR - Scanners	ENERGY STAR Scanners	Standard Scanner	per installation	Existing	72	6	\$20	95%	45%	\$0.06	5

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Utah	Warehouse	Other Office Equipment	ENERGY STAR - Copiers	ENERGY STAR Copiers	Standard Copier	per installation	New	74	6	\$163	95%	45%	\$0.47	3
Utah	Warehouse	Other Office Equipment	ENERGY STAR - Fax	ENERGY STAR Fax	Standard Fax	per installation	New	79	6	\$0.00	95%	45%	\$0.00	3
Utah	Warehouse	Other Office Equipment	ENERGY STAR - Monitors	ENERGY STAR Features Enabled	Non-ENERGY STAR Features	per installation	New	15	5	\$16	64%	15%	\$0.26	4
Utah	Warehouse	Other Office Equipment	ENERGY STAR - Printers	ENERGY STAR Printers	Standard Printers	per installation	New	139	6	\$14	95%	40%	\$0.02	86
Utah	Warehouse	Other Office Equipment	ENERGY STAR - Scanners	ENERGY STAR Scanners	Standard Scanner	per installation	New	72	6	\$20	95%	45%	\$0.06	3
Utah	Warehouse	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	per installation	Existing	7	7	\$2	20%	90%	\$0.05	2
Utah	Warehouse	Other Plug Load	ENERGY STAR - Water Cooler	ENERGY STAR Water Cooler (Hot/Cold Water)	Non-ENERGY STAR Water Cooler	per installation	Existing	367	10	\$0.00	95%	75%	\$0.00	672
Utah	Warehouse	Other Plug Load	Power Supply Transformer/Converter	80 Plus	85% efficient power supply (> 51W)	1 unit per 2,000 sqft	Existing	2	4	\$0.40	95%	86%	\$0.05	34
Utah	Warehouse	Other Plug Load	Residential Refrigerator	ENERGY STAR	Federal Standard	per installation	Existing	81	12	\$122	20%	65%	\$0.19	36
Utah	Warehouse	Other Plug Load	Residential Refrigerator/Freezer Recycling	Recycling Existing Refrigerator/Freezer	Existing Refrigerator/Freezer	per installation	Existing	964	4	\$561	25%	35%	\$0.17	115
Utah	Warehouse	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	1 unit per 15,000 sqft	Existing	101	5	\$19	60%	90%	\$0.05	125
Utah	Warehouse	Other Plug Load	Vending Machines- High Efficiency	ENERGY STAR (Tier 2) Vending Machines- High Efficiency 500 can capacity Under 5.92 kWh/day	Vending Machines- Standard 13 kWh/day	per installation	Existing	242	14	\$163	10%	80%	\$0.08	6
Utah	Warehouse	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	per installation	New	7	7	\$2	20%	90%	\$0.05	1
Utah	Warehouse	Other Plug Load	ENERGY STAR - Water Cooler	ENERGY STAR Water Cooler (Hot/Cold Water)	Non-ENERGY STAR Water Cooler	per installation	New	367	10	\$0.00	95%	75%	\$0.00	426
Utah	Warehouse	Other Plug Load	Power Supply Transformer/Converter	80 Plus	85% efficient power supply (> 51W)	1 unit per 2,000 sqft	New	2	4	\$0.40	95%	86%	\$0.05	22
Utah	Warehouse	Other Plug Load	Residential Refrigerator	ENERGY STAR	Federal Standard	per installation	New	81	12	\$122	20%	65%	\$0.19	22
Utah	Warehouse	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	1 unit per 15,000 sqft	New	101	5	\$19	60%	90%	\$0.05	79
Utah	Warehouse	Other Plug Load	Vending Machines- High Efficiency	ENERGY STAR (Tier 2) Vending Machines- High Efficiency 500 can capacity Under 5.92 kWh/day	Vending Machines- Standard 13 kWh/day	per installation	New	242	14	\$163	10%	80%	\$0.08	4
Utah	Warehouse	Refrigeration	Refrigeration Commissioning or Re-commissioning	Commissioning / Re-commissioning	No Commissioning / Re-commissioning	per refrigeration ton	Existing	830	3	\$97	5%	85%	\$0.04	319
Utah	Warehouse	Refrigeration	Standalone to Multiplex Compressor	Standalone to Multiplex Compressor	Standalone compressor	per building sqft	Existing	0.37	13	\$0.05	3%	90%	\$0.02	76
Utah	Warehouse	Refrigeration	Strip Curtains for Walk-Ins	Strip Curtains for Walk-Ins	No Strip Curtains for Walk-In	per installation	Existing	2,735	4	\$183	5%	20%	\$0.02	24
Utah	Warehouse	Refrigeration	Walk-In Electronically Commutated Motor	ECM Evaporator Fans	Standard Efficiency Motor	per installation	Existing	0.52	12	\$0.17	5%	95%	\$0.04	226
Utah	Warehouse	Refrigeration	Refrigeration Commissioning or Re-commissioning	Commissioning / Re-commissioning	No Commissioning / Re-commissioning	per refrigeration ton	New	513	3	\$37	3%	90%	\$0.03	66
Utah	Warehouse	Refrigeration	Strip Curtains for Walk-Ins	Strip Curtains for Walk-Ins	No Strip Curtains for Walk-In	per installation	New	2,735	4	\$183	5%	20%	\$0.02	15
Utah	Warehouse	Refrigeration	Walk-In Electronically Commutated Motor	ECM Evaporator Fans	Standard Efficiency Motor	per installation	New	0.52	12	\$0.17	5%	95%	\$0.04	143
Utah	Warehouse	Space Heat	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	Existing	221	15	\$155	75%	76%	\$0.08	350
Utah	Warehouse	Space Heat	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	Existing	0.05	18	\$0.19	45%	65%	\$0.35	29
Utah	Warehouse	Space Heat	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	Existing	0.33	14	\$0.92	5%	94%	\$0.32	29
Utah	Warehouse	Space Heat	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	3	13	\$0.26	10%	39%	\$0.01	8

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Utah	Warehouse	Space Heat	Insulation - Ceiling	R-30 (UT State Code)	R-8 (Average Existing Conditions)	per roof sqft	Existing	0.51	25	\$0.69	75%	63%	\$0.12	513
Utah	Warehouse	Space Heat	Insulation - Ceiling	R-38	R-30 (UT State Code)	per roof sqft	Existing	0.05	25	\$0.23	25%	85%	\$0.41	19
Utah	Warehouse	Space Heat	Insulation - Duct	R-5 (UT State Code)	No Insulation	per surface area of duct insul	Existing	0.84	20	\$1	75%	62%	\$0.18	58
Utah	Warehouse	Space Heat	Insulation - Duct	R-8	R-5 (UT State Code)	per surface area of duct insul	Existing	0.56	20	\$0.30	75%	85%	\$0.05	81
Utah	Warehouse	Space Heat	Insulation - Floor (non-slab)	R-19 (UT State Code)	R-8 (Average Existing Conditions)	per floor area	Existing	0.60	25	\$0.61	35%	82%	\$0.09	453
Utah	Warehouse	Space Heat	Insulation - Floor (non-slab)	R-30	R-19 (UT State Code)	per floor area	Existing	0.23	25	\$0.25	35%	90%	\$0.09	181
Utah	Warehouse	Space Heat	Insulation - Wall	R-13 (UT State Code)	R-3 (Average Existing Conditions)	per floor area	Existing	1	25	\$0.99	10%	67%	\$0.06	109
Utah	Warehouse	Space Heat	Insulation - Wall	R-21	R-13 (UT State Code)	per floor area	Existing	0.64	25	\$0.20	10%	85%	\$0.03	65
Utah	Warehouse	Space Heat	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	Existing	18	30	\$5	50%	95%	\$0.02	716
Utah	Warehouse	Space Heat	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	Existing	665	10	\$127	95%	24%	\$0.03	44
Utah	Warehouse	Space Heat	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	0.27	7	\$0.14	90%	85%	\$0.10	497
Utah	Warehouse	Space Heat	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	New	177	15	\$155	75%	76%	\$0.10	165
Utah	Warehouse	Space Heat	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	New	0.04	18	\$0.19	45%	65%	\$0.44	19
Utah	Warehouse	Space Heat	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	New	0.26	14	\$0.92	5%	94%	\$0.41	18
Utah	Warehouse	Space Heat	Insulation - Ceiling	R-38	R-30 (UT State Code)	per roof sqft	New	0.04	25	\$0.23	75%	85%	\$0.51	38
Utah	Warehouse	Space Heat	Insulation - Duct	R-8	R-5 (UT State Code)	per surface area of duct insul	New	0.45	20	\$0.30	75%	85%	\$0.07	37
Utah	Warehouse	Space Heat	Insulation - Floor (non-slab)	R-30	R-19 (UT State Code)	per floor area	New	0.18	25	\$0.25	35%	90%	\$0.12	92
Utah	Warehouse	Space Heat	Insulation - Wall	R-21	R-13 (UT State Code)	per floor area	New	0.51	25	\$0.20	95%	85%	\$0.04	315
Utah	Warehouse	Space Heat	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	New	14	30	\$5	50%	95%	\$0.03	363
Utah	Warehouse	Space Heat	Natural Ventilation	Natural Ventilation Design Reduction in Cooling	None - Standard Ventilation	per building sqft	New	0.17	15	\$0.88	20%	75%	\$0.57	38
Utah	Warehouse	Space Heat	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	New	531	10	\$127	95%	12%	\$0.03	11
Utah	Warehouse	Water Heat	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	per building sqft	Existing	0.01	10	\$0.24	55%	94%	\$3.38	67
Utah	Warehouse	Water Heat	Dishwasher Residential	ENERGY STAR <= 324 kWh/yr, <= 5.8 gal/cycle	Federal Standard <= 355 kWh/yr, <= 6.5 gal/cycle	per installation	Existing	31	11	\$30	95%	25%	\$0.13	11
Utah	Warehouse	Water Heat	Electric Water Heater - High Efficiency	EF = 0.95	EF = 0.92	Per installation	Existing	67	15	\$65	100%	N/A	\$0.11	11
Utah	Warehouse	Water Heat	Heat Pump Water Heater - Advanced-Efficiency	EF = 2.2	EF = 0.92	Per installation	Existing	1,246	15	\$1,197	75%	N/A	\$0.11	855
Utah	Warehouse	Water Heat	Hot Water (SHW) Pipe Insulation	1.0" of Insulation, assuming R-4 (UT State Code)	No Insulation	per linear foot	Existing	2	12	\$2	80%	90%	\$0.11	19
Utah	Warehouse	Water Heat	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	per installation	Existing	33	9	\$0.00	95%	25%	\$0.00	24
Utah	Warehouse	Water Heat	Low-Flow Faucet Aerators	2.2 GPM (Federal Code)	3.0 GPM	per installation	Existing	28	9	\$2	95%	25%	\$0.01	20
Utah	Warehouse	Water Heat	Low-Flow Showerheads	2.0 GPM	2.5 GPM (Federal Code)	per installation	Existing	502	10	\$6	95%	73%	\$0.00	158
Utah	Warehouse	Water Heat	Low-Flow Showerheads	2.5 GPM (Federal Code)	4.5 GPM	per installation	Existing	1,117	10	\$10	95%	62%	\$0.00	297
Utah	Warehouse	Water Heat	Water Cooled Refrigeration with Heat Recovery	Heat Recovery from refrigeration system. Applied to Water Heating Electric End use	No heat recovery	per sqft of refrigerated area	Existing	0.02	10	\$0.79	3%	94%	\$4.77	4
Utah	Warehouse	Water Heat	Water Heater Temperature Setback	Water Heater Temperature Setback (120 F)	No Change in Water Temperature	per installation	Existing	162	5	\$77	75%	45%	\$0.12	69
Utah	Warehouse	Water Heat	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	per building sqft	New	0.01	10	\$0.24	55%	94%	\$3.38	47

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Utah	Warehouse	Water Heat	Dishwasher Residential	ENERGY STAR <= 324 kWh/yr, <= 5.8 gal/cycle	Federal Standard <= 355 kWh/yr, <= 6.5 gal/cycle	per installation	New	31	11	\$30	95%	55%	\$0.13	15
Utah	Warehouse	Water Heat	Electric Water Heater - High Efficiency	EF = 0.95	EF = 0.92	Per installation	New	67	15	\$65	100%	N/A	\$0.11	5
Utah	Warehouse	Water Heat	Heat Pump Water Heater - Advanced-Efficiency	EF = 2.2	EF = 0.92	Per installation	New	1,246	15	\$1,054	75%	N/A	\$0.10	478
Utah	Warehouse	Water Heat	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	per installation	New	33	9	\$0.00	95%	25%	\$0.00	15
Utah	Warehouse	Water Heat	Low-Flow Showerheads	2.0 GPM	2.5 GPM (Federal Code)	per installation	New	502	10	\$6	95%	73%	\$0.00	99
Utah	Warehouse	Water Heat	Water Cooled Refrigeration with Heat Recovery	Heat Recovery from refrigeration system. Applied to Water Heating Electric End use	No heat recovery	per sqft of refrigerated area	New	0.02	10	\$0.79	3%	94%	\$4.77	2
Utah	Warehouse	Water Heat	Water Heater Temperature Setback	Water Heater Temperature Setback (120 F)	No Change in Water Temperature	per installation	New	162	5	\$77	75%	45%	\$0.12	48
Washington	Grocery	Computers	Computer ENERGY STAR	Computer ENERGY STAR	Computer standard non-ENERGY STAR	Per installation	Existing	133	4	\$28	100%	N/A	\$0.07	218
Washington	Grocery	Computers	Computer ENERGY STAR	Computer ENERGY STAR	Computer standard non-ENERGY STAR	Per installation	New	133	4	\$28	100%	N/A	\$0.07	6
Washington	Grocery	Cooking	Combination Oven	60% cooking efficiency	Non ENERGY STAR	per installation	Existing	11,794	12	\$1,847	90%	90%	\$0.02	13
Washington	Grocery	Cooking	Fryers - New CEE Efficient Electric Deep Fat Fryers	15 inch width Deep Fryer CEE 2006 rating: 80% under heavy load, Less than 1000 watt at idle	15 inch width standard electric deep fat fryers	per installation	Existing	1,013	12	\$1,275	35%	90%	\$0.19	2
Washington	Grocery	Cooking	Griddle	70% cooking efficiency	Non ENERGY STAR	per installation	Existing	2,277	12	\$799	95%	85%	\$0.05	35
Washington	Grocery	Cooking	High Efficiency Convection Oven	Convection Oven	Standard Oven	per installation	Existing	1,884	12	\$1,975	19%	55%	\$0.16	5
Washington	Grocery	Cooking	Hot Food Holding Cabinet	ENERGY STAR	Non ENERGY STAR	per installation	Existing	3,954	12	\$1,711	55%	21%	\$0.06	17
Washington	Grocery	Cooking	Steam Cooker	ENERGY STAR	Non ENERGY STAR	per installation	Existing	4,232	12	\$2,489	14%	75%	\$0.09	17
Washington	Grocery	Cooking	Combination Oven	60% cooking efficiency	Non ENERGY STAR	per installation	New	11,794	12	\$1,847	90%	90%	\$0.02	1
Washington	Grocery	Cooking	Fryers - New CEE Efficient Electric Deep Fat Fryers	15 inch width Deep Fryer CEE 2006 rating: 80% under heavy load, Less than 1000 watt at idle	15 inch width standard electric deep fat fryers	per installation	New	1,013	12	\$1,275	35%	90%	\$0.19	0.31
Washington	Grocery	Cooking	Griddle	70% cooking efficiency	Non ENERGY STAR	per installation	New	2,277	12	\$799	95%	85%	\$0.05	4
Washington	Grocery	Cooking	High Efficiency Convection Oven	Convection Oven	Standard Oven	per installation	New	1,884	12	\$1,975	19%	55%	\$0.16	0.82
Washington	Grocery	Cooking	Hot Food Holding Cabinet	ENERGY STAR	Non ENERGY STAR	per installation	New	3,954	12	\$1,711	55%	21%	\$0.06	2
Washington	Grocery	Cooking	Steam Cooker	ENERGY STAR	Non ENERGY STAR	per installation	New	4,232	12	\$2,489	14%	75%	\$0.09	2
Washington	Grocery	Cooling Dx Evap	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	Existing	0.40	15	\$0.68	80%	98%	\$0.22	452
Washington	Grocery	Cooling Dx Evap	DX Package 65 to 135 kBtu/hr - High Efficiency	DX Package 65 to 135 kBtu/hr - High Efficiency - 11.5 EER	DX Package 65 to 135 kBtu/hr - Standard Efficiency - 11.2 EER	Per installation	Existing	420	15	\$272	100%	N/A	\$0.08	11
Washington	Grocery	Cooling Dx Evap	DX Package 65 to 135 kBtu/hr - Premium Efficiency	DX Package 65 to 135 kBtu/hr - Premium Efficiency - 12.0 EER	DX Package 65 to 135 kBtu/hr - Standard Efficiency - 11.2 EER	Per installation	Existing	1,053	15	\$547	100%	N/A	\$0.07	262
Washington	Grocery	Cooling Dx Evap	DX Package-Air Side Economizer	Air-Side Economizer	No Economizer	per DX ton	Existing	181	10	\$164	10%	90%	\$0.15	87
Washington	Grocery	Cooling Dx Evap	DX Tune-Up / Diagnostics	DX Tune-Up / Diagnostics	No DX Tune-Up / Diagnostics	per installation	Existing	909	4	\$325	95%	72%	\$0.14	478
Washington	Grocery	Cooling Dx Evap	Direct / Indirect Evaporative Cooling, Pre-Cooling	Evaporative Cooler	Standard DX cooling	per building CFM	Existing	1	15	\$1	50%	94%	\$0.25	700
Washington	Grocery	Cooling Dx Evap	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	Existing	404	15	\$166	75%	76%	\$0.05	477
Washington	Grocery	Cooling Dx Evap	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	Existing	0.10	18	\$0.22	45%	65%	\$0.26	38

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Washington	Grocery	Cooling Dx Evap	Evaporative Cooler replaces DX Package 65 to 135 kBTU/hr - Advanced Efficiency	Evaporative Cooler replaces DX Package 65 to 135 kBTU/hr - Advanced Efficiency	DX Package 65 to 135 kBTU/hr - Standard Efficiency - 11.2 EER	Per installation	Existing	6,588	15	\$-5408.4	25%	N/A	\$-0.14	370
Washington	Grocery	Cooling Dx Evap	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	Existing	0.40	40	\$9	4%	98%	\$2.13	1
Washington	Grocery	Cooling Dx Evap	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	2	13	\$0.31	10%	39%	\$0.02	13
Washington	Grocery	Cooling Dx Evap	Insulation - Ceiling	R-38 (WA State Code)	R-7 (Average Existing Conditions)	per roof sqft	Existing	0.01	25	\$0.99	75%	69%	\$5.54	11
Washington	Grocery	Cooling Dx Evap	Insulation - Duct	R-7 (WA State Code)	No Insulation	per surface area of duct insul	Existing	2	20	\$2	75%	60%	\$0.11	134
Washington	Grocery	Cooling Dx Evap	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	Existing	24	30	\$5	50%	95%	\$0.02	658
Washington	Grocery	Cooling Dx Evap	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	Existing	363	10	\$133	95%	31%	\$0.06	69
Washington	Grocery	Cooling Dx Evap	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	0.50	7	\$0.17	90%	85%	\$0.08	754
Washington	Grocery	Cooling Dx Evap	Window Film	Window Film	No Film	per 100 sqft of window glazing	Existing	2	10	\$146	90%	66%	\$10.77	0.98
Washington	Grocery	Cooling Dx Evap	Windows-High Efficiency	U-0.32	U-0.40 (WA State Code)	per window sqft	Existing	8	25	\$29	15%	90%	\$0.35	88
Washington	Grocery	Cooling Dx Evap	Windows-High Efficiency	U-0.40 (WA State Code)	U-0.65 (Average Existing Conditions)	per window sqft	Existing	7	25	\$62	15%	74%	\$0.84	63
Washington	Grocery	Cooling Dx Evap	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	New	0.23	15	\$0.68	80%	98%	\$0.37	48
Washington	Grocery	Cooling Dx Evap	DX Package 65 to 135 kBTU/hr - High Efficiency	DX Package 65 to 135 kBTU/hr - High Efficiency - 11.5 EER	DX Package 65 to 135 kBTU/hr - Standard Efficiency - 11.2 EER	Per installation	New	272	15	\$217	100%	N/A	\$0.10	0.99
Washington	Grocery	Cooling Dx Evap	DX Package 65 to 135 kBTU/hr - Premium Efficiency	DX Package 65 to 135 kBTU/hr - Premium Efficiency - 12.0 EER	DX Package 65 to 135 kBTU/hr - Standard Efficiency - 11.2 EER	Per installation	New	702	15	\$438	100%	N/A	\$0.08	25
Washington	Grocery	Cooling Dx Evap	Direct / Indirect Evaporative Cooling, Pre-Cooling	Evaporative Cooler	Standard DX cooling	per building CFM	New	0.59	15	\$1	50%	94%	\$0.43	75
Washington	Grocery	Cooling Dx Evap	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	New	238	15	\$166	75%	76%	\$0.09	41
Washington	Grocery	Cooling Dx Evap	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	New	0.05	18	\$0.22	45%	65%	\$0.44	4
Washington	Grocery	Cooling Dx Evap	Evaporative Cooler replaces DX Package 65 to 135 kBTU/hr - Advanced Efficiency	Evaporative Cooler replaces DX Package 65 to 135 kBTU/hr - Advanced Efficiency	DX Package 65 to 135 kBTU/hr - Standard Efficiency - 11.2 EER	Per installation	New	4,239	15	\$-3970.5	25%	N/A	\$-0.16	34
Washington	Grocery	Cooling Dx Evap	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	New	0.23	40	\$9	4%	98%	\$3.61	0.17
Washington	Grocery	Cooling Dx Evap	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	New	14	30	\$5	50%	95%	\$0.04	57
Washington	Grocery	Cooling Dx Evap	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	New	214	10	\$133	95%	15%	\$0.10	3
Washington	Grocery	Cooling Dx Evap	Windows-High Efficiency	U-0.32	U-0.40 (WA State Code)	per window sqft	New	5	25	\$29	80%	90%	\$0.59	51
Washington	Grocery	Cooling Room	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	Existing	0.45	15	\$0.68	80%	98%	\$0.19	14
Washington	Grocery	Cooling Room	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	Existing	458	15	\$166	75%	76%	\$0.05	12

Table C.2.2. Commercial Measure Details

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Washington	Grocery	Cooling Room	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	Existing	0.45	40	\$9	4%	98%	\$1.88	0.06
Washington	Grocery	Cooling Room	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	2	13	\$0.31	100%	39%	\$0.02	0.32
Washington	Grocery	Cooling Room	Insulation - Ceiling	R-38 (WA State Code)	R-7 (Average Existing Conditions)	per roof sqft	Existing	0.02	25	\$0.99	75%	69%	\$4.89	0.43
Washington	Grocery	Cooling Room	PTAC (10,000 BTU/HR) - Premium-Efficiency	11.4 EER	Room AC (10,000 BTU/HR) Standard-Efficiency 9.8 EER	Per installation	Existing	2,164	15	\$13,024	75%	N/A	\$0.78	21
Washington	Grocery	Cooling Room	Room AC (10,000 BTU/HR) High-Efficiency	High Efficiency 10.8 EER (ENERGY STAR)	Room AC (10,000 BTU/HR) Standard-Efficiency 9.8 EER	Per installation	Existing	1,360	9	\$600	100%	N/A	\$0.08	3
Washington	Grocery	Cooling Room	Window Film	Window Film	No Film	per 100 sqft of window glazing	Existing	0.11	10	\$146	90%	66%	\$214.67	0.00
Washington	Grocery	Cooling Room	Windows-High Efficiency	U-0.32	U-0.40 (WA State Code)	per window sqft	Existing	9	25	\$29	15%	90%	\$0.30	3
Washington	Grocery	Cooling Room	Windows-High Efficiency	U-0.40 (WA State Code)	U-0.65 (Average Existing Conditions)	per window sqft	Existing	8	25	\$62	15%	74%	\$0.74	2
Washington	Grocery	Cooling Room	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	New	0.28	15	\$0.68	80%	98%	\$0.31	1
Washington	Grocery	Cooling Room	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	New	284	15	\$166	75%	76%	\$0.08	1
Washington	Grocery	Cooling Room	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	New	0.28	40	\$9	4%	98%	\$3.02	0.00
Washington	Grocery	Cooling Room	PTAC (10,000 BTU/HR) - Premium-Efficiency	11.4 EER	Room AC (10,000 BTU/HR) Standard-Efficiency 9.8 EER	Per installation	New	1,416	15	\$9,272	75%	N/A	\$0.85	0.93
Washington	Grocery	Cooling Room	Room AC (10,000 BTU/HR) High-Efficiency	High Efficiency 10.8 EER (ENERGY STAR)	Room AC (10,000 BTU/HR) Standard-Efficiency 9.8 EER	Per installation	New	876	9	\$480	100%	N/A	\$0.10	0.21
Washington	Grocery	Cooling Room	Windows-High Efficiency	U-0.32	U-0.40 (WA State Code)	per window sqft	New	6	25	\$29	80%	90%	\$0.49	1
Washington	Grocery	Heat Pump	Air Source Heat Pump 65 to 135 kBTU/hr - High Efficiency	11.5 EER, 3.4 COP	11.0 EER, 3.3 COP	Per installation	Existing	1,504	15	\$1,013	100%	N/A	\$0.09	8
Washington	Grocery	Heat Pump	Air Source Heat Pump 65 to 135 kBTU/hr - Premium Efficiency	12.0 EER, 3.8 COP	11.0 EER, 3.3 COP	Per installation	Existing	2,930	15	\$2,026	100%	N/A	\$0.09	130
Washington	Grocery	Heat Pump	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	Existing	0.41	15	\$0.68	80%	98%	\$0.21	57
Washington	Grocery	Heat Pump	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	Existing	714	15	\$166	75%	76%	\$0.03	102
Washington	Grocery	Heat Pump	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	Existing	0.17	18	\$0.22	45%	65%	\$0.15	10
Washington	Grocery	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	Existing	0.45	14	\$1	5%	94%	\$0.51	3
Washington	Grocery	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	Existing	0.41	40	\$9	4%	98%	\$2.09	0.25
Washington	Grocery	Heat Pump	Ground Source Heat Pump Replacing Air Source Heat Pump 65 to 135 kBTU/hr - Advanced Efficiency	16.2 EER 4.0 COP	11.0 EER, 3.3 COP	Per installation	Existing	6,027	30	\$53,522	5%	N/A	\$0.83	12
Washington	Grocery	Heat Pump	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	5	13	\$0.31	100%	39%	\$0.01	3
Washington	Grocery	Heat Pump	Insulation - Ceiling	R-38 (WA State Code)	R-7 (Average Existing Conditions)	per roof sqft	Existing	0.77	25	\$0.99	75%	69%	\$0.13	83
Washington	Grocery	Heat Pump	Insulation - Ceiling	R-49	R-38 (WA State Code)	per roof sqft	Existing	0.02	25	\$0.25	25%	85%	\$0.97	1
Washington	Grocery	Heat Pump	Insulation - Duct	R-7 (WA State Code)	No Insulation	per surface area of duct insul	Existing	3	20	\$2	75%	60%	\$0.06	28
Washington	Grocery	Heat Pump	Insulation - Floor (non-slab)	R-30 (WA State Code)	R-11 (Average Existing Conditions)	per floor area	Existing	0.30	25	\$0.90	35%	84%	\$0.30	16
Washington	Grocery	Heat Pump	Insulation - Floor (non-slab)	R-38	R-30 (WA State Code)	per floor area	Existing	0.05	25	\$0.29	35%	90%	\$0.49	3

Table C.2.2. Commercial Measure Details

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Washington	Grocery	Heat Pump	Insulation - Wall	R-13 + 7.5 (WA State Code)	R-3 (Average Existing Conditions)	per floor area	Existing	0.82	25	\$2	10%	61%	\$0.26	4
Washington	Grocery	Heat Pump	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	Existing	60	30	\$5	50%	95%	\$0.01	200
Washington	Grocery	Heat Pump	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	Existing	643	10	\$133	95%	31%	\$0.03	14
Washington	Grocery	Heat Pump	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	0.89	7	\$0.17	90%	85%	\$0.04	162
Washington	Grocery	Heat Pump	Window Film	Window Film	No Film	per 100 sqft of window glazing	Existing	2	10	\$146	90%	66%	\$10.73	0.14
Washington	Grocery	Heat Pump	Windows-High Efficiency	U-0.32	U-0.40 (WA State Code)	per window sqft	Existing	6	25	\$29	15%	90%	\$0.44	10
Washington	Grocery	Heat Pump	Windows-High Efficiency	U-0.40 (WA State Code)	U-0.65 (Average Existing Conditions)	per window sqft	Existing	8	25	\$62	15%	74%	\$0.78	9
Washington	Grocery	Heat Pump	Air Source Heat Pump 65 to 135 kBTU/hr - High Efficiency	11.5 EER, 3.4 COP	11.0 EER, 3.3 COP	Per installation	New	967	15	\$810	100%	N/A	\$0.11	0.69
Washington	Grocery	Heat Pump	Air Source Heat Pump 65 to 135 kBTU/hr - Premium Efficiency	12.0 EER, 3.8 COP	11.0 EER, 3.3 COP	Per installation	New	1,751	15	\$1,621	100%	N/A	\$0.12	11
Washington	Grocery	Heat Pump	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	New	0.24	15	\$0.68	80%	98%	\$0.35	6
Washington	Grocery	Heat Pump	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	New	384	15	\$166	75%	76%	\$0.06	8
Washington	Grocery	Heat Pump	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	New	0.09	18	\$0.22	45%	65%	\$0.27	0.97
Washington	Grocery	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	New	0.20	14	\$1	5%	94%	\$1.14	0.29
Washington	Grocery	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	New	0.24	40	\$9	4%	98%	\$3.45	0.02
Washington	Grocery	Heat Pump	Ground Source Heat Pump Replacing Air Source Heat Pump 65 to 135 kBTU/hr - Advanced Efficiency	16.2 EER 4.0 COP	11.0 EER, 3.3 COP	Per installation	New	3,665	30	\$27,678	5%	N/A	\$0.70	1
Washington	Grocery	Heat Pump	Insulation - Ceiling	R-49	R-38 (WA State Code)	per roof sqft	New	0.01	25	\$0.25	75%	85%	\$2.63	0.19
Washington	Grocery	Heat Pump	Insulation - Floor (non-slab)	R-38	R-30 (WA State Code)	per floor area	New	0.02	25	\$0.29	35%	90%	\$1.46	0.19
Washington	Grocery	Heat Pump	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	New	32	30	\$5	50%	95%	\$0.02	15
Washington	Grocery	Heat Pump	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	New	345	10	\$133	95%	15%	\$0.06	0.57
Washington	Grocery	Heat Pump	Windows-High Efficiency	U-0.32	U-0.40 (WA State Code)	per window sqft	New	4	25	\$29	80%	90%	\$0.67	6
Washington	Grocery	Hvac Aux	Cooking Hood Controls	Demand-Ventilation Control	No Controls	per installation	Existing	1,870	18	\$3,904	95%	65%	\$0.25	977
Washington	Grocery	Hvac Aux	Motor - CEE Premium-Efficiency Plus	CEE PE+ Motor for HVAC Applications	NEMA Efficiency Motors	per HP	Existing	39	15	\$6	95%	76%	\$0.02	93
Washington	Grocery	Hvac Aux	Motor Rewind	>15, <500 HP	No Rewind	per HP	Existing	7	8	\$4	65%	25%	\$0.12	3
Washington	Grocery	Hvac Aux	Cooking Hood Controls	Demand-Ventilation Control	No Controls	per installation	New	1,870	18	\$3,904	95%	65%	\$0.25	135
Washington	Grocery	Hvac Aux	Motor - CEE Premium-Efficiency Plus	CEE PE+ Motor for HVAC Applications	NEMA Efficiency Motors	per HP	New	38	15	\$6	95%	76%	\$0.02	15
Washington	Grocery	Lighting Exterior	Covered Parking Lighting	Covered Parking Lighting	Normal Lighting	per building sqft	Existing	0.09	10	\$0.02	80%	95%	\$0.05	301
Washington	Grocery	Lighting Exterior	Daylighting Controls, Outdoors (Photocell)	Photocell	No Controls	per installation	Existing	31	8	\$27	75%	70%	\$0.17	45
Washington	Grocery	Lighting Exterior	Exterior Building Lighting	30% savings	Normal Lighting	per installation	Existing	242	15	\$327	62%	90%	\$0.17	398
Washington	Grocery	Lighting Exterior	Solid State LED White Lighting	Landscape, merchandise, signage, structure & task lighting (2.5 W)	50W 10hrs/day, 365 day/yr	per installation	Existing	3	14	\$34	75%	95%	\$1.38	7
Washington	Grocery	Lighting Exterior	Surface Parking Lighting	Surface Parking Lighting	Normal Lighting	per building sqft	Existing	0.05	19	\$0.06	62%	95%	\$0.16	126

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Washington	Grocery	Lighting Exterior	Covered Parking Lighting	Covered Parking Lighting	Normal Lighting	per building sqft	New	0.09	10	\$0.02	80%	95%	\$0.05	42
Washington	Grocery	Lighting Exterior	Daylighting Controls, Outdoors (Photocell)	Photocell	No Controls	per installation	New	31	8	\$27	75%	70%	\$0.17	6
Washington	Grocery	Lighting Exterior	Exterior Building Lighting	30% savings	Normal Lighting	per installation	New	242	15	\$327	62%	90%	\$0.17	55
Washington	Grocery	Lighting Exterior	Solid State LED White Lighting	Landscape, merchandise, signage, structure & task lighting (2.5 W)	50W 10hrs/day, 365 day/yr	per installation	New	3	14	\$34	75%	95%	\$1.38	1
Washington	Grocery	Lighting Exterior	Surface Parking Lighting	Surface Parking Lighting	Normal Lighting	per building sqft	New	0.05	19	\$0.06	62%	95%	\$0.16	17
Washington	Grocery	Lighting Interior	Cold Cathode Lighting	Cold Cathode Lighting 5 watts	30 W Incandescent Bulb	per installation	Existing	90	5	\$12	15%	94%	\$0.04	17
Washington	Grocery	Lighting Interior	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	Existing	0.35	8	\$0.95	30%	96%	\$0.52	36
Washington	Grocery	Lighting Interior	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	Existing	0.26	8	\$0.71	30%	96%	\$0.52	27
Washington	Grocery	Lighting Interior	Exit Sign - LED	LED Exit Sign (2 Watts)	CFL Exit Sign (9 Watts)	per installation	Existing	96	16	\$16	95%	50%	\$0.02	139
Washington	Grocery	Lighting Interior	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign (2 Watts)	per installation	Existing	17	13	\$30	95%	98%	\$0.24	16
Washington	Grocery	Lighting Interior	LED Refrigeration Case Lights	LED Refrigeration Case Lights	Fluorescent Refrigeration Case	per installation	Existing	233	8	\$242	85%	80%	\$0.20	2,534
Washington	Grocery	Lighting Interior	Lighting Package, High Efficiency	15% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	Existing	0.75	13	\$0.23	90%	53%	\$0.04	1,168
Washington	Grocery	Lighting Interior	Lighting Package, High Efficiency	Code Required LPD And Control Strategies	Existing Lighting Design LPD	per building sqft	Existing	1	13	\$1	90%	59%	\$0.11	3,631
Washington	Grocery	Lighting Interior	Lighting Package, Premium Efficiency	25% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	Existing	1	13	\$0.95	75%	62%	\$0.11	470
Washington	Grocery	Lighting Interior	Lighting Package, Premium High Bay	35% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	Existing	0.26	13	\$0.14	70%	83%	\$0.08	611
Washington	Grocery	Lighting Interior	Occupancy Sensor Control, Fluorescent	Occupancy Sensor Control, Fluorescent	No Occupancy Sensor	per occupancy sensor	Existing	1,038	8	\$68	45%	57%	\$0.01	84
Washington	Grocery	Lighting Interior	Time Clock	Time Clock	No Controls	per 10,000 Watts	Existing	752	8	\$195	20%	81%	\$0.05	51
Washington	Grocery	Lighting Interior	Cold Cathode Lighting	Cold Cathode Lighting 5 watts	30 W Incandescent Bulb	per installation	New	79	5	\$12	15%	94%	\$0.05	2
Washington	Grocery	Lighting Interior	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	New	0.31	8	\$0.95	30%	96%	\$0.59	5
Washington	Grocery	Lighting Interior	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	New	0.59	8	\$0.71	30%	96%	\$0.24	9
Washington	Grocery	Lighting Interior	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign (2 Watts)	per installation	New	17	13	\$30	95%	98%	\$0.24	9
Washington	Grocery	Lighting Interior	LED Refrigeration Case Lights	LED Refrigeration Case Lights	Fluorescent Refrigeration Case	per installation	New	233	8	\$242	85%	80%	\$0.20	352
Washington	Grocery	Lighting Interior	Lighting Package, High Efficiency	15% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	New	0.75	15	\$0.13	90%	53%	\$0.02	162
Washington	Grocery	Lighting Interior	Lighting Package, Premium Efficiency	25% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	New	1	15	\$0.31	75%	62%	\$0.03	64
Washington	Grocery	Lighting Interior	Lighting Package, Premium High Bay	35% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	New	0.26	15	\$0.03	70%	83%	\$0.02	85
Washington	Grocery	Lighting Interior	Occupancy Sensor Control, Fluorescent	Occupancy Sensor Control, Fluorescent	No Occupancy Sensor	per occupancy sensor	New	912	8	\$68	45%	57%	\$0.01	11
Washington	Grocery	Lighting Interior	Time Clock	Time Clock	No Controls	per 10,000 Watts	New	752	8	\$195	20%	81%	\$0.05	7
Washington	Grocery	Other Office Equipment	ENERGY STAR - Copiers	ENERGY STAR Copiers	Standard Copier	per installation	Existing	73	6	\$156	95%	45%	\$0.52	15
Washington	Grocery	Other Office Equipment	ENERGY STAR - Fax	ENERGY STAR Fax	Standard Fax	per installation	Existing	78	6	\$1	95%	45%	\$0.01	16
Washington	Grocery	Other Office Equipment	ENERGY STAR - Monitors	ENERGY STAR Features Enabled	Non-ENERGY STAR Features	per installation	Existing	15	5	\$16	64%	15%	\$0.30	2

Table C.2.2. Commercial Measure Details

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Washington	Grocery	Other Office Equipment	ENERGY STAR - Printers	ENERGY STAR Printers	Standard Printers	per installation	Existing	137	6	\$15	95%	40%	\$0.03	55
Washington	Grocery	Other Office Equipment	ENERGY STAR - Scanners	ENERGY STAR Scanners	Standard Scanner	per installation	Existing	71	6	\$0.85	95%	45%	\$0.00	15
Washington	Grocery	Other Office Equipment	ENERGY STAR - Copiers	ENERGY STAR Copiers	Standard Copier	per installation	New	73	6	\$156	95%	45%	\$0.52	2
Washington	Grocery	Other Office Equipment	ENERGY STAR - Fax	ENERGY STAR Fax	Standard Fax	per installation	New	78	6	\$1	95%	45%	\$0.01	2
Washington	Grocery	Other Office Equipment	ENERGY STAR - Monitors	ENERGY STAR Features Enabled	Non-ENERGY STAR Features	per installation	New	15	5	\$16	64%	15%	\$0.30	0.36
Washington	Grocery	Other Office Equipment	ENERGY STAR - Printers	ENERGY STAR Printers	Standard Printers	per installation	New	137	6	\$15	95%	40%	\$0.03	7
Washington	Grocery	Other Office Equipment	ENERGY STAR - Scanners	ENERGY STAR Scanners	Standard Scanner	per installation	New	71	6	\$0.85	95%	45%	\$0.00	2
Washington	Grocery	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	per installation	Existing	7	7	\$1	20%	90%	\$0.05	0.68
Washington	Grocery	Other Plug Load	ENERGY STAR - Water Cooler	ENERGY STAR Water Cooler (Hot/Cold Water)	Non-ENERGY STAR Water Cooler	per installation	Existing	362	10	\$0.00	95%	75%	\$0.00	54
Washington	Grocery	Other Plug Load	Ice Maker	High-Efficiency Ice Maker	Standard Ice Maker	per installation	Existing	422	10	\$138	95%	86%	\$0.03	435
Washington	Grocery	Other Plug Load	Power Supply Transformer/Converter	80 Plus	85% efficient power supply (> 51W)	1 unit per 2,000 sqft	Existing	6	4	\$0.40	95%	86%	\$0.02	10
Washington	Grocery	Other Plug Load	Residential Refrigerator	ENERGY STAR	Federal Standard	per installation	Existing	80	12	\$120	3%	65%	\$0.22	1
Washington	Grocery	Other Plug Load	Residential Refrigerator/Freezer Recycling	Recycling Existing Refrigerator/Freezer	Existing Refrigerator/Freezer	per installation	Existing	950	4	\$549	25%	35%	\$0.20	33
Washington	Grocery	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	1 unit per 5,000 sqft	Existing	100	5	\$20	60%	90%	\$0.06	45
Washington	Grocery	Other Plug Load	Vending Machines- High Efficiency	ENERGY STAR (Tier 2) Vending Machines- High Efficiency 500 can capacity Under 5.92 kWh/day	Vending Machines- Standard 13 kWh/day	per installation	Existing	239	14	\$158	75%	80%	\$0.09	151
Washington	Grocery	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	per installation	New	7	7	\$1	20%	90%	\$0.05	0.09
Washington	Grocery	Other Plug Load	ENERGY STAR - Water Cooler	ENERGY STAR Water Cooler (Hot/Cold Water)	Non-ENERGY STAR Water Cooler	per installation	New	362	10	\$0.00	95%	75%	\$0.00	7
Washington	Grocery	Other Plug Load	Ice Maker	High-Efficiency Ice Maker	Standard Ice Maker	per installation	New	422	10	\$138	95%	86%	\$0.03	60
Washington	Grocery	Other Plug Load	Power Supply Transformer/Converter	80 Plus	85% efficient power supply (> 51W)	1 unit per 2,000 sqft	New	6	4	\$0.40	95%	86%	\$0.02	1
Washington	Grocery	Other Plug Load	Residential Refrigerator	ENERGY STAR	Federal Standard	per installation	New	80	12	\$120	3%	65%	\$0.22	0.27
Washington	Grocery	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	1 unit per 5,000 sqft	New	100	5	\$20	60%	90%	\$0.06	6
Washington	Grocery	Other Plug Load	Vending Machines- High Efficiency	ENERGY STAR (Tier 2) Vending Machines- High Efficiency 500 can capacity Under 5.92 kWh/day	Vending Machines- Standard 13 kWh/day	per installation	New	239	14	\$158	75%	80%	\$0.09	21
Washington	Grocery	Refrigeration	Anti-Sweat (Humidistat) Controls	Anti-Sweat (Humidistat) Controls	No Anti-Sweat (Humidistat) Controls	1 unit per 1,000 sqft	Existing	981	12	\$80	90%	45%	\$0.01	988
Washington	Grocery	Refrigeration	Case Electronically Commutated Motor	ECM Case Fans	Standard Efficiency Motor	1 unit per 1,000 sqft	Existing	1,021	12	\$236	100%	77%	\$0.03	2,388
Washington	Grocery	Refrigeration	Case Replacement Low Temp	Case Replacement Low Temp	No replacement	per square foot	Existing	0.98	15	\$0.10	95%	90%	\$0.01	2,562
Washington	Grocery	Refrigeration	Case Replacement Med Temp	Case Replacement Med Temp	No replacement	per square foot	Existing	0.08	15	\$0.05	95%	90%	\$0.08	218
Washington	Grocery	Refrigeration	Compressor VSD Retrofit	VSD Compressor	Constant Speed Compressor	per refrigeration ton	Existing	1,511	13	\$254	60%	77%	\$0.02	2,680
Washington	Grocery	Refrigeration	Demand Control Defrost - Hot Gas	Refrigerant Defrost	Defrost - Electric	per installation	Existing	877	10	\$9	95%	68%	\$0.00	573
Washington	Grocery	Refrigeration	Floating Condenser Head Pressure Controls	Floating Condenser Head Pressure Controls	No Floating Condenser Head Pressure Controls	1 unit per 1,000 sqft	Existing	1,795	15	\$191	50%	81%	\$0.01	1,770

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Washington	Grocery	Refrigeration	Glass Door ES Refrigerators/Freezers	Glass Door ES Refrigerators/Freezers	Standard Glass Doors	per installation	Existing	2,558	12	\$704	95%	77%	\$0.04	1,894
Washington	Grocery	Refrigeration	Night Covers for Display Cases	Night Covers for Display Cases	No Night Covers	per installation	Existing	404	5	\$63	95%	85%	\$0.04	1,611
Washington	Grocery	Refrigeration	Refrigeration Commissioning or Re-commissioning	Commissioning / Re-commissioning	No Commissioning / Re-commissioning	per refrigeration ton	Existing	818	3	\$115	95%	85%	\$0.06	2,429
Washington	Grocery	Refrigeration	Solid Door ES Refrigerators/Freezers	Solid Door ES Refrigerators/Freezers	Standard Solid Door	per installation	Existing	1,159	12	\$185	95%	81%	\$0.02	906
Washington	Grocery	Refrigeration	Standalone to Multiplex Compressor	Standalone to Multiplex Compressor	Standalone compressor	per building sqft	Existing	0.61	13	\$0.08	80%	90%	\$0.02	1,050
Washington	Grocery	Refrigeration	Strip Curtains for Walk-Ins	Strip Curtains for Walk-Ins	No Strip Curtains for Walk-In	per installation	Existing	1,349	4	\$180	95%	20%	\$0.05	261
Washington	Grocery	Refrigeration	Walk-In Electronically Commutated Motor	ECM Evaporator Fans	Standard Efficiency Motor	per installation	Existing	0.86	12	\$0.17	95%	95%	\$0.03	2,391
Washington	Grocery	Refrigeration	Anti-Sweat (Humidistat) Controls	Anti-Sweat (Humidistat) Controls	No Anti-Sweat (Humidistat) Controls	1 unit per 1,000 sqft	New	981	12	\$80	90%	45%	\$0.01	144
Washington	Grocery	Refrigeration	Case Electronically Commutated Motor	ECM Case Fans	Standard Efficiency Motor	1 unit per 1,000 sqft	New	1,021	12	\$236	100%	77%	\$0.03	332
Washington	Grocery	Refrigeration	Demand Control Defrost - Hot Gas	Refrigerant Defrost	Defrost - Electric	per installation	New	877	10	\$9	95%	68%	\$0.00	79
Washington	Grocery	Refrigeration	Floating Condenser Head Pressure Controls	Floating Condenser Head Pressure Controls	No Floating Condenser Head Pressure Controls	1 unit per 1,000 sqft	New	1,795	15	\$191	50%	81%	\$0.01	258
Washington	Grocery	Refrigeration	Glass Door ES Refrigerators/Freezers	Glass Door ES Refrigerators/Freezers	Standard Glass Doors	per installation	New	2,558	12	\$704	95%	77%	\$0.04	263
Washington	Grocery	Refrigeration	Night Covers for Display Cases	Night Covers for Display Cases	No Night Covers	per installation	New	404	5	\$63	95%	85%	\$0.04	213
Washington	Grocery	Refrigeration	Refrigeration Commissioning or Re-commissioning	Commissioning / Re-commissioning	No Commissioning / Re-commissioning	per refrigeration ton	New	506	3	\$44	80%	90%	\$0.04	210
Washington	Grocery	Refrigeration	Solid Door ES Refrigerators/Freezers	Solid Door ES Refrigerators/Freezers	Standard Solid Door	per installation	New	1,159	12	\$185	95%	81%	\$0.02	126
Washington	Grocery	Refrigeration	Strip Curtains for Walk-Ins	Strip Curtains for Walk-Ins	No Strip Curtains for Walk-In	per installation	New	1,349	4	\$180	95%	20%	\$0.05	36
Washington	Grocery	Refrigeration	Walk-In Electronically Commutated Motor	ECM Evaporator Fans	Standard Efficiency Motor	per installation	New	0.86	12	\$0.17	95%	95%	\$0.03	332
Washington	Grocery	Space Heat	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	Existing	454	15	\$166	75%	76%	\$0.05	215
Washington	Grocery	Space Heat	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	Existing	0.11	18	\$0.22	45%	65%	\$0.23	18
Washington	Grocery	Space Heat	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	Existing	0.68	14	\$1	5%	94%	\$0.34	17
Washington	Grocery	Space Heat	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	5	13	\$0.31	10%	39%	\$0.01	12
Washington	Grocery	Space Heat	Insulation - Ceiling	R-38 (WA State Code)	R-7 (Average Existing Conditions)	per roof sqft	Existing	1	25	\$0.99	75%	69%	\$0.09	375
Washington	Grocery	Space Heat	Insulation - Ceiling	R-49	R-38 (WA State Code)	per roof sqft	Existing	0.10	25	\$0.25	25%	85%	\$0.26	11
Washington	Grocery	Space Heat	Insulation - Duct	R-7 (WA State Code)	No Insulation	per surface area of duct insul	Existing	2	20	\$2	75%	60%	\$0.10	47
Washington	Grocery	Space Heat	Insulation - Floor (non-slab)	R-30 (WA State Code)	R-11 (Average Existing Conditions)	per floor area	Existing	1	25	\$0.90	35%	84%	\$0.08	221
Washington	Grocery	Space Heat	Insulation - Floor (non-slab)	R-38	R-30 (WA State Code)	per floor area	Existing	0.20	25	\$0.29	35%	90%	\$0.15	35
Washington	Grocery	Space Heat	Insulation - Wall	R-13 + 7.5 (WA State Code)	R-3 (Average Existing Conditions)	per floor area	Existing	3	25	\$2	10%	61%	\$0.07	62
Washington	Grocery	Space Heat	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	Existing	38	30	\$5	50%	95%	\$0.01	419
Washington	Grocery	Space Heat	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	Existing	408	10	\$133	95%	31%	\$0.05	31
Washington	Grocery	Space Heat	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	0.56	7	\$0.17	90%	85%	\$0.07	339
Washington	Grocery	Space Heat	Windows-High Efficiency	U-0.40 (WA State Code)	U-0.65 (Average Existing Conditions)	per window sqft	Existing	0.58	25	\$62	15%	74%	\$11.03	2
Washington	Grocery	Space Heat	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	New	272	15	\$166	75%	76%	\$0.08	18
Washington	Grocery	Space Heat	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	New	0.06	18	\$0.22	45%	65%	\$0.38	2

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Washington	Grocery	Space Heat	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	New	0.40	14	\$1	5%	94%	\$0.57	2
Washington	Grocery	Space Heat	Insulation - Ceiling	R-49	R-38 (WA State Code)	per roof sqft	New	0.06	25	\$0.25	75%	85%	\$0.43	4
Washington	Grocery	Space Heat	Insulation - Floor (non-slab)	R-38	R-30 (WA State Code)	per floor area	New	0.12	25	\$0.29	35%	90%	\$0.24	4
Washington	Grocery	Space Heat	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	New	22	30	\$5	50%	95%	\$0.02	35
Washington	Grocery	Space Heat	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	New	245	10	\$133	95%	15%	\$0.09	1
Washington	Grocery	Water Heat	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	per building sqft	Existing	0.01	10	\$0.26	75%	94%	\$2.94	19
Washington	Grocery	Water Heat	Dishwasher Residential	ENERGY STAR <= 324 kWh/yr, <= 5.8 gal/cycle	Federal Standard <= 355 kWh/yr, <= 6.5 gal/cycle	per installation	Existing	30	11	\$30	95%	25%	\$0.09	1
Washington	Grocery	Water Heat	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	per installation	Existing	7,348	10	\$2,559	95%	95%	\$0.02	48
Washington	Grocery	Water Heat	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	per installation	Existing	3,433	10	\$790	95%	94%	\$-0.02	11
Washington	Grocery	Water Heat	Electric Water Heater - High Efficiency	EF = 0.95	EF = 0.92	Per installation	Existing	27	15	\$85	100%	N/A	\$0.40	2
Washington	Grocery	Water Heat	Heat Pump Water Heater - Advanced-Efficiency	EF = 2.2	EF = 0.92	Per installation	Existing	506	15	\$1,644	75%	N/A	\$0.42	136
Washington	Grocery	Water Heat	Hot Water (SHW) Pipe Insulation	1.0" of Insulation, assuming R-4 (WA State Code)	No Insulation	per linear foot	Existing	1	12	\$2	80%	90%	\$0.37	4
Washington	Grocery	Water Heat	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	per installation	Existing	14	9	\$0.00	95%	25%	\$-0.08	5
Washington	Grocery	Water Heat	Low-Flow Faucet Aerators	2.2 GPM (Federal Code)	3.0 GPM	per installation	Existing	12	9	\$2	95%	25%	\$-0.04	4
Washington	Grocery	Water Heat	Low-Flow Pre-Rinse Spray Valves	0.6 GPM	1.6 GPM (Federal Standard)	per installation	Existing	65	5	\$5	95%	74%	\$-0.07	53
Washington	Grocery	Water Heat	Water Cooled Refrigeration with Heat Recovery	Heat Recovery from refrigeration system. Applied to Water Heating Electric End use	No heat recovery	per sqft of refrigerated area	Existing	0.03	10	\$0.86	55%	94%	\$4.20	31
Washington	Grocery	Water Heat	Water Heater Temperature Setback	Water Heater Temperature Setback (120 F)	No Change in Water Temperature	per installation	Existing	69	5	\$92	75%	50%	\$0.38	16
Washington	Grocery	Water Heat	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	per building sqft	New	0.01	10	\$0.26	75%	94%	\$3.06	2
Washington	Grocery	Water Heat	Dishwasher Residential	ENERGY STAR <= 324 kWh/yr, <= 5.8 gal/cycle	Federal Standard <= 355 kWh/yr, <= 6.5 gal/cycle	per installation	New	31	11	\$30	95%	55%	\$0.09	0.44
Washington	Grocery	Water Heat	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	per installation	New	7,391	10	\$2,580	95%	95%	\$0.02	6
Washington	Grocery	Water Heat	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	per installation	New	3,453	10	\$794	95%	94%	\$-0.02	1
Washington	Grocery	Water Heat	Electric Water Heater - High Efficiency	EF = 0.95	EF = 0.92	Per installation	New	27	15	\$85	100%	N/A	\$0.40	0.35
Washington	Grocery	Water Heat	Heat Pump Water Heater - Advanced-Efficiency	EF = 2.2	EF = 0.92	Per installation	New	506	15	\$1,402	75%	N/A	\$0.36	15
Washington	Grocery	Water Heat	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	per installation	New	13	9	\$0.00	95%	25%	\$-0.08	0.71
Washington	Grocery	Water Heat	Low-Flow Pre-Rinse Spray Valves	0.6 GPM	1.6 GPM (Federal Standard)	per installation	New	66	5	\$5	95%	74%	\$-0.07	7
Washington	Grocery	Water Heat	Water Cooled Refrigeration with Heat Recovery	Heat Recovery from refrigeration system. Applied to Water Heating Electric End use	No heat recovery	per sqft of refrigerated area	New	0.03	10	\$0.86	55%	94%	\$4.37	4
Washington	Grocery	Water Heat	Water Heater Temperature Setback	Water Heater Temperature Setback (120 F)	No Change in Water Temperature	per installation	New	66	5	\$92	75%	50%	\$0.40	2
Washington	Health	Computers	Computer ENERGY STAR	Computer ENERGY STAR	Computer standard non-ENERGY STAR	Per installation	Existing	130	4	\$27	100%	N/A	\$0.07	3,106

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Washington	Health	Computers	Network PC Power Management	Network PC Power Management	No Power Management	per computer	Existing	87	5	\$11	95%	30%	\$0.04	597
Washington	Health	Computers	Computer ENERGY STAR	Computer ENERGY STAR	Computer standard non-ENERGY STAR	Per installation	New	130	4	\$27	100%	N/A	\$0.07	86
Washington	Health	Computers	Network PC Power Management	Network PC Power Management	No Power Management	per computer	New	87	5	\$11	95%	30%	\$0.04	83
Washington	Health	Cooking	Combination Oven	60% cooking efficiency	Non ENERGY STAR	per installation	Existing	11,633	12	\$1,830	90%	90%	\$0.02	0.63
Washington	Health	Cooking	Fryers - New CEE Efficient Electric Deep Fat Fryers	15 inch width Deep Fryer CEE 2006 rating; 80% under heavy load, Less than 1000 watt at idle	15 inch width standard electric deep fat fryers	per installation	Existing	934	12	\$1,220	25%	90%	\$0.19	0.07
Washington	Health	Cooking	Griddle	70% cooking efficiency	Non ENERGY STAR	per installation	Existing	2,246	12	\$783	95%	85%	\$0.05	4
Washington	Health	Cooking	High Efficiency Convection Oven	Convection Oven	Standard Oven	per installation	Existing	1,858	12	\$1,943	7%	55%	\$0.15	0.27
Washington	Health	Cooking	Hot Food Holding Cabinet	ENERGY STAR	Non ENERGY STAR	per installation	Existing	3,900	12	\$1,687	15%	21%	\$0.06	0.59
Washington	Health	Cooking	Steam Cooker	ENERGY STAR	Non ENERGY STAR	per installation	Existing	4,174	12	\$2,452	11%	75%	\$0.09	1
Washington	Health	Cooking	Combination Oven	60% cooking efficiency	Non ENERGY STAR	per installation	New	11,633	12	\$1,830	90%	90%	\$0.02	0.08
Washington	Health	Cooking	Fryers - New CEE Efficient Electric Deep Fat Fryers	15 inch width Deep Fryer CEE 2006 rating; 80% under heavy load, Less than 1000 watt at idle	15 inch width standard electric deep fat fryers	per installation	New	934	12	\$1,220	25%	90%	\$0.19	0.00
Washington	Health	Cooking	Griddle	70% cooking efficiency	Non ENERGY STAR	per installation	New	2,246	12	\$783	95%	85%	\$0.05	0.60
Washington	Health	Cooking	High Efficiency Convection Oven	Convection Oven	Standard Oven	per installation	New	1,858	12	\$1,943	7%	55%	\$0.15	0.03
Washington	Health	Cooking	Hot Food Holding Cabinet	ENERGY STAR	Non ENERGY STAR	per installation	New	3,900	12	\$1,687	15%	21%	\$0.06	0.08
Washington	Health	Cooking	Steam Cooker	ENERGY STAR	Non ENERGY STAR	per installation	New	4,174	12	\$2,452	11%	75%	\$0.09	0.23
Washington	Health	Cooling Chillers	Automated Ventilation VFD Control (Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	1 unit per 3,000 sqft	Existing	497	15	\$714	5%	94%	\$0.19	3
Washington	Health	Cooling Chillers	Chilled Water / Condenser Water Settings-Optimization	Additional Control Features	EMS already installed - No Optimization	1 control point per 1000 sqft	Existing	20	5	\$157	95%	81%	\$2.16	6
Washington	Health	Cooling Chillers	Chilled Water Piping Loop w/ VSD Control	VSD for secondary chilled water loop	Primary loop only w/ constant speed pump	per chiller ton	Existing	33	10	\$201	25%	70%	\$0.99	9
Washington	Health	Cooling Chillers	Chiller-Water Side Economizer	Install Economizer	No Economizer	per chiller ton	Existing	22	15	\$461	45%	90%	\$2.67	13
Washington	Health	Cooling Chillers	Chillers <150 tons (screw) - Advanced Efficiency	0.58 kW/ton (full load)	0.790 kW/Ton (full load)	Per installation	Existing	1,147	20	\$1,757	100%	N/A	\$0.17	95
Washington	Health	Cooling Chillers	Chillers <150 tons (screw) - High Efficiency	0.71 kW/ton (full load)	0.790 kW/Ton (full load)	Per installation	Existing	382	20	\$585	100%	N/A	\$0.17	0.83
Washington	Health	Cooling Chillers	Chillers <150 tons (screw) - Premium Efficiency	0.63 kW/ton	0.790 kW/Ton (full load)	Per installation	Existing	829	20	\$1,306	100%	N/A	\$0.18	7
Washington	Health	Cooling Chillers	Convert Constant Volume Air System to VAV	Variable Volume Air System	Constant Volume Air System	per building CFM	Existing	0.49	15	\$2	15%	67%	\$0.74	21
Washington	Health	Cooling Chillers	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	Existing	0.16	15	\$0.66	15%	98%	\$0.52	9
Washington	Health	Cooling Chillers	Cooling Tower-Decrease Approach Temperature	6 Deg F	10 Deg F	per chiller ton	Existing	35	8	\$25	10%	94%	\$0.15	6
Washington	Health	Cooling Chillers	Cooling Tower-Two-Speed Fan Motor	Cooling Tower-Two-Speed Fan Motor	Cooling Tower-One-Speed Fan Motor	per chiller ton	Existing	62	15	\$2	95%	35%	\$0.00	42
Washington	Health	Cooling Chillers	Cooling Tower-VSD Fan Control	Variable-Speed Tower Fans replace Two-Speed	Cooling Tower-Two-Speed Fan Motor	per chiller ton	Existing	17	13	\$18	95%	75%	\$0.15	23
Washington	Health	Cooling Chillers	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	Existing	165	15	\$163	75%	76%	\$0.13	49
Washington	Health	Cooling Chillers	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	Existing	0.16	40	\$9	4%	98%	\$5.10	0.21

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Washington	Health	Cooling Chillers	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	1	13	\$0.30	10%	39%	\$0.04	1
Washington	Health	Cooling Chillers	Insulation - Ceiling	R-38 (WA State Code)	R-11 (Average Existing Conditions)	per roof sqft	Existing	0.00	25	\$0.98	75%	65%	\$26.50	0.70
Washington	Health	Cooling Chillers	Pipe Insulation	1.5" of Insulation, assuming R-6 (WA State Code)	No Insulation	per linear feet of insulation	Existing	4	15	\$3	65%	45%	\$0.10	3
Washington	Health	Cooling Chillers	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	0.20	7	\$0.17	90%	85%	\$0.18	76
Washington	Health	Cooling Chillers	Window Film	Window Film	No Film	per 100 sqft of window glazing	Existing	2	10	\$143	90%	66%	\$11.12	0.37
Washington	Health	Cooling Chillers	Windows-High Efficiency	U-0.32	U-0.40 (WA State Code)	per window sqft	Existing	2	25	\$28	15%	90%	\$1.08	11
Washington	Health	Cooling Chillers	Windows-High Efficiency	U-0.40 (WA State Code)	U-0.67 (Average Existing Conditions)	per window sqft	Existing	2	25	\$61	15%	70%	\$2.68	7
Washington	Health	Cooling Chillers	Automated Ventilation VFD Control(Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	1 unit per 3,000 sqft	New	235	15	\$381	5%	94%	\$0.21	0.30
Washington	Health	Cooling Chillers	Chilled Water / Condenser Water Settings-Optimization	Additional Control Features	EMS already installed - No Optimization	1 control point per 1000 sqft	New	9	5	\$157	95%	81%	\$4.55	0.51
Washington	Health	Cooling Chillers	Chilled Water Piping Loop w/ VSD Control	VSD for secondary chilled water loop	Primary loop only w/ constant speed pump	per chiller ton	New	17	10	\$201	25%	70%	\$1.88	0.78
Washington	Health	Cooling Chillers	Chillers <150 tons (screw) - Advanced Efficiency	0.58 kW/ton (full load)	0.790 kW/Ton (full load)	Per installation	New	603	20	\$1,581	100%	N/A	\$0.29	10
Washington	Health	Cooling Chillers	Chillers <150 tons (screw) - High Efficiency	0.71 kW/ton (full load)	0.790 kW/Ton (full load)	Per installation	New	201	20	\$527	100%	N/A	\$0.29	0.08
Washington	Health	Cooling Chillers	Chillers <150 tons (screw) - Premium Efficiency	0.63 kW/ton	0.790 kW/Ton (full load)	Per installation	New	436	20	\$1,175	100%	N/A	\$0.30	0.67
Washington	Health	Cooling Chillers	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	New	0.07	15	\$0.66	15%	98%	\$1.10	0.79
Washington	Health	Cooling Chillers	Cooling Tower-Decrease Approach Temperature	6 Deg F	10 Deg F	per chiller ton	New	18	8	\$25	10%	94%	\$0.28	0.45
Washington	Health	Cooling Chillers	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	New	78	15	\$163	75%	76%	\$0.27	3
Washington	Health	Cooling Chillers	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	New	0.07	40	\$9	4%	98%	\$10.76	0.01
Washington	Health	Cooling Chillers	Windows-High Efficiency	U-0.32	U-0.40 (WA State Code)	per window sqft	New	1	25	\$28	80%	90%	\$2.28	5
Washington	Health	Cooling Dx Evap	Automated Ventilation VFD Control(Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	1 unit per 3,000 sqft	Existing	635	15	\$714	5%	94%	\$0.15	56
Washington	Health	Cooling Dx Evap	Convert Constant Volume Air System to VAV	Variable Volume Air System	Constant Volume Air System	per building CFM	Existing	0.63	15	\$2	15%	67%	\$0.58	282
Washington	Health	Cooling Dx Evap	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	Existing	0.21	15	\$0.66	15%	98%	\$0.41	143
Washington	Health	Cooling Dx Evap	DX Package 65 to 135 kBtu/hr - High Efficiency	DX Package 65 to 135 kBtu/hr - High Efficiency - 11.5 EER	DX Package 65 to 135 kBtu/hr - Standard Efficiency - 11.2 EER	Per installation	Existing	210	15	\$272	100%	N/A	\$0.17	18
Washington	Health	Cooling Dx Evap	DX Package 65 to 135 kBtu/hr - Premium Efficiency	DX Package 65 to 135 kBtu/hr - Premium Efficiency - 12.0 EER	DX Package 65 to 135 kBtu/hr - Standard Efficiency - 11.2 EER	Per installation	Existing	565	15	\$547	100%	N/A	\$0.13	457
Washington	Health	Cooling Dx Evap	DX Package-Air Side Economizer	Air-Side Economizer	No Economizer	per DX ton	Existing	95	10	\$162	10%	30%	\$0.28	48

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Washington	Health	Cooling Dx Evap	DX Tune-Up / Diagnostics	DX Tune-Up / Diagnostics	No DX Tune-Up / Diagnostics	per installation	Existing	476	4	\$320	95%	72%	\$0.26	801
Washington	Health	Cooling Dx Evap	Direct / Indirect Evaporative Cooling, Pre-Cooling	Evaporative Cooler	Standard DX cooling	per building CFM	Existing	0.52	15	\$1	50%	94%	\$0.48	1,255
Washington	Health	Cooling Dx Evap	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	Existing	211	15	\$163	75%	76%	\$0.10	801
Washington	Health	Cooling Dx Evap	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	Existing	0.05	18	\$0.21	45%	65%	\$0.48	69
Washington	Health	Cooling Dx Evap	Evaporative Cooler replaces DX Package 65 to 135 kBTU/hr - Advanced Efficiency	Evaporative Cooler replaces DX Package 65 to 135 kBTU/hr - Advanced Efficiency	DX Package 65 to 135 kBTU/hr - Standard Efficiency - 11.2 EER	Per installation	Existing	3,499	15	\$-5408.4	25%	N/A	\$-0.26	639
Washington	Health	Cooling Dx Evap	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	Existing	0.21	40	\$9	4%	98%	\$4.00	3
Washington	Health	Cooling Dx Evap	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	1	13	\$0.30	10%	39%	\$0.03	29
Washington	Health	Cooling Dx Evap	Insulation - Ceiling	R-38 (WA State Code)	R-11 (Average Existing Conditions)	per roof sqft	Existing	0.00	25	\$0.98	75%	65%	\$20.78	9
Washington	Health	Cooling Dx Evap	Insulation - Duct	R-7 (WA State Code)	No Insulation	per surface area of duct insul	Existing	1	20	\$2	75%	60%	\$0.21	224
Washington	Health	Cooling Dx Evap	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	Existing	12	30	\$5	50%	95%	\$0.04	1,103
Washington	Health	Cooling Dx Evap	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	Existing	193	10	\$131	95%	24%	\$0.11	89
Washington	Health	Cooling Dx Evap	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	0.26	7	\$0.17	90%	85%	\$0.14	1,267
Washington	Health	Cooling Dx Evap	Window Film	Window Film	No Film	per 100 sqft of window glazing	Existing	2	10	\$143	90%	66%	\$11.13	4
Washington	Health	Cooling Dx Evap	Windows-High Efficiency	U-0.32	U-0.40 (WA State Code)	per window sqft	Existing	3	25	\$28	15%	90%	\$0.85	154
Washington	Health	Cooling Dx Evap	Windows-High Efficiency	U-0.40 (WA State Code)	U-0.67 (Average Existing Conditions)	per window sqft	Existing	3	25	\$61	15%	70%	\$2.10	101
Washington	Health	Cooling Dx Evap	Automated Ventilation VFD Control(Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	1 unit per 3,000 sqft	New	308	15	\$381	5%	94%	\$0.16	4
Washington	Health	Cooling Dx Evap	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	New	0.10	15	\$0.66	15%	98%	\$0.84	12
Washington	Health	Cooling Dx Evap	DX Package 65 to 135 kBTU/hr - High Efficiency	DX Package 65 to 135 kBTU/hr - High Efficiency - 11.5 EER	DX Package 65 to 135 kBTU/hr - Standard Efficiency - 11.2 EER	Per installation	New	126	15	\$217	100%	N/A	\$0.22	1
Washington	Health	Cooling Dx Evap	DX Package 65 to 135 kBTU/hr - Premium Efficiency	DX Package 65 to 135 kBTU/hr - Premium Efficiency - 12.0 EER	DX Package 65 to 135 kBTU/hr - Standard Efficiency - 11.2 EER	Per installation	New	294	15	\$438	100%	N/A	\$0.19	36
Washington	Health	Cooling Dx Evap	Direct / Indirect Evaporative Cooling, Pre-Cooling	Evaporative Cooler	Standard DX cooling	per building CFM	New	0.25	15	\$1	50%	94%	\$0.98	110
Washington	Health	Cooling Dx Evap	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	New	102	15	\$163	75%	76%	\$0.21	57
Washington	Health	Cooling Dx Evap	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	New	0.02	18	\$0.21	45%	65%	\$0.99	6
Washington	Health	Cooling Dx Evap	Evaporative Cooler replaces DX Package 65 to 135 kBTU/hr - Advanced Efficiency	Evaporative Cooler replaces DX Package 65 to 135 kBTU/hr - Advanced Efficiency	DX Package 65 to 135 kBTU/hr - Standard Efficiency - 11.2 EER	Per installation	New	1,848	15	\$-3970.5	25%	N/A	\$-0.37	50
Washington	Health	Cooling Dx Evap	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	New	0.10	40	\$9	4%	98%	\$8.22	0.25
Washington	Health	Cooling Dx Evap	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	New	6	30	\$5	50%	95%	\$0.09	79

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Washington	Health	Cooling Dx Evap	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	New	94	10	\$131	95%	12%	\$0.23	3
Washington	Health	Cooling Dx Evap	Windows-High Efficiency	U-0.32	U-0.40 (WA State Code)	per window sqft	New	1	25	\$28	80%	90%	\$1.74	74
Washington	Health	Heat Pump	Air Source Heat Pump 65 to 135 kBtu/hr - High Efficiency	11.5 EER, 3.4 COP	11.0 EER, 3.3 COP	Per installation	Existing	924	15	\$1,013	100%	N/A	\$0.14	9
Washington	Health	Heat Pump	Air Source Heat Pump 65 to 135 kBtu/hr - Premium Efficiency	12.0 EER, 3.8 COP	11.0 EER, 3.3 COP	Per installation	Existing	2,140	15	\$2,026	100%	N/A	\$0.12	194
Washington	Health	Heat Pump	Automated Ventilation VFD Control(Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	1 unit per 3,000 sqft	Existing	647	15	\$714	5%	94%	\$0.14	4
Washington	Health	Heat Pump	Convert Constant Volume Air System to VAV	Variable Volume Air System	Constant Volume Air System	per building CFM	Existing	0.84	15	\$2	15%	67%	\$0.44	32
Washington	Health	Heat Pump	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	Existing	0.21	15	\$0.66	15%	98%	\$0.40	11
Washington	Health	Heat Pump	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	Existing	525	15	\$163	75%	76%	\$0.04	151
Washington	Health	Heat Pump	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	Existing	0.13	18	\$0.21	45%	65%	\$0.19	15
Washington	Health	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	Existing	0.46	14	\$1	5%	94%	\$0.49	8
Washington	Health	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	Existing	0.21	40	\$9	4%	98%	\$3.92	0.27
Washington	Health	Heat Pump	Ground Source Heat Pump Replacing Air Source Heat Pump 65 to 135 kBtu/hr - Advanced Efficiency	16.2 EER 4.0 COP	11.0 EER, 3.3 COP	Per installation	Existing	3,970	30	\$53,522	5%	N/A	\$1.27	9
Washington	Health	Heat Pump	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	6	13	\$0.30	10%	39%	\$0.01	10
Washington	Health	Heat Pump	Insulation - Ceiling	R-38 (WA State Code)	R-11 (Average Existing Conditions)	per roof sqft	Existing	0.57	25	\$0.98	75%	65%	\$0.17	117
Washington	Health	Heat Pump	Insulation - Ceiling	R-49	R-38 (WA State Code)	per roof sqft	Existing	0.03	25	\$0.25	25%	85%	\$0.67	3
Washington	Health	Heat Pump	Insulation - Duct	R-7 (WA State Code)	No Insulation	per surface area of duct insul	Existing	2	20	\$2	75%	60%	\$0.09	42
Washington	Health	Heat Pump	Insulation - Floor (non-slab)	R-30 (WA State Code)	R-19 (Average Existing Conditions)	per floor area	Existing	0.22	25	\$0.89	35%	84%	\$0.40	26
Washington	Health	Heat Pump	Insulation - Floor (non-slab)	R-38	R-30 (WA State Code)	per floor area	Existing	0.09	25	\$0.28	35%	90%	\$0.31	11
Washington	Health	Heat Pump	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	Existing	44	30	\$5	50%	95%	\$0.01	295
Washington	Health	Heat Pump	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	Existing	480	10	\$131	95%	24%	\$0.05	17
Washington	Health	Heat Pump	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	0.65	7	\$0.17	90%	85%	\$0.06	239
Washington	Health	Heat Pump	Window Film	Window Film	No Film	per 100 sqft of window glazing	Existing	2	10	\$143	90%	66%	\$11.10	0.36
Washington	Health	Heat Pump	Windows-High Efficiency	U-0.32	U-0.40 (WA State Code)	per window sqft	Existing	2	25	\$28	15%	90%	\$1.46	7
Washington	Health	Heat Pump	Windows-High Efficiency	U-0.40 (WA State Code)	U-0.67 (Average Existing Conditions)	per window sqft	Existing	3	25	\$61	15%	70%	\$1.72	11
Washington	Health	Heat Pump	Air Source Heat Pump 65 to 135 kBtu/hr - High Efficiency	11.5 EER, 3.4 COP	11.0 EER, 3.3 COP	Per installation	New	506	15	\$810	100%	N/A	\$0.21	0.73
Washington	Health	Heat Pump	Air Source Heat Pump 65 to 135 kBtu/hr - Premium Efficiency	12.0 EER, 3.8 COP	11.0 EER, 3.3 COP	Per installation	New	1,242	15	\$1,621	100%	N/A	\$0.17	17
Washington	Health	Heat Pump	Automated Ventilation VFD Control(Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	1 unit per 3,000 sqft	New	321	15	\$381	5%	94%	\$0.15	0.35

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Washington	Health	Heat Pump	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	New	0.10	15	\$0.66	15%	98%	\$0.81	0.97
Washington	Health	Heat Pump	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	New	295	15	\$163	75%	76%	\$0.07	12
Washington	Health	Heat Pump	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	New	0.07	18	\$0.21	45%	65%	\$0.35	1
Washington	Health	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	New	0.28	14	\$1	5%	94%	\$0.80	0.91
Washington	Health	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	New	0.10	40	\$9	4%	98%	\$7.89	0.02
Washington	Health	Heat Pump	Ground Source Heat Pump Replacing Air Source Heat Pump 65 to 135 kBTU/hr - Advanced Efficiency	16.2 EER 4.0 COP	11.0 EER, 3.3 COP	Per installation	New	2,258	30	\$27,678	5%	N/A	\$1.13	0.77
Washington	Health	Heat Pump	Insulation - Ceiling	R-49	R-38 (WA State Code)	per roof sqft	New	0.02	25	\$0.25	75%	85%	\$1.02	1
Washington	Health	Heat Pump	Insulation - Floor (non-slab)	R-38	R-30 (WA State Code)	per floor area	New	0.06	25	\$0.28	35%	90%	\$0.46	1
Washington	Health	Heat Pump	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	New	24	30	\$5	50%	95%	\$0.02	24
Washington	Health	Heat Pump	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	New	270	10	\$131	95%	12%	\$0.08	0.70
Washington	Health	Heat Pump	Windows-High Efficiency	U-0.32	U-0.40 (WA State Code)	per window sqft	New	0.83	25	\$28	80%	90%	\$3.54	3
Washington	Health	Hvac Aux	Convert Constant Volume Air System to VAV	Variable Volume Air System	Constant Volume Air System	per building CFM	Existing	0.71	15	\$2	15%	67%	\$0.52	710
Washington	Health	Hvac Aux	Cooking Hood Controls	Demand-Ventilation Control	No Controls	per installation	Existing	1,845	18	\$4,080	95%	85%	\$0.26	344
Washington	Health	Hvac Aux	Motor - CEE Premium-Efficiency Plus	CEE PE+ Motor for HVAC Applications	NEMA Efficiency Motors	per HP	Existing	58	15	\$6	95%	76%	\$0.01	347
Washington	Health	Hvac Aux	Motor - VAV Box High Efficiency (ECM)	ECM Motor	Standard Efficiency Motor	per installation	Existing	148	15	\$170	8%	77%	\$0.15	189
Washington	Health	Hvac Aux	Motor Rewind	>15, <500 HP	No Rewind	per HP	Existing	11	8	\$4	65%	25%	\$0.08	12
Washington	Health	Hvac Aux	Optimized Variable Volume Lab Hood Design	Optimized Variable Volume Lab Hood Design	Constant Volume Lab Hood Design	per installation	Existing	290	13	\$1,593	65%	59%	\$0.77	369
Washington	Health	Hvac Aux	Cooking Hood Controls	Demand-Ventilation Control	No Controls	per installation	New	1,845	18	\$4,320	95%	85%	\$0.28	47
Washington	Health	Hvac Aux	Low Pressure Distribution Complex HVAC	Low Pressure Distribution Complex HVAC	VAV/ICV	per building sqft	New	0.83	50	\$2	24%	98%	\$0.25	214
Washington	Health	Hvac Aux	Motor - CEE Premium-Efficiency Plus	CEE PE+ Motor for HVAC Applications	NEMA Efficiency Motors	per HP	New	48	15	\$6	95%	76%	\$0.02	50
Washington	Health	Hvac Aux	Motor - VAV Box High Efficiency (ECM)	ECM Motor	Standard Efficiency Motor	per installation	New	124	15	\$170	8%	77%	\$0.18	21
Washington	Health	Hvac Aux	Optimized Variable Volume Lab Hood Design	Optimized Variable Volume Lab Hood Design	Constant Volume Lab Hood Design	per installation	New	242	15	\$1,593	65%	59%	\$0.85	43
Washington	Health	Lighting Exterior	Covered Parking Lighting	Covered Parking Lighting	Normal Lighting	per building sqft	Existing	0.09	10	\$0.02	80%	95%	\$0.05	710
Washington	Health	Lighting Exterior	Daylighting Controls, Outdoors (Photocell)	Photocell	No Controls	per installation	Existing	17	8	\$27	75%	70%	\$0.31	48
Washington	Health	Lighting Exterior	Exterior Building Lighting	30% savings	Normal Lighting	per installation	Existing	239	15	\$321	62%	90%	\$0.17	478
Washington	Health	Lighting Exterior	Solid State LED White Lighting	Landscape, merchandise, signage, structure & task lighting (2.5 W)	50W 10hrs/day, 365 day/yr	per installation	Existing	1	14	\$34	75%	95%	\$2.48	9
Washington	Health	Lighting Exterior	Surface Parking Lighting	Surface Parking Lighting	Normal Lighting	per building sqft	Existing	0.05	19	\$0.06	62%	95%	\$0.16	297
Washington	Health	Lighting Exterior	Covered Parking Lighting	Covered Parking Lighting	Normal Lighting	per building sqft	New	0.09	10	\$0.02	80%	95%	\$0.05	98
Washington	Health	Lighting Exterior	Daylighting Controls, Outdoors (Photocell)	Photocell	No Controls	per installation	New	17	8	\$27	75%	70%	\$0.31	6
Washington	Health	Lighting Exterior	Exterior Building Lighting	30% savings	Normal Lighting	per installation	New	239	15	\$321	62%	90%	\$0.17	66

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Washington	Health	Lighting Exterior	Solid State LED White Lighting	Landscape, merchandise, signage, structure & task lighting (2.5 W)	50W 10hrs/day, 365 day/yr	per installation	New	1	14	\$34	75%	95%	\$2.48	1
Washington	Health	Lighting Exterior	Surface Parking Lighting	Surface Parking Lighting	Normal Lighting	per building sqft	New	0.05	19	\$0.06	62%	95%	\$0.16	41
Washington	Health	Lighting Interior	Cold Cathode Lighting	Cold Cathode Lighting 5 watts	30 W Incandescent Bulb	per installation	Existing	337	5	\$12	15%	94%	\$0.01	156
Washington	Health	Lighting Interior	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	Existing	0.28	8	\$0.93	30%	51%	\$0.65	39
Washington	Health	Lighting Interior	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	Existing	0.63	8	\$0.70	30%	51%	\$0.22	90
Washington	Health	Lighting Interior	Exit Sign - LED	LED Exit Sign (2 Watts)	CFL Exit Sign (9 Watts)	per installation	Existing	95	16	\$15	95%	50%	\$0.02	340
Washington	Health	Lighting Interior	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign (2 Watts)	per installation	Existing	17	13	\$29	95%	98%	\$0.24	40
Washington	Health	Lighting Interior	LED Refrigeration Case Lights	LED Refrigeration Case Lights	Fluorescent Refrigeration Case	per installation	Existing	211	8	\$238	15%	80%	\$0.22	63
Washington	Health	Lighting Interior	Lighting Package, High Efficiency	15% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	Existing	0.55	13	\$0.05	90%	53%	\$0.01	2,133
Washington	Health	Lighting Interior	Lighting Package, High Efficiency	Code Required LPD And Control Strategies	Existing Lighting Design LPD	per building sqft	Existing	1	13	\$0.79	90%	79%	\$0.06	13,320
Washington	Health	Lighting Interior	Lighting Package, Premium Efficiency	25% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	Existing	0.92	13	\$0.21	75%	62%	\$0.03	858
Washington	Health	Lighting Interior	Lighting Package, Premium High Bay	35% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	Existing	0.02	13	\$0.01	70%	83%	\$0.08	153
Washington	Health	Lighting Interior	Occupancy Sensor Control, Fluorescent	Occupancy Sensor Control, Fluorescent	No Occupancy Sensor	per occupancy sensor	Existing	957	8	\$67	90%	42%	\$0.01	254
Washington	Health	Lighting Interior	Time Clock	Time Clock	No Controls	per 10,000 Watts	Existing	742	8	\$191	20%	**	\$0.05	131
Washington	Health	Lighting Interior	Cold Cathode Lighting	Cold Cathode Lighting 5 watts	30 W Incandescent Bulb	per installation	New	211	5	\$12	15%	94%	\$0.02	13
Washington	Health	Lighting Interior	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	New	0.17	8	\$0.93	30%	51%	\$1.03	4
Washington	Health	Lighting Interior	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	New	0.33	8	\$0.70	30%	51%	\$0.41	8
Washington	Health	Lighting Interior	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign (2 Watts)	per installation	New	17	13	\$29	95%	98%	\$0.24	22
Washington	Health	Lighting Interior	LED Refrigeration Case Lights	LED Refrigeration Case Lights	Fluorescent Refrigeration Case	per installation	New	211	8	\$238	15%	80%	\$0.22	8
Washington	Health	Lighting Interior	Lighting Package, High Efficiency	15% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	New	0.55	15	\$0.00	90%	53%	\$0.00	296
Washington	Health	Lighting Interior	Lighting Package, Premium Efficiency	25% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	New	0.92	15	\$0.09	75%	62%	\$0.01	119
Washington	Health	Lighting Interior	Lighting Package, Premium High Bay	35% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	New	0.02	15	\$0.00	70%	83%	\$0.02	21
Washington	Health	Lighting Interior	Occupancy Sensor Control, Fluorescent	Occupancy Sensor Control, Fluorescent	No Occupancy Sensor	per occupancy sensor	New	599	8	\$67	90%	42%	\$0.02	27
Washington	Health	Lighting Interior	Time Clock	Time Clock	No Controls	per 10,000 Watts	New	742	8	\$192	20%	**	\$0.05	14
Washington	Health	Other Office Equipment	ENERGY STAR - Copiers	ENERGY STAR Copiers	Standard Copier	per installation	Existing	72	6	\$154	95%	45%	\$0.52	91
Washington	Health	Other Office Equipment	ENERGY STAR - Fax	ENERGY STAR Fax	Standard Fax	per installation	Existing	77	6	\$1.00	95%	45%	\$0.00	98
Washington	Health	Other Office Equipment	ENERGY STAR - Monitors	ENERGY STAR Features Enabled	Non-ENERGY STAR Features	per installation	Existing	14	5	\$15	64%	15%	\$0.30	34
Washington	Health	Other Office Equipment	ENERGY STAR - Printers	ENERGY STAR Printers	Standard Printers	per installation	Existing	135	6	\$14	95%	40%	\$0.03	127
Washington	Health	Other Office Equipment	ENERGY STAR - Scanners	ENERGY STAR Scanners	Standard Scanner	per installation	Existing	70	6	\$1.00	95%	45%	\$0.00	89
Washington	Health	Other Office Equipment	ENERGY STAR - Copiers	ENERGY STAR Copiers	Standard Copier	per installation	New	72	6	\$154	95%	45%	\$0.52	12

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Washington	Health	Other Office Equipment	ENERGY STAR - Fax	ENERGY STAR Fax	Standard Fax	per installation	New	77	6	\$1.00	95%	45%	\$0.00	13
Washington	Health	Other Office Equipment	ENERGY STAR - Monitors	ENERGY STAR Features Enabled	Non-ENERGY STAR Features	per installation	New	14	5	\$15	64%	15%	\$0.30	4
Washington	Health	Other Office Equipment	ENERGY STAR - Printers	ENERGY STAR Printers	Standard Printers	per installation	New	135	6	\$14	95%	40%	\$0.03	17
Washington	Health	Other Office Equipment	ENERGY STAR - Scanners	ENERGY STAR Scanners	Standard Scanner	per installation	New	70	6	\$1.00	95%	45%	\$0.00	12
Washington	Health	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	per installation	Existing	7	7	\$1	20%	90%	\$0.06	3
Washington	Health	Other Plug Load	ENERGY STAR - Water Cooler	ENERGY STAR Water Cooler (Hot/Cold Water)	Non-ENERGY STAR Water Cooler	per installation	Existing	357	10	\$1	95%	75%	\$0.00	378
Washington	Health	Other Plug Load	Ice Maker	High-Efficiency Ice Maker	Standard Ice Maker	per installation	Existing	416	10	\$138	95%	86%	\$0.03	55
Washington	Health	Other Plug Load	Power Supply Transformer/Converter	80 Plus	85% efficient power supply (> 51W)	1 unit per 2,000 sqft	Existing	15	4	\$0.39	95%	86%	\$0.01	61
Washington	Health	Other Plug Load	Residential Refrigerator	ENERGY STAR	Federal Standard	per installation	Existing	79	12	\$117	13%	65%	\$0.22	22
Washington	Health	Other Plug Load	Residential Refrigerator/Freezer Recycling	Recycling Existing Refrigerator/Freezer	Existing Refrigerator/Freezer	per installation	Existing	938	4	\$540	25%	35%	\$0.20	76
Washington	Health	Other Plug Load	Server Virtualization	Server Virtualization	No Virtualization	number of virtualized servers	Existing	2,226	4	\$1,998	72%	85%	\$0.68	720
Washington	Health	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	1 unit per 1,500 sqft	Existing	98	5	\$19	60%	90%	\$0.06	359
Washington	Health	Other Plug Load	Vending Machines- High Efficiency	ENERGY STAR (Tier 2) Vending Machines- High Efficiency 500 can capacity Under 5.92 kWh/day	Vending Machines- Standard 13 kWh/day	per installation	Existing	236	14	\$156	10%	80%	\$0.09	6
Washington	Health	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	per installation	New	7	7	\$1	20%	90%	\$0.06	0.55
Washington	Health	Other Plug Load	ENERGY STAR - Water Cooler	ENERGY STAR Water Cooler (Hot/Cold Water)	Non-ENERGY STAR Water Cooler	per installation	New	357	10	\$1	95%	75%	\$0.00	52
Washington	Health	Other Plug Load	Ice Maker	High-Efficiency Ice Maker	Standard Ice Maker	per installation	New	416	10	\$138	95%	86%	\$0.03	7
Washington	Health	Other Plug Load	Power Supply Transformer/Converter	80 Plus	85% efficient power supply (> 51W)	1 unit per 2,000 sqft	New	15	4	\$0.39	95%	86%	\$0.01	8
Washington	Health	Other Plug Load	Residential Refrigerator	ENERGY STAR	Federal Standard	per installation	New	79	12	\$117	13%	65%	\$0.22	3
Washington	Health	Other Plug Load	Server Virtualization	Server Virtualization	No Virtualization	number of virtualized servers	New	2,226	4	\$1,998	72%	85%	\$0.68	100
Washington	Health	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	1 unit per 1,500 sqft	New	98	5	\$19	60%	90%	\$0.06	49
Washington	Health	Other Plug Load	Vending Machines- High Efficiency	ENERGY STAR (Tier 2) Vending Machines- High Efficiency 500 can capacity Under 5.92 kWh/day	Vending Machines- Standard 13 kWh/day	per installation	New	236	14	\$156	10%	80%	\$0.09	0.86
Washington	Health	Refrigeration	Anti-Sweat (Humidistat) Controls	Anti-Sweat (Humidistat) Controls	No Anti-Sweat (Humidistat) Controls	1 unit per 1,000 sqft	Existing	967	12	\$77	15%	45%	\$0.01	6
Washington	Health	Refrigeration	Case Electronically Commutated Motor	ECM Case Fans	Standard Efficiency Motor	1 unit per 10,000 sqft	Existing	1,007	12	\$232	5%	77%	\$0.03	13
Washington	Health	Refrigeration	Case Replacement Low Temp	Case Replacement Low Temp	No replacement	per square foot	Existing	0.01	15	\$0.10	5%	90%	\$0.70	3
Washington	Health	Refrigeration	Case Replacement Med Temp	Case Replacement Med Temp	No replacement	per square foot	Existing	0.00	15	\$0.05	5%	90%	\$4.23	0.26
Washington	Health	Refrigeration	Demand Control Defrost - Hot Gas	Refrigerant Defrost	Defrost - Electric	per installation	Existing	27	10	\$9	5%	68%	\$0.06	1
Washington	Health	Refrigeration	Glass Door ES Refrigerators/Freezers	Glass Door ES Refrigerators/Freezers	Standard Glass Doors	per installation	Existing	2,523	12	\$691	95%	77%	\$0.04	67
Washington	Health	Refrigeration	Refrigeration Commissioning or Re-commissioning	Commissioning / Re-commissioning	No Commissioning / Re-commissioning	per refrigeration ton	Existing	807	3	\$115	10%	85%	\$0.06	12

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Washington	Health	Refrigeration	Solid Door ES Refrigerators/Freezers	Solid Door ES Refrigerators/Freezers	Standard Solid Door	per installation	Existing	1,144	12	\$179	95%	81%	\$0.02	32
Washington	Health	Refrigeration	Standalone to Multiplex Compressor	Standalone to Multiplex Compressor	Standalone compressor	per building sqft	Existing	0.01	13	\$0.00	5%	90%	\$0.02	2
Washington	Health	Refrigeration	Strip Curtains for Walk-Ins	Strip Curtains for Walk-Ins	No Strip Curtains for Walk-In	per installation	Existing	42	4	\$177	15%	20%	\$1.42	1
Washington	Health	Refrigeration	Walk-In Electronically Commutated Motor	ECM Evaporator Fans	Standard Efficiency Motor	per installation	Existing	0.02	12	\$0.16	5%	95%	\$0.93	4
Washington	Health	Refrigeration	Anti-Sweat (Humidistat) Controls	Anti-Sweat (Humidistat) Controls	No Anti-Sweat (Humidistat) Controls	1 unit per 1,000 sqft	New	967	12	\$77	15%	45%	\$0.01	0.97
Washington	Health	Refrigeration	Case Electronically Commutated Motor	ECM Case Fans	Standard Efficiency Motor	1 unit per 10,000 sqft	New	1,007	12	\$232	5%	77%	\$0.03	1
Washington	Health	Refrigeration	Demand Control Defrost - Hot Gas	Refrigerant Defrost	Defrost - Electric	per installation	New	27	10	\$9	5%	68%	\$0.06	0.15
Washington	Health	Refrigeration	Glass Door ES Refrigerators/Freezers	Glass Door ES Refrigerators/Freezers	Standard Glass Doors	per installation	New	2,523	12	\$691	95%	77%	\$0.04	9
Washington	Health	Refrigeration	Refrigeration Commissioning or Re-commissioning	Commissioning / Re-commissioning	No Commissioning / Re-commissioning	per refrigeration ton	New	499	3	\$42	5%	90%	\$0.04	0.55
Washington	Health	Refrigeration	Solid Door ES Refrigerators/Freezers	Solid Door ES Refrigerators/Freezers	Standard Solid Door	per installation	New	1,144	12	\$179	95%	81%	\$0.02	4
Washington	Health	Refrigeration	Strip Curtains for Walk-Ins	Strip Curtains for Walk-Ins	No Strip Curtains for Walk-In	per installation	New	42	4	\$177	15%	20%	\$1.42	0.20
Washington	Health	Refrigeration	Walk-In Electronically Commutated Motor	ECM Evaporator Fans	Standard Efficiency Motor	per installation	New	0.02	12	\$0.16	5%	95%	\$0.93	0.63
Washington	Health	Space Heat	Convert Constant Volume Air System to VAV	Variable Volume Air System	Constant Volume Air System	per building CFM	Existing	0.69	15	\$2	15%	67%	\$0.53	79
Washington	Health	Space Heat	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	Existing	537	15	\$163	75%	76%	\$0.04	483
Washington	Health	Space Heat	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	Existing	0.13	18	\$0.21	45%	65%	\$0.19	45
Washington	Health	Space Heat	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	Existing	0.80	14	\$1	5%	94%	\$0.28	42
Washington	Health	Space Heat	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	7	13	\$0.30	10%	39%	\$0.01	36
Washington	Health	Space Heat	Insulation - Ceiling	R-38 (WA State Code)	R-11 (Average Existing Conditions)	per roof sqft	Existing	0.98	25	\$0.98	75%	65%	\$0.10	627
Washington	Health	Space Heat	Insulation - Ceiling	R-49	R-38 (WA State Code)	per roof sqft	Existing	0.11	25	\$0.25	25%	85%	\$0.22	28
Washington	Health	Space Heat	Insulation - Duct	R-7 (WA State Code)	No Insulation	per surface area of duct insul	Existing	2	20	\$2	75%	60%	\$0.08	136
Washington	Health	Space Heat	Insulation - Floor (non-slab)	R-30 (WA State Code)	R-19 (Average Existing Conditions)	per floor area	Existing	0.57	25	\$0.89	35%	84%	\$0.16	199
Washington	Health	Space Heat	Insulation - Floor (non-slab)	R-38	R-30 (WA State Code)	per floor area	Existing	0.24	25	\$0.28	35%	90%	\$0.12	90
Washington	Health	Space Heat	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	Existing	45	30	\$5	50%	95%	\$0.01	943
Washington	Health	Space Heat	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	Existing	491	10	\$131	95%	24%	\$0.04	54
Washington	Health	Space Heat	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	0.67	7	\$0.17	90%	85%	\$0.06	765
Washington	Health	Space Heat	Windows-High Efficiency	U-0.40 (WA State Code)	U-0.67 (Average Existing Conditions)	per window sqft	Existing	0.91	25	\$61	15%	70%	\$6.92	8
Washington	Health	Space Heat	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	New	335	15	\$163	75%	76%	\$0.06	42
Washington	Health	Space Heat	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	New	0.08	18	\$0.21	45%	65%	\$0.30	5
Washington	Health	Space Heat	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	New	0.50	14	\$1	5%	94%	\$0.45	4
Washington	Health	Space Heat	Insulation - Ceiling	R-49	R-38 (WA State Code)	per roof sqft	New	0.07	25	\$0.25	75%	85%	\$0.35	9
Washington	Health	Space Heat	Insulation - Floor (non-slab)	R-38	R-30 (WA State Code)	per floor area	New	0.15	25	\$0.28	35%	90%	\$0.19	9
Washington	Health	Space Heat	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	New	28	30	\$5	50%	95%	\$0.02	82
Washington	Health	Space Heat	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	New	306	10	\$131	95%	12%	\$0.07	2

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Washington	Health	Water Heat	Clothes Washer Commercial	ENERGY STAR Commercial Clothes Washer MEF=1.80	Standard Clothes Washers	per installation	Existing	537	11	\$123	95%	80%	\$-0.26	31
Washington	Health	Water Heat	Clothes Washer Residential	Energy Star - CEE Tier 1 (MEF 2.0 - 2.19) - Electric DHW & Dryer	MEF = 1.66 - Electric DHW & Dryer (NWPPC 6th Plan Average Efficiency)	per installation	Existing	130	11	\$298	85%	94%	\$0.06	8
Washington	Health	Water Heat	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	per building sqft	Existing	0.06	10	\$0.26	55%	94%	\$0.63	110
Washington	Health	Water Heat	Dishwasher Residential	ENERGY STAR <= 324 kWh/yr, <= 5.8 gal/cycle	Federal Standard <= 355 kWh/yr, <= 6.5 gal/cycle	per installation	Existing	30	11	\$29	95%	25%	\$0.09	2
Washington	Health	Water Heat	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	per installation	Existing	7,290	10	\$2,531	95%	95%	\$0.02	128
Washington	Health	Water Heat	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	per installation	Existing	3,406	10	\$785	95%	94%	\$-0.02	29
Washington	Health	Water Heat	Electric Water Heater - High Efficiency	EF = 0.95	EF = 0.92	Per installation	Existing	133	15	\$209	100%	N/A	\$0.20	21
Washington	Health	Water Heat	Heat Pump Water Heater - Advanced-Efficiency	EF = 2.2	EF = 0.92	Per installation	Existing	2,461	15	\$4,044	75%	N/A	\$0.21	1,149
Washington	Health	Water Heat	Hot Water (SHW) Pipe Insulation	1.0" of Insulation, assuming R-4 (WA State Code)	No Insulation	per linear foot	Existing	5	12	\$2	80%	70%	\$0.08	25
Washington	Health	Water Heat	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	per installation	Existing	67	9	\$0.15	95%	25%	\$-0.08	42
Washington	Health	Water Heat	Low-Flow Faucet Aerators	2.2 GPM (Federal Code)	3.0 GPM	per installation	Existing	56	9	\$2	95%	25%	\$-0.07	35
Washington	Health	Water Heat	Low-Flow Pre-Rinse Spray Valves	0.6 GPM	1.6 GPM (Federal Standard)	per installation	Existing	65	5	\$5	95%	83%	\$-0.07	20
Washington	Health	Water Heat	Low-Flow Showerheads	2.0 GPM	2.5 GPM (Federal Code)	per installation	Existing	429	10	\$6	95%	73%	\$-0.08	276
Washington	Health	Water Heat	Low-Flow Showerheads	2.5 GPM (Federal Code)	4.5 GPM	per installation	Existing	953	10	\$10	95%	62%	\$-0.08	518
Washington	Health	Water Heat	Water Cooled Refrigeration with Heat Recovery	Heat Recovery from refrigeration system. Applied to Water Heating Electric End use	No heat recovery	per sqft of refrigerated area	Existing	0.15	10	\$0.84	3%	94%	\$0.89	0.35
Washington	Health	Water Heat	Water Heater Temperature Setback	Water Heater Temperature Setback (120 F)	No Change in Water Temperature	per installation	Existing	108	5	\$91	75%	80%	\$0.24	206
Washington	Health	Water Heat	Clothes Washer Commercial	ENERGY STAR Commercial Clothes Washer MEF=1.80	Standard Clothes Washers	per installation	New	537	11	\$123	95%	80%	\$-0.26	4
Washington	Health	Water Heat	Clothes Washer Residential	Energy Star - CEE Tier 1 (MEF 2.0 - 2.19) - Electric DHW & Dryer	MEF = 1.66 - Electric DHW & Dryer (NWPPC 6th Plan Average Efficiency)	per installation	New	130	11	\$298	85%	94%	\$0.06	1
Washington	Health	Water Heat	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	per building sqft	New	0.06	10	\$0.26	55%	94%	\$0.63	17
Washington	Health	Water Heat	Dishwasher Residential	ENERGY STAR <= 324 kWh/yr, <= 5.8 gal/cycle	Federal Standard <= 355 kWh/yr, <= 6.5 gal/cycle	per installation	New	30	11	\$29	95%	55%	\$0.09	0.73
Washington	Health	Water Heat	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	per installation	New	7,290	10	\$2,531	95%	95%	\$0.02	17
Washington	Health	Water Heat	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	per installation	New	3,406	10	\$785	95%	94%	\$-0.02	4
Washington	Health	Water Heat	Electric Water Heater - High Efficiency	EF = 0.95	EF = 0.92	Per installation	New	133	15	\$209	100%	N/A	\$0.20	3
Washington	Health	Water Heat	Heat Pump Water Heater - Advanced-Efficiency	EF = 2.2	EF = 0.92	Per installation	New	2,461	15	\$3,449	75%	N/A	\$0.18	148
Washington	Health	Water Heat	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	per installation	New	67	9	\$0.15	95%	25%	\$-0.08	5
Washington	Health	Water Heat	Low-Flow Pre-Rinse Spray Valves	0.6 GPM	1.6 GPM (Federal Standard)	per installation	New	65	5	\$5	95%	83%	\$-0.07	2
Washington	Health	Water Heat	Low-Flow Showerheads	2.0 GPM	2.5 GPM (Federal Code)	per installation	New	429	10	\$6	95%	73%	\$-0.08	37
Washington	Health	Water Heat	Water Cooled Refrigeration with Heat Recovery	Heat Recovery from refrigeration system. Applied to Water Heating Electric End use	No heat recovery	per sqft of refrigerated area	New	0.15	10	\$0.84	3%	94%	\$0.89	0.05

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Washington	Health	Water Heat	Water Heater Temperature Setback	Water Heater Temperature Setback (120 F)	No Change in Water Temperature	per installation	New	108	5	\$91	75%	80%	\$0.24	32
Washington	Large Office	Computers	Computer ENERGY STAR	Computer ENERGY STAR	Computer standard non-ENERGY STAR	Per installation	Existing	133	4	\$27	100%	N/A	\$0.07	1,225
Washington	Large Office	Computers	Network PC Power Management	Network PC Power Management	No Power Management	per computer	Existing	88	5	\$12	95%	30%	\$0.04	273
Washington	Large Office	Computers	Computer ENERGY STAR	Computer ENERGY STAR	Computer standard non-ENERGY STAR	Per installation	New	133	4	\$27	100%	N/A	\$0.07	34
Washington	Large Office	Computers	Network PC Power Management	Network PC Power Management	No Power Management	per computer	New	88	5	\$12	95%	30%	\$0.04	38
Washington	Large Office	Cooling Chillers	Automated Ventilation VFD Control(Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	1 unit per 3,000 sqft	Existing	500	15	\$728	75%	94%	\$0.19	139
Washington	Large Office	Cooling Chillers	Chilled Water / Condenser Water Settings-Optimization	Additional Control Features	EMS already installed - No Optimization	1 control point per 1000 sqft	Existing	20	5	\$160	95%	81%	\$2.19	15
Washington	Large Office	Cooling Chillers	Chilled Water Piping Loop w/ VSD Control	VSD for secondary chilled water loop	Primary loop only w/ constant speed pump	per chiller ton	Existing	34	10	\$205	25%	70%	\$1.01	21
Washington	Large Office	Cooling Chillers	Chiller-Water Side Economizer	Install Economizer	No Economizer	per chiller ton	Existing	22	15	\$470	45%	45%	\$2.71	16
Washington	Large Office	Cooling Chillers	Chillers >300 tons (centrifugal) - High Efficiency	0.55 kW/ton	0.576 kW/ton (full load)	Per installation	Existing	7,379	20	\$1,674	100%	N/A	\$0.03	4
Washington	Large Office	Cooling Chillers	Chillers >300 tons (centrifugal) - Premium Efficiency	0.52 kW/ton (full load)	0.576 kW/ton (full load)	Per installation	Existing	14,945	20	\$3,608	100%	N/A	\$0.03	34
Washington	Large Office	Cooling Chillers	Chillers >300 tons (centrifugal) with VSD - Advanced Efficiency	0.47 kW/ton w/VSD (full load)	0.576 kW/ton (full load)	Per installation	Existing	21,455	20	\$13,072	100%	N/A	\$0.07	437
Washington	Large Office	Cooling Chillers	Convert Constant Volume Air System to VAV	Variable Volume Air System	Constant Volume Air System	per building CFM	Existing	0.50	15	\$2	15%	67%	\$0.75	51
Washington	Large Office	Cooling Chillers	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	Existing	0.16	15	\$0.68	80%	98%	\$0.53	129
Washington	Large Office	Cooling Chillers	Cooling Tower-Decrease Approach Temperature	6 Deg F	10 Deg F	per chiller ton	Existing	36	8	\$26	10%	94%	\$0.15	16
Washington	Large Office	Cooling Chillers	Cooling Tower-Two-Speed Fan Motor	Cooling Tower-Two-Speed Fan Motor	Cooling Tower-One-Speed Fan Motor	per chiller ton	Existing	63	15	\$2	95%	35%	\$0.00	118
Washington	Large Office	Cooling Chillers	Cooling Tower-VSD Fan Control	Variable-Speed Tower Fans replace Two-Speed	Cooling Tower-Two-Speed Fan Motor	per chiller ton	Existing	18	13	\$19	95%	75%	\$0.15	64
Washington	Large Office	Cooling Chillers	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	Existing	166	15	\$167	75%	76%	\$0.13	136
Washington	Large Office	Cooling Chillers	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	Existing	0.16	40	\$9	4%	98%	\$5.17	0.53
Washington	Large Office	Cooling Chillers	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	0.69	13	\$0.31	10%	39%	\$0.06	4
Washington	Large Office	Cooling Chillers	Insulation - Ceiling	R-38 (WA Slate Code)	R-11 (Average Existing Conditions)	per roof sqft	Existing	0.00	25	\$1	75%	57%	\$26.89	1
Washington	Large Office	Cooling Chillers	Pipe Insulation	1.5" of Insulation, assuming R-6 (WA Slate Code)	No Insulation	per linear feet of insulation	Existing	5	15	\$3	65%	45%	\$0.10	10
Washington	Large Office	Cooling Chillers	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	0.20	7	\$0.17	90%	85%	\$0.19	209
Washington	Large Office	Cooling Chillers	Window Film	Window Film	No Film	per 100 sqft of window glazing	Existing	1	10	\$146	90%	66%	\$13.46	1
Washington	Large Office	Cooling Chillers	Windows-High Efficiency	U-0.32	U-0.40 (WA State Code)	per window sqft	Existing	1	25	\$29	15%	90%	\$1.72	27
Washington	Large Office	Cooling Chillers	Windows-High Efficiency	U-0.40 (WA State Code)	U-0.6 (Average Existing Conditions)	per window sqft	Existing	1	25	\$63	15%	70%	\$4.03	18
Washington	Large Office	Cooling Chillers	Automated Ventilation VFD Control(Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	1 unit per 3,000 sqft	New	307	15	\$389	75%	94%	\$0.16	16

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Washington	Large Office	Cooling Chillers	Chilled Water / Condenser Water Settings-Optimization	Additional Control Features	EMS already installed - No Optimization	1 control point per 1000 sqft	New	12	5	\$160	95%	81%	\$3.55	1
Washington	Large Office	Cooling Chillers	Chilled Water Piping Loop w/ VSD Control	VSD for secondary chilled water loop	Primary loop only w/ constant speed pump	per chiller ton	New	23	10	\$205	25%	70%	\$1.47	2
Washington	Large Office	Cooling Chillers	Chillers >300 tons (centrifugal) - High Efficiency	0.55 kW/ton	0.576 kW/ton (full load)	Per installation	New	5,066	20	\$1,506	100%	N/A	\$0.03	0.55
Washington	Large Office	Cooling Chillers	Chillers >300 tons (centrifugal) - Premium Efficiency	0.52 kW/ton (full load)	0.576 kW/ton (full load)	Per installation	New	10,262	20	\$3,248	100%	N/A	\$0.04	4
Washington	Large Office	Cooling Chillers	Chillers >300 tons (centrifugal) with VSD - Advanced Efficiency	0.47 kW/ton w/VSD (full load)	0.576 kW/ton (full load)	Per installation	New	14,733	20	\$11,708	100%	N/A	\$0.09	61
Washington	Large Office	Cooling Chillers	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	New	0.10	15	\$0.68	80%	98%	\$0.86	14
Washington	Large Office	Cooling Chillers	Cooling Tower-Decrease Approach Temperature	6 Deg F	10 Deg F	per chiller ton	New	24	8	\$26	10%	94%	\$0.22	1
Washington	Large Office	Cooling Chillers	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	New	102	15	\$167	75%	76%	\$0.21	12
Washington	Large Office	Cooling Chillers	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	New	0.10	40	\$9	4%	98%	\$8.41	0.05
Washington	Large Office	Cooling Chillers	Natural Ventilation	Natural Ventilation Design Reduction in Cooling	None - Standard Ventilation	per building sqft	New	0.10	15	\$0.95	20%	75%	\$1.20	2
Washington	Large Office	Cooling Chillers	Windows-High Efficiency	U-0.32	U-0.40 (WA State Code)	per window sqft	New	1	25	\$29	80%	90%	\$2.80	16
Washington	Large Office	Cooling Dx Evap	Automated Ventilation VFD Control(Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	1 unit per 3,000 sqft	Existing	679	15	\$728	75%	94%	\$0.14	154
Washington	Large Office	Cooling Dx Evap	Convert Constant Volume Air System to VAV	Variable Volume Air System	Constant Volume Air System	per building CFM	Existing	0.67	15	\$2	15%	67%	\$0.55	47
Washington	Large Office	Cooling Dx Evap	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	Existing	0.22	15	\$0.68	35%	98%	\$0.39	57
Washington	Large Office	Cooling Dx Evap	DX Package 240 to 760 kBTU/hr - High Efficiency	DX Package 240 to 760 kBTU/hr - High Efficiency 10.5	DX Package 240 to 760 kBTU/hr - Standard Efficiency 10.0 EER	Per installation	Existing	3,914	15	\$8,622	100%	N/A	\$0.29	5
Washington	Large Office	Cooling Dx Evap	DX Package 240 to 760 kBTU/hr - Premium Efficiency	DX Package 240 to 760 kBTU/hr - Premium Efficiency 10.8 EER	DX Package 240 to 760 kBTU/hr - Standard Efficiency 10.0 EER	Per installation	Existing	7,005	15	\$14,124	100%	N/A	\$0.26	86
Washington	Large Office	Cooling Dx Evap	DX Package-Air Side Economizer	Air-Side Economizer	No Economizer	per DX ton	Existing	101	10	\$165	10%	20%	\$0.27	5
Washington	Large Office	Cooling Dx Evap	DX Tune-Up / Diagnostics	DX Tune-Up / Diagnostics	No DX Tune-Up / Diagnostics	per installation	Existing	509	4	\$326	95%	72%	\$0.25	137
Washington	Large Office	Cooling Dx Evap	Direct / Indirect Evaporative Cooling, Pre-Cooling	Evaporative Cooler	Standard DX cooling	per building CFM	Existing	0.56	15	\$1	50%	94%	\$0.45	211
Washington	Large Office	Cooling Dx Evap	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	Existing	226	15	\$167	75%	76%	\$0.10	145
Washington	Large Office	Cooling Dx Evap	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	Existing	0.05	18	\$0.22	45%	65%	\$0.46	11
Washington	Large Office	Cooling Dx Evap	Evaporative Cooler replaces DX Package - Advanced Efficiency	Evaporative Cooler replaces DX Package - Advanced Efficiency	DX Package 240 to 760 kBTU/hr - Standard Efficiency 10.0 EER	Per installation	Existing	42,817	15	\$-51355.9	25%	N/A	\$-0.20	120
Washington	Large Office	Cooling Dx Evap	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	Existing	0.22	40	\$9	4%	98%	\$3.81	0.50
Washington	Large Office	Cooling Dx Evap	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	0.94	13	\$0.31	10%	39%	\$0.05	4

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Washington	Large Office	Cooling Dx Evap	Insulation - Ceiling	R-38 (WA State Code)	R-11 (Average Existing Conditions)	per roof sqft	Existing	0.00	25	\$1	75%	57%	\$19.80	1
Washington	Large Office	Cooling Dx Evap	Insulation - Duct	R-7 (WA State Code)	No Insulation	per surface area of duct insul	Existing	1	20	\$2	75%	59%	\$0.20	37
Washington	Large Office	Cooling Dx Evap	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	Existing	13	30	\$5	50%	95%	\$0.04	201
Washington	Large Office	Cooling Dx Evap	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	Existing	2,066	10	\$134	95%	26%	\$0.01	20
Washington	Large Office	Cooling Dx Evap	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	0.28	7	\$0.17	90%	85%	\$0.14	232
Washington	Large Office	Cooling Dx Evap	Window Film	Window Film	No Film	per 100 sqft of window glazing	Existing	1	10	\$146	90%	66%	\$13.38	0.85
Washington	Large Office	Cooling Dx Evap	Windows-High Efficiency	U-0.32	U-0.40 (WA State Code)	per window sqft	Existing	2	25	\$29	15%	90%	\$1.27	26
Washington	Large Office	Cooling Dx Evap	Windows-High Efficiency	U-0.40 (WA State Code)	U-0.6 (Average Existing Conditions)	per window sqft	Existing	2	25	\$63	15%	70%	\$2.97	18
Washington	Large Office	Cooling Dx Evap	Automated Ventilation VFD Control(Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	1 unit per 3,000 sqft	New	451	15	\$389	75%	94%	\$0.11	17
Washington	Large Office	Cooling Dx Evap	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	New	0.15	15	\$0.68	35%	98%	\$0.59	6
Washington	Large Office	Cooling Dx Evap	DX Package 240 to 760 kBTU/hr - High Efficiency	DX Package 240 to 760 kBTU/hr - High Efficiency 10.5	DX Package 240 to 760 kBTU/hr - Standard Efficiency 10.0 EER	Per installation	New	2,692	15	\$6,899	100%	N/A	\$0.33	0.48
Washington	Large Office	Cooling Dx Evap	DX Package 240 to 760 kBTU/hr - Premium Efficiency	DX Package 240 to 760 kBTU/hr - Premium Efficiency 10.8 EER	DX Package 240 to 760 kBTU/hr - Standard Efficiency 10.0 EER	Per installation	New	4,653	15	\$11,300	100%	N/A	\$0.31	8
Washington	Large Office	Cooling Dx Evap	Direct / Indirect Evaporative Cooling, Pre-Cooling	Evaporative Cooler	Standard DX cooling	per building CFM	New	0.37	15	\$1	50%	94%	\$0.68	24
Washington	Large Office	Cooling Dx Evap	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	New	150	15	\$167	75%	76%	\$0.14	12
Washington	Large Office	Cooling Dx Evap	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	New	0.03	18	\$0.22	45%	65%	\$0.69	1
Washington	Large Office	Cooling Dx Evap	Evaporative Cooler replaces DX Package - Advanced Efficiency	Evaporative Cooler replaces DX Package - Advanced Efficiency	DX Package 240 to 760 kBTU/hr - Standard Efficiency 10.0 EER	Per installation	New	29,311	15	\$-39140.65	25%	N/A	\$-0.23	12
Washington	Large Office	Cooling Dx Evap	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	New	0.15	40	\$9	4%	98%	\$5.73	0.05
Washington	Large Office	Cooling Dx Evap	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	New	9	30	\$5	50%	95%	\$0.06	19
Washington	Large Office	Cooling Dx Evap	Natural Ventilation	Natural Ventilation Design Reduction in Cooling	None - Standard Ventilation	per building sqft	New	0.15	15	\$0.95	20%	75%	\$0.82	2
Washington	Large Office	Cooling Dx Evap	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	New	1,373	10	\$134	95%	13%	\$0.02	0.97
Washington	Large Office	Cooling Dx Evap	Windows-High Efficiency	U-0.32	U-0.40 (WA State Code)	per window sqft	New	1	25	\$29	80%	90%	\$1.91	16
Washington	Large Office	Heat Pump	Air Source Heat Pump 135 to 240 kBTU/hr - High Efficiency	11.5 EER, 3.4 COP	10.6 EER, 3.2 COP	Per installation	Existing	14,325	15	\$9,921	100%	N/A	\$0.09	7
Washington	Large Office	Heat Pump	Air Source Heat Pump 65 to 135 kBTU/hr - Premium Efficiency	12.0 EER, 3.8 COP	10.6 EER, 3.2 COP	Per installation	Existing	25,319	15	\$17,006	100%	N/A	\$0.09	168
Washington	Large Office	Heat Pump	Automated Ventilation VFD Control(Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	1 unit per 3,000 sqft	Existing	660	15	\$728	75%	94%	\$0.14	75

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Washington	Large Office	Heat Pump	Convert Constant Volume Air System to VAV	Variable Volume Air System	Constant Volume Air System	per building CFM	Existing	0.78	15	\$2	15%	67%	\$0.48	33
Washington	Large Office	Heat Pump	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	Existing	0.22	15	\$0.68	35%	98%	\$0.40	29
Washington	Large Office	Heat Pump	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	Existing	488	15	\$167	75%	76%	\$0.04	160
Washington	Large Office	Heat Pump	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	Existing	0.12	18	\$0.22	45%	65%	\$0.21	16
Washington	Large Office	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	Existing	0.40	14	\$0.90	5%	94%	\$0.30	8
Washington	Large Office	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	Existing	0.22	40	\$9	4%	98%	\$3.92	0.31
Washington	Large Office	Heat Pump	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	3	13	\$0.31	10%	39%	\$0.01	10
Washington	Large Office	Heat Pump	Insulation - Ceiling	R-38 (WA State Code)	R-11 (Average Existing Conditions)	per roof sqft	Existing	0.49	25	\$1	75%	57%	\$0.21	100
Washington	Large Office	Heat Pump	Insulation - Ceiling	R-49	R-38 (WA State Code)	per roof sqft	Existing	0.03	25	\$0.25	25%	85%	\$0.85	2
Washington	Large Office	Heat Pump	Insulation - Duct	R-7 (WA State Code)	No Insulation	per surface area of duct insul	Existing	2	20	\$2	75%	59%	\$0.09	44
Washington	Large Office	Heat Pump	Insulation - Floor (non-slab)	R-30 (WA State Code)	R-11 (Average Existing Conditions)	per floor area	Existing	0.38	25	\$0.90	35%	70%	\$0.24	41
Washington	Large Office	Heat Pump	Insulation - Floor (non-slab)	R-38	R-30 (WA State Code)	per floor area	Existing	0.07	25	\$0.29	35%	90%	\$0.40	10
Washington	Large Office	Heat Pump	Insulation - Wall	R-13 + 7.5 (WA State Code)	R-3 (Average Existing Conditions)	per floor area	Existing	0.66	25	\$2	10%	69%	\$0.33	14
Washington	Large Office	Heat Pump	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	Existing	41	30	\$5	50%	95%	\$0.01	312
Washington	Large Office	Heat Pump	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	Existing	4,456	10	\$134	95%	26%	\$0.01	23
Washington	Large Office	Heat Pump	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	0.61	7	\$0.17	90%	85%	\$0.06	255
Washington	Large Office	Heat Pump	Window Film	Window Film	No Film	per 100 sqft of window glazing	Existing	1	10	\$146	90%	66%	\$13.37	0.53
Washington	Large Office	Heat Pump	Windows-High Efficiency	U-0.32	U-0.40 (WA State Code)	per window sqft	Existing	1	25	\$29	15%	90%	\$2.06	9
Washington	Large Office	Heat Pump	Windows-High Efficiency	U-0.40 (WA State Code)	U-0.6 (Average Existing Conditions)	per window sqft	Existing	2	25	\$63	15%	70%	\$3.22	10
Washington	Large Office	Heat Pump	Air Source Heat Pump 135 to 240 kBtu/hr - High Efficiency	11.5 EER, 3.4 COP	10.6 EER, 3.2 COP	Per installation	New	9,132	15	\$7,933	100%	N/A	\$0.11	0.77
Washington	Large Office	Heat Pump	Air Source Heat Pump 65 to 135 kBtu/hr - Premium Efficiency	12.0 EER, 3.8 COP	10.6 EER, 3.2 COP	Per installation	New	14,439	15	\$13,603	100%	N/A	\$0.12	19
Washington	Large Office	Heat Pump	Automated Ventilation VFD Control(Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	1 unit per 3,000 sqft	New	431	15	\$389	75%	94%	\$0.12	7
Washington	Large Office	Heat Pump	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	New	0.14	15	\$0.68	35%	98%	\$0.61	3
Washington	Large Office	Heat Pump	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	New	258	15	\$167	75%	76%	\$0.08	12
Washington	Large Office	Heat Pump	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	New	0.06	18	\$0.22	45%	65%	\$0.40	1
Washington	Large Office	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	New	0.17	14	\$0.90	5%	94%	\$0.71	0.58
Washington	Large Office	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	New	0.14	40	\$9	4%	98%	\$6.00	0.03
Washington	Large Office	Heat Pump	Insulation - Ceiling	R-49	R-38 (WA State Code)	per roof sqft	New	0.01	25	\$0.25	75%	85%	\$2.46	0.49
Washington	Large Office	Heat Pump	Insulation - Floor (non-slab)	R-38	R-30 (WA State Code)	per floor area	New	0.02	25	\$0.29	35%	90%	\$1.24	0.54

Table C.2.2. Commercial Measure Details

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Washington	Large Office	Heat Pump	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	New	21	30	\$5	50%	95%	\$0.03	23
Washington	Large Office	Heat Pump	Natural Ventilation	Natural Ventilation Design Reduction in Cooling	None - Standard Ventilation	per building sqft	New	0.25	15	\$0.95	20%	75%	\$0.48	2
Washington	Large Office	Heat Pump	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	New	2,356	10	\$134	95%	13%	\$0.01	0.87
Washington	Large Office	Heat Pump	Windows-High Efficiency	U-0.32	U-0.40 (WA State Code)	per window sqft	New	1	25	\$29	80%	90%	\$2.62	7
Washington	Large Office	Hvac Aux	Convert Constant Volume Air System to VAV	Variable Volume Air System	Constant Volume Air System	per building CFM	Existing	0.39	15	\$2	15%	67%	\$0.96	313
Washington	Large Office	Hvac Aux	Motor - CEE Premium-Efficiency Plus	CEE PE+ Motor for HVAC Applications	NEMA Efficiency Motors	per HP	Existing	32	15	\$6	95%	76%	\$0.03	153
Washington	Large Office	Hvac Aux	Motor - VAV Box High Efficiency (ECM)	ECM Motor	Standard Efficiency Motor	per installation	Existing	81	15	\$173	11%	77%	\$0.28	114
Washington	Large Office	Hvac Aux	Motor Rewind	>15, <500 HP	No Rewind	per HP	Existing	6	8	\$4	65%	25%	\$0.15	5
Washington	Large Office	Hvac Aux	Low Pressure Distribution Complex HVAC	Low Pressure Distribution Complex HVAC	VAV/CV	per building sqft	New	0.92	50	\$2	17%	98%	\$0.23	135
Washington	Large Office	Hvac Aux	Motor - CEE Premium-Efficiency Plus	CEE PE+ Motor for HVAC Applications	NEMA Efficiency Motors	per HP	New	28	15	\$6	95%	76%	\$0.03	23
Washington	Large Office	Hvac Aux	Motor - VAV Box High Efficiency (ECM)	ECM Motor	Standard Efficiency Motor	per installation	New	71	15	\$173	11%	77%	\$0.32	13
Washington	Large Office	Lighting Exterior	Covered Parking Lighting	Covered Parking Lighting	Normal Lighting	per building sqft	Existing	0.09	10	\$0.02	80%	95%	\$0.05	573
Washington	Large Office	Lighting Exterior	Daylighting Controls, Outdoors (Photocell)	Photocell	No Controls	per installation	Existing	48	8	\$27	75%	70%	\$0.11	37
Washington	Large Office	Lighting Exterior	Exterior Building Lighting	30% savings	Normal Lighting	per installation	Existing	244	15	\$328	62%	90%	\$0.17	326
Washington	Large Office	Lighting Exterior	Solid State LED White Lighting	Landscape, merchandise, signage, structure & task lighting (2.5 W)	50W 10hrs/day, 365 day/yr	per installation	Existing	5	14	\$34	75%	95%	\$0.90	6
Washington	Large Office	Lighting Exterior	Surface Parking Lighting	Surface Parking Lighting	Normal Lighting	per building sqft	Existing	0.05	19	\$0.06	62%	95%	\$0.16	239
Washington	Large Office	Lighting Exterior	Covered Parking Lighting	Covered Parking Lighting	Normal Lighting	per building sqft	New	0.09	10	\$0.02	80%	95%	\$0.05	79
Washington	Large Office	Lighting Exterior	Daylighting Controls, Outdoors (Photocell)	Photocell	No Controls	per installation	New	48	8	\$27	75%	70%	\$0.11	5
Washington	Large Office	Lighting Exterior	Exterior Building Lighting	30% savings	Normal Lighting	per installation	New	244	15	\$328	62%	90%	\$0.17	45
Washington	Large Office	Lighting Exterior	Solid State LED White Lighting	Landscape, merchandise, signage, structure & task lighting (2.5 W)	50W 10hrs/day, 365 day/yr	per installation	New	5	14	\$34	75%	95%	\$0.90	0.96
Washington	Large Office	Lighting Exterior	Surface Parking Lighting	Surface Parking Lighting	Normal Lighting	per building sqft	New	0.05	19	\$0.06	62%	95%	\$0.16	33
Washington	Large Office	Lighting Interior	Cold Cathode Lighting	Cold Cathode Lighting 5 watts	30 W Incandescent Bulb	per installation	Existing	1,501	5	\$12	15%	94%	\$0.00	52
Washington	Large Office	Lighting Interior	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	Existing	1	8	\$0.95	30%	78%	\$0.12	118
Washington	Large Office	Lighting Interior	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	Existing	1	8	\$0.71	30%	78%	\$0.12	89
Washington	Large Office	Lighting Interior	Exit Sign - LED	LED Exit Sign (2 Watts)	CFL Exit Sign (9 Watts)	per installation	Existing	97	16	\$16	95%	50%	\$0.02	261
Washington	Large Office	Lighting Interior	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign (2 Watts)	per installation	Existing	17	13	\$30	95%	98%	\$0.24	31
Washington	Large Office	Lighting Interior	Lighting Package, High Efficiency	15% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	Existing	0.47	13	\$0.14	90%	53%	\$0.04	1,387
Washington	Large Office	Lighting Interior	Lighting Package, High Efficiency	Code Required LPD And Control Strategies	Existing Lighting Design LPD	per building sqft	Existing	1	13	\$0.96	90%	73%	\$0.09	7,749
Washington	Large Office	Lighting Interior	Lighting Package, Premium Efficiency	25% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	Existing	0.79	13	\$0.34	75%	62%	\$0.06	558
Washington	Large Office	Lighting Interior	Lighting Package, Premium High Bay	35% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	Existing	0.04	13	\$0.02	70%	83%	\$0.10	189

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Washington	Large Office	Lighting Interior	Occupancy Sensor Control, Fluorescent	Occupancy Sensor Control, Fluorescent	No Occupancy Sensor	per occupancy sensor	Existing	852	8	\$68	90%	42%	\$0.02	195
Washington	Large Office	Lighting Interior	Time Clock	Time Clock	No Controls	per 10,000 Watts	Existing	756	8	\$195	20%	88%	\$0.05	89
Washington	Large Office	Lighting Interior	Cold Cathode Lighting	Cold Cathode Lighting 5 watts	30 W Incandescent Bulb	per installation	New	925	5	\$12	15%	94%	\$0.00	4
Washington	Large Office	Lighting Interior	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	New	0.94	8	\$0.95	30%	78%	\$0.20	12
Washington	Large Office	Lighting Interior	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	New	0.70	8	\$0.71	30%	78%	\$0.20	9
Washington	Large Office	Lighting Interior	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign (2 Watts)	per installation	New	17	13	\$30	95%	98%	\$0.24	17
Washington	Large Office	Lighting Interior	Lighting Package, High Efficiency	15% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	New	0.47	15	\$0.00	90%	53%	\$0.00	192
Washington	Large Office	Lighting Interior	Lighting Package, Premium Efficiency	25% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	New	0.73	15	\$0.10	75%	62%	\$0.02	71
Washington	Large Office	Lighting Interior	Lighting Package, Premium High Bay	35% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	New	0.04	15	\$0.00	70%	83%	\$0.02	26
Washington	Large Office	Lighting Interior	Occupancy Sensor Control, Fluorescent	Occupancy Sensor Control, Fluorescent	No Occupancy Sensor	per occupancy sensor	New	526	8	\$68	90%	42%	\$0.03	19
Washington	Large Office	Lighting Interior	Time Clock	Time Clock	No Controls	per 10,000 Watts	New	756	8	\$195	20%	88%	\$0.05	9
Washington	Large Office	Other Office Equipment	ENERGY STAR - Copiers	ENERGY STAR Copiers	Standard Copier	per installation	Existing	73	6	\$159	95%	45%	\$0.53	7
Washington	Large Office	Other Office Equipment	ENERGY STAR - Fax	ENERGY STAR Fax	Standard Fax	per installation	Existing	78	6	\$0.00	95%	45%	\$0.00	7
Washington	Large Office	Other Office Equipment	ENERGY STAR - Monitors	ENERGY STAR Features Enabled	Non-ENERGY STAR Features	per installation	Existing	15	5	\$16	64%	15%	\$0.30	15
Washington	Large Office	Other Office Equipment	ENERGY STAR - Printers	ENERGY STAR Printers	Standard Printers	per installation	Existing	138	6	\$16	95%	40%	\$0.03	10
Washington	Large Office	Other Office Equipment	ENERGY STAR - Scanners	ENERGY STAR Scanners	Standard Scanner	per installation	Existing	71	6	\$0.00	95%	45%	\$0.00	7
Washington	Large Office	Other Office Equipment	ENERGY STAR - Copiers	ENERGY STAR Copiers	Standard Copier	per installation	New	73	6	\$159	95%	45%	\$0.53	1
Washington	Large Office	Other Office Equipment	ENERGY STAR - Fax	ENERGY STAR Fax	Standard Fax	per installation	New	78	6	\$0.00	95%	45%	\$0.00	1
Washington	Large Office	Other Office Equipment	ENERGY STAR - Monitors	ENERGY STAR Features Enabled	Non-ENERGY STAR Features	per installation	New	15	5	\$16	64%	15%	\$0.30	2
Washington	Large Office	Other Office Equipment	ENERGY STAR - Printers	ENERGY STAR Printers	Standard Printers	per installation	New	138	6	\$16	95%	40%	\$0.03	1
Washington	Large Office	Other Office Equipment	ENERGY STAR - Scanners	ENERGY STAR Scanners	Standard Scanner	per installation	New	71	6	\$0.00	95%	45%	\$0.00	1
Washington	Large Office	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	per installation	Existing	7	7	\$1	20%	90%	\$0.04	0.82
Washington	Large Office	Other Plug Load	ENERGY STAR - Water Cooler	ENERGY STAR Water Cooler (Hot/Cold Water)	Non-ENERGY STAR Water Cooler	per installation	Existing	364	10	\$0.00	95%	75%	\$0.00	44
Washington	Large Office	Other Plug Load	Power Supply Transformer/Converter	80 Plus	85% efficient power supply (> 51W)	1 unit per 2,000 sqft	Existing	3	4	\$0.40	95%	86%	\$0.03	12
Washington	Large Office	Other Plug Load	Residential Refrigerator	ENERGY STAR	Federal Standard	per installation	Existing	80	12	\$122	19%	65%	\$0.22	2
Washington	Large Office	Other Plug Load	Residential Refrigerator/Freezer Recycling	Recycling Existing Refrigerator/Freezer	Existing Refrigerator/Freezer	per installation	Existing	956	4	\$552	25%	35%	\$0.20	6
Washington	Large Office	Other Plug Load	Server Virtualization	Server Virtualization	No Virtualization	number of virtualized servers	Existing	2,270	4	\$2,039	72%	85%	\$0.68	58
Washington	Large Office	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	1 unit per 500 sqft	Existing	100	5	\$20	60%	90%	\$0.06	869
Washington	Large Office	Other Plug Load	Vending Machines- High Efficiency	ENERGY STAR (Tier 2) Vending Machines- High Efficiency 500 can capacity Under 5.92 kWh/day	Vending Machines- Standard 13 kWh/day	per installation	Existing	240	14	\$152	10%	80%	\$0.09	0.50

Table C.2.2. Commercial Measure Details

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Washington	Large Office	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	per installation	New	7	7	\$1	20%	90%	\$0.04	0.11
Washington	Large Office	Other Plug Load	ENERGY STAR - Water Cooler	ENERGY STAR Water Cooler (Hot/Cold Water)	Non-ENERGY STAR Water Cooler	per installation	New	364	10	\$0.00	95%	75%	\$0.00	6
Washington	Large Office	Other Plug Load	Power Supply Transformer/Converter	80 Plus	85% efficient power supply (> 51W)	1 unit per 2,000 sqft	New	3	4	\$0.40	95%	86%	\$0.03	1
Washington	Large Office	Other Plug Load	Residential Refrigerator	ENERGY STAR	Federal Standard	per installation	New	80	12	\$122	19%	65%	\$0.22	0.36
Washington	Large Office	Other Plug Load	Server Virtualization	Server Virtualization	No Virtualization	number of virtualized servers	New	2,270	4	\$2,039	72%	85%	\$0.68	8
Washington	Large Office	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	1 unit per 500 sqft	New	100	5	\$20	60%	90%	\$0.06	120
Washington	Large Office	Other Plug Load	Vending Machines- High Efficiency	ENERGY STAR (Tier 2) Vending Machines- High Efficiency 500 can capacity Under 5.92 kWh/day	Vending Machines- Standard 13 kWh/day	per installation	New	240	14	\$152	10%	80%	\$0.09	0.07
Washington	Large Office	Space Heat	Convert Constant Volume Air System to VAV	Variable Volume Air System	Constant Volume Air System	per building CFM	Existing	0.67	15	\$2	15%	67%	\$0.56	55
Washington	Large Office	Space Heat	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	Existing	516	15	\$167	75%	76%	\$0.04	350
Washington	Large Office	Space Heat	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	Existing	0.12	18	\$0.22	45%	65%	\$0.20	31
Washington	Large Office	Space Heat	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	Existing	0.77	14	\$0.90	5%	94%	\$0.16	30
Washington	Large Office	Space Heat	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	4	13	\$0.31	10%	39%	\$0.01	26
Washington	Large Office	Space Heat	Insulation - Ceiling	R-38 (WA State Code)	R-11 (Average Existing Conditions)	per roof sqft	Existing	0.94	25	\$1	75%	57%	\$0.11	373
Washington	Large Office	Space Heat	Insulation - Ceiling	R-49	R-38 (WA State Code)	per roof sqft	Existing	0.11	25	\$0.25	25%	85%	\$0.23	20
Washington	Large Office	Space Heat	Insulation - Duct	R-7 (WA State Code)	No Insulation	per surface area of duct insul	Existing	2	20	\$2	75%	59%	\$0.09	91
Washington	Large Office	Space Heat	Insulation - Floor (non-slab)	R-30 (WA State Code)	R-11 (Average Existing Conditions)	per floor area	Existing	1	25	\$0.90	35%	70%	\$0.07	309
Washington	Large Office	Space Heat	Insulation - Floor (non-slab)	R-38	R-30 (WA State Code)	per floor area	Existing	0.23	25	\$0.29	35%	90%	\$0.13	61
Washington	Large Office	Space Heat	Insulation - Wall	R-13 + 7.5 (WA State Code)	R-3 (Average Existing Conditions)	per floor area	Existing	2	25	\$2	10%	69%	\$0.10	106
Washington	Large Office	Space Heat	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	Existing	43	30	\$5	50%	95%	\$0.01	683
Washington	Large Office	Space Heat	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	Existing	4,713	10	\$134	95%	26%	\$0.00	50
Washington	Large Office	Space Heat	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	0.64	7	\$0.17	90%	85%	\$0.06	558
Washington	Large Office	Space Heat	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	New	247	15	\$167	75%	76%	\$0.09	23
Washington	Large Office	Space Heat	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	New	0.06	18	\$0.22	45%	65%	\$0.42	2
Washington	Large Office	Space Heat	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	New	0.37	14	\$0.90	5%	94%	\$0.33	2
Washington	Large Office	Space Heat	Insulation - Ceiling	R-49	R-38 (WA State Code)	per roof sqft	New	0.05	25	\$0.25	75%	85%	\$0.48	5
Washington	Large Office	Space Heat	Insulation - Floor (non-slab)	R-38	R-30 (WA State Code)	per floor area	New	0.11	25	\$0.29	35%	90%	\$0.27	5
Washington	Large Office	Space Heat	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	New	20	30	\$5	50%	95%	\$0.03	45
Washington	Large Office	Space Heat	Natural Ventilation	Natural Ventilation Design Reduction in Cooling	None - Standard Ventilation	per building sqft	New	0.24	15	\$0.95	20%	75%	\$0.50	5
Washington	Large Office	Space Heat	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	New	2,255	10	\$134	95%	13%	\$0.01	1
Washington	Large Office	Water Heat	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	per building sqft	Existing	0.02	10	\$0.26	55%	80%	\$1.89	15

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Washington	Large Office	Water Heat	Dishwasher Residential	ENERGY STAR <= 324 kWh/yr, <= 5.8 gal/cycle	Federal Standard <= 355 kWh/yr, <= 6.5 gal/cycle	per installation	Existing	31	11	\$30	95%	25%	\$0.09	0.45
Washington	Large Office	Water Heat	Electric Water Heater - High Efficiency	EF = 0.95	EF = 0.92	Per installation	Existing	433	15	\$405	100%	N/A	\$0.12	3
Washington	Large Office	Water Heat	Heat Pump Water Heater - Advanced-Efficiency	EF = 2.2	EF = 0.92	Per installation	Existing	7,985	15	\$7,835	75%	N/A	\$0.13	169
Washington	Large Office	Water Heat	Hot Water (SHW) Pipe Insulation	1.0" of Insulation, assuming R-4 (WA State Code)	No Insulation	per linear foot	Existing	9	12	\$2	80%	30%	\$0.04	1
Washington	Large Office	Water Heat	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	per installation	Existing	74	9	\$0.00	95%	25%	\$-0.08	6
Washington	Large Office	Water Heat	Low-Flow Faucet Aerators	2.2 GPM (Federal Code)	3.0 GPM	per installation	Existing	62	9	\$2	95%	25%	\$-0.07	5
Washington	Large Office	Water Heat	Low-Flow Showerheads	2.0 GPM	2.5 GPM (Federal Code)	per installation	Existing	1,110	10	\$6	95%	73%	\$-0.08	43
Washington	Large Office	Water Heat	Low-Flow Showerheads	2.5 GPM (Federal Code)	4.5 GPM	per installation	Existing	2,468	10	\$10	95%	62%	\$-0.08	82
Washington	Large Office	Water Heat	Water Heater Temperature Setback	Water Heater Temperature Setback (120 F)	No Change in Water Temperature	per installation	Existing	218	5	\$93	75%	40%	\$0.12	17
Washington	Large Office	Water Heat	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	per building sqft	New	0.02	10	\$0.26	55%	80%	\$1.97	2
Washington	Large Office	Water Heat	Dishwasher Residential	ENERGY STAR <= 324 kWh/yr, <= 5.8 gal/cycle	Federal Standard <= 355 kWh/yr, <= 6.5 gal/cycle	per installation	New	31	11	\$30	95%	55%	\$0.09	0.14
Washington	Large Office	Water Heat	Electric Water Heater - High Efficiency	EF = 0.95	EF = 0.92	Per installation	New	433	15	\$405	100%	N/A	\$0.12	0.48
Washington	Large Office	Water Heat	Heat Pump Water Heater - Advanced-Efficiency	EF = 2.2	EF = 0.92	Per installation	New	7,985	15	\$6,682	75%	N/A	\$0.11	22
Washington	Large Office	Water Heat	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	per installation	New	71	9	\$0.00	95%	25%	\$-0.08	0.90
Washington	Large Office	Water Heat	Low-Flow Showerheads	2.0 GPM	2.5 GPM (Federal Code)	per installation	New	1,068	10	\$6	95%	73%	\$-0.08	5
Washington	Large Office	Water Heat	Water Heater Temperature Setback	Water Heater Temperature Setback (120 F)	No Change in Water Temperature	per installation	New	210	5	\$93	75%	40%	\$0.13	2
Washington	Large Retail	Computers	Computer ENERGY STAR	Computer ENERGY STAR	Computer standard non-ENERGY STAR	Per installation	Existing	133	4	\$28	100%	N/A	\$0.07	162
Washington	Large Retail	Computers	Computer ENERGY STAR	Computer ENERGY STAR	Computer standard non-ENERGY STAR	Per installation	New	133	4	\$28	100%	N/A	\$0.07	4
Washington	Large Retail	Cooling Dx Evap	Automated Ventilation VFD Control(Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	1 unit per 3,000 sqft	Existing	825	15	\$726	25%	94%	\$0.11	278
Washington	Large Retail	Cooling Dx Evap	Convert Constant Volume Air System to VAV	Variable Volume Air System	Constant Volume Air System	per building CFM	Existing	0.82	15	\$2	15%	67%	\$0.45	251
Washington	Large Retail	Cooling Dx Evap	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	Existing	0.27	15	\$0.68	80%	98%	\$0.32	734
Washington	Large Retail	Cooling Dx Evap	DX Package 240 to 760 kBTU/hr - High Efficiency	DX Package 240 to 760 kBTU/hr - High Efficiency 10.5	DX Package 240 to 760 kBTU/hr - Standard Efficiency 10.0 EER	Per installation	Existing	5,289	15	\$14,843	100%	N/A	\$0.36	28
Washington	Large Retail	Cooling Dx Evap	DX Package 240 to 760 kBTU/hr - Premium Efficiency	DX Package 240 to 760 kBTU/hr - Premium Efficiency 10.8 EER	DX Package 240 to 760 kBTU/hr - Standard Efficiency 10.0 EER	Per installation	Existing	9,493	15	\$24,314	100%	N/A	\$0.33	456
Washington	Large Retail	Cooling Dx Evap	DX Package-Air Side Economizer	Air-Side Economizer	No Economizer	per DX ton	Existing	82	10	\$164	10%	80%	\$0.33	116
Washington	Large Retail	Cooling Dx Evap	DX Tune-Up / Diagnostics	DX Tune-Up / Diagnostics	No DX Tune-Up / Diagnostics	per installation	Existing	412	4	\$325	95%	72%	\$0.30	766
Washington	Large Retail	Cooling Dx Evap	Direct / Indirect Evaporative Cooling, Pre-Cooling	Evaporative Cooler	Standard DX cooling	per building CFM	Existing	0.68	15	\$1	50%	94%	\$0.37	1,123
Washington	Large Retail	Cooling Dx Evap	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	Existing	275	15	\$166	75%	76%	\$0.08	790
Washington	Large Retail	Cooling Dx Evap	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	Existing	0.06	18	\$0.22	45%	65%	\$0.38	61

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Washington	Large Retail	Cooling Dx Evap	Evaporative Cooler replaces DX Package - Advanced Efficiency	Evaporative Cooler replaces DX Package - Advanced Efficiency	DX Package 240 to 760 kBTU/hr - Standard Efficiency 10.0 EER	Per installation	Existing	59,796	15	\$-101286.5	25%	N/A	\$-0.28	652
Washington	Large Retail	Cooling Dx Evap	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	Existing	0.27	40	\$9	4%	98%	\$3.13	2
Washington	Large Retail	Cooling Dx Evap	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	2	13	\$0.31	10%	39%	\$0.02	9
Washington	Large Retail	Cooling Dx Evap	Insulation - Ceiling	R-38 (WA State Code)	R-7 (Average Existing Conditions)	per roof sqft	Existing	0.01	25	\$0.99	75%	65%	\$8.14	17
Washington	Large Retail	Cooling Dx Evap	Insulation - Duct	R-7 (WA State Code)	No Insulation	per surface area of duct insul	Existing	1	20	\$2	75%	59%	\$0.17	214
Washington	Large Retail	Cooling Dx Evap	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	Existing	16	30	\$5	50%	95%	\$0.03	1,088
Washington	Large Retail	Cooling Dx Evap	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	Existing	2,889	10	\$133	95%	26%	\$0.01	111
Washington	Large Retail	Cooling Dx Evap	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	0.34	7	\$0.17	90%	85%	\$0.11	1,258
Washington	Large Retail	Cooling Dx Evap	Window Film	Window Film	No Film	per 100 sqft of window glazing	Existing	2	10	\$146	90%	66%	\$11.10	0.78
Washington	Large Retail	Cooling Dx Evap	Windows-High Efficiency	U-0.32	U-0.40 (WA State Code)	per window sqft	Existing	16	25	\$29	15%	90%	\$0.18	193
Washington	Large Retail	Cooling Dx Evap	Windows-High Efficiency	U-0.40 (WA State Code)	U-0.68 (Average Existing Conditions)	per window sqft	Existing	14	25	\$62	15%	70%	\$0.45	93
Washington	Large Retail	Cooling Dx Evap	Automated Ventilation VFD Control(Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	1 unit per 3,000 sqft	New	581	15	\$387	25%	94%	\$0.09	32
Washington	Large Retail	Cooling Dx Evap	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	New	0.19	15	\$0.68	80%	98%	\$0.45	82
Washington	Large Retail	Cooling Dx Evap	DX Package 240 to 760 kBTU/hr - High Efficiency	DX Package 240 to 760 kBTU/hr - High Efficiency 10.5	DX Package 240 to 760 kBTU/hr - Standard Efficiency 10.0 EER	Per installation	New	3,912	15	\$11,875	100%	N/A	\$0.39	2
Washington	Large Retail	Cooling Dx Evap	DX Package 240 to 760 kBTU/hr - Premium Efficiency	DX Package 240 to 760 kBTU/hr - Premium Efficiency 10.8 EER	DX Package 240 to 760 kBTU/hr - Standard Efficiency 10.0 EER	Per installation	New	6,933	15	\$19,453	100%	N/A	\$0.36	50
Washington	Large Retail	Cooling Dx Evap	Direct / Indirect Evaporative Cooling, Pre-Cooling	Evaporative Cooler	Standard DX cooling	per building CFM	New	0.48	15	\$1	50%	94%	\$0.53	128
Washington	Large Retail	Cooling Dx Evap	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	New	193	15	\$166	75%	76%	\$0.11	77
Washington	Large Retail	Cooling Dx Evap	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	New	0.04	18	\$0.22	45%	65%	\$0.54	7
Washington	Large Retail	Cooling Dx Evap	Evaporative Cooler replaces DX Package - Advanced Efficiency	Evaporative Cooler replaces DX Package - Advanced Efficiency	DX Package 240 to 760 kBTU/hr - Standard Efficiency 10.0 EER	Per installation	New	43,538	15	\$-77686	25%	N/A	\$-0.30	70
Washington	Large Retail	Cooling Dx Evap	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	New	0.19	40	\$9	4%	98%	\$4.44	0.32
Washington	Large Retail	Cooling Dx Evap	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	New	11	30	\$5	50%	95%	\$0.05	109
Washington	Large Retail	Cooling Dx Evap	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	New	2,036	10	\$133	95%	13%	\$0.01	5
Washington	Large Retail	Cooling Dx Evap	Windows-High Efficiency	U-0.32	U-0.40 (WA State Code)	per window sqft	New	11	25	\$29	80%	90%	\$0.26	117
Washington	Large Retail	Heat Pump	Air Source Heat Pump 135 to 240 kBTU/hr - High Efficiency	11.5 EER, 3.4 COP	10.6 EER, 3.2 COP	Per installation	Existing	18,284	15	\$17,073	100%	N/A	\$0.12	31

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Washington	Large Retail	Heat Pump	Air Source Heat Pump 65 to 135 kBtu/hr - Premium Efficiency	12.0 EER, 3.8 COP	10.6 EER, 3.2 COP	Per installation	Existing	28,440	15	\$29,270	100%	N/A	\$0.13	418
Washington	Large Retail	Heat Pump	Automated Ventilation VFD Control(Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	1 unit per 3,000 sqft	Existing	873	15	\$726	25%	94%	\$0.11	57
Washington	Large Retail	Heat Pump	Convert Constant Volume Air System to VAV	Variable Volume Air System	Constant Volume Air System	per building CFM	Existing	0.79	15	\$2	15%	67%	\$0.47	57
Washington	Large Retail	Heat Pump	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	Existing	0.29	15	\$0.68	80%	98%	\$0.30	157
Washington	Large Retail	Heat Pump	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	Existing	497	15	\$166	75%	76%	\$0.04	281
Washington	Large Retail	Heat Pump	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	Existing	0.12	18	\$0.22	45%	65%	\$0.21	28
Washington	Large Retail	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	Existing	0.30	14	\$0.90	5%	94%	\$0.39	10
Washington	Large Retail	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	Existing	0.29	40	\$9	4%	98%	\$2.96	0.70
Washington	Large Retail	Heat Pump	Ground Source Heat Pump Replacing Air Source Heat Pump 65 to 135 kBtu/hr - Advanced Efficiency	16.2 EER 4.0 COP	10.6 EER, 3.2 COP	Per installation	Existing	60,491	30	\$41,801	5%	N/A	\$1.46	41
Washington	Large Retail	Heat Pump	Infiltration Reduction	Install Caulking And Weathersstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	4	13	\$0.31	10%	39%	\$0.01	4
Washington	Large Retail	Heat Pump	Insulation - Ceiling	R-38 (WA State Code)	R-7 (Average Existing Conditions)	per roof sqft	Existing	0.52	25	\$0.99	75%	65%	\$0.19	211
Washington	Large Retail	Heat Pump	Insulation - Ceiling	R-49	R-38 (WA State Code)	per roof sqft	Existing	0.01	25	\$0.25	25%	85%	\$1.45	2
Washington	Large Retail	Heat Pump	Insulation - Duct	R-7 (WA State Code)	No Insulation	per surface area of duct insul	Existing	2	20	\$2	75%	59%	\$0.09	78
Washington	Large Retail	Heat Pump	Insulation - Floor (non-slab)	R-30 (WA State Code)	R-11 (Average Existing Conditions)	per floor area	Existing	0.20	25	\$0.90	35%	84%	\$0.46	43
Washington	Large Retail	Heat Pump	Insulation - Floor (non-slab)	R-38	R-30 (WA State Code)	per floor area	Existing	0.03	25	\$0.29	35%	90%	\$0.75	8
Washington	Large Retail	Heat Pump	Insulation - Wall	R-13 + 7.5 (WA State Code)	R-3 (Average Existing Conditions)	per floor area	Existing	0.63	25	\$2	10%	69%	\$0.35	13
Washington	Large Retail	Heat Pump	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	Existing	41	30	\$5	50%	95%	\$0.01	549
Washington	Large Retail	Heat Pump	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	Existing	5,225	10	\$133	95%	26%	\$0.00	40
Washington	Large Retail	Heat Pump	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	0.62	7	\$0.17	90%	85%	\$0.06	448
Washington	Large Retail	Heat Pump	Window Film	Window Film	No Film	per 100 sqft of window glazing	Existing	2	10	\$146	90%	66%	\$11.12	0.19
Washington	Large Retail	Heat Pump	Windows-High Efficiency	U-0.32	U-0.40 (WA State Code)	per window sqft	Existing	13	25	\$29	15%	90%	\$0.22	30
Washington	Large Retail	Heat Pump	Windows-High Efficiency	U-0.40 (WA State Code)	U-0.68 (Average Existing Conditions)	per window sqft	Existing	16	25	\$62	15%	70%	\$0.38	26
Washington	Large Retail	Heat Pump	Air Source Heat Pump 135 to 240 kBtu/hr - High Efficiency	11.5 EER, 3.4 COP	10.6 EER, 3.2 COP	Per installation	New	12,911	15	\$13,660	100%	N/A	\$0.14	3
Washington	Large Retail	Heat Pump	Air Source Heat Pump 65 to 135 kBtu/hr - Premium Efficiency	12.0 EER, 3.8 COP	10.6 EER, 3.2 COP	Per installation	New	19,355	15	\$23,415	100%	N/A	\$0.16	43
Washington	Large Retail	Heat Pump	Automated Ventilation VFD Control(Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	1 unit per 3,000 sqft	New	610	15	\$387	25%	94%	\$0.08	6
Washington	Large Retail	Heat Pump	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	New	0.20	15	\$0.68	80%	98%	\$0.43	18

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Washington	Large Retail	Heat Pump	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	New	321	15	\$166	75%	76%	\$0.07	26
Washington	Large Retail	Heat Pump	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	New	0.08	18	\$0.22	45%	65%	\$0.32	2
Washington	Large Retail	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	New	0.17	14	\$0.90	5%	94%	\$0.69	1
Washington	Large Retail	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	New	0.20	40	\$9	4%	98%	\$4.23	0.08
Washington	Large Retail	Heat Pump	Ground Source Heat Pump Replacing Air Source Heat Pump 65 to 135 KBTU/hr - Advanced Efficiency	16.2 EER 4.0 COP	10.6 EER, 3.2 COP	Per installation	New	42,291	30	\$87,543	5%	N/A	\$1.07	3
Washington	Large Retail	Heat Pump	Insulation - Ceiling	R-49	R-38 (WA State Code)	per roof sqft	New	0.00	25	\$0.25	75%	85%	\$2.86	0.70
Washington	Large Retail	Heat Pump	Insulation - Floor (non-slab)	R-38	R-30 (WA State Code)	per floor area	New	0.01	25	\$0.29	35%	90%	\$1.56	0.72
Washington	Large Retail	Heat Pump	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	New	27	30	\$5	50%	95%	\$0.02	51
Washington	Large Retail	Heat Pump	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	New	3,377	10	\$133	95%	13%	\$0.01	1
Washington	Large Retail	Heat Pump	Windows-High Efficiency	U-0.32	U-0.40 (WA State Code)	per window sqft	New	10	25	\$29	80%	90%	\$0.29	20
Washington	Large Retail	Hvac Aux	Convert Constant Volume Air System to VAV	Variable Volume Air System	Constant Volume Air System	per building CFM	Existing	0.35	15	\$2	15%	67%	\$1.05	614
Washington	Large Retail	Hvac Aux	Cooking Hood Controls	Demand-Ventilation Control	No Controls	per installation	Existing	1,873	18	\$4,396	95%	65%	\$0.28	142
Washington	Large Retail	Hvac Aux	Motor - CEE Premium-Efficiency Plus	CEE PE+ Motor for HVAC Applications	NEMA Efficiency Motors	per HP	Existing	29	15	\$6	95%	76%	\$0.03	299
Washington	Large Retail	Hvac Aux	Motor - VAV Box High Efficiency (ECM)	ECM Motor	Standard Efficiency Motor	per installation	Existing	73	15	\$173	5%	77%	\$0.30	101
Washington	Large Retail	Hvac Aux	Motor Rewind	>15, <500 HP	No Rewind	per HP	Existing	3	8	\$4	65%	25%	\$0.24	10
Washington	Large Retail	Hvac Aux	Cooking Hood Controls	Demand-Ventilation Control	No Controls	per installation	New	1,873	18	\$4,396	95%	65%	\$0.28	19
Washington	Large Retail	Hvac Aux	Low Pressure Distribution Complex HVAC	Low Pressure Distribution Complex HVAC	VAV/CV	per building sqft	New	0.84	50	\$2	8%	98%	\$0.25	125
Washington	Large Retail	Hvac Aux	Motor - CEE Premium-Efficiency Plus	CEE PE+ Motor for HVAC Applications	NEMA Efficiency Motors	per HP	New	23	15	\$6	95%	76%	\$0.03	42
Washington	Large Retail	Hvac Aux	Motor - VAV Box High Efficiency (ECM)	ECM Motor	Standard Efficiency Motor	per installation	New	60	15	\$173	5%	77%	\$0.37	11
Washington	Large Retail	Lighting Exterior	Covered Parking Lighting	Covered Parking Lighting	Normal Lighting	per building sqft	Existing	0.09	10	\$0.02	80%	95%	\$0.05	1,234
Washington	Large Retail	Lighting Exterior	Daylighting Controls, Outdoors (Photocell)	Photocell	No Controls	per installation	Existing	113	8	\$27	75%	70%	\$0.05	199
Washington	Large Retail	Lighting Exterior	Exterior Building Lighting	30% savings	Normal Lighting	per installation	Existing	243	15	\$327	62%	90%	\$0.17	1,733
Washington	Large Retail	Lighting Exterior	Solid State LED White Lighting	Landscape, merchandise, signage, structure & task lighting (2.5 W)	50W 10hrs/day, 365 day/yr	per installation	Existing	12	14	\$34	75%	95%	\$0.38	32
Washington	Large Retail	Lighting Exterior	Surface Parking Lighting	Surface Parking Lighting	Normal Lighting	per building sqft	Existing	0.05	19	\$0.06	62%	95%	\$0.16	516
Washington	Large Retail	Lighting Exterior	Covered Parking Lighting	Covered Parking Lighting	Normal Lighting	per building sqft	New	0.09	10	\$0.02	80%	95%	\$0.05	171
Washington	Large Retail	Lighting Exterior	Daylighting Controls, Outdoors (Photocell)	Photocell	No Controls	per installation	New	113	8	\$27	75%	70%	\$0.05	27
Washington	Large Retail	Lighting Exterior	Exterior Building Lighting	30% savings	Normal Lighting	per installation	New	243	15	\$327	62%	90%	\$0.17	241
Washington	Large Retail	Lighting Exterior	Solid State LED White Lighting	Landscape, merchandise, signage, structure & task lighting (2.5 W)	50W 10hrs/day, 365 day/yr	per installation	New	12	14	\$34	75%	95%	\$0.38	4
Washington	Large Retail	Lighting Exterior	Surface Parking Lighting	Surface Parking Lighting	Normal Lighting	per building sqft	New	0.05	19	\$0.06	62%	95%	\$0.16	71
Washington	Large Retail	Lighting Interior	Cold Cathode Lighting	Cold Cathode Lighting 5 watts	30 W Incandescent Bulb	per installation	Existing	2,400	5	\$14	15%	94%	\$0.00	155
Washington	Large Retail	Lighting Interior	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	Existing	0.81	8	\$0.95	30%	84%	\$0.23	148

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Washington	Large Retail	Lighting Interior	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	Existing	0.61	8	\$0.71	30%	84%	\$0.23	111
Washington	Large Retail	Lighting Interior	Exit Sign - LED	LED Exit Sign (2 Watts)	CFL Exit Sign (9 Watts)	per installation	Existing	96	16	\$16	95%	50%	\$0.02	553
Washington	Large Retail	Lighting Interior	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign (2 Watts)	per installation	Existing	17	13	\$30	95%	98%	\$0.24	65
Washington	Large Retail	Lighting Interior	Lighting Package, High Efficiency	15% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	Existing	0.73	13	\$0.08	90%	53%	\$0.02	4,564
Washington	Large Retail	Lighting Interior	Lighting Package, High Efficiency	Code Required LPD And Control Strategies	Existing Lighting Design LPD	per building sqft	Existing	1	13	\$0.80	90%	39%	\$0.06	10,438
Washington	Large Retail	Lighting Interior	Lighting Package, Premium Efficiency	25% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	Existing	1	13	\$0.47	75%	62%	\$0.05	1,835
Washington	Large Retail	Lighting Interior	Lighting Package, Premium High Bay	35% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	Existing	0.27	13	\$0.15	70%	83%	\$0.08	2,610
Washington	Large Retail	Lighting Interior	Occupancy Sensor Control, Fluorescent	Occupancy Sensor Control, Fluorescent	No Occupancy Sensor	per occupancy sensor	Existing	1,185	8	\$68	45%	56%	\$0.01	383
Washington	Large Retail	Lighting Interior	Time Clock	Time Clock	No Controls	per 10,000 Watts	Existing	753	8	\$195	20%	86%	\$0.05	255
Washington	Large Retail	Lighting Interior	Cold Cathode Lighting	Cold Cathode Lighting 5 watts	30 W Incandescent Bulb	per installation	New	1,837	5	\$14	15%	94%	\$0.00	16
Washington	Large Retail	Lighting Interior	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	New	0.62	8	\$0.95	30%	84%	\$0.30	16
Washington	Large Retail	Lighting Interior	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	New	0.47	8	\$0.71	30%	84%	\$0.30	12
Washington	Large Retail	Lighting Interior	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign (2 Watts)	per installation	New	17	13	\$30	95%	98%	\$0.24	36
Washington	Large Retail	Lighting Interior	Lighting Package, High Efficiency	15% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	New	0.73	15	\$0.03	90%	53%	\$0.01	634
Washington	Large Retail	Lighting Interior	Lighting Package, Premium Efficiency	25% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	New	1	15	\$0.21	75%	62%	\$0.02	255
Washington	Large Retail	Lighting Interior	Lighting Package, Premium High Bay	35% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	New	0.27	15	\$0.03	70%	83%	\$0.02	363
Washington	Large Retail	Lighting Interior	Occupancy Sensor Control, Fluorescent	Occupancy Sensor Control, Fluorescent	No Occupancy Sensor	per occupancy sensor	New	907	8	\$68	45%	56%	\$0.01	43
Washington	Large Retail	Lighting Interior	Time Clock	Time Clock	No Controls	per 10,000 Watts	New	753	8	\$195	20%	86%	\$0.05	29
Washington	Large Retail	Other Office Equipment	ENERGY STAR - Copiers	ENERGY STAR Copiers	Standard Copier	per installation	Existing	73	6	\$157	95%	45%	\$0.52	3
Washington	Large Retail	Other Office Equipment	ENERGY STAR - Fax	ENERGY STAR Fax	Standard Fax	per installation	Existing	78	6	\$0.00	95%	45%	\$0.00	3
Washington	Large Retail	Other Office Equipment	ENERGY STAR - Monitors	ENERGY STAR Features Enabled	Non-ENERGY STAR Features	per installation	Existing	15	5	\$16	64%	15%	\$0.31	1
Washington	Large Retail	Other Office Equipment	ENERGY STAR - Printers	ENERGY STAR Printers	Standard Printers	per installation	Existing	137	6	\$14	95%	40%	\$0.02	19
Washington	Large Retail	Other Office Equipment	ENERGY STAR - Scanners	ENERGY STAR Scanners	Standard Scanner	per installation	Existing	71	6	\$0.00	95%	45%	\$0.00	3
Washington	Large Retail	Other Office Equipment	ENERGY STAR - Copiers	ENERGY STAR Copiers	Standard Copier	per installation	New	73	6	\$157	95%	45%	\$0.52	0.42
Washington	Large Retail	Other Office Equipment	ENERGY STAR - Fax	ENERGY STAR Fax	Standard Fax	per installation	New	78	6	\$0.00	95%	45%	\$0.00	0.45
Washington	Large Retail	Other Office Equipment	ENERGY STAR - Monitors	ENERGY STAR Features Enabled	Non-ENERGY STAR Features	per installation	New	15	5	\$16	64%	15%	\$0.31	0.27
Washington	Large Retail	Other Office Equipment	ENERGY STAR - Printers	ENERGY STAR Printers	Standard Printers	per installation	New	137	6	\$14	95%	40%	\$0.02	2
Washington	Large Retail	Other Office Equipment	ENERGY STAR - Scanners	ENERGY STAR Scanners	Standard Scanner	per installation	New	71	6	\$0.00	95%	45%	\$0.00	0.41
Washington	Large Retail	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	per installation	Existing	7	7	\$2	20%	90%	\$0.06	2
Washington	Large Retail	Other Plug Load	ENERGY STAR - Water Cooler	ENERGY STAR Water Cooler (Hot/Cold Water)	Non-ENERGY STAR Water Cooler	per installation	Existing	363	10	\$0.00	95%	75%	\$0.00	19

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Washington	Large Retail	Other Plug Load	Power Supply Transformer/Converter	80 Plus	85% efficient power supply (> 51W)	1 unit per 2,000 sqft	Existing	4	4	\$0.40	95%	86%	\$0.03	33
Washington	Large Retail	Other Plug Load	Residential Refrigerator	ENERGY STAR	Federal Standard	per installation	Existing	80	12	\$119	3%	65%	\$0.22	0.69
Washington	Large Retail	Other Plug Load	Residential Refrigerator/Freezer Recycling	Recycling Existing Refrigerator/Freezer	Existing Refrigerator/Freezer	per installation	Existing	952	4	\$549	25%	35%	\$0.20	11
Washington	Large Retail	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	1 unit per 5,000 sqft	Existing	100	5	\$20	60%	90%	\$0.06	187
Washington	Large Retail	Other Plug Load	Vending Machines- High Efficiency	ENERGY STAR (Tier 2) Vending Machines- High Efficiency 500 can capacity Under 5.92 kWh/day	Vending Machines- Standard 13 kWh/day	per installation	Existing	239	14	\$140	5%	80%	\$0.08	0.23
Washington	Large Retail	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	per installation	New	7	7	\$2	20%	90%	\$0.06	0.30
Washington	Large Retail	Other Plug Load	ENERGY STAR - Water Cooler	ENERGY STAR Water Cooler (Hot/Cold Water)	Non-ENERGY STAR Water Cooler	per installation	New	363	10	\$0.00	95%	75%	\$0.00	2
Washington	Large Retail	Other Plug Load	Power Supply Transformer/Converter	80 Plus	85% efficient power supply (> 51W)	1 unit per 2,000 sqft	New	4	4	\$0.40	95%	86%	\$0.03	4
Washington	Large Retail	Other Plug Load	Residential Refrigerator	ENERGY STAR	Federal Standard	per installation	New	80	12	\$119	3%	65%	\$0.22	0.09
Washington	Large Retail	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	1 unit per 5,000 sqft	New	100	5	\$20	60%	90%	\$0.06	26
Washington	Large Retail	Other Plug Load	Vending Machines- High Efficiency	ENERGY STAR (Tier 2) Vending Machines- High Efficiency 500 can capacity Under 5.92 kWh/day	Vending Machines- Standard 13 kWh/day	per installation	New	239	14	\$140	5%	80%	\$0.08	0.03
Washington	Large Retail	Space Heat	Convert Constant Volume Air System to VAV	Variable Volume Air System	Constant Volume Air System	per building CFM	Existing	0.46	15	\$2	15%	67%	\$0.80	36
Washington	Large Retail	Space Heat	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	Existing	360	15	\$166	75%	76%	\$0.06	246
Washington	Large Retail	Space Heat	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	Existing	0.09	18	\$0.22	45%	65%	\$0.29	20
Washington	Large Retail	Space Heat	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	Existing	0.54	14	\$0.90	5%	94%	\$0.23	20
Washington	Large Retail	Space Heat	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	5	13	\$0.31	10%	39%	\$0.01	5
Washington	Large Retail	Space Heat	Insulation - Ceiling	R-38 (WA State Code)	R-7 (Average Existing Conditions)	per roof sqft	Existing	0.90	25	\$0.99	75%	65%	\$0.11	409
Washington	Large Retail	Space Heat	Insulation - Ceiling	R-49	R-38 (WA State Code)	per roof sqft	Existing	0.08	25	\$0.25	25%	85%	\$0.33	13
Washington	Large Retail	Space Heat	Insulation - Duct	R-7 (WA State Code)	No Insulation	per surface area of duct insul	Existing	1	20	\$2	75%	59%	\$0.13	54
Washington	Large Retail	Space Heat	Insulation - Floor (non-slab)	R-30 (WA State Code)	R-11 (Average Existing Conditions)	per floor area	Existing	0.86	25	\$0.90	35%	84%	\$0.11	255
Washington	Large Retail	Space Heat	Insulation - Floor (non-slab)	R-38	R-30 (WA State Code)	per floor area	Existing	0.16	25	\$0.29	35%	90%	\$0.18	40
Washington	Large Retail	Space Heat	Insulation - Wall	R-13 + 7.5 (WA State Code)	R-3 (Average Existing Conditions)	per floor area	Existing	2	25	\$2	10%	69%	\$0.08	89
Washington	Large Retail	Space Heat	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	Existing	30	30	\$5	50%	95%	\$0.02	480
Washington	Large Retail	Space Heat	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	Existing	3,787	10	\$133	95%	26%	\$0.01	35
Washington	Large Retail	Space Heat	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	0.45	7	\$0.17	90%	85%	\$0.09	383
Washington	Large Retail	Space Heat	Windows-High Efficiency	U-0.40 (WA State Code)	U-0.68 (Average Existing Conditions)	per window sqft	Existing	2	25	\$62	15%	70%	\$2.36	4
Washington	Large Retail	Space Heat	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	New	202	15	\$166	75%	76%	\$0.11	19
Washington	Large Retail	Space Heat	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	New	0.05	18	\$0.22	45%	65%	\$0.51	2
Washington	Large Retail	Space Heat	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	New	0.30	14	\$0.90	5%	94%	\$0.40	2
Washington	Large Retail	Space Heat	Insulation - Ceiling	R-49	R-38 (WA State Code)	per roof sqft	New	0.04	25	\$0.25	75%	85%	\$0.58	4

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Washington	Large Retail	Space Heat	Insulation - Floor (non-slab)	R-38	R-30 (WA State Code)	per floor area	New	0.09	25	\$0.29	35%	90%	\$0.33	4
Washington	Large Retail	Space Heat	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	New	17	30	\$5	50%	95%	\$0.03	37
Washington	Large Retail	Space Heat	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	New	2,131	10	\$133	95%	13%	\$0.01	1
Washington	Large Retail	Water Heat	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	per building sqft	Existing	0.01	10	\$0.26	75%	94%	\$3.06	58
Washington	Large Retail	Water Heat	Dishwasher Residential	ENERGY STAR <= 324 kWh/yr, <= 5.8 gal/cycle	Federal Standard <= 355 kWh/yr, <= 6.5 gal/cycle	per installation	Existing	31	11	\$31	95%	25%	\$0.10	0.32
Washington	Large Retail	Water Heat	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	per installation	Existing	7,403	10	\$2,315	95%	95%	\$0.02	3
Washington	Large Retail	Water Heat	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	per installation	Existing	3,459	10	\$1,157	95%	94%	\$-0.00	0.80
Washington	Large Retail	Water Heat	Electric Water Heater - High Efficiency	EF = 0.95	EF = 0.92	Per installation	Existing	320	15	\$385	100%	N/A	\$0.16	7
Washington	Large Retail	Water Heat	Heat Pump Water Heater - Advanced-Efficiency	EF = 2.2	EF = 0.92	Per installation	Existing	5,905	15	\$7,399	75%	N/A	\$0.16	391
Washington	Large Retail	Water Heat	Hot Water (SHW) Pipe Insulation	1.0" of Insulation, assuming R-4 (WA State Code)	No Insulation	per linear foot	Existing	7	12	\$2	80%	90%	\$0.06	12
Washington	Large Retail	Water Heat	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	per installation	Existing	45	9	\$0.00	95%	25%	\$-0.08	13
Washington	Large Retail	Water Heat	Low-Flow Faucet Aerators	2.2 GPM (Federal Code)	3.0 GPM	per installation	Existing	38	9	\$2	95%	25%	\$-0.07	11
Washington	Large Retail	Water Heat	Low-Flow Pre-Rinse Spray Valves	0.6 GPM	1.6 GPM (Federal Standard)	per installation	Existing	66	5	\$0.00	95%	83%	\$-0.09	0.36
Washington	Large Retail	Water Heat	Water Heater Temperature Setback	Water Heater Temperature Setback (120 F)	No Change in Water Temperature	per installation	Existing	155	5	\$93	75%	45%	\$0.17	44
Washington	Large Retail	Water Heat	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	per building sqft	New	0.01	10	\$0.26	75%	94%	\$3.16	7
Washington	Large Retail	Water Heat	Dishwasher Residential	ENERGY STAR <= 324 kWh/yr, <= 5.8 gal/cycle	Federal Standard <= 355 kWh/yr, <= 6.5 gal/cycle	per installation	New	31	11	\$31	95%	55%	\$0.10	0.09
Washington	Large Retail	Water Heat	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	per installation	New	7,403	10	\$2,398	95%	95%	\$0.02	0.46
Washington	Large Retail	Water Heat	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	per installation	New	3,459	10	\$599	95%	94%	\$-0.03	0.10
Washington	Large Retail	Water Heat	Electric Water Heater - High Efficiency	EF = 0.95	EF = 0.92	Per installation	New	309	15	\$385	100%	N/A	\$0.16	0.97
Washington	Large Retail	Water Heat	Heat Pump Water Heater - Advanced-Efficiency	EF = 2.2	EF = 0.92	Per installation	New	5,701	15	\$6,310	75%	N/A	\$0.14	44
Washington	Large Retail	Water Heat	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	per installation	New	44	9	\$0.00	95%	25%	\$-0.08	1
Washington	Large Retail	Water Heat	Low-Flow Pre-Rinse Spray Valves	0.6 GPM	1.6 GPM (Federal Standard)	per installation	New	66	5	\$0.00	95%	83%	\$-0.09	0.05
Washington	Large Retail	Water Heat	Water Heater Temperature Setback	Water Heater Temperature Setback (120 F)	No Change in Water Temperature	per installation	New	150	5	\$93	75%	45%	\$0.18	5
Washington	Lodging	Computers	Computer ENERGY STAR	Computer ENERGY STAR	Computer standard non-ENERGY STAR	Per installation	Existing	133	4	\$28	100%	N/A	\$0.07	379
Washington	Lodging	Computers	Computer ENERGY STAR	Computer ENERGY STAR	Computer standard non-ENERGY STAR	Per installation	New	133	4	\$28	100%	N/A	\$0.07	10
Washington	Lodging	Cooking	Combination Oven	60% cooking efficiency	Non ENERGY STAR	per installation	Existing	11,818	12	\$1,864	90%	90%	\$0.02	0.30
Washington	Lodging	Cooking	Fryers - New CEE Efficient Electric Deep Fat Fryers	15 inch width Deep Fryer CEE 2006 rating; 80% under heavy load, Less than 1000 watt at idle	15 inch width standard electric deep fat fryers	per installation	Existing	1,022	12	\$1,242	55%	90%	\$0.18	0.08
Washington	Lodging	Cooking	Griddle	70% cooking efficiency	Non ENERGY STAR	per installation	Existing	2,281	12	\$788	95%	85%	\$0.05	0.79
Washington	Lodging	Cooking	High Efficiency Convection Oven	Convection Oven	Standard Oven	per installation	Existing	1,888	12	\$1,972	19%	55%	\$0.15	0.13

Table C.2.2. Commercial Measure Details

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Washington	Lodging	Cooking	Hot Food Holding Cabinet	ENERGY STAR	Non ENERGY STAR	per installation	Existing	3,962	12	\$1,716	55%	21%	\$0.06	0.40
Washington	Lodging	Cooking	Steam Cooker	ENERGY STAR	Non ENERGY STAR	per installation	Existing	4,240	12	\$2,491	11%	75%	\$0.09	0.30
Washington	Lodging	Cooking	Combination Oven	60% cooking efficiency	Non ENERGY STAR	per installation	New	11,818	12	\$1,864	90%	90%	\$0.02	0.04
Washington	Lodging	Cooking	Fryers - New CEE Efficient Electric Deep Fat Fryers	15 inch width Deep Fryer CEE 2006 rating; 80% under heavy load, Less than 1000 watt at idle	15 inch width standard electric deep fat fryers	per installation	New	1,022	12	\$1,242	55%	90%	\$0.18	0.01
Washington	Lodging	Cooking	Griddle	70% cooking efficiency	Non ENERGY STAR	per installation	New	2,281	12	\$788	95%	85%	\$0.05	0.11
Washington	Lodging	Cooking	High Efficiency Convection Oven	Convection Oven	Standard Oven	per installation	New	1,888	12	\$1,972	19%	55%	\$0.15	0.01
Washington	Lodging	Cooking	Hot Food Holding Cabinet	ENERGY STAR	Non ENERGY STAR	per installation	New	3,962	12	\$1,716	55%	21%	\$0.06	0.05
Washington	Lodging	Cooking	Steam Cooker	ENERGY STAR	Non ENERGY STAR	per installation	New	4,240	12	\$2,491	11%	75%	\$0.09	0.04
Washington	Lodging	Cooling Chillers	Automated Ventilation VFD Control(Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	1 unit per 3,000 sqft	Existing	103	15	\$726	50%	94%	\$0.91	6
Washington	Lodging	Cooling Chillers	Chilled Water / Condenser Water Settings-Optimization	Additional Control Features	EMS already installed - No Optimization	1 control point per 1000 sqft	Existing	21	5	\$160	95%	81%	\$2.10	6
Washington	Lodging	Cooling Chillers	Chilled Water Piping Loop w/ VSD Control	VSD for secondary chilled water loop	Primary loop only w/ constant speed pump	per chiller ton	Existing	35	10	\$204	25%	70%	\$0.97	9
Washington	Lodging	Cooling Chillers	Chiller-Water Side Economizer	Install Economizer	No Economizer	per chiller ton	Existing	23	15	\$469	45%	30%	\$2.60	4
Washington	Lodging	Cooling Chillers	Chillers <150 tons (screw) - Advanced Efficiency	0.58 kW/ton (full load)	0.790 kW/Ton (full load)	Per installation	Existing	3,140	20	\$4,685	100%	N/A	\$0.17	103
Washington	Lodging	Cooling Chillers	Chillers <150 tons (screw) - High Efficiency	0.71 kW/ton (full load)	0.790 kW/Ton (full load)	Per installation	Existing	1,046	20	\$1,562	100%	N/A	\$0.17	0.90
Washington	Lodging	Cooling Chillers	Chillers <150 tons (screw) - Premium Efficiency	0.63 kW/ton	0.790 kW/Ton (full load)	Per installation	Existing	2,270	20	\$3,484	100%	N/A	\$0.17	7
Washington	Lodging	Cooling Chillers	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	Existing	0.17	15	\$0.68	45%	98%	\$0.51	30
Washington	Lodging	Cooling Chillers	Cooling Tower-Decrease Approach Temperature	6 Deg F	10 Deg F	per chiller ton	Existing	37	8	\$26	10%	94%	\$0.14	6
Washington	Lodging	Cooling Chillers	Cooling Tower-Two-Speed Fan Motor	Cooling Tower-Two-Speed Fan Motor	Cooling Tower-One-Speed Fan Motor	per chiller ton	Existing	65	15	\$2	95%	35%	\$0.00	46
Washington	Lodging	Cooling Chillers	Cooling Tower-VSD Fan Control	Variable-Speed Tower Fans replace Two-Speed	Cooling Tower-Two-Speed Fan Motor	per chiller ton	Existing	18	13	\$19	95%	75%	\$0.14	25
Washington	Lodging	Cooling Chillers	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	Existing	173	15	\$166	75%	76%	\$0.12	53
Washington	Lodging	Cooling Chillers	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	Existing	0.17	40	\$9	4%	98%	\$4.97	0.24
Washington	Lodging	Cooling Chillers	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	0.55	13	\$0.30	10%	39%	\$0.08	1
Washington	Lodging	Cooling Chillers	Insulation - Ceiling	R-38 (WA State Code)	R-11 (Average Existing Conditions)	per roof sqft	Existing	0.00	25	\$0.99	75%	65%	\$25.84	0.76
Washington	Lodging	Cooling Chillers	Pipe Insulation	1.5" of Insulation, assuming R-6 (WA State Code)	No Insulation	per linear feet of insulation	Existing	5	15	\$3	65%	45%	\$0.09	4
Washington	Lodging	Cooling Chillers	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	0.21	7	\$0.17	90%	85%	\$0.18	81
Washington	Lodging	Cooling Chillers	Window Film	Window Film	No Film	per 100 sqft of window glazing	Existing	2	10	\$146	90%	66%	\$10.78	0.84
Washington	Lodging	Cooling Chillers	Windows-High Efficiency	U-0.32	U-0.40 (WA State Code)	per window sqft	Existing	1	25	\$29	15%	90%	\$2.16	12
Washington	Lodging	Cooling Chillers	Windows-High Efficiency	U-0.40 (WA State Code)	U-0.65 (Average Existing Conditions)	per window sqft	Existing	1	25	\$62	15%	69%	\$5.27	7
Washington	Lodging	Cooling Chillers	Automated Ventilation VFD Control(Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	1 unit per 3,000 sqft	New	63	15	\$387	50%	94%	\$0.79	0.79

Table C.2.2. Commercial Measure Details

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Washington	Lodging	Cooling Chillers	Chilled Water / Condenser Water Settings-Optimization	Additional Control Features	EMS already installed - No Optimization	1 control point per 1000 sqft	New	13	5	\$160	95%	81%	\$3.44	0.74
Washington	Lodging	Cooling Chillers	Chilled Water Piping Loop w/ VSD Control	VSD for secondary chilled water loop	Primary loop only w/ constant speed pump	per chiller ton	New	24	10	\$204	25%	70%	\$1.42	1
Washington	Lodging	Cooling Chillers	Chillers <150 tons (screw) - Advanced Efficiency	0.58 kW/ton (full load)	0.790 kW/Ton (full load)	Per installation	New	2,133	20	\$4,216	100%	N/A	\$0.22	14
Washington	Lodging	Cooling Chillers	Chillers <150 tons (screw) - High Efficiency	0.71 kW/ton (full load)	0.790 kW/Ton (full load)	Per installation	New	711	20	\$1,405	100%	N/A	\$0.22	0.11
Washington	Lodging	Cooling Chillers	Chillers <150 tons (screw) - Premium Efficiency	0.63 kW/ton	0.790 kW/Ton (full load)	Per installation	New	1,542	20	\$3,135	100%	N/A	\$0.23	0.92
Washington	Lodging	Cooling Chillers	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	New	0.10	15	\$0.68	45%	98%	\$0.83	3
Washington	Lodging	Cooling Chillers	Cooling Tower-Decrease Approach Temperature	6 Deg F	10 Deg F	per chiller ton	New	25	8	\$26	10%	94%	\$0.21	0.63
Washington	Lodging	Cooling Chillers	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	New	105	15	\$166	75%	76%	\$0.20	5
Washington	Lodging	Cooling Chillers	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	New	0.10	40	\$9	4%	98%	\$8.13	0.02
Washington	Lodging	Cooling Chillers	Natural Ventilation	Natural Ventilation Design Reduction in Cooling	None - Standard Ventilation	per building sqft	New	0.10	15	\$0.95	20%	75%	\$1.16	1
Washington	Lodging	Cooling Chillers	Windows-High Efficiency	U-0.32	U-0.40 (WA State Code)	per window sqft	New	0.85	25	\$29	80%	90%	\$3.54	7
Washington	Lodging	Cooling Dx Evap	Automated Ventilation VFD Control(Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	1 unit per 3,000 sqft	Existing	131	15	\$726	50%	94%	\$0.71	25
Washington	Lodging	Cooling Dx Evap	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	Existing	0.21	15	\$0.68	45%	98%	\$0.40	129
Washington	Lodging	Cooling Dx Evap	DX Package 65 to 135 kBtu/hr - High Efficiency	DX Package 65 to 135 kBtu/hr - High Efficiency - 11.5 EER	DX Package 65 to 135 kBtu/hr - Standard Efficiency - 11.2 EER	Per installation	Existing	619	15	\$726	100%	N/A	\$0.15	6
Washington	Lodging	Cooling Dx Evap	DX Package 65 to 135 kBtu/hr - Premium Efficiency	DX Package 65 to 135 kBtu/hr - Premium Efficiency - 12.0 EER	DX Package 65 to 135 kBtu/hr - Standard Efficiency - 11.2 EER	Per installation	Existing	1,541	15	\$1,460	100%	N/A	\$0.12	139
Washington	Lodging	Cooling Dx Evap	DX Package-Air Side Economizer	Air-Side Economizer	No Economizer	per DX ton	Existing	98	10	\$164	10%	30%	\$0.28	14
Washington	Lodging	Cooling Dx Evap	DX Tune-Up / Diagnostics	DX Tune-Up / Diagnostics	No DX Tune-Up / Diagnostics	per installation	Existing	493	4	\$325	95%	72%	\$0.25	242
Washington	Lodging	Cooling Dx Evap	Direct / Indirect Evaporative Cooling, Pre-Cooling	Evaporative Cooler	Standard DX cooling	per building CFM	Existing	0.54	15	\$1	50%	94%	\$0.47	369
Washington	Lodging	Cooling Dx Evap	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	Existing	219	15	\$166	75%	76%	\$0.10	239
Washington	Lodging	Cooling Dx Evap	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	Existing	0.05	18	\$0.22	45%	65%	\$0.47	20
Washington	Lodging	Cooling Dx Evap	Evaporative Cooler replaces DX Package 65 to 135 kBtu/hr - Advanced Efficiency	Evaporative Cooler replaces DX Package 65 to 135 kBtu/hr - Advanced Efficiency	DX Package 65 to 135 kBtu/hr - Standard Efficiency - 11.2 EER	Per installation	Existing	9,577	15	\$-14422.4	25%	N/A	\$-0.25	195
Washington	Lodging	Cooling Dx Evap	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	Existing	0.21	40	\$9	4%	98%	\$3.92	0.92
Washington	Lodging	Cooling Dx Evap	Hotel Key Card Room Energy Control System	Key card system to control room HVAC and lighting during non-occupied periods	325 sqft room, \$100/room	per room	Existing	178	15	\$135	60%	97%	\$0.10	631
Washington	Lodging	Cooling Dx Evap	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	0.69	13	\$0.30	10%	39%	\$0.06	9

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Washington	Lodging	Cooling Dx Evap	Insulation - Ceiling	R-38 (WA State Code)	R-11 (Average Existing Conditions)	per roof sqft	Existing	0.00	25	\$0.99	75%	65%	\$20.40	2
Washington	Lodging	Cooling Dx Evap	Insulation - Duct	R-7 (WA State Code)	No Insulation	per surface area of duct insul	Existing	1	20	\$2	75%	60%	\$0.21	67
Washington	Lodging	Cooling Dx Evap	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	Existing	13	30	\$5	50%	95%	\$0.04	383
Washington	Lodging	Cooling Dx Evap	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	Existing	526	10	\$133	95%	31%	\$0.04	43
Washington	Lodging	Cooling Dx Evap	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	0.27	7	\$0.17	90%	85%	\$0.14	381
Washington	Lodging	Cooling Dx Evap	Window Film	Window Film	No Film	per 100 sqft of window glazing	Existing	2	10	\$146	90%	66%	\$10.78	2
Washington	Lodging	Cooling Dx Evap	Windows-High Efficiency	U-0.32	U-0.40 (WA State Code)	per window sqft	Existing	1	25	\$29	15%	90%	\$1.71	46
Washington	Lodging	Cooling Dx Evap	Windows-High Efficiency	U-0.40 (WA State Code)	U-0.65 (Average Existing Conditions)	per window sqft	Existing	1	25	\$62	15%	69%	\$4.16	30
Washington	Lodging	Cooling Dx Evap	Automated Ventilation VFD Control(Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	1 unit per 3,000 sqft	New	82	15	\$387	50%	94%	\$0.61	3
Washington	Lodging	Cooling Dx Evap	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	New	0.13	15	\$0.68	45%	98%	\$0.64	14
Washington	Lodging	Cooling Dx Evap	DX Package 65 to 135 kBtu/hr - High Efficiency	DX Package 65 to 135 kBtu/hr - High Efficiency - 11.5 EER	DX Package 65 to 135 kBtu/hr - Standard Efficiency - 11.2 EER	Per installation	New	378	15	\$580	100%	N/A	\$0.20	0.52
Washington	Lodging	Cooling Dx Evap	DX Package 65 to 135 kBtu/hr - Premium Efficiency	DX Package 65 to 135 kBtu/hr - Premium Efficiency - 12.0 EER	DX Package 65 to 135 kBtu/hr - Standard Efficiency - 11.2 EER	Per installation	New	1,058	15	\$1,168	100%	N/A	\$0.14	13
Washington	Lodging	Cooling Dx Evap	Direct / Indirect Evaporative Cooling, Pre-Cooling	Evaporative Cooler	Standard DX cooling	per building CFM	New	0.34	15	\$1	50%	94%	\$0.74	41
Washington	Lodging	Cooling Dx Evap	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	New	138	15	\$166	75%	76%	\$0.16	22
Washington	Lodging	Cooling Dx Evap	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	New	0.03	18	\$0.22	45%	65%	\$0.75	2
Washington	Lodging	Cooling Dx Evap	Evaporative Cooler replaces DX Package 65 to 135 kBtu/hr - Advanced Efficiency	Evaporative Cooler replaces DX Package 65 to 135 kBtu/hr - Advanced Efficiency	DX Package 65 to 135 kBtu/hr - Standard Efficiency - 11.2 EER	Per installation	New	6,514	15	\$-10588	25%	N/A	\$-0.28	18
Washington	Lodging	Cooling Dx Evap	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	New	0.13	40	\$9	4%	98%	\$6.23	0.09
Washington	Lodging	Cooling Dx Evap	Hotel Key Card Room Energy Control System	Key card system to control room HVAC and lighting during non-occupied periods	325 sqft room, \$100/room	per room	New	112	15	\$135	60%	97%	\$0.16	58
Washington	Lodging	Cooling Dx Evap	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	New	8	30	\$5	50%	95%	\$0.07	35
Washington	Lodging	Cooling Dx Evap	Natural Ventilation	Natural Ventilation Design Reduction in Cooling	None - Standard Ventilation	per building sqft	New	0.13	15	\$0.95	20%	75%	\$0.89	4
Washington	Lodging	Cooling Dx Evap	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	New	331	10	\$133	95%	15%	\$0.07	2
Washington	Lodging	Cooling Dx Evap	Windows-High Efficiency	U-0.32	U-0.40 (WA State Code)	per window sqft	New	1	25	\$29	80%	90%	\$2.71	27
Washington	Lodging	Cooling Room	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	Existing	0.24	15	\$0.68	45%	98%	\$0.35	190

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Washington	Lodging	Cooling Room	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	Existing	248	15	\$166	75%	76%	\$0.09	288
Washington	Lodging	Cooling Room	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	Existing	0.24	40	\$9	4%	98%	\$3.46	1
Washington	Lodging	Cooling Room	Hotel Key Card Room Energy Control System	Key card system to control room HVAC and lighting during non-occupied periods	325 sqft room, \$100/room	per room	Existing	201	15	\$135	60%	97%	\$0.09	760
Washington	Lodging	Cooling Room	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	0.79	13	\$0.30	10%	39%	\$0.06	11
Washington	Lodging	Cooling Room	Insulation - Ceiling	R-38 (WA State Code)	R-11 (Average Existing Conditions)	per roof sqft	Existing	0.00	25	\$0.99	75%	65%	\$17.99	4
Washington	Lodging	Cooling Room	PTAC (10,000 BTU/HR) - Premium-Efficiency	11.4 EER	Room AC (10,000 BTU/HR) Standard-Efficiency 9.8 EER	Per installation	Existing	3,156	15	\$34,731	75%	N/A	\$1.42	509
Washington	Lodging	Cooling Room	Room AC (10,000 BTU/HR) High-Efficiency	High Efficiency 10.8 EER (ENERGY STAR)	Room AC (10,000 BTU/HR) Standard-Efficiency 9.8 EER	Per installation	Existing	1,985	9	\$1,600	100%	N/A	\$0.14	92
Washington	Lodging	Cooling Room	Window Film	Window Film	No Film	per 100 sqft of window glazing	Existing	0.11	10	\$146	90%	66%	\$214.77	0.18
Washington	Lodging	Cooling Room	Windows-High Efficiency	U-0.32	U-0.40 (WA State Code)	per window sqft	Existing	1	25	\$29	15%	90%	\$1.51	78
Washington	Lodging	Cooling Room	Windows-High Efficiency	U-0.40 (WA State Code)	U-0.65 (Average Existing Conditions)	per window sqft	Existing	1	25	\$62	15%	69%	\$3.67	51
Washington	Lodging	Cooling Room	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	New	0.16	15	\$0.68	45%	98%	\$0.53	17
Washington	Lodging	Cooling Room	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	New	164	15	\$166	75%	76%	\$0.13	27
Washington	Lodging	Cooling Room	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	New	0.16	40	\$9	4%	98%	\$5.22	0.13
Washington	Lodging	Cooling Room	Hotel Key Card Room Energy Control System	Key card system to control room HVAC and lighting during non-occupied periods	325 sqft room, \$100/room	per room	New	133	15	\$135	60%	97%	\$0.13	71
Washington	Lodging	Cooling Room	Natural Ventilation	Natural Ventilation Design Reduction in Cooling	None - Standard Ventilation	per building sqft	New	0.16	15	\$0.95	20%	75%	\$0.75	6
Washington	Lodging	Cooling Room	PTAC (10,000 BTU/HR) - Premium-Efficiency	11.4 EER	Room AC (10,000 BTU/HR) Standard-Efficiency 9.8 EER	Per installation	New	2,156	15	\$24,727	75%	N/A	\$1.48	22
Washington	Lodging	Cooling Room	Room AC (10,000 BTU/HR) High-Efficiency	High Efficiency 10.8 EER (ENERGY STAR)	Room AC (10,000 BTU/HR) Standard-Efficiency 9.8 EER	Per installation	New	1,304	9	\$1,280	100%	N/A	\$0.18	5
Washington	Lodging	Cooling Room	Windows-High Efficiency	U-0.32	U-0.40 (WA State Code)	per window sqft	New	1	25	\$29	80%	90%	\$2.27	38
Washington	Lodging	Heat Pump	Air Source Heat Pump 65 to 135 kBtu/hr - High Efficiency	11.5 EER, 3.4 COP	11.0 EER, 3.3 COP	Per installation	Existing	2,651	15	\$2,702	100%	N/A	\$0.13	25
Washington	Lodging	Heat Pump	Air Source Heat Pump 65 to 135 kBtu/hr - Premium Efficiency	12.0 EER, 3.8 COP	11.0 EER, 3.3 COP	Per installation	Existing	6,254	15	\$5,404	100%	N/A	\$0.11	458
Washington	Lodging	Heat Pump	Automated Ventilation VFD Control (Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	1 unit per 3,000 sqft	Existing	134	15	\$726	50%	94%	\$0.70	16
Washington	Lodging	Heat Pump	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	Existing	0.22	15	\$0.68	45%	98%	\$0.39	72
Washington	Lodging	Heat Pump	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	Existing	587	15	\$166	75%	76%	\$0.04	367
Washington	Lodging	Heat Pump	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	Existing	0.14	18	\$0.22	45%	65%	\$0.18	35
Washington	Lodging	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	Existing	0.54	14	\$1	5%	94%	\$0.42	20
Washington	Lodging	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	Existing	0.22	40	\$9	4%	98%	\$3.83	0.60

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Washington	Lodging	Heat Pump	Ground Source Heat Pump Replacing Air Source Heat Pump 65 to 135 kBtu/hr - Advanced Efficiency	16.2 EER 4.0 COP	11.0 EER, 3.3 COP	Per installation	Existing	11,400	30	\$42,726	5%	N/A	\$1.18	13
Washington	Lodging	Heat Pump	Hotel Key Card Room Energy Control System	Key card system to control room HVAC and lighting during non-occupied periods	325 sqft room, \$100/room	per room	Existing	477	15	\$135	60%	97%	\$0.04	969
Washington	Lodging	Heat Pump	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	3	13	\$0.30	10%	39%	\$0.01	27
Washington	Lodging	Heat Pump	Insulation - Ceiling	R-38 (WA State Code)	R-11 (Average Existing Conditions)	per roof sqft	Existing	0.67	25	\$0.99	75%	65%	\$0.15	289
Washington	Lodging	Heat Pump	Insulation - Ceiling	R-49	R-38 (WA State Code)	per roof sqft	Existing	0.04	25	\$0.25	25%	85%	\$0.55	8
Washington	Lodging	Heat Pump	Insulation - Duct	R-7 (WA State Code)	No Insulation	per surface area of duct insul	Existing	3	20	\$2	75%	60%	\$0.08	104
Washington	Lodging	Heat Pump	Insulation - Floor (non-slab)	R-30 (WA State Code)	R-7 (Average Existing Conditions)	per floor area	Existing	0.83	25	\$0.90	35%	84%	\$0.11	225
Washington	Lodging	Heat Pump	Insulation - Floor (non-slab)	R-38	R-30 (WA State Code)	per floor area	Existing	0.11	25	\$0.29	35%	90%	\$0.25	30
Washington	Lodging	Heat Pump	Insulation - Wall	R-13 + 7.5 (WA State Code)	R-3 (Average Existing Conditions)	per floor area	Existing	1	25	\$2	10%	75%	\$0.17	46
Washington	Lodging	Heat Pump	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	Existing	49	30	\$5	50%	95%	\$0.01	835
Washington	Lodging	Heat Pump	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	Existing	1,410	10	\$133	95%	31%	\$0.02	66
Washington	Lodging	Heat Pump	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	0.73	7	\$0.17	90%	85%	\$0.05	585
Washington	Lodging	Heat Pump	Window Film	Window Film	No Film	per 100 sqft of window glazing	Existing	2	10	\$146	90%	66%	\$10.76	1
Washington	Lodging	Heat Pump	Windows-High Efficiency	U-0.32	U-0.40 (WA State Code)	per window sqft	Existing	0.92	25	\$29	15%	90%	\$3.25	15
Washington	Lodging	Heat Pump	Windows-High Efficiency	U-0.40 (WA State Code)	U-0.65 (Average Existing Conditions)	per window sqft	Existing	1	25	\$62	15%	69%	\$3.57	23
Washington	Lodging	Heat Pump	Air Source Heat Pump 65 to 135 kBtu/hr - High Efficiency	11.5 EER, 3.4 COP	11.0 EER, 3.3 COP	Per installation	New	1,760	15	\$2,162	100%	N/A	\$0.16	2
Washington	Lodging	Heat Pump	Air Source Heat Pump 65 to 135 kBtu/hr - Premium Efficiency	12.0 EER, 3.8 COP	11.0 EER, 3.3 COP	Per installation	New	4,012	15	\$4,324	100%	N/A	\$0.14	45
Washington	Lodging	Heat Pump	Automated Ventilation VFD Control (Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	1 unit per 3,000 sqft	New	85	15	\$387	50%	94%	\$0.58	1
Washington	Lodging	Heat Pump	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	New	0.14	15	\$0.68	45%	98%	\$0.61	8
Washington	Lodging	Heat Pump	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	New	345	15	\$166	75%	76%	\$0.06	31
Washington	Lodging	Heat Pump	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	New	0.08	18	\$0.22	45%	65%	\$0.30	3
Washington	Lodging	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	New	0.30	14	\$1	5%	94%	\$0.76	2
Washington	Lodging	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	New	0.14	40	\$9	4%	98%	\$6.01	0.06
Washington	Lodging	Heat Pump	Ground Source Heat Pump Replacing Air Source Heat Pump 65 to 135 kBtu/hr - Advanced Efficiency	16.2 EER 4.0 COP	11.0 EER, 3.3 COP	Per installation	New	7,400	30	\$73,809	5%	N/A	\$0.92	1
Washington	Lodging	Heat Pump	Hotel Key Card Room Energy Control System	Key card system to control room HVAC and lighting during non-occupied periods	325 sqft room, \$100/room	per room	New	280	15	\$135	60%	97%	\$0.06	83
Washington	Lodging	Heat Pump	Insulation - Ceiling	R-49	R-38 (WA State Code)	per roof sqft	New	0.02	25	\$0.25	75%	85%	\$1.05	2
Washington	Lodging	Heat Pump	Insulation - Floor (non-slab)	R-38	R-30 (WA State Code)	per floor area	New	0.06	25	\$0.29	35%	90%	\$0.49	2

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Washington	Lodging	Heat Pump	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	New	29	30	\$5	50%	95%	\$0.02	71
Washington	Lodging	Heat Pump	Natural Ventilation	Natural Ventilation Design Reduction in Cooling	None - Standard Ventilation	per building sqft	New	0.34	15	\$0.95	20%	75%	\$0.36	7
Washington	Lodging	Heat Pump	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	New	829	10	\$133	95%	15%	\$0.03	2
Washington	Lodging	Heat Pump	Windows-High Efficiency	U-0.32	U-0.40 (WA State Code)	per window sqft	New	0.66	25	\$29	80%	90%	\$4.54	10
Washington	Lodging	Hvac Aux	Cooking Hood Controls	Demand-Ventilation Control	No Controls	per installation	Existing	1,874	18	\$8,540	95%	45%	\$0.54	715
Washington	Lodging	Hvac Aux	Motor - CEE Premium-Efficiency Plus	CEE PE+ Motor for HVAC Applications	NEMA Efficiency Motors	per HP	Existing	24	15	\$6	95%	76%	\$0.03	172
Washington	Lodging	Hvac Aux	Motor Rewind	>15, <500 HP	No Rewind	per HP	Existing	5	8	\$4	65%	25%	\$0.19	6
Washington	Lodging	Hvac Aux	Cooking Hood Controls	Demand-Ventilation Control	No Controls	per installation	New	1,874	18	\$8,540	95%	45%	\$0.54	99
Washington	Lodging	Hvac Aux	Motor - CEE Premium-Efficiency Plus	CEE PE+ Motor for HVAC Applications	NEMA Efficiency Motors	per HP	New	24	15	\$6	95%	76%	\$0.03	29
Washington	Lodging	Lighting Exterior	Covered Parking Lighting	Covered Parking Lighting	Normal Lighting	per building sqft	Existing	0.09	10	\$0.02	80%	95%	\$0.05	852
Washington	Lodging	Lighting Exterior	Daylighting Controls, Outdoors (Photocell)	Photocell	No Controls	per installation	Existing	32	8	\$27	75%	70%	\$0.17	76
Washington	Lodging	Lighting Exterior	Exterior Building Lighting	30% savings	Normal Lighting	per installation	Existing	243	15	\$327	62%	90%	\$0.17	663
Washington	Lodging	Lighting Exterior	Solid State LED White Lighting	Landscape, merchandise, signage, structure & task lighting (2.5 W)	50W 10hrs/day, 365 day/yr	per installation	Existing	3	14	\$34	75%	95%	\$1.34	13
Washington	Lodging	Lighting Exterior	Surface Parking Lighting	Surface Parking Lighting	Normal Lighting	per building sqft	Existing	0.05	19	\$0.06	62%	95%	\$0.16	356
Washington	Lodging	Lighting Exterior	Covered Parking Lighting	Covered Parking Lighting	Normal Lighting	per building sqft	New	0.09	10	\$0.02	80%	95%	\$0.05	118
Washington	Lodging	Lighting Exterior	Daylighting Controls, Outdoors (Photocell)	Photocell	No Controls	per installation	New	32	8	\$27	75%	70%	\$0.17	10
Washington	Lodging	Lighting Exterior	Exterior Building Lighting	30% savings	Normal Lighting	per installation	New	243	15	\$327	62%	90%	\$0.17	92
Washington	Lodging	Lighting Exterior	Solid State LED White Lighting	Landscape, merchandise, signage, structure & task lighting (2.5 W)	50W 10hrs/day, 365 day/yr	per installation	New	3	14	\$34	75%	95%	\$1.34	1
Washington	Lodging	Lighting Exterior	Surface Parking Lighting	Surface Parking Lighting	Normal Lighting	per building sqft	New	0.05	19	\$0.06	62%	95%	\$0.16	49
Washington	Lodging	Lighting Interior	Cold Cathode Lighting	Cold Cathode Lighting 5 watts	30 W Incandescent Bulb	per installation	Existing	134	5	\$12	15%	94%	\$0.03	27
Washington	Lodging	Lighting Interior	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	Existing	0.23	8	\$0.95	30%	92%	\$0.79	64
Washington	Lodging	Lighting Interior	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	Existing	0.17	8	\$0.71	30%	92%	\$0.79	48
Washington	Lodging	Lighting Interior	Exit Sign - LED	LED Exit Sign (2 Watts)	CFL Exit Sign (9 Watts)	per installation	Existing	96	16	\$16	95%	50%	\$0.02	403
Washington	Lodging	Lighting Interior	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign (2 Watts)	per installation	Existing	17	13	\$30	95%	98%	\$0.24	47
Washington	Lodging	Lighting Interior	Lighting Package, High Efficiency	15% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	Existing	0.43	13	\$0.00	90%	53%	\$0.00	1,955
Washington	Lodging	Lighting Interior	Lighting Package, High Efficiency	Code Required LPD And Control Strategies	Existing Lighting Design LPD	per building sqft	Existing	1	13	\$0.02	90%	41%	\$0.00	7,053
Washington	Lodging	Lighting Interior	Lighting Package, Premium Efficiency	25% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	Existing	0.72	13	\$0.00	75%	62%	\$0.00	786
Washington	Lodging	Lighting Interior	Lighting Package, Premium High Bay	35% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	Existing	0.01	13	\$0.01	70%	83%	\$0.11	91
Washington	Lodging	Lighting Interior	Occupancy Sensor Control, Fluorescent	Occupancy Sensor Control, Fluorescent	No Occupancy Sensor	per occupancy sensor	Existing	578	8	\$68	90%	58%	\$0.02	317
Washington	Lodging	Lighting Interior	Time Clock	Time Clock	No Controls	per 10,000 Watts	Existing	753	8	\$195	20%	***	\$0.05	118
Washington	Lodging	Lighting Interior	Cold Cathode Lighting	Cold Cathode Lighting 5 watts	30 W Incandescent Bulb	per installation	New	118	5	\$12	15%	94%	\$0.03	3

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Washington	Lodging	Lighting Interior	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	New	0.20	8	\$0.95	30%	92%	\$0.89	9
Washington	Lodging	Lighting Interior	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	New	0.15	8	\$0.71	30%	92%	\$0.89	7
Washington	Lodging	Lighting Interior	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign (2 Watts)	per installation	New	17	13	\$30	95%	98%	\$0.24	26
Washington	Lodging	Lighting Interior	Lighting Package, High Efficiency	15% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	New	0.43	15	\$0.00	90%	53%	\$0.00	272
Washington	Lodging	Lighting Interior	Lighting Package, Premium Efficiency	25% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	New	0.72	15	\$0.00	75%	62%	\$0.00	109
Washington	Lodging	Lighting Interior	Lighting Package, Premium High Bay	35% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	New	0.01	15	\$0.00	70%	83%	\$0.02	12
Washington	Lodging	Lighting Interior	Occupancy Sensor Control, Fluorescent	Occupancy Sensor Control, Fluorescent	No Occupancy Sensor	per occupancy sensor	New	513	8	\$68	90%	58%	\$0.03	46
Washington	Lodging	Lighting Interior	Time Clock	Time Clock	No Controls	per 10,000 Watts	New	753	8	\$195	20%	**%	\$0.05	17
Washington	Lodging	Other Office Equipment	ENERGY STAR - Copiers	ENERGY STAR Copiers	Standard Copier	per installation	Existing	73	6	\$157	95%	45%	\$0.52	42
Washington	Lodging	Other Office Equipment	ENERGY STAR - Fax	ENERGY STAR Fax	Standard Fax	per installation	Existing	78	6	\$0.88	95%	45%	\$0.00	44
Washington	Lodging	Other Office Equipment	ENERGY STAR - Monitors	ENERGY STAR Features Enabled	Non-ENERGY STAR Features	per installation	Existing	15	5	\$16	64%	15%	\$0.31	4
Washington	Lodging	Other Office Equipment	ENERGY STAR - Printers	ENERGY STAR Printers	Standard Printers	per installation	Existing	137	6	\$14	95%	40%	\$0.03	58
Washington	Lodging	Other Office Equipment	ENERGY STAR - Scanners	ENERGY STAR Scanners	Standard Scanner	per installation	Existing	71	6	\$0.88	95%	45%	\$0.00	40
Washington	Lodging	Other Office Equipment	ENERGY STAR - Copiers	ENERGY STAR Copiers	Standard Copier	per installation	New	73	6	\$157	95%	45%	\$0.52	5
Washington	Lodging	Other Office Equipment	ENERGY STAR - Fax	ENERGY STAR Fax	Standard Fax	per installation	New	78	6	\$0.88	95%	45%	\$0.00	6
Washington	Lodging	Other Office Equipment	ENERGY STAR - Monitors	ENERGY STAR Features Enabled	Non-ENERGY STAR Features	per installation	New	15	5	\$16	64%	15%	\$0.31	0.63
Washington	Lodging	Other Office Equipment	ENERGY STAR - Printers	ENERGY STAR Printers	Standard Printers	per installation	New	137	6	\$14	95%	40%	\$0.03	8
Washington	Lodging	Other Office Equipment	ENERGY STAR - Scanners	ENERGY STAR Scanners	Standard Scanner	per installation	New	71	6	\$0.88	95%	45%	\$0.00	5
Washington	Lodging	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	per installation	Existing	7	7	\$2	20%	90%	\$0.07	2
Washington	Lodging	Other Plug Load	ENERGY STAR - Water Cooler	ENERGY STAR Water Cooler (Hot/Cold Water)	Non-ENERGY STAR Water Cooler	per installation	Existing	363	10	\$0.00	95%	75%	\$0.00	19
Washington	Lodging	Other Plug Load	Ice Maker	High-Efficiency Ice Maker	Standard Ice Maker	per installation	Existing	423	10	\$137	95%	86%	\$0.03	460
Washington	Lodging	Other Plug Load	Power Supply Transformer/Converter	80 Plus	85% efficient power supply (> 51W)	1 unit per 2,000 sqft	Existing	6	4	\$0.40	95%	86%	\$0.02	32
Washington	Lodging	Other Plug Load	Residential Refrigerator	ENERGY STAR	Federal Standard	per installation	Existing	80	12	\$120	24%	65%	\$0.22	18
Washington	Lodging	Other Plug Load	Residential Refrigerator/Freezer Recycling	Recycling Existing Refrigerator/Freezer	Existing Refrigerator/Freezer	per installation	Existing	952	4	\$550	25%	35%	\$0.20	35
Washington	Lodging	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	1 unit per 4,000 sqft	Existing	100	5	\$20	60%	90%	\$0.06	161
Washington	Lodging	Other Plug Load	Vending Machines- High Efficiency	ENERGY STAR (Tier 2) Vending Machines- High Efficiency 500 can capacity Under 5.92 kWh/day	Vending Machines- Standard 13 kWh/day	per installation	Existing	240	14	\$158	90%	80%	\$0.09	231
Washington	Lodging	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	per installation	New	7	7	\$2	20%	90%	\$0.07	0.29
Washington	Lodging	Other Plug Load	ENERGY STAR - Water Cooler	ENERGY STAR Water Cooler (Hot/Cold Water)	Non-ENERGY STAR Water Cooler	per installation	New	363	10	\$0.00	95%	75%	\$0.00	2

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Washington	Lodging	Other Plug Load	Ice Maker	High-Efficiency Ice Maker	Standard Ice Maker	per installation	New	423	10	\$137	95%	86%	\$0.03	64
Washington	Lodging	Other Plug Load	Power Supply Transformer/Converter	80 Plus	85% efficient power supply (> 51W)	1 unit per 2,000 sqft	New	6	4	\$0.40	95%	86%	\$0.02	4
Washington	Lodging	Other Plug Load	Residential Refrigerator	ENERGY STAR	Federal Standard	per installation	New	80	12	\$120	24%	65%	\$0.22	2
Washington	Lodging	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	1 unit per 4,000 sqft	New	100	5	\$20	60%	90%	\$0.06	22
Washington	Lodging	Other Plug Load	Vending Machines- High Efficiency	ENERGY STAR (Tier 2) Vending Machines- High Efficiency 500 can capacity Under 5.92 kWh/day	Vending Machines- Standard 13 kWh/day	per installation	New	240	14	\$158	90%	80%	\$0.09	32
Washington	Lodging	Space Heat	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	Existing	625	15	\$166	75%	76%	\$0.03	1,165
Washington	Lodging	Space Heat	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	Existing	0.15	18	\$0.22	45%	65%	\$0.17	99
Washington	Lodging	Space Heat	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	Existing	0.93	14	\$1	5%	94%	\$0.25	94
Washington	Lodging	Space Heat	Hotel Key Card Room Energy Control System	Key card system to control room HVAC and lighting during non-occupied periods	325 sqft room, \$100/room	per room	Existing	507	15	\$135	60%	97%	\$0.03	3,071
Washington	Lodging	Space Heat	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	3	13	\$0.30	10%	39%	\$0.01	92
Washington	Lodging	Space Heat	Insulation - Ceiling	R-38 (WA State Code)	R-11 (Average Existing Conditions)	per roof sqft	Existing	1	25	\$0.99	75%	65%	\$0.09	1,341
Washington	Lodging	Space Heat	Insulation - Ceiling	R-49	R-38 (WA State Code)	per roof sqft	Existing	0.13	25	\$0.25	25%	85%	\$0.19	63
Washington	Lodging	Space Heat	Insulation - Duct	R-7 (WA State Code)	No Insulation	per surface area of duct insul	Existing	3	20	\$2	75%	60%	\$0.07	289
Washington	Lodging	Space Heat	Insulation - Floor (non-slab)	R-30 (WA State Code)	R-7 (Average Existing Conditions)	per floor area	Existing	2	25	\$0.90	35%	84%	\$0.04	1,983
Washington	Lodging	Space Heat	Insulation - Floor (non-slab)	R-38	R-30 (WA State Code)	per floor area	Existing	0.27	25	\$0.29	35%	90%	\$0.11	193
Washington	Lodging	Space Heat	Insulation - Wall	R-13 + 7.5 (WA State Code)	R-3 (Average Existing Conditions)	per floor area	Existing	3	25	\$2	10%	75%	\$0.06	374
Washington	Lodging	Space Heat	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	Existing	52	30	\$5	50%	95%	\$0.01	2,647
Washington	Lodging	Space Heat	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	Existing	1,500	10	\$133	95%	31%	\$0.01	210
Washington	Lodging	Space Heat	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	0.78	7	\$0.17	90%	85%	\$0.05	1,666
Washington	Lodging	Space Heat	Windows-High Efficiency	U-0.40 (WA State Code)	U-0.65 (Average Existing Conditions)	per window sqft	Existing	0.29	25	\$62	15%	69%	\$21.51	10
Washington	Lodging	Space Heat	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	New	355	15	\$166	75%	76%	\$0.06	93
Washington	Lodging	Space Heat	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	New	0.08	18	\$0.22	45%	65%	\$0.29	11
Washington	Lodging	Space Heat	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	New	0.53	14	\$1	5%	94%	\$0.43	10
Washington	Lodging	Space Heat	Hotel Key Card Room Energy Control System	Key card system to control room HVAC and lighting during non-occupied periods	325 sqft room, \$100/room	per room	New	288	15	\$135	60%	97%	\$0.06	245
Washington	Lodging	Space Heat	Insulation - Ceiling	R-49	R-38 (WA State Code)	per roof sqft	New	0.07	25	\$0.25	75%	85%	\$0.33	21
Washington	Lodging	Space Heat	Insulation - Floor (non-slab)	R-38	R-30 (WA State Code)	per floor area	New	0.15	25	\$0.29	35%	90%	\$0.19	21
Washington	Lodging	Space Heat	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	New	29	30	\$5	50%	95%	\$0.02	209
Washington	Lodging	Space Heat	Natural Ventilation	Natural Ventilation Design Reduction in Cooling	None - Standard Ventilation	per building sqft	New	0.35	15	\$0.95	20%	75%	\$0.35	22
Washington	Lodging	Space Heat	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	New	854	10	\$133	95%	15%	\$0.03	8
Washington	Lodging	Water Heat	Clothes Washer Commercial	ENERGY STAR Commercial Clothes Washer MEF=1.80	Standard Clothes Washers	per installation	Existing	543	11	\$124	95%	80%	\$-0.26	104

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Washington	Lodging	Water Heat	Clothes Washer Residential	Energy Star - CEE Tier 1 (MEF 2.0 - 2.19) - Electric DHW & Dryer	MEF = 1.66 - Electric DHW & Dryer (NWPPC 6th Plan Average Efficiency)	per installation	Existing	132	11	\$302	85%	94%	\$0.06	26
Washington	Lodging	Water Heat	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	per building sqft	Existing	0.08	10	\$0.26	55%	80%	\$0.51	112
Washington	Lodging	Water Heat	Dishwasher Residential	ENERGY STAR <= 324 kWh/yr, <= 5.8 gal/cycle	Federal Standard <= 355 kWh/yr, <= 6.5 gal/cycle	per installation	Existing	31	11	\$30	95%	25%	\$0.09	0.85
Washington	Lodging	Water Heat	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	per installation	Existing	7,369	10	\$2,571	95%	95%	\$0.02	101
Washington	Lodging	Water Heat	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	per installation	Existing	3,443	10	\$800	95%	94%	\$-0.02	23
Washington	Lodging	Water Heat	Electric Water Heater - High Efficiency	EF = 0.95	EF = 0.92	Per installation	Existing	426	15	\$532	100%	N/A	\$0.16	24
Washington	Lodging	Water Heat	Heat Pump Water Heater - Advanced-Efficiency	EF = 2.2	EF = 0.92	Per installation	Existing	7,866	15	\$10,278	75%	N/A	\$0.17	1,187
Washington	Lodging	Water Heat	Hot Water (SHW) Pipe Insulation	1.0" of Insulation, assuming R-4 (WA State Code)	No Insulation	per linear foot	Existing	6	12	\$2	80%	90%	\$0.06	37
Washington	Lodging	Water Heat	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	per installation	Existing	22	9	\$0.08	95%	25%	\$-0.08	48
Washington	Lodging	Water Heat	Low-Flow Faucet Aerators	2.2 GPM (Federal Code)	3.0 GPM	per installation	Existing	18	9	\$2	95%	25%	\$-0.06	40
Washington	Lodging	Water Heat	Low-Flow Pre-Rinse Spray Valves	0.6 GPM	1.6 GPM (Federal Standard)	per installation	Existing	66	5	\$4	95%	93%	\$-0.07	40
Washington	Lodging	Water Heat	Low-Flow Showerheads	2.0 GPM	2.5 GPM (Federal Code)	per installation	Existing	49	10	\$5	95%	73%	\$-0.06	318
Washington	Lodging	Water Heat	Low-Flow Showerheads	2.5 GPM (Federal Code)	4.5 GPM	per installation	Existing	110	10	\$10	95%	62%	\$-0.06	599
Washington	Lodging	Water Heat	Water Heater Temperature Setback	Water Heater Temperature Setback (120 F)	No Change in Water Temperature	per installation	Existing	153	5	\$92	75%	5%	\$0.17	14
Washington	Lodging	Water Heat	Clothes Washer Commercial	ENERGY STAR Commercial Clothes Washer MEF=1.80	Standard Clothes Washers	per installation	New	545	11	\$124	95%	80%	\$-0.26	14
Washington	Lodging	Water Heat	Clothes Washer Residential	Energy Star - CEE Tier 1 (MEF 2.0 - 2.19) - Electric DHW & Dryer	MEF = 1.66 - Electric DHW & Dryer (NWPPC 6th Plan Average Efficiency)	per installation	New	133	11	\$302	85%	94%	\$0.06	3
Washington	Lodging	Water Heat	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	per building sqft	New	0.08	10	\$0.26	55%	80%	\$0.52	17
Washington	Lodging	Water Heat	Dishwasher Residential	ENERGY STAR <= 324 kWh/yr, <= 5.8 gal/cycle	Federal Standard <= 355 kWh/yr, <= 6.5 gal/cycle	per installation	New	31	11	\$30	95%	55%	\$0.09	0.26
Washington	Lodging	Water Heat	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	per installation	New	7,406	10	\$2,573	95%	95%	\$0.02	13
Washington	Lodging	Water Heat	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	per installation	New	3,460	10	\$794	95%	94%	\$-0.02	3
Washington	Lodging	Water Heat	Electric Water Heater - High Efficiency	EF = 0.95	EF = 0.92	Per installation	New	426	15	\$532	100%	N/A	\$0.16	3
Washington	Lodging	Water Heat	Heat Pump Water Heater - Advanced-Efficiency	EF = 2.2	EF = 0.92	Per installation	New	7,866	15	\$8,766	75%	N/A	\$0.14	156
Washington	Lodging	Water Heat	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	per installation	New	21	9	\$0.08	95%	25%	\$-0.08	6
Washington	Lodging	Water Heat	Low-Flow Pre-Rinse Spray Valves	0.6 GPM	1.6 GPM (Federal Standard)	per installation	New	66	5	\$4	95%	93%	\$-0.07	5
Washington	Lodging	Water Heat	Low-Flow Showerheads	2.0 GPM	2.5 GPM (Federal Code)	per installation	New	47	10	\$5	95%	73%	\$-0.06	43
Washington	Lodging	Water Heat	Water Heater Temperature Setback	Water Heater Temperature Setback (120 F)	No Change in Water Temperature	per installation	New	148	5	\$92	75%	5%	\$0.18	2
Washington	Miscellaneous	Computers	Computer ENERGY STAR	Computer ENERGY STAR	Computer standard non-ENERGY STAR	Per installation	Existing	133	4	\$27	100%	N/A	\$0.07	247
Washington	Miscellaneous	Computers	Network PC Power Management	Network PC Power Management	No Power Management	per computer	Existing	88	5	\$11	95%	30%	\$0.04	69
Washington	Miscellaneous	Computers	Computer ENERGY STAR	Computer ENERGY STAR	Computer standard non-ENERGY STAR	Per installation	New	133	4	\$27	100%	N/A	\$0.07	6

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Washington	Miscellaneous	Computers	Network PC Power Management	Network PC Power Management	No Power Management	per computer	New	88	5	\$11	95%	30%	\$0.04	9
Washington	Miscellaneous	Cooling Dx Evap	Automated Ventilation VFD Control(Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	1 unit per 3,000 sqft	Existing	730	15	\$726	50%	94%	\$0.13	95
Washington	Miscellaneous	Cooling Dx Evap	Convert Constant Volume Air System to VAV	Variable Volume Air System	Constant Volume Air System	per building CFM	Existing	0.73	15	\$2	15%	67%	\$0.51	44
Washington	Miscellaneous	Cooling Dx Evap	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	Existing	0.24	15	\$0.68	45%	98%	\$0.36	69
Washington	Miscellaneous	Cooling Dx Evap	DX Package 65 to 135 kBtu/hr - High Efficiency	DX Package 65 to 135 kBtu/hr - High Efficiency - 11.5 EER	DX Package 65 to 135 kBtu/hr - Standard Efficiency - 11.2 EER	Per installation	Existing	363	15	\$453	100%	N/A	\$0.16	3
Washington	Miscellaneous	Cooling Dx Evap	DX Package 65 to 135 kBtu/hr - Premium Efficiency	DX Package 65 to 135 kBtu/hr - Premium Efficiency - 12.0 EER	DX Package 65 to 135 kBtu/hr - Standard Efficiency - 11.2 EER	Per installation	Existing	930	15	\$913	100%	N/A	\$0.13	71
Washington	Miscellaneous	Cooling Dx Evap	DX Package-Air Side Economizer	Air-Side Economizer	No Economizer	per DX ton	Existing	98	10	\$164	10%	70%	\$0.28	18
Washington	Miscellaneous	Cooling Dx Evap	DX Tune-Up / Diagnostics	DX Tune-Up / Diagnostics	No DX Tune-Up / Diagnostics	per installation	Existing	492	4	\$325	95%	72%	\$0.25	131
Washington	Miscellaneous	Cooling Dx Evap	Direct / Indirect Evaporative Cooling, Pre-Cooling	Evaporative Cooler	Standard DX cooling	per building CFM	Existing	0.60	15	\$1	50%	94%	\$0.42	195
Washington	Miscellaneous	Cooling Dx Evap	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	Existing	243	15	\$166	75%	76%	\$0.09	136
Washington	Miscellaneous	Cooling Dx Evap	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	Existing	0.06	18	\$0.22	45%	65%	\$0.43	10
Washington	Miscellaneous	Cooling Dx Evap	Evaporative Cooler replaces DX Package 65 to 135 kBtu/hr - Advanced Efficiency	Evaporative Cooler replaces DX Package 65 to 135 kBtu/hr - Advanced Efficiency	DX Package 65 to 135 kBtu/hr - Standard Efficiency - 11.2 EER	Per installation	Existing	5,783	15	-\$9014.4	25%	N/A	-\$0.26	125
Washington	Miscellaneous	Cooling Dx Evap	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	Existing	0.24	40	\$9	4%	98%	\$3.53	0.47
Washington	Miscellaneous	Cooling Dx Evap	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	1	13	\$0.30	10%	39%	\$0.02	3
Washington	Miscellaneous	Cooling Dx Evap	Insulation - Ceiling	R-38 (WA State Code)	R-11 (Average Existing Conditions)	per roof sqft	Existing	0.00	25	\$0.99	75%	69%	\$18.37	1
Washington	Miscellaneous	Cooling Dx Evap	Insulation - Duct	R-7 (WA State Code)	No Insulation	per surface area of duct insul	Existing	1	20	\$2	75%	59%	\$0.19	36
Washington	Miscellaneous	Cooling Dx Evap	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	Existing	14	30	\$5	50%	95%	\$0.04	188
Washington	Miscellaneous	Cooling Dx Evap	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	Existing	328	10	\$133	95%	28%	\$0.07	19
Washington	Miscellaneous	Cooling Dx Evap	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	0.30	7	\$0.17	90%	85%	\$0.13	216
Washington	Miscellaneous	Cooling Dx Evap	Window Film	Window Film	No Film	per 100 sqft of window glazing	Existing	2	10	\$146	90%	66%	\$11.66	0.27
Washington	Miscellaneous	Cooling Dx Evap	Windows-High Efficiency	U-0.32	U-0.40 (WA State Code)	per window sqft	Existing	7	25	\$29	15%	90%	\$0.38	28
Washington	Miscellaneous	Cooling Dx Evap	Windows-High Efficiency	U-0.40 (WA State Code)	U-0.65 (Average Existing Conditions)	per window sqft	Existing	6	25	\$62	15%	72%	\$0.93	16
Washington	Miscellaneous	Cooling Dx Evap	Automated Ventilation VFD Control(Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	1 unit per 3,000 sqft	New	476	15	\$387	50%	94%	\$0.11	10
Washington	Miscellaneous	Cooling Dx Evap	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	New	0.15	15	\$0.68	45%	98%	\$0.55	8

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Washington	Miscellaneous	Cooling Dx Evap	DX Package 65 to 135 kBTU/hr - High Efficiency	DX Package 65 to 135 kBTU/hr - High Efficiency - 11.5 EER	DX Package 65 to 135 kBTU/hr - Standard Efficiency - 11.2 EER	Per installation	New	267	15	\$363	100%	N/A	\$0.18	0.30
Washington	Miscellaneous	Cooling Dx Evap	DX Package 65 to 135 kBTU/hr - Premium Efficiency	DX Package 65 to 135 kBTU/hr - Premium Efficiency - 12.0 EER	DX Package 65 to 135 kBTU/hr - Standard Efficiency - 11.2 EER	Per installation	New	695	15	\$730	100%	N/A	\$0.14	7
Washington	Miscellaneous	Cooling Dx Evap	Direct / Indirect Evaporative Cooling, Pre-Cooling	Evaporative Cooler	Standard DX cooling	per building CFM	New	0.39	15	\$1	50%	94%	\$0.65	21
Washington	Miscellaneous	Cooling Dx Evap	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	New	158	15	\$166	75%	76%	\$0.14	12
Washington	Miscellaneous	Cooling Dx Evap	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	New	0.03	18	\$0.22	45%	65%	\$0.65	1
Washington	Miscellaneous	Cooling Dx Evap	Evaporative Cooler replaces DX Package 65 to 135 kBTU/hr - Advanced Efficiency	Evaporative Cooler replaces DX Package 65 to 135 kBTU/hr - Advanced Efficiency	DX Package 65 to 135 kBTU/hr - Standard Efficiency - 11.2 EER	Per installation	New	4,121	15	\$-6617.7	25%	N/A	\$-0.28	13
Washington	Miscellaneous	Cooling Dx Evap	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	New	0.15	40	\$9	4%	98%	\$5.42	0.05
Washington	Miscellaneous	Cooling Dx Evap	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	New	9	30	\$5	50%	95%	\$0.06	18
Washington	Miscellaneous	Cooling Dx Evap	Natural Ventilation	Natural Ventilation Design Reduction in Cooling	None - Standard Ventilation	per building sqft	New	0.15	15	\$0.95	20%	75%	\$0.78	2
Washington	Miscellaneous	Cooling Dx Evap	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	New	214	10	\$133	95%	14%	\$0.10	0.94
Washington	Miscellaneous	Cooling Dx Evap	Windows-High Efficiency	U-0.32	U-0.40 (WA State Code)	per window sqft	New	5	25	\$29	80%	90%	\$0.59	18
Washington	Miscellaneous	Cooling Room	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	Existing	0.26	15	\$0.68	45%	98%	\$0.33	11
Washington	Miscellaneous	Cooling Room	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	Existing	268	15	\$166	75%	76%	\$0.08	17
Washington	Miscellaneous	Cooling Room	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	Existing	0.26	40	\$9	4%	98%	\$3.20	0.09
Washington	Miscellaneous	Cooling Room	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	2	13	\$0.30	10%	39%	\$0.02	0.35
Washington	Miscellaneous	Cooling Room	Insulation - Ceiling	R-38 (WA State Code)	R-11 (Average Existing Conditions)	per roof sqft	Existing	0.00	25	\$0.99	75%	69%	\$16.65	0.31
Washington	Miscellaneous	Cooling Room	PTAC (10,000 BTU/HR) - Premium-Efficiency	11.4 EER	Room AC (10,000 BTU/HR) Standard-Efficiency 9.8 EER	Per installation	Existing	1,905	15	\$21,706	75%	N/A	\$1.48	30
Washington	Miscellaneous	Cooling Room	Room AC (10,000 BTU/HR) High-Efficiency	High Efficiency 10.8 EER (ENERGY STAR)	Room AC (10,000 BTU/HR) Standard-Efficiency 9.8 EER	Per installation	Existing	1,187	9	\$999	100%	N/A	\$0.15	5
Washington	Miscellaneous	Cooling Room	Window Film	Window Film	No Film	per 100 sqft of window glazing	Existing	0.10	10	\$146	90%	66%	\$232.31	0.00
Washington	Miscellaneous	Cooling Room	Windows-High Efficiency	U-0.32	U-0.40 (WA State Code)	per window sqft	Existing	8	25	\$29	15%	90%	\$0.35	4
Washington	Miscellaneous	Cooling Room	Windows-High Efficiency	U-0.40 (WA State Code)	U-0.65 (Average Existing Conditions)	per window sqft	Existing	7	25	\$62	15%	72%	\$0.85	3
Washington	Miscellaneous	Cooling Room	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	New	0.18	15	\$0.68	45%	98%	\$0.48	1
Washington	Miscellaneous	Cooling Room	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	New	184	15	\$166	75%	76%	\$0.12	1
Washington	Miscellaneous	Cooling Room	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	New	0.18	40	\$9	4%	98%	\$4.66	0.00
Washington	Miscellaneous	Cooling Room	Natural Ventilation	Natural Ventilation Design Reduction in Cooling	None - Standard Ventilation	per building sqft	New	0.18	15	\$0.95	20%	75%	\$0.67	0.36
Washington	Miscellaneous	Cooling Room	PTAC (10,000 BTU/HR) - Premium-Efficiency	11.4 EER	Room AC (10,000 BTU/HR) Standard-Efficiency 9.8 EER	Per installation	New	1,389	15	\$15,454	75%	N/A	\$1.44	1

Table C.2.2. Commercial Measure Details

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Washington	Miscellaneous	Cooling Room	Room AC (10,000 BTU/HR) High-Efficiency	High Efficiency 10.8 EER (ENERGY STAR)	Room AC (10,000 BTU/HR) Standard-Efficiency 9.8 EER	Per installation	New	853	9	\$800	100%	N/A	\$0.17	0.32
Washington	Miscellaneous	Cooling Room	Windows-High Efficiency	U-0.32	U-0.40 (WA State Code)	per window sqft	New	5	25	\$29	80%	90%	\$0.51	2
Washington	Miscellaneous	Heat Pump	Air Source Heat Pump 65 to 135 kBtu/hr - High Efficiency	11.5 EER, 3.4 COP	11.0 EER, 3.3 COP	Per installation	Existing	1,398	15	\$1,689	100%	N/A	\$0.16	3
Washington	Miscellaneous	Heat Pump	Air Source Heat Pump 65 to 135 kBtu/hr - Premium Efficiency	12.0 EER, 3.8 COP	11.0 EER, 3.3 COP	Per installation	Existing	3,033	15	\$3,378	100%	N/A	\$0.14	67
Washington	Miscellaneous	Heat Pump	Automated Ventilation VFD Control(Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	1 unit per 3,000 sqft	Existing	726	15	\$726	50%	94%	\$0.13	18
Washington	Miscellaneous	Heat Pump	Convert Constant Volume Air System to VAV	Variable Volume Air System	Constant Volume Air System	per building CFM	Existing	0.80	15	\$2	15%	67%	\$0.46	11
Washington	Miscellaneous	Heat Pump	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	Existing	0.24	15	\$0.68	45%	98%	\$0.36	13
Washington	Miscellaneous	Heat Pump	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	Existing	505	15	\$166	75%	76%	\$0.04	55
Washington	Miscellaneous	Heat Pump	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	Existing	0.12	18	\$0.22	45%	65%	\$0.21	5
Washington	Miscellaneous	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	Existing	0.39	14	\$1	5%	94%	\$0.58	2
Washington	Miscellaneous	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	Existing	0.24	40	\$9	4%	98%	\$3.56	0.11
Washington	Miscellaneous	Heat Pump	Ground Source Heat Pump Replacing Air Source Heat Pump 65 to 135 kBtu/hr - Advanced Efficiency	16.2 EER 4.0 COP	11.0 EER, 3.3 COP	Per installation	Existing	5,906	30	\$89,204	5%	N/A	\$1.42	5
Washington	Miscellaneous	Heat Pump	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	6	13	\$0.30	10%	39%	\$0.01	2
Washington	Miscellaneous	Heat Pump	Insulation - Ceiling	R-38 (WA State Code)	R-11 (Average Existing Conditions)	per roof sqft	Existing	0.49	25	\$0.99	75%	69%	\$0.21	38
Washington	Miscellaneous	Heat Pump	Insulation - Ceiling	R-49	R-38 (WA State Code)	per roof sqft	Existing	0.02	25	\$0.25	25%	85%	\$0.90	0.83
Washington	Miscellaneous	Heat Pump	Insulation - Duct	R-7 (WA State Code)	No Insulation	per surface area of duct insul	Existing	2	20	\$2	75%	59%	\$0.09	15
Washington	Miscellaneous	Heat Pump	Insulation - Floor (non-slab)	R-30 (WA State Code)	R-7 (Average Existing Conditions)	per floor area	Existing	0.48	25	\$0.90	35%	84%	\$0.19	22
Washington	Miscellaneous	Heat Pump	Insulation - Floor (non-slab)	R-38	R-30 (WA State Code)	per floor area	Existing	0.06	25	\$0.29	35%	90%	\$0.43	3
Washington	Miscellaneous	Heat Pump	Insulation - Wall	R-13 + 7.5 (WA State Code)	R-3 (Average Existing Conditions)	per floor area	Existing	1	25	\$2	10%	74%	\$0.20	4
Washington	Miscellaneous	Heat Pump	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	Existing	42	30	\$5	50%	95%	\$0.01	108
Washington	Miscellaneous	Heat Pump	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	Existing	682	10	\$133	95%	28%	\$0.03	7
Washington	Miscellaneous	Heat Pump	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	0.63	7	\$0.17	90%	85%	\$0.06	88
Washington	Miscellaneous	Heat Pump	Window Film	Window Film	No Film	per 100 sqft of window glazing	Existing	2	10	\$146	90%	66%	\$11.62	0.06
Washington	Miscellaneous	Heat Pump	Windows-High Efficiency	U-0.32	U-0.40 (WA State Code)	per window sqft	Existing	5	25	\$29	15%	90%	\$0.57	3
Washington	Miscellaneous	Heat Pump	Windows-High Efficiency	U-0.40 (WA State Code)	U-0.65 (Average Existing Conditions)	per window sqft	Existing	7	25	\$62	15%	72%	\$0.86	4
Washington	Miscellaneous	Heat Pump	Air Source Heat Pump 65 to 135 kBtu/hr - High Efficiency	11.5 EER, 3.4 COP	11.0 EER, 3.3 COP	Per installation	New	979	15	\$1,351	100%	N/A	\$0.18	0.34
Washington	Miscellaneous	Heat Pump	Air Source Heat Pump 65 to 135 kBtu/hr - Premium Efficiency	12.0 EER, 3.8 COP	11.0 EER, 3.3 COP	Per installation	New	1,944	15	\$2,702	100%	N/A	\$0.18	6
Washington	Miscellaneous	Heat Pump	Automated Ventilation VFD Control(Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	1 unit per 3,000 sqft	New	485	15	\$387	50%	94%	\$0.10	2

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Washington	Miscellaneous	Heat Pump	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	New	0.16	15	\$0.68	45%	98%	\$0.54	1
Washington	Miscellaneous	Heat Pump	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	New	290	15	\$166	75%	76%	\$0.07	4
Washington	Miscellaneous	Heat Pump	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	New	0.07	18	\$0.22	45%	65%	\$0.36	0.55
Washington	Miscellaneous	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	New	0.19	14	\$1	5%	94%	\$1.20	0.21
Washington	Miscellaneous	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	New	0.16	40	\$9	4%	98%	\$5.32	0.01
Washington	Miscellaneous	Heat Pump	Ground Source Heat Pump Replacing Air Source Heat Pump 65 to 135 kBTU/hr - Advanced Efficiency	16.2 EER 4.0 COP	11.0 EER, 3.3 COP	Per installation	New	3,880	30	\$46,130	5%	N/A	\$1.10	0.50
Washington	Miscellaneous	Heat Pump	Insulation - Ceiling	R-49	R-38 (WA State Code)	per roof sqft	New	0.01	25	\$0.25	75%	85%	\$2.17	0.18
Washington	Miscellaneous	Heat Pump	Insulation - Floor (non-slab)	R-38	R-30 (WA State Code)	per floor area	New	0.02	25	\$0.29	35%	90%	\$1.09	0.20
Washington	Miscellaneous	Heat Pump	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	New	24	30	\$5	50%	95%	\$0.02	9
Washington	Miscellaneous	Heat Pump	Natural Ventilation	Natural Ventilation Design Reduction in Cooling	None - Standard Ventilation	per building sqft	New	0.29	15	\$0.95	20%	75%	\$0.42	1
Washington	Miscellaneous	Heat Pump	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	New	392	10	\$133	95%	14%	\$0.06	0.33
Washington	Miscellaneous	Heat Pump	Windows-High Efficiency	U-0.32	U-0.40 (WA State Code)	per window sqft	New	3	25	\$29	80%	90%	\$0.76	2
Washington	Miscellaneous	Hvac Aux	Convert Constant Volume Air System to VAV	Variable Volume Air System	Constant Volume Air System	per building CFM	Existing	0.30	15	\$2	15%	67%	\$1.23	150
Washington	Miscellaneous	Hvac Aux	Cooking Hood Controls	Demand-Ventilation Control	No Controls	per installation	Existing	1,875	18	\$3,906	95%	65%	\$0.25	64
Washington	Miscellaneous	Hvac Aux	Motor - CEE Premium-Efficiency Plus	CEE PE+ Motor for HVAC Applications	NEMA Efficiency Motors	per HP	Existing	24	15	\$6	95%	76%	\$0.03	74
Washington	Miscellaneous	Hvac Aux	Motor - VAV Box High Efficiency (ECM)	ECM Motor	Standard Efficiency Motor	per installation	Existing	63	15	\$173	13%	77%	\$0.36	65
Washington	Miscellaneous	Hvac Aux	Motor Rewind	>15, <500 HP	No Rewind	per HP	Existing	4	8	\$4	65%	25%	\$0.21	2
Washington	Miscellaneous	Hvac Aux	Optimized Variable Volume Lab Hood Design	Optimized Variable Volume Lab Hood Design	Constant Volume Lab Hood Design	per installation	Existing	182	13	\$1,620	5%	59%	\$1.25	6
Washington	Miscellaneous	Hvac Aux	Cooking Hood Controls	Demand-Ventilation Control	No Controls	per installation	New	1,875	18	\$3,903	95%	50%	\$0.24	41
Washington	Miscellaneous	Hvac Aux	Low Pressure Distribution Complex HVAC	Low Pressure Distribution Complex HVAC	VAV/CV	per building sqft	New	0.84	50	\$2	16%	98%	\$0.25	71
Washington	Miscellaneous	Hvac Aux	Motor - CEE Premium-Efficiency Plus	CEE PE+ Motor for HVAC Applications	NEMA Efficiency Motors	per HP	New	20	15	\$6	95%	76%	\$0.04	10
Washington	Miscellaneous	Hvac Aux	Motor - VAV Box High Efficiency (ECM)	ECM Motor	Standard Efficiency Motor	per installation	New	53	15	\$173	13%	77%	\$0.42	7
Washington	Miscellaneous	Hvac Aux	Optimized Variable Volume Lab Hood Design	Optimized Variable Volume Lab Hood Design	Constant Volume Lab Hood Design	per installation	New	154	15	\$1,620	5%	59%	\$1.36	0.70
Washington	Miscellaneous	Lighting Exterior	Covered Parking Lighting	Covered Parking Lighting	Normal Lighting	per building sqft	Existing	0.09	10	\$0.02	80%	95%	\$0.05	358
Washington	Miscellaneous	Lighting Exterior	Daylighting Controls, Outdoors (Photocell)	Photocell	No Controls	per installation	Existing	44	8	\$27	75%	70%	\$0.12	64
Washington	Miscellaneous	Lighting Exterior	Exterior Building Lighting	30% savings	Normal Lighting	per installation	Existing	243	15	\$327	62%	90%	\$0.17	563
Washington	Miscellaneous	Lighting Exterior	Solid State LED White Lighting	Landscape, merchandise, signage, structure & task lighting (2.5 W)	50W 10hrs/day, 365 day/yr	per installation	Existing	4	14	\$34	75%	95%	\$0.97	10
Washington	Miscellaneous	Lighting Exterior	Surface Parking Lighting	Surface Parking Lighting	Normal Lighting	per building sqft	Existing	0.05	19	\$0.06	62%	95%	\$0.16	150
Washington	Miscellaneous	Lighting Exterior	Covered Parking Lighting	Covered Parking Lighting	Normal Lighting	per building sqft	New	0.09	10	\$0.02	80%	95%	\$0.05	49
Washington	Miscellaneous	Lighting Exterior	Daylighting Controls, Outdoors (Photocell)	Photocell	No Controls	per installation	New	44	8	\$27	75%	70%	\$0.12	9

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Washington	Miscellaneous	Lighting Exterior	Exterior Building Lighting	30% savings	Normal Lighting	per installation	New	243	15	\$327	62%	90%	\$0.17	78
Washington	Miscellaneous	Lighting Exterior	Solid State LED White Lighting	Landscape, merchandise, signage, structure & task lighting (2.5 W)	50W 10hrs/day, 365 day/yr	per installation	New	4	14	\$34	75%	95%	\$0.97	1
Washington	Miscellaneous	Lighting Exterior	Surface Parking Lighting	Surface Parking Lighting	Normal Lighting	per building sqft	New	0.05	19	\$0.06	62%	95%	\$0.16	20
Washington	Miscellaneous	Lighting Interior	Cold Cathode Lighting	Cold Cathode Lighting 5 watts	30 W Incandescent Bulb	per installation	Existing	530	5	\$12	15%	94%	\$0.01	78
Washington	Miscellaneous	Lighting Interior	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	Existing	0.79	8	\$0.95	30%	84%	\$0.23	97
Washington	Miscellaneous	Lighting Interior	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	Existing	0.59	8	\$0.71	30%	84%	\$0.23	73
Washington	Miscellaneous	Lighting Interior	Exit Sign - LED	LED Exit Sign (2 Watts)	CFL Exit Sign (9 Watts)	per installation	Existing	96	16	\$16	95%	50%	\$0.02	163
Washington	Miscellaneous	Lighting Interior	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign (2 Watts)	per installation	Existing	17	13	\$30	95%	98%	\$0.24	19
Washington	Miscellaneous	Lighting Interior	LED Refrigeration Case Lights	LED Refrigeration Case Lights	Fluorescent Refrigeration Case	per installation	Existing	125	8	\$242	10%	80%	\$0.38	15
Washington	Miscellaneous	Lighting Interior	Lighting Package, High Efficiency	15% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	Existing	0.51	13	\$0.07	90%	53%	\$0.02	929
Washington	Miscellaneous	Lighting Interior	Lighting Package, High Efficiency	Code Required LPD And Control Strategies	Existing Lighting Design LPD	per building sqft	Existing	1	13	\$0.81	90%	41%	\$0.07	2,850
Washington	Miscellaneous	Lighting Interior	Lighting Package, Premium Efficiency	25% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	Existing	0.85	13	\$0.29	75%	62%	\$0.05	374
Washington	Miscellaneous	Lighting Interior	Lighting Package, Premium High Bay	35% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	Existing	0.39	13	\$0.21	70%	83%	\$0.08	1,089
Washington	Miscellaneous	Lighting Interior	Occupancy Sensor Control, Fluorescent	Occupancy Sensor Control, Fluorescent	No Occupancy Sensor	per occupancy sensor	Existing	1,018	8	\$68	90%	52%	\$0.01	189
Washington	Miscellaneous	Lighting Interior	Time Clock	Time Clock	No Controls	per 10,000 Watts	Existing	754	8	\$195	20%	**%	\$0.05	78
Washington	Miscellaneous	Lighting Interior	Cold Cathode Lighting	Cold Cathode Lighting 5 watts	30 W Incandescent Bulb	per installation	New	372	5	\$12	15%	94%	\$0.01	7
Washington	Miscellaneous	Lighting Interior	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	New	0.55	8	\$0.95	30%	84%	\$0.33	10
Washington	Miscellaneous	Lighting Interior	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	New	0.41	8	\$0.71	30%	84%	\$0.33	7
Washington	Miscellaneous	Lighting Interior	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign (2 Watts)	per installation	New	17	13	\$30	95%	98%	\$0.24	10
Washington	Miscellaneous	Lighting Interior	LED Refrigeration Case Lights	LED Refrigeration Case Lights	Fluorescent Refrigeration Case	per installation	New	125	8	\$242	10%	80%	\$0.38	2
Washington	Miscellaneous	Lighting Interior	Lighting Package, High Efficiency	15% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	New	0.51	15	\$0.02	90%	53%	\$0.01	129
Washington	Miscellaneous	Lighting Interior	Lighting Package, Premium Efficiency	25% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	New	0.85	15	\$0.13	75%	62%	\$0.02	52
Washington	Miscellaneous	Lighting Interior	Lighting Package, Premium High Bay	35% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	New	0.39	15	\$0.04	70%	83%	\$0.02	151
Washington	Miscellaneous	Lighting Interior	Occupancy Sensor Control, Fluorescent	Occupancy Sensor Control, Fluorescent	No Occupancy Sensor	per occupancy sensor	New	715	8	\$68	90%	52%	\$0.02	19
Washington	Miscellaneous	Lighting Interior	Time Clock	Time Clock	No Controls	per 10,000 Watts	New	754	8	\$195	20%	**%	\$0.05	8
Washington	Miscellaneous	Other Office Equipment	ENERGY STAR - Copiers	ENERGY STAR Copiers	Standard Copier	per installation	Existing	73	6	\$157	95%	45%	\$0.52	3
Washington	Miscellaneous	Other Office Equipment	ENERGY STAR - Fax	ENERGY STAR Fax	Standard Fax	per installation	Existing	78	6	\$0.00	95%	45%	\$0.00	3
Washington	Miscellaneous	Other Office Equipment	ENERGY STAR - Monitors	ENERGY STAR Features Enabled	Non-ENERGY STAR Features	per installation	Existing	15	5	\$15	64%	15%	\$0.30	3
Washington	Miscellaneous	Other Office Equipment	ENERGY STAR - Printers	ENERGY STAR Printers	Standard Printers	per installation	Existing	137	6	\$15	95%	40%	\$0.03	43
Washington	Miscellaneous	Other Office Equipment	ENERGY STAR - Scanners	ENERGY STAR Scanners	Standard Scanner	per installation	Existing	71	6	\$0.00	95%	45%	\$0.00	3

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Washington	Miscellaneous	Other Office Equipment	ENERGY STAR - Copiers	ENERGY STAR Copiers	Standard Copier	per installation	New	73	6	\$157	95%	45%	\$0.52	0.48
Washington	Miscellaneous	Other Office Equipment	ENERGY STAR - Fax	ENERGY STAR Fax	Standard Fax	per installation	New	78	6	\$0.00	95%	45%	\$0.00	0.51
Washington	Miscellaneous	Other Office Equipment	ENERGY STAR - Monitors	ENERGY STAR Features Enabled	Non-ENERGY STAR Features	per installation	New	15	5	\$15	64%	15%	\$0.30	0.55
Washington	Miscellaneous	Other Office Equipment	ENERGY STAR - Printers	ENERGY STAR Printers	Standard Printers	per installation	New	137	6	\$15	95%	40%	\$0.03	6
Washington	Miscellaneous	Other Office Equipment	ENERGY STAR - Scanners	ENERGY STAR Scanners	Standard Scanner	per installation	New	71	6	\$0.00	95%	45%	\$0.00	0.47
Washington	Miscellaneous	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	per installation	Existing	7	7	\$1	20%	90%	\$0.05	0.85
Washington	Miscellaneous	Other Plug Load	ENERGY STAR - Water Cooler	ENERGY STAR Water Cooler (Hot/Cold Water)	Non-ENERGY STAR Water Cooler	per installation	Existing	363	10	\$0.00	95%	75%	\$0.00	28
Washington	Miscellaneous	Other Plug Load	Power Supply Transformer/Converter	80 Plus	85% efficient power supply (> 51W)	1 unit per 2,000 sqft	Existing	6	4	\$0.40	95%	86%	\$0.02	13
Washington	Miscellaneous	Other Plug Load	Residential Refrigerator	ENERGY STAR	Federal Standard	per installation	Existing	80	12	\$119	10%	65%	\$0.22	5
Washington	Miscellaneous	Other Plug Load	Residential Refrigerator/Freezer Recycling	Recycling Existing Refrigerator/Freezer	Existing Refrigerator/Freezer	per installation	Existing	953	4	\$549	25%	35%	\$0.20	26
Washington	Miscellaneous	Other Plug Load	Server Virtualization	Server Virtualization	No Virtualization	number of virtualized servers	Existing	2,262	4	\$2,033	72%	85%	\$0.68	246
Washington	Miscellaneous	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	1 unit per 5,000 sqft	Existing	100	5	\$20	60%	90%	\$0.06	54
Washington	Miscellaneous	Other Plug Load	Vending Machines- High Efficiency	ENERGY STAR (Tier 2) Vending Machines- High Efficiency 500 can capacity Under 5.92 kWh/day	Vending Machines- Standard 13 kWh/day	per installation	Existing	240	14	\$157	10%	80%	\$0.09	2
Washington	Miscellaneous	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	per installation	New	7	7	\$1	20%	90%	\$0.05	0.11
Washington	Miscellaneous	Other Plug Load	ENERGY STAR - Water Cooler	ENERGY STAR Water Cooler (Hot/Cold Water)	Non-ENERGY STAR Water Cooler	per installation	New	363	10	\$0.00	95%	75%	\$0.00	4
Washington	Miscellaneous	Other Plug Load	Power Supply Transformer/Converter	80 Plus	85% efficient power supply (> 51W)	1 unit per 2,000 sqft	New	6	4	\$0.40	95%	86%	\$0.02	1
Washington	Miscellaneous	Other Plug Load	Residential Refrigerator	ENERGY STAR	Federal Standard	per installation	New	80	12	\$119	10%	65%	\$0.22	0.80
Washington	Miscellaneous	Other Plug Load	Server Virtualization	Server Virtualization	No Virtualization	number of virtualized servers	New	2,262	4	\$2,033	72%	85%	\$0.68	34
Washington	Miscellaneous	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	1 unit per 5,000 sqft	New	100	5	\$20	60%	90%	\$0.06	7
Washington	Miscellaneous	Other Plug Load	Vending Machines- High Efficiency	ENERGY STAR (Tier 2) Vending Machines- High Efficiency 500 can capacity Under 5.92 kWh/day	Vending Machines- Standard 13 kWh/day	per installation	New	240	14	\$157	10%	80%	\$0.09	0.29
Washington	Miscellaneous	Refrigeration	Case Electronically Commutated Motor	ECM Case Fans	Standard Efficiency Motor	1 unit per 10,000 sqft	Existing	1,023	12	\$236	3%	77%	\$0.03	1
Washington	Miscellaneous	Refrigeration	Case Replacement Low Temp	Case Replacement Low Temp	No replacement	per square foot	Existing	0.01	15	\$0.10	3%	90%	\$0.70	0.29
Washington	Miscellaneous	Refrigeration	Case Replacement Med Temp	Case Replacement Med Temp	No replacement	per square foot	Existing	0.00	15	\$0.05	3%	90%	\$4.23	0.02
Washington	Miscellaneous	Refrigeration	Night Covers for Display Cases	Night Covers for Display Cases	No Night Covers	per installation	Existing	405	5	\$62	5%	85%	\$0.04	0.79
Washington	Miscellaneous	Refrigeration	Standalone to Multiplex Compressor	Standalone to Multiplex Compressor	Standalone compressor	per building sqft	Existing	0.02	13	\$0.00	3%	90%	\$0.02	0.39
Washington	Miscellaneous	Refrigeration	Walk-In Electronically Commutated Motor	ECM Evaporator Fans	Standard Efficiency Motor	per installation	Existing	0.03	12	\$0.17	3%	95%	\$0.69	0.59
Washington	Miscellaneous	Refrigeration	Case Electronically Commutated Motor	ECM Case Fans	Standard Efficiency Motor	1 unit per 10,000 sqft	New	1,023	12	\$236	3%	77%	\$0.03	0.18
Washington	Miscellaneous	Refrigeration	Night Covers for Display Cases	Night Covers for Display Cases	No Night Covers	per installation	New	405	5	\$64	5%	85%	\$0.05	0.13
Washington	Miscellaneous	Refrigeration	Walk-In Electronically Commutated Motor	ECM Evaporator Fans	Standard Efficiency Motor	per installation	New	0.03	12	\$0.17	3%	95%	\$0.69	0.08

Table C.2.2. Commercial Measure Details

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Washington	Miscellaneous	Space Heat	Convert Constant Volume Air System to VAV	Variable Volume Air System	Constant Volume Air System	per building CFM	Existing	0.56	15	\$2	15%	67%	\$0.66	58
Washington	Miscellaneous	Space Heat	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	Existing	437	15	\$166	75%	76%	\$0.05	395
Washington	Miscellaneous	Space Heat	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	Existing	0.10	18	\$0.22	45%	65%	\$0.24	33
Washington	Miscellaneous	Space Heat	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	Existing	0.65	14	\$1	5%	94%	\$0.35	31
Washington	Miscellaneous	Space Heat	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	6	13	\$0.30	10%	39%	\$0.01	18
Washington	Miscellaneous	Space Heat	Insulation - Ceiling	R-38 (WA State Code)	R-11 (Average Existing Conditions)	per roof sqft	Existing	0.80	25	\$0.99	75%	69%	\$0.13	480
Washington	Miscellaneous	Space Heat	Insulation - Ceiling	R-49	R-38 (WA State Code)	per roof sqft	Existing	0.09	25	\$0.25	25%	85%	\$0.27	21
Washington	Miscellaneous	Space Heat	Insulation - Duct	R-7 (WA State Code)	No Insulation	per surface area of duct insul	Existing	2	20	\$2	75%	59%	\$0.11	96
Washington	Miscellaneous	Space Heat	Insulation - Floor (non-slab)	R-30 (WA State Code)	R-7 (Average Existing Conditions)	per floor area	Existing	1	25	\$0.90	35%	84%	\$0.06	672
Washington	Miscellaneous	Space Heat	Insulation - Floor (non-slab)	R-38	R-30 (WA State Code)	per floor area	Existing	0.19	25	\$0.29	35%	90%	\$0.15	65
Washington	Miscellaneous	Space Heat	Insulation - Wall	R-13 + 7.5 (WA State Code)	R-3 (Average Existing Conditions)	per floor area	Existing	3	25	\$2	10%	74%	\$0.06	137
Washington	Miscellaneous	Space Heat	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	Existing	36	30	\$5	50%	95%	\$0.02	777
Washington	Miscellaneous	Space Heat	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	Existing	590	10	\$133	95%	28%	\$0.04	56
Washington	Miscellaneous	Space Heat	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	0.54	7	\$0.17	90%	85%	\$0.07	551
Washington	Miscellaneous	Space Heat	Windows-High Efficiency	U-0.40 (WA State Code)	U-0.65 (Average Existing Conditions)	per window sqft	Existing	0.83	25	\$62	15%	72%	\$7.67	3
Washington	Miscellaneous	Space Heat	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	New	224	15	\$166	75%	76%	\$0.10	28
Washington	Miscellaneous	Space Heat	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	New	0.05	18	\$0.22	45%	65%	\$0.46	3
Washington	Miscellaneous	Space Heat	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	New	0.33	14	\$1	5%	94%	\$0.69	3
Washington	Miscellaneous	Space Heat	Insulation - Ceiling	R-49	R-38 (WA State Code)	per roof sqft	New	0.04	25	\$0.25	75%	85%	\$0.53	6
Washington	Miscellaneous	Space Heat	Insulation - Floor (non-slab)	R-38	R-30 (WA State Code)	per floor area	New	0.10	25	\$0.29	35%	90%	\$0.30	6
Washington	Miscellaneous	Space Heat	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	New	18	30	\$5	50%	95%	\$0.03	55
Washington	Miscellaneous	Space Heat	Natural Ventilation	Natural Ventilation Design Reduction in Cooling	None - Standard Ventilation	per building sqft	New	0.22	15	\$0.95	20%	75%	\$0.55	6
Washington	Miscellaneous	Space Heat	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	New	302	10	\$133	95%	14%	\$0.07	2
Washington	Miscellaneous	Water Heat	Clothes Washer Commercial	ENERGY STAR Commercial Clothes Washer MEF=1.80	Standard Clothes Washers	per installation	Existing	544	11	\$127	95%	80%	\$-0.26	5
Washington	Miscellaneous	Water Heat	Clothes Washer Residential	Energy Star - CEE Tier 1 (MEF 2.0 - 2.19) - Electric DHW & Dryer	MEF = 1.66 - Electric DHW & Dryer (NWPPC 6th Plan Average Efficiency)	per installation	Existing	132	11	\$312	85%	94%	\$0.07	1
Washington	Miscellaneous	Water Heat	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	per building sqft	Existing	0.01	10	\$0.26	55%	94%	\$2.35	23
Washington	Miscellaneous	Water Heat	Dishwasher Residential	ENERGY STAR <= 324 kWh/yr, <= 5.8 gal/cycle	Federal Standard <= 355 kWh/yr, <= 6.5 gal/cycle	per installation	Existing	31	11	\$29	95%	25%	\$0.09	1
Washington	Miscellaneous	Water Heat	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	per installation	Existing	7,392	10	\$2,807	95%	95%	\$0.03	2
Washington	Miscellaneous	Water Heat	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	per installation	Existing	3,453	10	\$802	95%	94%	\$-0.02	0.61
Washington	Miscellaneous	Water Heat	Electric Water Heater - High Efficiency	EF = 0.95	EF = 0.92	Per installation	Existing	52	15	\$85	100%	N/A	\$0.21	4

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Washington	Miscellaneous	Water Heat	Heat Pump Water Heater - Advanced-Efficiency	EF = 2.2	EF = 0.92	Per installation	Existing	968	15	\$1,644	75%	N/A	\$0.22	247
Washington	Miscellaneous	Water Heat	Hot Water (SHW) Pipe Insulation	1.0" of Insulation, assuming R-4 (WA State Code)	No Insulation	per linear foot	Existing	2	12	\$2	80%	90%	\$0.20	6
Washington	Miscellaneous	Water Heat	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	per installation	Existing	26	9	\$0.22	95%	25%	-\$0.08	9
Washington	Miscellaneous	Water Heat	Low-Flow Faucet Aerators	2.2 GPM (Federal Code)	3.0 GPM	per installation	Existing	22	9	\$2	95%	25%	-\$0.06	7
Washington	Miscellaneous	Water Heat	Low-Flow Pre-Rinse Spray Valves	0.6 GPM	1.6 GPM (Federal Standard)	per installation	Existing	66	5	\$4	95%	93%	-\$0.07	41
Washington	Miscellaneous	Water Heat	Low-Flow Showerheads	2.0 GPM	2.5 GPM (Federal Code)	per installation	Existing	400	10	\$6	95%	73%	-\$0.08	59
Washington	Miscellaneous	Water Heat	Low-Flow Showerheads	2.5 GPM (Federal Code)	4.0 GPM	per installation	Existing	889	10	\$10	95%	62%	-\$0.08	111
Washington	Miscellaneous	Water Heat	Water Cooled Refrigeration with Heat Recovery	Heat Recovery from refrigeration system. Applied to Water Heating Electric End use	No heat recovery	per sqft of refrigerated area	Existing	0.04	10	\$0.86	3%	94%	\$3.36	0.10
Washington	Miscellaneous	Water Heat	Water Heater Temperature Setback	Water Heater Temperature Setback (120 F)	No Change in Water Temperature	per installation	Existing	129	5	\$92	75%	55%	\$0.20	30
Washington	Miscellaneous	Water Heat	Clothes Washer Commercial	ENERGY STAR Commercial Clothes Washer MEF=1.80	Standard Clothes Washers	per installation	New	546	11	\$127	95%	80%	-\$0.26	0.79
Washington	Miscellaneous	Water Heat	Clothes Washer Residential	Energy Star - CEE Tier 1 (MEF 2.0 - 2.19) - Electric DHW & Dryer	MEF = 1.66 - Electric DHW & Dryer (NWPPC 6th Plan Average Efficiency)	per installation	New	133	11	\$312	85%	94%	\$0.07	0.20
Washington	Miscellaneous	Water Heat	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	per building sqft	New	0.01	10	\$0.26	55%	94%	\$2.39	3
Washington	Miscellaneous	Water Heat	Dishwasher Residential	ENERGY STAR <= 324 kWh/yr, <= 5.8 gal/cycle	Federal Standard <= 355 kWh/yr, <= 6.5 gal/cycle	per installation	New	31	11	\$29	95%	55%	\$0.09	0.40
Washington	Miscellaneous	Water Heat	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	per installation	New	7,410	10	\$2,450	95%	95%	\$0.02	0.36
Washington	Miscellaneous	Water Heat	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	per installation	New	3,462	10	\$816	95%	94%	-\$0.02	0.08
Washington	Miscellaneous	Water Heat	Electric Water Heater - High Efficiency	EF = 0.95	EF = 0.92	Per installation	New	52	15	\$85	100%	N/A	\$0.21	0.63
Washington	Miscellaneous	Water Heat	Heat Pump Water Heater - Advanced-Efficiency	EF = 2.2	EF = 0.92	Per installation	New	968	15	\$1,402	75%	N/A	\$0.19	31
Washington	Miscellaneous	Water Heat	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	per installation	New	26	9	\$0.22	95%	25%	-\$0.08	1
Washington	Miscellaneous	Water Heat	Low-Flow Pre-Rinse Spray Valves	0.6 GPM	1.6 GPM (Federal Standard)	per installation	New	66	5	\$4	95%	93%	-\$0.07	5
Washington	Miscellaneous	Water Heat	Low-Flow Showerheads	2.0 GPM	2.5 GPM (Federal Code)	per installation	New	394	10	\$6	95%	73%	-\$0.08	8
Washington	Miscellaneous	Water Heat	Water Cooled Refrigeration with Heat Recovery	Heat Recovery from refrigeration system. Applied to Water Heating Electric End use	No heat recovery	per sqft of refrigerated area	New	0.04	10	\$0.86	3%	94%	\$3.42	0.01
Washington	Miscellaneous	Water Heat	Water Heater Temperature Setback	Water Heater Temperature Setback (120 F)	No Change in Water Temperature	per installation	New	127	5	\$92	75%	55%	\$0.21	4
Washington	Restaurant	Computers	Computer ENERGY STAR	Computer ENERGY STAR	Computer standard non-ENERGY STAR	Per installation	Existing	147	4	\$31	100%	N/A	\$0.07	33
Washington	Restaurant	Computers	Computer ENERGY STAR	Computer ENERGY STAR	Computer standard non-ENERGY STAR	Per installation	New	147	4	\$31	100%	N/A	\$0.07	0.93
Washington	Restaurant	Cooking	Combination Oven	60% cooking efficiency	Non ENERGY STAR	per installation	Existing	13,136	12	\$2,057	90%	90%	\$0.02	32
Washington	Restaurant	Cooking	Fryers - New CEE Efficient Electric Deep Fat Fryers	15 inch width Deep Fryer CEE 2006 rating; 80% under heavy load, Less than 1000 watt at idle	15 inch width standard electric deep fat fryers	per installation	Existing	1,136	12	\$1,412	70%	86%	\$0.18	10
Washington	Restaurant	Cooking	Griddle	70% cooking efficiency	Non ENERGY STAR	per installation	Existing	2,536	12	\$889	95%	85%	\$0.05	39
Washington	Restaurant	Cooking	High Efficiency Convection Oven	Convection Oven	Standard Oven	per installation	Existing	2,099	12	\$2,195	40%	45%	\$0.15	11
Washington	Restaurant	Cooking	Hot Food Holding Cabinet	ENERGY STAR	Non ENERGY STAR	per installation	Existing	4,404	12	\$1,903	35%	21%	\$0.06	12
Washington	Restaurant	Cooking	Steam Cooker	ENERGY STAR	Non ENERGY STAR	per installation	Existing	4,714	12	\$2,766	39%	75%	\$0.09	54
Washington	Restaurant	Cooking	Combination Oven	60% cooking efficiency	Non ENERGY STAR	per installation	New	13,136	12	\$2,057	90%	90%	\$0.02	4

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Washington	Restaurant	Cooking	Fryers - New CEE Efficient Electric Deep Fat Fryers	15 inch width Deep Fryer CEE 2006 rating; 80% under heavy load, Less than 1000 watt at idle	15 inch width standard electric deep fat fryers	per installation	New	1,136	12	\$1,412	70%	86%	\$0.18	1
Washington	Restaurant	Cooking	Griddle	70% cooking efficiency	Non ENERGY STAR	per installation	New	2,536	12	\$889	95%	85%	\$0.05	5
Washington	Restaurant	Cooking	High Efficiency Convection Oven	Convection Oven	Standard Oven	per installation	New	2,099	12	\$2,195	40%	45%	\$0.15	1
Washington	Restaurant	Cooking	Hot Food Holding Cabinet	ENERGY STAR	Non ENERGY STAR	per installation	New	4,404	12	\$1,903	35%	21%	\$0.06	1
Washington	Restaurant	Cooking	Steam Cooker	ENERGY STAR	Non ENERGY STAR	per installation	New	4,714	12	\$2,766	39%	75%	\$0.09	7
Washington	Restaurant	Cooling Dx Evap	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	Existing	0.47	15	\$0.75	45%	98%	\$0.21	86
Washington	Restaurant	Cooling Dx Evap	DX Package 65 to 135 kBTU/hr - High Efficiency	DX Package 65 to 135 kBTU/hr - High Efficiency - 11.5 EER	DX Package 65 to 135 kBTU/hr - Standard Efficiency - 11.2 EER	Per installation	Existing	367	15	\$453	100%	N/A	\$0.16	3
Washington	Restaurant	Cooling Dx Evap	DX Package 65 to 135 kBTU/hr - Premium Efficiency	DX Package 65 to 135 kBTU/hr - Premium Efficiency - 12.0 EER	DX Package 65 to 135 kBTU/hr - Standard Efficiency - 11.2 EER	Per installation	Existing	950	15	\$913	100%	N/A	\$0.12	87
Washington	Restaurant	Cooling Dx Evap	DX Package-Air Side Economizer	Air-Side Economizer	No Economizer	per DX ton	Existing	106	10	\$183	10%	50%	\$0.29	12
Washington	Restaurant	Cooling Dx Evap	DX Tune-Up / Diagnostics	DX Tune-Up / Diagnostics	No DX Tune-Up / Diagnostics	per installation	Existing	530	4	\$361	95%	72%	\$0.26	125
Washington	Restaurant	Cooling Dx Evap	Direct / Indirect Evaporative Cooling, Pre-Cooling	Evaporative Cooler	Standard DX cooling	per building CFM	Existing	1	15	\$2	50%	94%	\$0.24	245
Washington	Restaurant	Cooling Dx Evap	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	Existing	0.11	18	\$0.24	45%	65%	\$0.24	13
Washington	Restaurant	Cooling Dx Evap	Evaporative Cooler replaces DX Package 65 to 135 kBTU/hr - Advanced Efficiency	Evaporative Cooler replaces DX Package 65 to 135 kBTU/hr - Advanced Efficiency	DX Package 65 to 135 kBTU/hr - Standard Efficiency - 11.2 EER	Per installation	Existing	5,919	15	\$-9014	25%	N/A	\$-0.26	90
Washington	Restaurant	Cooling Dx Evap	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	Existing	0.47	40	\$10	4%	98%	\$2.03	0.56
Washington	Restaurant	Cooling Dx Evap	Infiltration Reduction	Install Caulking And Weathersstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	1	13	\$0.34	40%	39%	\$0.03	19
Washington	Restaurant	Cooling Dx Evap	Insulation - Ceiling	R-38 (WA State Code)	R-11 (Average Existing Conditions)	per roof sqft	Existing	0.01	25	\$1	75%	59%	\$10.53	1
Washington	Restaurant	Cooling Dx Evap	Insulation - Duct	R-7 (WA State Code)	No Insulation	per surface area of duct insul	Existing	2	20	\$2	75%	56%	\$0.11	38
Washington	Restaurant	Cooling Dx Evap	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	Existing	28	30	\$6	50%	95%	\$0.02	194
Washington	Restaurant	Cooling Dx Evap	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	Existing	318	10	\$148	95%	25%	\$0.08	16
Washington	Restaurant	Cooling Dx Evap	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	0.58	7	\$0.19	90%	85%	\$0.07	236
Washington	Restaurant	Cooling Dx Evap	Window Film	Window Film	No Film	per 100 sqft of window glazing	Existing	1	10	\$162	90%	66%	\$14.03	0.47
Washington	Restaurant	Cooling Dx Evap	Windows-High Efficiency	U-0.32	U-0.40 (WA State Code)	per window sqft	Existing	4	25	\$32	15%	90%	\$0.67	28
Washington	Restaurant	Cooling Dx Evap	Windows-High Efficiency	U-0.40 (WA State Code)	U-0.65 (Average Existing Conditions)	per window sqft	Existing	4	25	\$69	15%	69%	\$1.64	19
Washington	Restaurant	Cooling Dx Evap	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	New	0.27	15	\$0.75	45%	98%	\$0.35	8

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Washington	Restaurant	Cooling Dx Evap	DX Package 65 to 135 kBTU/hr - High Efficiency	DX Package 65 to 135 kBTU/hr - High Efficiency - 11.5 EER	DX Package 65 to 135 kBTU/hr - Standard Efficiency - 11.2 EER	Per installation	New	233	15	\$363	100%	N/A	\$0.20	0.27
Washington	Restaurant	Cooling Dx Evap	DX Package 65 to 135 kBTU/hr - Premium Efficiency	DX Package 65 to 135 kBTU/hr - Premium Efficiency - 12.0 EER	DX Package 65 to 135 kBTU/hr - Standard Efficiency - 11.2 EER	Per installation	New	615	15	\$730	100%	N/A	\$0.15	8
Washington	Restaurant	Cooling Dx Evap	Direct / Indirect Evaporative Cooling, Pre-Cooling	Evaporative Cooler	Standard DX cooling	per building CFM	New	0.69	15	\$2	50%	94%	\$0.41	24
Washington	Restaurant	Cooling Dx Evap	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	New	0.06	18	\$0.24	45%	65%	\$0.42	1
Washington	Restaurant	Cooling Dx Evap	Evaporative Cooler replaces DX Package 65 to 135 kBTU/hr - Advanced Efficiency	Evaporative Cooler replaces DX Package 65 to 135 kBTU/hr - Advanced Efficiency	DX Package 65 to 135 kBTU/hr - Standard Efficiency - 11.2 EER	Per installation	New	3,774	15	\$-6618	25%	N/A	\$-0.30	8
Washington	Restaurant	Cooling Dx Evap	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	New	0.27	40	\$10	4%	98%	\$3.45	0.05
Washington	Restaurant	Cooling Dx Evap	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	New	16	30	\$6	50%	95%	\$0.04	16
Washington	Restaurant	Cooling Dx Evap	Natural Ventilation	Natural Ventilation Design Reduction in Cooling	None - Standard Ventilation	per building sqft	New	0.27	15	\$1	20%	75%	\$0.49	2
Washington	Restaurant	Cooling Dx Evap	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	New	186	10	\$148	95%	13%	\$0.13	0.77
Washington	Restaurant	Cooling Dx Evap	Windows-High Efficiency	U-0.32	U-0.40 (WA State Code)	per window sqft	New	2	25	\$32	80%	90%	\$1.15	16
Washington	Restaurant	Cooling Room	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	Existing	0.55	15	\$0.75	45%	98%	\$0.18	6
Washington	Restaurant	Cooling Room	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	Existing	0.55	40	\$10	4%	98%	\$1.74	0.04
Washington	Restaurant	Cooling Room	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	2	13	\$0.34	40%	39%	\$0.02	1
Washington	Restaurant	Cooling Room	Insulation - Ceiling	R-38 (WA State Code)	R-11 (Average Existing Conditions)	per roof sqft	Existing	0.01	25	\$1	75%	59%	\$9.03	0.14
Washington	Restaurant	Cooling Room	PTAC (10,000 BTU/HR) - Premium-Efficiency	11.4 EER	Room AC (10,000 BTU/HR) Standard-Efficiency 9.8 EER	Per installation	Existing	1,948	15	\$21,707	75%	N/A	\$1.44	16
Washington	Restaurant	Cooling Room	Room AC (10,000 BTU/HR) High-Efficiency	High Efficiency 10.8 EER (ENERGY STAR)	Room AC (10,000 BTU/HR) Standard-Efficiency 9.8 EER	Per installation	Existing	1,211	9	\$1,000	100%	N/A	\$0.15	2
Washington	Restaurant	Cooling Room	Window Film	Window Film	No Film	per 100 sqft of window glazing	Existing	0.09	10	\$162	90%	66%	\$279.60	0.00
Washington	Restaurant	Cooling Room	Windows-High Efficiency	U-0.32	U-0.40 (WA State Code)	per window sqft	Existing	5	25	\$32	15%	90%	\$0.58	2
Washington	Restaurant	Cooling Room	Windows-High Efficiency	U-0.40 (WA State Code)	U-0.65 (Average Existing Conditions)	per window sqft	Existing	5	25	\$69	15%	69%	\$1.41	1
Washington	Restaurant	Cooling Room	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	New	0.33	15	\$0.75	45%	98%	\$0.29	0.54
Washington	Restaurant	Cooling Room	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	New	0.33	40	\$10	4%	98%	\$2.82	0.00
Washington	Restaurant	Cooling Room	PTAC (10,000 BTU/HR) - Premium-Efficiency	11.4 EER	Room AC (10,000 BTU/HR) Standard-Efficiency 9.8 EER	Per installation	New	1,251	15	\$15,453	75%	N/A	\$1.60	0.70
Washington	Restaurant	Cooling Room	Room AC (10,000 BTU/HR) High-Efficiency	High Efficiency 10.8 EER (ENERGY STAR)	Room AC (10,000 BTU/HR) Standard-Efficiency 9.8 EER	Per installation	New	771	9	\$800	100%	N/A	\$0.19	0.15
Washington	Restaurant	Cooling Room	Windows-High Efficiency	U-0.32	U-0.40 (WA State Code)	per window sqft	New	3	25	\$32	80%	90%	\$0.94	1
Washington	Restaurant	Heat Pump	Air Source Heat Pump 65 to 135 kBTU/hr - High Efficiency	11.5 EER, 3.4 COP	11.0 EER, 3.3 COP	Per installation	Existing	1,333	15	\$1,689	100%	N/A	\$0.16	0.75
Washington	Restaurant	Heat Pump	Air Source Heat Pump 65 to 135 kBTU/hr - Premium Efficiency	12.0 EER, 3.8 COP	11.0 EER, 3.3 COP	Per installation	Existing	2,546	15	\$3,378	100%	N/A	\$0.17	13

Table C.2.2. Commercial Measure Details

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Washington	Restaurant	Heat Pump	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	Existing	0.49	15	\$0.75	45%	98%	\$0.20	3
Washington	Restaurant	Heat Pump	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	Existing	0.20	18	\$0.24	45%	65%	\$0.14	1
Washington	Restaurant	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	Existing	0.48	14	\$1	5%	94%	\$0.53	0.37
Washington	Restaurant	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	Existing	0.49	40	\$10	4%	98%	\$1.94	0.02
Washington	Restaurant	Heat Pump	Ground Source Heat Pump Replacing Air Source Heat Pump 65 to 135 kBtu/hr - Advanced Efficiency	16.2 EER 4.0 COP	11.0 EER, 3.3 COP	Per installation	Existing	5,291	30	\$89,204	5%	N/A	\$1.58	1
Washington	Restaurant	Heat Pump	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	4	13	\$0.34	40%	39%	\$0.01	1
Washington	Restaurant	Heat Pump	Insulation - Ceiling	R-38 (WA State Code)	R-11 (Average Existing Conditions)	per roof sqft	Existing	0.61	25	\$1	75%	59%	\$0.19	4
Washington	Restaurant	Heat Pump	Insulation - Ceiling	R-49	R-38 (WA State Code)	per roof sqft	Existing	0.02	25	\$0.28	25%	85%	\$1.07	0.09
Washington	Restaurant	Heat Pump	Insulation - Duct	R-7 (WA State Code)	No Insulation	per surface area of duct insul	Existing	4	20	\$2	75%	56%	\$0.06	2
Washington	Restaurant	Heat Pump	Insulation - Floor (non-slab)	R-30 (WA State Code)	R-11 (Average Existing Conditions)	per floor area	Existing	0.30	25	\$1	35%	81%	\$0.34	1
Washington	Restaurant	Heat Pump	Insulation - Floor (non-slab)	R-38	R-30 (WA State Code)	per floor area	Existing	0.05	25	\$0.32	35%	90%	\$0.56	0.29
Washington	Restaurant	Heat Pump	Insulation - Wall	R-13 + 7.5 (WA State Code)	R-3 (Average Existing Conditions)	per floor area	Existing	0.54	25	\$2	10%	70%	\$0.45	0.44
Washington	Restaurant	Heat Pump	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	Existing	68	30	\$6	50%	95%	\$0.01	18
Washington	Restaurant	Heat Pump	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	Existing	552	10	\$148	95%	25%	\$0.04	1
Washington	Restaurant	Heat Pump	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	1	7	\$0.19	90%	85%	\$0.04	15
Washington	Restaurant	Heat Pump	Window Film	Window Film	No Film	per 100 sqft of window glazing	Existing	1	10	\$162	90%	66%	\$13.97	0.02
Washington	Restaurant	Heat Pump	Windows-High Efficiency	U-0.32	U-0.40 (WA State Code)	per window sqft	Existing	4	25	\$32	15%	90%	\$0.81	1
Washington	Restaurant	Heat Pump	Windows-High Efficiency	U-0.40 (WA State Code)	U-0.65 (Average Existing Conditions)	per window sqft	Existing	4	25	\$69	15%	69%	\$1.49	0.94
Washington	Restaurant	Heat Pump	Air Source Heat Pump 65 to 135 kBtu/hr - High Efficiency	11.5 EER, 3.4 COP	11.0 EER, 3.3 COP	Per installation	New	1,281	15	\$1,351	100%	N/A	\$0.14	0.10
Washington	Restaurant	Heat Pump	Air Source Heat Pump 65 to 135 kBtu/hr - Premium Efficiency	12.0 EER, 3.8 COP	11.0 EER, 3.3 COP	Per installation	New	1,990	15	\$2,702	100%	N/A	\$0.18	1
Washington	Restaurant	Heat Pump	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	New	0.29	15	\$0.75	45%	98%	\$0.33	0.33
Washington	Restaurant	Heat Pump	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	New	0.12	18	\$0.24	45%	65%	\$0.24	0.10
Washington	Restaurant	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	New	0.27	14	\$1	5%	94%	\$0.93	0.03
Washington	Restaurant	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	New	0.29	40	\$10	4%	98%	\$3.22	0.00
Washington	Restaurant	Heat Pump	Ground Source Heat Pump Replacing Air Source Heat Pump 65 to 135 kBtu/hr - Advanced Efficiency	16.2 EER 4.0 COP	11.0 EER, 3.3 COP	Per installation	New	3,704	30	\$46,130	5%	N/A	\$1.15	0.11
Washington	Restaurant	Heat Pump	Insulation - Ceiling	R-49	R-38 (WA State Code)	per roof sqft	New	0.01	25	\$0.28	75%	85%	\$1.96	0.02
Washington	Restaurant	Heat Pump	Insulation - Floor (non-slab)	R-38	R-30 (WA State Code)	per floor area	New	0.03	25	\$0.32	35%	90%	\$1.04	0.02

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Washington	Restaurant	Heat Pump	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	New	40	30	\$6	50%	95%	\$0.02	1
Washington	Restaurant	Heat Pump	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	New	324	10	\$148	95%	13%	\$0.08	0.05
Washington	Restaurant	Heat Pump	Windows-High Efficiency	U-0.32	U-0.40 (WA State Code)	per window sqft	New	2	25	\$32	80%	90%	\$1.32	0.60
Washington	Restaurant	Hvac Aux	Cooking Hood Controls	Demand-Ventilation Control	No Controls	per installation	Existing	2,083	18	\$6,777	95%	25%	\$0.38	184
Washington	Restaurant	Hvac Aux	Motor - CEE Premium-Efficiency Plus	CEE PE+ Motor for HVAC Applications	NEMA Efficiency Motors	per HP	Existing	47	15	\$7	95%	76%	\$0.02	22
Washington	Restaurant	Hvac Aux	Motor Rewind	>15, <500 HP	No Rewind	per HP	Existing	4	8	\$5	65%	25%	\$0.22	0.82
Washington	Restaurant	Hvac Aux	Cooking Hood Controls	Demand-Ventilation Control	No Controls	per installation	New	2,083	18	\$6,777	95%	25%	\$0.38	25
Washington	Restaurant	Hvac Aux	Motor - CEE Premium-Efficiency Plus	CEE PE+ Motor for HVAC Applications	NEMA Efficiency Motors	per HP	New	44	15	\$7	95%	76%	\$0.02	3
Washington	Restaurant	Lighting Exterior	Covered Parking Lighting	Covered Parking Lighting	Normal Lighting	per building sqft	Existing	0.10	10	\$0.02	80%	95%	\$0.05	66
Washington	Restaurant	Lighting Exterior	Daylighting Controls, Outdoors (Photocell)	Photocell	No Controls	per installation	Existing	67	8	\$30	75%	70%	\$0.09	24
Washington	Restaurant	Lighting Exterior	Exterior Building Lighting	30% savings	Normal Lighting	per installation	Existing	270	15	\$363	62%	90%	\$0.17	209
Washington	Restaurant	Lighting Exterior	Solid State LED White Lighting	Landscape, merchandise, signage, structure & task lighting (2.5 W)	50W 10hrs/day, 365 day/yr	per installation	Existing	7	14	\$38	75%	95%	\$0.71	3
Washington	Restaurant	Lighting Exterior	Surface Parking Lighting	Surface Parking Lighting	Normal Lighting	per building sqft	Existing	0.05	19	\$0.07	62%	95%	\$0.16	27
Washington	Restaurant	Lighting Exterior	Covered Parking Lighting	Covered Parking Lighting	Normal Lighting	per building sqft	New	0.10	10	\$0.02	80%	95%	\$0.05	9
Washington	Restaurant	Lighting Exterior	Daylighting Controls, Outdoors (Photocell)	Photocell	No Controls	per installation	New	67	8	\$30	75%	70%	\$0.09	3
Washington	Restaurant	Lighting Exterior	Exterior Building Lighting	30% savings	Normal Lighting	per installation	New	270	15	\$363	62%	90%	\$0.17	29
Washington	Restaurant	Lighting Exterior	Solid State LED White Lighting	Landscape, merchandise, signage, structure & task lighting (2.5 W)	50W 10hrs/day, 365 day/yr	per installation	New	7	14	\$38	75%	95%	\$0.71	0.51
Washington	Restaurant	Lighting Exterior	Surface Parking Lighting	Surface Parking Lighting	Normal Lighting	per building sqft	New	0.05	19	\$0.07	62%	95%	\$0.16	3
Washington	Restaurant	Lighting Interior	Cold Cathode Lighting	Cold Cathode Lighting 5 watts	30 W Incandescent Bulb	per installation	Existing	307	5	\$14	15%	94%	\$0.01	15
Washington	Restaurant	Lighting Interior	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	Existing	0.42	8	\$1	30%	98%	\$0.49	10
Washington	Restaurant	Lighting Interior	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	Existing	0.15	8	\$0.79	30%	98%	\$0.98	3
Washington	Restaurant	Lighting Interior	Exit Sign - LED	LED Exit Sign (2 Watts)	CFL Exit Sign (9 Watts)	per installation	Existing	107	16	\$17	95%	50%	\$0.02	30
Washington	Restaurant	Lighting Interior	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign (2 Watts)	per installation	Existing	19	13	\$33	95%	98%	\$0.24	3
Washington	Restaurant	Lighting Interior	LED Refrigeration Case Lights	LED Refrigeration Case Lights	Fluorescent Refrigeration Case	per installation	Existing	184	8	\$268	25%	80%	\$0.29	25
Washington	Restaurant	Lighting Interior	Lighting Package, High Efficiency	15% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	Existing	0.70	13	\$0.00	90%	53%	\$0.00	213
Washington	Restaurant	Lighting Interior	Lighting Package, High Efficiency	Code Required LPD And Control Strategies	Existing Lighting Design LPD	per building sqft	Existing	1	13	\$0.02	90%	37%	\$0.00	473
Washington	Restaurant	Lighting Interior	Lighting Package, Premium Efficiency	25% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	Existing	1	13	\$0.01	75%	62%	\$0.00	85
Washington	Restaurant	Lighting Interior	Lighting Package, Premium High Bay	35% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	Existing	0.07	13	\$0.05	70%	83%	\$0.10	34
Washington	Restaurant	Lighting Interior	Occupancy Sensor Control, Fluorescent	Occupancy Sensor Control, Fluorescent	No Occupancy Sensor	per occupancy sensor	Existing	1,182	8	\$75	45%	64%	\$0.01	26
Washington	Restaurant	Lighting Interior	Time Clock	Time Clock	No Controls	per 10,000 Watts	Existing	838	8	\$216	20%	**%	\$0.05	17
Washington	Restaurant	Lighting Interior	Cold Cathode Lighting	Cold Cathode Lighting 5 watts	30 W Incandescent Bulb	per installation	New	178	5	\$14	15%	94%	\$0.02	1

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Washington	Restaurant	Lighting Interior	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	New	0.24	8	\$1	30%	98%	\$0.84	0.88
Washington	Restaurant	Lighting Interior	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	New	0.09	8	\$0.79	30%	98%	\$1.69	0.33
Washington	Restaurant	Lighting Interior	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign (2 Watts)	per installation	New	19	13	\$33	95%	98%	\$0.24	2
Washington	Restaurant	Lighting Interior	LED Refrigeration Case Lights	LED Refrigeration Case Lights	Fluorescent Refrigeration Case	per installation	New	184	8	\$268	25%	80%	\$0.29	3
Washington	Restaurant	Lighting Interior	Lighting Package, High Efficiency	15% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	New	0.63	15	\$0.00	90%	53%	\$0.00	26
Washington	Restaurant	Lighting Interior	Lighting Package, Premium Efficiency	25% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	New	1	15	\$0.01	75%	62%	\$0.00	10
Washington	Restaurant	Lighting Interior	Lighting Package, Premium High Bay	35% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	New	0.07	15	\$0.01	70%	83%	\$0.02	4
Washington	Restaurant	Lighting Interior	Occupancy Sensor Control, Fluorescent	Occupancy Sensor Control, Fluorescent	No Occupancy Sensor	per occupancy sensor	New	683	8	\$75	45%	64%	\$0.02	2
Washington	Restaurant	Lighting Interior	Time Clock	Time Clock	No Controls	per 10,000 Watts	New	838	8	\$217	20%	**	\$0.05	1
Washington	Restaurant	Other Office Equipment	ENERGY STAR - Copiers	ENERGY STAR Copiers	Standard Copier	per installation	Existing	81	6	\$175	95%	45%	\$0.52	0.64
Washington	Restaurant	Other Office Equipment	ENERGY STAR - Fax	ENERGY STAR Fax	Standard Fax	per installation	Existing	87	6	\$0.00	95%	45%	\$0.00	0.69
Washington	Restaurant	Other Office Equipment	ENERGY STAR - Monitors	ENERGY STAR Features Enabled	Non-ENERGY STAR Features	per installation	Existing	16	5	\$17	64%	15%	\$0.30	0.47
Washington	Restaurant	Other Office Equipment	ENERGY STAR - Printers	ENERGY STAR Printers	Standard Printers	per installation	Existing	153	6	\$16	95%	40%	\$0.03	16
Washington	Restaurant	Other Office Equipment	ENERGY STAR - Scanners	ENERGY STAR Scanners	Standard Scanner	per installation	Existing	79	6	\$0.00	95%	45%	\$0.00	0.63
Washington	Restaurant	Other Office Equipment	ENERGY STAR - Copiers	ENERGY STAR Copiers	Standard Copier	per installation	New	81	6	\$175	95%	45%	\$0.52	0.09
Washington	Restaurant	Other Office Equipment	ENERGY STAR - Fax	ENERGY STAR Fax	Standard Fax	per installation	New	87	6	\$0.00	95%	45%	\$0.00	0.09
Washington	Restaurant	Other Office Equipment	ENERGY STAR - Monitors	ENERGY STAR Features Enabled	Non-ENERGY STAR Features	per installation	New	16	5	\$17	64%	15%	\$0.30	0.06
Washington	Restaurant	Other Office Equipment	ENERGY STAR - Printers	ENERGY STAR Printers	Standard Printers	per installation	New	153	6	\$16	95%	40%	\$0.03	2
Washington	Restaurant	Other Office Equipment	ENERGY STAR - Scanners	ENERGY STAR Scanners	Standard Scanner	per installation	New	79	6	\$0.00	95%	45%	\$0.00	0.08
Washington	Restaurant	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	per installation	Existing	8	7	\$2	20%	90%	\$0.05	0.20
Washington	Restaurant	Other Plug Load	ENERGY STAR - Water Cooler	ENERGY STAR Water Cooler (Hot/Cold Water)	Non-ENERGY STAR Water Cooler	per installation	Existing	403	10	\$0.71	95%	75%	\$0.00	37
Washington	Restaurant	Other Plug Load	Ice Maker	High-Efficiency Ice Maker	Standard Ice Maker	per installation	Existing	470	10	\$153	95%	86%	\$0.03	120
Washington	Restaurant	Other Plug Load	Power Supply Transformer/Converter	80 Plus	85% efficient power supply (> 51W)	1 unit per 2,000 sqft	Existing	9	4	\$0.44	95%	86%	\$0.02	3
Washington	Restaurant	Other Plug Load	Residential Refrigerator	ENERGY STAR	Federal Standard	per installation	Existing	89	12	\$133	19%	65%	\$0.22	4
Washington	Restaurant	Other Plug Load	Residential Refrigerator/Freezer Recycling	Recycling Existing Refrigerator/Freezer	Existing Refrigerator/Freezer	per installation	Existing	1,059	4	\$611	25%	35%	\$0.20	9
Washington	Restaurant	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	1 unit per 5,000 sqft	Existing	111	5	\$22	60%	90%	\$0.06	10
Washington	Restaurant	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	per installation	New	8	7	\$2	20%	90%	\$0.05	0.02
Washington	Restaurant	Other Plug Load	ENERGY STAR - Water Cooler	ENERGY STAR Water Cooler (Hot/Cold Water)	Non-ENERGY STAR Water Cooler	per installation	New	403	10	\$0.71	95%	75%	\$0.00	5
Washington	Restaurant	Other Plug Load	Ice Maker	High-Efficiency Ice Maker	Standard Ice Maker	per installation	New	470	10	\$153	95%	86%	\$0.03	16
Washington	Restaurant	Other Plug Load	Power Supply Transformer/Converter	80 Plus	85% efficient power supply (> 51W)	1 unit per 2,000 sqft	New	9	4	\$0.44	95%	86%	\$0.02	0.44

Table C.2.2. Commercial Measure Details

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Washington	Restaurant	Other Plug Load	Residential Refrigerator	ENERGY STAR	Federal Standard	per installation	New	89	12	\$133	19%	65%	\$0.22	0.56
Washington	Restaurant	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	1 unit per 5,000 sqft	New	111	5	\$22	60%	90%	\$0.06	1
Washington	Restaurant	Refrigeration	Anti-Sweat (Humidistat) Controls	Anti-Sweat (Humidistat) Controls	No Anti-Sweat (Humidistat) Controls	1 unit per 1,000 sqft	Existing	1,092	12	\$88	25%	45%	\$0.01	32
Washington	Restaurant	Refrigeration	Case Electronically Commutated Motor	ECM Case Fans	Standard Efficiency Motor	1 unit per 5,000 sqft	Existing	1,137	12	\$262	10%	77%	\$0.03	11
Washington	Restaurant	Refrigeration	Case Replacement Low Temp	Case Replacement Low Temp	No replacement	per square foot	Existing	0.05	15	\$0.11	10%	90%	\$0.28	3
Washington	Restaurant	Refrigeration	Case Replacement Med Temp	Case Replacement Med Temp	No replacement	per square foot	Existing	0.00	15	\$0.06	10%	90%	\$1.69	0.27
Washington	Restaurant	Refrigeration	Demand Control Defrost - Hot Gas	Refrigerant Defrost	Defrost - Electric	per installation	Existing	322	10	\$8	5%	68%	\$0.00	3
Washington	Restaurant	Refrigeration	Glass Door ES Refrigerators/Freezers	Glass Door ES Refrigerators/Freezers	Standard Glass Doors	per installation	Existing	2,849	12	\$782	95%	77%	\$0.04	269
Washington	Restaurant	Refrigeration	Night Covers for Display Cases	Night Covers for Display Cases	No Night Covers	per installation	Existing	450	5	\$71	30%	85%	\$0.04	54
Washington	Restaurant	Refrigeration	Refrigeration Commissioning or Re-commissioning	Commissioning / Re-commissioning	No Commissioning / Re-commissioning	per refrigeration ton	Existing	911	3	\$128	10%	85%	\$0.06	34
Washington	Restaurant	Refrigeration	Solid Door ES Refrigerators/Freezers	Solid Door ES Refrigerators/Freezers	Standard Solid Door	per installation	Existing	1,291	12	\$206	95%	81%	\$0.02	128
Washington	Restaurant	Refrigeration	Standalone to Multiplex Compressor	Standalone to Multiplex Compressor	Standalone compressor	per building sqft	Existing	0.30	13	\$0.04	10%	90%	\$0.02	16
Washington	Restaurant	Refrigeration	Strip Curtains for Walk-Ins	Strip Curtains for Walk-Ins	No Strip Curtains for Walk-In	per installation	Existing	496	4	\$200	5%	20%	\$0.14	1
Washington	Restaurant	Refrigeration	Walk-In Electronically Commutated Motor	ECM Evaporator Fans	Standard Efficiency Motor	per installation	Existing	0.42	12	\$0.19	75%	95%	\$0.07	201
Washington	Restaurant	Refrigeration	Anti-Sweat (Humidistat) Controls	Anti-Sweat (Humidistat) Controls	No Anti-Sweat (Humidistat) Controls	1 unit per 1,000 sqft	New	1,092	12	\$88	25%	45%	\$0.01	4
Washington	Restaurant	Refrigeration	Case Electronically Commutated Motor	ECM Case Fans	Standard Efficiency Motor	1 unit per 5,000 sqft	New	1,137	12	\$262	10%	77%	\$0.03	1
Washington	Restaurant	Refrigeration	Demand Control Defrost - Hot Gas	Refrigerant Defrost	Defrost - Electric	per installation	New	322	10	\$8	5%	68%	\$0.00	0.44
Washington	Restaurant	Refrigeration	Glass Door ES Refrigerators/Freezers	Glass Door ES Refrigerators/Freezers	Standard Glass Doors	per installation	New	2,849	12	\$782	95%	77%	\$0.04	37
Washington	Restaurant	Refrigeration	Night Covers for Display Cases	Night Covers for Display Cases	No Night Covers	per installation	New	450	5	\$70	30%	85%	\$0.04	9
Washington	Restaurant	Refrigeration	Refrigeration Commissioning or Re-commissioning	Commissioning / Re-commissioning	No Commissioning / Re-commissioning	per refrigeration ton	New	563	3	\$49	5%	90%	\$0.04	1
Washington	Restaurant	Refrigeration	Solid Door ES Refrigerators/Freezers	Solid Door ES Refrigerators/Freezers	Standard Solid Door	per installation	New	1,291	12	\$206	95%	81%	\$0.02	17
Washington	Restaurant	Refrigeration	Strip Curtains for Walk-Ins	Strip Curtains for Walk-Ins	No Strip Curtains for Walk-In	per installation	New	496	4	\$200	5%	20%	\$0.14	0.20
Washington	Restaurant	Refrigeration	Walk-In Electronically Commutated Motor	ECM Evaporator Fans	Standard Efficiency Motor	per installation	New	0.42	12	\$0.19	75%	95%	\$0.07	27
Washington	Restaurant	Space Heat	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	Existing	0.11	18	\$0.24	45%	65%	\$0.25	8
Washington	Restaurant	Space Heat	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	Existing	0.70	14	\$1	5%	94%	\$0.37	8
Washington	Restaurant	Space Heat	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	3	13	\$0.34	40%	39%	\$0.01	28
Washington	Restaurant	Space Heat	Insulation - Ceiling	R-38 (WA State Code)	R-11 (Average Existing Conditions)	per roof sqft	Existing	0.85	25	\$1	75%	59%	\$0.13	104
Washington	Restaurant	Space Heat	Insulation - Ceiling	R-49	R-38 (WA State Code)	per roof sqft	Existing	0.10	25	\$0.28	25%	85%	\$0.28	5
Washington	Restaurant	Space Heat	Insulation - Duct	R-7 (WA State Code)	No Insulation	per surface area of duct insul	Existing	2	20	\$2	75%	56%	\$0.11	23
Washington	Restaurant	Space Heat	Insulation - Floor (non-slab)	R-30 (WA State Code)	R-11 (Average Existing Conditions)	per floor area	Existing	1	25	\$1	35%	81%	\$0.09	98
Washington	Restaurant	Space Heat	Insulation - Floor (non-slab)	R-38	R-30 (WA State Code)	per floor area	Existing	0.20	25	\$0.32	35%	90%	\$0.16	16
Washington	Restaurant	Space Heat	Insulation - Wall	R-13 + 7.5 (WA State Code)	R-3 (Average Existing Conditions)	per floor area	Existing	2	25	\$2	10%	70%	\$0.12	29
Washington	Restaurant	Space Heat	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	Existing	39	30	\$6	50%	95%	\$0.02	177

Table C.2.2. Commercial Measure Details

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Washington	Restaurant	Space Heat	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	Existing	315	10	\$148	95%	25%	\$0.08	10
Washington	Restaurant	Space Heat	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	0.58	7	\$0.19	90%	85%	\$0.07	153
Washington	Restaurant	Space Heat	Windows-High Efficiency	U-0.40 (WA State Code)	U-0.65 (Average Existing Conditions)	per window sqft	Existing	0.29	25	\$69	15%	69%	\$24.47	0.89
Washington	Restaurant	Space Heat	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	New	0.05	18	\$0.24	45%	65%	\$0.51	0.79
Washington	Restaurant	Space Heat	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	New	0.34	14	\$1	5%	94%	\$0.75	0.74
Washington	Restaurant	Space Heat	Insulation - Ceiling	R-49	R-38 (WA State Code)	per roof sqft	New	0.05	25	\$0.28	75%	85%	\$0.58	1
Washington	Restaurant	Space Heat	Insulation - Floor (non-slab)	R-38	R-30 (WA State Code)	per floor area	New	0.10	25	\$0.32	35%	90%	\$0.32	1
Washington	Restaurant	Space Heat	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	New	19	30	\$6	50%	95%	\$0.03	12
Washington	Restaurant	Space Heat	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	New	153	10	\$148	95%	13%	\$0.16	0.40
Washington	Restaurant	Water Heat	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	per building sqft	Existing	0.47	10	\$0.29	75%	94%	\$0.10	93
Washington	Restaurant	Water Heat	Dishwasher Residential	ENERGY STAR <= 324 kWh/yr, <= 5.8 gal/cycle	Federal Standard <= 355 kWh/yr, <= 6.5 gal/cycle	per installation	Existing	34	11	\$33	95%	25%	\$0.09	0.33
Washington	Restaurant	Water Heat	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	per installation	Existing	8,193	10	\$2,855	95%	95%	\$0.02	436
Washington	Restaurant	Water Heat	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	per installation	Existing	3,828	10	\$889	95%	94%	\$-0.02	100
Washington	Restaurant	Water Heat	Electric Water Heater - High Efficiency	EF = 0.95	EF = 0.92	Per installation	Existing	656	15	\$142	100%	N/A	\$0.03	13
Washington	Restaurant	Water Heat	Heat Pump Water Heater - Advanced-Efficiency	EF = 2.2	EF = 0.92	Per installation	Existing	12,101	15	\$2,741	75%	N/A	\$0.03	591
Washington	Restaurant	Water Heat	Hot Water (SHW) Pipe Insulation	1.0" of Insulation, assuming R-4 (WA State Code)	No Insulation	per linear foot	Existing	26	12	\$3	80%	90%	\$0.02	20
Washington	Restaurant	Water Heat	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	per installation	Existing	340	9	\$0.12	95%	25%	\$-0.08	26
Washington	Restaurant	Water Heat	Low-Flow Faucet Aerators	2.2 GPM (Federal Code)	3.0 GPM	per installation	Existing	285	9	\$2	95%	25%	\$-0.08	22
Washington	Restaurant	Water Heat	Low-Flow Pre-Rinse Spray Valves	0.6 GPM	1.6 GPM (Federal Standard)	per installation	Existing	998	5	\$5	95%	46%	\$-0.09	136
Washington	Restaurant	Water Heat	Water Cooled Refrigeration with Heat Recovery	Heat Recovery from refrigeration system. Applied to Water Heating Electric End use	No heat recovery	per sqft of refrigerated area	Existing	0.76	10	\$0.95	45%	94%	\$0.21	38
Washington	Restaurant	Water Heat	Water Heater Temperature Setback	Water Heater Temperature Setback (120 F)	No Change in Water Temperature	per installation	Existing	823	5	\$103	75%	75%	\$0.04	119
Washington	Restaurant	Water Heat	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	per building sqft	New	0.46	10	\$0.29	75%	94%	\$0.11	12
Washington	Restaurant	Water Heat	Dishwasher Residential	ENERGY STAR <= 324 kWh/yr, <= 5.8 gal/cycle	Federal Standard <= 355 kWh/yr, <= 6.5 gal/cycle	per installation	New	34	11	\$33	95%	55%	\$0.09	0.10
Washington	Restaurant	Water Heat	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	per installation	New	8,232	10	\$2,855	95%	95%	\$0.02	59
Washington	Restaurant	Water Heat	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	per installation	New	3,846	10	\$889	95%	94%	\$-0.02	13
Washington	Restaurant	Water Heat	Electric Water Heater - High Efficiency	EF = 0.95	EF = 0.92	Per installation	New	656	15	\$142	100%	N/A	\$0.03	1
Washington	Restaurant	Water Heat	Heat Pump Water Heater - Advanced-Efficiency	EF = 2.2	EF = 0.92	Per installation	New	12,101	15	\$2,337	75%	N/A	\$0.03	69
Washington	Restaurant	Water Heat	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	per installation	New	329	9	\$0.12	95%	25%	\$-0.08	3
Washington	Restaurant	Water Heat	Low-Flow Pre-Rinse Spray Valves	0.6 GPM	1.6 GPM (Federal Standard)	per installation	New	1,003	5	\$5	95%	46%	\$-0.09	19

Table C.2.2. Commercial Measure Details

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Washington	Restaurant	Water Heat	Water Cooled Refrigeration with Heat Recovery	Heat Recovery from refrigeration system. Applied to Water Heating Electric End use	No heat recovery	per sqft of refrigerated area	New	0.73	10	\$0.95	45%	94%	\$0.22	5
Washington	Restaurant	Water Heat	Water Heater Temperature Setback	Water Heater Temperature Setback (120 F)	No Change in Water Temperature	per installation	New	797	5	\$103	75%	75%	\$0.04	16
Washington	School	Computers	Computer ENERGY STAR	Computer ENERGY STAR	Computer standard non-ENERGY STAR	Per installation	Existing	133	4	\$29	100%	N/A	\$0.08	417
Washington	School	Computers	Network PC Power Management	Network PC Power Management	No Power Management	per computer	Existing	88	5	\$12	95%	30%	\$0.04	93
Washington	School	Computers	Computer ENERGY STAR	Computer ENERGY STAR	Computer standard non-ENERGY STAR	Per installation	New	133	4	\$29	100%	N/A	\$0.08	11
Washington	School	Computers	Network PC Power Management	Network PC Power Management	No Power Management	per computer	New	88	5	\$12	95%	30%	\$0.04	12
Washington	School	Cooking	Combination Oven	60% cooking efficiency	Non ENERGY STAR	per installation	Existing	11,822	12	\$1,762	90%	90%	\$0.02	0.39
Washington	School	Cooking	Fryers - New CEE Efficient Electric Deep Fat Fryers	15 inch width Deep Fryer CEE 2006 rating: 80% under heavy load, Less than 1000 watt at idle	15 inch width standard electric deep fat fryers	per installation	Existing	441	12	\$1,321	35%	90%	\$0.44	0.02
Washington	School	Cooking	Griddle	70% cooking efficiency	Non ENERGY STAR	per installation	Existing	2,282	12	\$791	95%	85%	\$0.05	0.73
Washington	School	Cooking	High Efficiency Convection Oven	Convection Oven	Standard Oven	per installation	Existing	1,889	12	\$1,979	26%	40%	\$0.15	0.12
Washington	School	Cooking	Hot Food Holding Cabinet	ENERGY STAR	Non ENERGY STAR	per installation	Existing	3,963	12	\$1,696	75%	21%	\$0.06	0.50
Washington	School	Cooking	Steam Cooker	ENERGY STAR	Non ENERGY STAR	per installation	Existing	4,242	12	\$2,483	14%	75%	\$0.09	0.37
Washington	School	Cooking	Combination Oven	60% cooking efficiency	Non ENERGY STAR	per installation	New	11,822	12	\$1,762	90%	90%	\$0.02	0.05
Washington	School	Cooking	Fryers - New CEE Efficient Electric Deep Fat Fryers	15 inch width Deep Fryer CEE 2006 rating: 80% under heavy load, Less than 1000 watt at idle	15 inch width standard electric deep fat fryers	per installation	New	441	12	\$1,321	35%	90%	\$0.44	0.00
Washington	School	Cooking	Griddle	70% cooking efficiency	Non ENERGY STAR	per installation	New	2,282	12	\$791	95%	85%	\$0.05	0.10
Washington	School	Cooking	High Efficiency Convection Oven	Convection Oven	Standard Oven	per installation	New	1,889	12	\$1,979	26%	40%	\$0.15	0.01
Washington	School	Cooking	Hot Food Holding Cabinet	ENERGY STAR	Non ENERGY STAR	per installation	New	3,963	12	\$1,696	75%	21%	\$0.06	0.07
Washington	School	Cooking	Steam Cooker	ENERGY STAR	Non ENERGY STAR	per installation	New	4,242	12	\$2,483	14%	75%	\$0.09	0.05
Washington	School	Cooling Chillers	Automated Ventilation VFD Control(Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	1 unit per 3,000 sqft	Existing	132	15	\$726	25%	94%	\$0.71	1
Washington	School	Cooling Chillers	Chilled Water / Condenser Water Settings-Optimization	Additional Control Features	EMS already installed - No Optimization	1 control point per 1000 sqft	Existing	5	5	\$160	95%	81%	\$8.27	0.48
Washington	School	Cooling Chillers	Chilled Water Piping Loop w/ VSD Control	VSD for secondary chilled water loop	Primary loop only w/ constant speed pump	per chiller ton	Existing	6	10	\$204	25%	70%	\$5.07	0.67
Washington	School	Cooling Chillers	Chiller-Water Side Economizer	Install Economizer	No Economizer	per chiller ton	Existing	4	15	\$469	45%	90%	\$13.64	0.99
Washington	School	Cooling Chillers	Chillers 150-300 tons (screw) - Advanced Efficiency	0.50 kW/ton (full load)	0.680 kW/Ton (full load)	Per installation	Existing	3,549	20	\$8,427	100%	N/A	\$0.27	13
Washington	School	Cooling Chillers	Chillers 150-300 tons (screw) - High Efficiency	0.65 kW/ton (full load)	0.680 kW/Ton (full load)	Per installation	Existing	1,315	20	\$1,404	100%	N/A	\$0.12	0.14
Washington	School	Cooling Chillers	Chillers 150-300 tons (screw) - Premium Efficiency	0.57 kW/ton (full load)	0.680 kW/Ton (full load)	Per installation	Existing	2,516	20	\$5,149	100%	N/A	\$0.23	1
Washington	School	Cooling Chillers	Convert Constant Volume Air System to VAV	Variable Volume Air System	Constant Volume Air System	per building CFM	Existing	0.13	15	\$2	15%	67%	\$2.84	1
Washington	School	Cooling Chillers	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	Existing	0.04	15	\$0.68	65%	98%	\$2.00	3
Washington	School	Cooling Chillers	Cooling Tower-Decrease Approach Temperature	6 Deg F	10 Deg F	per chiller ton	Existing	7	8	\$26	10%	94%	\$0.76	0.42
Washington	School	Cooling Chillers	Cooling Tower-Two-Speed Fan Motor	Cooling Tower-Two-Speed Fan Motor	Cooling Tower-One-Speed Fan Motor	per chiller ton	Existing	12	15	\$2	95%	35%	\$0.02	3

Table C.2.2. Commercial Measure Details

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Washington	School	Cooling Chillers	Cooling Tower-VSD Fan Control	Variable-Speed Tower Fans replace Two-Speed	Cooling Tower-Two-Speed Fan Motor	per chiller ton	Existing	3	13	\$19	95%	75%	\$0.75	1
Washington	School	Cooling Chillers	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	Existing	44	15	\$166	75%	76%	\$0.49	4
Washington	School	Cooling Chillers	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	Existing	0.04	40	\$9	4%	98%	\$19.56	0.01
Washington	School	Cooling Chillers	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	0.28	13	\$0.30	10%	39%	\$0.16	0.13
Washington	School	Cooling Chillers	Insulation - Ceiling	R-38 (WA State Code)	R-7 (Average Existing Conditions)	per roof sqft	Existing	0.00	25	\$0.99	75%	58%	\$50.95	0.09
Washington	School	Cooling Chillers	Pipe Insulation	1.5" of Insulation, assuming R-6 (WA State Code)	No Insulation	per linear feet of insulation	Existing	1	15	\$3	65%	45%	\$0.37	0.31
Washington	School	Cooling Chillers	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	0.05	7	\$0.17	90%	85%	\$0.70	6
Washington	School	Cooling Chillers	Window Film	Window Film	No Film	per 100 sqft of window glazing	Existing	1	10	\$146	90%	66%	\$14.01	0.08
Washington	School	Cooling Chillers	Windows-High Efficiency	U-0.32	U-0.40 (WA State Code)	per window sqft	Existing	0.71	25	\$29	15%	90%	\$4.21	0.88
Washington	School	Cooling Chillers	Windows-High Efficiency	U-0.40 (WA State Code)	U-0.67 (Average Existing Conditions)	per window sqft	Existing	0.61	25	\$62	15%	74%	\$10.48	0.59
Washington	School	Cooling Chillers	Automated Ventilation VFD Control(Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	1 unit per 3,000 sqft	New	94	15	\$388	25%	94%	\$0.53	0.19
Washington	School	Cooling Chillers	Chilled Water / Condenser Water Settings-Optimization	Additional Control Features	EMS already installed - No Optimization	1 control point per 1000 sqft	New	3	5	\$160	95%	81%	\$11.51	0.05
Washington	School	Cooling Chillers	Chilled Water Piping Loop w/ VSD Control	VSD for secondary chilled water loop	Primary loop only w/ constant speed pump	per chiller ton	New	5	10	\$204	25%	70%	\$6.35	0.08
Washington	School	Cooling Chillers	Chillers 150-300 tons (screw) - Advanced Efficiency	0.50 kW/ton (full load)	0.680 kW/Ton (full load)	Per installation	New	2,979	20	\$7,583	100%	N/A	\$0.29	2
Washington	School	Cooling Chillers	Chillers 150-300 tons (screw) - High Efficiency	0.65 kW/ton (full load)	0.680 kW/Ton (full load)	Per installation	New	1,103	20	\$1,263	100%	N/A	\$0.13	0.02
Washington	School	Cooling Chillers	Chillers 150-300 tons (screw) - Premium Efficiency	0.57 kW/ton (full load)	0.680 kW/Ton (full load)	Per installation	New	2,111	20	\$4,633	100%	N/A	\$0.25	0.15
Washington	School	Cooling Chillers	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	New	0.03	15	\$0.68	65%	98%	\$2.79	0.42
Washington	School	Cooling Chillers	Cooling Tower-Decrease Approach Temperature	6 Deg F	10 Deg F	per chiller ton	New	5	8	\$26	10%	94%	\$0.95	0.05
Washington	School	Cooling Chillers	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	New	31	15	\$166	75%	76%	\$0.68	0.45
Washington	School	Cooling Chillers	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	New	0.03	40	\$9	4%	98%	\$27.23	0.00
Washington	School	Cooling Chillers	Natural Ventilation	Natural Ventilation Design Reduction in Cooling	None - Standard Ventilation	per building sqft	New	0.03	15	\$0.95	20%	75%	\$3.90	0.10
Washington	School	Cooling Chillers	Windows-High Efficiency	U-0.32	U-0.40 (WA State Code)	per window sqft	New	0.51	25	\$29	80%	90%	\$5.86	0.63
Washington	School	Cooling Dx Evap	Automated Ventilation VFD Control(Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	1 unit per 3,000 sqft	Existing	178	15	\$726	25%	94%	\$0.53	9
Washington	School	Cooling Dx Evap	Convert Constant Volume Air System to VAV	Variable Volume Air System	Constant Volume Air System	per building CFM	Existing	0.17	15	\$2	15%	67%	\$2.10	8
Washington	School	Cooling Dx Evap	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	Existing	0.05	15	\$0.68	65%	98%	\$1.48	20

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Washington	School	Cooling Dx Evap	DX Package 135 to 240 kBTU/hr - High Efficiency	DX Package 135 to 240 kBTU/hr - High Efficiency - 11.5 EER	DX Package 135 to 240 kBTU/hr - Standard Efficiency 11.0 EER	Per installation	Existing	688	15	\$2,068	100%	N/A	\$0.39	1
Washington	School	Cooling Dx Evap	DX Package 135 to 240 kBTU/hr - Premium Efficiency	DX Package 135 to 240 kBTU/hr - Premium Efficiency - 12.0 EER	DX Package 135 to 240 kBTU/hr - Standard Efficiency 11.0 EER	Per installation	Existing	1,209	15	\$3,519	100%	N/A	\$0.38	17
Washington	School	Cooling Dx Evap	DX Package-Air Side Economizer	Air-Side Economizer	No Economizer	per DX ton	Existing	20	10	\$165	10%	60%	\$1.37	3
Washington	School	Cooling Dx Evap	DX Tune-Up / Diagnostics	DX Tune-Up / Diagnostics	No DX Tune-Up / Diagnostics	per installation	Existing	100	4	\$325	95%	72%	\$1.25	26
Washington	School	Cooling Dx Evap	Direct / Indirect Evaporative Cooling, Pre-Cooling	Evaporative Cooler	Standard DX cooling	per building CFM	Existing	0.14	15	\$1	50%	94%	\$1.73	39
Washington	School	Cooling Dx Evap	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	Existing	59	15	\$166	75%	76%	\$0.36	26
Washington	School	Cooling Dx Evap	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	Existing	0.01	18	\$0.22	45%	65%	\$1.75	2
Washington	School	Cooling Dx Evap	Evaporative Cooler replaces DX Package 135 to 240 kBTU/hr - Advanced Efficiency	Evaporative Cooler replaces DX Package 135 to 240 kBTU/hr - Advanced Efficiency	DX Package 135 to 240 kBTU/hr - Standard Efficiency 11.0 EER	Per installation	Existing	6,467	15	\$-42929.25	25%	N/A	\$-1.15	20
Washington	School	Cooling Dx Evap	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	Existing	0.05	40	\$9	4%	98%	\$14.46	0.09
Washington	School	Cooling Dx Evap	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	0.38	13	\$0.30	10%	39%	\$0.12	0.97
Washington	School	Cooling Dx Evap	Insulation - Ceiling	R-38 (WA State Code)	R-7 (Average Existing Conditions)	per roof sqft	Existing	0.00	25	\$0.99	75%	58%	\$37.66	0.54
Washington	School	Cooling Dx Evap	Insulation - Duct	R-7 (WA State Code)	No Insulation	per surface area of duct insul	Existing	0.31	20	\$2	75%	55%	\$0.77	6
Washington	School	Cooling Dx Evap	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	Existing	3	30	\$5	50%	95%	\$0.15	36
Washington	School	Cooling Dx Evap	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	Existing	348	10	\$134	95%	21%	\$0.06	2
Washington	School	Cooling Dx Evap	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	0.07	7	\$0.17	90%	85%	\$0.52	42
Washington	School	Cooling Dx Evap	Window Film	Window Film	No Film	per 100 sqft of window glazing	Existing	1	10	\$146	90%	66%	\$13.94	0.37
Washington	School	Cooling Dx Evap	Windows-High Efficiency	U-0.32	U-0.40 (WA State Code)	per window sqft	Existing	0.96	25	\$29	15%	90%	\$3.11	4
Washington	School	Cooling Dx Evap	Windows-High Efficiency	U-0.40 (WA State Code)	U-0.67 (Average Existing Conditions)	per window sqft	Existing	0.83	25	\$62	15%	74%	\$7.74	3
Washington	School	Cooling Dx Evap	Automated Ventilation VFD Control(Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	1 unit per 3,000 sqft	New	139	15	\$388	25%	94%	\$0.36	1
Washington	School	Cooling Dx Evap	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	New	0.04	15	\$0.68	65%	98%	\$1.89	2
Washington	School	Cooling Dx Evap	DX Package 135 to 240 kBTU/hr - High Efficiency	DX Package 135 to 240 kBTU/hr - High Efficiency - 11.5 EER	DX Package 135 to 240 kBTU/hr - Standard Efficiency 11.0 EER	Per installation	New	355	15	\$1,655	100%	N/A	\$0.60	0.07
Washington	School	Cooling Dx Evap	DX Package 135 to 240 kBTU/hr - Premium Efficiency	DX Package 135 to 240 kBTU/hr - Premium Efficiency - 12.0 EER	DX Package 135 to 240 kBTU/hr - Standard Efficiency 11.0 EER	Per installation	New	969	15	\$2,817	100%	N/A	\$0.38	2
Washington	School	Cooling Dx Evap	Direct / Indirect Evaporative Cooling, Pre-Cooling	Evaporative Cooler	Standard DX cooling	per building CFM	New	0.11	15	\$1	50%	94%	\$2.21	5
Washington	School	Cooling Dx Evap	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	New	46	15	\$166	75%	76%	\$0.46	2
Washington	School	Cooling Dx Evap	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	New	0.01	18	\$0.22	45%	65%	\$2.23	0.30

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Washington	School	Cooling Dx Evap	Evaporative Cooler replaces DX Package 135 to 240 kBtu/hr - Advanced Efficiency	Evaporative Cooler replaces DX Package 135 to 240 kBtu/hr - Advanced Efficiency	DX Package 135 to 240 kBtu/hr - Standard Efficiency 11.0 EER	Per installation	New	5,402	15	\$-3270.55	25%	N/A	\$-1.05	2
Washington	School	Cooling Dx Evap	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	New	0.04	40	\$9	4%	98%	\$18.50	0.01
Washington	School	Cooling Dx Evap	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	New	2	30	\$5	50%	95%	\$0.19	4
Washington	School	Cooling Dx Evap	Natural Ventilation	Natural Ventilation Design Reduction in Cooling	None - Standard Ventilation	per building sqft	New	0.04	15	\$0.95	20%	75%	\$2.65	0.61
Washington	School	Cooling Dx Evap	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	New	272	10	\$134	95%	10%	\$0.08	0.17
Washington	School	Cooling Dx Evap	Windows-High Efficiency	U-0.32	U-0.40 (WA State Code)	per window sqft	New	0.75	25	\$29	80%	90%	\$3.98	3
Washington	School	Cooling Room	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	Existing	0.06	15	\$0.68	65%	98%	\$1.30	3
Washington	School	Cooling Room	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	Existing	67	15	\$166	75%	76%	\$0.32	4
Washington	School	Cooling Room	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	Existing	0.06	40	\$9	4%	98%	\$12.74	0.02
Washington	School	Cooling Room	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	0.43	13	\$0.30	10%	39%	\$0.10	0.14
Washington	School	Cooling Room	Insulation - Ceiling	R-38 (WA State Code)	R-7 (Average Existing Conditions)	per roof sqft	Existing	0.00	25	\$0.99	75%	58%	\$33.18	0.12
Washington	School	Cooling Room	PTAC (10,000 BTU/HR) - Premium-Efficiency	11.4 EER	Room AC (10,000 BTU/HR) Standard-Efficiency 9.8 EER	Per installation	Existing	2,294	15	\$12,875	75%	N/A	\$6.37	8
Washington	School	Cooling Room	Room AC (10,000 BTU/HR) High-Efficiency	High Efficiency 10.8 EER (ENERGY STAR)	Room AC (10,000 BTU/HR) Standard-Efficiency 9.8 EER	Per installation	Existing	1,617	9	\$5,198	100%	N/A	\$0.58	1
Washington	School	Cooling Room	Window Film	Window Film	No Film	per 100 sqft of window glazing	Existing	0.08	10	\$146	90%	66%	\$277.40	0.00
Washington	School	Cooling Room	Windows-High Efficiency	U-0.32	U-0.40 (WA State Code)	per window sqft	Existing	1	25	\$29	15%	90%	\$2.74	1
Washington	School	Cooling Room	Windows-High Efficiency	U-0.40 (WA State Code)	U-0.67 (Average Existing Conditions)	per window sqft	Existing	0.94	25	\$62	15%	74%	\$6.82	0.77
Washington	School	Cooling Room	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	New	0.05	15	\$0.68	65%	98%	\$1.59	0.46
Washington	School	Cooling Room	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	New	55	15	\$166	75%	76%	\$0.39	0.48
Washington	School	Cooling Room	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	New	0.05	40	\$9	4%	98%	\$15.50	0.00
Washington	School	Cooling Room	Natural Ventilation	Natural Ventilation Design Reduction in Cooling	None - Standard Ventilation	per building sqft	New	0.05	15	\$0.95	20%	75%	\$2.22	0.11
Washington	School	Cooling Room	PTAC (10,000 BTU/HR) - Premium-Efficiency	11.4 EER	Room AC (10,000 BTU/HR) Standard-Efficiency 9.8 EER	Per installation	New	1,877	15	\$80,363	75%	N/A	\$5.54	0.42
Washington	School	Cooling Room	Room AC (10,000 BTU/HR) High-Efficiency	High Efficiency 10.8 EER (ENERGY STAR)	Room AC (10,000 BTU/HR) Standard-Efficiency 9.8 EER	Per installation	New	1,119	9	\$4,161	100%	N/A	\$0.67	0.09
Washington	School	Cooling Room	Windows-High Efficiency	U-0.32	U-0.40 (WA State Code)	per window sqft	New	0.90	25	\$29	80%	90%	\$3.33	0.68
Washington	School	Heat Pump	Air Source Heat Pump 135 to 240 kBtu/hr - High Efficiency	11.5 EER, 3.4 COP	10.6 EER, 3.2 COP	Per installation	Existing	5,002	15	\$8,455	100%	N/A	\$0.22	1
Washington	School	Heat Pump	Air Source Heat Pump 65 to 135 kBtu/hr - Premium Efficiency	12.0 EER, 3.8 COP	10.6 EER, 3.2 COP	Per installation	Existing	14,598	15	\$14,496	100%	N/A	\$0.13	44
Washington	School	Heat Pump	Automated Ventilation VFD Control (Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	1 unit per 3,000 sqft	Existing	185	15	\$726	25%	94%	\$0.51	1

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Washington	School	Heat Pump	Convert Constant Volume Air System to VAV	Variable Volume Air System	Constant Volume Air System	per building CFM	Existing	0.89	15	\$2	15%	67%	\$0.42	7
Washington	School	Heat Pump	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	Existing	0.06	15	\$0.68	65%	98%	\$1.42	2
Washington	School	Heat Pump	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	Existing	557	15	\$166	75%	76%	\$0.04	38
Washington	School	Heat Pump	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	Existing	0.13	18	\$0.22	45%	65%	\$0.19	3
Washington	School	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	Existing	0.74	14	\$0.90	5%	94%	\$0.16	2
Washington	School	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	Existing	0.06	40	\$9	4%	98%	\$13.90	0.01
Washington	School	Heat Pump	Ground Source Heat Pump Replacing Air Source Heat Pump 65 to 135 kBTU/hr - Advanced Efficiency	16.2 EER 4.0 COP	10.6 EER, 3.2 COP	Per installation	Existing	21,076	30	\$66,416	5%	N/A	\$2.08	2
Washington	School	Heat Pump	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	9	13	\$0.30	10%	39%	\$0.00	3
Washington	School	Heat Pump	Insulation - Ceiling	R-38 (WA State Code)	R-7 (Average Existing Conditions)	per roof sqft	Existing	1	25	\$0.99	75%	58%	\$0.08	50
Washington	School	Heat Pump	Insulation - Ceiling	R-49	R-38 (WA State Code)	per roof sqft	Existing	0.09	25	\$0.25	25%	85%	\$0.28	1
Washington	School	Heat Pump	Insulation - Duct	R-7 (WA State Code)	No Insulation	per surface area of duct insul	Existing	2	20	\$2	75%	55%	\$0.08	9
Washington	School	Heat Pump	Insulation - Floor (non-slab)	R-30 (WA State Code)	R-11 (Average Existing Conditions)	per floor area	Existing	1	25	\$0.90	35%	84%	\$0.07	38
Washington	School	Heat Pump	Insulation - Floor (non-slab)	R-38	R-30 (WA State Code)	per floor area	Existing	0.24	25	\$0.29	35%	90%	\$0.12	6
Washington	School	Heat Pump	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	Existing	46	30	\$5	50%	95%	\$0.01	74
Washington	School	Heat Pump	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	Existing	3,259	10	\$134	95%	21%	\$0.01	4
Washington	School	Heat Pump	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	0.69	7	\$0.17	90%	85%	\$0.06	60
Washington	School	Heat Pump	Window Film	Window Film	No Film	per 100 sqft of window glazing	Existing	1	10	\$146	90%	66%	\$13.92	0.06
Washington	School	Heat Pump	Windows-High Efficiency	U-0.40 (WA State Code)	U-0.67 (Average Existing Conditions)	per window sqft	Existing	1	25	\$62	15%	74%	\$3.55	1
Washington	School	Heat Pump	Air Source Heat Pump 135 to 240 kBTU/hr - High Efficiency	11.5 EER, 3.4 COP	10.6 EER, 3.2 COP	Per installation	New	3,163	15	\$6,764	100%	N/A	\$0.28	0.17
Washington	School	Heat Pump	Air Source Heat Pump 65 to 135 kBTU/hr - Premium Efficiency	12.0 EER, 3.8 COP	10.6 EER, 3.2 COP	Per installation	New	7,753	15	\$11,596	100%	N/A	\$0.19	4
Washington	School	Heat Pump	Automated Ventilation VFD Control(Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	1 unit per 3,000 sqft	New	146	15	\$388	25%	94%	\$0.34	0.18
Washington	School	Heat Pump	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	New	0.04	15	\$0.68	65%	98%	\$1.81	0.44
Washington	School	Heat Pump	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	New	256	15	\$166	75%	76%	\$0.08	2
Washington	School	Heat Pump	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	New	0.06	18	\$0.22	45%	65%	\$0.40	0.30
Washington	School	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	New	0.31	14	\$0.90	5%	94%	\$0.39	0.24
Washington	School	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	New	0.04	40	\$9	4%	98%	\$17.67	0.00

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Washington	School	Heat Pump	Ground Source Heat Pump Replacing Air Source Heat Pump 65 to 135 kBtu/hr - Advanced Efficiency	16.2 EER 4.0 COP	10.6 EER, 3.2 COP	Per installation	New	11,653	30	\$41,449	5%	N/A	\$1.92	0.25
Washington	School	Heat Pump	Insulation - Ceiling	R-49	R-38 (WA State Code)	per roof sqft	New	0.03	25	\$0.25	75%	85%	\$0.74	0.36
Washington	School	Heat Pump	Insulation - Floor (non-slab)	R-38	R-30 (WA State Code)	per floor area	New	0.09	25	\$0.29	35%	90%	\$0.32	0.48
Washington	School	Heat Pump	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	New	21	30	\$5	50%	95%	\$0.03	5
Washington	School	Heat Pump	Natural Ventilation	Natural Ventilation Design Reduction in Cooling	None - Standard Ventilation	per building sqft	New	0.25	15	\$0.95	20%	75%	\$0.48	0.62
Washington	School	Heat Pump	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	New	1,501	10	\$134	95%	10%	\$0.01	0.14
Washington	School	Hvac Aux	Convert Constant Volume Air System to VAV	Variable Volume Air System	Constant Volume Air System	per building CFM	Existing	0.18	15	\$2	15%	67%	\$1.98	55
Washington	School	Hvac Aux	Cooking Hood Controls	Demand-Ventilation Control	No Controls	per installation	Existing	1,875	18	\$4,397	95%	85%	\$0.28	140
Washington	School	Hvac Aux	Motor - CEE Premium-Efficiency Plus	CEE PE+ Motor for HVAC Applications	NEMA Efficiency Motors	per HP	Existing	15	15	\$6	95%	76%	\$0.05	27
Washington	School	Hvac Aux	Motor - VAV Box High Efficiency (ECM)	ECM Motor	Standard Efficiency Motor	per installation	Existing	39	15	\$173	11%	77%	\$0.57	20
Washington	School	Hvac Aux	Motor Rewind	>15, <500 HP	No Rewind	per HP	Existing	2	8	\$4	65%	25%	\$0.41	0.98
Washington	School	Hvac Aux	Optimized Variable Volume Lab Hood Design	Optimized Variable Volume Lab Hood Design	Constant Volume Lab Hood Design	per installation	Existing	492	13	\$1,620	65%	59%	\$0.46	29
Washington	School	Hvac Aux	Cooking Hood Controls	Demand-Ventilation Control	No Controls	per installation	New	1,875	18	\$4,397	95%	85%	\$0.28	19
Washington	School	Hvac Aux	Low Pressure Distribution Complex HVAC	Low Pressure Distribution Complex HVAC	VAV/CV	per building sqft	New	0.40	50	\$2	15%	98%	\$0.52	18
Washington	School	Hvac Aux	Motor - CEE Premium-Efficiency Plus	CEE PE+ Motor for HVAC Applications	NEMA Efficiency Motors	per HP	New	11	15	\$6	95%	76%	\$0.07	3
Washington	School	Hvac Aux	Motor - VAV Box High Efficiency (ECM)	ECM Motor	Standard Efficiency Motor	per installation	New	29	15	\$173	11%	77%	\$0.75	2
Washington	School	Hvac Aux	Optimized Variable Volume Lab Hood Design	Optimized Variable Volume Lab Hood Design	Constant Volume Lab Hood Design	per installation	New	373	15	\$1,620	63%	59%	\$0.56	2
Washington	School	Lighting Exterior	Covered Parking Lighting	Covered Parking Lighting	Normal Lighting	per building sqft	Existing	0.09	10	\$0.02	80%	95%	\$0.05	216
Washington	School	Lighting Exterior	Daylighting Controls, Outdoors (Photocell)	Photocell	No Controls	per installation	Existing	57	8	\$27	75%	70%	\$0.09	22
Washington	School	Lighting Exterior	Exterior Building Lighting	30% savings	Normal Lighting	per installation	Existing	243	15	\$327	62%	90%	\$0.17	198
Washington	School	Lighting Exterior	Solid State LED White Lighting	Landscape, merchandise, signage, structure & task lighting (2.5 W)	50W 10hrs/day, 365 day/yr	per installation	Existing	6	14	\$34	75%	95%	\$0.75	3
Washington	School	Lighting Exterior	Surface Parking Lighting	Surface Parking Lighting	Normal Lighting	per building sqft	Existing	0.05	19	\$0.06	62%	95%	\$0.16	90
Washington	School	Lighting Exterior	Covered Parking Lighting	Covered Parking Lighting	Normal Lighting	per building sqft	New	0.09	10	\$0.02	80%	95%	\$0.05	30
Washington	School	Lighting Exterior	Daylighting Controls, Outdoors (Photocell)	Photocell	No Controls	per installation	New	57	8	\$27	75%	70%	\$0.09	3
Washington	School	Lighting Exterior	Exterior Building Lighting	30% savings	Normal Lighting	per installation	New	243	15	\$327	62%	90%	\$0.17	27
Washington	School	Lighting Exterior	Solid State LED White Lighting	Landscape, merchandise, signage, structure & task lighting (2.5 W)	50W 10hrs/day, 365 day/yr	per installation	New	6	14	\$34	75%	95%	\$0.75	0.54
Washington	School	Lighting Exterior	Surface Parking Lighting	Surface Parking Lighting	Normal Lighting	per building sqft	New	0.05	19	\$0.06	62%	95%	\$0.16	12
Washington	School	Lighting Interior	Cold Cathode Lighting	Cold Cathode Lighting 5 watts	30 W Incandescent Bulb	per installation	Existing	475	5	\$13	15%	94%	\$0.01	10
Washington	School	Lighting Interior	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	Existing	1	8	\$0.95	30%	81%	\$0.14	57
Washington	School	Lighting Interior	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	Existing	0.96	8	\$0.71	30%	81%	\$0.14	42

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Washington	School	Lighting Interior	Exit Sign - LED	LED Exit Sign (2 Watts)	CFL Exit Sign (9 Watts)	per installation	Existing	96	16	\$16	95%	50%	\$0.02	102
Washington	School	Lighting Interior	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign (2 Watts)	per installation	Existing	17	13	\$30	95%	98%	\$0.24	12
Washington	School	Lighting Interior	LED Refrigeration Case Lights	LED Refrigeration Case Lights	Fluorescent Refrigeration Case	per installation	Existing	69	8	\$242	10%	80%	\$0.68	2
Washington	School	Lighting Interior	Lighting Package, High Efficiency	15% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	Existing	0.54	13	\$0.19	90%	53%	\$0.05	621
Washington	School	Lighting Interior	Lighting Package, High Efficiency	Code Required LPD And Control Strategies	Existing Lighting Design LPD	per building sqft	Existing	0.99	13	\$0.40	90%	41%	\$0.06	1,078
Washington	School	Lighting Interior	Lighting Package, Premium Efficiency	25% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	Existing	0.91	13	\$0.39	75%	62%	\$0.06	249
Washington	School	Lighting Interior	Lighting Package, Premium High Bay	35% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	Existing	0.14	13	\$0.09	70%	83%	\$0.09	243
Washington	School	Lighting Interior	Occupancy Sensor Control, Fluorescent	Occupancy Sensor Control, Fluorescent	No Occupancy Sensor	per occupancy sensor	Existing	842	8	\$68	90%	35%	\$0.02	75
Washington	School	Lighting Interior	Time Clock	Time Clock	No Controls	per 10,000 Watts	Existing	754	8	\$195	20%	95%	\$0.05	44
Washington	School	Lighting Interior	Cold Cathode Lighting	Cold Cathode Lighting 5 watts	30 W Incandescent Bulb	per installation	New	384	5	\$13	15%	94%	\$0.01	1
Washington	School	Lighting Interior	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	New	1	8	\$0.95	30%	81%	\$0.18	6
Washington	School	Lighting Interior	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	New	0.93	8	\$0.71	30%	81%	\$0.15	6
Washington	School	Lighting Interior	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign (2 Watts)	per installation	New	17	13	\$30	95%	98%	\$0.24	6
Washington	School	Lighting Interior	LED Refrigeration Case Lights	LED Refrigeration Case Lights	Fluorescent Refrigeration Case	per installation	New	69	8	\$242	10%	80%	\$0.68	0.40
Washington	School	Lighting Interior	Lighting Package, High Efficiency	15% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	New	0.54	15	\$0.01	90%	53%	\$0.00	86
Washington	School	Lighting Interior	Lighting Package, Premium Efficiency	25% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	New	0.83	15	\$0.12	75%	62%	\$0.02	31
Washington	School	Lighting Interior	Lighting Package, Premium High Bay	35% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	New	0.14	15	\$0.02	70%	83%	\$0.02	33
Washington	School	Lighting Interior	Occupancy Sensor Control, Fluorescent	Occupancy Sensor Control, Fluorescent	No Occupancy Sensor	per occupancy sensor	New	681	8	\$68	90%	35%	\$0.02	9
Washington	School	Lighting Interior	Time Clock	Time Clock	No Controls	per 10,000 Watts	New	754	8	\$195	20%	95%	\$0.05	5
Washington	School	Other Office Equipment	ENERGY STAR - Copiers	ENERGY STAR Copiers	Standard Copier	per installation	Existing	73	6	\$156	95%	45%	\$0.52	4
Washington	School	Other Office Equipment	ENERGY STAR - Fax	ENERGY STAR Fax	Standard Fax	per installation	Existing	78	6	\$0.00	95%	45%	\$0.00	4
Washington	School	Other Office Equipment	ENERGY STAR - Monitors	ENERGY STAR Features Enabled	Non-ENERGY STAR Features	per installation	Existing	15	5	\$16	64%	15%	\$0.30	5
Washington	School	Other Office Equipment	ENERGY STAR - Printers	ENERGY STAR Printers	Standard Printers	per installation	Existing	137	6	\$15	95%	40%	\$0.03	6
Washington	School	Other Office Equipment	ENERGY STAR - Scanners	ENERGY STAR Scanners	Standard Scanner	per installation	Existing	71	6	\$0.00	95%	45%	\$0.00	4
Washington	School	Other Office Equipment	ENERGY STAR - Copiers	ENERGY STAR Copiers	Standard Copier	per installation	New	73	6	\$156	95%	45%	\$0.52	0.60
Washington	School	Other Office Equipment	ENERGY STAR - Fax	ENERGY STAR Fax	Standard Fax	per installation	New	78	6	\$0.00	95%	45%	\$0.00	0.65
Washington	School	Other Office Equipment	ENERGY STAR - Monitors	ENERGY STAR Features Enabled	Non-ENERGY STAR Features	per installation	New	15	5	\$16	64%	15%	\$0.30	0.74
Washington	School	Other Office Equipment	ENERGY STAR - Printers	ENERGY STAR Printers	Standard Printers	per installation	New	137	6	\$15	95%	40%	\$0.03	0.84
Washington	School	Other Office Equipment	ENERGY STAR - Scanners	ENERGY STAR Scanners	Standard Scanner	per installation	New	71	6	\$0.00	95%	45%	\$0.00	0.59
Washington	School	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	per installation	Existing	7	7	\$0.00	20%	90%	\$0.00	0.12
Washington	School	Other Plug Load	ENERGY STAR - Water Cooler	ENERGY STAR Water Cooler (Hot/Cold Water)	Non-ENERGY STAR Water Cooler	per installation	Existing	363	10	\$0.00	95%	75%	\$0.00	4

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Washington	School	Other Plug Load	Ice Maker	High-Efficiency Ice Maker	Standard Ice Maker	per installation	Existing	423	10	\$137	95%	86%	\$0.03	40
Washington	School	Other Plug Load	Power Supply Transformer/Converter	80 Plus	85% efficient power supply (> 51W)	1 unit per 2,000 sqft	Existing	1	4	\$0.40	95%	86%	\$0.09	1
Washington	School	Other Plug Load	Residential Refrigerator	ENERGY STAR	Federal Standard	per installation	Existing	80	12	\$118	40%	65%	\$0.22	3
Washington	School	Other Plug Load	Residential Refrigerator/Freezer Recycling	Recycling Existing Refrigerator/Freezer	Existing Refrigerator/Freezer	per installation	Existing	953	4	\$549	25%	35%	\$0.20	3
Washington	School	Other Plug Load	Server Virtualization	Server Virtualization	No Virtualization	number of virtualized servers	Existing	2,262	4	\$2,035	72%	85%	\$0.68	34
Washington	School	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	1 unit per 3,000 sqft	Existing	100	5	\$20	60%	90%	\$0.06	54
Washington	School	Other Plug Load	Vending Machines- High Efficiency	ENERGY STAR (Tier 2) Vending Machines- High Efficiency 500 can capacity Under 5.92 kWh/day	Vending Machines- Standard 13 kWh/day	per installation	Existing	240	14	\$158	75%	80%	\$0.09	16
Washington	School	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	per installation	New	7	7	\$0.00	20%	90%	\$0.00	0.01
Washington	School	Other Plug Load	ENERGY STAR - Water Cooler	ENERGY STAR Water Cooler (Hot/Cold Water)	Non-ENERGY STAR Water Cooler	per installation	New	363	10	\$0.00	95%	75%	\$0.00	0.55
Washington	School	Other Plug Load	Ice Maker	High-Efficiency Ice Maker	Standard Ice Maker	per installation	New	423	10	\$137	95%	86%	\$0.03	5
Washington	School	Other Plug Load	Power Supply Transformer/Converter	80 Plus	85% efficient power supply (> 51W)	1 unit per 2,000 sqft	New	1	4	\$0.40	95%	86%	\$0.09	0.26
Washington	School	Other Plug Load	Residential Refrigerator	ENERGY STAR	Federal Standard	per installation	New	80	12	\$118	40%	65%	\$0.22	0.45
Washington	School	Other Plug Load	Server Virtualization	Server Virtualization	No Virtualization	number of virtualized servers	New	2,262	4	\$2,035	72%	85%	\$0.68	4
Washington	School	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	1 unit per 3,000 sqft	New	100	5	\$20	60%	90%	\$0.06	7
Washington	School	Other Plug Load	Vending Machines- High Efficiency	ENERGY STAR (Tier 2) Vending Machines- High Efficiency 500 can capacity Under 5.92 kWh/day	Vending Machines- Standard 13 kWh/day	per installation	New	240	14	\$158	75%	80%	\$0.09	2
Washington	School	Refrigeration	Anti-Sweat (Humidistat) Controls	Anti-Sweat (Humidistat) Controls	No Anti-Sweat (Humidistat) Controls	1 unit per 1,000 sqft	Existing	983	12	\$79	15%	45%	\$0.01	1
Washington	School	Refrigeration	Case Electronically Commutated Motor	ECM Case Fans	Standard Efficiency Motor	1 unit per 10,000 sqft	Existing	1,023	12	\$236	5%	77%	\$0.03	4
Washington	School	Refrigeration	Case Replacement Low Temp	Case Replacement Low Temp	No replacement	per square foot	Existing	0.04	15	\$0.10	5%	90%	\$0.28	2
Washington	School	Refrigeration	Case Replacement Med Temp	Case Replacement Med Temp	No replacement	per square foot	Existing	0.00	15	\$0.05	5%	90%	\$1.69	0.23
Washington	School	Refrigeration	Demand Control Defrost - Hot Gas	Refrigerant Defrost	Defrost - Electric	per installation	Existing	129	10	\$62	5%	68%	\$0.08	0.28
Washington	School	Refrigeration	Glass Door ES Refrigerators/Freezers	Glass Door ES Refrigerators/Freezers	Standard Glass Doors	per installation	Existing	2,564	12	\$685	95%	77%	\$0.04	2
Washington	School	Refrigeration	Refrigeration Commissioning or Re-commissioning	Commissioning / Re-commissioning	No Commissioning / Re-commissioning	per refrigeration ton	Existing	820	3	\$116	10%	85%	\$0.06	3
Washington	School	Refrigeration	Solid Door ES Refrigerators/Freezers	Solid Door ES Refrigerators/Freezers	Standard Solid Door	per installation	Existing	1,162	12	\$171	95%	81%	\$0.02	1
Washington	School	Refrigeration	Standalone to Multiplex Compressor	Standalone to Multiplex Compressor	Standalone compressor	per building sqft	Existing	0.01	13	\$0.00	25%	90%	\$0.02	3
Washington	School	Refrigeration	Strip Curtains for Walk-Ins	Strip Curtains for Walk-Ins	No Strip Curtains for Walk-In	per installation	Existing	199	4	\$179	95%	20%	\$0.31	2
Washington	School	Refrigeration	Walk-In Electronically Commutated Motor	ECM Evaporator Fans	Standard Efficiency Motor	per installation	Existing	0.01	12	\$0.17	10%	95%	\$1.29	2
Washington	School	Refrigeration	Anti-Sweat (Humidistat) Controls	Anti-Sweat (Humidistat) Controls	No Anti-Sweat (Humidistat) Controls	1 unit per 1,000 sqft	New	983	12	\$79	15%	45%	\$0.01	0.25
Washington	School	Refrigeration	Case Electronically Commutated Motor	ECM Case Fans	Standard Efficiency Motor	1 unit per 10,000 sqft	New	1,023	12	\$236	5%	77%	\$0.03	0.68

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Washington	School	Refrigeration	Demand Control Defrost - Hot Gas	Refrigerant Defrost	Defrost - Electric	per installation	New	129	10	\$62	5%	68%	\$0.08	0.03
Washington	School	Refrigeration	Glass Door ES Refrigerators/Freezers	Glass Door ES Refrigerators/Freezers	Standard Glass Doors	per installation	New	2,564	12	\$685	95%	77%	\$0.04	0.38
Washington	School	Refrigeration	Refrigeration Commissioning or Re-commissioning	Commissioning / Re-commissioning	No Commissioning / Re-commissioning	per refrigeration ton	New	507	3	\$44	5%	90%	\$0.04	0.14
Washington	School	Refrigeration	Solid Door ES Refrigerators/Freezers	Solid Door ES Refrigerators/Freezers	Standard Solid Door	per installation	New	1,162	12	\$171	95%	81%	\$0.02	0.18
Washington	School	Refrigeration	Strip Curtains for Walk-Ins	Strip Curtains for Walk-Ins	No Strip Curtains for Walk-In	per installation	New	199	4	\$179	95%	20%	\$0.31	0.34
Washington	School	Refrigeration	Walk-In Electronically Commutated Motor	ECM Evaporator Fans	Standard Efficiency Motor	per installation	New	0.01	12	\$0.17	10%	95%	\$1.29	0.32
Washington	School	Space Heat	Convert Constant Volume Air System to VAV	Variable Volume Air System	Constant Volume Air System	per building CFM	Existing	1	15	\$2	15%	67%	\$0.34	25
Washington	School	Space Heat	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	Existing	856	15	\$166	75%	76%	\$0.03	161
Washington	School	Space Heat	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	Existing	0.21	18	\$0.22	45%	65%	\$0.12	14
Washington	School	Space Heat	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	Existing	1	14	\$0.90	5%	94%	\$0.10	13
Washington	School	Space Heat	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	11	13	\$0.30	10%	39%	\$0.00	12
Washington	School	Space Heat	Insulation - Ceiling	R-38 (WA State Code)	R-7 (Average Existing Conditions)	per roof sqft	Existing	2	25	\$0.99	75%	58%	\$0.05	245
Washington	School	Space Heat	Insulation - Ceiling	R-49	R-38 (WA State Code)	per roof sqft	Existing	0.19	25	\$0.25	25%	85%	\$0.14	9
Washington	School	Space Heat	Insulation - Duct	R-7 (WA State Code)	No Insulation	per surface area of duct insul	Existing	4	20	\$2	75%	55%	\$0.05	34
Washington	School	Space Heat	Insulation - Floor (non-slab)	R-30 (WA State Code)	R-11 (Average Existing Conditions)	per floor area	Existing	2	25	\$0.90	35%	84%	\$0.05	170
Washington	School	Space Heat	Insulation - Floor (non-slab)	R-38	R-30 (WA State Code)	per floor area	Existing	0.38	25	\$0.29	35%	90%	\$0.08	27
Washington	School	Space Heat	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	Existing	71	30	\$5	50%	95%	\$0.01	314
Washington	School	Space Heat	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	Existing	5,007	10	\$134	95%	21%	\$0.00	18
Washington	School	Space Heat	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	1	7	\$0.17	90%	85%	\$0.04	257
Washington	School	Space Heat	Windows-High Efficiency	U-0.40 (WA State Code)	U-0.67 (Average Existing Conditions)	per window sqft	Existing	1	25	\$62	15%	74%	\$4.49	2
Washington	School	Space Heat	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	New	372	15	\$166	75%	76%	\$0.06	9
Washington	School	Space Heat	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	New	0.09	18	\$0.22	45%	65%	\$0.28	1
Washington	School	Space Heat	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	New	0.55	14	\$0.90	5%	94%	\$0.22	1
Washington	School	Space Heat	Insulation - Ceiling	R-49	R-38 (WA State Code)	per roof sqft	New	0.08	25	\$0.25	75%	85%	\$0.32	2
Washington	School	Space Heat	Insulation - Floor (non-slab)	R-38	R-30 (WA State Code)	per floor area	New	0.16	25	\$0.29	35%	90%	\$0.18	2
Washington	School	Space Heat	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	New	31	30	\$5	50%	95%	\$0.02	19
Washington	School	Space Heat	Natural Ventilation	Natural Ventilation Design Reduction in Cooling	None - Standard Ventilation	per building sqft	New	0.37	15	\$0.95	20%	75%	\$0.33	2
Washington	School	Space Heat	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	New	2,174	10	\$134	95%	10%	\$0.01	0.56
Washington	School	Water Heat	Clothes Washer Commercial	ENERGY STAR Commercial Clothes Washer MEF=1.80	Standard Clothes Washers	per installation	Existing	545	11	\$121	95%	80%	\$-0.26	3
Washington	School	Water Heat	Clothes Washer Residential	Energy Star - CEE Tier 1 (MEF 2.0 - 2.19) - Electric DHW & Dryer	MEF = 1.66 - Electric DHW & Dryer (NWPPC 6th Plan Average Efficiency)	per installation	Existing	133	11	\$300	85%	94%	\$0.06	0.83
Washington	School	Water Heat	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	per building sqft	Existing	0.07	10	\$0.26	55%	94%	\$0.61	34

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Washington	School	Water Heat	Dishwasher Residential	ENERGY STAR <= 324 kWh/yr, <= 5.8 gal/cycle	Federal Standard <= 355 kWh/yr, <= 6.5 gal/cycle	per installation	Existing	31	11	\$29	95%	25%	\$0.09	0.10
Washington	School	Water Heat	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	per installation	Existing	7,408	10	\$2,561	95%	95%	\$0.02	19
Washington	School	Water Heat	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	per installation	Existing	3,461	10	\$815	95%	94%	\$-0.02	4
Washington	School	Water Heat	Electric Water Heater - High Efficiency	EF = 0.95	EF = 0.92	Per installation	Existing	892	15	\$300	100%	N/A	\$0.04	6
Washington	School	Water Heat	Heat Pump Water Heater - Advanced-Efficiency	EF = 2.2	EF = 0.92	Per installation	Existing	16,450	15	\$5,760	75%	N/A	\$0.05	309
Washington	School	Water Heat	Hot Water (SHW) Pipe Insulation	1.0" of Insulation, assuming R-4 (WA State Code)	No Insulation	per linear foot	Existing	25	12	\$2	80%	8%	\$0.02	0.85
Washington	School	Water Heat	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	per installation	Existing	229	9	\$0.00	95%	25%	\$-0.08	12
Washington	School	Water Heat	Low-Flow Faucet Aerators	2.2 GPM (Federal Code)	3.0 GPM	per installation	Existing	192	9	\$2	95%	25%	\$-0.08	10
Washington	School	Water Heat	Low-Flow Pre-Rinse Spray Valves	0.6 GPM	1.6 GPM (Federal Standard)	per installation	Existing	66	5	\$5	95%	65%	\$-0.07	4
Washington	School	Water Heat	Low-Flow Showerheads	2.0 GPM	2.5 GPM (Federal Code)	per installation	Existing	457	10	\$5	95%	73%	\$-0.08	79
Washington	School	Water Heat	Low-Flow Showerheads	2.5 GPM (Federal Code)	4.5 GPM	per installation	Existing	1,016	10	\$11	95%	62%	\$-0.08	150
Washington	School	Water Heat	Water Cooled Refrigeration with Heat Recovery	Heat Recovery from refrigeration system. Applied to Water Heating Electric End use	No heat recovery	per sqft of refrigerated area	Existing	0.16	10	\$0.86	25%	94%	\$0.87	0.78
Washington	School	Water Heat	Water Heater Temperature Setback	Water Heater Temperature Setback (120 F)	No Change in Water Temperature	per installation	Existing	541	5	\$93	75%	15%	\$0.05	11
Washington	School	Water Heat	Clothes Washer Commercial	ENERGY STAR Commercial Clothes Washer MEF=1.80	Standard Clothes Washers	per installation	New	545	11	\$121	95%	80%	\$-0.26	0.44
Washington	School	Water Heat	Clothes Washer Residential	Energy Star - CEE Tier 1 (MEF 2.0 - 2.19) - Electric DHW & Dryer	MEF = 1.66 - Electric DHW & Dryer (NWPPC 6th Plan Average Efficiency)	per installation	New	133	11	\$300	85%	94%	\$0.06	0.11
Washington	School	Water Heat	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	per building sqft	New	0.07	10	\$0.26	55%	94%	\$0.61	5
Washington	School	Water Heat	Dishwasher Residential	ENERGY STAR <= 324 kWh/yr, <= 5.8 gal/cycle	Federal Standard <= 355 kWh/yr, <= 6.5 gal/cycle	per installation	New	31	11	\$29	95%	55%	\$0.09	0.03
Washington	School	Water Heat	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	per installation	New	7,408	10	\$2,561	95%	95%	\$0.02	2
Washington	School	Water Heat	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	per installation	New	3,461	10	\$815	95%	94%	\$-0.02	0.62
Washington	School	Water Heat	Electric Water Heater - High Efficiency	EF = 0.95	EF = 0.92	Per installation	New	892	15	\$300	100%	N/A	\$0.04	0.89
Washington	School	Water Heat	Heat Pump Water Heater - Advanced-Efficiency	EF = 2.2	EF = 0.92	Per installation	New	16,450	15	\$4,914	75%	N/A	\$0.04	40
Washington	School	Water Heat	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	per installation	New	229	9	\$0.00	95%	25%	\$-0.08	1
Washington	School	Water Heat	Low-Flow Pre-Rinse Spray Valves	0.6 GPM	1.6 GPM (Federal Standard)	per installation	New	66	5	\$5	95%	65%	\$-0.07	0.58
Washington	School	Water Heat	Low-Flow Showerheads	2.0 GPM	2.5 GPM (Federal Code)	per installation	New	457	10	\$5	95%	73%	\$-0.08	10
Washington	School	Water Heat	Water Cooled Refrigeration with Heat Recovery	Heat Recovery from refrigeration system. Applied to Water Heating Electric End use	No heat recovery	per sqft of refrigerated area	New	0.16	10	\$0.86	25%	94%	\$0.87	0.12
Washington	School	Water Heat	Water Heater Temperature Setback	Water Heater Temperature Setback (120 F)	No Change in Water Temperature	per installation	New	541	5	\$93	75%	15%	\$0.05	1
Washington	Small Office	Computers	Computer ENERGY STAR	Computer ENERGY STAR	Computer standard non-ENERGY STAR	Per installation	Existing	119	4	\$25	100%	N/A	\$0.07	1,972
Washington	Small Office	Computers	Network PC Power Management	Network PC Power Management	No Power Management	per computer	Existing	79	5	\$10	95%	30%	\$0.04	519
Washington	Small Office	Computers	Computer ENERGY STAR	Computer ENERGY STAR	Computer standard non-ENERGY STAR	Per installation	New	119	4	\$25	100%	N/A	\$0.07	55

Table C.2.2. Commercial Measure Details

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Washington	Small Office	Computers	Network PC Power Management	Network PC Power Management	No Power Management	per computer	New	79	5	\$10	95%	30%	\$0.04	72
Washington	Small Office	Cooling Dx Evap	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	Existing	0.19	15	\$0.61	35%	98%	\$0.40	209
Washington	Small Office	Cooling Dx Evap	DX Package 65 to 135 kBtu/hr - High Efficiency	DX Package 65 to 135 kBtu/hr - High Efficiency - 11.5 EER	DX Package 65 to 135 kBtu/hr - Standard Efficiency - 11.2 EER	Per installation	Existing	141	15	\$167	100%	N/A	\$0.15	10
Washington	Small Office	Cooling Dx Evap	DX Package 65 to 135 kBtu/hr - Premium Efficiency	DX Package 65 to 135 kBtu/hr - Premium Efficiency - 12.0 EER	DX Package 65 to 135 kBtu/hr - Standard Efficiency - 11.2 EER	Per installation	Existing	380	15	\$337	100%	N/A	\$0.11	289
Washington	Small Office	Cooling Dx Evap	DX Package-Air Side Economizer	Air-Side Economizer	No Economizer	per DX ton	Existing	96	10	\$148	10%	20%	\$0.26	20
Washington	Small Office	Cooling Dx Evap	DX Tune-Up / Diagnostics	DX Tune-Up / Diagnostics	No DX Tune-Up / Diagnostics	per installation	Existing	481	4	\$292	95%	72%	\$0.23	501
Washington	Small Office	Cooling Dx Evap	Direct / Indirect Evaporative Cooling, Pre-Cooling	Evaporative Cooler	Standard DX cooling	per building CFM	Existing	0.49	15	\$1	50%	94%	\$0.47	772
Washington	Small Office	Cooling Dx Evap	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	Existing	0.04	18	\$0.19	45%	65%	\$0.47	42
Washington	Small Office	Cooling Dx Evap	Evaporative Cooler replaces DX Package 65 to 135 kBtu/hr - Advanced Efficiency	Evaporative Cooler replaces DX Package 65 to 135 kBtu/hr - Advanced Efficiency	DX Package 65 to 135 kBtu/hr - Standard Efficiency - 11.2 EER	Per installation	Existing	2,315	15	-\$328.4	25%	N/A	-\$0.24	507
Washington	Small Office	Cooling Dx Evap	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	Existing	0.19	40	\$8	4%	98%	\$3.92	1
Washington	Small Office	Cooling Dx Evap	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	1	13	\$0.27	40%	39%	\$0.04	69
Washington	Small Office	Cooling Dx Evap	Insulation - Ceiling	R-38 (WA State Code)	R-11 (Average Existing Conditions)	per roof sqft	Existing	0.00	25	\$0.89	75%	69%	\$20.35	6
Washington	Small Office	Cooling Dx Evap	Insulation - Duct	R-7 (WA State Code)	No Insulation	per surface area of duct insul	Existing	1	20	\$1	75%	60%	\$0.21	140
Washington	Small Office	Cooling Dx Evap	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	Existing	12	30	\$5	50%	95%	\$0.04	648
Washington	Small Office	Cooling Dx Evap	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	Existing	131	10	\$119	95%	27%	\$0.15	57
Washington	Small Office	Cooling Dx Evap	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	0.24	7	\$0.16	90%	85%	\$0.14	795
Washington	Small Office	Cooling Dx Evap	Window Film	Window Film	No Film	per 100 sqft of window glazing	Existing	1	10	\$131	90%	66%	\$13.67	2
Washington	Small Office	Cooling Dx Evap	Windows-High Efficiency	U-0.32	U-0.40 (WA State Code)	per window sqft	Existing	2	25	\$26	15%	90%	\$1.04	98
Washington	Small Office	Cooling Dx Evap	Windows-High Efficiency	U-0.40 (WA State Code)	U-0.6 (Average Existing Conditions)	per window sqft	Existing	2	25	\$56	15%	72%	\$2.43	70
Washington	Small Office	Cooling Dx Evap	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	New	0.12	15	\$0.61	35%	98%	\$0.64	23
Washington	Small Office	Cooling Dx Evap	DX Package 65 to 135 kBtu/hr - High Efficiency	DX Package 65 to 135 kBtu/hr - High Efficiency - 11.5 EER	DX Package 65 to 135 kBtu/hr - Standard Efficiency - 11.2 EER	Per installation	New	97	15	\$134	100%	N/A	\$0.18	1
Washington	Small Office	Cooling Dx Evap	DX Package 65 to 135 kBtu/hr - Premium Efficiency	DX Package 65 to 135 kBtu/hr - Premium Efficiency - 12.0 EER	DX Package 65 to 135 kBtu/hr - Standard Efficiency - 11.2 EER	Per installation	New	252	15	\$269	100%	N/A	\$0.14	27
Washington	Small Office	Cooling Dx Evap	Direct / Indirect Evaporative Cooling, Pre-Cooling	Evaporative Cooler	Standard DX cooling	per building CFM	New	0.31	15	\$1	50%	94%	\$0.74	88
Washington	Small Office	Cooling Dx Evap	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	New	0.03	18	\$0.19	45%	65%	\$0.75	4

Table C.2.2. Commercial Measure Details

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Washington	Small Office	Cooling Dx Evap	Evaporative Cooler replaces DX Package 65 to 135 kBtu/hr - Advanced Efficiency	Evaporative Cooler replaces DX Package 65 to 135 kBtu/hr - Advanced Efficiency	DX Package 65 to 135 kBtu/hr - Standard Efficiency - 11.2 EER	Per installation	New	1,584	15	\$-2443.6	25%	N/A	\$-0.27	49
Washington	Small Office	Cooling Dx Evap	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	New	0.12	40	\$8	4%	98%	\$6.22	0.20
Washington	Small Office	Cooling Dx Evap	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	New	7	30	\$5	50%	95%	\$0.07	60
Washington	Small Office	Cooling Dx Evap	Natural Ventilation	Natural Ventilation Design Reduction in Cooling	None - Standard Ventilation	per building sqft	New	0.12	15	\$0.85	20%	75%	\$0.89	9
Washington	Small Office	Cooling Dx Evap	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	New	83	10	\$119	95%	13%	\$0.24	2
Washington	Small Office	Cooling Dx Evap	Windows-High Efficiency	U-0.32	U-0.40 (WA State Code)	per window sqft	New	1	25	\$26	80%	90%	\$1.65	58
Washington	Small Office	Cooling Room	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	Existing	0.21	15	\$0.61	35%	98%	\$0.36	23
Washington	Small Office	Cooling Room	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	Existing	0.21	40	\$8	4%	98%	\$3.56	0.24
Washington	Small Office	Cooling Room	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	1	13	\$0.27	40%	39%	\$0.04	5
Washington	Small Office	Cooling Room	Insulation - Ceiling	R-38 (WA State Code)	R-11 (Average Existing Conditions)	per roof sqft	Existing	0.00	25	\$0.89	75%	69%	\$18.48	0.84
Washington	Small Office	Cooling Room	PTAC (10,000 BTU/HR) - Premium-Efficiency	11.4 EER	Room AC (10,000 BTU/HR) Standard-Efficiency 9.8 EER	Per installation	Existing	770	15	\$8,014	75%	N/A	\$1.35	82
Washington	Small Office	Cooling Room	Room AC (10,000 BTU/HR) High-Efficiency	High Efficiency 10.8 EER (ENERGY STAR)	Room AC (10,000 BTU/HR) Standard-Efficiency 9.8 EER	Per installation	Existing	470	9	\$369	100%	N/A	\$0.14	14
Washington	Small Office	Cooling Room	Window Film	Window Film	No Film	per 100 sqft of window glazing	Existing	0.08	10	\$131	90%	66%	\$272.31	0.01
Washington	Small Office	Cooling Room	Windows-High Efficiency	U-0.32	U-0.40 (WA State Code)	per window sqft	Existing	2	25	\$26	15%	90%	\$0.94	12
Washington	Small Office	Cooling Room	Windows-High Efficiency	U-0.40 (WA State Code)	U-0.6 (Average Existing Conditions)	per window sqft	Existing	2	25	\$56	15%	72%	\$2.20	9
Washington	Small Office	Cooling Room	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	New	0.14	15	\$0.61	35%	98%	\$0.55	2
Washington	Small Office	Cooling Room	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	New	0.14	40	\$8	4%	98%	\$5.35	0.02
Washington	Small Office	Cooling Room	Natural Ventilation	Natural Ventilation Design Reduction in Cooling	None - Standard Ventilation	per building sqft	New	0.14	15	\$0.85	20%	75%	\$0.77	1
Washington	Small Office	Cooling Room	PTAC (10,000 BTU/HR) - Premium-Efficiency	11.4 EER	Room AC (10,000 BTU/HR) Standard-Efficiency 9.8 EER	Per installation	New	519	15	\$5,706	75%	N/A	\$1.42	3
Washington	Small Office	Cooling Room	Room AC (10,000 BTU/HR) High-Efficiency	High Efficiency 10.8 EER (ENERGY STAR)	Room AC (10,000 BTU/HR) Standard-Efficiency 9.8 EER	Per installation	New	323	9	\$295	100%	N/A	\$0.16	0.83
Washington	Small Office	Cooling Room	Windows-High Efficiency	U-0.32	U-0.40 (WA State Code)	per window sqft	New	1	25	\$26	80%	90%	\$1.42	6
Washington	Small Office	Heat Pump	Air Source Heat Pump 65 to 135 kBtu/hr - High Efficiency	11.5 EER, 3.4 COP	11.0 EER, 3.3 COP	Per installation	Existing	565	15	\$623	100%	N/A	\$0.14	5
Washington	Small Office	Heat Pump	Air Source Heat Pump 65 to 135 kBtu/hr - Premium Efficiency	12.0 EER, 3.8 COP	11.0 EER, 3.3 COP	Per installation	Existing	1,364	15	\$1,247	100%	N/A	\$0.12	181
Washington	Small Office	Heat Pump	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	Existing	0.18	15	\$0.61	35%	98%	\$0.44	34
Washington	Small Office	Heat Pump	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	Existing	0.10	18	\$0.19	45%	65%	\$0.21	20

Table C.2.2. Commercial Measure Details

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Washington	Small Office	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	Existing	0.38	14	\$1	5%	94%	\$0.55	10
Washington	Small Office	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	Existing	0.18	40	\$8	4%	98%	\$4.26	0.37
Washington	Small Office	Heat Pump	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	3	13	\$0.27	40%	39%	\$0.01	51
Washington	Small Office	Heat Pump	Insulation - Ceiling	R-38 (WA State Code)	R-11 (Average Existing Conditions)	per roof sqft	Existing	0.47	25	\$0.89	75%	69%	\$0.19	165
Washington	Small Office	Heat Pump	Insulation - Ceiling	R-49	R-38 (WA State Code)	per roof sqft	Existing	0.03	25	\$0.23	25%	85%	\$0.75	4
Washington	Small Office	Heat Pump	Insulation - Duct	R-7 (WA State Code)	No Insulation	per surface area of duct insul	Existing	2	20	\$1	75%	60%	\$0.10	57
Washington	Small Office	Heat Pump	Insulation - Floor (non-slab)	R-30 (WA State Code)	R-11 (Average Existing Conditions)	per floor area	Existing	0.39	25	\$0.81	35%	84%	\$0.21	73
Washington	Small Office	Heat Pump	Insulation - Floor (non-slab)	R-38	R-30 (WA State Code)	per floor area	Existing	0.07	25	\$0.26	35%	90%	\$0.35	14
Washington	Small Office	Heat Pump	Insulation - Wall	R-13 + 7.5 (WA State Code)	R-3 (Average Existing Conditions)	per floor area	Existing	0.81	25	\$1	10%	75%	\$0.24	22
Washington	Small Office	Heat Pump	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	Existing	36	30	\$5	50%	95%	\$0.01	373
Washington	Small Office	Heat Pump	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	Existing	290	10	\$119	95%	27%	\$0.07	23
Washington	Small Office	Heat Pump	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	0.54	7	\$0.16	90%	85%	\$0.06	323
Washington	Small Office	Heat Pump	Window Film	Window Film	No Film	per 100 sqft of window glazing	Existing	1	10	\$131	90%	66%	\$13.58	0.54
Washington	Small Office	Heat Pump	Windows-High Efficiency	U-0.32	U-0.40 (WA State Code)	per window sqft	Existing	1	25	\$26	15%	90%	\$1.95	10
Washington	Small Office	Heat Pump	Windows-High Efficiency	U-0.40 (WA State Code)	U-0.6 (Average Existing Conditions)	per window sqft	Existing	2	25	\$56	15%	72%	\$2.80	12
Washington	Small Office	Heat Pump	Air Source Heat Pump 65 to 135 kBtu/hr - High Efficiency	11.5 EER, 3.4 COP	11.0 EER, 3.3 COP	Per installation	New	383	15	\$499	100%	N/A	\$0.17	0.63
Washington	Small Office	Heat Pump	Air Source Heat Pump 65 to 135 kBtu/hr - Premium Efficiency	12.0 EER, 3.8 COP	11.0 EER, 3.3 COP	Per installation	New	785	15	\$997	100%	N/A	\$0.16	21
Washington	Small Office	Heat Pump	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	New	0.11	15	\$0.61	35%	98%	\$0.67	3
Washington	Small Office	Heat Pump	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	New	0.05	18	\$0.19	45%	65%	\$0.41	1
Washington	Small Office	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	New	0.16	14	\$1	5%	94%	\$1.26	0.83
Washington	Small Office	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	New	0.11	40	\$8	4%	98%	\$6.58	0.04
Washington	Small Office	Heat Pump	Insulation - Ceiling	R-49	R-38 (WA State Code)	per roof sqft	New	0.01	25	\$0.23	75%	85%	\$2.10	0.76
Washington	Small Office	Heat Pump	Insulation - Floor (non-slab)	R-38	R-30 (WA State Code)	per floor area	New	0.02	25	\$0.26	35%	90%	\$1.03	0.88
Washington	Small Office	Heat Pump	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	New	19	30	\$5	50%	95%	\$0.03	28
Washington	Small Office	Heat Pump	Natural Ventilation	Natural Ventilation Design Reduction in Cooling	None - Standard Ventilation	per building sqft	New	0.22	15	\$0.85	20%	75%	\$0.49	3
Washington	Small Office	Heat Pump	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	New	151	10	\$119	95%	13%	\$0.13	0.98
Washington	Small Office	Heat Pump	Windows-High Efficiency	U-0.32	U-0.40 (WA State Code)	per window sqft	New	1	25	\$26	80%	90%	\$2.43	8
Washington	Small Office	Hvac Aux	Motor - CEE Premium-Efficiency Plus	CEE PE+ Motor for HVAC Applications	NEMA Efficiency Motors	per HP	Existing	18	15	\$5	95%	76%	\$0.04	87
Washington	Small Office	Hvac Aux	Motor Rewind	>15, <500 HP	No Rewind	per HP	Existing	4	8	\$4	65%	25%	\$0.21	3
Washington	Small Office	Hvac Aux	Motor - CEE Premium-Efficiency Plus	CEE PE+ Motor for HVAC Applications	NEMA Efficiency Motors	per HP	New	16	15	\$5	95%	76%	\$0.05	13
Washington	Small Office	Lighting Exterior	Covered Parking Lighting	Covered Parking Lighting	Normal Lighting	per building sqft	Existing	0.08	10	\$0.02	80%	95%	\$0.05	509
Washington	Small Office	Lighting Exterior	Daylighting Controls, Outdoors (Photocell)	Photocell	No Controls	per installation	Existing	29	8	\$24	75%	70%	\$0.16	96

Table C.2.2. Commercial Measure Details

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Washington	Small Office	Lighting Exterior	Exterior Building Lighting	30% savings	Normal Lighting	per installation	Existing	218	15	\$293	62%	90%	\$0.17	836
Washington	Small Office	Lighting Exterior	Solid State LED White Lighting	Landscape, merchandise, signage, structure & task lighting (2.5 W)	50W 10hrs/day, 365 day/yr	per installation	Existing	3	14	\$31	75%	95%	\$1.31	15
Washington	Small Office	Lighting Exterior	Surface Parking Lighting	Surface Parking Lighting	Normal Lighting	per building sqft	Existing	0.04	19	\$0.06	62%	95%	\$0.16	213
Washington	Small Office	Lighting Exterior	Covered Parking Lighting	Covered Parking Lighting	Normal Lighting	per building sqft	New	0.08	10	\$0.02	80%	95%	\$0.05	70
Washington	Small Office	Lighting Exterior	Daylighting Controls, Outdoors (Photocell)	Photocell	No Controls	per installation	New	29	8	\$24	75%	70%	\$0.16	13
Washington	Small Office	Lighting Exterior	Exterior Building Lighting	30% savings	Normal Lighting	per installation	New	218	15	\$293	62%	90%	\$0.17	116
Washington	Small Office	Lighting Exterior	Solid State LED White Lighting	Landscape, merchandise, signage, structure & task lighting (2.5 W)	50W 10hrs/day, 365 day/yr	per installation	New	3	14	\$31	75%	95%	\$1.31	2
Washington	Small Office	Lighting Exterior	Surface Parking Lighting	Surface Parking Lighting	Normal Lighting	per building sqft	New	0.04	19	\$0.06	62%	95%	\$0.16	29
Washington	Small Office	Lighting Interior	Cold Cathode Lighting	Cold Cathode Lighting 5 wats	30 W Incandescent Bulb	per installation	Existing	98	5	\$11	15%	94%	\$0.03	46
Washington	Small Office	Lighting Interior	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	Existing	0.62	8	\$0.85	30%	78%	\$0.27	103
Washington	Small Office	Lighting Interior	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	Existing	0.47	8	\$0.64	30%	78%	\$0.27	78
Washington	Small Office	Lighting Interior	Exit Sign - LED	LED Exit Sign (2 Watts)	CFL Exit Sign (9 Watts)	per installation	Existing	87	16	\$14	95%	50%	\$0.02	232
Washington	Small Office	Lighting Interior	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign (2 Watts)	per installation	Existing	15	13	\$26	95%	98%	\$0.24	27
Washington	Small Office	Lighting Interior	Lighting Package, High Efficiency	15% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	Existing	0.44	13	\$0.12	90%	53%	\$0.04	1,281
Washington	Small Office	Lighting Interior	Lighting Package, High Efficiency	Code Required LPD And Control Strategies	Existing Lighting Design LPD	per building sqft	Existing	1	13	\$0.86	90%	73%	\$0.08	7,154
Washington	Small Office	Lighting Interior	Lighting Package, Premium Efficiency	25% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	Existing	0.74	13	\$0.31	75%	62%	\$0.06	515
Washington	Small Office	Lighting Interior	Lighting Package, Premium High Bay	35% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	Existing	0.04	13	\$0.02	70%	83%	\$0.09	175
Washington	Small Office	Lighting Interior	Occupancy Sensor Control, Fluorescent	Occupancy Sensor Control, Fluorescent	No Occupancy Sensor	per occupancy sensor	Existing	764	8	\$61	90%	53%	\$0.02	218
Washington	Small Office	Lighting Interior	Time Clock	Time Clock	No Controls	per 10,000 Watts	Existing	678	8	\$175	20%	88%	\$0.05	78
Washington	Small Office	Lighting Interior	Cold Cathode Lighting	Cold Cathode Lighting 5 wats	30 W Incandescent Bulb	per installation	New	60	5	\$11	15%	94%	\$0.05	4
Washington	Small Office	Lighting Interior	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	New	0.38	8	\$0.85	30%	78%	\$0.43	10
Washington	Small Office	Lighting Interior	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	New	0.29	8	\$0.64	30%	78%	\$0.43	8
Washington	Small Office	Lighting Interior	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign (2 Watts)	per installation	New	15	13	\$26	95%	98%	\$0.24	15
Washington	Small Office	Lighting Interior	Lighting Package, High Efficiency	15% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	New	0.44	15	\$0.00	90%	53%	\$0.00	178
Washington	Small Office	Lighting Interior	Lighting Package, Premium Efficiency	25% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	New	0.68	15	\$0.09	75%	62%	\$0.02	66
Washington	Small Office	Lighting Interior	Lighting Package, Premium High Bay	35% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	New	0.04	15	\$0.00	70%	83%	\$0.02	24
Washington	Small Office	Lighting Interior	Occupancy Sensor Control, Fluorescent	Occupancy Sensor Control, Fluorescent	No Occupancy Sensor	per occupancy sensor	New	471	8	\$61	90%	53%	\$0.03	22
Washington	Small Office	Lighting Interior	Time Clock	Time Clock	No Controls	per 10,000 Watts	New	678	8	\$175	20%	88%	\$0.05	8
Washington	Small Office	Other Office Equipment	ENERGY STAR - Copiers	ENERGY STAR Copiers	Standard Copier	per installation	Existing	66	6	\$140	95%	45%	\$0.52	90

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Washington	Small Office	Other Office Equipment	ENERGY STAR - Fax	ENERGY STAR Fax	Standard Fax	per installation	Existing	70	6	\$0.88	95%	45%	\$0.00	96
Washington	Small Office	Other Office Equipment	ENERGY STAR - Monitors	ENERGY STAR Features Enabled	Non-ENERGY STAR Features	per installation	Existing	13	5	\$14	64%	15%	\$0.30	29
Washington	Small Office	Other Office Equipment	ENERGY STAR - Printers	ENERGY STAR Printers	Standard Printers	per installation	Existing	123	6	\$13	95%	40%	\$0.03	125
Washington	Small Office	Other Office Equipment	ENERGY STAR - Scanners	ENERGY STAR Scanners	Standard Scanner	per installation	Existing	64	6	\$0.88	95%	45%	\$0.00	87
Washington	Small Office	Other Office Equipment	ENERGY STAR - Copiers	ENERGY STAR Copiers	Standard Copier	per installation	New	66	6	\$140	95%	45%	\$0.52	12
Washington	Small Office	Other Office Equipment	ENERGY STAR - Fax	ENERGY STAR Fax	Standard Fax	per installation	New	70	6	\$0.88	95%	45%	\$0.00	13
Washington	Small Office	Other Office Equipment	ENERGY STAR - Monitors	ENERGY STAR Features Enabled	Non-ENERGY STAR Features	per installation	New	13	5	\$14	64%	15%	\$0.30	4
Washington	Small Office	Other Office Equipment	ENERGY STAR - Printers	ENERGY STAR Printers	Standard Printers	per installation	New	123	6	\$13	95%	40%	\$0.03	17
Washington	Small Office	Other Office Equipment	ENERGY STAR - Scanners	ENERGY STAR Scanners	Standard Scanner	per installation	New	64	6	\$0.88	95%	45%	\$0.00	12
Washington	Small Office	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	per installation	Existing	6	7	\$1	20%	90%	\$0.05	1
Washington	Small Office	Other Plug Load	ENERGY STAR - Water Cooler	ENERGY STAR Water Cooler (Hot/Cold Water)	Non-ENERGY STAR Water Cooler	per installation	Existing	326	10	\$0.92	95%	75%	\$0.00	538
Washington	Small Office	Other Plug Load	Power Supply Transformer/Converter	80 Plus	85% efficient power supply (> 51W)	1 unit per 2,000 sqft	Existing	5	4	\$0.35	95%	86%	\$0.02	17
Washington	Small Office	Other Plug Load	Residential Refrigerator	ENERGY STAR	Federal Standard	per installation	Existing	72	12	\$107	19%	65%	\$0.22	31
Washington	Small Office	Other Plug Load	Residential Refrigerator/Freezer Recycling	Recycling Existing Refrigerator/Freezer	Existing Refrigerator/Freezer	per installation	Existing	857	4	\$494	25%	35%	\$0.20	75
Washington	Small Office	Other Plug Load	Server Virtualization	Server Virtualization	No Virtualization	number of virtualized servers	Existing	2,036	4	\$1,826	72%	85%	\$0.68	708
Washington	Small Office	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	1 unit per 500 sqft	Existing	90	5	\$17	60%	90%	\$0.06	772
Washington	Small Office	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	per installation	New	6	7	\$1	20%	90%	\$0.05	0.15
Washington	Small Office	Other Plug Load	ENERGY STAR - Water Cooler	ENERGY STAR Water Cooler (Hot/Cold Water)	Non-ENERGY STAR Water Cooler	per installation	New	326	10	\$0.92	95%	75%	\$0.00	74
Washington	Small Office	Other Plug Load	Power Supply Transformer/Converter	80 Plus	85% efficient power supply (> 51W)	1 unit per 2,000 sqft	New	5	4	\$0.35	95%	86%	\$0.02	2
Washington	Small Office	Other Plug Load	Residential Refrigerator	ENERGY STAR	Federal Standard	per installation	New	72	12	\$107	19%	65%	\$0.22	4
Washington	Small Office	Other Plug Load	Server Virtualization	Server Virtualization	No Virtualization	number of virtualized servers	New	2,036	4	\$1,826	72%	85%	\$0.68	98
Washington	Small Office	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	1 unit per 500 sqft	New	90	5	\$17	60%	90%	\$0.06	107
Washington	Small Office	Space Heat	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	Existing	0.11	18	\$0.19	45%	65%	\$0.20	41
Washington	Small Office	Space Heat	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	Existing	0.69	14	\$1	5%	94%	\$0.30	39
Washington	Small Office	Space Heat	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	4	13	\$0.27	40%	39%	\$0.01	137
Washington	Small Office	Space Heat	Insulation - Ceiling	R-38 (WA State Code)	R-11 (Average Existing Conditions)	per roof sqft	Existing	0.84	25	\$0.89	75%	69%	\$0.11	592
Washington	Small Office	Space Heat	Insulation - Ceiling	R-49	R-38 (WA State Code)	per roof sqft	Existing	0.10	25	\$0.23	25%	85%	\$0.23	26
Washington	Small Office	Space Heat	Insulation - Duct	R-7 (WA State Code)	No Insulation	per surface area of duct insul	Existing	2	20	\$1	75%	60%	\$0.09	120
Washington	Small Office	Space Heat	Insulation - Floor (non-slab)	R-30 (WA State Code)	R-11 (Average Existing Conditions)	per floor area	Existing	1	25	\$0.81	35%	84%	\$0.07	498
Washington	Small Office	Space Heat	Insulation - Floor (non-slab)	R-38	R-30 (WA State Code)	per floor area	Existing	0.20	25	\$0.26	35%	90%	\$0.13	80

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Washington	Small Office	Space Heat	Insulation - Wall	R-13 + 7.5 (WA State Code)	R-3 (Average Existing Conditions)	per floor area	Existing	2	25	\$1	10%	75%	\$0.08	156
Washington	Small Office	Space Heat	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	Existing	38	30	\$5	50%	95%	\$0.01	872
Washington	Small Office	Space Heat	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	Existing	309	10	\$119	95%	27%	\$0.06	54
Washington	Small Office	Space Heat	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	0.57	7	\$0.16	90%	85%	\$0.06	755
Washington	Small Office	Space Heat	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	New	0.05	18	\$0.19	45%	65%	\$0.42	3
Washington	Small Office	Space Heat	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	New	0.33	14	\$1	5%	94%	\$0.63	3
Washington	Small Office	Space Heat	Insulation - Ceiling	R-49	R-38 (WA State Code)	per roof sqft	New	0.04	25	\$0.23	75%	85%	\$0.48	7
Washington	Small Office	Space Heat	Insulation - Floor (non-slab)	R-38	R-30 (WA State Code)	per floor area	New	0.09	25	\$0.26	35%	90%	\$0.27	7
Washington	Small Office	Space Heat	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	New	18	30	\$5	50%	95%	\$0.03	58
Washington	Small Office	Space Heat	Natural Ventilation	Natural Ventilation Design Reduction in Cooling	None - Standard Ventilation	per building sqft	New	0.22	15	\$0.85	20%	75%	\$0.50	7
Washington	Small Office	Space Heat	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	New	147	10	\$119	95%	13%	\$0.14	2
Washington	Small Office	Water Heat	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	per building sqft	Existing	0.02	10	\$0.23	55%	80%	\$1.89	44
Washington	Small Office	Water Heat	Dishwasher Residential	ENERGY STAR <= 324 kWh/yr, <= 5.8 gal/cycle	Federal Standard <= 355 kWh/yr, <= 6.5 gal/cycle	per installation	Existing	27	11	\$27	95%	25%	\$0.09	15
Washington	Small Office	Water Heat	Electric Water Heater - High Efficiency	EF = 0.95	EF = 0.92	Per installation	Existing	28	15	\$57	100%	N/A	\$0.26	8
Washington	Small Office	Water Heat	Heat Pump Water Heater - Advanced-Efficiency	EF = 2.2	EF = 0.92	Per installation	Existing	523	15	\$1,108	75%	N/A	\$0.27	539
Washington	Small Office	Water Heat	Hot Water (SHW) Pipe Insulation	1.0" of Insulation, assuming R-4 (WA State Code)	No Insulation	per linear foot	Existing	1	12	\$2	80%	30%	\$0.32	5
Washington	Small Office	Water Heat	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	per installation	Existing	14	9	\$0.10	95%	25%	-\$0.08	16
Washington	Small Office	Water Heat	Low-Flow Faucet Aerators	2.2 GPM (Federal Code)	3.0 GPM	per installation	Existing	12	9	\$2	95%	25%	-\$0.05	13
Washington	Small Office	Water Heat	Water Heater Temperature Setback	Water Heater Temperature Setback (120 F)	No Change in Water Temperature	per installation	Existing	71	5	\$83	75%	40%	\$0.33	48
Washington	Small Office	Water Heat	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	per building sqft	New	0.02	10	\$0.23	55%	80%	\$1.97	6
Washington	Small Office	Water Heat	Dishwasher Residential	ENERGY STAR <= 324 kWh/yr, <= 5.8 gal/cycle	Federal Standard <= 355 kWh/yr, <= 6.5 gal/cycle	per installation	New	28	11	\$27	95%	55%	\$0.09	4
Washington	Small Office	Water Heat	Electric Water Heater - High Efficiency	EF = 0.95	EF = 0.92	Per installation	New	28	15	\$57	100%	N/A	\$0.26	1
Washington	Small Office	Water Heat	Heat Pump Water Heater - Advanced-Efficiency	EF = 2.2	EF = 0.92	Per installation	New	523	15	\$945	75%	N/A	\$0.23	62
Washington	Small Office	Water Heat	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	per installation	New	14	9	\$0.10	95%	25%	-\$0.08	2
Washington	Small Office	Water Heat	Water Heater Temperature Setback	Water Heater Temperature Setback (120 F)	No Change in Water Temperature	per installation	New	69	5	\$83	75%	40%	\$0.34	6
Washington	Small Retail	Computers	Computer ENERGY STAR	Computer ENERGY STAR	Computer standard non-ENERGY STAR	Per installation	Existing	133	4	\$28	100%	N/A	\$0.07	377
Washington	Small Retail	Computers	Computer ENERGY STAR	Computer ENERGY STAR	Computer standard non-ENERGY STAR	Per installation	New	133	4	\$28	100%	N/A	\$0.07	10
Washington	Small Retail	Cooling Dx Evap	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	Existing	0.22	15	\$0.68	80%	98%	\$0.39	144
Washington	Small Retail	Cooling Dx Evap	DX Package 65 to 135 kBTU/hr - High Efficiency	DX Package 65 to 135 kBTU/hr - High Efficiency - 11.5 EER	DX Package 65 to 135 kBTU/hr - Standard Efficiency - 11.2 EER	Per installation	Existing	244	15	\$408	100%	N/A	\$0.22	2

Table C.2.2. Commercial Measure Details

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Washington	Small Retail	Cooling Dx Evap	DX Package 65 to 135 kBtu/hr - Premium Efficiency	DX Package 65 to 135 kBtu/hr - Premium Efficiency - 12.0 EER	DX Package 65 to 135 kBtu/hr - Standard Efficiency - 11.2 EER	Per installation	Existing	672	15	\$821	100%	N/A	\$0.16	90
Washington	Small Retail	Cooling Dx Evap	DX Package-Air Side Economizer	Air-Side Economizer	No Economizer	per DX ton	Existing	68	10	\$164	10%	80%	\$0.40	22
Washington	Small Retail	Cooling Dx Evap	DX Tune-Up / Diagnostics	DX Tune-Up / Diagnostics	No DX Tune-Up / Diagnostics	per installation	Existing	342	4	\$325	95%	72%	\$0.37	150
Washington	Small Retail	Cooling Dx Evap	Direct / Indirect Evaporative Cooling, Pre-Cooling	Evaporative Cooler	Standard DX cooling	per building CFM	Existing	0.57	15	\$1	50%	94%	\$0.45	220
Washington	Small Retail	Cooling Dx Evap	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	Existing	0.05	18	\$0.22	45%	65%	\$0.45	12
Washington	Small Retail	Cooling Dx Evap	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	Existing	0.22	40	\$9	4%	98%	\$3.76	0.54
Washington	Small Retail	Cooling Dx Evap	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	1	13	\$0.30	10%	39%	\$0.03	5
Washington	Small Retail	Cooling Dx Evap	Insulation - Ceiling	R-38 (WA State Code)	R-7 (Average Existing Conditions)	per roof sqft	Existing	0.01	25	\$0.99	75%	62%	\$9.80	3
Washington	Small Retail	Cooling Dx Evap	Insulation - Duct	R-7 (WA State Code)	No Insulation	per surface area of duct insul	Existing	1	20	\$2	75%	59%	\$0.20	41
Washington	Small Retail	Cooling Dx Evap	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	Existing	13	30	\$5	50%	95%	\$0.04	194
Washington	Small Retail	Cooling Dx Evap	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	Existing	205	10	\$133	95%	29%	\$0.11	20
Washington	Small Retail	Cooling Dx Evap	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	0.28	7	\$0.17	90%	85%	\$0.13	236
Washington	Small Retail	Cooling Dx Evap	Window Film	Window Film	No Film	per 100 sqft of window glazing	Existing	1	10	\$146	90%	66%	\$12.64	0.65
Washington	Small Retail	Cooling Dx Evap	Windows-High Efficiency	U-0.32	U-0.40 (WA State Code)	per window sqft	Existing	3	25	\$29	15%	90%	\$0.86	27
Washington	Small Retail	Cooling Dx Evap	Windows-High Efficiency	U-0.40 (WA State Code)	U-0.68 (Average Existing Conditions)	per window sqft	Existing	2	25	\$62	15%	69%	\$2.16	17
Washington	Small Retail	Cooling Dx Evap	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	New	0.15	15	\$0.68	80%	98%	\$0.57	17
Washington	Small Retail	Cooling Dx Evap	DX Package 65 to 135 kBtu/hr - High Efficiency	DX Package 65 to 135 kBtu/hr - High Efficiency - 11.5 EER	DX Package 65 to 135 kBtu/hr - Standard Efficiency - 11.2 EER	Per installation	New	182	15	\$327	100%	N/A	\$0.23	0.27
Washington	Small Retail	Cooling Dx Evap	DX Package 65 to 135 kBtu/hr - Premium Efficiency	DX Package 65 to 135 kBtu/hr - Premium Efficiency - 12.0 EER	DX Package 65 to 135 kBtu/hr - Standard Efficiency - 11.2 EER	Per installation	New	491	15	\$657	100%	N/A	\$0.17	9
Washington	Small Retail	Cooling Dx Evap	Direct / Indirect Evaporative Cooling, Pre-Cooling	Evaporative Cooler	Standard DX cooling	per building CFM	New	0.38	15	\$1	50%	94%	\$0.67	26
Washington	Small Retail	Cooling Dx Evap	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	New	0.03	18	\$0.22	45%	65%	\$0.67	1
Washington	Small Retail	Cooling Dx Evap	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	New	0.15	40	\$9	4%	98%	\$5.58	0.06
Washington	Small Retail	Cooling Dx Evap	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	New	9	30	\$5	50%	95%	\$0.06	19
Washington	Small Retail	Cooling Dx Evap	Natural Ventilation	Natural Ventilation Design Reduction in Cooling	None - Standard Ventilation	per building sqft	New	0.15	15	\$0.95	20%	75%	\$0.80	3
Washington	Small Retail	Cooling Dx Evap	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	New	138	10	\$133	95%	15%	\$0.16	1
Washington	Small Retail	Cooling Dx Evap	Windows-High Efficiency	U-0.32	U-0.40 (WA State Code)	per window sqft	New	2	25	\$29	80%	90%	\$1.27	17

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Washington	Small Retail	Cooling Room	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	Existing	0.29	15	\$0.68	80%	98%	\$0.30	36
Washington	Small Retail	Cooling Room	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	Existing	0.29	40	\$9	4%	98%	\$2.92	0.16
Washington	Small Retail	Cooling Room	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	1	13	\$0.30	10%	39%	\$0.03	0.98
Washington	Small Retail	Cooling Room	Insulation - Ceiling	R-38 (WA State Code)	R-7 (Average Existing Conditions)	per roof sqft	Existing	0.01	25	\$0.99	75%	62%	\$7.60	1
Washington	Small Retail	Cooling Room	PTAC (10,000 BTU/HR) - Premium-Efficiency	11.4 EER	Room AC (10,000 BTU/HR) Standard-Efficiency 9.8 EER	Per installation	Existing	1,384	15	\$19,536	75%	N/A	\$1.83	53
Washington	Small Retail	Cooling Room	Room AC (10,000 BTU/HR) High-Efficiency	High Efficiency 10.8 EER (ENERGY STAR)	Room AC (10,000 BTU/HR) Standard-Efficiency 9.8 EER	Per installation	Existing	845	9	\$900	100%	N/A	\$0.19	9
Washington	Small Retail	Cooling Room	Window Film	Window Film	No Film	per 100 sqft of window glazing	Existing	0.09	10	\$146	90%	66%	\$252.22	0.00
Washington	Small Retail	Cooling Room	Windows-High Efficiency	U-0.32	U-0.40 (WA State Code)	per window sqft	Existing	4	25	\$29	15%	90%	\$0.67	8
Washington	Small Retail	Cooling Room	Windows-High Efficiency	U-0.40 (WA State Code)	U-0.68 (Average Existing Conditions)	per window sqft	Existing	3	25	\$62	15%	69%	\$1.67	5
Washington	Small Retail	Cooling Room	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	New	0.20	15	\$0.68	80%	98%	\$0.42	3
Washington	Small Retail	Cooling Room	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	New	0.20	40	\$9	4%	98%	\$4.14	0.01
Washington	Small Retail	Cooling Room	Natural Ventilation	Natural Ventilation Design Reduction in Cooling	None - Standard Ventilation	per building sqft	New	0.20	15	\$0.95	20%	75%	\$0.59	0.73
Washington	Small Retail	Cooling Room	PTAC (10,000 BTU/HR) - Premium-Efficiency	11.4 EER	Room AC (10,000 BTU/HR) Standard-Efficiency 9.8 EER	Per installation	New	1,009	15	\$13,908	75%	N/A	\$1.78	2
Washington	Small Retail	Cooling Room	Room AC (10,000 BTU/HR) High-Efficiency	High Efficiency 10.8 EER (ENERGY STAR)	Room AC (10,000 BTU/HR) Standard-Efficiency 9.8 EER	Per installation	New	620	9	\$720	100%	N/A	\$0.21	0.57
Washington	Small Retail	Cooling Room	Windows-High Efficiency	U-0.32	U-0.40 (WA State Code)	per window sqft	New	3	25	\$29	80%	90%	\$0.95	4
Washington	Small Retail	Heat Pump	Air Source Heat Pump 65 to 135 kBtu/hr - High Efficiency	11.5 EER, 3.4 COP	11.0 EER, 3.3 COP	Per installation	Existing	1,014	15	\$1,520	100%	N/A	\$0.19	1
Washington	Small Retail	Heat Pump	Air Source Heat Pump 65 to 135 kBtu/hr - Premium Efficiency	12.0 EER, 3.8 COP	11.0 EER, 3.3 COP	Per installation	Existing	2,027	15	\$3,040	100%	N/A	\$0.19	28
Washington	Small Retail	Heat Pump	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	Existing	0.26	15	\$0.68	80%	98%	\$0.33	11
Washington	Small Retail	Heat Pump	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	Existing	0.12	18	\$0.22	45%	65%	\$0.21	2
Washington	Small Retail	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	Existing	0.33	14	\$1	5%	94%	\$0.69	0.89
Washington	Small Retail	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	Existing	0.26	40	\$9	4%	98%	\$3.25	0.05
Washington	Small Retail	Heat Pump	Ground Source Heat Pump Replacing Air Source Heat Pump 65 to 135 kBtu/hr - Advanced Efficiency	16.2 EER 4.0 COP	11.0 EER, 3.3 COP	Per installation	Existing	4,047	30	\$80,283	5%	N/A	\$1.86	2
Washington	Small Retail	Heat Pump	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	3	13	\$0.30	10%	39%	\$0.01	1
Washington	Small Retail	Heat Pump	Insulation - Ceiling	R-38 (WA State Code)	R-7 (Average Existing Conditions)	per roof sqft	Existing	0.56	25	\$0.99	75%	62%	\$0.18	17
Washington	Small Retail	Heat Pump	Insulation - Ceiling	R-49	R-38 (WA State Code)	per roof sqft	Existing	0.02	25	\$0.25	25%	85%	\$1.22	0.25
Washington	Small Retail	Heat Pump	Insulation - Duct	R-7 (WA State Code)	No Insulation	per surface area of duct insul	Existing	2	20	\$2	75%	59%	\$0.09	5

Table C.2.2. Commercial Measure Details

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Washington	Small Retail	Heat Pump	Insulation - Floor (non-slab)	R-30 (WA State Code)	R-11 (Average Existing Conditions)	per floor area	Existing	0.25	25	\$0.90	35%	84%	\$0.37	4
Washington	Small Retail	Heat Pump	Insulation - Floor (non-slab)	R-38	R-30 (WA State Code)	per floor area	Existing	0.04	25	\$0.29	35%	90%	\$0.61	0.88
Washington	Small Retail	Heat Pump	Insulation - Wall	R-13 + 7.5 (WA State Code)	R-3 (Average Existing Conditions)	per floor area	Existing	0.60	25	\$2	10%	74%	\$0.36	1
Washington	Small Retail	Heat Pump	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	Existing	41	30	\$5	50%	95%	\$0.01	39
Washington	Small Retail	Heat Pump	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	Existing	439	10	\$133	95%	29%	\$0.05	2
Washington	Small Retail	Heat Pump	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	0.61	7	\$0.17	90%	85%	\$0.06	34
Washington	Small Retail	Heat Pump	Window Film	Window Film	No Film	per 100 sqft of window glazing	Existing	1	10	\$146	90%	66%	\$12.61	0.05
Washington	Small Retail	Heat Pump	Windows-High Efficiency	U-0.32	U-0.40 (WA State Code)	per window sqft	Existing	3	25	\$29	15%	90%	\$0.99	1
Washington	Small Retail	Heat Pump	Windows-High Efficiency	U-0.40 (WA State Code)	U-0.68 (Average Existing Conditions)	per window sqft	Existing	3	25	\$62	15%	69%	\$1.64	1
Washington	Small Retail	Heat Pump	Air Source Heat Pump 65 to 135 kBtu/hr - High Efficiency	11.5 EER, 3.4 COP	11.0 EER, 3.3 COP	Per installation	New	727	15	\$1,216	100%	N/A	\$0.22	0.15
Washington	Small Retail	Heat Pump	Air Source Heat Pump 65 to 135 kBtu/hr - Premium Efficiency	12.0 EER, 3.8 COP	11.0 EER, 3.3 COP	Per installation	New	1,384	15	\$2,432	100%	N/A	\$0.23	2
Washington	Small Retail	Heat Pump	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	New	0.18	15	\$0.68	80%	98%	\$0.48	1
Washington	Small Retail	Heat Pump	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	New	0.07	18	\$0.22	45%	65%	\$0.33	0.24
Washington	Small Retail	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	New	0.19	14	\$1	5%	94%	\$1.20	0.09
Washington	Small Retail	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	New	0.18	40	\$9	4%	98%	\$4.73	0.00
Washington	Small Retail	Heat Pump	Ground Source Heat Pump Replacing Air Source Heat Pump 65 to 135 kBtu/hr - Advanced Efficiency	16.2 EER 4.0 COP	11.0 EER, 3.3 COP	Per installation	New	2,820	30	\$41,517	5%	N/A	\$1.36	0.24
Washington	Small Retail	Heat Pump	Insulation - Ceiling	R-49	R-38 (WA State Code)	per roof sqft	New	0.01	25	\$0.25	75%	85%	\$2.35	0.06
Washington	Small Retail	Heat Pump	Insulation - Floor (non-slab)	R-38	R-30 (WA State Code)	per floor area	New	0.02	25	\$0.29	35%	90%	\$1.21	0.07
Washington	Small Retail	Heat Pump	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	New	26	30	\$5	50%	95%	\$0.02	3
Washington	Small Retail	Heat Pump	Natural Ventilation	Natural Ventilation Design Reduction in Cooling	None - Standard Ventilation	per building sqft	New	0.31	15	\$0.95	20%	75%	\$0.40	0.49
Washington	Small Retail	Heat Pump	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	New	279	10	\$133	95%	15%	\$0.08	0.13
Washington	Small Retail	Heat Pump	Windows-High Efficiency	U-0.32	U-0.40 (WA State Code)	per window sqft	New	2	25	\$29	80%	90%	\$1.37	1
Washington	Small Retail	Hvac Aux	Motor - CEE Premium-Efficiency Plus	CEE PE+ Motor for HVAC Applications	NEMA Efficiency Motors	per HP	Existing	29	15	\$6	95%	76%	\$0.03	80
Washington	Small Retail	Hvac Aux	Motor Rewind	>15, <500 HP	No Rewind	per HP	Existing	3	8	\$4	65%	25%	\$0.24	2
Washington	Small Retail	Hvac Aux	Motor - CEE Premium-Efficiency Plus	CEE PE+ Motor for HVAC Applications	NEMA Efficiency Motors	per HP	New	23	15	\$6	95%	76%	\$0.03	11
Washington	Small Retail	Lighting Exterior	Covered Parking Lighting	Covered Parking Lighting	Normal Lighting	per building sqft	Existing	0.09	10	\$0.02	80%	95%	\$0.05	330
Washington	Small Retail	Lighting Exterior	Daylighting Controls, Outdoors (Photocell)	Photocell	No Controls	per installation	Existing	33	8	\$27	75%	70%	\$0.16	53
Washington	Small Retail	Lighting Exterior	Exterior Building Lighting	30% savings	Normal Lighting	per installation	Existing	243	15	\$327	62%	90%	\$0.17	463
Washington	Small Retail	Lighting Exterior	Solid State LED White Lighting	Landscape, merchandise, signage, structure & task lighting (2.5 W)	50W 10hrs/day, 365 day/yr	per installation	Existing	3	14	\$34	75%	95%	\$1.31	8
Washington	Small Retail	Lighting Exterior	Surface Parking Lighting	Surface Parking Lighting	Normal Lighting	per building sqft	Existing	0.05	19	\$0.06	62%	95%	\$0.16	138

Table C.2.2. Commercial Measure Details

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Washington	Small Retail	Lighting Exterior	Covered Parking Lighting	Covered Parking Lighting	Normal Lighting	per building sqft	New	0.09	10	\$0.02	80%	95%	\$0.05	45
Washington	Small Retail	Lighting Exterior	Daylighting Controls, Outdoors (Photocell)	Photocell	No Controls	per installation	New	33	8	\$27	75%	70%	\$0.16	7
Washington	Small Retail	Lighting Exterior	Exterior Building Lighting	30% savings	Normal Lighting	per installation	New	243	15	\$327	62%	90%	\$0.17	64
Washington	Small Retail	Lighting Exterior	Solid State LED White Lighting	Landscape, merchandise, signage, structure & task lighting (2.5 W)	50W 10hrs/day, 365 day/yr	per installation	New	3	14	\$34	75%	95%	\$1.31	1
Washington	Small Retail	Lighting Exterior	Surface Parking Lighting	Surface Parking Lighting	Normal Lighting	per building sqft	New	0.05	19	\$0.06	62%	95%	\$0.16	19
Washington	Small Retail	Lighting Interior	Cold Cathode Lighting	Cold Cathode Lighting 5 watts	30 W Incandescent Bulb	per installation	Existing	617	5	\$12	15%	94%	\$0.01	124
Washington	Small Retail	Lighting Interior	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	Existing	0.35	8	\$0.95	30%	84%	\$0.53	39
Washington	Small Retail	Lighting Interior	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	Existing	0.26	8	\$0.71	30%	84%	\$0.53	29
Washington	Small Retail	Lighting Interior	Exit Sign - LED	LED Exit Sign (2 Watts)	CFL Exit Sign (9 Watts)	per installation	Existing	96	16	\$16	95%	50%	\$0.02	148
Washington	Small Retail	Lighting Interior	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign (2 Watts)	per installation	Existing	17	13	\$30	95%	98%	\$0.24	17
Washington	Small Retail	Lighting Interior	Lighting Package, High Efficiency	15% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	Existing	0.73	13	\$0.08	90%	53%	\$0.02	1,221
Washington	Small Retail	Lighting Interior	Lighting Package, High Efficiency	Code Required LPD And Control Strategies	Existing Lighting Design LPD	per building sqft	Existing	1	13	\$0.80	90%	39%	\$0.06	2,792
Washington	Small Retail	Lighting Interior	Lighting Package, Premium Efficiency	25% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	Existing	1	13	\$0.47	75%	62%	\$0.05	491
Washington	Small Retail	Lighting Interior	Lighting Package, Premium High Bay	35% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	Existing	0.27	13	\$0.15	70%	83%	\$0.08	698
Washington	Small Retail	Lighting Interior	Occupancy Sensor Control, Fluorescent	Occupancy Sensor Control, Fluorescent	No Occupancy Sensor	per occupancy sensor	Existing	1,185	8	\$68	45%	55%	\$0.01	100
Washington	Small Retail	Lighting Interior	Time Clock	Time Clock	No Controls	per 10,000 Watts	Existing	753	8	\$195	20%	86%	\$0.05	68
Washington	Small Retail	Lighting Interior	Cold Cathode Lighting	Cold Cathode Lighting 5 watts	30 W Incandescent Bulb	per installation	New	472	5	\$12	15%	94%	\$0.01	13
Washington	Small Retail	Lighting Interior	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	New	0.26	8	\$0.95	30%	84%	\$0.69	4
Washington	Small Retail	Lighting Interior	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	New	0.20	8	\$0.71	30%	84%	\$0.69	3
Washington	Small Retail	Lighting Interior	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign (2 Watts)	per installation	New	17	13	\$30	95%	98%	\$0.24	9
Washington	Small Retail	Lighting Interior	Lighting Package, High Efficiency	15% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	New	0.73	15	\$0.03	90%	53%	\$0.01	169
Washington	Small Retail	Lighting Interior	Lighting Package, Premium Efficiency	25% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	New	1	15	\$0.21	75%	62%	\$0.02	68
Washington	Small Retail	Lighting Interior	Lighting Package, Premium High Bay	35% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	New	0.27	15	\$0.03	70%	83%	\$0.02	97
Washington	Small Retail	Lighting Interior	Occupancy Sensor Control, Fluorescent	Occupancy Sensor Control, Fluorescent	No Occupancy Sensor	per occupancy sensor	New	907	8	\$68	45%	55%	\$0.01	11
Washington	Small Retail	Lighting Interior	Time Clock	Time Clock	No Controls	per 10,000 Watts	New	753	8	\$195	20%	86%	\$0.05	7
Washington	Small Retail	Other Office Equipment	ENERGY STAR - Copiers	ENERGY STAR Copiers	Standard Copier	per installation	Existing	73	6	\$156	95%	45%	\$0.52	9
Washington	Small Retail	Other Office Equipment	ENERGY STAR - Fax	ENERGY STAR Fax	Standard Fax	per installation	Existing	78	6	\$1	95%	45%	\$0.00	10
Washington	Small Retail	Other Office Equipment	ENERGY STAR - Monitors	ENERGY STAR Features Enabled	Non-ENERGY STAR Features	per installation	Existing	15	5	\$16	64%	15%	\$0.30	4
Washington	Small Retail	Other Office Equipment	ENERGY STAR - Printers	ENERGY STAR Printers	Standard Printers	per installation	Existing	137	6	\$15	95%	40%	\$0.03	60
Washington	Small Retail	Other Office Equipment	ENERGY STAR - Scanners	ENERGY STAR Scanners	Standard Scanner	per installation	Existing	71	6	\$1	95%	45%	\$0.01	9

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Washington	Small Retail	Other Office Equipment	ENERGY STAR - Copiers	ENERGY STAR Copiers	Standard Copier	per installation	New	73	6	\$156	95%	45%	\$0.52	1
Washington	Small Retail	Other Office Equipment	ENERGY STAR - Fax	ENERGY STAR Fax	Standard Fax	per installation	New	78	6	\$1	95%	45%	\$0.00	1
Washington	Small Retail	Other Office Equipment	ENERGY STAR - Monitors	ENERGY STAR Features Enabled	Non-ENERGY STAR Features	per installation	New	15	5	\$16	64%	15%	\$0.30	0.61
Washington	Small Retail	Other Office Equipment	ENERGY STAR - Printers	ENERGY STAR Printers	Standard Printers	per installation	New	137	6	\$15	95%	40%	\$0.03	8
Washington	Small Retail	Other Office Equipment	ENERGY STAR - Scanners	ENERGY STAR Scanners	Standard Scanner	per installation	New	71	6	\$1	95%	45%	\$0.01	1
Washington	Small Retail	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	per installation	Existing	7	7	\$2	20%	90%	\$0.06	0.58
Washington	Small Retail	Other Plug Load	ENERGY STAR - Water Cooler	ENERGY STAR Water Cooler (Hot/Cold Water)	Non-ENERGY STAR Water Cooler	per installation	Existing	363	10	\$0.00	95%	75%	\$0.00	59
Washington	Small Retail	Other Plug Load	Power Supply Transformer/Converter	80 Plus	85% efficient power supply (> 51W)	1 unit per 2,000 sqft	Existing	4	4	\$0.40	95%	86%	\$0.03	9
Washington	Small Retail	Other Plug Load	Residential Refrigerator	ENERGY STAR	Federal Standard	per installation	Existing	80	12	\$120	3%	65%	\$0.22	2
Washington	Small Retail	Other Plug Load	Residential Refrigerator/Freezer Recycling	Recycling Existing Refrigerator/Freezer	Existing Refrigerator/Freezer	per installation	Existing	952	4	\$549	25%	35%	\$0.20	36
Washington	Small Retail	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	1 unit per 5,000 sqft	Existing	100	5	\$20	60%	90%	\$0.06	50
Washington	Small Retail	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	per installation	New	7	7	\$2	20%	90%	\$0.06	0.08
Washington	Small Retail	Other Plug Load	ENERGY STAR - Water Cooler	ENERGY STAR Water Cooler (Hot/Cold Water)	Non-ENERGY STAR Water Cooler	per installation	New	363	10	\$0.00	95%	75%	\$0.00	8
Washington	Small Retail	Other Plug Load	Power Supply Transformer/Converter	80 Plus	85% efficient power supply (> 51W)	1 unit per 2,000 sqft	New	4	4	\$0.40	95%	86%	\$0.03	1
Washington	Small Retail	Other Plug Load	Residential Refrigerator	ENERGY STAR	Federal Standard	per installation	New	80	12	\$120	3%	65%	\$0.22	0.30
Washington	Small Retail	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	1 unit per 5,000 sqft	New	100	5	\$20	60%	90%	\$0.06	6
Washington	Small Retail	Space Heat	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	Existing	0.09	18	\$0.22	45%	65%	\$0.29	17
Washington	Small Retail	Space Heat	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	Existing	0.54	14	\$1	5%	94%	\$0.43	16
Washington	Small Retail	Space Heat	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	4	13	\$0.30	10%	39%	\$0.01	14
Washington	Small Retail	Space Heat	Insulation - Ceiling	R-38 (WA State Code)	R-7 (Average Existing Conditions)	per roof sqft	Existing	0.90	25	\$0.99	75%	62%	\$0.11	331
Washington	Small Retail	Space Heat	Insulation - Ceiling	R-49	R-38 (WA State Code)	per roof sqft	Existing	0.08	25	\$0.25	25%	85%	\$0.33	11
Washington	Small Retail	Space Heat	Insulation - Duct	R-7 (WA State Code)	No Insulation	per surface area of duct insul	Existing	1	20	\$2	75%	59%	\$0.13	46
Washington	Small Retail	Space Heat	Insulation - Floor (non-slab)	R-30 (WA State Code)	R-11 (Average Existing Conditions)	per floor area	Existing	0.86	25	\$0.90	35%	84%	\$0.11	215
Washington	Small Retail	Space Heat	Insulation - Floor (non-slab)	R-38	R-30 (WA State Code)	per floor area	Existing	0.16	25	\$0.29	35%	90%	\$0.18	34
Washington	Small Retail	Space Heat	Insulation - Wall	R-13 + 7.5 (WA State Code)	R-3 (Average Existing Conditions)	per floor area	Existing	2	25	\$2	10%	74%	\$0.10	73
Washington	Small Retail	Space Heat	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	Existing	30	30	\$5	50%	95%	\$0.02	386
Washington	Small Retail	Space Heat	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	Existing	324	10	\$133	95%	29%	\$0.07	29
Washington	Small Retail	Space Heat	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	0.45	7	\$0.17	90%	85%	\$0.09	332
Washington	Small Retail	Space Heat	Windows-High Efficiency	U-0.40 (WA State Code)	U-0.68 (Average Existing Conditions)	per window sqft	Existing	0.68	25	\$62	15%	69%	\$9.37	3
Washington	Small Retail	Space Heat	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	New	0.05	18	\$0.22	45%	65%	\$0.51	1
Washington	Small Retail	Space Heat	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	New	0.30	14	\$1	5%	94%	\$0.76	1

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Washington	Small Retail	Space Heat	Insulation - Ceiling	R-49	R-38 (WA State Code)	per roof sqft	New	0.04	25	\$0.25	75%	85%	\$0.58	3
Washington	Small Retail	Space Heat	Insulation - Floor (non-slab)	R-38	R-30 (WA State Code)	per floor area	New	0.09	25	\$0.29	35%	90%	\$0.33	3
Washington	Small Retail	Space Heat	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	New	17	30	\$5	50%	95%	\$0.03	30
Washington	Small Retail	Space Heat	Natural Ventilation	Natural Ventilation Design Reduction in Cooling	None - Standard Ventilation	per building sqft	New	0.20	15	\$0.95	20%	75%	\$0.61	3
Washington	Small Retail	Space Heat	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	New	182	10	\$133	95%	15%	\$0.12	1
Washington	Small Retail	Water Heat	Clothes Washer Commercial	ENERGY STAR Commercial Clothes Washer MEF=1.80	Standard Clothes Washers	per installation	Existing	545	11	\$123	95%	80%	\$-0.26	8
Washington	Small Retail	Water Heat	Clothes Washer Residential	Energy Star - CEE Tier 1 (MEF 2.0 - 2.19) - Electric DHW & Dryer	MEF = 1.66 - Electric DHW & Dryer (NWPPC 6th Plan Average Efficiency)	per installation	Existing	133	11	\$300	85%	94%	\$0.06	2
Washington	Small Retail	Water Heat	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	per building sqft	Existing	0.01	10	\$0.26	75%	94%	\$3.05	28
Washington	Small Retail	Water Heat	Dishwasher Residential	ENERGY STAR <= 324 kWh/yr, <= 5.8 gal/cycle	Federal Standard <= 355 kWh/yr, <= 6.5 gal/cycle	per installation	Existing	31	11	\$30	95%	25%	\$0.09	7
Washington	Small Retail	Water Heat	Electric Water Heater - High Efficiency	EF = 0.95	EF = 0.92	Per installation	Existing	27	15	\$63	100%	N/A	\$0.30	3
Washington	Small Retail	Water Heat	Heat Pump Water Heater - Advanced-Efficiency	EF = 2.2	EF = 0.92	Per installation	Existing	506	15	\$1,233	75%	N/A	\$0.32	216
Washington	Small Retail	Water Heat	Hot Water (SHW) Pipe Insulation	1.0" of Insulation, assuming R-4 (WA State Code)	No Insulation	per linear foot	Existing	1	12	\$2	80%	90%	\$0.39	6
Washington	Small Retail	Water Heat	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	per installation	Existing	13	9	\$0.00	95%	25%	\$-0.08	6
Washington	Small Retail	Water Heat	Low-Flow Faucet Aerators	2.2 GPM (Federal Code)	3.0 GPM	per installation	Existing	11	9	\$2	95%	25%	\$-0.04	5
Washington	Small Retail	Water Heat	Water Heater Temperature Setback	Water Heater Temperature Setback (120 F)	No Change in Water Temperature	per installation	Existing	66	5	\$92	75%	45%	\$0.39	21
Washington	Small Retail	Water Heat	Clothes Washer Commercial	ENERGY STAR Commercial Clothes Washer MEF=1.80	Standard Clothes Washers	per installation	New	545	11	\$123	95%	80%	\$-0.26	1
Washington	Small Retail	Water Heat	Clothes Washer Residential	Energy Star - CEE Tier 1 (MEF 2.0 - 2.19) - Electric DHW & Dryer	MEF = 1.66 - Electric DHW & Dryer (NWPPC 6th Plan Average Efficiency)	per installation	New	133	11	\$300	85%	94%	\$0.06	0.28
Washington	Small Retail	Water Heat	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	per building sqft	New	0.01	10	\$0.26	75%	94%	\$3.16	3
Washington	Small Retail	Water Heat	Dishwasher Residential	ENERGY STAR <= 324 kWh/yr, <= 5.8 gal/cycle	Federal Standard <= 355 kWh/yr, <= 6.5 gal/cycle	per installation	New	31	11	\$30	95%	55%	\$0.09	2
Washington	Small Retail	Water Heat	Electric Water Heater - High Efficiency	EF = 0.95	EF = 0.92	Per installation	New	26	15	\$63	100%	N/A	\$0.31	0.48
Washington	Small Retail	Water Heat	Heat Pump Water Heater - Advanced-Efficiency	EF = 2.2	EF = 0.92	Per installation	New	488	15	\$1,051	75%	N/A	\$0.28	24
Washington	Small Retail	Water Heat	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	per installation	New	13	9	\$0.00	95%	25%	\$-0.08	0.88
Washington	Small Retail	Water Heat	Water Heater Temperature Setback	Water Heater Temperature Setback (120 F)	No Change in Water Temperature	per installation	New	64	5	\$92	75%	45%	\$0.41	2
Washington	Warehouse	Computers	Computer ENERGY STAR	Computer ENERGY STAR	Computer standard non-ENERGY STAR	Per installation	Existing	133	4	\$28	100%	N/A	\$0.07	11
Washington	Warehouse	Computers	Computer ENERGY STAR	Computer ENERGY STAR	Computer standard non-ENERGY STAR	Per installation	New	133	4	\$28	100%	N/A	\$0.07	0.33
Washington	Warehouse	Cooling Chillers	Chilled Water / Condenser Water Settings-Optimization	Additional Control Features	EMS already installed - No Optimization	1 control point per 1000 sqft	Existing	3	5	\$160	95%	81%	\$11.70	0.04
Washington	Warehouse	Cooling Chillers	Chilled Water Piping Loop w/ VSD Control	VSD for secondary chilled water loop	Primary loop only w/ constant speed pump	per chiller ton	Existing	8	10	\$204	25%	70%	\$4.04	0.07
Washington	Warehouse	Cooling Chillers	Chiller-Water Side Economizer	Install Economizer	No Economizer	per chiller ton	Existing	5	15	\$469	45%	90%	\$10.86	0.10
Washington	Warehouse	Cooling Chillers	Chillers <150 tons (screw) - Advanced Efficiency	0.58 kW/ton (full load)	0.790 kW/Ton (full load)	Per installation	Existing	666	20	\$4,393	100%	N/A	\$0.74	0.75
Washington	Warehouse	Cooling Chillers	Chillers <150 tons (screw) - High Efficiency	0.71 kW/ton (full load)	0.790 kW/Ton (full load)	Per installation	Existing	222	20	\$1,464	100%	N/A	\$0.74	0.00

Table C.2.2. Commercial Measure Details

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Washington	Warehouse	Cooling Chillers	Chillers <150 tons (screw) - Premium Efficiency	0.63 kW/ton	0.790 kW/Ton (full load)	Per installation	Existing	481	20	\$3,266	100%	N/A	\$0.76	0.05
Washington	Warehouse	Cooling Chillers	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	Existing	0.03	15	\$0.68	80%	98%	\$2.83	0.40
Washington	Warehouse	Cooling Chillers	Cooling Tower-Decrease Approach Temperature	6 Deg F	10 Deg F	per chiller ton	Existing	8	8	\$26	10%	94%	\$0.60	0.05
Washington	Warehouse	Cooling Chillers	Cooling Tower-Two-Speed Fan Motor	Cooling Tower-Two-Speed Fan Motor	Cooling Tower-One-Speed Fan Motor	per chiller ton	Existing	15	15	\$2	95%	35%	\$0.02	0.35
Washington	Warehouse	Cooling Chillers	Cooling Tower-VSD Fan Control	Variable-Speed Tower Fans replace Two-Speed	Cooling Tower-Two-Speed Fan Motor	per chiller ton	Existing	4	13	\$19	95%	75%	\$0.60	0.20
Washington	Warehouse	Cooling Chillers	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	Existing	31	15	\$166	75%	76%	\$0.69	0.39
Washington	Warehouse	Cooling Chillers	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	Existing	0.03	40	\$9	4%	98%	\$27.68	0.00
Washington	Warehouse	Cooling Chillers	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	0.23	13	\$0.31	10%	39%	\$0.19	0.00
Washington	Warehouse	Cooling Chillers	Insulation - Ceiling	R-38 (WA State Code)	R-8 (Average Existing Conditions)	per roof sqft	Existing	0.00	25	\$0.99	75%	61%	\$72.10	0.01
Washington	Warehouse	Cooling Chillers	Pipe Insulation	1.5" of Insulation, assuming R-6 (WA State Code)	No Insulation	per linear feet of insulation	Existing	0.93	15	\$3	65%	45%	\$0.52	0.03
Washington	Warehouse	Cooling Chillers	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	0.03	7	\$0.17	90%	85%	\$0.99	0.62
Washington	Warehouse	Cooling Chillers	Window Film	Window Film	No Film	per 100 sqft of window glazing	Existing	0.60	10	\$146	90%	66%	\$40.57	0.00
Washington	Warehouse	Cooling Chillers	Windows-High Efficiency	U-0.32	U-0.40 (WA State Code)	per window sqft	Existing	1	25	\$29	15%	90%	\$1.59	0.10
Washington	Warehouse	Cooling Chillers	Windows-High Efficiency	U-0.40 (WA State Code)	U-0.65 (Average Existing Conditions)	per window sqft	Existing	1	25	\$62	15%	70%	\$3.88	0.06
Washington	Warehouse	Cooling Chillers	Chilled Water / Condenser Water Settings-Optimization	Additional Control Features	EMS already installed - No Optimization	1 control point per 1000 sqft	New	2	5	\$160	95%	81%	\$16.40	0.00
Washington	Warehouse	Cooling Chillers	Chilled Water Piping Loop w/ VSD Control	VSD for secondary chilled water loop	Primary loop only w/ constant speed pump	per chiller ton	New	6	10	\$204	25%	70%	\$5.09	0.00
Washington	Warehouse	Cooling Chillers	Chillers <150 tons (screw) - Advanced Efficiency	0.58 kW/ton (full load)	0.790 kW/Ton (full load)	Per installation	New	560	20	\$3,953	100%	N/A	\$0.79	0.12
Washington	Warehouse	Cooling Chillers	Chillers <150 tons (screw) - High Efficiency	0.71 kW/ton (full load)	0.790 kW/Ton (full load)	Per installation	New	186	20	\$1,317	100%	N/A	\$0.79	0.00
Washington	Warehouse	Cooling Chillers	Chillers <150 tons (screw) - Premium Efficiency	0.63 kW/ton	0.790 kW/Ton (full load)	Per installation	New	405	20	\$2,939	100%	N/A	\$0.81	0.00
Washington	Warehouse	Cooling Chillers	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	New	0.02	15	\$0.68	80%	98%	\$3.97	0.04
Washington	Warehouse	Cooling Chillers	Cooling Tower-Decrease Approach Temperature	6 Deg F	10 Deg F	per chiller ton	New	7	8	\$26	10%	94%	\$0.76	0.00
Washington	Warehouse	Cooling Chillers	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	New	22	15	\$166	75%	76%	\$0.97	0.04
Washington	Warehouse	Cooling Chillers	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	New	0.02	40	\$9	4%	98%	\$38.80	0.00
Washington	Warehouse	Cooling Chillers	Natural Ventilation	Natural Ventilation Design Reduction in Cooling	None - Standard Ventilation	per building sqft	New	0.02	15	\$0.95	20%	75%	\$5.56	0.00
Washington	Warehouse	Cooling Chillers	Windows-High Efficiency	U-0.32	U-0.40 (WA State Code)	per window sqft	New	1	25	\$29	80%	90%	\$2.23	0.07

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Washington	Warehouse	Cooling Dx Evap	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	Existing	0.04	15	\$0.68	80%	98%	\$2.10	3
Washington	Warehouse	Cooling Dx Evap	DX Package 65 to 135 kBtu/hr - High Efficiency	DX Package 65 to 135 kBtu/hr - High Efficiency - 11.5 EER	DX Package 65 to 135 kBtu/hr - Standard Efficiency - 11.2 EER	Per installation	Existing	124	15	\$681	100%	N/A	\$0.71	0.06
Washington	Warehouse	Cooling Dx Evap	DX Package 65 to 135 kBtu/hr - Premium Efficiency	DX Package 65 to 135 kBtu/hr - Premium Efficiency - 12.0 EER	DX Package 65 to 135 kBtu/hr - Standard Efficiency - 11.2 EER	Per installation	Existing	386	15	\$1,370	100%	N/A	\$0.46	1
Washington	Warehouse	Cooling Dx Evap	DX Package-Air Side Economizer	Air-Side Economizer	No Economizer	per DX ton	Existing	25	10	\$164	10%	40%	\$1.09	0.27
Washington	Warehouse	Cooling Dx Evap	DX Tune-Up / Diagnostics	DX Tune-Up / Diagnostics	No DX Tune-Up / Diagnostics	per installation	Existing	125	4	\$325	95%	72%	\$1.00	3
Washington	Warehouse	Cooling Dx Evap	Direct / Indirect Evaporative Cooling, Pre-Cooling	Evaporative Cooler	Standard DX cooling	per building CFM	Existing	0.10	15	\$1	50%	94%	\$2.45	4
Washington	Warehouse	Cooling Dx Evap	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	Existing	41	15	\$166	75%	76%	\$0.51	3
Washington	Warehouse	Cooling Dx Evap	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	Existing	0.01	18	\$0.22	45%	65%	\$2.48	0.26
Washington	Warehouse	Cooling Dx Evap	Evaporative Cooler replaces DX Package 65 to 135 kBtu/hr - Advanced Efficiency	Evaporative Cooler replaces DX Package 65 to 135 kBtu/hr - Advanced Efficiency	DX Package 65 to 135 kBtu/hr - Standard Efficiency - 11.2 EER	Per installation	Existing	2,289	15	-\$13521	25%	N/A	-\$1.00	2
Washington	Warehouse	Cooling Dx Evap	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	Existing	0.04	40	\$9	4%	98%	\$20.54	0.01
Washington	Warehouse	Cooling Dx Evap	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	0.31	13	\$0.31	10%	39%	\$0.14	0.03
Washington	Warehouse	Cooling Dx Evap	Insulation - Ceiling	R-38 (WA State Code)	R-8 (Average Existing Conditions)	per roof sqft	Existing	0.00	25	\$0.99	75%	61%	\$53.49	0.07
Washington	Warehouse	Cooling Dx Evap	Insulation - Duct	R-7 (WA State Code)	No Insulation	per surface area of duct insul	Existing	0.22	20	\$2	75%	58%	\$1.10	0.83
Washington	Warehouse	Cooling Dx Evap	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	Existing	2	30	\$5	50%	95%	\$0.21	4
Washington	Warehouse	Cooling Dx Evap	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	Existing	125	10	\$133	95%	24%	\$0.18	0.42
Washington	Warehouse	Cooling Dx Evap	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	0.05	7	\$0.17	90%	85%	\$0.74	5
Washington	Warehouse	Cooling Dx Evap	Window Film	Window Film	No Film	per 100 sqft of window glazing	Existing	0.60	10	\$146	90%	66%	\$40.39	0.00
Washington	Warehouse	Cooling Dx Evap	Windows-High Efficiency	U-0.32	U-0.40 (WA State Code)	per window sqft	Existing	2	25	\$29	15%	90%	\$1.18	0.76
Washington	Warehouse	Cooling Dx Evap	Windows-High Efficiency	U-0.40 (WA State Code)	U-0.65 (Average Existing Conditions)	per window sqft	Existing	2	25	\$62	15%	70%	\$2.88	0.41
Washington	Warehouse	Cooling Dx Evap	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	New	0.03	15	\$0.68	80%	98%	\$2.71	0.40
Washington	Warehouse	Cooling Dx Evap	DX Package 65 to 135 kBtu/hr - High Efficiency	DX Package 65 to 135 kBtu/hr - High Efficiency - 11.5 EER	DX Package 65 to 135 kBtu/hr - Standard Efficiency - 11.2 EER	Per installation	New	54	15	\$544	100%	N/A	\$1.28	0.00
Washington	Warehouse	Cooling Dx Evap	DX Package 65 to 135 kBtu/hr - Premium Efficiency	DX Package 65 to 135 kBtu/hr - Premium Efficiency - 12.0 EER	DX Package 65 to 135 kBtu/hr - Standard Efficiency - 11.2 EER	Per installation	New	251	15	\$1,095	100%	N/A	\$0.56	0.18
Washington	Warehouse	Cooling Dx Evap	Direct / Indirect Evaporative Cooling, Pre-Cooling	Evaporative Cooler	Standard DX cooling	per building CFM	New	0.08	15	\$1	50%	94%	\$3.16	0.62
Washington	Warehouse	Cooling Dx Evap	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	New	32	15	\$166	75%	76%	\$0.66	0.37

Table C.2.2. Commercial Measure Details

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Washington	Warehouse	Cooling Dx Evap	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	New	0.00	18	\$0.22	45%	65%	\$3.20	0.03
Washington	Warehouse	Cooling Dx Evap	Evaporative Cooler replaces DX Package 65 to 135 kBTU/hr - Advanced Efficiency	Evaporative Cooler replaces DX Package 65 to 135 kBTU/hr - Advanced Efficiency	DX Package 65 to 135 kBTU/hr - Standard Efficiency - 11.2 EER	Per installation	New	1,889	15	\$-9927	25%	N/A	\$-0.91	0.30
Washington	Warehouse	Cooling Dx Evap	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	New	0.03	40	\$9	4%	98%	\$26.48	0.00
Washington	Warehouse	Cooling Dx Evap	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	New	1	30	\$5	50%	95%	\$0.28	0.51
Washington	Warehouse	Cooling Dx Evap	Natural Ventilation	Natural Ventilation Design Reduction in Cooling	None - Standard Ventilation	per building sqft	New	0.03	15	\$0.95	20%	75%	\$3.79	0.06
Washington	Warehouse	Cooling Dx Evap	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	New	97	10	\$133	95%	12%	\$0.23	0.02
Washington	Warehouse	Cooling Dx Evap	Windows-High Efficiency	U-0.32	U-0.40 (WA State Code)	per window sqft	New	1	25	\$29	80%	90%	\$1.52	0.56
Washington	Warehouse	Cooling Room	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	Existing	0.04	15	\$0.68	80%	98%	\$1.85	0.43
Washington	Warehouse	Cooling Room	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	Existing	47	15	\$166	75%	76%	\$0.45	0.37
Washington	Warehouse	Cooling Room	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	Existing	0.04	40	\$9	4%	98%	\$18.12	0.00
Washington	Warehouse	Cooling Room	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	0.35	13	\$0.31	10%	39%	\$0.13	0.00
Washington	Warehouse	Cooling Room	Insulation - Ceiling	R-38 (WA Slate Code)	R-8 (Average Existing Conditions)	per roof sqft	Existing	0.00	25	\$0.99	75%	61%	\$47.20	0.01
Washington	Warehouse	Cooling Room	PTAC (10,000 BTU/HR) - Premium-Efficiency	11.4 EER	Room AC (10,000 BTU/HR) Standard-Efficiency 9.8 EER	Per installation	Existing	771	15	\$32,561	75%	N/A	\$5.46	0.66
Washington	Warehouse	Cooling Room	Room AC (10,000 BTU/HR) High-Efficiency	High Efficiency 10.8 EER (ENERGY STAR)	Room AC (10,000 BTU/HR) Standard-Efficiency 9.8 EER	Per installation	Existing	448	9	\$1,500	100%	N/A	\$0.60	0.11
Washington	Warehouse	Cooling Room	Window Film	Window Film	No Film	per 100 sqft of window glazing	Existing	0.03	10	\$146	90%	66%	\$804.73	0.00
Washington	Warehouse	Cooling Room	Windows-High Efficiency	U-0.32	U-0.40 (WA State Code)	per window sqft	Existing	2	25	\$29	15%	90%	\$1.04	0.10
Washington	Warehouse	Cooling Room	Windows-High Efficiency	U-0.40 (WA State Code)	U-0.65 (Average Existing Conditions)	per window sqft	Existing	2	25	\$62	15%	70%	\$2.54	0.06
Washington	Warehouse	Cooling Room	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	New	0.03	15	\$0.68	80%	98%	\$2.27	0.04
Washington	Warehouse	Cooling Room	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	New	38	15	\$166	75%	76%	\$0.56	0.04
Washington	Warehouse	Cooling Room	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	New	0.03	40	\$9	4%	98%	\$22.21	0.00
Washington	Warehouse	Cooling Room	Natural Ventilation	Natural Ventilation Design Reduction in Cooling	None - Standard Ventilation	per building sqft	New	0.03	15	\$0.95	20%	75%	\$3.18	0.00
Washington	Warehouse	Cooling Room	PTAC (10,000 BTU/HR) - Premium-Efficiency	11.4 EER	Room AC (10,000 BTU/HR) Standard-Efficiency 9.8 EER	Per installation	New	571	15	\$23,182	75%	N/A	\$5.25	0.03
Washington	Warehouse	Cooling Room	Room AC (10,000 BTU/HR) High-Efficiency	High Efficiency 10.8 EER (ENERGY STAR)	Room AC (10,000 BTU/HR) Standard-Efficiency 9.8 EER	Per installation	New	323	9	\$1,200	100%	N/A	\$0.67	0.00
Washington	Warehouse	Cooling Room	Windows-High Efficiency	U-0.32	U-0.40 (WA State Code)	per window sqft	New	2	25	\$29	80%	90%	\$1.28	0.06
Washington	Warehouse	Heat Pump	Air Source Heat Pump 65 to 135 kBTU/hr - High Efficiency	11.5 EER, 3.4 COP	11.0 EER, 3.3 COP	Per installation	Existing	646	15	\$2,533	100%	N/A	\$0.51	0.09
Washington	Warehouse	Heat Pump	Air Source Heat Pump 65 to 135 kBTU/hr - Premium Efficiency	12.0 EER, 3.8 COP	11.0 EER, 3.3 COP	Per installation	Existing	1,472	15	\$5,067	100%	N/A	\$0.45	1

Table C.2.2. Commercial Measure Details

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Washington	Warehouse	Heat Pump	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	Existing	0.04	15	\$0.68	80%	98%	\$2.02	0.53
Washington	Warehouse	Heat Pump	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	Existing	105	15	\$166	75%	76%	\$0.21	1
Washington	Warehouse	Heat Pump	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	Existing	0.02	18	\$0.22	45%	65%	\$0.99	0.13
Washington	Warehouse	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	Existing	0.09	14	\$0.90	5%	94%	\$1.32	0.07
Washington	Warehouse	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	Existing	0.04	40	\$9	4%	98%	\$19.72	0.00
Washington	Warehouse	Heat Pump	Ground Source Heat Pump Replacing Air Source Heat Pump 65 to 135 kBTU/hr - Advanced Efficiency	16.2 EER 4.0 COP	11.0 EER, 3.3 COP	Per installation	Existing	2,660	30	\$33,806	5%	N/A	\$4.73	0.15
Washington	Warehouse	Heat Pump	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	1	13	\$0.31	10%	39%	\$0.03	0.02
Washington	Warehouse	Heat Pump	Insulation - Ceiling	R-38 (WA State Code)	R-8 (Average Existing Conditions)	per roof sqft	Existing	0.15	25	\$0.99	75%	61%	\$0.66	1
Washington	Warehouse	Heat Pump	Insulation - Ceiling	R-49	R-38 (WA State Code)	per roof sqft	Existing	0.00	25	\$0.25	25%	85%	\$3.46	0.02
Washington	Warehouse	Heat Pump	Insulation - Duct	R-7 (WA State Code)	No Insulation	per surface area of duct insul	Existing	0.56	20	\$2	75%	58%	\$0.44	0.39
Washington	Warehouse	Heat Pump	Insulation - Floor (non-slab)	R-30 (WA State Code)	R-8 (Average Existing Conditions)	per floor area	Existing	0.13	25	\$0.90	35%	81%	\$0.71	0.69
Washington	Warehouse	Heat Pump	Insulation - Floor (non-slab)	R-38	R-30 (WA State Code)	per floor area	Existing	0.01	25	\$0.29	35%	90%	\$1.60	0.10
Washington	Warehouse	Heat Pump	Insulation - Wall	R-13 + 7.5 (WA State Code)	R-3 (Average Existing Conditions)	per floor area	Existing	0.28	25	\$2	10%	66%	\$0.77	0.13
Washington	Warehouse	Heat Pump	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	Existing	8	30	\$5	50%	95%	\$0.06	2
Washington	Warehouse	Heat Pump	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	Existing	315	10	\$133	95%	24%	\$0.07	0.17
Washington	Warehouse	Heat Pump	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	0.13	7	\$0.17	90%	85%	\$0.29	2
Washington	Warehouse	Heat Pump	Window Film	Window Film	No Film	per 100 sqft of window glazing	Existing	0.61	10	\$146	90%	66%	\$39.98	0.00
Washington	Warehouse	Heat Pump	Windows-High Efficiency	U-0.32	U-0.40 (WA State Code)	per window sqft	Existing	1	25	\$29	15%	90%	\$1.97	0.07
Washington	Warehouse	Heat Pump	Windows-High Efficiency	U-0.40 (WA State Code)	U-0.65 (Average Existing Conditions)	per window sqft	Existing	2	25	\$62	15%	70%	\$2.47	0.09
Washington	Warehouse	Heat Pump	Air Source Heat Pump 65 to 135 kBTU/hr - High Efficiency	11.5 EER, 3.4 COP	11.0 EER, 3.3 COP	Per installation	New	380	15	\$2,027	100%	N/A	\$0.69	0.00
Washington	Warehouse	Heat Pump	Air Source Heat Pump 65 to 135 kBTU/hr - Premium Efficiency	12.0 EER, 3.8 COP	11.0 EER, 3.3 COP	Per installation	New	1,178	15	\$4,054	100%	N/A	\$0.45	0.23
Washington	Warehouse	Heat Pump	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	New	0.03	15	\$0.68	80%	98%	\$2.54	0.07
Washington	Warehouse	Heat Pump	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	New	94	15	\$166	75%	76%	\$0.23	0.18
Washington	Warehouse	Heat Pump	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	New	0.02	18	\$0.22	45%	65%	\$1.10	0.02
Washington	Warehouse	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	New	0.08	14	\$0.90	5%	94%	\$1.36	0.01
Washington	Warehouse	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	New	0.03	40	\$9	4%	98%	\$24.83	0.00
Washington	Warehouse	Heat Pump	Ground Source Heat Pump Replacing Air Source Heat Pump 65 to 135 kBTU/hr - Advanced Efficiency	16.2 EER 4.0 COP	11.0 EER, 3.3 COP	Per installation	New	2,252	30	\$69,195	5%	N/A	\$2.85	0.01

Table C.2.2. Commercial Measure Details

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Washington	Warehouse	Heat Pump	Insulation - Ceiling	R-49	R-38 (WA State Code)	per roof sqft	New	0.00	25	\$0.25	75%	85%	\$3.29	0.01
Washington	Warehouse	Heat Pump	Insulation - Floor (non-slab)	R-38	R-30 (WA State Code)	per floor area	New	0.01	25	\$0.29	35%	90%	\$1.49	0.01
Washington	Warehouse	Heat Pump	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	New	7	30	\$5	50%	95%	\$0.07	0.36
Washington	Warehouse	Heat Pump	Natural Ventilation	Natural Ventilation Design Reduction in Cooling	None - Standard Ventilation	per building sqft	New	0.09	15	\$0.95	20%	75%	\$1.31	0.04
Washington	Warehouse	Heat Pump	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	New	283	10	\$133	95%	12%	\$0.08	0.01
Washington	Warehouse	Heat Pump	Windows-High Efficiency	U-0.32	U-0.40 (WA State Code)	per window sqft	New	1	25	\$29	80%	90%	\$2.96	0.04
Washington	Warehouse	Hvac Aux	Motor - CEE Premium-Efficiency Plus	CEE PE+ Motor for HVAC Applications	NEMA Efficiency Motors	per HP	Existing	5	15	\$6	95%	76%	\$0.16	1
Washington	Warehouse	Hvac Aux	Motor Rewind	>15, <500 HP	No Rewind	per HP	Existing	1	8	\$4	65%	25%	\$0.71	0.07
Washington	Warehouse	Hvac Aux	Motor - CEE Premium-Efficiency Plus	CEE PE+ Motor for HVAC Applications	NEMA Efficiency Motors	per HP	New	4	15	\$6	95%	76%	\$0.17	0.33
Washington	Warehouse	Lighting Exterior	Covered Parking Lighting	Covered Parking Lighting	Normal Lighting	per building sqft	Existing	0.09	10	\$0.02	80%	95%	\$0.05	46
Washington	Warehouse	Lighting Exterior	Daylighting Controls, Outdoors (Photocell)	Photocell	No Controls	per installation	Existing	15	8	\$27	75%	70%	\$0.35	1
Washington	Warehouse	Lighting Exterior	Exterior Building Lighting	30% savings	Normal Lighting	per installation	Existing	242	15	\$326	62%	90%	\$0.17	11
Washington	Warehouse	Lighting Exterior	Solid State LED White Lighting	Landscape, merchandise, signage, structure & task lighting (2.5 W)	50W 10hrs/day, 365 day/yr	per installation	Existing	1	14	\$34	75%	95%	\$2.85	0.31
Washington	Warehouse	Lighting Exterior	Surface Parking Lighting	Surface Parking Lighting	Normal Lighting	per building sqft	Existing	0.05	19	\$0.06	62%	95%	\$0.16	19
Washington	Warehouse	Lighting Exterior	Covered Parking Lighting	Covered Parking Lighting	Normal Lighting	per building sqft	New	0.09	10	\$0.02	80%	95%	\$0.05	6
Washington	Warehouse	Lighting Exterior	Daylighting Controls, Outdoors (Photocell)	Photocell	No Controls	per installation	New	15	8	\$27	75%	70%	\$0.35	0.16
Washington	Warehouse	Lighting Exterior	Exterior Building Lighting	30% savings	Normal Lighting	per installation	New	242	15	\$326	62%	90%	\$0.17	1
Washington	Warehouse	Lighting Exterior	Solid State LED White Lighting	Landscape, merchandise, signage, structure & task lighting (2.5 W)	50W 10hrs/day, 365 day/yr	per installation	New	1	14	\$34	75%	95%	\$2.85	0.04
Washington	Warehouse	Lighting Exterior	Surface Parking Lighting	Surface Parking Lighting	Normal Lighting	per building sqft	New	0.05	19	\$0.06	62%	95%	\$0.16	2
Washington	Warehouse	Lighting Interior	Cold Cathode Lighting	Cold Cathode Lighting 5 watts	30 W Incandescent Bulb	per installation	Existing	118	5	\$13	15%	94%	\$0.03	1
Washington	Warehouse	Lighting Interior	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	Existing	0.14	8	\$0.95	30%	98%	\$1.29	2
Washington	Warehouse	Lighting Interior	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	Existing	0.05	8	\$0.71	30%	98%	\$2.57	0.81
Washington	Warehouse	Lighting Interior	Exit Sign - LED	LED Exit Sign (2 Watts)	CFL Exit Sign (9 Watts)	per installation	Existing	96	16	\$16	95%	50%	\$0.02	21
Washington	Warehouse	Lighting Interior	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign (2 Watts)	per installation	Existing	17	13	\$30	95%	98%	\$0.24	2
Washington	Warehouse	Lighting Interior	Lighting Package, High Efficiency	15% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	Existing	0.19	13	\$0.00	90%	53%	\$0.00	48
Washington	Warehouse	Lighting Interior	Lighting Package, High Efficiency	Code Required LPD And Control Strategies	Existing Lighting Design LPD	per building sqft	Existing	0.68	13	\$0.50	90%	30%	\$0.10	117
Washington	Warehouse	Lighting Interior	Lighting Package, Premium Efficiency	25% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	Existing	0.33	13	\$0.11	75%	62%	\$0.05	19
Washington	Warehouse	Lighting Interior	Lighting Package, Premium High Bay	35% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	Existing	0.34	13	\$0.26	70%	79%	\$0.11	119
Washington	Warehouse	Lighting Interior	Occupancy Sensor Control, Fluorescent	Occupancy Sensor Control, Fluorescent	No Occupancy Sensor	per occupancy sensor	Existing	408	8	\$68	90%	50%	\$0.03	8
Washington	Warehouse	Lighting Interior	Time Clock	Time Clock	No Controls	per 10,000 Watts	Existing	751	8	\$195	20%	***	\$0.05	3
Washington	Warehouse	Lighting Interior	Cold Cathode Lighting	Cold Cathode Lighting 5 watts	30 W Incandescent Bulb	per installation	New	79	5	\$13	15%	94%	\$0.05	0.09

Table C.2.2. Commercial Measure Details

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Washington	Warehouse	Lighting Interior	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	New	0.09	8	\$0.95	30%	98%	\$1.91	0.20
Washington	Warehouse	Lighting Interior	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	New	0.03	8	\$0.71	30%	98%	\$3.81	0.07
Washington	Warehouse	Lighting Interior	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign (2 Watts)	per installation	New	17	13	\$30	95%	98%	\$0.24	1
Washington	Warehouse	Lighting Interior	Lighting Package, High Efficiency	15% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	New	0.19	15	\$0.00	90%	53%	\$0.00	6
Washington	Warehouse	Lighting Interior	Lighting Package, Premium Efficiency	25% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	New	0.33	15	\$0.05	75%	62%	\$0.02	2
Washington	Warehouse	Lighting Interior	Lighting Package, Premium High Bay	35% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	New	0.34	15	\$0.05	70%	79%	\$0.02	16
Washington	Warehouse	Lighting Interior	Occupancy Sensor Control, Fluorescent	Occupancy Sensor Control, Fluorescent	No Occupancy Sensor	per occupancy sensor	New	275	8	\$68	90%	50%	\$0.05	0.82
Washington	Warehouse	Lighting Interior	Time Clock	Time Clock	No Controls	per 10,000 Watts	New	751	8	\$195	20%	**%	\$0.05	0.35
Washington	Warehouse	Other Office Equipment	ENERGY STAR - Copiers	ENERGY STAR Copiers	Standard Copier	per installation	Existing	73	6	\$160	95%	45%	\$0.53	0.10
Washington	Warehouse	Other Office Equipment	ENERGY STAR - Fax	ENERGY STAR Fax	Standard Fax	per installation	Existing	78	6	\$0.00	95%	45%	\$0.00	0.10
Washington	Warehouse	Other Office Equipment	ENERGY STAR - Monitors	ENERGY STAR Features Enabled	Non-ENERGY STAR Features	per installation	Existing	15	5	\$16	64%	15%	\$0.30	0.14
Washington	Warehouse	Other Office Equipment	ENERGY STAR - Printers	ENERGY STAR Printers	Standard Printers	per installation	Existing	137	6	\$14	95%	40%	\$0.03	2
Washington	Warehouse	Other Office Equipment	ENERGY STAR - Scanners	ENERGY STAR Scanners	Standard Scanner	per installation	Existing	71	6	\$20	95%	45%	\$0.07	0.09
Washington	Warehouse	Other Office Equipment	ENERGY STAR - Copiers	ENERGY STAR Copiers	Standard Copier	per installation	New	73	6	\$160	95%	45%	\$0.53	0.01
Washington	Warehouse	Other Office Equipment	ENERGY STAR - Fax	ENERGY STAR Fax	Standard Fax	per installation	New	78	6	\$0.00	95%	45%	\$0.00	0.01
Washington	Warehouse	Other Office Equipment	ENERGY STAR - Monitors	ENERGY STAR Features Enabled	Non-ENERGY STAR Features	per installation	New	15	5	\$16	64%	15%	\$0.30	0.01
Washington	Warehouse	Other Office Equipment	ENERGY STAR - Printers	ENERGY STAR Printers	Standard Printers	per installation	New	137	6	\$14	95%	40%	\$0.03	0.35
Washington	Warehouse	Other Office Equipment	ENERGY STAR - Scanners	ENERGY STAR Scanners	Standard Scanner	per installation	New	71	6	\$20	95%	45%	\$0.07	0.01
Washington	Warehouse	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	per installation	Existing	7	7	\$2	20%	90%	\$0.06	0.04
Washington	Warehouse	Other Plug Load	ENERGY STAR - Water Cooler	ENERGY STAR Water Cooler (Hot/Cold Water)	Non-ENERGY STAR Water Cooler	per installation	Existing	362	10	\$0.00	95%	75%	\$0.00	12
Washington	Warehouse	Other Plug Load	Power Supply Transformer/Converter	80 Plus	85% efficient power supply (> 51W)	1 unit per 2,000 sqft	Existing	2	4	\$0.40	95%	86%	\$0.06	0.65
Washington	Warehouse	Other Plug Load	Residential Refrigerator	ENERGY STAR	Federal Standard	per installation	Existing	80	12	\$120	20%	65%	\$0.22	0.68
Washington	Warehouse	Other Plug Load	Residential Refrigerator/Freezer Recycling	Recycling Existing Refrigerator/Freezer	Existing Refrigerator/Freezer	per installation	Existing	950	4	\$550	25%	35%	\$0.20	1
Washington	Warehouse	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	1 unit per 15,000 sqft	Existing	100	5	\$19	60%	90%	\$0.06	2
Washington	Warehouse	Other Plug Load	Vending Machines- High Efficiency	ENERGY STAR (Tier 2) Vending Machines- High Efficiency 500 can capacity Under 5.92 kWh/day	Vending Machines- Standard 13 kWh/day	per installation	Existing	239	14	\$160	10%	80%	\$0.09	0.12
Washington	Warehouse	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	per installation	New	7	7	\$2	20%	90%	\$0.06	0.00
Washington	Warehouse	Other Plug Load	ENERGY STAR - Water Cooler	ENERGY STAR Water Cooler (Hot/Cold Water)	Non-ENERGY STAR Water Cooler	per installation	New	362	10	\$0.00	95%	75%	\$0.00	1
Washington	Warehouse	Other Plug Load	Power Supply Transformer/Converter	80 Plus	85% efficient power supply (> 51W)	1 unit per 2,000 sqft	New	2	4	\$0.40	95%	86%	\$0.06	0.09

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Washington	Warehouse	Other Plug Load	Residential Refrigerator	ENERGY STAR	Federal Standard	per installation	New	80	12	\$120	20%	65%	\$0.22	0.09
Washington	Warehouse	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	1 unit per 15,000 sqft	New	100	5	\$19	60%	90%	\$0.06	0.32
Washington	Warehouse	Other Plug Load	Vending Machines- High Efficiency	ENERGY STAR (Tier 2) Vending Machines- High Efficiency 500 can capacity Under 5.92 kWh/day	Vending Machines- Standard 13 kWh/day	per installation	New	239	14	\$160	10%	80%	\$0.09	0.01
Washington	Warehouse	Refrigeration	Refrigeration Commissioning or Re-commissioning	Commissioning / Re-commissioning	No Commissioning / Re-commissioning	per refrigeration ton	Existing	817	3	\$115	5%	85%	\$0.06	6
Washington	Warehouse	Refrigeration	Standalone to Multiplex Compressor	Standalone to Multiplex Compressor	Standalone compressor	per building sqft	Existing	0.36	13	\$0.05	3%	90%	\$0.02	1
Washington	Warehouse	Refrigeration	Strip Curtains for Walk-Ins	Strip Curtains for Walk-Ins	No Strip Curtains for Walk-In	per installation	Existing	2,693	4	\$180	5%	20%	\$0.02	0.46
Washington	Warehouse	Refrigeration	Walk-In Electronically Commutated Motor	ECM Evaporator Fans	Standard Efficiency Motor	per installation	Existing	0.51	12	\$0.17	5%	95%	\$0.05	4
Washington	Warehouse	Refrigeration	Refrigeration Commissioning or Re-commissioning	Commissioning / Re-commissioning	No Commissioning / Re-commissioning	per refrigeration ton	New	505	3	\$44	3%	90%	\$0.04	0.27
Washington	Warehouse	Refrigeration	Strip Curtains for Walk-Ins	Strip Curtains for Walk-Ins	No Strip Curtains for Walk-In	per installation	New	2,693	4	\$180	5%	20%	\$0.02	0.06
Washington	Warehouse	Refrigeration	Walk-In Electronically Commutated Motor	ECM Evaporator Fans	Standard Efficiency Motor	per installation	New	0.51	12	\$0.17	5%	95%	\$0.05	0.59
Washington	Warehouse	Space Heat	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	Existing	211	15	\$166	75%	76%	\$0.10	6
Washington	Warehouse	Space Heat	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	Existing	0.05	18	\$0.22	45%	65%	\$0.49	0.54
Washington	Warehouse	Space Heat	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	Existing	0.31	14	\$0.90	5%	94%	\$0.38	0.53
Washington	Warehouse	Space Heat	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	3	13	\$0.31	10%	39%	\$0.01	0.15
Washington	Warehouse	Space Heat	Insulation - Ceiling	R-38 (WA State Code)	R-8 (Average Existing Conditions)	per roof sqft	Existing	0.52	25	\$0.99	75%	61%	\$0.19	9
Washington	Warehouse	Space Heat	Insulation - Ceiling	R-49	R-38 (WA State Code)	per roof sqft	Existing	0.04	25	\$0.25	25%	85%	\$0.56	0.35
Washington	Warehouse	Space Heat	Insulation - Duct	R-7 (WA State Code)	No Insulation	per surface area of duct insul	Existing	1	20	\$2	75%	58%	\$0.22	1
Washington	Warehouse	Space Heat	Insulation - Floor (non-slab)	R-30 (WA State Code)	R-8 (Average Existing Conditions)	per floor area	Existing	0.73	25	\$0.90	35%	81%	\$0.13	10
Washington	Warehouse	Space Heat	Insulation - Floor (non-slab)	R-38	R-30 (WA State Code)	per floor area	Existing	0.09	25	\$0.29	35%	90%	\$0.31	1
Washington	Warehouse	Space Heat	Insulation - Wall	R-13 + 7.5 (WA State Code)	R-3 (Average Existing Conditions)	per floor area	Existing	1	25	\$2	10%	66%	\$0.14	2
Washington	Warehouse	Space Heat	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	Existing	17	30	\$5	50%	95%	\$0.03	13
Washington	Warehouse	Space Heat	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	Existing	634	10	\$133	95%	24%	\$0.04	0.79
Washington	Warehouse	Space Heat	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	0.26	7	\$0.17	90%	85%	\$0.15	9
Washington	Warehouse	Space Heat	Windows-High Efficiency	U-0.40 (WA State Code)	U-0.65 (Average Existing Conditions)	per window sqft	Existing	0.76	25	\$62	15%	70%	\$8.40	0.05
Washington	Warehouse	Space Heat	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	New	175	15	\$166	75%	76%	\$0.12	0.76
Washington	Warehouse	Space Heat	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	New	0.04	18	\$0.22	45%	65%	\$0.59	0.09
Washington	Warehouse	Space Heat	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	New	0.26	14	\$0.90	5%	94%	\$0.46	0.08
Washington	Warehouse	Space Heat	Insulation - Ceiling	R-49	R-38 (WA State Code)	per roof sqft	New	0.03	25	\$0.25	75%	85%	\$0.67	0.17
Washington	Warehouse	Space Heat	Insulation - Floor (non-slab)	R-38	R-30 (WA State Code)	per floor area	New	0.07	25	\$0.29	35%	90%	\$0.38	0.18
Washington	Warehouse	Space Heat	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	New	14	30	\$5	50%	95%	\$0.04	1
Washington	Warehouse	Space Heat	Natural Ventilation	Natural Ventilation Design Reduction in Cooling	None - Standard Ventilation	per building sqft	New	0.17	15	\$0.95	20%	75%	\$0.70	0.18
Washington	Warehouse	Space Heat	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	New	526	10	\$133	95%	12%	\$0.04	0.04

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Washington	Warehouse	Water Heat	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	per building sqft	Existing	0.00	10	\$0.26	55%	94%	\$4.44	1
Washington	Warehouse	Water Heat	Dishwasher Residential	ENERGY STAR <= 324 kWh/yr, <= 5.8 gal/cycle	Federal Standard <= 355 kWh/yr, <= 6.5 gal/cycle	per installation	Existing	31	11	\$30	95%	25%	\$0.09	0.21
Washington	Warehouse	Water Heat	Electric Water Heater - High Efficiency	EF = 0.95	EF = 0.92	Per installation	Existing	63	15	\$64	100%	N/A	\$0.13	0.22
Washington	Warehouse	Water Heat	Heat Pump Water Heater - Advanced-Efficiency	EF = 2.2	EF = 0.92	Per installation	Existing	1,163	15	\$1,234	75%	N/A	\$0.14	12
Washington	Warehouse	Water Heat	Hot Water (SHW) Pipe Insulation	1.0" of Insulation, assuming R-4 (WA State Code)	No Insulation	per linear foot	Existing	2	12	\$2	80%	90%	\$0.17	0.33
Washington	Warehouse	Water Heat	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	per installation	Existing	31	9	\$0.00	95%	25%	-\$0.08	0.43
Washington	Warehouse	Water Heat	Low-Flow Faucet Aerators	2.2 GPM (Federal Code)	3.0 GPM	per installation	Existing	26	9	\$2	95%	25%	-\$0.06	0.36
Washington	Warehouse	Water Heat	Low-Flow Showerheads	2.0 GPM	2.5 GPM (Federal Code)	per installation	Existing	471	10	\$6	95%	73%	-\$0.08	2
Washington	Warehouse	Water Heat	Low-Flow Showerheads	2.5 GPM (Federal Code)	4.5 GPM	per installation	Existing	1,048	10	\$10	95%	62%	-\$0.08	5
Washington	Warehouse	Water Heat	Water Cooled Refrigeration with Heat Recovery	Heat Recovery from refrigeration system. Applied to Water Heating Electric End use	No heat recovery	per sqft of refrigerated area	Existing	0.02	10	\$0.86	3%	94%	\$6.34	0.07
Washington	Warehouse	Water Heat	Water Heater Temperature Setback	Water Heater Temperature Setback (120 F)	No Change in Water Temperature	per installation	Existing	152	5	\$92	75%	45%	\$0.17	1
Washington	Warehouse	Water Heat	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	per building sqft	New	0.00	10	\$0.26	55%	94%	\$4.44	0.18
Washington	Warehouse	Water Heat	Dishwasher Residential	ENERGY STAR <= 324 kWh/yr, <= 5.8 gal/cycle	Federal Standard <= 355 kWh/yr, <= 6.5 gal/cycle	per installation	New	31	11	\$30	95%	55%	\$0.09	0.06
Washington	Warehouse	Water Heat	Electric Water Heater - High Efficiency	EF = 0.95	EF = 0.92	Per installation	New	63	15	\$64	100%	N/A	\$0.13	0.03
Washington	Warehouse	Water Heat	Heat Pump Water Heater - Advanced-Efficiency	EF = 2.2	EF = 0.92	Per installation	New	1,163	15	\$1,052	75%	N/A	\$0.12	1
Washington	Warehouse	Water Heat	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	per installation	New	31	9	\$0.00	95%	25%	-\$0.08	0.05
Washington	Warehouse	Water Heat	Low-Flow Showerheads	2.0 GPM	2.5 GPM (Federal Code)	per installation	New	471	10	\$6	95%	73%	-\$0.08	0.39
Washington	Warehouse	Water Heat	Water Cooled Refrigeration with Heat Recovery	Heat Recovery from refrigeration system. Applied to Water Heating Electric End use	No heat recovery	per sqft of refrigerated area	New	0.02	10	\$0.86	3%	94%	\$6.34	0.01
Washington	Warehouse	Water Heat	Water Heater Temperature Setback	Water Heater Temperature Setback (120 F)	No Change in Water Temperature	per installation	New	152	5	\$92	75%	45%	\$0.17	0.19
Washington	Warehouse Ca	Lighting Interior	CA - Fruit Storage-Efficient Lighting Upgrade Package	CA - Fruit Storage-Efficient Lighting Upgrade Package	No Upgrade	per installation	Existing	75,546	10	\$1,900	20%	**%	\$0.00	1,516
Washington	Warehouse Ca	Lighting Interior	CA - Fruit Storage-HighBay Lighting Upgrade Package	CA - Fruit Storage-HighBay Lighting Upgrade Package	No Upgrade	per installation	Existing	55,040	10	\$4,335	29%	88%	\$0.01	1,464
Washington	Warehouse Ca	Lighting Interior	CA - Fruit Storage-Lighting Controls	CA - Fruit Storage-Lighting Controls	No Controls	per installation	Existing	30,440	10	\$6,460	15%	77%	\$0.04	269
Washington	Warehouse Ca	Refrigeration	CA - Fruit Storage-CA Retrofit - CO2 Scrub	CA - Fruit Storage-CA Retrofit - CO2 Scrub	No Retrofit	per installation	Existing	45,492	10	\$82,653	16%	**%	\$0.04	1,560
Washington	Warehouse Ca	Refrigeration	CA - Fruit Storage-CA Retrofit - Membrane	CA - Fruit Storage-CA Retrofit - Membrane	No Retrofit	per installation	Existing	90,892	10	\$64,831	19%	**%	\$0.06	1,006
Washington	Warehouse Ca	Refrigeration	CA - Fruit Storage-Fruit Storage Refrigeration Retrofit	CA - Fruit Storage-Fruit Storage Refrigeration Retrofit	No Retrofit	per installation	Existing	25,475	3	\$20,542	54%	92%	\$0.10	25,151
Washington	Warehouse Ca	Refrigeration	CA - Fruit Storage-Fruit Storage Refrigeration Tuneup	CA - Fruit Storage-Fruit Storage Refrigeration Tuneup	No Tuneup	per installation	Existing	795	10	\$20,979	100%	**%	\$0.01	8,413
Wyoming	Grocery	Computers	Computer ENERGY STAR	Computer ENERGY STAR	Computer standard non-ENERGY STAR	Per installation	Existing	135	4	\$28	100%	N/A	\$0.07	234
Wyoming	Grocery	Computers	Computer ENERGY STAR	Computer ENERGY STAR	Computer standard non-ENERGY STAR	Per installation	New	135	4	\$28	100%	N/A	\$0.07	13
Wyoming	Grocery	Cooking	Combination Oven	60% cooking efficiency	Non ENERGY STAR	per installation	Existing	11,575	12	\$1,885	90%	90%	\$0.02	16
Wyoming	Grocery	Cooking	Fryers - New CEE Efficient Electric Deep Fat Fryers	15 inch width Deep Fryer CEE 2006 rating, 80% under heavy load, Less than 1000 watt at idle	15 inch width standard electric deep fat fryers	per installation	Existing	994	12	\$1,301	35%	90%	\$0.19	2

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Wyoming	Grocery	Cooking	Griddle	70% cooking efficiency	Non ENERGY STAR	per installation	Existing	2,234	12	\$815	95%	85%	\$0.05	41
Wyoming	Grocery	Cooking	High Efficiency Convection Oven	Convection Oven	Standard Oven	per installation	Existing	1,849	12	\$2,015	19%	55%	\$0.16	6
Wyoming	Grocery	Cooking	Hot Food Holding Cabinet	ENERGY STAR	Non ENERGY STAR	per installation	Existing	3,880	12	\$1,746	55%	21%	\$0.07	20
Wyoming	Grocery	Cooking	Steam Cooker	ENERGY STAR	Non ENERGY STAR	per installation	Existing	4,153	12	\$2,539	14%	75%	\$0.09	20
Wyoming	Grocery	Cooking	Combination Oven	60% cooking efficiency	Non ENERGY STAR	per installation	New	11,575	12	\$1,885	90%	90%	\$0.02	5
Wyoming	Grocery	Cooking	Fryers - New CEE Efficient Electric Deep Fat Fryers	15 inch width Deep Fryer CEE 2006 rating: 80% under heavy load, Less than 1000 watt at idle	15 inch width standard electric deep fat fryers	per installation	New	994	12	\$1,301	35%	90%	\$0.19	0.86
Wyoming	Grocery	Cooking	Griddle	70% cooking efficiency	Non ENERGY STAR	per installation	New	2,234	12	\$815	95%	85%	\$0.05	13
Wyoming	Grocery	Cooking	High Efficiency Convection Oven	Convection Oven	Standard Oven	per installation	New	1,849	12	\$2,015	19%	55%	\$0.16	2
Wyoming	Grocery	Cooking	Hot Food Holding Cabinet	ENERGY STAR	Non ENERGY STAR	per installation	New	3,880	12	\$1,746	55%	21%	\$0.07	6
Wyoming	Grocery	Cooking	Steam Cooker	ENERGY STAR	Non ENERGY STAR	per installation	New	4,153	12	\$2,539	14%	75%	\$0.09	6
Wyoming	Grocery	Cooling Dx Evap	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	Existing	0.33	15	\$0.69	80%	98%	\$0.27	441
Wyoming	Grocery	Cooling Dx Evap	DX Package 65 to 135 kBtu/hr - High Efficiency	DX Package 65 to 135 kBtu/hr - High Efficiency - 11.5 EER	DX Package 65 to 135 kBtu/hr - Standard Efficiency - 11.2 EER	Per installation	Existing	383	15	\$277	100%	N/A	\$0.09	8
Wyoming	Grocery	Cooling Dx Evap	DX Package 65 to 135 kBtu/hr - Premium Efficiency	DX Package 65 to 135 kBtu/hr - Premium Efficiency - 12.0 EER	DX Package 65 to 135 kBtu/hr - Standard Efficiency - 11.2 EER	Per installation	Existing	969	15	\$558	100%	N/A	\$0.07	286
Wyoming	Grocery	Cooling Dx Evap	DX Package-Air Side Economizer	Air-Side Economizer	No Economizer	per DX ton	Existing	149	10	\$155	10%	90%	\$0.17	86
Wyoming	Grocery	Cooling Dx Evap	DX Tune-Up / Diagnostics	DX Tune-Up / Diagnostics	No DX Tune-Up / Diagnostics	per installation	Existing	746	4	\$245	95%	72%	\$0.13	471
Wyoming	Grocery	Cooling Dx Evap	Direct / Indirect Evaporative Cooling, Pre-Cooling	Evaporative Cooler	Standard DX cooling	per building CFM	Existing	0.82	15	\$1	50%	94%	\$0.28	684
Wyoming	Grocery	Cooling Dx Evap	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	Existing	331	15	\$148	75%	76%	\$0.06	467
Wyoming	Grocery	Cooling Dx Evap	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	Existing	0.08	18	\$0.17	45%	65%	\$0.25	46
Wyoming	Grocery	Cooling Dx Evap	Evaporative Cooler replaces DX Package 65 to 135 kBtu/hr - Advanced Efficiency	Evaporative Cooler replaces DX Package 65 to 135 kBtu/hr - Advanced Efficiency	DX Package 65 to 135 kBtu/hr - Standard Efficiency - 11.2 EER	Per installation	Existing	6,114	15	\$-4779.5765	25%	N/A	\$-0.14	93
Wyoming	Grocery	Cooling Dx Evap	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	Existing	0.33	40	\$8	4%	98%	\$2.23	1
Wyoming	Grocery	Cooling Dx Evap	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	2	13	\$0.24	10%	39%	\$0.02	13
Wyoming	Grocery	Cooling Dx Evap	Insulation - Ceiling	R-25 (WY State Code)	R-7 (Average Existing Conditions)	per roof sqft	Existing	0.00	25	\$0.57	75%	62%	\$15.27	2
Wyoming	Grocery	Cooling Dx Evap	Insulation - Duct	R-5 (WY State Code)	No Insulation	per surface area of duct insul	Existing	1	20	\$1	75%	58%	\$0.12	90
Wyoming	Grocery	Cooling Dx Evap	Insulation - Duct	R-8	R-5 (WY State Code)	per surface area of duct insul	Existing	0.84	20	\$0.28	75%	85%	\$0.04	106
Wyoming	Grocery	Cooling Dx Evap	Insulation - Floor (non-slab)	R-30	R-25 (WY State Code)	per floor area	Existing	0.00	25	\$0.10	35%	90%	\$1.44	3
Wyoming	Grocery	Cooling Dx Evap	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	Existing	20	30	\$5	50%	95%	\$0.02	651
Wyoming	Grocery	Cooling Dx Evap	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	Existing	298	10	\$123	95%	28%	\$0.07	61
Wyoming	Grocery	Cooling Dx Evap	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	0.41	7	\$0.13	90%	85%	\$0.07	737

Table C.2.2. Commercial Measure Details

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Wyoming	Grocery	Cooling Dx Evap	Window Film	Window Film	No Film	per 100 sqft of window glazing	Existing	1	10	\$129	90%	68%	\$11.65	0.99
Wyoming	Grocery	Cooling Dx Evap	Windows-High Efficiency	U-0.32	U-0.50 (WY State Code)	per window sqft	Existing	8	25	\$67	15%	90%	\$0.86	96
Wyoming	Grocery	Cooling Dx Evap	Windows-High Efficiency	U-0.50 (WY State Code)	U-0.65 (Average Existing Conditions)	per window sqft	Existing	8	25	\$25	15%	72%	\$0.30	81
Wyoming	Grocery	Cooling Dx Evap	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	New	0.17	15	\$0.69	80%	98%	\$0.50	99
Wyoming	Grocery	Cooling Dx Evap	DX Package 65 to 135 kBtu/hr - High Efficiency	DX Package 65 to 135 kBtu/hr - High Efficiency - 11.5 EER	DX Package 65 to 135 kBtu/hr - Standard Efficiency - 11.2 EER	Per installation	New	213	15	\$222	100%	N/A	\$0.13	1
Wyoming	Grocery	Cooling Dx Evap	DX Package 65 to 135 kBtu/hr - Premium Efficiency	DX Package 65 to 135 kBtu/hr - Premium Efficiency - 12.0 EER	DX Package 65 to 135 kBtu/hr - Standard Efficiency - 11.2 EER	Per installation	New	573	15	\$447	100%	N/A	\$0.10	57
Wyoming	Grocery	Cooling Dx Evap	Direct / Indirect Evaporative Cooling, Pre-Cooling	Evaporative Cooler	Standard DX cooling	per building CFM	New	0.44	15	\$1	50%	94%	\$0.51	154
Wyoming	Grocery	Cooling Dx Evap	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	New	179	15	\$148	75%	76%	\$0.11	86
Wyoming	Grocery	Cooling Dx Evap	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	New	0.04	18	\$0.17	45%	65%	\$0.46	10
Wyoming	Grocery	Cooling Dx Evap	Evaporative Cooler replaces DX Package 65 to 135 kBtu/hr - Advanced Efficiency	Evaporative Cooler replaces DX Package 65 to 135 kBtu/hr - Advanced Efficiency	DX Package 65 to 135 kBtu/hr - Standard Efficiency - 11.2 EER	Per installation	New	3,582	15	\$-3582.3872	25%	N/A	\$-0.18	18
Wyoming	Grocery	Cooling Dx Evap	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	New	0.17	40	\$8	4%	98%	\$4.12	0.35
Wyoming	Grocery	Cooling Dx Evap	Insulation - Duct	R-8	R-5 (WY State Code)	per surface area of duct insul	New	0.45	20	\$0.28	75%	85%	\$0.07	19
Wyoming	Grocery	Cooling Dx Evap	Insulation - Floor (non-slab)	R-30	R-25 (WY State Code)	per floor area	New	0.00	25	\$0.10	35%	90%	\$2.66	0.72
Wyoming	Grocery	Cooling Dx Evap	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	New	10	30	\$5	50%	95%	\$0.04	120
Wyoming	Grocery	Cooling Dx Evap	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	New	161	10	\$123	95%	14%	\$0.13	5
Wyoming	Grocery	Cooling Dx Evap	Windows-High Efficiency	U-0.32	U-0.50 (WY State Code)	per window sqft	New	4	25	\$67	80%	90%	\$1.59	117
Wyoming	Grocery	Cooling Room	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	Existing	0.40	15	\$0.69	80%	98%	\$0.22	15
Wyoming	Grocery	Cooling Room	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	Existing	409	15	\$148	75%	76%	\$0.05	13
Wyoming	Grocery	Cooling Room	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	Existing	0.40	40	\$8	4%	98%	\$1.81	0.06
Wyoming	Grocery	Cooling Room	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	2	13	\$0.24	10%	39%	\$0.01	0.34
Wyoming	Grocery	Cooling Room	Insulation - Ceiling	R-25 (WY State Code)	R-7 (Average Existing Conditions)	per roof sqft	Existing	0.00	25	\$0.57	75%	62%	\$12.38	0.10
Wyoming	Grocery	Cooling Room	Insulation - Floor (non-slab)	R-30	R-25 (WY State Code)	per floor area	Existing	0.00	25	\$0.10	35%	90%	\$1.17	0.13
Wyoming	Grocery	Cooling Room	PTAC (10,000 BTU/HR) - Premium-Efficiency	11.4 EER	Room AC (10,000 BTU/HR) Standard-Efficiency 9.8 EER	Per installation	Existing	2,000	15	\$11,908	75%	N/A	\$0.77	23
Wyoming	Grocery	Cooling Room	Room AC (10,000 BTU/HR) High-Efficiency	High Efficiency 10.8 EER (ENERGY STAR)	Room AC (10,000 BTU/HR) Standard-Efficiency 9.8 EER	Per installation	Existing	1,256	9	\$612	100%	N/A	\$0.09	4
Wyoming	Grocery	Cooling Room	Window Film	Window Film	No Film	per 100 sqft of window glazing	Existing	0.09	10	\$129	90%	68%	\$232.23	0.00
Wyoming	Grocery	Cooling Room	Windows-High Efficiency	U-0.32	U-0.50 (WY State Code)	per window sqft	Existing	9	25	\$67	15%	90%	\$0.70	3

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Wyoming	Grocery	Cooling Room	Windows-High Efficiency	U-0.50 (WY State Code)	U-0.65 (Average Existing Conditions)	per window sqft	Existing	10	25	\$25	15%	72%	\$0.25	3
Wyoming	Grocery	Cooling Room	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	New	0.23	15	\$0.69	80%	98%	\$0.39	2
Wyoming	Grocery	Cooling Room	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	New	232	15	\$148	75%	76%	\$0.08	2
Wyoming	Grocery	Cooling Room	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	New	0.23	40	\$8	4%	98%	\$3.19	0.01
Wyoming	Grocery	Cooling Room	Insulation - Floor (non-slab)	R-30	R-25 (WY State Code)	per floor area	New	0.00	25	\$0.10	35%	90%	\$2.06	0.02
Wyoming	Grocery	Cooling Room	PTAC (10,000 BTU/HR) - Premium-Efficiency	11.4 EER	Room AC (10,000 BTU/HR) Standard-Efficiency 9.8 EER	Per installation	New	1,177	15	\$8,750	75%	N/A	\$0.96	1
Wyoming	Grocery	Cooling Room	Room AC (10,000 BTU/HR) High-Efficiency	High Efficiency 10.8 EER (ENERGY STAR)	Room AC (10,000 BTU/HR) Standard-Efficiency 9.8 EER	Per installation	New	723	9	\$489	100%	N/A	\$0.12	0.35
Wyoming	Grocery	Cooling Room	Windows-High Efficiency	U-0.32	U-0.50 (WY State Code)	per window sqft	New	5	25	\$67	80%	90%	\$1.23	3
Wyoming	Grocery	Heat Pump	Air Source Heat Pump 65 to 135 kBtu/hr - High Efficiency	11.5 EER, 3.4 COP	11.0 EER, 3.3 COP	Per installation	Existing	1,102	15	\$1,033	100%	N/A	\$0.12	5
Wyoming	Grocery	Heat Pump	Air Source Heat Pump 65 to 135 kBtu/hr - Premium Efficiency	12.0 EER, 3.8 COP	11.0 EER, 3.3 COP	Per installation	Existing	3,082	15	\$2,067	100%	N/A	\$0.09	167
Wyoming	Grocery	Heat Pump	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	Existing	0.36	15	\$0.69	80%	98%	\$0.25	60
Wyoming	Grocery	Heat Pump	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	Existing	835	15	\$148	75%	76%	\$0.02	142
Wyoming	Grocery	Heat Pump	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	Existing	0.20	18	\$0.17	45%	65%	\$0.10	15
Wyoming	Grocery	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	Existing	0.70	14	\$1	5%	94%	\$0.33	7
Wyoming	Grocery	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	Existing	0.36	40	\$8	4%	98%	\$2.03	0.27
Wyoming	Grocery	Heat Pump	Ground Source Heat Pump Replacing Air Source Heat Pump 65 to 135 kBtu/hr - Advanced Efficiency	16.2 EER 4.0 COP	11.0 EER, 3.3 COP	Per installation	Existing	6,240	30	\$38,079	5%	N/A	\$0.57	15
Wyoming	Grocery	Heat Pump	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	9	13	\$0.24	10%	39%	\$0.00	7
Wyoming	Grocery	Heat Pump	Insulation - Ceiling	R-25 (WY State Code)	R-7 (Average Existing Conditions)	per roof sqft	Existing	0.57	25	\$0.57	75%	62%	\$0.10	65
Wyoming	Grocery	Heat Pump	Insulation - Ceiling	R-30	R-25 (WY State Code)	per roof sqft	Existing	0.05	25	\$0.09	75%	85%	\$0.17	8
Wyoming	Grocery	Heat Pump	Insulation - Duct	R-5 (WY State Code)	No Insulation	per surface area of duct insul	Existing	3	20	\$1	75%	58%	\$0.05	27
Wyoming	Grocery	Heat Pump	Insulation - Duct	R-8	R-5 (WY State Code)	per surface area of duct insul	Existing	2	20	\$0.28	75%	85%	\$0.01	32
Wyoming	Grocery	Heat Pump	Insulation - Floor (non-slab)	R-25 (WY State Code)	R-11 (Average Existing Conditions)	per floor area	Existing	0.42	25	\$0.73	35%	82%	\$0.18	29
Wyoming	Grocery	Heat Pump	Insulation - Floor (non-slab)	R-30	R-25 (WY State Code)	per floor area	Existing	0.19	25	\$0.10	35%	90%	\$0.05	15
Wyoming	Grocery	Heat Pump	Insulation - Wall	R-13 + 3 (WY State Code)	R-3 (Average Existing Conditions)	per floor area	Existing	1	25	\$1	10%	68%	\$0.08	13
Wyoming	Grocery	Heat Pump	Insulation - Wall	R-21	R-13 + 3 (WY State Code)	per floor area	Existing	0.17	25	\$0.10	10%	85%	\$0.06	1
Wyoming	Grocery	Heat Pump	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	Existing	70	30	\$5	50%	95%	\$0.01	282
Wyoming	Grocery	Heat Pump	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	Existing	752	10	\$123	95%	28%	\$0.03	18
Wyoming	Grocery	Heat Pump	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	1	7	\$0.13	90%	85%	\$0.03	225

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Wyoming	Grocery	Heat Pump	Window Film	Window Film	No Film	per 100 sqft of window glazing	Existing	1	10	\$129	90%	68%	\$11.60	0.14
Wyoming	Grocery	Heat Pump	Windows-High Efficiency	U-0.32	U-0.50 (WY State Code)	per window sqft	Existing	7	25	\$67	15%	90%	\$0.95	12
Wyoming	Grocery	Heat Pump	Windows-High Efficiency	U-0.50 (WY State Code)	U-0.65 (Average Existing Conditions)	per window sqft	Existing	6	25	\$25	15%	72%	\$0.38	9
Wyoming	Grocery	Heat Pump	Air Source Heat Pump 65 to 135 kBtu/hr - High Efficiency	11.5 EER, 3.4 COP	11.0 EER, 3.3 COP	Per installation	New	704	15	\$827	100%	N/A	\$0.15	0.95
Wyoming	Grocery	Heat Pump	Air Source Heat Pump 65 to 135 kBtu/hr - Premium Efficiency	12.0 EER, 3.8 COP	11.0 EER, 3.3 COP	Per installation	New	1,731	15	\$1,654	100%	N/A	\$0.12	32
Wyoming	Grocery	Heat Pump	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	New	0.20	15	\$0.69	80%	98%	\$0.44	13
Wyoming	Grocery	Heat Pump	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	New	422	15	\$148	75%	76%	\$0.05	24
Wyoming	Grocery	Heat Pump	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	New	0.10	18	\$0.17	45%	65%	\$0.20	2
Wyoming	Grocery	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	New	0.32	14	\$1	5%	94%	\$0.72	1
Wyoming	Grocery	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	New	0.20	40	\$8	4%	98%	\$3.64	0.05
Wyoming	Grocery	Heat Pump	Ground Source Heat Pump Replacing Air Source Heat Pump 65 to 135 kBtu/hr - Advanced Efficiency	16.2 EER 4.0 COP	11.0 EER, 3.3 COP	Per installation	New	3,515	30	\$20,214	5%	N/A	\$0.52	2
Wyoming	Grocery	Heat Pump	Insulation - Ceiling	R-30	R-25 (WY State Code)	per roof sqft	New	0.02	25	\$0.09	75%	85%	\$0.40	1
Wyoming	Grocery	Heat Pump	Insulation - Duct	R-8	R-5 (WY State Code)	per surface area of duct insul	New	1	20	\$0.28	75%	85%	\$0.03	5
Wyoming	Grocery	Heat Pump	Insulation - Floor (non-slab)	R-30	R-25 (WY State Code)	per floor area	New	0.08	25	\$0.10	35%	90%	\$0.13	2
Wyoming	Grocery	Heat Pump	Insulation - Wall	R-21	R-13 + 3 (WY State Code)	per floor area	New	0.07	25	\$0.10	95%	85%	\$0.14	2
Wyoming	Grocery	Heat Pump	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	New	35	30	\$5	50%	95%	\$0.01	47
Wyoming	Grocery	Heat Pump	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	New	380	10	\$123	95%	14%	\$0.05	1
Wyoming	Grocery	Heat Pump	Windows-High Efficiency	U-0.32	U-0.50 (WY State Code)	per window sqft	New	4	25	\$67	80%	90%	\$1.65	15
Wyoming	Grocery	Hvac Aux	Cooking Hood Controls	Demand-Ventilation Control	No Controls	per installation	Existing	1,836	18	\$3,740	95%	65%	\$0.24	1,151
Wyoming	Grocery	Hvac Aux	Motor - CEE Premium-Efficiency Plus	CEE PE+ Motor for HVAC Applications	NEMA Efficiency Motors	per HP	Existing	40	15	\$6	95%	76%	\$0.02	116
Wyoming	Grocery	Hvac Aux	Motor Rewind	>15, <500 HP	No Rewind	per HP	Existing	8	8	\$4	65%	25%	\$0.12	4
Wyoming	Grocery	Hvac Aux	Cooking Hood Controls	Demand-Ventilation Control	No Controls	per installation	New	1,836	18	\$3,740	95%	65%	\$0.24	370
Wyoming	Grocery	Hvac Aux	Motor - CEE Premium-Efficiency Plus	CEE PE+ Motor for HVAC Applications	NEMA Efficiency Motors	per HP	New	42	15	\$6	95%	76%	\$0.02	49
Wyoming	Grocery	Lighting Exterior	Covered Parking Lighting	Covered Parking Lighting	Normal Lighting	per building sqft	Existing	0.09	10	\$0.02	80%	95%	\$0.05	356
Wyoming	Grocery	Lighting Exterior	Daylighting Controls, Outdoors (Photocell)	Photocell	No Controls	per installation	Existing	30	8	\$28	75%	70%	\$0.18	54
Wyoming	Grocery	Lighting Exterior	Exterior Building Lighting	30% savings	Normal Lighting	per installation	Existing	238	15	\$333	62%	90%	\$0.18	470
Wyoming	Grocery	Lighting Exterior	Solid State LED White Lighting	Landscape, merchandise, signage, structure & task lighting (2.5 W)	50W 10hrs/day, 365 day/yr	per installation	Existing	3	14	\$35	75%	95%	\$1.44	8
Wyoming	Grocery	Lighting Exterior	Surface Parking Lighting	Surface Parking Lighting	Normal Lighting	per building sqft	Existing	0.04	19	\$0.06	62%	95%	\$0.16	149
Wyoming	Grocery	Lighting Exterior	Covered Parking Lighting	Covered Parking Lighting	Normal Lighting	per building sqft	New	0.09	10	\$0.02	80%	95%	\$0.05	114
Wyoming	Grocery	Lighting Exterior	Daylighting Controls, Outdoors (Photocell)	Photocell	No Controls	per installation	New	30	8	\$28	75%	70%	\$0.18	17

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Wyoming	Grocery	Lighting Exterior	Exterior Building Lighting	30% savings	Normal Lighting	per installation	New	238	15	\$333	62%	90%	\$0.18	151
Wyoming	Grocery	Lighting Exterior	Solid State LED White Lighting	Landscape, merchandise, signage, structure & task lighting (2.5 W)	50W 10hrs/day, 365 day/yr	per installation	New	3	14	\$35	75%	95%	\$1.44	2
Wyoming	Grocery	Lighting Exterior	Surface Parking Lighting	Surface Parking Lighting	Normal Lighting	per building sqft	New	0.04	19	\$0.06	62%	95%	\$0.16	47
Wyoming	Grocery	Lighting Interior	Cold Cathode Lighting	Cold Cathode Lighting 5 watts	30 W Incandescent Bulb	per installation	Existing	88	5	\$12	15%	94%	\$0.04	20
Wyoming	Grocery	Lighting Interior	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	Existing	0.35	8	\$0.85	30%	96%	\$0.47	43
Wyoming	Grocery	Lighting Interior	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	Existing	0.26	8	\$0.63	30%	96%	\$0.47	32
Wyoming	Grocery	Lighting Interior	Exit Sign - LED	LED Exit Sign (2 Watts)	CFL Exit Sign (9 Watts)	per installation	Existing	94	16	\$16	95%	50%	\$0.02	164
Wyoming	Grocery	Lighting Interior	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign (2 Watts)	per installation	Existing	17	13	\$30	95%	98%	\$0.25	19
Wyoming	Grocery	Lighting Interior	LED Refrigeration Case Lights	LED Refrigeration Case Lights	Fluorescent Refrigeration Case	per installation	Existing	229	8	\$246	85%	80%	\$0.21	2,987
Wyoming	Grocery	Lighting Interior	Lighting Package, High Efficiency	15% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	Existing	0.73	13	\$0.21	90%	53%	\$0.04	1,378
Wyoming	Grocery	Lighting Interior	Lighting Package, High Efficiency	Code Required LPD And Control Strategies	Existing Lighting Design LPD	per building sqft	Existing	1	13	\$1	90%	59%	\$0.10	4,281
Wyoming	Grocery	Lighting Interior	Lighting Package, Premium Efficiency	25% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	Existing	1	13	\$0.87	75%	62%	\$0.10	554
Wyoming	Grocery	Lighting Interior	Lighting Package, Premium High Bay	35% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	Existing	0.25	13	\$0.14	70%	83%	\$0.08	721
Wyoming	Grocery	Lighting Interior	Occupancy Sensor Control, Fluorescent	Occupancy Sensor Control, Fluorescent	No Occupancy Sensor	per occupancy sensor	Existing	1,019	8	\$65	45%	55%	\$0.01	95
Wyoming	Grocery	Lighting Interior	Time Clock	Time Clock	No Controls	per 10,000 Watts	Existing	738	8	\$174	20%	81%	\$0.05	61
Wyoming	Grocery	Lighting Interior	Cold Cathode Lighting	Cold Cathode Lighting 5 watts	30 W Incandescent Bulb	per installation	New	77	5	\$12	15%	94%	\$0.05	5
Wyoming	Grocery	Lighting Interior	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	New	0.30	8	\$0.85	30%	96%	\$0.54	13
Wyoming	Grocery	Lighting Interior	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	New	0.58	8	\$0.63	30%	96%	\$0.21	26
Wyoming	Grocery	Lighting Interior	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign (2 Watts)	per installation	New	17	13	\$30	95%	98%	\$0.25	25
Wyoming	Grocery	Lighting Interior	LED Refrigeration Case Lights	LED Refrigeration Case Lights	Fluorescent Refrigeration Case	per installation	New	229	8	\$246	85%	80%	\$0.21	960
Wyoming	Grocery	Lighting Interior	Lighting Package, High Efficiency	15% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	New	0.73	15	\$0.12	90%	53%	\$0.02	442
Wyoming	Grocery	Lighting Interior	Lighting Package, Premium Efficiency	25% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	New	1	15	\$0.28	75%	62%	\$0.03	174
Wyoming	Grocery	Lighting Interior	Lighting Package, Premium High Bay	35% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	New	0.25	15	\$0.02	70%	83%	\$0.01	231
Wyoming	Grocery	Lighting Interior	Occupancy Sensor Control, Fluorescent	Occupancy Sensor Control, Fluorescent	No Occupancy Sensor	per occupancy sensor	New	895	8	\$65	45%	55%	\$0.01	31
Wyoming	Grocery	Lighting Interior	Time Clock	Time Clock	No Controls	per 10,000 Watts	New	738	8	\$174	20%	81%	\$0.05	19
Wyoming	Grocery	Other Office Equipment	ENERGY STAR - Copiers	ENERGY STAR Copiers	Standard Copier	per installation	Existing	71	6	\$160	95%	45%	\$0.54	18
Wyoming	Grocery	Other Office Equipment	ENERGY STAR - Fax	ENERGY STAR Fax	Standard Fax	per installation	Existing	76	6	\$1	95%	45%	\$0.01	19
Wyoming	Grocery	Other Office Equipment	ENERGY STAR - Monitors	ENERGY STAR Features Enabled	Non-ENERGY STAR Features	per installation	Existing	14	5	\$16	64%	15%	\$0.32	3
Wyoming	Grocery	Other Office Equipment	ENERGY STAR - Printers	ENERGY STAR Printers	Standard Printers	per installation	Existing	134	6	\$15	95%	40%	\$0.03	65
Wyoming	Grocery	Other Office Equipment	ENERGY STAR - Scanners	ENERGY STAR Scanners	Standard Scanner	per installation	Existing	69	6	\$0.87	95%	45%	\$0.00	17

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Wyoming	Grocery	Other Office Equipment	ENERGY STAR - Copiers	ENERGY STAR Copiers	Standard Copier	per installation	New	71	6	\$160	95%	45%	\$0.54	5
Wyoming	Grocery	Other Office Equipment	ENERGY STAR - Fax	ENERGY STAR Fax	Standard Fax	per installation	New	76	6	\$1	95%	45%	\$0.01	6
Wyoming	Grocery	Other Office Equipment	ENERGY STAR - Monitors	ENERGY STAR Features Enabled	Non-ENERGY STAR Features	per installation	New	14	5	\$16	64%	15%	\$0.32	0.99
Wyoming	Grocery	Other Office Equipment	ENERGY STAR - Printers	ENERGY STAR Printers	Standard Printers	per installation	New	134	6	\$15	95%	40%	\$0.03	20
Wyoming	Grocery	Other Office Equipment	ENERGY STAR - Scanners	ENERGY STAR Scanners	Standard Scanner	per installation	New	69	6	\$0.87	95%	45%	\$0.00	5
Wyoming	Grocery	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	per installation	Existing	7	7	\$1	20%	90%	\$0.05	0.80
Wyoming	Grocery	Other Plug Load	ENERGY STAR - Water Cooler	ENERGY STAR Water Cooler (Hot/Cold Water)	Non-ENERGY STAR Water Cooler	per installation	Existing	355	10	\$0.00	95%	75%	\$0.00	64
Wyoming	Grocery	Other Plug Load	Ice Maker	High-Efficiency Ice Maker	Standard Ice Maker	per installation	Existing	414	10	\$140	95%	86%	\$0.03	513
Wyoming	Grocery	Other Plug Load	Power Supply Transformer/Converter	80 Plus	85% efficient power supply (> 51W)	1 unit per 2,000 sqft	Existing	6	4	\$0.40	95%	86%	\$0.02	12
Wyoming	Grocery	Other Plug Load	Residential Refrigerator	ENERGY STAR	Federal Standard	per installation	Existing	78	12	\$122	3%	65%	\$0.23	2
Wyoming	Grocery	Other Plug Load	Residential Refrigerator/Freezer Recycling	Recycling Existing Refrigerator/Freezer	Existing Refrigerator/Freezer	per installation	Existing	933	4	\$560	25%	35%	\$0.21	45
Wyoming	Grocery	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	1 unit per 5,000 sqft	Existing	98	5	\$20	60%	90%	\$0.06	54
Wyoming	Grocery	Other Plug Load	Vending Machines- High Efficiency	ENERGY STAR (Tier 2) Vending Machines- High Efficiency 500 can capacity Under 5.92 kWh/day	Vending Machines- Standard 13 kWh/day	per installation	Existing	235	14	\$161	75%	80%	\$0.09	179
Wyoming	Grocery	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	per installation	New	7	7	\$1	20%	90%	\$0.05	0.25
Wyoming	Grocery	Other Plug Load	ENERGY STAR - Water Cooler	ENERGY STAR Water Cooler (Hot/Cold Water)	Non-ENERGY STAR Water Cooler	per installation	New	355	10	\$0.00	95%	75%	\$0.00	20
Wyoming	Grocery	Other Plug Load	Ice Maker	High-Efficiency Ice Maker	Standard Ice Maker	per installation	New	414	10	\$140	95%	86%	\$0.03	164
Wyoming	Grocery	Other Plug Load	Power Supply Transformer/Converter	80 Plus	85% efficient power supply (> 51W)	1 unit per 2,000 sqft	New	6	4	\$0.40	95%	86%	\$0.02	3
Wyoming	Grocery	Other Plug Load	Residential Refrigerator	ENERGY STAR	Federal Standard	per installation	New	78	12	\$122	3%	65%	\$0.23	0.75
Wyoming	Grocery	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	1 unit per 5,000 sqft	New	98	5	\$20	60%	90%	\$0.06	17
Wyoming	Grocery	Other Plug Load	Vending Machines- High Efficiency	ENERGY STAR (Tier 2) Vending Machines- High Efficiency 500 can capacity Under 5.92 kWh/day	Vending Machines- Standard 13 kWh/day	per installation	New	235	14	\$161	75%	80%	\$0.09	57
Wyoming	Grocery	Refrigeration	Anti-Sweat (Humidistat) Controls	Anti-Sweat (Humidistat) Controls	No Anti-Sweat (Humidistat) Controls	1 unit per 1,000 sqft	Existing	962	12	\$71	90%	45%	\$0.01	1,161
Wyoming	Grocery	Refrigeration	Case Electronically Commutated Motor	ECM Case Fans	Standard Efficiency Motor	1 unit per 1,000 sqft	Existing	1,002	12	\$240	100%	77%	\$0.04	2,815
Wyoming	Grocery	Refrigeration	Case Replacement Low Temp	Case Replacement Low Temp	No replacement	per square foot	Existing	0.96	15	\$0.10	95%	95%	\$0.01	3,189
Wyoming	Grocery	Refrigeration	Case Replacement Med Temp	Case Replacement Med Temp	No replacement	per square foot	Existing	0.08	15	\$0.05	95%	95%	\$0.09	271
Wyoming	Grocery	Refrigeration	Compressor VSD Retrofit	VSD Compressor	Constant Speed Compressor	per refrigeration ton	Existing	1,483	13	\$226	60%	77%	\$0.02	3,150
Wyoming	Grocery	Refrigeration	Demand Control Defrost - Hot Gas	Refrigerant Defrost	Defrost - Electric	per installation	Existing	860	10	\$8	95%	68%	\$0.00	675
Wyoming	Grocery	Refrigeration	Floating Condenser Head Pressure Controls	Floating Condenser Head Pressure Controls	No Floating Condenser Head Pressure Controls	1 unit per 1,000 sqft	Existing	1,762	15	\$194	50%	81%	\$0.01	2,081
Wyoming	Grocery	Refrigeration	Glass Door ES Refrigerators/Freezers	Glass Door ES Refrigerators/Freezers	Standard Glass Doors	per installation	Existing	2,510	12	\$718	95%	77%	\$0.04	2,233
Wyoming	Grocery	Refrigeration	Night Covers for Display Cases	Night Covers for Display Cases	No Night Covers	per installation	Existing	397	5	\$64	95%	85%	\$0.05	1,899

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Wyoming	Grocery	Refrigeration	Refrigeration Commissioning or Re-commissioning	Commissioning / Re-commissioning	No Commissioning / Re-commissioning	per refrigeration ton	Existing	803	3	\$87	95%	85%	\$0.05	2,856
Wyoming	Grocery	Refrigeration	Solid Door ES Refrigerators/Freezers	Solid Door ES Refrigerators/Freezers	Standard Solid Door	per installation	Existing	1,138	12	\$189	95%	81%	\$0.02	1,068
Wyoming	Grocery	Refrigeration	Standalone to Multiplex Compressor	Standalone to Multiplex Compressor	Standalone compressor	per building sqft	Existing	0.60	13	\$0.08	80%	90%	\$0.02	1,234
Wyoming	Grocery	Refrigeration	Strip Curtains for Walk-Ins	Strip Curtains for Walk-Ins	No Strip Curtains for Walk-In	per installation	Existing	1,324	4	\$183	95%	20%	\$0.05	307
Wyoming	Grocery	Refrigeration	Walk-In Electronically Commutated Motor	ECM Evaporator Fans	Standard Efficiency Motor	per installation	Existing	0.85	12	\$0.17	95%	95%	\$0.03	2,818
Wyoming	Grocery	Refrigeration	Anti-Sweat (Humidistat) Controls	Anti-Sweat (Humidistat) Controls	No Anti-Sweat (Humidistat) Controls	1 unit per 1,000 sqft	New	962	12	\$71	90%	45%	\$0.01	393
Wyoming	Grocery	Refrigeration	Case Electronically Commutated Motor	ECM Case Fans	Standard Efficiency Motor	1 unit per 1,000 sqft	New	1,002	12	\$240	100%	77%	\$0.04	905
Wyoming	Grocery	Refrigeration	Demand Control Defrost - Hot Gas	Refrigerant Defrost	Defrost - Electric	per installation	New	860	10	\$8	95%	68%	\$0.00	217
Wyoming	Grocery	Refrigeration	Floating Condenser Head Pressure Controls	Floating Condenser Head Pressure Controls	No Floating Condenser Head Pressure Controls	1 unit per 1,000 sqft	New	1,762	15	\$194	50%	81%	\$0.01	705
Wyoming	Grocery	Refrigeration	Glass Door ES Refrigerators/Freezers	Glass Door ES Refrigerators/Freezers	Standard Glass Doors	per installation	New	2,510	12	\$718	95%	77%	\$0.04	717
Wyoming	Grocery	Refrigeration	Night Covers for Display Cases	Night Covers for Display Cases	No Night Covers	per installation	New	397	5	\$63	95%	85%	\$0.05	581
Wyoming	Grocery	Refrigeration	Refrigeration Commissioning or Re-commissioning	Commissioning / Re-commissioning	No Commissioning / Re-commissioning	per refrigeration ton	New	496	3	\$33	80%	90%	\$0.03	573
Wyoming	Grocery	Refrigeration	Solid Door ES Refrigerators/Freezers	Solid Door ES Refrigerators/Freezers	Standard Solid Door	per installation	New	1,138	12	\$189	95%	81%	\$0.02	343
Wyoming	Grocery	Refrigeration	Strip Curtains for Walk-Ins	Strip Curtains for Walk-Ins	No Strip Curtains for Walk-In	per installation	New	1,324	4	\$183	95%	20%	\$0.05	99
Wyoming	Grocery	Refrigeration	Walk-In Electronically Commutated Motor	ECM Evaporator Fans	Standard Efficiency Motor	per installation	New	0.85	12	\$0.17	95%	95%	\$0.03	906
Wyoming	Grocery	Space Heat	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	Existing	581	15	\$148	75%	76%	\$0.03	316
Wyoming	Grocery	Space Heat	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	Existing	0.14	18	\$0.17	45%	65%	\$0.14	27
Wyoming	Grocery	Space Heat	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	Existing	0.87	14	\$1	5%	94%	\$0.27	26
Wyoming	Grocery	Space Heat	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	7	13	\$0.24	10%	39%	\$0.00	19
Wyoming	Grocery	Space Heat	Insulation - Ceiling	R-25 (WY State Code)	R-7 (Average Existing Conditions)	per roof sqft	Existing	1	25	\$0.57	75%	62%	\$0.05	463
Wyoming	Grocery	Space Heat	Insulation - Ceiling	R-30	R-25 (WY State Code)	per roof sqft	Existing	0.14	25	\$0.09	75%	85%	\$0.07	60
Wyoming	Grocery	Space Heat	Insulation - Duct	R-5 (WY State Code)	No Insulation	per surface area of duct insul	Existing	2	20	\$1	75%	58%	\$0.07	49
Wyoming	Grocery	Space Heat	Insulation - Duct	R-8	R-5 (WY State Code)	per surface area of duct insul	Existing	1	20	\$0.28	75%	85%	\$0.02	73
Wyoming	Grocery	Space Heat	Insulation - Floor (non-slab)	R-25 (WY State Code)	R-11 (Average Existing Conditions)	per floor area	Existing	1	25	\$0.73	35%	82%	\$0.05	306
Wyoming	Grocery	Space Heat	Insulation - Floor (non-slab)	R-30	R-25 (WY State Code)	per floor area	Existing	0.41	25	\$0.10	35%	90%	\$0.03	128
Wyoming	Grocery	Space Heat	Insulation - Wall	R-13 + 3 (WY State Code)	R-3 (Average Existing Conditions)	per floor area	Existing	3	25	\$1	10%	68%	\$0.04	114
Wyoming	Grocery	Space Heat	Insulation - Wall	R-21	R-13 + 3 (WY State Code)	per floor area	Existing	1	25	\$0.10	10%	85%	\$0.01	66
Wyoming	Grocery	Space Heat	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	Existing	48	30	\$5	50%	95%	\$0.01	638
Wyoming	Grocery	Space Heat	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	Existing	523	10	\$123	95%	28%	\$0.04	40
Wyoming	Grocery	Space Heat	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	0.72	7	\$0.13	90%	85%	\$0.04	488
Wyoming	Grocery	Space Heat	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	New	255	15	\$148	75%	76%	\$0.08	40
Wyoming	Grocery	Space Heat	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	New	0.06	18	\$0.17	45%	65%	\$0.33	4
Wyoming	Grocery	Space Heat	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	New	0.38	14	\$1	5%	94%	\$0.61	4

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Wyoming	Grocery	Space Heat	Insulation - Ceiling	R-30	R-25 (WY State Code)	per roof sqft	New	0.06	25	\$0.09	75%	85%	\$0.15	10
Wyoming	Grocery	Space Heat	Insulation - Duct	R-8	R-5 (WY State Code)	per surface area of duct insul	New	0.65	20	\$0.28	75%	85%	\$0.05	9
Wyoming	Grocery	Space Heat	Insulation - Floor (non-slab)	R-30	R-25 (WY State Code)	per floor area	New	0.18	25	\$0.10	35%	90%	\$0.06	16
Wyoming	Grocery	Space Heat	Insulation - Wall	R-21	R-13 + 3 (WY State Code)	per floor area	New	0.64	25	\$0.10	95%	85%	\$0.02	89
Wyoming	Grocery	Space Heat	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	New	21	30	\$5	50%	95%	\$0.02	82
Wyoming	Grocery	Space Heat	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	New	230	10	\$123	95%	14%	\$0.09	2
Wyoming	Grocery	Water Heat	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	per building sqft	Existing	0.02	10	\$0.23	75%	94%	\$1.96	32
Wyoming	Grocery	Water Heat	Dishwasher Residential	ENERGY STAR <= 324 kWh/yr, <= 5.8 gal/cycle	Federal Standard <= 355 kWh/yr, <= 6.5 gal/cycle	per installation	Existing	30	11	\$30	95%	25%	\$0.10	1
Wyoming	Grocery	Water Heat	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	per installation	Existing	7,223	10	\$2,623	95%	95%	\$0.02	73
Wyoming	Grocery	Water Heat	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	per installation	Existing	3,374	10	\$819	95%	94%	\$-0.02	16
Wyoming	Grocery	Water Heat	Electric Water Heater - High Efficiency	EF = 0.95	EF = 0.92	Per installation	Existing	38	15	\$87	100%	N/A	\$0.29	3
Wyoming	Grocery	Water Heat	Heat Pump Water Heater - Advanced-Efficiency	EF = 2.2	EF = 0.92	Per installation	Existing	712	15	\$1,559	75%	N/A	\$0.28	244
Wyoming	Grocery	Water Heat	Hot Water (SHW) Pipe Insulation	1.0" of Insulation, assuming R-4 (WY State Code)	No Insulation	per linear foot	Existing	1	12	\$2	80%	90%	\$0.20	6
Wyoming	Grocery	Water Heat	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	per installation	Existing	19	9	\$0.00	95%	25%	\$-0.08	8
Wyoming	Grocery	Water Heat	Low-Flow Faucet Aerators	2.2 GPM (Federal Code)	3.0 GPM	per installation	Existing	16	9	\$2	95%	25%	\$-0.06	7
Wyoming	Grocery	Water Heat	Low-Flow Pre-Rinse Spray Valves	0.6 GPM	1.6 GPM (Federal Standard)	per installation	Existing	64	5	\$5	95%	74%	\$-0.07	64
Wyoming	Grocery	Water Heat	Water Cooled Refrigeration with Heat Recovery	Heat Recovery from refrigeration system. Applied to Water Heating Electric End use	No heat recovery	per sqft of refrigerated area	Existing	0.04	10	\$0.75	55%	94%	\$2.75	52
Wyoming	Grocery	Water Heat	Water Heater Temperature Setback	Water Heater Temperature Setback (120 F)	No Change in Water Temperature	per installation	Existing	92	5	\$70	75%	50%	\$0.22	27
Wyoming	Grocery	Water Heat	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	per building sqft	New	0.01	10	\$0.23	75%	94%	\$2.07	10
Wyoming	Grocery	Water Heat	Dishwasher Residential	ENERGY STAR <= 324 kWh/yr, <= 5.8 gal/cycle	Federal Standard <= 355 kWh/yr, <= 6.5 gal/cycle	per installation	New	30	11	\$30	95%	55%	\$0.10	1
Wyoming	Grocery	Water Heat	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	per installation	New	7,253	10	\$2,619	95%	95%	\$0.02	22
Wyoming	Grocery	Water Heat	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	per installation	New	3,389	10	\$814	95%	94%	\$-0.02	5
Wyoming	Grocery	Water Heat	Electric Water Heater - High Efficiency	EF = 0.95	EF = 0.92	Per installation	New	37	15	\$87	100%	N/A	\$0.30	0.92
Wyoming	Grocery	Water Heat	Heat Pump Water Heater - Advanced-Efficiency	EF = 2.2	EF = 0.92	Per installation	New	694	15	\$1,395	75%	N/A	\$0.26	67
Wyoming	Grocery	Water Heat	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	per installation	New	18	9	\$0.00	95%	25%	\$-0.08	2
Wyoming	Grocery	Water Heat	Low-Flow Pre-Rinse Spray Valves	0.6 GPM	1.6 GPM (Federal Standard)	per installation	New	64	5	\$5	95%	74%	\$-0.07	20
Wyoming	Grocery	Water Heat	Water Cooled Refrigeration with Heat Recovery	Heat Recovery from refrigeration system. Applied to Water Heating Electric End use	No heat recovery	per sqft of refrigerated area	New	0.04	10	\$0.75	55%	94%	\$2.90	16
Wyoming	Grocery	Water Heat	Water Heater Temperature Setback	Water Heater Temperature Setback (120 F)	No Change in Water Temperature	per installation	New	87	5	\$70	75%	50%	\$0.23	8
Wyoming	Health	Computers	Computer ENERGY STAR	Computer ENERGY STAR	Computer standard non-ENERGY STAR	Per installation	Existing	135	4	\$28	100%	N/A	\$0.07	1,528

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Wyoming	Health	Computers	Network PC Power Management	Network PC Power Management	No Power Management	per computer	Existing	87	5	\$12	95%	30%	\$0.04	318
Wyoming	Health	Computers	Computer ENERGY STAR	Computer ENERGY STAR	Computer standard non-ENERGY STAR	Per installation	New	135	4	\$28	100%	N/A	\$0.07	86
Wyoming	Health	Computers	Network PC Power Management	Network PC Power Management	No Power Management	per computer	New	87	5	\$12	95%	30%	\$0.04	102
Wyoming	Health	Cooking	Combination Oven	60% cooking efficiency	Non ENERGY STAR	per installation	Existing	11,629	12	\$1,901	90%	90%	\$0.02	0.03
Wyoming	Health	Cooking	Fryers - New CEE Efficient Electric Deep Fat Fryers	15 inch width Deep Fryer CEE 2006 rating; 80% under heavy load, Less than 1000 watt at idle	15 inch width standard electric deep fat fryers	per installation	Existing	933	12	\$1,383	25%	90%	\$0.22	0.00
Wyoming	Health	Cooking	Griddle	70% cooking efficiency	Non ENERGY STAR	per installation	Existing	2,245	12	\$822	95%	85%	\$0.05	0.23
Wyoming	Health	Cooking	High Efficiency Convection Oven	Convection Oven	Standard Oven	per installation	Existing	1,858	12	\$2,008	7%	55%	\$0.16	0.01
Wyoming	Health	Cooking	Hot Food Holding Cabinet	ENERGY STAR	Non ENERGY STAR	per installation	Existing	3,899	12	\$1,754	15%	21%	\$0.07	0.03
Wyoming	Health	Cooking	Steam Cooker	ENERGY STAR	Non ENERGY STAR	per installation	Existing	4,172	12	\$2,541	11%	75%	\$0.09	0.08
Wyoming	Health	Cooking	Combination Oven	60% cooking efficiency	Non ENERGY STAR	per installation	New	11,629	12	\$1,901	90%	90%	\$0.02	0.01
Wyoming	Health	Cooking	Fryers - New CEE Efficient Electric Deep Fat Fryers	15 inch width Deep Fryer CEE 2006 rating; 80% under heavy load, Less than 1000 watt at idle	15 inch width standard electric deep fat fryers	per installation	New	933	12	\$1,383	25%	90%	\$0.22	0.00
Wyoming	Health	Cooking	Griddle	70% cooking efficiency	Non ENERGY STAR	per installation	New	2,245	12	\$822	95%	85%	\$0.05	0.07
Wyoming	Health	Cooking	High Efficiency Convection Oven	Convection Oven	Standard Oven	per installation	New	1,858	12	\$2,008	7%	55%	\$0.16	0.00
Wyoming	Health	Cooking	Hot Food Holding Cabinet	ENERGY STAR	Non ENERGY STAR	per installation	New	3,899	12	\$1,754	15%	21%	\$0.07	0.01
Wyoming	Health	Cooking	Steam Cooker	ENERGY STAR	Non ENERGY STAR	per installation	New	4,172	12	\$2,541	11%	75%	\$0.09	0.02
Wyoming	Health	Cooling Chillers	Automated Ventilation VFD Control (Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	1 unit per 3,000 sqft	Existing	333	15	\$679	5%	94%	\$0.26	2
Wyoming	Health	Cooling Chillers	Chilled Water / Condenser Water Settings-Optimization	Additional Control Features	EMS already installed - No Optimization	1 control point per 1000 sqft	Existing	13	5	\$138	95%	81%	\$2.83	5
Wyoming	Health	Cooling Chillers	Chilled Water Piping Loop w/ VSD Control	VSD for secondary chilled water loop	Primary loop only w/ constant speed pump	per chiller ton	Existing	22	10	\$189	25%	70%	\$1.40	7
Wyoming	Health	Cooling Chillers	Chiller-Water Side Economizer	Install Economizer	No Economizer	per chiller ton	Existing	14	15	\$419	45%	90%	\$3.62	11
Wyoming	Health	Cooling Chillers	Chillers <150 tons (screw) - Advanced Efficiency	0.58 kW/ton (full load)	0.790 kW/Ton (full load)	Per installation	Existing	1,384	20	\$3,216	100%	N/A	\$0.26	89
Wyoming	Health	Cooling Chillers	Chillers <150 tons (screw) - High Efficiency	0.71 kW/ton (full load)	0.790 kW/Ton (full load)	Per installation	Existing	528	20	\$1,225	100%	N/A	\$0.26	0.70
Wyoming	Health	Cooling Chillers	Chillers <150 tons (screw) - Premium Efficiency	0.63 kW/ton	0.790 kW/Ton (full load)	Per installation	Existing	1,029	20	\$2,450	100%	N/A	\$0.27	5
Wyoming	Health	Cooling Chillers	Convert Constant Volume Air System to VAV	Variable Volume Air System	Constant Volume Air System	per building CFM	Existing	0.33	15	\$2	15%	68%	\$1.00	18
Wyoming	Health	Cooling Chillers	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	Existing	0.11	15	\$0.69	15%	98%	\$0.81	8
Wyoming	Health	Cooling Chillers	Cooling Tower-Decrease Approach Temperature	6 Deg F	10 Deg F	per chiller ton	Existing	23	8	\$26	10%	94%	\$0.23	4
Wyoming	Health	Cooling Chillers	Cooling Tower-Two-Speed Fan Motor	Cooling Tower-Two-Speed Fan Motor	Cooling Tower-One-Speed Fan Motor	per chiller ton	Existing	41	15	\$2	95%	35%	\$0.01	37
Wyoming	Health	Cooling Chillers	Cooling Tower-VSD Fan Control	Variable-Speed Tower Fans replace Two-Speed	Cooling Tower-Two-Speed Fan Motor	per chiller ton	Existing	11	13	\$19	95%	75%	\$0.23	18
Wyoming	Health	Cooling Chillers	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	Existing	111	15	\$148	75%	76%	\$0.17	43
Wyoming	Health	Cooling Chillers	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	Existing	0.11	40	\$8	4%	98%	\$6.68	0.19

Table C.2.2. Commercial Measure Details

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Wyoming	Health	Cooling Chillers	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	0.72	13	\$0.24	10%	39%	\$0.05	1
Wyoming	Health	Cooling Chillers	Insulation - Ceiling	R-25 (WY State Code)	R-11 (Average Existing Conditions)	per roof sqft	Existing	0.00	25	\$0.57	75%	66%	\$13.81	1
Wyoming	Health	Cooling Chillers	Pipe Insulation	1.5" of Insulation, assuming R-6 (WY State Code)	No Insulation	per linear feet of insulation	Existing	3	15	\$3	65%	45%	\$0.12	3
Wyoming	Health	Cooling Chillers	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	0.13	7	\$0.13	90%	85%	\$0.21	69
Wyoming	Health	Cooling Chillers	Window Film	Window Film	No Film	per 100 sqft of window glazing	Existing	1	10	\$129	90%	68%	\$14.99	0.33
Wyoming	Health	Cooling Chillers	Windows-High Efficiency	U-0.32	U-0.50 (WY State Code)	per window sqft	Existing	2	25	\$67	15%	90%	\$3.36	11
Wyoming	Health	Cooling Chillers	Windows-High Efficiency	U-0.50 (WY State Code)	U-0.67 (Average Existing Conditions)	per window sqft	Existing	2	25	\$25	15%	72%	\$1.20	9
Wyoming	Health	Cooling Chillers	Automated Ventilation VFD Control(Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	1 unit per 3,000 sqft	New	167	15	\$365	5%	94%	\$0.28	0.65
Wyoming	Health	Cooling Chillers	Chilled Water / Condenser Water Settings-Optimization	Additional Control Features	EMS already installed - No Optimization	1 control point per 1000 sqft	New	6	5	\$138	95%	81%	\$5.62	1
Wyoming	Health	Cooling Chillers	Chilled Water Piping Loop w/ VSD Control	VSD for secondary chilled water loop	Primary loop only w/ constant speed pump	per chiller ton	New	12	10	\$189	25%	70%	\$2.49	1
Wyoming	Health	Cooling Chillers	Chillers <150 tons (screw) - Advanced Efficiency	0.58 kW/ton (full load)	0.790 kW/Ton (full load)	Per installation	New	773	20	\$2,895	100%	N/A	\$0.42	24
Wyoming	Health	Cooling Chillers	Chillers <150 tons (screw) - High Efficiency	0.71 kW/ton (full load)	0.790 kW/Ton (full load)	Per installation	New	295	20	\$1,103	100%	N/A	\$0.42	0.14
Wyoming	Health	Cooling Chillers	Chillers <150 tons (screw) - Premium Efficiency	0.63 kW/ton	0.790 kW/Ton (full load)	Per installation	New	575	20	\$2,205	100%	N/A	\$0.43	1
Wyoming	Health	Cooling Chillers	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	New	0.05	15	\$0.69	15%	98%	\$1.61	1
Wyoming	Health	Cooling Chillers	Cooling Tower-Decrease Approach Temperature	6 Deg F	10 Deg F	per chiller ton	New	13	8	\$26	10%	94%	\$0.41	0.96
Wyoming	Health	Cooling Chillers	Cooling Tower-VSD Fan Control	Variable-Speed Tower Fans replace Two-Speed	Cooling Tower-Two-Speed Fan Motor	per chiller ton	New	6	15	\$19	95%	75%	\$0.37	3
Wyoming	Health	Cooling Chillers	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	New	55	15	\$148	75%	76%	\$0.34	7
Wyoming	Health	Cooling Chillers	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	New	0.05	40	\$8	4%	98%	\$13.25	0.03
Wyoming	Health	Cooling Chillers	Windows-High Efficiency	U-0.32	U-0.50 (WY State Code)	per window sqft	New	1	25	\$67	80%	90%	\$6.67	12
Wyoming	Health	Cooling Dx Evap	Automated Ventilation VFD Control(Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	1 unit per 3,000 sqft	Existing	405	15	\$679	5%	94%	\$0.22	40
Wyoming	Health	Cooling Dx Evap	Convert Constant Volume Air System to VAV	Variable Volume Air System	Constant Volume Air System	per building CFM	Existing	0.40	15	\$2	15%	68%	\$0.82	204
Wyoming	Health	Cooling Dx Evap	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	Existing	0.13	15	\$0.69	15%	98%	\$0.66	102
Wyoming	Health	Cooling Dx Evap	DX Package 65 to 135 kBtu/hr - High Efficiency	DX Package 65 to 135 kBtu/hr - High Efficiency - 11.5 EER	DX Package 65 to 135 kBtu/hr - Standard Efficiency - 11.2 EER	Per installation	Existing	252	15	\$463	100%	N/A	\$0.24	10
Wyoming	Health	Cooling Dx Evap	DX Package 65 to 135 kBtu/hr - Premium Efficiency	DX Package 65 to 135 kBtu/hr - Premium Efficiency - 12.0 EER	DX Package 65 to 135 kBtu/hr - Standard Efficiency - 11.2 EER	Per installation	Existing	652	15	\$931	100%	N/A	\$0.18	361

Table C.2.2. Commercial Measure Details

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Wyoming	Health	Cooling Dx Evap	DX Package-Air Side Economizer	Air-Side Economizer	No Economizer	per DX ton	Existing	60	10	\$155	10%	30%	\$0.43	35
Wyoming	Health	Cooling Dx Evap	DX Tune-Up / Diagnostics	DX Tune-Up / Diagnostics	No DX Tune-Up / Diagnostics	per installation	Existing	304	4	\$245	95%	72%	\$0.31	576
Wyoming	Health	Cooling Dx Evap	Direct / Indirect Evaporative Cooling, Pre-Cooling	Evaporative Cooler	Standard DX cooling	per building CFM	Existing	0.33	15	\$1	50%	94%	\$0.68	896
Wyoming	Health	Cooling Dx Evap	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	Existing	135	15	\$148	75%	76%	\$0.14	569
Wyoming	Health	Cooling Dx Evap	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	Existing	0.03	18	\$0.17	45%	65%	\$0.62	57
Wyoming	Health	Cooling Dx Evap	Evaporative Cooler replaces DX Package 65 to 135 kBTU/hr - Advanced Efficiency	Evaporative Cooler replaces DX Package 65 to 135 kBTU/hr - Advanced Efficiency	DX Package 65 to 135 kBTU/hr - Standard Efficiency - 11.2 EER	Per installation	Existing	3,996	15	\$-7965.9609	25%	N/A	\$-0.35	272
Wyoming	Health	Cooling Dx Evap	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	Existing	0.13	40	\$8	4%	98%	\$5.48	2
Wyoming	Health	Cooling Dx Evap	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	0.88	13	\$0.24	10%	39%	\$0.04	21
Wyoming	Health	Cooling Dx Evap	Insulation - Ceiling	R-25 (WY State Code)	R-11 (Average Existing Conditions)	per roof sqft	Existing	0.00	25	\$0.57	75%	66%	\$37.48	3
Wyoming	Health	Cooling Dx Evap	Insulation - Duct	R-5 (WY State Code)	No Insulation	per surface area of duct insul	Existing	0.51	20	\$1	75%	59%	\$0.30	113
Wyoming	Health	Cooling Dx Evap	Insulation - Duct	R-8	R-5 (WY State Code)	per surface area of duct insul	Existing	0.34	20	\$0.28	75%	85%	\$0.09	130
Wyoming	Health	Cooling Dx Evap	Insulation - Floor (non-slab)	R-30	R-25 (WY State Code)	per floor area	Existing	0.00	25	\$0.10	35%	90%	\$3.54	4
Wyoming	Health	Cooling Dx Evap	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	Existing	8	30	\$5	50%	95%	\$0.06	801
Wyoming	Health	Cooling Dx Evap	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	Existing	202	10	\$122	95%	29%	\$0.10	84
Wyoming	Health	Cooling Dx Evap	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	0.16	7	\$0.13	90%	85%	\$0.17	907
Wyoming	Health	Cooling Dx Evap	Window Film	Window Film	No Film	per 100 sqft of window glazing	Existing	1	10	\$129	90%	68%	\$15.00	3
Wyoming	Health	Cooling Dx Evap	Windows-High Efficiency	U-0.32	U-0.50 (WY State Code)	per window sqft	Existing	2	25	\$67	15%	90%	\$2.76	122
Wyoming	Health	Cooling Dx Evap	Windows-High Efficiency	U-0.50 (WY State Code)	U-0.67 (Average Existing Conditions)	per window sqft	Existing	2	25	\$25	15%	72%	\$0.99	102
Wyoming	Health	Cooling Dx Evap	Automated Ventilation VFD Control(Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	1 unit per 3,000 sqft	New	208	15	\$365	5%	94%	\$0.23	8
Wyoming	Health	Cooling Dx Evap	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	New	0.06	15	\$0.69	15%	98%	\$1.29	21
Wyoming	Health	Cooling Dx Evap	DX Package 65 to 135 kBTU/hr - High Efficiency	DX Package 65 to 135 kBTU/hr - High Efficiency - 11.5 EER	DX Package 65 to 135 kBTU/hr - Standard Efficiency - 11.2 EER	Per installation	New	134	15	\$370	100%	N/A	\$0.36	1
Wyoming	Health	Cooling Dx Evap	DX Package 65 to 135 kBTU/hr - Premium Efficiency	DX Package 65 to 135 kBTU/hr - Premium Efficiency - 12.0 EER	DX Package 65 to 135 kBTU/hr - Standard Efficiency - 11.2 EER	Per installation	New	362	15	\$745	100%	N/A	\$0.27	69
Wyoming	Health	Cooling Dx Evap	Direct / Indirect Evaporative Cooling, Pre-Cooling	Evaporative Cooler	Standard DX cooling	per building CFM	New	0.17	15	\$1	50%	94%	\$1.32	190
Wyoming	Health	Cooling Dx Evap	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	New	69	15	\$148	75%	76%	\$0.28	99
Wyoming	Health	Cooling Dx Evap	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	New	0.01	18	\$0.17	45%	65%	\$1.20	12

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Wyoming	Health	Cooling Dx Evap	Evaporative Cooler replaces DX Package 65 to 135 kBtu/hr - Advanced Efficiency	Evaporative Cooler replaces DX Package 65 to 135 kBtu/hr - Advanced Efficiency	DX Package 65 to 135 kBtu/hr - Standard Efficiency - 11.2 EER	Per installation	New	2,222	15	\$-5970.6453	25%	N/A	\$-0.48	52
Wyoming	Health	Cooling Dx Evap	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	New	0.06	40	\$8	4%	98%	\$10.68	0.44
Wyoming	Health	Cooling Dx Evap	Insulation - Duct	R-8	R-5 (WY State Code)	per surface area of duct insul	New	0.17	20	\$0.28	75%	85%	\$0.18	22
Wyoming	Health	Cooling Dx Evap	Insulation - Floor (non-slab)	R-30	R-25 (WY State Code)	per floor area	New	0.00	25	\$0.10	35%	90%	\$6.90	0.89
Wyoming	Health	Cooling Dx Evap	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	New	4	30	\$5	50%	95%	\$0.12	140
Wyoming	Health	Cooling Dx Evap	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	New	104	10	\$122	95%	15%	\$0.20	7
Wyoming	Health	Cooling Dx Evap	Windows-High Efficiency	U-0.32	U-0.50 (WY State Code)	per window sqft	New	1	25	\$67	80%	90%	\$5.38	145
Wyoming	Health	Heat Pump	Air Source Heat Pump 65 to 135 kBtu/hr - High Efficiency	11.5 EER, 3.4 COP	11.0 EER, 3.3 COP	Per installation	Existing	854	15	\$1,722	100%	N/A	\$0.26	8
Wyoming	Health	Heat Pump	Air Source Heat Pump 65 to 135 kBtu/hr - Premium Efficiency	12.0 EER, 3.8 COP	11.0 EER, 3.3 COP	Per installation	Existing	5,157	15	\$3,445	100%	N/A	\$0.09	590
Wyoming	Health	Heat Pump	Automated Ventilation VFD Control(Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	1 unit per 3,000 sqft	Existing	435	15	\$679	5%	94%	\$0.20	5
Wyoming	Health	Heat Pump	Convert Constant Volume Air System to VAV	Variable Volume Air System	Constant Volume Air System	per building CFM	Existing	1	15	\$2	15%	68%	\$0.23	114
Wyoming	Health	Heat Pump	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	Existing	0.14	15	\$0.69	15%	98%	\$0.62	14
Wyoming	Health	Heat Pump	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	Existing	918	15	\$148	75%	76%	\$0.02	529
Wyoming	Health	Heat Pump	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	Existing	0.22	18	\$0.17	45%	65%	\$0.09	52
Wyoming	Health	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	Existing	1	14	\$1	5%	94%	\$0.20	42
Wyoming	Health	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	Existing	0.14	40	\$8	4%	98%	\$5.10	0.37
Wyoming	Health	Heat Pump	Ground Source Heat Pump Replacing Air Source Heat Pump 65 to 135 kBtu/hr - Advanced Efficiency	16.2 EER 4.0 COP	11.0 EER, 3.3 COP	Per installation	Existing	8,482	30	\$63,465	5%	N/A	\$0.70	25
Wyoming	Health	Heat Pump	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	15	13	\$0.24	10%	39%	\$0.00	52
Wyoming	Health	Heat Pump	Insulation - Ceiling	R-25 (WY State Code)	R-11 (Average Existing Conditions)	per roof sqft	Existing	1	25	\$0.57	75%	66%	\$0.05	473
Wyoming	Health	Heat Pump	Insulation - Ceiling	R-30	R-25 (WY State Code)	per roof sqft	Existing	0.13	25	\$0.09	75%	85%	\$0.07	69
Wyoming	Health	Heat Pump	Insulation - Duct	R-5 (WY State Code)	No Insulation	per surface area of duct insul	Existing	3	20	\$1	75%	59%	\$0.04	104
Wyoming	Health	Heat Pump	Insulation - Duct	R-8	R-5 (WY State Code)	per surface area of duct insul	Existing	2	20	\$0.28	75%	85%	\$0.01	121
Wyoming	Health	Heat Pump	Insulation - Floor (non-slab)	R-25 (WY State Code)	R-19 (Average Existing Conditions)	per floor area	Existing	0.06	25	\$0.73	35%	83%	\$1.09	15
Wyoming	Health	Heat Pump	Insulation - Floor (non-slab)	R-30	R-25 (WY State Code)	per floor area	Existing	0.46	25	\$0.10	35%	90%	\$0.02	141
Wyoming	Health	Heat Pump	Insulation - Wall	R-21	R-13 + 3 (WY State Code)	per floor area	Existing	0.66	25	\$0.10	10%	85%	\$0.02	21
Wyoming	Health	Heat Pump	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	Existing	77	30	\$5	50%	95%	\$0.01	1,057
Wyoming	Health	Heat Pump	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	Existing	1,377	10	\$122	95%	29%	\$0.01	79

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State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Wyoming	Health	Heat Pump	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	1	7	\$0.13	90%	85%	\$0.03	830
Wyoming	Health	Heat Pump	Window Film	Window Film	No Film	per 100 sqft of window glazing	Existing	1	10	\$129	90%	68%	\$14.97	0.50
Wyoming	Health	Heat Pump	Windows-High Efficiency	U-0.32	U-0.50 (WY State Code)	per window sqft	Existing	0.71	25	\$67	15%	90%	\$9.68	5
Wyoming	Health	Heat Pump	Windows-High Efficiency	U-0.50 (WY State Code)	U-0.67 (Average Existing Conditions)	per window sqft	Existing	0.04	25	\$25	15%	72%	\$54.97	0.28
Wyoming	Health	Heat Pump	Air Source Heat Pump 65 to 135 kBtu/hr - High Efficiency	11.5 EER, 3.4 COP	11.0 EER, 3.3 COP	Per installation	New	477	15	\$1,378	100%	N/A	\$0.37	1
Wyoming	Health	Heat Pump	Air Source Heat Pump 65 to 135 kBtu/hr - Premium Efficiency	12.0 EER, 3.8 COP	11.0 EER, 3.3 COP	Per installation	New	3,476	15	\$2,756	100%	N/A	\$0.10	139
Wyoming	Health	Heat Pump	Automated Ventilation VFD Control(Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	1 unit per 3,000 sqft	New	227	15	\$365	5%	94%	\$0.21	1
Wyoming	Health	Heat Pump	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	New	0.07	15	\$0.69	15%	98%	\$1.18	3
Wyoming	Health	Heat Pump	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	New	590	15	\$148	75%	76%	\$0.03	113
Wyoming	Health	Heat Pump	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	New	0.14	18	\$0.17	45%	65%	\$0.14	13
Wyoming	Health	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	New	0.77	14	\$1	5%	94%	\$0.30	11
Wyoming	Health	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	New	0.07	40	\$8	4%	98%	\$9.76	0.07
Wyoming	Health	Heat Pump	Ground Source Heat Pump Replacing Air Source Heat Pump 65 to 135 kBtu/hr - Advanced Efficiency	16.2 EER 4.0 COP	11.0 EER, 3.3 COP	Per installation	New	5,581	30	\$33,690	5%	N/A	\$0.55	5
Wyoming	Health	Heat Pump	Insulation - Ceiling	R-30	R-25 (WY State Code)	per roof sqft	New	0.09	25	\$0.09	75%	85%	\$0.10	19
Wyoming	Health	Heat Pump	Insulation - Duct	R-8	R-5 (WY State Code)	per surface area of duct insul	New	1	20	\$0.28	75%	85%	\$0.02	26
Wyoming	Health	Heat Pump	Insulation - Floor (non-slab)	R-30	R-25 (WY State Code)	per floor area	New	0.32	25	\$0.10	35%	90%	\$0.03	32
Wyoming	Health	Heat Pump	Insulation - Wall	R-21	R-13 + 3 (WY State Code)	per floor area	New	0.46	25	\$0.10	95%	85%	\$0.02	47
Wyoming	Health	Heat Pump	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	New	49	30	\$5	50%	95%	\$0.01	229
Wyoming	Health	Heat Pump	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	New	885	10	\$122	95%	15%	\$0.02	8
Wyoming	Health	Heat Pump	Windows-High Efficiency	U-0.32	U-0.50 (WY State Code)	per window sqft	New	0.09	25	\$67	80%	90%	\$75.56	1
Wyoming	Health	Hvac Aux	Convert Constant Volume Air System to VAV	Variable Volume Air System	Constant Volume Air System	per building CFM	Existing	0.80	15	\$2	15%	68%	\$0.42	1,099
Wyoming	Health	Hvac Aux	Cooking Hood Controls	Demand-Ventilation Control	No Controls	per installation	Existing	1,844	18	\$3,971	95%	85%	\$0.25	286
Wyoming	Health	Hvac Aux	Motor - CEE Premium-Efficiency Plus	CEE PE+ Motor for HVAC Applications	NEMA Efficiency Motors	per HP	Existing	65	15	\$6	95%	76%	\$0.01	536
Wyoming	Health	Hvac Aux	Motor - VAV Box High Efficiency (ECM)	ECM Motor	Standard Efficiency Motor	per installation	Existing	167	15	\$176	8%	77%	\$0.14	291
Wyoming	Health	Hvac Aux	Motor Rewind	>15, <500 HP	No Rewind	per HP	Existing	13	8	\$4	65%	25%	\$0.07	19
Wyoming	Health	Hvac Aux	Optimized Variable Volume Lab Hood Design	Optimized Variable Volume Lab Hood Design	Constant Volume Lab Hood Design	per installation	Existing	536	13	\$1,439	65%	59%	\$0.38	568
Wyoming	Health	Hvac Aux	Cooking Hood Controls	Demand-Ventilation Control	No Controls	per installation	New	1,844	18	\$4,211	95%	85%	\$0.27	92
Wyoming	Health	Hvac Aux	Low Pressure Distribution Complex HVAC	Low Pressure Distribution Complex HVAC	VAV/CV	per building sqft	New	0.83	50	\$2	24%	98%	\$0.22	676
Wyoming	Health	Hvac Aux	Motor - CEE Premium-Efficiency Plus	CEE PE+ Motor for HVAC Applications	NEMA Efficiency Motors	per HP	New	55	15	\$6	95%	76%	\$0.02	182
Wyoming	Health	Hvac Aux	Motor - VAV Box High Efficiency (ECM)	ECM Motor	Standard Efficiency Motor	per installation	New	141	15	\$176	8%	77%	\$0.16	79

Table C.2.2. Commercial Measure Details

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Wyoming	Health	Hvac Aux	Optimized Variable Volume Lab Hood Design	Optimized Variable Volume Lab Hood Design	Constant Volume Lab Hood Design	per installation	New	453	15	\$1,439	65%	59%	\$0.41	154
Wyoming	Health	Lighting Exterior	Covered Parking Lighting	Covered Parking Lighting	Normal Lighting	per building sqft	Existing	0.09	10	\$0.02	80%	95%	\$0.05	968
Wyoming	Health	Lighting Exterior	Daylighting Controls, Outdoors (Photocell)	Photocell	No Controls	per installation	Existing	21	8	\$28	75%	70%	\$0.25	66
Wyoming	Health	Lighting Exterior	Exterior Building Lighting	30% savings	Normal Lighting	per installation	Existing	239	15	\$333	62%	90%	\$0.18	652
Wyoming	Health	Lighting Exterior	Solid State LED White Lighting	Landscape, merchandise, signage, structure & task lighting (2.5 W)	50W 10hrs/day, 365 day/yr	per installation	Existing	2	14	\$35	75%	95%	\$2.00	13
Wyoming	Health	Lighting Exterior	Surface Parking Lighting	Surface Parking Lighting	Normal Lighting	per building sqft	Existing	0.05	19	\$0.06	62%	95%	\$0.16	405
Wyoming	Health	Lighting Exterior	Covered Parking Lighting	Covered Parking Lighting	Normal Lighting	per building sqft	New	0.09	10	\$0.02	80%	95%	\$0.05	311
Wyoming	Health	Lighting Exterior	Daylighting Controls, Outdoors (Photocell)	Photocell	No Controls	per installation	New	21	8	\$28	75%	70%	\$0.25	21
Wyoming	Health	Lighting Exterior	Exterior Building Lighting	30% savings	Normal Lighting	per installation	New	239	15	\$333	62%	90%	\$0.18	209
Wyoming	Health	Lighting Exterior	Solid State LED White Lighting	Landscape, merchandise, signage, structure & task lighting (2.5 W)	50W 10hrs/day, 365 day/yr	per installation	New	2	14	\$35	75%	95%	\$2.00	4
Wyoming	Health	Lighting Exterior	Surface Parking Lighting	Surface Parking Lighting	Normal Lighting	per building sqft	New	0.05	19	\$0.06	62%	95%	\$0.16	130
Wyoming	Health	Lighting Interior	Cold Cathode Lighting	Cold Cathode Lighting 5 wats	30 W Incandescent Bulb	per installation	Existing	553	5	\$12	15%	94%	\$0.01	213
Wyoming	Health	Lighting Interior	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	Existing	0.28	8	\$0.85	30%	51%	\$0.59	54
Wyoming	Health	Lighting Interior	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	Existing	0.63	8	\$0.63	30%	51%	\$0.20	122
Wyoming	Health	Lighting Interior	Exit Sign - LED	LED Exit Sign (2 Watts)	CFL Exit Sign (9 Watts)	per installation	Existing	95	16	\$16	95%	50%	\$0.02	463
Wyoming	Health	Lighting Interior	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign (2 Watts)	per installation	Existing	17	13	\$30	95%	98%	\$0.25	55
Wyoming	Health	Lighting Interior	LED Refrigeration Case Lights	LED Refrigeration Case Lights	Fluorescent Refrigeration Case	per installation	Existing	211	8	\$247	15%	80%	\$0.23	86
Wyoming	Health	Lighting Interior	Lighting Package, High Efficiency	15% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	Existing	0.55	13	\$0.04	90%	53%	\$0.01	2,909
Wyoming	Health	Lighting Interior	Lighting Package, High Efficiency	Code Required LPD And Control Strategies	Existing Lighting Design LPD	per building sqft	Existing	1	13	\$0.74	90%	79%	\$0.06	18,163
Wyoming	Health	Lighting Interior	Lighting Package, Premium Efficiency	25% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	Existing	0.92	13	\$0.20	75%	62%	\$0.03	1,170
Wyoming	Health	Lighting Interior	Lighting Package, Premium High Bay	35% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	Existing	0.02	13	\$0.01	70%	83%	\$0.08	209
Wyoming	Health	Lighting Interior	Occupancy Sensor Control, Fluorescent	Occupancy Sensor Control, Fluorescent	No Occupancy Sensor	per occupancy sensor	Existing	957	8	\$65	90%	43%	\$0.01	356
Wyoming	Health	Lighting Interior	Time Clock	Time Clock	No Controls	per 10,000 Watts	Existing	741	8	\$174	20%	**	\$0.05	178
Wyoming	Health	Lighting Interior	Cold Cathode Lighting	Cold Cathode Lighting 5 wats	30 W Incandescent Bulb	per installation	New	347	5	\$12	15%	94%	\$0.01	42
Wyoming	Health	Lighting Interior	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	New	0.17	8	\$0.85	30%	51%	\$0.94	13
Wyoming	Health	Lighting Interior	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	New	0.33	8	\$0.63	30%	51%	\$0.38	25
Wyoming	Health	Lighting Interior	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign (2 Watts)	per installation	New	17	13	\$30	95%	98%	\$0.25	70
Wyoming	Health	Lighting Interior	LED Refrigeration Case Lights	LED Refrigeration Case Lights	Fluorescent Refrigeration Case	per installation	New	211	8	\$247	15%	80%	\$0.23	27
Wyoming	Health	Lighting Interior	Lighting Package, High Efficiency	15% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	New	0.55	15	\$0.00	90%	53%	\$0.00	935
Wyoming	Health	Lighting Interior	Lighting Package, Premium Efficiency	25% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	New	0.92	15	\$0.09	75%	62%	\$0.01	375

Table C.2.2. Commercial Measure Details

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Wyoming	Health	Lighting Interior	Lighting Package, Premium High Bay	35% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	New	0.02	15	\$0.00	70%	83%	\$0.01	67
Wyoming	Health	Lighting Interior	Occupancy Sensor Control, Fluorescent	Occupancy Sensor Control, Fluorescent	No Occupancy Sensor	per occupancy sensor	New	599	8	\$65	90%	43%	\$0.02	88
Wyoming	Health	Lighting Interior	Time Clock	Time Clock	No Controls	per 10,000 Watts	New	741	8	\$174	20%	**%	\$0.05	44
Wyoming	Health	Other Office Equipment	ENERGY STAR - Copiers	ENERGY STAR Copiers	Standard Copier	per installation	Existing	72	6	\$160	95%	45%	\$0.54	76
Wyoming	Health	Other Office Equipment	ENERGY STAR - Fax	ENERGY STAR Fax	Standard Fax	per installation	Existing	77	6	\$1	95%	45%	\$0.00	81
Wyoming	Health	Other Office Equipment	ENERGY STAR - Monitors	ENERGY STAR Features Enabled	Non-ENERGY STAR Features	per installation	Existing	14	5	\$16	64%	15%	\$0.31	18
Wyoming	Health	Other Office Equipment	ENERGY STAR - Printers	ENERGY STAR Printers	Standard Printers	per installation	Existing	135	6	\$15	95%	40%	\$0.03	106
Wyoming	Health	Other Office Equipment	ENERGY STAR - Scanners	ENERGY STAR Scanners	Standard Scanner	per installation	Existing	70	6	\$1	95%	45%	\$0.00	74
Wyoming	Health	Other Office Equipment	ENERGY STAR - Copiers	ENERGY STAR Copiers	Standard Copier	per installation	New	72	6	\$160	95%	45%	\$0.54	24
Wyoming	Health	Other Office Equipment	ENERGY STAR - Fax	ENERGY STAR Fax	Standard Fax	per installation	New	77	6	\$1	95%	45%	\$0.00	26
Wyoming	Health	Other Office Equipment	ENERGY STAR - Monitors	ENERGY STAR Features Enabled	Non-ENERGY STAR Features	per installation	New	14	5	\$16	64%	15%	\$0.31	5
Wyoming	Health	Other Office Equipment	ENERGY STAR - Printers	ENERGY STAR Printers	Standard Printers	per installation	New	135	6	\$15	95%	40%	\$0.03	34
Wyoming	Health	Other Office Equipment	ENERGY STAR - Scanners	ENERGY STAR Scanners	Standard Scanner	per installation	New	70	6	\$1	95%	45%	\$0.00	23
Wyoming	Health	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	per installation	Existing	7	7	\$2	20%	90%	\$0.06	5
Wyoming	Health	Other Plug Load	ENERGY STAR - Water Cooler	ENERGY STAR Water Cooler (Hot/Cold Water)	Non-ENERGY STAR Water Cooler	per installation	Existing	357	10	\$1	95%	75%	\$0.00	315
Wyoming	Health	Other Plug Load	Ice Maker	High-Efficiency Ice Maker	Standard Ice Maker	per installation	Existing	416	10	\$142	95%	86%	\$0.03	46
Wyoming	Health	Other Plug Load	Power Supply Transformer/Converter	80 Plus	85% efficient power supply (> 51W)	1 unit per 2,000 sqft	Existing	15	4	\$0.40	95%	86%	\$0.01	84
Wyoming	Health	Other Plug Load	Residential Refrigerator	ENERGY STAR	Federal Standard	per installation	Existing	79	12	\$122	13%	65%	\$0.23	19
Wyoming	Health	Other Plug Load	Residential Refrigerator/Freezer Recycling	Recycling Existing Refrigerator/Freezer	Existing Refrigerator/Freezer	per installation	Existing	937	4	\$561	25%	35%	\$0.21	74
Wyoming	Health	Other Plug Load	Server Virtualization	Server Virtualization	No Virtualization	number of virtualized servers	Existing	2,225	4	\$1,871	72%	85%	\$0.67	599
Wyoming	Health	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	1 unit per 1,500 sqft	Existing	98	5	\$20	60%	90%	\$0.06	489
Wyoming	Health	Other Plug Load	Vending Machines- High Efficiency	ENERGY STAR (Tier 2) Vending Machines- High Efficiency 500 can capacity Under 5.92 kWh/day	Vending Machines- Standard 13 kWh/day	per installation	Existing	236	14	\$163	10%	80%	\$0.09	5
Wyoming	Health	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	per installation	New	7	7	\$2	20%	90%	\$0.06	1
Wyoming	Health	Other Plug Load	ENERGY STAR - Water Cooler	ENERGY STAR Water Cooler (Hot/Cold Water)	Non-ENERGY STAR Water Cooler	per installation	New	357	10	\$1	95%	75%	\$0.00	101
Wyoming	Health	Other Plug Load	Ice Maker	High-Efficiency Ice Maker	Standard Ice Maker	per installation	New	416	10	\$142	95%	86%	\$0.03	14
Wyoming	Health	Other Plug Load	Power Supply Transformer/Converter	80 Plus	85% efficient power supply (> 51W)	1 unit per 2,000 sqft	New	15	4	\$0.40	95%	86%	\$0.01	27
Wyoming	Health	Other Plug Load	Residential Refrigerator	ENERGY STAR	Federal Standard	per installation	New	79	12	\$122	13%	65%	\$0.23	6
Wyoming	Health	Other Plug Load	Server Virtualization	Server Virtualization	No Virtualization	number of virtualized servers	New	2,225	4	\$1,871	72%	85%	\$0.67	192

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Wyoming	Health	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	1 unit per 1,500 sqft	New	98	5	\$20	60%	90%	\$0.06	157
Wyoming	Health	Other Plug Load	Vending Machines- High Efficiency	ENERGY STAR (Tier 2) Vending Machines- High Efficiency 500 can capacity Under 5.92 kWh/day	Vending Machines- Standard 13 kWh/day	per installation	New	236	14	\$163	10%	80%	\$0.09	1
Wyoming	Health	Refrigeration	Anti-Sweat (Humidistat) Controls	Anti-Sweat (Humidistat) Controls	No Anti-Sweat (Humidistat) Controls	1 unit per 1,000 sqft	Existing	967	12	\$70	15%	45%	\$0.01	5
Wyoming	Health	Refrigeration	Case Electronically Commutated Motor	ECM Case Fans	Standard Efficiency Motor	1 unit per 10,000 sqft	Existing	1,006	12	\$240	5%	77%	\$0.04	10
Wyoming	Health	Refrigeration	Case Replacement Low Temp	Case Replacement Low Temp	No replacement	per square foot	Existing	0.01	15	\$0.10	5%	95%	\$0.72	2
Wyoming	Health	Refrigeration	Case Replacement Med Temp	Case Replacement Med Temp	No replacement	per square foot	Existing	0.00	15	\$0.05	5%	95%	\$4.39	0.21
Wyoming	Health	Refrigeration	Demand Control Defrost - Hot Gas	Refrigerant Defrost	Defrost - Electric	per installation	Existing	45	10	\$14	5%	68%	\$0.05	0.84
Wyoming	Health	Refrigeration	Glass Door ES Refrigerators/Freezers	Glass Door ES Refrigerators/Freezers	Standard Glass Doors	per installation	Existing	2,522	12	\$724	95%	77%	\$0.04	31
Wyoming	Health	Refrigeration	Refrigeration Commissioning or Re-commissioning	Commissioning / Re-commissioning	No Commissioning / Re-commissioning	per refrigeration ton	Existing	807	3	\$88	10%	85%	\$0.05	9
Wyoming	Health	Refrigeration	Solid Door ES Refrigerators/Freezers	Solid Door ES Refrigerators/Freezers	Standard Solid Door	per installation	Existing	1,143	12	\$193	95%	81%	\$0.03	15
Wyoming	Health	Refrigeration	Standalone to Multiplex Compressor	Standalone to Multiplex Compressor	Standalone compressor	per building sqft	Existing	0.01	13	\$0.00	5%	90%	\$0.02	2
Wyoming	Health	Refrigeration	Strip Curtains for Walk-Ins	Strip Curtains for Walk-Ins	No Strip Curtains for Walk-In	per installation	Existing	70	4	\$183	15%	20%	\$0.90	1
Wyoming	Health	Refrigeration	Walk-In Electronically Commutated Motor	ECM Evaporator Fans	Standard Efficiency Motor	per installation	Existing	0.02	12	\$0.17	5%	95%	\$0.96	3
Wyoming	Health	Refrigeration	Anti-Sweat (Humidistat) Controls	Anti-Sweat (Humidistat) Controls	No Anti-Sweat (Humidistat) Controls	1 unit per 1,000 sqft	New	967	12	\$70	15%	45%	\$0.01	1
Wyoming	Health	Refrigeration	Case Electronically Commutated Motor	ECM Case Fans	Standard Efficiency Motor	1 unit per 10,000 sqft	New	1,006	12	\$240	5%	77%	\$0.04	3
Wyoming	Health	Refrigeration	Demand Control Defrost - Hot Gas	Refrigerant Defrost	Defrost - Electric	per installation	New	45	10	\$14	5%	68%	\$0.05	0.27
Wyoming	Health	Refrigeration	Glass Door ES Refrigerators/Freezers	Glass Door ES Refrigerators/Freezers	Standard Glass Doors	per installation	New	2,522	12	\$724	95%	77%	\$0.04	10
Wyoming	Health	Refrigeration	Refrigeration Commissioning or Re-commissioning	Commissioning / Re-commissioning	No Commissioning / Re-commissioning	per refrigeration ton	New	498	3	\$32	5%	90%	\$0.03	1
Wyoming	Health	Refrigeration	Solid Door ES Refrigerators/Freezers	Solid Door ES Refrigerators/Freezers	Standard Solid Door	per installation	New	1,143	12	\$193	95%	81%	\$0.03	4
Wyoming	Health	Refrigeration	Strip Curtains for Walk-Ins	Strip Curtains for Walk-Ins	No Strip Curtains for Walk-In	per installation	New	70	4	\$183	15%	20%	\$0.90	0.37
Wyoming	Health	Refrigeration	Walk-In Electronically Commutated Motor	ECM Evaporator Fans	Standard Efficiency Motor	per installation	New	0.02	12	\$0.17	5%	95%	\$0.96	1
Wyoming	Health	Space Heat	Convert Constant Volume Air System to VAV	Variable Volume Air System	Constant Volume Air System	per building CFM	Existing	1	15	\$2	15%	68%	\$0.21	141
Wyoming	Health	Space Heat	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	Existing	1,226	15	\$148	75%	76%	\$0.02	831
Wyoming	Health	Space Heat	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	Existing	0.30	18	\$0.17	45%	65%	\$0.07	80
Wyoming	Health	Space Heat	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	Existing	1	14	\$1	5%	94%	\$0.13	76
Wyoming	Health	Space Heat	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	16	13	\$0.24	10%	39%	\$0.00	66
Wyoming	Health	Space Heat	Insulation - Ceiling	R-25 (WY State Code)	R-11 (Average Existing Conditions)	per roof sqft	Existing	1	25	\$0.57	75%	66%	\$0.03	897
Wyoming	Health	Space Heat	Insulation - Ceiling	R-30	R-25 (WY State Code)	per roof sqft	Existing	0.30	25	\$0.09	75%	85%	\$0.03	196
Wyoming	Health	Space Heat	Insulation - Duct	R-5 (WY State Code)	No Insulation	per surface area of duct. Insul	Existing	4	20	\$1	75%	59%	\$0.03	152
Wyoming	Health	Space Heat	Insulation - Duct	R-8	R-5 (WY State Code)	per surface area of duct. Insul	Existing	3	20	\$0.28	75%	85%	\$0.01	195
Wyoming	Health	Space Heat	Insulation - Floor (non-slab)	R-25 (WY State Code)	R-19 (Average Existing Conditions)	per floor area	Existing	1	25	\$0.73	35%	83%	\$0.07	299

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Wyoming	Health	Space Heat	Insulation - Floor (non-slab)	R-30	R-25 (WY State Code)	per floor area	Existing	0.87	25	\$0.10	35%	90%	\$0.01	337
Wyoming	Health	Space Heat	Insulation - Wall	R-21	R-13 + 3 (WY State Code)	per floor area	Existing	4	25	\$0.10	10%	85%	\$0.00	176
Wyoming	Health	Space Heat	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	Existing	103	30	\$5	50%	95%	\$0.00	1,695
Wyoming	Health	Space Heat	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	Existing	1,839	10	\$122	95%	29%	\$0.01	126
Wyoming	Health	Space Heat	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	1	7	\$0.13	90%	85%	\$0.02	1,324
Wyoming	Health	Space Heat	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	New	832	15	\$148	75%	76%	\$0.02	166
Wyoming	Health	Space Heat	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	New	0.20	18	\$0.17	45%	65%	\$0.10	20
Wyoming	Health	Space Heat	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	New	1	14	\$1	5%	94%	\$0.19	19
Wyoming	Health	Space Heat	Insulation - Ceiling	R-30	R-25 (WY State Code)	per roof sqft	New	0.20	25	\$0.09	75%	85%	\$0.05	43
Wyoming	Health	Space Heat	Insulation - Duct	R-8	R-5 (WY State Code)	per surface area of duct insul	New	2	20	\$0.28	75%	85%	\$0.01	38
Wyoming	Health	Space Heat	Insulation - Floor (non-slab)	R-30	R-25 (WY State Code)	per floor area	New	0.59	25	\$0.10	35%	90%	\$0.02	67
Wyoming	Health	Space Heat	Insulation - Wall	R-21	R-13 + 3 (WY State Code)	per floor area	New	2	25	\$0.10	95%	85%	\$0.00	368
Wyoming	Health	Space Heat	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	New	69	30	\$5	50%	95%	\$0.01	338
Wyoming	Health	Space Heat	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	New	1,249	10	\$122	95%	15%	\$0.02	12
Wyoming	Health	Water Heat	Clothes Washer Commercial	Clothes Washer Commercial	Standard Clothes Washers	per installation	Existing	537	11	\$126	95%	80%	\$-0.27	18
Wyoming	Health	Water Heat	Clothes Washer Residential	Energy Star - CEE Tier 1 (MEF 2.0 - 2.19) - Electric DHW & Dryer	MEF = 1.66 - Electric DHW & Dryer (NWPPC 6th Plan Average Efficiency)	per installation	Existing	130	11	\$284	85%	94%	\$0.04	4
Wyoming	Health	Water Heat	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	per building sqft	Existing	0.10	10	\$0.23	55%	94%	\$0.38	159
Wyoming	Health	Water Heat	Dishwasher Residential	ENERGY STAR <= 324 kWh/yr, <= 5.8 gal/cycle	Federal Standard <= 355 kWh/yr, <= 6.5 gal/cycle	per installation	Existing	30	11	\$30	95%	25%	\$0.10	1
Wyoming	Health	Water Heat	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	per installation	Existing	7,287	10	\$2,621	95%	95%	\$0.02	101
Wyoming	Health	Water Heat	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	per installation	Existing	3,404	10	\$806	95%	94%	\$-0.02	23
Wyoming	Health	Water Heat	Electric Water Heater - High Efficiency	EF = 0.95	EF = 0.92	Per installation	Existing	338	15	\$369	100%	N/A	\$0.14	24
Wyoming	Health	Water Heat	Heat Pump Water Heater - Advanced-Efficiency	EF = 2.2	EF = 0.92	Per installation	Existing	6,231	15	\$6,625	75%	N/A	\$0.14	1,574
Wyoming	Health	Water Heat	Hot Water (SHW) Pipe Insulation	1.0" of Insulation, assuming R-4 (WY State Code)	No Insulation	per linear foot	Existing	7	12	\$2	80%	70%	\$0.04	36
Wyoming	Health	Water Heat	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	per installation	Existing	130	9	\$0.00	95%	25%	\$-0.08	59
Wyoming	Health	Water Heat	Low-Flow Faucet Aerators	2.2 GPM (Federal Code)	3.0 GPM	per installation	Existing	109	9	\$2	95%	25%	\$-0.08	49
Wyoming	Health	Water Heat	Low-Flow Pre-Rinse Spray Valves	0.6 GPM	1.6 GPM (Federal Standard)	per installation	Existing	65	5	\$5	95%	83%	\$-0.07	11
Wyoming	Health	Water Heat	Low-Flow Showerheads	2.0 GPM	2.5 GPM (Federal Code)	per installation	Existing	1,047	10	\$6	95%	73%	\$-0.08	389
Wyoming	Health	Water Heat	Low-Flow Showerheads	2.5 GPM (Federal Code)	4.5 GPM	per installation	Existing	2,328	10	\$10	95%	62%	\$-0.08	732
Wyoming	Health	Water Heat	Water Cooled Refrigeration with Heat Recovery	Heat Recovery from refrigeration system. Applied to Water Heating Electric End use	No heat recovery	per sqft of refrigerated area	Existing	0.23	10	\$0.75	3%	94%	\$0.54	0.50
Wyoming	Health	Water Heat	Water Heater Temperature Setback	Water Heater Temperature Setback (120 F)	No Change in Water Temperature	per installation	Existing	158	5	\$70	75%	80%	\$0.13	297
Wyoming	Health	Water Heat	Clothes Washer Commercial	Clothes Washer Commercial	Standard Clothes Washers	per installation	New	537	11	\$126	95%	80%	\$-0.27	5

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Wyoming	Health	Water Heat	Clothes Washer Residential	Energy Star - CEE Tier 1 (MEF 2.0 - 2.19) - Electric DHW & Dryer	MEF = 1.66 - Electric DHW & Dryer (NWPPC 6th Plan Average Efficiency)	per installation	New	130	11	\$284	85%	94%	\$0.04	1
Wyoming	Health	Water Heat	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	per building sqft	New	0.10	10	\$0.23	55%	94%	\$0.39	56
Wyoming	Health	Water Heat	Dishwasher Residential	ENERGY STAR <= 324 kWh/yr, <= 5.8 gal/cycle	Federal Standard <= 355 kWh/yr, <= 6.5 gal/cycle	per installation	New	30	11	\$30	95%	55%	\$0.10	0.97
Wyoming	Health	Water Heat	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	per installation	New	7,287	10	\$2,621	95%	95%	\$0.02	32
Wyoming	Health	Water Heat	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	per installation	New	3,404	10	\$814	95%	94%	\$-0.02	7
Wyoming	Health	Water Heat	Electric Water Heater - High Efficiency	EF = 0.95	EF = 0.92	Per installation	New	335	15	\$369	100%	N/A	\$0.14	6
Wyoming	Health	Water Heat	Heat Pump Water Heater - Advanced-Efficiency	EF = 2.2	EF = 0.92	Per installation	New	6,172	15	\$5,929	75%	N/A	\$0.12	490
Wyoming	Health	Water Heat	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	per installation	New	129	9	\$0.00	95%	25%	\$-0.08	18
Wyoming	Health	Water Heat	Low-Flow Pre-Rinse Spray Valves	0.6 GPM	1.6 GPM (Federal Standard)	per installation	New	65	5	\$5	95%	83%	\$-0.07	3
Wyoming	Health	Water Heat	Low-Flow Showerheads	2.0 GPM	2.5 GPM (Federal Code)	per installation	New	1,037	10	\$6	95%	73%	\$-0.08	122
Wyoming	Health	Water Heat	Water Cooled Refrigeration with Heat Recovery	Heat Recovery from refrigeration system. Applied to Water Heating Electric End use	No heat recovery	per sqft of refrigerated area	New	0.23	10	\$0.75	3%	94%	\$0.54	0.18
Wyoming	Health	Water Heat	Water Heater Temperature Setback	Water Heater Temperature Setback (120 F)	No Change in Water Temperature	per installation	New	156	5	\$70	75%	80%	\$0.13	105
Wyoming	Large Office	Computers	Computer ENERGY STAR	Computer ENERGY STAR	Computer standard non-ENERGY STAR	Per installation	Existing	136	4	\$28	100%	N/A	\$0.07	1,099
Wyoming	Large Office	Computers	Network PC Power Management	Network PC Power Management	No Power Management	per computer	Existing	87	5	\$12	95%	30%	\$0.04	270
Wyoming	Large Office	Computers	Computer ENERGY STAR	Computer ENERGY STAR	Computer standard non-ENERGY STAR	Per installation	New	136	4	\$28	100%	N/A	\$0.07	61
Wyoming	Large Office	Computers	Network PC Power Management	Network PC Power Management	No Power Management	per computer	New	87	5	\$12	95%	30%	\$0.04	87
Wyoming	Large Office	Cooling Chillers	Automated Ventilation VFD Control(Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	1 unit per 3,000 sqft	Existing	360	15	\$681	75%	94%	\$0.25	101
Wyoming	Large Office	Cooling Chillers	Chilled Water / Condenser Water Settings-Optimization	Additional Control Features	EMS already installed - No Optimization	1 control point per 1000 sqft	Existing	15	5	\$139	95%	81%	\$2.63	11
Wyoming	Large Office	Cooling Chillers	Chilled Water Piping Loop w/ VSD Control	VSD for secondary chilled water loop	Primary loop only w/ constant speed pump	per chiller ton	Existing	24	10	\$190	25%	70%	\$1.30	15
Wyoming	Large Office	Cooling Chillers	Chiller-Water Side Economizer	Install Economizer	No Economizer	per chiller ton	Existing	16	15	\$420	45%	45%	\$3.36	11
Wyoming	Large Office	Cooling Chillers	Chillers >300 tons (centrifugal) - High Efficiency	0.55 kW/ton	0.576 kW/ton (full load)	Per installation	Existing	6,077	20	\$1,708	100%	N/A	\$0.03	2
Wyoming	Large Office	Cooling Chillers	Chillers >300 tons (centrifugal) - Premium Efficiency	0.52 kW/ton (full load)	0.576 kW/ton (full load)	Per installation	Existing	11,627	20	\$3,680	100%	N/A	\$0.04	21
Wyoming	Large Office	Cooling Chillers	Chillers >300 tons (centrifugal) with VSD - Advanced Efficiency	0.47 kW/ton w/VSD (full load)	0.576 kW/ton (full load)	Per installation	Existing	16,403	20	\$12,943	100%	N/A	\$0.09	330
Wyoming	Large Office	Cooling Chillers	Convert Constant Volume Air System to VAV	Variable Volume Air System	Constant Volume Air System	per building CFM	Existing	0.36	15	\$2	15%	67%	\$0.93	37
Wyoming	Large Office	Cooling Chillers	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	Existing	0.12	15	\$0.69	80%	98%	\$0.75	94
Wyoming	Large Office	Cooling Chillers	Cooling Tower-Decrease Approach Temperature	6 Deg F	10 Deg F	per chiller ton	Existing	25	8	\$26	10%	94%	\$0.21	10

Table C.2.2. Commercial Measure Details

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Wyoming	Large Office	Cooling Chillers	Cooling Tower-Two-Speed Fan Motor	Cooling Tower-Two-Speed Fan Motor	Cooling Tower-One-Speed Fan Motor	per chiller ton	Existing	45	15	\$2	95%	35%	\$0.01	85
Wyoming	Large Office	Cooling Chillers	Cooling Tower-VSD Fan Control	Variable-Speed Tower Fans replace Two-Speed	Cooling Tower-Two-Speed Fan Motor	per chiller ton	Existing	12	13	\$19	95%	75%	\$0.21	42
Wyoming	Large Office	Cooling Chillers	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	Existing	120	15	\$149	75%	76%	\$0.16	99
Wyoming	Large Office	Cooling Chillers	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	Existing	0.12	40	\$8	4%	98%	\$6.19	0.38
Wyoming	Large Office	Cooling Chillers	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	0.50	13	\$0.24	10%	39%	\$0.07	3
Wyoming	Large Office	Cooling Chillers	Insulation - Ceiling	R-25 (WY State Code)	R-11 (Average Existing Conditions)	per roof sqft	Existing	0.00	25	\$0.57	75%	57%	\$12.81	1
Wyoming	Large Office	Cooling Chillers	Pipe Insulation	1.5" of Insulation, assuming R-6 (WY State Code)	No Insulation	per linear feet of insulation	Existing	3	15	\$3	65%	45%	\$0.11	7
Wyoming	Large Office	Cooling Chillers	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	0.15	7	\$0.13	90%	85%	\$0.19	157
Wyoming	Large Office	Cooling Chillers	Window Film	Window Film	No Film	per 100 sqft of window glazing	Existing	1	10	\$130	90%	68%	\$16.60	0.89
Wyoming	Large Office	Cooling Chillers	Windows-High Efficiency	U-0.32	U-0.50 (WY State Code)	per window sqft	Existing	1	25	\$67	15%	90%	\$4.91	21
Wyoming	Large Office	Cooling Chillers	Windows-High Efficiency	U-0.50 (WY State Code)	U-0.6 (Average Existing Conditions)	per window sqft	Existing	1	25	\$25	15%	70%	\$1.66	19
Wyoming	Large Office	Cooling Chillers	Automated Ventilation VFD Control(Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	1 unit per 3,000 sqft	New	217	15	\$366	75%	94%	\$0.22	26
Wyoming	Large Office	Cooling Chillers	Chilled Water / Condenser Water Settings-Optimization	Additional Control Features	EMS already installed - No Optimization	1 control point per 1000 sqft	New	9	5	\$139	95%	81%	\$4.35	2
Wyoming	Large Office	Cooling Chillers	Chilled Water Piping Loop w/ VSD Control	VSD for secondary chilled water loop	Primary loop only w/ constant speed pump	per chiller ton	New	16	10	\$190	25%	70%	\$1.93	3
Wyoming	Large Office	Cooling Chillers	Chillers >300 tons (centrifugal) - High Efficiency	0.55 kW/ton	0.576 kW/ton (full load)	Per installation	New	4,088	20	\$1,536	100%	N/A	\$0.04	0.65
Wyoming	Large Office	Cooling Chillers	Chillers >300 tons (centrifugal) - Premium Efficiency	0.52 kW/ton (full load)	0.576 kW/ton (full load)	Per installation	New	7,821	20	\$3,313	100%	N/A	\$0.05	4
Wyoming	Large Office	Cooling Chillers	Chillers >300 tons (centrifugal) with VSD - Advanced Efficiency	0.47 kW/ton w/VSD (full load)	0.576 kW/ton (full load)	Per installation	New	11,034	20	\$11,608	100%	N/A	\$0.12	102
Wyoming	Large Office	Cooling Chillers	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	New	0.07	15	\$0.69	80%	98%	\$1.24	22
Wyoming	Large Office	Cooling Chillers	Cooling Tower-Decrease Approach Temperature	6 Deg F	10 Deg F	per chiller ton	New	17	8	\$26	10%	94%	\$0.32	2
Wyoming	Large Office	Cooling Chillers	Cooling Tower-VSD Fan Control	Variable-Speed Tower Fans replace Two-Speed	Cooling Tower-Two-Speed Fan Motor	per chiller ton	New	8	15	\$19	95%	75%	\$0.29	9
Wyoming	Large Office	Cooling Chillers	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	New	72	15	\$149	75%	76%	\$0.27	20
Wyoming	Large Office	Cooling Chillers	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	New	0.07	40	\$8	4%	98%	\$10.25	0.08
Wyoming	Large Office	Cooling Chillers	Natural Ventilation	Natural Ventilation Design Reduction in Cooling	None - Standard Ventilation	per building sqft	New	0.07	15	\$0.85	20%	75%	\$1.52	4
Wyoming	Large Office	Cooling Chillers	Windows-High Efficiency	U-0.32	U-0.50 (WY State Code)	per window sqft	New	0.85	25	\$67	80%	90%	\$8.12	29
Wyoming	Large Office	Cooling Dx Evap	Automated Ventilation VFD Control(Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	1 unit per 3,000 sqft	Existing	446	15	\$681	75%	94%	\$0.20	101
Wyoming	Large Office	Cooling Dx Evap	Convert Constant Volume Air System to VAV	Variable Volume Air System	Constant Volume Air System	per building CFM	Existing	0.44	15	\$2	15%	67%	\$0.75	31

Table C.2.2. Commercial Measure Details

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Wyoming	Large Office	Cooling Dx Evap	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	Existing	0.14	15	\$0.69	35%	98%	\$0.60	37
Wyoming	Large Office	Cooling Dx Evap	DX Package 240 to 760 kBTU/hr - High Efficiency	DX Package 240 to 760 kBTU/hr - High Efficiency 10.5	DX Package 240 to 760 kBTU/hr - Standard Efficiency 10.0 EER	Per installation	Existing	3,017	15	\$8,795	100%	N/A	\$0.38	2
Wyoming	Large Office	Cooling Dx Evap	DX Package 240 to 760 kBTU/hr - Premium Efficiency	DX Package 240 to 760 kBTU/hr - Premium Efficiency 10.8 EER	DX Package 240 to 760 kBTU/hr - Standard Efficiency 10.0 EER	Per installation	Existing	5,139	15	\$14,408	100%	N/A	\$0.36	64
Wyoming	Large Office	Cooling Dx Evap	DX Package-Air Side Economizer	Air-Side Economizer	No Economizer	per DX ton	Existing	67	10	\$155	10%	20%	\$0.39	3
Wyoming	Large Office	Cooling Dx Evap	DX Tune-Up / Diagnostics	DX Tune-Up / Diagnostics	No DX Tune-Up / Diagnostics	per installation	Existing	335	4	\$245	95%	72%	\$0.28	90
Wyoming	Large Office	Cooling Dx Evap	Direct / Indirect Evaporative Cooling, Pre-Cooling	Evaporative Cooler	Standard DX cooling	per building CFM	Existing	0.37	15	\$1	50%	94%	\$0.62	138
Wyoming	Large Office	Cooling Dx Evap	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	Existing	148	15	\$149	75%	76%	\$0.13	95
Wyoming	Large Office	Cooling Dx Evap	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	Existing	0.03	18	\$0.17	45%	65%	\$0.56	8
Wyoming	Large Office	Cooling Dx Evap	Evaporative Cooler replaces DX Package - Advanced Efficiency	Evaporative Cooler replaces DX Package - Advanced Efficiency	DX Package 240 to 760 kBTU/hr - Standard Efficiency 10.0 EER	Per installation	Existing	31,890	15	\$-48928.382	25%	N/A	\$-0.26	20
Wyoming	Large Office	Cooling Dx Evap	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	Existing	0.14	40	\$8	4%	98%	\$4.99	0.33
Wyoming	Large Office	Cooling Dx Evap	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	0.62	13	\$0.24	10%	39%	\$0.06	3
Wyoming	Large Office	Cooling Dx Evap	Insulation - Ceiling	R-25 (WY State Code)	R-11 (Average Existing Conditions)	per roof sqft	Existing	0.00	25	\$0.57	75%	57%	\$34.12	0.48
Wyoming	Large Office	Cooling Dx Evap	Insulation - Duct	R-5 (WY State Code)	No Insulation	per surface area of duct insul	Existing	0.56	20	\$1	75%	58%	\$0.28	17
Wyoming	Large Office	Cooling Dx Evap	Insulation - Duct	R-8	R-5 (WY State Code)	per surface area of duct insul	Existing	0.37	20	\$0.28	75%	85%	\$0.08	21
Wyoming	Large Office	Cooling Dx Evap	Insulation - Floor (non-slab)	R-30	R-25 (WY State Code)	per floor area	Existing	0.00	25	\$0.10	35%	90%	\$3.22	0.69
Wyoming	Large Office	Cooling Dx Evap	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	Existing	9	30	\$5	50%	95%	\$0.05	133
Wyoming	Large Office	Cooling Dx Evap	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	Existing	1,359	10	\$121	95%	26%	\$0.01	13
Wyoming	Large Office	Cooling Dx Evap	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	0.18	7	\$0.13	90%	85%	\$0.16	152
Wyoming	Large Office	Cooling Dx Evap	Window Film	Window Film	No Film	per 100 sqft of window glazing	Existing	1	10	\$130	90%	68%	\$16.49	0.62
Wyoming	Large Office	Cooling Dx Evap	Windows-High Efficiency	U-0.32	U-0.50 (WY State Code)	per window sqft	Existing	1	25	\$67	15%	90%	\$3.95	18
Wyoming	Large Office	Cooling Dx Evap	Windows-High Efficiency	U-0.50 (WY State Code)	U-0.6 (Average Existing Conditions)	per window sqft	Existing	1	25	\$25	15%	70%	\$1.34	16
Wyoming	Large Office	Cooling Dx Evap	Automated Ventilation VFD Control(Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	1 unit per 3,000 sqft	New	292	15	\$366	75%	94%	\$0.16	25
Wyoming	Large Office	Cooling Dx Evap	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	New	0.09	15	\$0.69	35%	98%	\$0.92	9
Wyoming	Large Office	Cooling Dx Evap	DX Package 240 to 760 kBTU/hr - High Efficiency	DX Package 240 to 760 kBTU/hr - High Efficiency 10.5	DX Package 240 to 760 kBTU/hr - Standard Efficiency 10.0 EER	Per installation	New	2,004	15	\$7,037	100%	N/A	\$0.45	0.48

Table C.2.2. Commercial Measure Details

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Wyoming	Large Office	Cooling Dx Evap	DX Package 240 to 760 kBTU/hr - Premium Efficiency	DX Package 240 to 760 kBTU/hr - Premium Efficiency	DX Package 240 to 760 kBTU/hr - Standard Efficiency 10.8 EER	Per installation	New	3,619	15	\$11,527	100%	N/A	\$0.41	15
Wyoming	Large Office	Cooling Dx Evap	Direct / Indirect Evaporative Cooling, Pre-Cooling	Evaporative Cooler	Standard DX cooling	per building CFM	New	0.24	15	\$1	50%	94%	\$0.94	36
Wyoming	Large Office	Cooling Dx Evap	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	New	97	15	\$149	75%	76%	\$0.20	19
Wyoming	Large Office	Cooling Dx Evap	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	New	0.02	18	\$0.17	45%	65%	\$0.85	2
Wyoming	Large Office	Cooling Dx Evap	Evaporative Cooler replaces DX Package - Advanced Efficiency	Evaporative Cooler replaces DX Package - Advanced Efficiency	DX Package 240 to 760 kBTU/hr - Standard Efficiency 10.0 EER	Per installation	New	21,586	15	\$-37827.246	25%	N/A	\$-0.30	4
Wyoming	Large Office	Cooling Dx Evap	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	New	0.09	40	\$8	4%	98%	\$7.61	0.08
Wyoming	Large Office	Cooling Dx Evap	Insulation - Duct	R-8	R-5 (WY State Code)	per surface area of duct insul	New	0.24	20	\$0.28	75%	85%	\$0.13	4
Wyoming	Large Office	Cooling Dx Evap	Insulation - Floor (non-slab)	R-30	R-25 (WY State Code)	per floor area	New	0.00	25	\$0.10	35%	90%	\$4.92	0.18
Wyoming	Large Office	Cooling Dx Evap	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	New	5	30	\$5	50%	95%	\$0.08	28
Wyoming	Large Office	Cooling Dx Evap	Natural Ventilation	Natural Ventilation Design Reduction in Cooling	None - Standard Ventilation	per building sqft	New	0.09	15	\$0.85	20%	75%	\$1.13	4
Wyoming	Large Office	Cooling Dx Evap	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	New	891	10	\$121	95%	13%	\$0.02	1
Wyoming	Large Office	Cooling Dx Evap	Windows-High Efficiency	U-0.32	U-0.50 (WY State Code)	per window sqft	New	1	25	\$67	80%	90%	\$6.03	27
Wyoming	Large Office	Heat Pump	Air Source Heat Pump 135 to 240 kBTU/hr - High Efficiency	11.5 EER, 3.4 COP	10.6 EER, 3.2 COP	Per installation	Existing	11,542	15	\$10,121	100%	N/A	\$0.11	4
Wyoming	Large Office	Heat Pump	Air Source Heat Pump 65 to 135 kBTU/hr - Premium Efficiency	12.0 EER, 3.8 COP	10.6 EER, 3.2 COP	Per installation	Existing	32,469	15	\$17,348	100%	N/A	\$0.07	212
Wyoming	Large Office	Heat Pump	Automated Ventilation VFD Control(Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	1 unit per 3,000 sqft	Existing	485	15	\$681	75%	94%	\$0.18	48
Wyoming	Large Office	Heat Pump	Convert Constant Volume Air System to VAV	Variable Volume Air System	Constant Volume Air System	per building CFM	Existing	1	15	\$2	15%	67%	\$0.28	50
Wyoming	Large Office	Heat Pump	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	Existing	0.16	15	\$0.69	35%	98%	\$0.56	20
Wyoming	Large Office	Heat Pump	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	Existing	741	15	\$149	75%	76%	\$0.03	241
Wyoming	Large Office	Heat Pump	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	Existing	0.18	18	\$0.17	45%	65%	\$0.11	23
Wyoming	Large Office	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	Existing	0.86	14	\$0.92	5%	94%	\$0.14	17
Wyoming	Large Office	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	Existing	0.16	40	\$8	4%	98%	\$4.59	0.22
Wyoming	Large Office	Heat Pump	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	7	13	\$0.24	10%	39%	\$0.00	21
Wyoming	Large Office	Heat Pump	Insulation - Ceiling	R-25 (WY State Code)	R-11 (Average Existing Conditions)	per roof sqft	Existing	0.78	25	\$0.57	75%	57%	\$0.08	158
Wyoming	Large Office	Heat Pump	Insulation - Ceiling	R-30	R-25 (WY State Code)	per roof sqft	Existing	0.09	25	\$0.09	75%	85%	\$0.10	26
Wyoming	Large Office	Heat Pump	Insulation - Duct	R-5 (WY State Code)	No Insulation	per surface area of duct insul	Existing	2	20	\$1	75%	58%	\$0.06	46
Wyoming	Large Office	Heat Pump	Insulation - Duct	R-8	R-5 (WY State Code)	per surface area of duct insul	Existing	1	20	\$0.28	75%	85%	\$0.02	55
Wyoming	Large Office	Heat Pump	Insulation - Floor (non-slab)	R-25 (WY State Code)	R-11 (Average Existing Conditions)	per floor area	Existing	0.81	25	\$0.73	35%	69%	\$0.09	88

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Wyoming	Large Office	Heat Pump	Insulation - Floor (non-slab)	R-30	R-25 (WY State Code)	per floor area	Existing	0.32	25	\$0.10	35%	90%	\$0.03	50
Wyoming	Large Office	Heat Pump	Insulation - Wall	R-13 + 3 (WY State Code)	R-3 (Average Existing Conditions)	per floor area	Existing	1	25	\$1	10%	68%	\$0.07	46
Wyoming	Large Office	Heat Pump	Insulation - Wall	R-21	R-13 + 3 (WY State Code)	per floor area	Existing	0.23	25	\$0.10	10%	85%	\$0.05	6
Wyoming	Large Office	Heat Pump	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	Existing	62	30	\$5	50%	95%	\$0.01	478
Wyoming	Large Office	Heat Pump	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	Existing	6,767	10	\$121	95%	26%	\$0.00	36
Wyoming	Large Office	Heat Pump	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	0.92	7	\$0.13	90%	85%	\$0.03	385
Wyoming	Large Office	Heat Pump	Window Film	Window Film	No Film	per 100 sqft of window glazing	Existing	1	10	\$130	90%	68%	\$16.49	0.39
Wyoming	Large Office	Heat Pump	Windows-High Efficiency	U-0.32	U-0.50 (WY State Code)	per window sqft	Existing	0.96	25	\$67	15%	90%	\$7.21	6
Wyoming	Large Office	Heat Pump	Air Source Heat Pump 135 to 240 kBtu/hr - High Efficiency	11.5 EER, 3.4 COP	10.6 EER, 3.2 COP	Per installation	New	6,999	15	\$8,092	100%	N/A	\$0.15	0.90
Wyoming	Large Office	Heat Pump	Air Source Heat Pump 65 to 135 kBtu/hr - Premium Efficiency	12.0 EER, 3.8 COP	10.6 EER, 3.2 COP	Per installation	New	16,542	15	\$13,876	100%	N/A	\$0.11	51
Wyoming	Large Office	Heat Pump	Automated Ventilation VFD Control(Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	1 unit per 3,000 sqft	New	313	15	\$366	75%	94%	\$0.15	12
Wyoming	Large Office	Heat Pump	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	New	0.10	15	\$0.69	35%	98%	\$0.86	5
Wyoming	Large Office	Heat Pump	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	New	342	15	\$149	75%	76%	\$0.06	37
Wyoming	Large Office	Heat Pump	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	New	0.08	18	\$0.17	45%	65%	\$0.24	4
Wyoming	Large Office	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	New	0.35	14	\$0.92	5%	94%	\$0.35	2
Wyoming	Large Office	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	New	0.10	40	\$8	4%	98%	\$7.11	0.05
Wyoming	Large Office	Heat Pump	Insulation - Ceiling	R-30	R-25 (WY State Code)	per roof sqft	New	0.03	25	\$0.09	75%	85%	\$0.27	3
Wyoming	Large Office	Heat Pump	Insulation - Duct	R-8	R-5 (WY State Code)	per surface area of duct insul	New	0.87	20	\$0.28	75%	85%	\$0.04	8
Wyoming	Large Office	Heat Pump	Insulation - Floor (non-slab)	R-30	R-25 (WY State Code)	per floor area	New	0.11	25	\$0.10	35%	90%	\$0.09	6
Wyoming	Large Office	Heat Pump	Insulation - Wall	R-21	R-13 + 3 (WY State Code)	per floor area	New	0.08	25	\$0.10	95%	85%	\$0.13	8
Wyoming	Large Office	Heat Pump	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	New	28	30	\$5	50%	95%	\$0.02	73
Wyoming	Large Office	Heat Pump	Natural Ventilation	Natural Ventilation Design Reduction in Cooling	None - Standard Ventilation	per building sqft	New	0.34	15	\$0.85	20%	75%	\$0.32	8
Wyoming	Large Office	Heat Pump	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	New	3,129	10	\$121	95%	13%	\$0.01	2
Wyoming	Large Office	Heat Pump	Windows-High Efficiency	U-0.32	U-0.50 (WY State Code)	per window sqft	New	0.84	25	\$67	80%	90%	\$8.22	11
Wyoming	Large Office	Hvac Aux	Convert Constant Volume Air System to VAV	Variable Volume Air System	Constant Volume Air System	per building CFM	Existing	0.38	15	\$2	15%	67%	\$0.87	309
Wyoming	Large Office	Hvac Aux	Motor - CEE Premium-Efficiency Plus	CEE PE+ Motor for HVAC Applications	NEMA Efficiency Motors	per HP	Existing	31	15	\$6	95%	76%	\$0.03	151
Wyoming	Large Office	Hvac Aux	Motor - VAV Box High Efficiency (ECM)	ECM Motor	Standard Efficiency Motor	per installation	Existing	80	15	\$177	11%	77%	\$0.29	113
Wyoming	Large Office	Hvac Aux	Motor Rewind	>15, <500 HP	No Rewind	per HP	Existing	6	8	\$4	65%	25%	\$0.15	5
Wyoming	Large Office	Hvac Aux	Low Pressure Distribution Complex HVAC	Low Pressure Distribution Complex HVAC	VAV/CV	per building sqft	New	0.90	50	\$2	17%	98%	\$0.21	310
Wyoming	Large Office	Hvac Aux	Motor - CEE Premium-Efficiency Plus	CEE PE+ Motor for HVAC Applications	NEMA Efficiency Motors	per HP	New	26	15	\$6	95%	76%	\$0.03	51
Wyoming	Large Office	Hvac Aux	Motor - VAV Box High Efficiency (ECM)	ECM Motor	Standard Efficiency Motor	per installation	New	68	15	\$177	11%	77%	\$0.34	29

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Wyoming	Large Office	Lighting Exterior	Covered Parking Lighting	Covered Parking Lighting	Normal Lighting	per building sqft	Existing	0.09	10	\$0.02	80%	95%	\$0.05	567
Wyoming	Large Office	Lighting Exterior	Daylighting Controls, Outdoors (Photocell)	Photocell	No Controls	per installation	Existing	47	8	\$28	75%	70%	\$0.11	37
Wyoming	Large Office	Lighting Exterior	Exterior Building Lighting	30% savings	Normal Lighting	per installation	Existing	240	15	\$334	62%	90%	\$0.18	323
Wyoming	Large Office	Lighting Exterior	Solid State LED White Lighting	Landscape, merchandise, signage, structure & task lighting (2.5 W)	50W 10hrs/day, 365 day/yr	per installation	Existing	5	14	\$35	75%	95%	\$0.93	6
Wyoming	Large Office	Lighting Exterior	Surface Parking Lighting	Surface Parking Lighting	Normal Lighting	per building sqft	Existing	0.05	19	\$0.06	62%	95%	\$0.16	237
Wyoming	Large Office	Lighting Exterior	Covered Parking Lighting	Covered Parking Lighting	Normal Lighting	per building sqft	New	0.09	10	\$0.02	80%	95%	\$0.05	182
Wyoming	Large Office	Lighting Exterior	Daylighting Controls, Outdoors (Photocell)	Photocell	No Controls	per installation	New	47	8	\$28	75%	70%	\$0.11	11
Wyoming	Large Office	Lighting Exterior	Exterior Building Lighting	30% savings	Normal Lighting	per installation	New	240	15	\$334	62%	90%	\$0.18	103
Wyoming	Large Office	Lighting Exterior	Solid State LED White Lighting	Landscape, merchandise, signage, structure & task lighting (2.5 W)	50W 10hrs/day, 365 day/yr	per installation	New	5	14	\$35	75%	95%	\$0.93	2
Wyoming	Large Office	Lighting Exterior	Surface Parking Lighting	Surface Parking Lighting	Normal Lighting	per building sqft	New	0.05	19	\$0.06	62%	95%	\$0.16	76
Wyoming	Large Office	Lighting Interior	Cold Cathode Lighting	Cold Cathode Lighting 5 watts	30 W Incandescent Bulb	per installation	Existing	1,480	5	\$12	15%	94%	\$0.00	52
Wyoming	Large Office	Lighting Interior	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	Existing	1	8	\$0.85	30%	78%	\$0.11	117
Wyoming	Large Office	Lighting Interior	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	Existing	1	8	\$0.63	30%	78%	\$0.11	88
Wyoming	Large Office	Lighting Interior	Exit Sign - LED	LED Exit Sign (2 Watts)	CFL Exit Sign (9 Watts)	per installation	Existing	95	16	\$16	95%	50%	\$0.02	259
Wyoming	Large Office	Lighting Interior	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign (2 Watts)	per installation	Existing	17	13	\$30	95%	98%	\$0.25	30
Wyoming	Large Office	Lighting Interior	Lighting Package, High Efficiency	15% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	Existing	0.47	13	\$0.13	90%	53%	\$0.04	1,374
Wyoming	Large Office	Lighting Interior	Lighting Package, High Efficiency	Code Required LPD And Control Strategies	Existing Lighting Design LPD	per building sqft	Existing	1	13	\$0.88	90%	73%	\$0.08	7,674
Wyoming	Large Office	Lighting Interior	Lighting Package, Premium Efficiency	25% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	Existing	0.78	13	\$0.32	75%	62%	\$0.06	552
Wyoming	Large Office	Lighting Interior	Lighting Package, Premium High Bay	35% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	Existing	0.04	13	\$0.02	70%	83%	\$0.09	187
Wyoming	Large Office	Lighting Interior	Occupancy Sensor Control, Fluorescent	Occupancy Sensor Control, Fluorescent	No Occupancy Sensor	per occupancy sensor	Existing	841	8	\$65	90%	42%	\$0.02	194
Wyoming	Large Office	Lighting Interior	Time Clock	Time Clock	No Controls	per 10,000 Watts	Existing	745	8	\$174	20%	88%	\$0.05	89
Wyoming	Large Office	Lighting Interior	Cold Cathode Lighting	Cold Cathode Lighting 5 watts	30 W Incandescent Bulb	per installation	New	911	5	\$12	15%	94%	\$0.00	10
Wyoming	Large Office	Lighting Interior	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	New	0.92	8	\$0.85	30%	78%	\$0.18	27
Wyoming	Large Office	Lighting Interior	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	New	0.69	8	\$0.63	30%	78%	\$0.18	20
Wyoming	Large Office	Lighting Interior	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign (2 Watts)	per installation	New	17	13	\$30	95%	98%	\$0.25	39
Wyoming	Large Office	Lighting Interior	Lighting Package, High Efficiency	15% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	New	0.47	15	\$0.00	90%	53%	\$0.00	441
Wyoming	Large Office	Lighting Interior	Lighting Package, Premium Efficiency	25% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	New	0.72	15	\$0.10	75%	62%	\$0.02	164
Wyoming	Large Office	Lighting Interior	Lighting Package, Premium High Bay	35% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	New	0.04	15	\$0.00	70%	83%	\$0.02	60
Wyoming	Large Office	Lighting Interior	Occupancy Sensor Control, Fluorescent	Occupancy Sensor Control, Fluorescent	No Occupancy Sensor	per occupancy sensor	New	518	8	\$65	90%	42%	\$0.02	45

Table C.2.2. Commercial Measure Details

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Wyoming	Large Office	Lighting Interior	Time Clock	Time Clock	No Controls	per 10,000 Watts	New	745	8	\$174	20%	88%	\$0.05	21
Wyoming	Large Office	Other Office Equipment	ENERGY STAR - Copiers	ENERGY STAR Copiers	Standard Copier	per installation	Existing	72	6	\$162	95%	45%	\$0.55	7
Wyoming	Large Office	Other Office Equipment	ENERGY STAR - Fax	ENERGY STAR Fax	Standard Fax	per installation	Existing	77	6	\$0.00	95%	45%	\$0.00	7
Wyoming	Large Office	Other Office Equipment	ENERGY STAR - Monitors	ENERGY STAR Features Enabled	Non-ENERGY STAR Features	per installation	Existing	14	5	\$16	64%	15%	\$0.31	15
Wyoming	Large Office	Other Office Equipment	ENERGY STAR - Printers	ENERGY STAR Printers	Standard Printers	per installation	Existing	136	6	\$16	95%	40%	\$0.03	10
Wyoming	Large Office	Other Office Equipment	ENERGY STAR - Scanners	ENERGY STAR Scanners	Standard Scanner	per installation	Existing	70	6	\$0.00	95%	45%	\$0.00	7
Wyoming	Large Office	Other Office Equipment	ENERGY STAR - Copiers	ENERGY STAR Copiers	Standard Copier	per installation	New	72	6	\$162	95%	45%	\$0.55	2
Wyoming	Large Office	Other Office Equipment	ENERGY STAR - Fax	ENERGY STAR Fax	Standard Fax	per installation	New	77	6	\$0.00	95%	45%	\$0.00	2
Wyoming	Large Office	Other Office Equipment	ENERGY STAR - Monitors	ENERGY STAR Features Enabled	Non-ENERGY STAR Features	per installation	New	14	5	\$16	64%	15%	\$0.31	4
Wyoming	Large Office	Other Office Equipment	ENERGY STAR - Printers	ENERGY STAR Printers	Standard Printers	per installation	New	136	6	\$16	95%	40%	\$0.03	3
Wyoming	Large Office	Other Office Equipment	ENERGY STAR - Scanners	ENERGY STAR Scanners	Standard Scanner	per installation	New	70	6	\$0.00	95%	45%	\$0.00	2
Wyoming	Large Office	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	per installation	Existing	7	7	\$1	20%	90%	\$0.04	0.81
Wyoming	Large Office	Other Plug Load	ENERGY STAR - Water Cooler	ENERGY STAR Water Cooler (Hot/Cold Water)	Non-ENERGY STAR Water Cooler	per installation	Existing	359	10	\$0.00	95%	75%	\$0.00	43
Wyoming	Large Office	Other Plug Load	Power Supply Transformer/Converter	80 Plus	85% efficient power supply (> 51W)	1 unit per 2,000 sqft	Existing	3	4	\$0.40	95%	86%	\$0.04	12
Wyoming	Large Office	Other Plug Load	Residential Refrigerator	ENERGY STAR	Federal Standard	per installation	Existing	79	12	\$124	19%	65%	\$0.23	2
Wyoming	Large Office	Other Plug Load	Residential Refrigerator/Freezer Recycling	Recycling Existing Refrigerator/Freezer	Existing Refrigerator/Freezer	per installation	Existing	942	4	\$563	25%	35%	\$0.20	7
Wyoming	Large Office	Other Plug Load	Server Virtualization	Server Virtualization	No Virtualization	number of virtualized servers	Existing	2,235	4	\$1,866	72%	85%	\$0.67	57
Wyoming	Large Office	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	1 unit per 500 sqft	Existing	99	5	\$20	60%	90%	\$0.06	860
Wyoming	Large Office	Other Plug Load	Vending Machines- High Efficiency	ENERGY STAR (Tier 2) Vending Machines- High Efficiency 500 can capacity Under 5.92 kWh/day	Vending Machines- Standard 13 kWh/day	per installation	Existing	237	14	\$155	10%	80%	\$0.09	0.50
Wyoming	Large Office	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	per installation	New	7	7	\$1	20%	90%	\$0.04	0.26
Wyoming	Large Office	Other Plug Load	ENERGY STAR - Water Cooler	ENERGY STAR Water Cooler (Hot/Cold Water)	Non-ENERGY STAR Water Cooler	per installation	New	359	10	\$0.00	95%	75%	\$0.00	14
Wyoming	Large Office	Other Plug Load	Power Supply Transformer/Converter	80 Plus	85% efficient power supply (> 51W)	1 unit per 2,000 sqft	New	3	4	\$0.40	95%	86%	\$0.04	4
Wyoming	Large Office	Other Plug Load	Residential Refrigerator	ENERGY STAR	Federal Standard	per installation	New	79	12	\$124	19%	65%	\$0.23	0.82
Wyoming	Large Office	Other Plug Load	Server Virtualization	Server Virtualization	No Virtualization	number of virtualized servers	New	2,235	4	\$1,866	72%	85%	\$0.67	18
Wyoming	Large Office	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	1 unit per 500 sqft	New	99	5	\$20	60%	90%	\$0.06	276
Wyoming	Large Office	Other Plug Load	Vending Machines- High Efficiency	ENERGY STAR (Tier 2) Vending Machines- High Efficiency 500 can capacity Under 5.92 kWh/day	Vending Machines- Standard 13 kWh/day	per installation	New	237	14	\$155	10%	80%	\$0.09	0.16
Wyoming	Large Office	Space Heat	Convert Constant Volume Air System to VAV	Variable Volume Air System	Constant Volume Air System	per building CFM	Existing	1	15	\$2	15%	67%	\$0.29	94

Table C.2.2. Commercial Measure Details

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Wyoming	Large Office	Space Heat	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	Existing	899	15	\$149	75%	76%	\$0.02	585
Wyoming	Large Office	Space Heat	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	Existing	0.22	18	\$0.17	45%	65%	\$0.09	53
Wyoming	Large Office	Space Heat	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	Existing	1	14	\$0.92	5%	94%	\$0.09	51
Wyoming	Large Office	Space Heat	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	7	13	\$0.24	10%	39%	\$0.00	46
Wyoming	Large Office	Space Heat	Insulation - Ceiling	R-25 (WY State Code)	R-11 (Average Existing Conditions)	per roof sqft	Existing	1	25	\$0.57	75%	57%	\$0.04	499
Wyoming	Large Office	Space Heat	Insulation - Ceiling	R-30	R-25 (WY State Code)	per roof sqft	Existing	0.22	25	\$0.09	75%	85%	\$0.04	126
Wyoming	Large Office	Space Heat	Insulation - Duct	R-5 (WY State Code)	No Insulation	per surface area of duct insul	Existing	3	20	\$1	75%	58%	\$0.05	97
Wyoming	Large Office	Space Heat	Insulation - Duct	R-8	R-5 (WY State Code)	per surface area of duct insul	Existing	2	20	\$0.28	75%	85%	\$0.01	136
Wyoming	Large Office	Space Heat	Insulation - Floor (non-slab)	R-25 (WY State Code)	R-11 (Average Existing Conditions)	per floor area	Existing	2	25	\$0.73	35%	69%	\$0.03	549
Wyoming	Large Office	Space Heat	Insulation - Floor (non-slab)	R-30	R-25 (WY State Code)	per floor area	Existing	0.64	25	\$0.10	35%	90%	\$0.02	237
Wyoming	Large Office	Space Heat	Insulation - Wall	R-13 + 3 (WY State Code)	R-3 (Average Existing Conditions)	per floor area	Existing	3	25	\$1	10%	68%	\$0.04	179
Wyoming	Large Office	Space Heat	Insulation - Wall	R-21	R-13 + 3 (WY State Code)	per floor area	Existing	1	25	\$0.10	10%	85%	\$0.01	111
Wyoming	Large Office	Space Heat	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	Existing	75	30	\$5	50%	95%	\$0.01	1,196
Wyoming	Large Office	Space Heat	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	Existing	8,205	10	\$121	95%	26%	\$0.00	90
Wyoming	Large Office	Space Heat	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	1	7	\$0.13	90%	85%	\$0.03	933
Wyoming	Large Office	Space Heat	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	New	396	15	\$149	75%	76%	\$0.05	76
Wyoming	Large Office	Space Heat	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	New	0.09	18	\$0.17	45%	65%	\$0.21	9
Wyoming	Large Office	Space Heat	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	New	0.59	14	\$0.92	5%	94%	\$0.21	8
Wyoming	Large Office	Space Heat	Insulation - Ceiling	R-30	R-25 (WY State Code)	per roof sqft	New	0.09	25	\$0.09	75%	85%	\$0.10	19
Wyoming	Large Office	Space Heat	Insulation - Duct	R-8	R-5 (WY State Code)	per surface area of duct insul	New	1	20	\$0.28	75%	85%	\$0.03	17
Wyoming	Large Office	Space Heat	Insulation - Floor (non-slab)	R-30	R-25 (WY State Code)	per floor area	New	0.28	25	\$0.10	35%	90%	\$0.04	30
Wyoming	Large Office	Space Heat	Insulation - Wall	R-21	R-13 + 3 (WY State Code)	per floor area	New	0.66	25	\$0.10	95%	85%	\$0.02	150
Wyoming	Large Office	Space Heat	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	New	33	30	\$5	50%	95%	\$0.01	170
Wyoming	Large Office	Space Heat	Natural Ventilation	Natural Ventilation Design Reduction in Cooling	None - Standard Ventilation	per building sqft	New	0.39	15	\$0.85	20%	75%	\$0.28	18
Wyoming	Large Office	Space Heat	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	New	3,617	10	\$121	95%	13%	\$0.01	6
Wyoming	Large Office	Water Heat	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	per building sqft	Existing	0.02	10	\$0.23	55%	80%	\$1.57	17
Wyoming	Large Office	Water Heat	Dishwasher Residential	ENERGY STAR <= 324 kWh/yr, <= 5.8 gal/cycle	Federal Standard <= 355 kWh/yr, <= 6.5 gal/cycle	per installation	Existing	30	11	\$31	95%	25%	\$0.10	0.46
Wyoming	Large Office	Water Heat	Electric Water Heater - High Efficiency	EF = 0.95	EF = 0.92	Per installation	Existing	491	15	\$413	100%	N/A	\$0.11	3
Wyoming	Large Office	Water Heat	Heat Pump Water Heater - Advanced-Efficiency	EF = 2.2	EF = 0.92	Per installation	Existing	9,051	15	\$7,423	75%	N/A	\$0.11	200
Wyoming	Large Office	Water Heat	Hot Water (SHW) Pipe Insulation	1.0" of Insulation, assuming R-4 (WY State Code)	No Insulation	per linear foot	Existing	10	12	\$2	80%	30%	\$0.03	1
Wyoming	Large Office	Water Heat	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	per installation	Existing	80	9	\$0.00	95%	25%	\$-0.08	7
Wyoming	Large Office	Water Heat	Low-Flow Faucet Aerators	2.2 GPM (Federal Code)	3.0 GPM	per installation	Existing	67	9	\$2	95%	25%	\$-0.08	6
Wyoming	Large Office	Water Heat	Low-Flow Showerheads	2.0 GPM	2.5 GPM (Federal Code)	per installation	Existing	1,197	10	\$6	95%	73%	\$-0.08	47
Wyoming	Large Office	Water Heat	Low-Flow Showerheads	2.5 GPM (Federal Code)	4.5 GPM	per installation	Existing	2,660	10	\$10	95%	62%	\$-0.08	89

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Wyoming	Large Office	Water Heat	Water Heater Temperature Setback	Water Heater Temperature Setback (120 F)	No Change in Water Temperature	per installation	Existing	235	5	\$70	75%	40%	\$0.09	18
Wyoming	Large Office	Water Heat	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	per building sqft	New	0.02	10	\$0.23	55%	80%	\$1.64	6
Wyoming	Large Office	Water Heat	Dishwasher Residential	ENERGY STAR <= 324 kWh/yr, <= 5.8 gal/cycle	Federal Standard <= 355 kWh/yr, <= 6.5 gal/cycle	per installation	New	30	11	\$31	95%	55%	\$0.10	0.32
Wyoming	Large Office	Water Heat	Electric Water Heater - High Efficiency	EF = 0.95	EF = 0.92	Per installation	New	481	15	\$413	100%	N/A	\$0.11	0.82
Wyoming	Large Office	Water Heat	Heat Pump Water Heater - Advanced-Efficiency	EF = 2.2	EF = 0.92	Per installation	New	8,870	15	\$6,642	75%	N/A	\$0.10	61
Wyoming	Large Office	Water Heat	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	per installation	New	76	9	\$0.00	95%	25%	-\$0.08	2
Wyoming	Large Office	Water Heat	Low-Flow Showerheads	2.0 GPM	2.5 GPM (Federal Code)	per installation	New	1,146	10	\$6	95%	73%	-\$0.08	14
Wyoming	Large Office	Water Heat	Water Heater Temperature Setback	Water Heater Temperature Setback (120 F)	No Change in Water Temperature	per installation	New	225	5	\$70	75%	40%	\$0.09	6
Wyoming	Large Retail	Computers	Computer ENERGY STAR	Computer ENERGY STAR	Computer standard non-ENERGY STAR	Per installation	Existing	135	4	\$28	100%	N/A	\$0.07	113
Wyoming	Large Retail	Computers	Computer ENERGY STAR	Computer ENERGY STAR	Computer standard non-ENERGY STAR	Per installation	New	135	4	\$28	100%	N/A	\$0.07	6
Wyoming	Large Retail	Cooling Dx Evap	Automated Ventilation VFD Control(Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	1 unit per 3,000 sqft	Existing	477	15	\$679	25%	94%	\$0.18	124
Wyoming	Large Retail	Cooling Dx Evap	Convert Constant Volume Air System to VAV	Variable Volume Air System	Constant Volume Air System	per building CFM	Existing	0.47	15	\$2	15%	67%	\$0.70	111
Wyoming	Large Retail	Cooling Dx Evap	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	Existing	0.15	15	\$0.69	80%	98%	\$0.56	324
Wyoming	Large Retail	Cooling Dx Evap	DX Package 240 to 760 kBTU/hr - High Efficiency	DX Package 240 to 760 kBTU/hr - High Efficiency 10.5	DX Package 240 to 760 kBTU/hr - Standard Efficiency 10.0 EER	Per installation	Existing	3,387	15	\$15,141	100%	N/A	\$0.58	9
Wyoming	Large Retail	Cooling Dx Evap	DX Package 240 to 760 kBTU/hr - Premium Efficiency	DX Package 240 to 760 kBTU/hr - Premium Efficiency 10.8 EER	DX Package 240 to 760 kBTU/hr - Standard Efficiency 10.0 EER	Per installation	Existing	6,277	15	\$24,803	100%	N/A	\$0.51	236
Wyoming	Large Retail	Cooling Dx Evap	DX Package-Air Side Economizer	Air-Side Economizer	No Economizer	per DX ton	Existing	47	10	\$155	10%	80%	\$0.54	55
Wyoming	Large Retail	Cooling Dx Evap	DX Tune-Up / Diagnostics	DX Tune-Up / Diagnostics	No DX Tune-Up / Diagnostics	per installation	Existing	238	4	\$244	95%	72%	\$0.39	345
Wyoming	Large Retail	Cooling Dx Evap	Direct / Indirect Evaporative Cooling, Pre-Cooling	Evaporative Cooler	Standard DX cooling	per building CFM	Existing	0.39	15	\$1	50%	94%	\$0.58	502
Wyoming	Large Retail	Cooling Dx Evap	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	Existing	159	15	\$148	75%	76%	\$0.12	353
Wyoming	Large Retail	Cooling Dx Evap	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	Existing	0.03	18	\$0.17	45%	65%	\$0.52	34
Wyoming	Large Retail	Cooling Dx Evap	Evaporative Cooler replaces DX Package - Advanced Efficiency	Evaporative Cooler replaces DX Package - Advanced Efficiency	DX Package 240 to 760 kBTU/hr - Standard Efficiency 10.0 EER	Per installation	Existing	39,265	15	-\$97370.585	25%	N/A	-\$0.42	77
Wyoming	Large Retail	Cooling Dx Evap	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	Existing	0.15	40	\$8	4%	98%	\$4.66	1
Wyoming	Large Retail	Cooling Dx Evap	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	1	13	\$0.24	10%	39%	\$0.03	4
Wyoming	Large Retail	Cooling Dx Evap	Insulation - Ceiling	R-25 (WY State Code)	R-7 (Average Existing Conditions)	per roof sqft	Existing	0.00	25	\$0.57	75%	69%	\$31.84	2
Wyoming	Large Retail	Cooling Dx Evap	Insulation - Duct	R-5 (WY State Code)	No Insulation	per surface area of duct insul	Existing	0.60	20	\$1	75%	58%	\$0.26	66
Wyoming	Large Retail	Cooling Dx Evap	Insulation - Duct	R-8	R-5 (WY State Code)	per surface area of duct insul	Existing	0.40	20	\$0.28	75%	85%	\$0.08	80
Wyoming	Large Retail	Cooling Dx Evap	Insulation - Floor (non-slab)	R-30	R-25 (WY State Code)	per floor area	Existing	0.00	25	\$0.10	35%	90%	\$3.01	2

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Wyoming	Large Retail	Cooling Dx Evap	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	Existing	9	30	\$5	50%	95%	\$0.05	492
Wyoming	Large Retail	Cooling Dx Evap	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	Existing	1,671	10	\$121	95%	26%	\$0.01	50
Wyoming	Large Retail	Cooling Dx Evap	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	0.19	7	\$0.13	90%	85%	\$0.15	562
Wyoming	Large Retail	Cooling Dx Evap	Window Film	Window Film	No Film	per 100 sqft of window glazing	Existing	1	10	\$129	90%	68%	\$16.99	0.36
Wyoming	Large Retail	Cooling Dx Evap	Windows-High Efficiency	U-0.32	U-0.50 (WY State Code)	per window sqft	Existing	10	25	\$67	15%	90%	\$0.64	71
Wyoming	Large Retail	Cooling Dx Evap	Windows-High Efficiency	U-0.50 (WY State Code)	U-0.68 (Average Existing Conditions)	per window sqft	Existing	11	25	\$25	15%	70%	\$0.23	78
Wyoming	Large Retail	Cooling Dx Evap	Automated Ventilation VFD Control(Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	1 unit per 3,000 sqft	New	347	15	\$365	25%	94%	\$0.14	35
Wyoming	Large Retail	Cooling Dx Evap	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	New	0.11	15	\$0.69	80%	98%	\$0.78	96
Wyoming	Large Retail	Cooling Dx Evap	DX Package 240 to 760 kBTU/hr - High Efficiency	DX Package 240 to 760 kBTU/hr - High Efficiency 10.5	DX Package 240 to 760 kBTU/hr - Standard Efficiency 10.0 EER	Per installation	New	2,916	15	\$12,114	100%	N/A	\$0.54	2
Wyoming	Large Retail	Cooling Dx Evap	DX Package 240 to 760 kBTU/hr - Premium Efficiency	DX Package 240 to 760 kBTU/hr - Premium Efficiency 10.8 EER	DX Package 240 to 760 kBTU/hr - Standard Efficiency 10.0 EER	Per installation	New	4,616	15	\$19,844	100%	N/A	\$0.56	58
Wyoming	Large Retail	Cooling Dx Evap	Direct / Indirect Evaporative Cooling, Pre-Cooling	Evaporative Cooler	Standard DX cooling	per building CFM	New	0.28	15	\$1	50%	94%	\$0.79	148
Wyoming	Large Retail	Cooling Dx Evap	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	New	115	15	\$148	75%	76%	\$0.17	82
Wyoming	Large Retail	Cooling Dx Evap	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	New	0.02	18	\$0.17	45%	65%	\$0.72	10
Wyoming	Large Retail	Cooling Dx Evap	Evaporative Cooler replaces DX Package - Advanced Efficiency	Evaporative Cooler replaces DX Package - Advanced Efficiency	DX Package 240 to 760 kBTU/hr - Standard Efficiency 10.0 EER	Per installation	New	29,357	15	\$-75630.724	25%	N/A	\$-0.44	19
Wyoming	Large Retail	Cooling Dx Evap	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	New	0.11	40	\$8	4%	98%	\$6.41	0.34
Wyoming	Large Retail	Cooling Dx Evap	Insulation - Duct	R-8	R-5 (WY State Code)	per surface area of duct insul	New	0.29	20	\$0.28	75%	85%	\$0.11	19
Wyoming	Large Retail	Cooling Dx Evap	Insulation - Floor (non-slab)	R-30	R-25 (WY State Code)	per floor area	New	0.00	25	\$0.10	35%	90%	\$4.14	0.70
Wyoming	Large Retail	Cooling Dx Evap	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	New	7	30	\$5	50%	95%	\$0.07	118
Wyoming	Large Retail	Cooling Dx Evap	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	New	1,214	10	\$121	95%	13%	\$0.02	6
Wyoming	Large Retail	Cooling Dx Evap	Windows-High Efficiency	U-0.32	U-0.50 (WY State Code)	per window sqft	New	7	25	\$67	80%	90%	\$0.88	113
Wyoming	Large Retail	Heat Pump	Air Source Heat Pump 135 to 240 kBTU/hr - High Efficiency	11.5 EER, 3.4 COP	10.6 EER, 3.2 COP	Per installation	Existing	12,597	15	\$17,416	100%	N/A	\$0.18	13
Wyoming	Large Retail	Heat Pump	Air Source Heat Pump 65 to 135 kBTU/hr - Premium Efficiency	12.0 EER, 3.8 COP	10.6 EER, 3.2 COP	Per installation	Existing	29,850	15	\$29,858	100%	N/A	\$0.13	341
Wyoming	Large Retail	Heat Pump	Automated Ventilation VFD Control(Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	1 unit per 3,000 sqft	Existing	553	15	\$679	25%	94%	\$0.16	24
Wyoming	Large Retail	Heat Pump	Convert Constant Volume Air System to VAV	Variable Volume Air System	Constant Volume Air System	per building CFM	Existing	0.96	15	\$2	15%	67%	\$0.35	55

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Wyoming	Large Retail	Heat Pump	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	Existing	0.18	15	\$0.69	80%	98%	\$0.49	72
Wyoming	Large Retail	Heat Pump	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	Existing	602	15	\$148	75%	76%	\$0.03	263
Wyoming	Large Retail	Heat Pump	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	Existing	0.15	18	\$0.17	45%	65%	\$0.14	26
Wyoming	Large Retail	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	Existing	0.62	14	\$0.92	5%	94%	\$0.20	16
Wyoming	Large Retail	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	Existing	0.18	40	\$8	4%	98%	\$4.02	0.34
Wyoming	Large Retail	Heat Pump	Ground Source Heat Pump Replacing Air Source Heat Pump 65 to 135 kBTU/hr - Advanced Efficiency	16.2 EER 4.0 COP	10.6 EER, 3.2 COP	Per installation	Existing	55,313	30	\$69,290	5%	N/A	\$1.12	29
Wyoming	Large Retail	Heat Pump	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	9	13	\$0.24	10%	39%	\$0.00	6
Wyoming	Large Retail	Heat Pump	Insulation - Ceiling	R-25 (WY State Code)	R-7 (Average Existing Conditions)	per roof sqft	Existing	0.62	25	\$0.57	75%	69%	\$0.09	203
Wyoming	Large Retail	Heat Pump	Insulation - Ceiling	R-30	R-25 (WY State Code)	per roof sqft	Existing	0.06	25	\$0.09	75%	85%	\$0.15	22
Wyoming	Large Retail	Heat Pump	Insulation - Duct	R-5 (WY State Code)	No Insulation	per surface area of duct insul	Existing	2	20	\$1	75%	58%	\$0.07	50
Wyoming	Large Retail	Heat Pump	Insulation - Duct	R-8	R-5 (WY State Code)	per surface area of duct insul	Existing	1	20	\$0.28	75%	85%	\$0.02	59
Wyoming	Large Retail	Heat Pump	Insulation - Floor (non-slab)	R-25 (WY State Code)	R-11 (Average Existing Conditions)	per floor area	Existing	0.50	25	\$0.73	35%	83%	\$0.15	86
Wyoming	Large Retail	Heat Pump	Insulation - Floor (non-slab)	R-30	R-25 (WY State Code)	per floor area	Existing	0.20	25	\$0.10	35%	90%	\$0.05	43
Wyoming	Large Retail	Heat Pump	Insulation - Wall	R-13 + 3 (WY State Code)	R-3 (Average Existing Conditions)	per floor area	Existing	2	25	\$1	10%	68%	\$0.06	39
Wyoming	Large Retail	Heat Pump	Insulation - Wall	R-21	R-13 + 3 (WY State Code)	per floor area	Existing	0.24	25	\$0.10	10%	85%	\$0.04	5
Wyoming	Large Retail	Heat Pump	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	Existing	50	30	\$5	50%	95%	\$0.01	519
Wyoming	Large Retail	Heat Pump	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	Existing	6,326	10	\$121	95%	26%	\$0.00	39
Wyoming	Large Retail	Heat Pump	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	0.75	7	\$0.13	90%	85%	\$0.04	418
Wyoming	Large Retail	Heat Pump	Window Film	Window Film	No Film	per 100 sqft of window glazing	Existing	1	10	\$129	90%	68%	\$17.02	0.08
Wyoming	Large Retail	Heat Pump	Windows-High Efficiency	U-0.32	U-0.50 (WY State Code)	per window sqft	Existing	8	25	\$67	15%	90%	\$0.80	13
Wyoming	Large Retail	Heat Pump	Windows-High Efficiency	U-0.50 (WY State Code)	U-0.68 (Average Existing Conditions)	per window sqft	Existing	7	25	\$25	15%	70%	\$0.32	9
Wyoming	Large Retail	Heat Pump	Air Source Heat Pump 135 to 240 kBTU/hr - High Efficiency	11.5 EER, 3.4 COP	10.6 EER, 3.2 COP	Per installation	New	9,214	15	\$13,935	100%	N/A	\$0.20	2
Wyoming	Large Retail	Heat Pump	Air Source Heat Pump 65 to 135 kBTU/hr - Premium Efficiency	12.0 EER, 3.8 COP	10.6 EER, 3.2 COP	Per installation	New	18,583	15	\$23,885	100%	N/A	\$0.17	75
Wyoming	Large Retail	Heat Pump	Automated Ventilation VFD Control(Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	1 unit per 3,000 sqft	New	397	15	\$365	25%	94%	\$0.12	7
Wyoming	Large Retail	Heat Pump	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	New	0.13	15	\$0.69	80%	98%	\$0.68	21
Wyoming	Large Retail	Heat Pump	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	New	350	15	\$148	75%	76%	\$0.06	50
Wyoming	Large Retail	Heat Pump	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	New	0.08	18	\$0.17	45%	65%	\$0.24	6

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Wyoming	Large Retail	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	New	0.32	14	\$0.92	5%	94%	\$0.38	3
Wyoming	Large Retail	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	New	0.13	40	\$8	4%	98%	\$5.59	0.09
Wyoming	Large Retail	Heat Pump	Ground Source Heat Pump Replacing Air Source Heat Pump 65 to 135 kBTU/hr - Advanced Efficiency	16.2 EER 4.0 COP	10.6 EER, 3.2 COP	Per installation	New	36,362	30	\$55,424	5%	N/A	\$0.89	6
Wyoming	Large Retail	Heat Pump	Insulation - Ceiling	R-30	R-25 (WY State Code)	per roof sqft	New	0.02	25	\$0.09	75%	85%	\$0.33	4
Wyoming	Large Retail	Heat Pump	Insulation - Duct	R-8	R-5 (WY State Code)	per surface area of duct insul	New	0.89	20	\$0.28	75%	85%	\$0.04	11
Wyoming	Large Retail	Heat Pump	Insulation - Floor (non-slab)	R-30	R-25 (WY State Code)	per floor area	New	0.09	25	\$0.10	35%	90%	\$0.11	7
Wyoming	Large Retail	Heat Pump	Insulation - Wall	R-21	R-13 + 3 (WY State Code)	per floor area	New	0.10	25	\$0.10	95%	85%	\$0.09	8
Wyoming	Large Retail	Heat Pump	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	New	29	30	\$5	50%	95%	\$0.02	100
Wyoming	Large Retail	Heat Pump	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	New	3,680	10	\$121	95%	13%	\$0.01	3
Wyoming	Large Retail	Heat Pump	Windows-High Efficiency	U-0.32	U-0.50 (WY State Code)	per window sqft	New	6	25	\$67	80%	90%	\$0.99	23
Wyoming	Large Retail	Hvac Aux	Convert Constant Volume Air System to VAV	Variable Volume Air System	Constant Volume Air System	per building CFM	Existing	0.27	15	\$2	15%	67%	\$1.24	363
Wyoming	Large Retail	Hvac Aux	Cooking Hood Controls	Demand-Ventilation Control	No Controls	per installation	Existing	1,842	18	\$4,213	95%	65%	\$0.27	109
Wyoming	Large Retail	Hvac Aux	Motor - CEE Premium-Efficiency Plus	CEE PE+ Motor for HVAC Applications	NEMA Efficiency Motors	per HP	Existing	22	15	\$6	95%	76%	\$0.04	177
Wyoming	Large Retail	Hvac Aux	Motor - VAV Box High Efficiency (ECM)	ECM Motor	Standard Efficiency Motor	per installation	Existing	56	15	\$176	5%	77%	\$0.41	60
Wyoming	Large Retail	Hvac Aux	Motor Rewind	>15, <500 HP	No Rewind	per HP	Existing	2	8	\$4	65%	25%	\$0.33	6
Wyoming	Large Retail	Hvac Aux	Cooking Hood Controls	Demand-Ventilation Control	No Controls	per installation	New	1,842	18	\$4,213	95%	65%	\$0.27	35
Wyoming	Large Retail	Hvac Aux	Low Pressure Distribution Complex HVAC	Low Pressure Distribution Complex HVAC	VAV/CV	per building sqft	New	0.82	50	\$2	8%	98%	\$0.22	222
Wyoming	Large Retail	Hvac Aux	Motor - CEE Premium-Efficiency Plus	CEE PE+ Motor for HVAC Applications	NEMA Efficiency Motors	per HP	New	18	15	\$6	95%	76%	\$0.05	59
Wyoming	Large Retail	Hvac Aux	Motor - VAV Box High Efficiency (ECM)	ECM Motor	Standard Efficiency Motor	per installation	New	46	15	\$176	5%	77%	\$0.49	15
Wyoming	Large Retail	Lighting Exterior	Covered Parking Lighting	Covered Parking Lighting	Normal Lighting	per building sqft	Existing	0.09	10	\$0.02	80%	95%	\$0.05	948
Wyoming	Large Retail	Lighting Exterior	Daylighting Controls, Outdoors (Photocell)	Photocell	No Controls	per installation	Existing	111	8	\$28	75%	70%	\$0.05	153
Wyoming	Large Retail	Lighting Exterior	Exterior Building Lighting	30% savings	Normal Lighting	per installation	Existing	239	15	\$333	62%	90%	\$0.18	1,331
Wyoming	Large Retail	Lighting Exterior	Solid State LED White Lighting	Landscape, merchandise, signage, structure & task lighting (2.5 W)	50W 10hrs/day, 365 day/yr	per installation	Existing	12	14	\$35	75%	95%	\$0.40	25
Wyoming	Large Retail	Lighting Exterior	Surface Parking Lighting	Surface Parking Lighting	Normal Lighting	per building sqft	Existing	0.05	19	\$0.06	62%	95%	\$0.16	396
Wyoming	Large Retail	Lighting Exterior	Covered Parking Lighting	Covered Parking Lighting	Normal Lighting	per building sqft	New	0.09	10	\$0.02	80%	95%	\$0.05	304
Wyoming	Large Retail	Lighting Exterior	Daylighting Controls, Outdoors (Photocell)	Photocell	No Controls	per installation	New	111	8	\$28	75%	70%	\$0.05	49
Wyoming	Large Retail	Lighting Exterior	Exterior Building Lighting	30% savings	Normal Lighting	per installation	New	239	15	\$333	62%	90%	\$0.18	428
Wyoming	Large Retail	Lighting Exterior	Solid State LED White Lighting	Landscape, merchandise, signage, structure & task lighting (2.5 W)	50W 10hrs/day, 365 day/yr	per installation	New	12	14	\$35	75%	95%	\$0.40	8
Wyoming	Large Retail	Lighting Exterior	Surface Parking Lighting	Surface Parking Lighting	Normal Lighting	per building sqft	New	0.05	19	\$0.06	62%	95%	\$0.16	127
Wyoming	Large Retail	Lighting Interior	Cold Cathode Lighting	Cold Cathode Lighting 5 watts	30 W Incandescent Bulb	per installation	Existing	2,360	5	\$14	15%	94%	\$0.00	119
Wyoming	Large Retail	Lighting Interior	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	Existing	0.80	8	\$0.85	30%	84%	\$0.21	114

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Wyoming	Large Retail	Lighting Interior	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	Existing	0.60	8	\$0.63	30%	84%	\$0.21	85
Wyoming	Large Retail	Lighting Interior	Exit Sign - LED	LED Exit Sign (2 Watts)	CFL Exit Sign (9 Watts)	per installation	Existing	95	16	\$16	95%	50%	\$0.02	425
Wyoming	Large Retail	Lighting Interior	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign (2 Watts)	per installation	Existing	17	13	\$30	95%	98%	\$0.25	50
Wyoming	Large Retail	Lighting Interior	Lighting Package, High Efficiency	15% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	Existing	0.72	13	\$0.07	90%	53%	\$0.02	3,506
Wyoming	Large Retail	Lighting Interior	Lighting Package, High Efficiency	Code Required LPD And Control Strategies	Existing Lighting Design LPD	per building sqft	Existing	1	13	\$0.74	90%	39%	\$0.06	8,019
Wyoming	Large Retail	Lighting Interior	Lighting Package, Premium Efficiency	25% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	Existing	1	13	\$0.43	75%	62%	\$0.05	1,410
Wyoming	Large Retail	Lighting Interior	Lighting Package, Premium High Bay	35% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	Existing	0.27	13	\$0.15	70%	83%	\$0.08	2,005
Wyoming	Large Retail	Lighting Interior	Occupancy Sensor Control, Fluorescent	Occupancy Sensor Control, Fluorescent	No Occupancy Sensor	per occupancy sensor	Existing	1,165	8	\$65	45%	56%	\$0.01	294
Wyoming	Large Retail	Lighting Interior	Time Clock	Time Clock	No Controls	per 10,000 Watts	Existing	740	8	\$174	20%	86%	\$0.05	196
Wyoming	Large Retail	Lighting Interior	Cold Cathode Lighting	Cold Cathode Lighting 5 watts	30 W Incandescent Bulb	per installation	New	1,806	5	\$14	15%	94%	\$0.00	29
Wyoming	Large Retail	Lighting Interior	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	New	0.61	8	\$0.85	30%	84%	\$0.27	30
Wyoming	Large Retail	Lighting Interior	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	New	0.46	8	\$0.63	30%	84%	\$0.27	22
Wyoming	Large Retail	Lighting Interior	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign (2 Watts)	per installation	New	17	13	\$30	95%	98%	\$0.25	64
Wyoming	Large Retail	Lighting Interior	Lighting Package, High Efficiency	15% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	New	0.72	15	\$0.03	90%	53%	\$0.01	1,127
Wyoming	Large Retail	Lighting Interior	Lighting Package, Premium Efficiency	25% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	New	1	15	\$0.19	75%	62%	\$0.02	453
Wyoming	Large Retail	Lighting Interior	Lighting Package, Premium High Bay	35% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	New	0.27	15	\$0.03	70%	83%	\$0.01	644
Wyoming	Large Retail	Lighting Interior	Occupancy Sensor Control, Fluorescent	Occupancy Sensor Control, Fluorescent	No Occupancy Sensor	per occupancy sensor	New	892	8	\$65	45%	56%	\$0.01	77
Wyoming	Large Retail	Lighting Interior	Time Clock	Time Clock	No Controls	per 10,000 Watts	New	740	8	\$174	20%	86%	\$0.05	51
Wyoming	Large Retail	Other Office Equipment	ENERGY STAR - Copiers	ENERGY STAR Copiers	Standard Copier	per installation	Existing	72	6	\$160	95%	45%	\$0.54	2
Wyoming	Large Retail	Other Office Equipment	ENERGY STAR - Fax	ENERGY STAR Fax	Standard Fax	per installation	Existing	77	6	\$0.00	95%	45%	\$0.00	2
Wyoming	Large Retail	Other Office Equipment	ENERGY STAR - Monitors	ENERGY STAR Features Enabled	Non-ENERGY STAR Features	per installation	Existing	14	5	\$16	64%	15%	\$0.32	1
Wyoming	Large Retail	Other Office Equipment	ENERGY STAR - Printers	ENERGY STAR Printers	Standard Printers	per installation	Existing	135	6	\$14	95%	40%	\$0.03	14
Wyoming	Large Retail	Other Office Equipment	ENERGY STAR - Scanners	ENERGY STAR Scanners	Standard Scanner	per installation	Existing	70	6	\$0.00	95%	45%	\$0.00	2
Wyoming	Large Retail	Other Office Equipment	ENERGY STAR - Copiers	ENERGY STAR Copiers	Standard Copier	per installation	New	72	6	\$160	95%	45%	\$0.54	0.76
Wyoming	Large Retail	Other Office Equipment	ENERGY STAR - Fax	ENERGY STAR Fax	Standard Fax	per installation	New	77	6	\$0.00	95%	45%	\$0.00	0.81
Wyoming	Large Retail	Other Office Equipment	ENERGY STAR - Monitors	ENERGY STAR Features Enabled	Non-ENERGY STAR Features	per installation	New	14	5	\$16	64%	15%	\$0.32	0.48
Wyoming	Large Retail	Other Office Equipment	ENERGY STAR - Printers	ENERGY STAR Printers	Standard Printers	per installation	New	135	6	\$14	95%	40%	\$0.03	4
Wyoming	Large Retail	Other Office Equipment	ENERGY STAR - Scanners	ENERGY STAR Scanners	Standard Scanner	per installation	New	70	6	\$0.00	95%	45%	\$0.00	0.74
Wyoming	Large Retail	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	per installation	Existing	7	7	\$2	20%	90%	\$0.06	1
Wyoming	Large Retail	Other Plug Load	ENERGY STAR - Water Cooler	ENERGY STAR Water Cooler (Hot/Cold Water)	Non-ENERGY STAR Water Cooler	per installation	Existing	357	10	\$0.00	95%	75%	\$0.00	14

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Wyoming	Large Retail	Other Plug Load	Power Supply Transformer/Converter	80 Plus	85% efficient power supply (> 51W)	1 unit per 2,000 sqft	Existing	4	4	\$0.40	95%	86%	\$0.03	25
Wyoming	Large Retail	Other Plug Load	Residential Refrigerator	ENERGY STAR	Federal Standard	per installation	Existing	79	12	\$121	3%	65%	\$0.23	0.53
Wyoming	Large Retail	Other Plug Load	Residential Refrigerator/Freezer Recycling	Recycling Existing Refrigerator/Freezer	Existing Refrigerator/Freezer	per installation	Existing	936	4	\$560	25%	35%	\$0.21	10
Wyoming	Large Retail	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	1 unit per 5,000 sqft	Existing	98	5	\$20	60%	90%	\$0.06	143
Wyoming	Large Retail	Other Plug Load	Vending Machines- High Efficiency	ENERGY STAR (Tier 2) Vending Machines- High Efficiency 500 can capacity Under 5.92 kWh/day	Vending Machines- Standard 13 kWh/day	per installation	Existing	235	14	\$142	5%	80%	\$0.08	0.18
Wyoming	Large Retail	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	per installation	New	7	7	\$2	20%	90%	\$0.06	0.53
Wyoming	Large Retail	Other Plug Load	ENERGY STAR - Water Cooler	ENERGY STAR Water Cooler (Hot/Cold Water)	Non-ENERGY STAR Water Cooler	per installation	New	357	10	\$0.00	95%	75%	\$0.00	4
Wyoming	Large Retail	Other Plug Load	Power Supply Transformer/Converter	80 Plus	85% efficient power supply (> 51W)	1 unit per 2,000 sqft	New	4	4	\$0.40	95%	86%	\$0.03	8
Wyoming	Large Retail	Other Plug Load	Residential Refrigerator	ENERGY STAR	Federal Standard	per installation	New	79	12	\$121	3%	65%	\$0.23	0.17
Wyoming	Large Retail	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	1 unit per 5,000 sqft	New	98	5	\$20	60%	90%	\$0.06	46
Wyoming	Large Retail	Other Plug Load	Vending Machines- High Efficiency	ENERGY STAR (Tier 2) Vending Machines- High Efficiency 500 can capacity Under 5.92 kWh/day	Vending Machines- Standard 13 kWh/day	per installation	New	235	14	\$142	5%	80%	\$0.08	0.05
Wyoming	Large Retail	Space Heat	Convert Constant Volume Air System to VAV	Variable Volume Air System	Constant Volume Air System	per building CFM	Existing	0.78	15	\$2	15%	67%	\$0.43	46
Wyoming	Large Retail	Space Heat	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	Existing	605	15	\$148	75%	76%	\$0.03	301
Wyoming	Large Retail	Space Heat	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	Existing	0.15	18	\$0.17	45%	65%	\$0.14	26
Wyoming	Large Retail	Space Heat	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	Existing	0.90	14	\$0.92	5%	94%	\$0.14	25
Wyoming	Large Retail	Space Heat	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	9	13	\$0.24	10%	39%	\$0.00	7
Wyoming	Large Retail	Space Heat	Insulation - Ceiling	R-25 (WY State Code)	R-7 (Average Existing Conditions)	per roof sqft	Existing	1	25	\$0.57	75%	69%	\$0.05	504
Wyoming	Large Retail	Space Heat	Insulation - Ceiling	R-30	R-25 (WY State Code)	per roof sqft	Existing	0.14	25	\$0.09	75%	85%	\$0.06	58
Wyoming	Large Retail	Space Heat	Insulation - Duct	R-5 (WY State Code)	No Insulation	per surface area of duct insul	Existing	2	20	\$1	75%	58%	\$0.07	47
Wyoming	Large Retail	Space Heat	Insulation - Duct	R-8	R-5 (WY State Code)	per surface area of duct insul	Existing	1	20	\$0.28	75%	85%	\$0.02	71
Wyoming	Large Retail	Space Heat	Insulation - Floor (non-slab)	R-25 (WY State Code)	R-11 (Average Existing Conditions)	per floor area	Existing	1	25	\$0.73	35%	83%	\$0.05	301
Wyoming	Large Retail	Space Heat	Insulation - Floor (non-slab)	R-30	R-25 (WY State Code)	per floor area	Existing	0.43	25	\$0.10	35%	90%	\$0.02	125
Wyoming	Large Retail	Space Heat	Insulation - Wall	R-13 + 3 (WY State Code)	R-3 (Average Existing Conditions)	per floor area	Existing	4	25	\$1	10%	68%	\$0.03	118
Wyoming	Large Retail	Space Heat	Insulation - Wall	R-21	R-13 + 3 (WY State Code)	per floor area	Existing	1	25	\$0.10	10%	85%	\$0.01	65
Wyoming	Large Retail	Space Heat	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	Existing	50	30	\$5	50%	95%	\$0.01	623
Wyoming	Large Retail	Space Heat	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	Existing	6,359	10	\$121	95%	26%	\$0.00	47
Wyoming	Large Retail	Space Heat	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	0.75	7	\$0.13	90%	85%	\$0.04	480
Wyoming	Large Retail	Space Heat	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	New	324	15	\$148	75%	76%	\$0.06	48
Wyoming	Large Retail	Space Heat	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	New	0.08	18	\$0.17	45%	65%	\$0.26	5
Wyoming	Large Retail	Space Heat	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	New	0.48	14	\$0.92	5%	94%	\$0.26	5

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Wyoming	Large Retail	Space Heat	Insulation - Ceiling	R-30	R-25 (WY State Code)	per roof sqft	New	0.07	25	\$0.09	75%	85%	\$0.12	12
Wyoming	Large Retail	Space Heat	Insulation - Duct	R-8	R-5 (WY State Code)	per surface area of duct insul	New	0.82	20	\$0.28	75%	85%	\$0.04	11
Wyoming	Large Retail	Space Heat	Insulation - Floor (non-slab)	R-30	R-25 (WY State Code)	per floor area	New	0.23	25	\$0.10	35%	90%	\$0.05	19
Wyoming	Large Retail	Space Heat	Insulation - Wall	R-21	R-13 + 3 (WY State Code)	per floor area	New	0.94	25	\$0.10	95%	85%	\$0.01	106
Wyoming	Large Retail	Space Heat	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	New	27	30	\$5	50%	95%	\$0.02	98
Wyoming	Large Retail	Space Heat	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	New	3,402	10	\$121	95%	13%	\$0.01	4
Wyoming	Large Retail	Water Heat	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	per building sqft	Existing	0.01	10	\$0.23	75%	94%	\$3.35	37
Wyoming	Large Retail	Water Heat	Dishwasher Residential	ENERGY STAR <= 324 kWh/yr, <= 5.8 gal/cycle	Federal Standard <= 355 kWh/yr, <= 6.5 gal/cycle	per installation	Existing	30	11	\$32	95%	25%	\$0.10	0.24
Wyoming	Large Retail	Water Heat	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	per installation	Existing	7,279	10	\$2,316	95%	95%	\$0.02	2
Wyoming	Large Retail	Water Heat	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	per installation	Existing	3,401	10	\$772	95%	94%	\$-0.02	0.47
Wyoming	Large Retail	Water Heat	Electric Water Heater - High Efficiency	EF = 0.95	EF = 0.92	Per installation	Existing	270	15	\$392	100%	N/A	\$0.19	3
Wyoming	Large Retail	Water Heat	Heat Pump Water Heater - Advanced-Efficiency	EF = 2.2	EF = 0.92	Per installation	Existing	4,985	15	\$7,015	75%	N/A	\$0.18	297
Wyoming	Large Retail	Water Heat	Hot Water (SHW) Pipe Insulation	1.0" of Insulation, assuming R-4 (WY State Code)	No Insulation	per linear foot	Existing	5	12	\$2	80%	90%	\$0.06	7
Wyoming	Large Retail	Water Heat	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	per installation	Existing	37	9	\$0.00	95%	25%	\$-0.08	8
Wyoming	Large Retail	Water Heat	Low-Flow Faucet Aerators	2.2 GPM (Federal Code)	3.0 GPM	per installation	Existing	31	9	\$2	95%	25%	\$-0.07	7
Wyoming	Large Retail	Water Heat	Low-Flow Pre-Rinse Spray Valves	0.6 GPM	1.6 GPM (Federal Standard)	per installation	Existing	65	5	\$0.00	95%	83%	\$-0.09	0.27
Wyoming	Large Retail	Water Heat	Water Heater Temperature Setback	Water Heater Temperature Setback (120 F)	No Change in Water Temperature	per installation	Existing	126	5	\$70	75%	45%	\$0.16	28
Wyoming	Large Retail	Water Heat	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	per building sqft	New	0.01	10	\$0.23	75%	94%	\$3.50	11
Wyoming	Large Retail	Water Heat	Dishwasher Residential	ENERGY STAR <= 324 kWh/yr, <= 5.8 gal/cycle	Federal Standard <= 355 kWh/yr, <= 6.5 gal/cycle	per installation	New	30	11	\$32	95%	55%	\$0.10	0.17
Wyoming	Large Retail	Water Heat	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	per installation	New	7,279	10	\$2,416	95%	95%	\$0.02	0.62
Wyoming	Large Retail	Water Heat	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	per installation	New	3,401	10	\$805	95%	94%	\$-0.02	0.14
Wyoming	Large Retail	Water Heat	Electric Water Heater - High Efficiency	EF = 0.95	EF = 0.92	Per installation	New	259	15	\$392	100%	N/A	\$0.20	0.98
Wyoming	Large Retail	Water Heat	Heat Pump Water Heater - Advanced-Efficiency	EF = 2.2	EF = 0.92	Per installation	New	4,777	15	\$6,280	75%	N/A	\$0.17	81
Wyoming	Large Retail	Water Heat	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	per installation	New	35	9	\$0.00	95%	25%	\$-0.08	2
Wyoming	Large Retail	Water Heat	Low-Flow Pre-Rinse Spray Valves	0.6 GPM	1.6 GPM (Federal Standard)	per installation	New	65	5	\$0.00	95%	83%	\$-0.09	0.08
Wyoming	Large Retail	Water Heat	Water Heater Temperature Setback	Water Heater Temperature Setback (120 F)	No Change in Water Temperature	per installation	New	121	5	\$70	75%	45%	\$0.17	8
Wyoming	Lodging	Computers	Computer ENERGY STAR	Computer ENERGY STAR	Computer standard non-ENERGY STAR	Per installation	Existing	140	4	\$29	100%	N/A	\$0.07	355
Wyoming	Lodging	Computers	Computer ENERGY STAR	Computer ENERGY STAR	Computer standard non-ENERGY STAR	Per installation	New	140	4	\$29	100%	N/A	\$0.07	20
Wyoming	Lodging	Cooling Chillers	Automated Ventilation VFD Control(Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	1 unit per 3,000 sqft	Existing	81	15	\$703	50%	94%	\$1.12	1

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Wyoming	Lodging	Cooling Chillers	Chilled Water / Condenser Water Settings-Optimization	Additional Control Features	EMS already installed - No Optimization	1 control point per 1000 sqft	Existing	16	5	\$143	95%	81%	\$2.41	1
Wyoming	Lodging	Cooling Chillers	Chilled Water Piping Loop w/ VSD Control	VSD for secondary chilled water loop	Primary loop only w/ constant speed pump	per chiller ton	Existing	27	10	\$196	25%	70%	\$1.19	2
Wyoming	Lodging	Cooling Chillers	Chiller-Water Side Economizer	Install Economizer	No Economizer	per chiller ton	Existing	18	15	\$433	45%	30%	\$3.07	1
Wyoming	Lodging	Cooling Chillers	Chillers <150 tons (screw) - Advanced Efficiency	0.58 kW/ton (full load)	0.790 kW/Ton (full load)	Per installation	Existing	2,280	20	\$4,503	100%	N/A	\$0.22	24
Wyoming	Lodging	Cooling Chillers	Chillers <150 tons (screw) - High Efficiency	0.71 kW/ton (full load)	0.790 kW/Ton (full load)	Per installation	Existing	871	20	\$1,715	100%	N/A	\$0.22	0.19
Wyoming	Lodging	Cooling Chillers	Chillers <150 tons (screw) - Premium Efficiency	0.63 kW/ton	0.790 kW/Ton (full load)	Per installation	Existing	1,695	20	\$3,431	100%	N/A	\$0.23	1
Wyoming	Lodging	Cooling Chillers	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	Existing	0.13	15	\$0.71	45%	98%	\$0.69	6
Wyoming	Lodging	Cooling Chillers	Cooling Tower-Decrease Approach Temperature	6 Deg F	10 Deg F	per chiller ton	Existing	29	8	\$27	10%	94%	\$0.19	1
Wyoming	Lodging	Cooling Chillers	Cooling Tower-Two-Speed Fan Motor	Cooling Tower-Two-Speed Fan Motor	Cooling Tower-One-Speed Fan Motor	per chiller ton	Existing	51	15	\$2	95%	35%	\$0.01	10
Wyoming	Lodging	Cooling Chillers	Cooling Tower-VSD Fan Control	Variable-Speed Tower Fans replace Two-Speed	Cooling Tower-Two-Speed Fan Motor	per chiller ton	Existing	14	13	\$20	95%	75%	\$0.19	4
Wyoming	Lodging	Cooling Chillers	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	Existing	135	15	\$153	75%	76%	\$0.15	11
Wyoming	Lodging	Cooling Chillers	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	Existing	0.13	40	\$8	4%	98%	\$5.67	0.05
Wyoming	Lodging	Cooling Chillers	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	0.43	13	\$0.24	10%	39%	\$0.08	0.39
Wyoming	Lodging	Cooling Chillers	Insulation - Ceiling	R-25 (WY State Code)	R-11 (Average Existing Conditions)	per roof sqft	Existing	0.00	25	\$0.59	75%	63%	\$11.73	0.27
Wyoming	Lodging	Cooling Chillers	Pipe Insulation	1.5" of Insulation, assuming R-6 (WY State Code)	No Insulation	per linear feet of insulation	Existing	4	15	\$3	65%	45%	\$0.10	0.90
Wyoming	Lodging	Cooling Chillers	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	0.16	7	\$0.13	90%	85%	\$0.18	18
Wyoming	Lodging	Cooling Chillers	Window Film	Window Film	No Film	per 100 sqft of window glazing	Existing	1	10	\$134	90%	68%	\$12.68	0.18
Wyoming	Lodging	Cooling Chillers	Windows-High Efficiency	U-0.32	U-0.50 (WY State Code)	per window sqft	Existing	1	25	\$69	15%	90%	\$5.87	2
Wyoming	Lodging	Cooling Chillers	Windows-High Efficiency	U-0.50 (WY State Code)	U-0.65 (Average Existing Conditions)	per window sqft	Existing	1	25	\$25	15%	66%	\$2.07	2
Wyoming	Lodging	Cooling Chillers	Automated Ventilation VFD Control(Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	1 unit per 3,000 sqft	New	40	15	\$378	50%	94%	\$1.20	0.31
Wyoming	Lodging	Cooling Chillers	Chilled Water / Condenser Water Settings-Optimization	Additional Control Features	EMS already installed - No Optimization	1 control point per 1000 sqft	New	8	5	\$143	95%	81%	\$4.79	0.29
Wyoming	Lodging	Cooling Chillers	Chilled Water Piping Loop w/ VSD Control	VSD for secondary chilled water loop	Primary loop only w/ constant speed pump	per chiller ton	New	15	10	\$196	25%	70%	\$2.13	0.41
Wyoming	Lodging	Cooling Chillers	Chillers <150 tons (screw) - Advanced Efficiency	0.58 kW/ton (full load)	0.790 kW/Ton (full load)	Per installation	New	1,273	20	\$4,053	100%	N/A	\$0.36	6
Wyoming	Lodging	Cooling Chillers	Chillers <150 tons (screw) - High Efficiency	0.71 kW/ton (full load)	0.790 kW/Ton (full load)	Per installation	New	486	20	\$1,544	100%	N/A	\$0.36	0.03
Wyoming	Lodging	Cooling Chillers	Chillers <150 tons (screw) - Premium Efficiency	0.63 kW/ton	0.790 kW/Ton (full load)	Per installation	New	946	20	\$3,088	100%	N/A	\$0.37	0.28
Wyoming	Lodging	Cooling Chillers	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	New	0.06	15	\$0.71	45%	98%	\$1.37	1

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Wyoming	Lodging	Cooling Chillers	Cooling Tower-Decrease Approach Temperature	6 Deg F	10 Deg F	per chiller ton	New	16	8	\$27	10%	94%	\$0.35	0.25
Wyoming	Lodging	Cooling Chillers	Cooling Tower-VSD Fan Control	Variable-Speed Tower Fans replace Two-Speed	Cooling Tower-Two-Speed Fan Motor	per chiller ton	New	8	15	\$20	95%	75%	\$0.32	0.99
Wyoming	Lodging	Cooling Chillers	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	New	67	15	\$153	75%	76%	\$0.29	2
Wyoming	Lodging	Cooling Chillers	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	New	0.06	40	\$8	4%	98%	\$11.30	0.01
Wyoming	Lodging	Cooling Chillers	Natural Ventilation	Natural Ventilation Design Reduction in Cooling	None - Standard Ventilation	per building sqft	New	0.06	15	\$0.87	20%	75%	\$1.68	0.48
Wyoming	Lodging	Cooling Chillers	Windows-High Efficiency	U-0.32	U-0.50 (WY State Code)	per window sqft	New	0.61	25	\$69	80%	90%	\$11.71	3
Wyoming	Lodging	Cooling Dx Evap	Automated Ventilation VFD Control(Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	1 unit per 3,000 sqft	Existing	95	15	\$703	50%	94%	\$0.96	9
Wyoming	Lodging	Cooling Dx Evap	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	Existing	0.15	15	\$0.71	45%	98%	\$0.59	46
Wyoming	Lodging	Cooling Dx Evap	DX Package 65 to 135 kBtu/hr - High Efficiency	DX Package 65 to 135 kBtu/hr - High Efficiency - 11.5 EER	DX Package 65 to 135 kBtu/hr - Standard Efficiency - 11.2 EER	Per installation	Existing	419	15	\$648	100%	N/A	\$0.20	1
Wyoming	Lodging	Cooling Dx Evap	DX Package 65 to 135 kBtu/hr - Premium Efficiency	DX Package 65 to 135 kBtu/hr - Premium Efficiency - 12.0 EER	DX Package 65 to 135 kBtu/hr - Standard Efficiency - 11.2 EER	Per installation	Existing	1,089	15	\$1,303	100%	N/A	\$0.15	57
Wyoming	Lodging	Cooling Dx Evap	DX Package-Air Side Economizer	Air-Side Economizer	No Economizer	per DX ton	Existing	71	10	\$160	10%	30%	\$0.38	5
Wyoming	Lodging	Cooling Dx Evap	DX Tune-Up / Diagnostics	DX Tune-Up / Diagnostics	No DX Tune-Up / Diagnostics	per installation	Existing	356	4	\$253	95%	72%	\$0.27	87
Wyoming	Lodging	Cooling Dx Evap	Direct / Indirect Evaporative Cooling, Pre-Cooling	Evaporative Cooler	Standard DX cooling	per building CFM	Existing	0.39	15	\$1	50%	94%	\$0.60	132
Wyoming	Lodging	Cooling Dx Evap	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	Existing	158	15	\$153	75%	76%	\$0.13	98
Wyoming	Lodging	Cooling Dx Evap	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	Existing	0.03	18	\$0.18	45%	65%	\$0.54	8
Wyoming	Lodging	Cooling Dx Evap	Evaporative Cooler replaces DX Package 65 to 135 kBtu/hr - Advanced Efficiency	Evaporative Cooler replaces DX Package 65 to 135 kBtu/hr - Advanced Efficiency	DX Package 65 to 135 kBtu/hr - Standard Efficiency - 11.2 EER	Per installation	Existing	6,601	15	\$-11152.345	25%	N/A	\$-0.30	17
Wyoming	Lodging	Cooling Dx Evap	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	Existing	0.15	40	\$8	4%	98%	\$4.84	0.33
Wyoming	Lodging	Cooling Dx Evap	Hotel Key Card Room Energy Control System	Key card system to control room HVAC and lighting during non-occupied periods	325 sqft room, \$100/room	per room	Existing	128	15	\$130	60%	97%	\$0.13	213
Wyoming	Lodging	Cooling Dx Evap	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	0.50	13	\$0.24	10%	39%	\$0.07	3
Wyoming	Lodging	Cooling Dx Evap	Insulation - Ceiling	R-25 (WY State Code)	R-11 (Average Existing Conditions)	per roof sqft	Existing	0.00	25	\$0.59	75%	63%	\$33.08	0.51
Wyoming	Lodging	Cooling Dx Evap	Insulation - Duct	R-5 (WY State Code)	No Insulation	per surface area of duct insul	Existing	0.60	20	\$1	75%	59%	\$0.27	17
Wyoming	Lodging	Cooling Dx Evap	Insulation - Duct	R-8	R-5 (WY State Code)	per surface area of duct insul	Existing	0.40	20	\$0.29	75%	85%	\$0.08	22
Wyoming	Lodging	Cooling Dx Evap	Insulation - Floor (non-slab)	R-30	R-25 (WY State Code)	per floor area	Existing	0.00	25	\$0.10	35%	90%	\$3.13	0.67
Wyoming	Lodging	Cooling Dx Evap	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	Existing	9	30	\$5	50%	95%	\$0.05	139
Wyoming	Lodging	Cooling Dx Evap	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	Existing	321	10	\$127	95%	30%	\$0.07	15

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Wyoming	Lodging	Cooling Dx Evap	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	0.19	7	\$0.13	90%	85%	\$0.15	136
Wyoming	Lodging	Cooling Dx Evap	Window Film	Window Film	No Film	per 100 sqft of window glazing	Existing	1	10	\$134	90%	68%	\$12.68	1
Wyoming	Lodging	Cooling Dx Evap	Windows-High Efficiency	U-0.32	U-0.50 (WY State Code)	per window sqft	Existing	1	25	\$69	15%	90%	\$5.01	18
Wyoming	Lodging	Cooling Dx Evap	Windows-High Efficiency	U-0.50 (WY State Code)	U-0.65 (Average Existing Conditions)	per window sqft	Existing	1	25	\$25	15%	66%	\$1.77	14
Wyoming	Lodging	Cooling Dx Evap	Automated Ventilation VFD Control(Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	1 unit per 3,000 sqft	New	49	15	\$378	50%	94%	\$0.98	2
Wyoming	Lodging	Cooling Dx Evap	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	New	0.08	15	\$0.71	45%	98%	\$1.12	9
Wyoming	Lodging	Cooling Dx Evap	DX Package 65 to 135 kBtu/hr - High Efficiency	DX Package 65 to 135 kBtu/hr - High Efficiency - 11.5 EER	DX Package 65 to 135 kBtu/hr - Standard Efficiency - 11.2 EER	Per installation	New	280	15	\$518	100%	N/A	\$0.24	0.31
Wyoming	Lodging	Cooling Dx Evap	DX Package 65 to 135 kBtu/hr - Premium Efficiency	DX Package 65 to 135 kBtu/hr - Premium Efficiency - 12.0 EER	DX Package 65 to 135 kBtu/hr - Standard Efficiency - 11.2 EER	Per installation	New	679	15	\$1,043	100%	N/A	\$0.20	11
Wyoming	Lodging	Cooling Dx Evap	Direct / Indirect Evaporative Cooling, Pre-Cooling	Evaporative Cooler	Standard DX cooling	per building CFM	New	0.20	15	\$1	50%	94%	\$1.14	28
Wyoming	Lodging	Cooling Dx Evap	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	New	83	15	\$153	75%	76%	\$0.24	17
Wyoming	Lodging	Cooling Dx Evap	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	New	0.02	18	\$0.18	45%	65%	\$1.04	1
Wyoming	Lodging	Cooling Dx Evap	Evaporative Cooler replaces DX Package 65 to 135 kBtu/hr - Advanced Efficiency	Evaporative Cooler replaces DX Package 65 to 135 kBtu/hr - Advanced Efficiency	DX Package 65 to 135 kBtu/hr - Standard Efficiency - 11.2 EER	Per installation	New	3,775	15	\$-8358.9034	25%	N/A	\$-0.39	3
Wyoming	Lodging	Cooling Dx Evap	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	New	0.08	40	\$8	4%	98%	\$9.22	0.07
Wyoming	Lodging	Cooling Dx Evap	Hotel Key Card Room Energy Control System	Key card system to control room HVAC and lighting during non-occupied periods	325 sqft room, \$100/room	per room	New	67	15	\$130	60%	97%	\$0.25	38
Wyoming	Lodging	Cooling Dx Evap	Insulation - Duct	R-8	R-5 (WY State Code)	per surface area of duct insul	New	0.21	20	\$0.29	75%	85%	\$0.15	4
Wyoming	Lodging	Cooling Dx Evap	Insulation - Floor (non-slab)	R-30	R-25 (WY State Code)	per floor area	New	0.00	25	\$0.10	35%	90%	\$5.96	0.14
Wyoming	Lodging	Cooling Dx Evap	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	New	5	30	\$5	50%	95%	\$0.10	24
Wyoming	Lodging	Cooling Dx Evap	Natural Ventilation	Natural Ventilation Design Reduction in Cooling	None - Standard Ventilation	per building sqft	New	0.08	15	\$0.87	20%	75%	\$1.37	3
Wyoming	Lodging	Cooling Dx Evap	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	New	168	10	\$127	95%	15%	\$0.13	1
Wyoming	Lodging	Cooling Dx Evap	Windows-High Efficiency	U-0.32	U-0.50 (WY State Code)	per window sqft	New	0.74	25	\$69	80%	90%	\$9.56	21
Wyoming	Lodging	Cooling Room	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	Existing	0.19	15	\$0.71	45%	98%	\$0.48	99
Wyoming	Lodging	Cooling Room	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	Existing	195	15	\$153	75%	76%	\$0.10	174
Wyoming	Lodging	Cooling Room	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	Existing	0.19	40	\$8	4%	98%	\$3.92	0.81
Wyoming	Lodging	Cooling Room	Hotel Key Card Room Energy Control System	Key card system to control room HVAC and lighting during non-occupied periods	325 sqft room, \$100/room	per room	Existing	158	15	\$130	60%	97%	\$0.11	376

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Wyoming	Lodging	Cooling Room	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	0.62	13	\$0.24	10%	39%	\$0.06	5
Wyoming	Lodging	Cooling Room	Insulation - Ceiling	R-25 (WY State Code)	R-11 (Average Existing Conditions)	per roof sqft	Existing	0.00	25	\$0.59	75%	63%	\$26.81	1
Wyoming	Lodging	Cooling Room	Insulation - Floor (non-slab)	R-30	R-25 (WY State Code)	per floor area	Existing	0.00	25	\$0.10	35%	90%	\$2.53	1
Wyoming	Lodging	Cooling Room	PTAC (10,000 BTU/HR) - Premium-Efficiency	11.4 EER	Room AC (10,000 BTU/HR) Standard-Efficiency 9.8 EER	Per installation	Existing	2,201	15	\$27,786	75%	N/A	\$1.63	283
Wyoming	Lodging	Cooling Room	Room AC (10,000 BTU/HR) High-Efficiency	High Efficiency 10.8 EER (ENERGY STAR)	Room AC (10,000 BTU/HR) Standard-Efficiency 9.8 EER	Per installation	Existing	1,358	9	\$1,428	100%	N/A	\$0.19	48
Wyoming	Lodging	Cooling Room	Window Film	Window Film	No Film	per 100 sqft of window glazing	Existing	0.08	10	\$134	90%	68%	\$252.77	0.10
Wyoming	Lodging	Cooling Room	Windows-High Efficiency	U-0.32	U-0.50 (WY State Code)	per window sqft	Existing	1	25	\$69	15%	90%	\$4.06	45
Wyoming	Lodging	Cooling Room	Windows-High Efficiency	U-0.50 (WY State Code)	U-0.65 (Average Existing Conditions)	per window sqft	Existing	1	25	\$25	15%	66%	\$1.43	35
Wyoming	Lodging	Cooling Room	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	New	0.10	15	\$0.71	45%	98%	\$0.86	18
Wyoming	Lodging	Cooling Room	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	New	107	15	\$153	75%	76%	\$0.19	31
Wyoming	Lodging	Cooling Room	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	New	0.10	40	\$8	4%	98%	\$7.13	0.14
Wyoming	Lodging	Cooling Room	Hotel Key Card Room Energy Control System	Key card system to control room HVAC and lighting during non-occupied periods	325 sqft room, \$100/room	per room	New	87	15	\$130	60%	97%	\$0.19	68
Wyoming	Lodging	Cooling Room	Insulation - Floor (non-slab)	R-30	R-25 (WY State Code)	per floor area	New	0.00	25	\$0.10	35%	90%	\$4.60	0.30
Wyoming	Lodging	Cooling Room	Natural Ventilation	Natural Ventilation Design Reduction in Cooling	None - Standard Ventilation	per building sqft	New	0.10	15	\$0.87	20%	75%	\$1.06	6
Wyoming	Lodging	Cooling Room	PTAC (10,000 BTU/HR) - Premium-Efficiency	11.4 EER	Room AC (10,000 BTU/HR) Standard-Efficiency 9.8 EER	Per installation	New	1,313	15	\$20,417	75%	N/A	\$2.01	23
Wyoming	Lodging	Cooling Room	Room AC (10,000 BTU/HR) High-Efficiency	High Efficiency 10.8 EER (ENERGY STAR)	Room AC (10,000 BTU/HR) Standard-Efficiency 9.8 EER	Per installation	New	816	9	\$1,142	100%	N/A	\$0.25	4
Wyoming	Lodging	Cooling Room	Windows-High Efficiency	U-0.32	U-0.50 (WY State Code)	per window sqft	New	0.96	25	\$69	80%	90%	\$7.39	44
Wyoming	Lodging	Heat Pump	Air Source Heat Pump 65 to 135 kBtu/hr - High Efficiency	11.5 EER, 3.4 COP	11.0 EER, 3.3 COP	Per installation	Existing	1,461	15	\$2,412	100%	N/A	\$0.21	1
Wyoming	Lodging	Heat Pump	Air Source Heat Pump 65 to 135 kBtu/hr - Premium Efficiency	12.0 EER, 3.8 COP	11.0 EER, 3.3 COP	Per installation	Existing	5,669	15	\$4,824	100%	N/A	\$0.11	56
Wyoming	Lodging	Heat Pump	Automated Ventilation VFD Control(Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	1 unit per 3,000 sqft	Existing	105	15	\$703	50%	94%	\$0.87	1
Wyoming	Lodging	Heat Pump	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	Existing	0.17	15	\$0.71	45%	98%	\$0.53	6
Wyoming	Lodging	Heat Pump	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	Existing	695	15	\$153	75%	76%	\$0.03	56
Wyoming	Lodging	Heat Pump	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	Existing	0.17	18	\$0.18	45%	65%	\$0.12	4
Wyoming	Lodging	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	Existing	0.77	14	\$1	5%	94%	\$0.31	3
Wyoming	Lodging	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	Existing	0.17	40	\$8	4%	98%	\$4.37	0.05
Wyoming	Lodging	Heat Pump	Ground Source Heat Pump Replacing Air Source Heat Pump 65 to 135 kBtu/hr - Advanced Efficiency	16.2 EER 4.0 COP	11.0 EER, 3.3 COP	Per installation	Existing	9,920	30	\$88,851	5%	N/A	\$0.83	1

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Wyoming	Lodging	Heat Pump	Hotel Key Card Room Energy Control System	Key card system to control room HVAC and lighting during non-occupied periods	325 sqft room, \$100/room	per room	Existing	564	15	\$130	60%	97%	\$0.03	122
Wyoming	Lodging	Heat Pump	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	4	13	\$0.24	10%	39%	\$0.01	4
Wyoming	Lodging	Heat Pump	Insulation - Ceiling	R-25 (WY State Code)	R-11 (Average Existing Conditions)	per roof sqft	Existing	0.67	25	\$0.59	75%	63%	\$0.09	31
Wyoming	Lodging	Heat Pump	Insulation - Ceiling	R-30	R-25 (WY State Code)	per roof sqft	Existing	0.08	25	\$0.09	75%	85%	\$0.12	4
Wyoming	Lodging	Heat Pump	Insulation - Duct	R-5 (WY State Code)	No Insulation	per surface area of duct insul	Existing	2	20	\$1	75%	59%	\$0.06	9
Wyoming	Lodging	Heat Pump	Insulation - Duct	R-8	R-5 (WY State Code)	per surface area of duct insul	Existing	1	20	\$0.29	75%	85%	\$0.02	12
Wyoming	Lodging	Heat Pump	Insulation - Floor (non-slab)	R-25 (WY State Code)	R-7 (Average Existing Conditions)	per floor area	Existing	1	25	\$0.76	35%	76%	\$0.07	32
Wyoming	Lodging	Heat Pump	Insulation - Floor (non-slab)	R-30	R-25 (WY State Code)	per floor area	Existing	0.28	25	\$0.10	35%	90%	\$0.04	9
Wyoming	Lodging	Heat Pump	Insulation - Wall	R-13 + 3 (WY State Code)	R-3 (Average Existing Conditions)	per floor area	Existing	2	25	\$1	10%	68%	\$0.07	8
Wyoming	Lodging	Heat Pump	Insulation - Wall	R-21	R-13 + 3 (WY State Code)	per floor area	Existing	0.24	25	\$0.10	10%	85%	\$0.04	1
Wyoming	Lodging	Heat Pump	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	Existing	58	30	\$5	50%	95%	\$0.01	112
Wyoming	Lodging	Heat Pump	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	Existing	1,412	10	\$127	95%	30%	\$0.02	8
Wyoming	Lodging	Heat Pump	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	0.86	7	\$0.13	90%	85%	\$0.03	78
Wyoming	Lodging	Heat Pump	Window Film	Window Film	No Film	per 100 sqft of window glazing	Existing	1	10	\$134	90%	68%	\$12.64	0.15
Wyoming	Lodging	Heat Pump	Windows-High Efficiency	U-0.32	U-0.50 (WY State Code)	per window sqft	Existing	0.93	25	\$69	15%	90%	\$7.67	1
Wyoming	Lodging	Heat Pump	Windows-High Efficiency	U-0.50 (WY State Code)	U-0.65 (Average Existing Conditions)	per window sqft	Existing	0.58	25	\$25	15%	66%	\$4.50	0.81
Wyoming	Lodging	Heat Pump	Air Source Heat Pump 65 to 135 kBtu/hr - High Efficiency	11.5 EER, 3.4 COP	11.0 EER, 3.3 COP	Per installation	New	760	15	\$1,930	100%	N/A	\$0.33	0.20
Wyoming	Lodging	Heat Pump	Air Source Heat Pump 65 to 135 kBtu/hr - Premium Efficiency	12.0 EER, 3.8 COP	11.0 EER, 3.3 COP	Per installation	New	3,783	15	\$3,859	100%	N/A	\$0.13	13
Wyoming	Lodging	Heat Pump	Automated Ventilation VFD Control(Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	1 unit per 3,000 sqft	New	56	15	\$378	50%	94%	\$0.87	0.32
Wyoming	Lodging	Heat Pump	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	New	0.09	15	\$0.71	45%	98%	\$0.99	1
Wyoming	Lodging	Heat Pump	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	New	453	15	\$153	75%	76%	\$0.04	12
Wyoming	Lodging	Heat Pump	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	New	0.11	18	\$0.18	45%	65%	\$0.19	1
Wyoming	Lodging	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	New	0.53	14	\$1	5%	94%	\$0.45	0.94
Wyoming	Lodging	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	New	0.09	40	\$8	4%	98%	\$8.16	0.01
Wyoming	Lodging	Heat Pump	Ground Source Heat Pump Replacing Air Source Heat Pump 65 to 135 kBtu/hr - Advanced Efficiency	16.2 EER 4.0 COP	11.0 EER, 3.3 COP	Per installation	New	6,441	30	\$47,166	5%	N/A	\$0.67	0.36
Wyoming	Lodging	Heat Pump	Hotel Key Card Room Energy Control System	Key card system to control room HVAC and lighting during non-occupied periods	325 sqft room, \$100/room	per room	New	368	15	\$130	60%	97%	\$0.05	27
Wyoming	Lodging	Heat Pump	Insulation - Ceiling	R-30	R-25 (WY State Code)	per roof sqft	New	0.06	25	\$0.09	75%	85%	\$0.16	1
Wyoming	Lodging	Heat Pump	Insulation - Duct	R-8	R-5 (WY State Code)	per surface area of duct insul	New	1	20	\$0.29	75%	85%	\$0.03	2
Wyoming	Lodging	Heat Pump	Insulation - Floor (non-slab)	R-30	R-25 (WY State Code)	per floor area	New	0.20	25	\$0.10	35%	90%	\$0.05	2

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Wyoming	Lodging	Heat Pump	Insulation - Wall	R-21	R-13 + 3 (WY State Code)	per floor area	New	0.18	25	\$0.10	95%	85%	\$0.06	3
Wyoming	Lodging	Heat Pump	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	New	38	30	\$5	50%	95%	\$0.01	24
Wyoming	Lodging	Heat Pump	Natural Ventilation	Natural Ventilation Design Reduction in Cooling	None - Standard Ventilation	per building sqft	New	0.45	15	\$0.87	20%	75%	\$0.25	2
Wyoming	Lodging	Heat Pump	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	New	921	10	\$127	95%	15%	\$0.02	0.96
Wyoming	Lodging	Heat Pump	Windows-High Efficiency	U-0.32	U-0.50 (WY State Code)	per window sqft	New	0.39	25	\$69	80%	90%	\$17.96	1
Wyoming	Lodging	Hvac Aux	Cooking Hood Controls	Demand-Ventilation Control	No Controls	per installation	Existing	1,903	18	\$8,461	95%	45%	\$0.52	430
Wyoming	Lodging	Hvac Aux	Motor - CEE Premium-Efficiency Plus	Motor - CEE Premium-Efficiency Plus	NEMA Efficiency Motors	per HP	Existing	26	15	\$6	95%	76%	\$0.03	91
Wyoming	Lodging	Hvac Aux	Motor Rewind	>15, <500 HP	No Rewind	per HP	Existing	5	8	\$4	65%	25%	\$0.19	3
Wyoming	Lodging	Hvac Aux	Cooking Hood Controls	Demand-Ventilation Control	No Controls	per installation	New	1,903	18	\$8,461	95%	45%	\$0.52	138
Wyoming	Lodging	Hvac Aux	Motor - CEE Premium-Efficiency Plus	Motor - CEE Premium-Efficiency Plus	NEMA Efficiency Motors	per HP	New	26	15	\$6	95%	76%	\$0.03	36
Wyoming	Lodging	Lighting Exterior	Covered Parking Lighting	Covered Parking Lighting	Normal Lighting	per building sqft	Existing	0.09	10	\$0.02	80%	95%	\$0.05	433
Wyoming	Lodging	Lighting Exterior	Daylighting Controls, Outdoors (Photocell)	Photocell	No Controls	per installation	Existing	30	8	\$29	75%	70%	\$0.19	34
Wyoming	Lodging	Lighting Exterior	Exterior Building Lighting	30% savings	Normal Lighting	per installation	Existing	246	15	\$345	62%	90%	\$0.18	341
Wyoming	Lodging	Lighting Exterior	Solid State LED White Lighting	Landscape, merchandise, signage, structure & task lighting (2.5 W)	50W 10hrs/day, 365 day/yr	per installation	Existing	3	14	\$36	75%	95%	\$1.52	6
Wyoming	Lodging	Lighting Exterior	Surface Parking Lighting	Surface Parking Lighting	Normal Lighting	per building sqft	Existing	0.05	19	\$0.07	62%	95%	\$0.16	181
Wyoming	Lodging	Lighting Exterior	Covered Parking Lighting	Covered Parking Lighting	Normal Lighting	per building sqft	New	0.09	10	\$0.02	80%	95%	\$0.05	139
Wyoming	Lodging	Lighting Exterior	Daylighting Controls, Outdoors (Photocell)	Photocell	No Controls	per installation	New	30	8	\$29	75%	70%	\$0.19	11
Wyoming	Lodging	Lighting Exterior	Exterior Building Lighting	30% savings	Normal Lighting	per installation	New	246	15	\$345	62%	90%	\$0.18	109
Wyoming	Lodging	Lighting Exterior	Solid State LED White Lighting	Landscape, merchandise, signage, structure & task lighting (2.5 W)	50W 10hrs/day, 365 day/yr	per installation	New	3	14	\$36	75%	95%	\$1.52	2
Wyoming	Lodging	Lighting Exterior	Surface Parking Lighting	Surface Parking Lighting	Normal Lighting	per building sqft	New	0.05	19	\$0.07	62%	95%	\$0.16	58
Wyoming	Lodging	Lighting Interior	Cold Cathode Lighting	Cold Cathode Lighting 5 watts	30 W Incandescent Bulb	per installation	Existing	114	5	\$12	15%	94%	\$0.03	13
Wyoming	Lodging	Lighting Interior	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	Existing	0.21	8	\$0.87	30%	92%	\$0.79	32
Wyoming	Lodging	Lighting Interior	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	Existing	0.16	8	\$0.65	30%	92%	\$0.79	24
Wyoming	Lodging	Lighting Interior	Exit Sign - LED	LED Exit Sign (2 Watts)	CFL Exit Sign (9 Watts)	per installation	Existing	98	16	\$16	95%	50%	\$0.02	205
Wyoming	Lodging	Lighting Interior	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign (2 Watts)	per installation	Existing	17	13	\$31	95%	98%	\$0.25	24
Wyoming	Lodging	Lighting Interior	Lighting Package, High Efficiency	15% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	Existing	0.44	13	\$0.00	90%	53%	\$0.00	994
Wyoming	Lodging	Lighting Interior	Lighting Package, High Efficiency	Code Required LPD And Control Strategies	Existing Lighting Design LPD	per building sqft	Existing	1	13	\$0.02	90%	41%	\$0.00	3,586
Wyoming	Lodging	Lighting Interior	Lighting Package, Premium Efficiency	25% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	Existing	0.73	13	\$0.00	75%	62%	\$0.00	400
Wyoming	Lodging	Lighting Interior	Lighting Package, Premium High Bay	35% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	Existing	0.01	13	\$0.00	70%	83%	\$0.10	46
Wyoming	Lodging	Lighting Interior	Occupancy Sensor Control, Fluorescent	Occupancy Sensor Control, Fluorescent	No Occupancy Sensor	per occupancy sensor	Existing	584	8	\$67	90%	55%	\$0.02	154
Wyoming	Lodging	Lighting Interior	Time Clock	Time Clock	No Controls	per 10,000 Watts	Existing	765	8	\$180	20%	**	\$0.05	59
Wyoming	Lodging	Lighting Interior	Cold Cathode Lighting	Cold Cathode Lighting 5 watts	30 W Incandescent Bulb	per installation	New	90	5	\$12	15%	94%	\$0.04	3

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Wyoming	Lodging	Lighting Interior	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	New	0.17	8	\$0.87	30%	92%	\$0.99	9
Wyoming	Lodging	Lighting Interior	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	New	0.12	8	\$0.65	30%	92%	\$0.99	7
Wyoming	Lodging	Lighting Interior	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign (2 Watts)	per installation	New	17	13	\$31	95%	98%	\$0.25	31
Wyoming	Lodging	Lighting Interior	Lighting Package, High Efficiency	15% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	New	0.42	15	\$0.00	90%	53%	\$0.00	303
Wyoming	Lodging	Lighting Interior	Lighting Package, Premium Efficiency	25% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	New	0.70	15	\$0.00	75%	62%	\$0.00	122
Wyoming	Lodging	Lighting Interior	Lighting Package, Premium High Bay	35% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	New	0.01	15	\$0.00	70%	83%	\$0.02	14
Wyoming	Lodging	Lighting Interior	Occupancy Sensor Control, Fluorescent	Occupancy Sensor Control, Fluorescent	No Occupancy Sensor	per occupancy sensor	New	464	8	\$67	90%	55%	\$0.03	46
Wyoming	Lodging	Lighting Interior	Time Clock	Time Clock	No Controls	per 10,000 Watts	New	765	8	\$180	20%	**%	\$0.05	18
Wyoming	Lodging	Other Office Equipment	ENERGY STAR - Copiers	ENERGY STAR Copiers	Standard Copier	per installation	Existing	74	6	\$165	95%	45%	\$0.54	25
Wyoming	Lodging	Other Office Equipment	ENERGY STAR - Fax	ENERGY STAR Fax	Standard Fax	per installation	Existing	79	6	\$1	95%	45%	\$0.00	26
Wyoming	Lodging	Other Office Equipment	ENERGY STAR - Monitors	ENERGY STAR Features Enabled	Non-ENERGY STAR Features	per installation	Existing	15	5	\$17	64%	15%	\$0.32	3
Wyoming	Lodging	Other Office Equipment	ENERGY STAR - Printers	ENERGY STAR Printers	Standard Printers	per installation	Existing	139	6	\$15	95%	40%	\$0.03	35
Wyoming	Lodging	Other Office Equipment	ENERGY STAR - Scanners	ENERGY STAR Scanners	Standard Scanner	per installation	Existing	72	6	\$0.79	95%	45%	\$0.00	24
Wyoming	Lodging	Other Office Equipment	ENERGY STAR - Copiers	ENERGY STAR Copiers	Standard Copier	per installation	New	74	6	\$165	95%	45%	\$0.54	8
Wyoming	Lodging	Other Office Equipment	ENERGY STAR - Fax	ENERGY STAR Fax	Standard Fax	per installation	New	79	6	\$1	95%	45%	\$0.00	8
Wyoming	Lodging	Other Office Equipment	ENERGY STAR - Monitors	ENERGY STAR Features Enabled	Non-ENERGY STAR Features	per installation	New	15	5	\$17	64%	15%	\$0.32	1
Wyoming	Lodging	Other Office Equipment	ENERGY STAR - Printers	ENERGY STAR Printers	Standard Printers	per installation	New	139	6	\$15	95%	40%	\$0.03	11
Wyoming	Lodging	Other Office Equipment	ENERGY STAR - Scanners	ENERGY STAR Scanners	Standard Scanner	per installation	New	72	6	\$0.79	95%	45%	\$0.00	7
Wyoming	Lodging	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	per installation	Existing	7	7	\$2	20%	90%	\$0.07	1
Wyoming	Lodging	Other Plug Load	ENERGY STAR - Water Cooler	ENERGY STAR Water Cooler (Hot/Cold Water)	Non-ENERGY STAR Water Cooler	per installation	Existing	368	10	\$0.00	95%	75%	\$0.00	11
Wyoming	Lodging	Other Plug Load	Ice Maker	High-Efficiency Ice Maker	Standard Ice Maker	per installation	Existing	429	10	\$145	95%	86%	\$0.03	276
Wyoming	Lodging	Other Plug Load	Power Supply Transformer/Converter	80 Plus	85% efficient power supply (> 51W)	1 unit per 2,000 sqft	Existing	6	4	\$0.42	95%	86%	\$0.02	16
Wyoming	Lodging	Other Plug Load	Residential Refrigerator	ENERGY STAR	Federal Standard	per installation	Existing	81	12	\$126	24%	65%	\$0.23	11
Wyoming	Lodging	Other Plug Load	Residential Refrigerator/Freezer Recycling	Recycling Existing Refrigerator/Freezer	Existing Refrigerator/Freezer	per installation	Existing	967	4	\$579	25%	35%	\$0.21	24
Wyoming	Lodging	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	1 unit per 4,000 sqft	Existing	102	5	\$21	60%	90%	\$0.06	82
Wyoming	Lodging	Other Plug Load	Vending Machines- High Efficiency	ENERGY STAR (Tier 2) Vending Machines- High Efficiency 500 can capacity Under 5.92 kWh/day	Vending Machines- Standard 13 kWh/day	per installation	Existing	243	14	\$166	90%	80%	\$0.09	139
Wyoming	Lodging	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	per installation	New	7	7	\$2	20%	90%	\$0.07	0.34
Wyoming	Lodging	Other Plug Load	ENERGY STAR - Water Cooler	ENERGY STAR Water Cooler (Hot/Cold Water)	Non-ENERGY STAR Water Cooler	per installation	New	368	10	\$0.00	95%	75%	\$0.00	3

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Wyoming	Lodging	Other Plug Load	Ice Maker	High-Efficiency Ice Maker	Standard Ice Maker	per installation	New	429	10	\$145	95%	86%	\$0.03	88
Wyoming	Lodging	Other Plug Load	Power Supply Transformer/Converter	80 Plus	85% efficient power supply (> 51W)	1 unit per 2,000 sqft	New	6	4	\$0.42	95%	86%	\$0.02	5
Wyoming	Lodging	Other Plug Load	Residential Refrigerator	ENERGY STAR	Federal Standard	per installation	New	81	12	\$126	24%	65%	\$0.23	3
Wyoming	Lodging	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	1 unit per 4,000 sqft	New	102	5	\$21	60%	90%	\$0.06	26
Wyoming	Lodging	Other Plug Load	Vending Machines- High Efficiency	ENERGY STAR (Tier 2) Vending Machines- High Efficiency 500 can capacity Under 5.92 kWh/day	Vending Machines- Standard 13 kWh/day	per installation	New	243	14	\$166	90%	80%	\$0.09	44
Wyoming	Lodging	Space Heat	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	Existing	784	15	\$153	75%	76%	\$0.03	611
Wyoming	Lodging	Space Heat	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	Existing	0.19	18	\$0.18	45%	65%	\$0.11	46
Wyoming	Lodging	Space Heat	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	Existing	1	14	\$1	5%	94%	\$0.21	44
Wyoming	Lodging	Space Heat	Hotel Key Card Room Energy Control System	Key card system to control room HVAC and lighting during non-occupied periods	325 sqft room, \$100/room	per room	Existing	637	15	\$130	60%	97%	\$0.03	1,187
Wyoming	Lodging	Space Heat	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	5	13	\$0.24	10%	39%	\$0.01	48
Wyoming	Lodging	Space Heat	Insulation - Ceiling	R-25 (WY State Code)	R-11 (Average Existing Conditions)	per roof sqft	Existing	1	25	\$0.59	75%	63%	\$0.05	476
Wyoming	Lodging	Space Heat	Insulation - Ceiling	R-30	R-25 (WY State Code)	per roof sqft	Existing	0.19	25	\$0.09	75%	85%	\$0.05	110
Wyoming	Lodging	Space Heat	Insulation - Duct	R-5 (WY State Code)	No Insulation	per surface area of duct insul	Existing	2	20	\$1	75%	59%	\$0.05	85
Wyoming	Lodging	Space Heat	Insulation - Duct	R-8	R-5 (WY State Code)	per surface area of duct insul	Existing	1	20	\$0.29	75%	85%	\$0.02	142
Wyoming	Lodging	Space Heat	Insulation - Floor (non-slab)	R-25 (WY State Code)	R-7 (Average Existing Conditions)	per floor area	Existing	3	25	\$0.76	35%	76%	\$0.03	1,041
Wyoming	Lodging	Space Heat	Insulation - Floor (non-slab)	R-30	R-25 (WY State Code)	per floor area	Existing	0.56	25	\$0.10	35%	90%	\$0.02	248
Wyoming	Lodging	Space Heat	Insulation - Wall	R-13 + 3 (WY State Code)	R-3 (Average Existing Conditions)	per floor area	Existing	4	25	\$1	10%	68%	\$0.03	155
Wyoming	Lodging	Space Heat	Insulation - Wall	R-21	R-13 + 3 (WY State Code)	per floor area	Existing	1	25	\$0.10	10%	85%	\$0.01	130
Wyoming	Lodging	Space Heat	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	Existing	65	30	\$5	50%	95%	\$0.01	1,247
Wyoming	Lodging	Space Heat	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	Existing	1,593	10	\$127	95%	30%	\$0.01	96
Wyoming	Lodging	Space Heat	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	0.98	7	\$0.13	90%	85%	\$0.03	760
Wyoming	Lodging	Space Heat	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	New	583	15	\$153	75%	76%	\$0.03	134
Wyoming	Lodging	Space Heat	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	New	0.14	18	\$0.18	45%	65%	\$0.15	14
Wyoming	Lodging	Space Heat	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	New	0.87	14	\$1	5%	94%	\$0.28	13
Wyoming	Lodging	Space Heat	Hotel Key Card Room Energy Control System	Key card system to control room HVAC and lighting during non-occupied periods	325 sqft room, \$100/room	per room	New	473	15	\$130	60%	97%	\$0.04	290
Wyoming	Lodging	Space Heat	Insulation - Ceiling	R-30	R-25 (WY State Code)	per roof sqft	New	0.14	25	\$0.09	75%	85%	\$0.07	30
Wyoming	Lodging	Space Heat	Insulation - Duct	R-8	R-5 (WY State Code)	per surface area of duct insul	New	1	20	\$0.29	75%	85%	\$0.02	31
Wyoming	Lodging	Space Heat	Insulation - Floor (non-slab)	R-30	R-25 (WY State Code)	per floor area	New	0.41	25	\$0.10	35%	90%	\$0.03	54
Wyoming	Lodging	Space Heat	Insulation - Wall	R-21	R-13 + 3 (WY State Code)	per floor area	New	1	25	\$0.10	95%	85%	\$0.01	296
Wyoming	Lodging	Space Heat	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	New	49	30	\$5	50%	95%	\$0.01	272

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Wyoming	Lodging	Space Heat	Natural Ventilation	Natural Ventilation Design Reduction in Cooling	None - Standard Ventilation	per building sqft	New	0.58	15	\$0.87	20%	75%	\$0.20	28
Wyoming	Lodging	Space Heat	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	New	1,185	10	\$127	95%	15%	\$0.02	10
Wyoming	Lodging	Water Heat	Clothes Washer Commercial	ENERGY STAR Commercial Clothes Washer MEF=1.80	Standard Clothes Washers	per installation	Existing	551	11	\$131	95%	80%	-\$0.27	34
Wyoming	Lodging	Water Heat	Clothes Washer Residential	Energy Star - CEE Tier 1 (MEF 2.0 - 2.19) - Electric DHW & Dryer	MEF = 1.66 - Electric DHW & Dryer (NWPPC 6th Plan Average Efficiency)	per installation	Existing	134	11	\$293	85%	94%	\$0.04	8
Wyoming	Lodging	Water Heat	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	per building sqft	Existing	0.09	10	\$0.24	55%	80%	\$0.43	33
Wyoming	Lodging	Water Heat	Dishwasher Residential	ENERGY STAR <= 324 kWh/yr, <= 5.8 gal/cycle	Federal Standard <= 355 kWh/yr, <= 6.5 gal/cycle	per installation	Existing	31	11	\$31	95%	25%	\$0.10	0.28
Wyoming	Lodging	Water Heat	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	per installation	Existing	7,483	10	\$2,704	95%	95%	\$0.02	33
Wyoming	Lodging	Water Heat	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	per installation	Existing	3,496	10	\$850	95%	94%	-\$0.02	7
Wyoming	Lodging	Water Heat	Electric Water Heater - High Efficiency	EF = 0.95	EF = 0.92	Per installation	Existing	410	15	\$472	100%	N/A	\$0.15	6
Wyoming	Lodging	Water Heat	Heat Pump Water Heater - Advanced-Efficiency	EF = 2.2	EF = 0.92	Per installation	Existing	7,561	15	\$8,463	75%	N/A	\$0.14	390
Wyoming	Lodging	Water Heat	Hot Water (SHW) Pipe Insulation	1.0" of Insulation, assuming R-4 (WY State Code)	No Insulation	per linear foot	Existing	7	12	\$2	80%	90%	\$0.04	11
Wyoming	Lodging	Water Heat	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	per installation	Existing	20	9	\$0.10	95%	25%	-\$0.08	14
Wyoming	Lodging	Water Heat	Low-Flow Faucet Aerators	2.2 GPM (Federal Code)	3.0 GPM	per installation	Existing	17	9	\$2	95%	25%	-\$0.06	12
Wyoming	Lodging	Water Heat	Low-Flow Pre-Rinse Spray Valves	0.6 GPM	1.6 GPM (Federal Standard)	per installation	Existing	67	5	\$5	95%	93%	-\$0.07	13
Wyoming	Lodging	Water Heat	Low-Flow Showerheads	2.0 GPM	2.5 GPM (Federal Code)	per installation	Existing	45	10	\$6	95%	73%	-\$0.06	96
Wyoming	Lodging	Water Heat	Low-Flow Showerheads	2.5 GPM (Federal Code)	4.5 GPM	per installation	Existing	101	10	\$11	95%	62%	-\$0.06	182
Wyoming	Lodging	Water Heat	Water Heater Temperature Setback	Water Heater Temperature Setback (120 F)	No Change in Water Temperature	per installation	Existing	164	5	\$72	75%	5%	\$0.13	4
Wyoming	Lodging	Water Heat	Clothes Washer Commercial	ENERGY STAR Commercial Clothes Washer MEF=1.80	Standard Clothes Washers	per installation	New	554	11	\$131	95%	80%	-\$0.27	11
Wyoming	Lodging	Water Heat	Clothes Washer Residential	Energy Star - CEE Tier 1 (MEF 2.0 - 2.19) - Electric DHW & Dryer	MEF = 1.66 - Electric DHW & Dryer (NWPPC 6th Plan Average Efficiency)	per installation	New	135	11	\$293	85%	94%	\$0.03	2
Wyoming	Lodging	Water Heat	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	per building sqft	New	0.09	10	\$0.24	55%	80%	\$0.44	12
Wyoming	Lodging	Water Heat	Dishwasher Residential	ENERGY STAR <= 324 kWh/yr, <= 5.8 gal/cycle	Federal Standard <= 355 kWh/yr, <= 6.5 gal/cycle	per installation	New	31	11	\$31	95%	55%	\$0.09	0.20
Wyoming	Lodging	Water Heat	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	per installation	New	7,518	10	\$2,714	95%	95%	\$0.02	10
Wyoming	Lodging	Water Heat	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	per installation	New	3,512	10	\$848	95%	94%	-\$0.02	2
Wyoming	Lodging	Water Heat	Electric Water Heater - High Efficiency	EF = 0.95	EF = 0.92	Per installation	New	410	15	\$472	100%	N/A	\$0.15	1
Wyoming	Lodging	Water Heat	Heat Pump Water Heater - Advanced-Efficiency	EF = 2.2	EF = 0.92	Per installation	New	7,561	15	\$7,573	75%	N/A	\$0.13	123
Wyoming	Lodging	Water Heat	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	per installation	New	19	9	\$0.10	95%	25%	-\$0.08	4
Wyoming	Lodging	Water Heat	Low-Flow Pre-Rinse Spray Valves	0.6 GPM	1.6 GPM (Federal Standard)	per installation	New	67	5	\$5	95%	93%	-\$0.07	4
Wyoming	Lodging	Water Heat	Low-Flow Showerheads	2.0 GPM	2.5 GPM (Federal Code)	per installation	New	44	10	\$6	95%	73%	-\$0.06	30
Wyoming	Lodging	Water Heat	Water Heater Temperature Setback	Water Heater Temperature Setback (120 F)	No Change in Water Temperature	per installation	New	159	5	\$72	75%	5%	\$0.13	1

Table C.2.2. Commercial Measure Details

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Wyoming	Miscellaneous	Computers	Computer ENERGY STAR	Computer ENERGY STAR	Computer standard non-ENERGY STAR	Per installation	Existing	135	4	\$28	100%	N/A	\$0.07	286
Wyoming	Miscellaneous	Computers	Network PC Power Management	Network PC Power Management	No Power Management	per computer	Existing	86	5	\$12	95%	30%	\$0.04	69
Wyoming	Miscellaneous	Computers	Computer ENERGY STAR	Computer ENERGY STAR	Computer standard non-ENERGY STAR	Per installation	New	135	4	\$28	100%	N/A	\$0.07	16
Wyoming	Miscellaneous	Computers	Network PC Power Management	Network PC Power Management	No Power Management	per computer	New	86	5	\$12	95%	30%	\$0.04	22
Wyoming	Miscellaneous	Cooling Dx Evap	Automated Ventilation VFD Control(Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	1 unit per 3,000 sqft	Existing	403	15	\$679	50%	94%	\$0.22	77
Wyoming	Miscellaneous	Cooling Dx Evap	Convert Constant Volume Air System to VAV	Variable Volume Air System	Constant Volume Air System	per building CFM	Existing	0.40	15	\$2	15%	68%	\$0.83	35
Wyoming	Miscellaneous	Cooling Dx Evap	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	Existing	0.13	15	\$0.69	45%	98%	\$0.67	55
Wyoming	Miscellaneous	Cooling Dx Evap	DX Package 65 to 135 kBtu/hr - High Efficiency	DX Package 65 to 135 kBtu/hr - High Efficiency - 11.5 EER	DX Package 65 to 135 kBtu/hr - Standard Efficiency - 11.2 EER	Per installation	Existing	267	15	\$514	100%	N/A	\$0.25	1
Wyoming	Miscellaneous	Cooling Dx Evap	DX Package 65 to 135 kBtu/hr - Premium Efficiency	DX Package 65 to 135 kBtu/hr - Premium Efficiency - 12.0 EER	DX Package 65 to 135 kBtu/hr - Standard Efficiency - 11.2 EER	Per installation	Existing	719	15	\$1,034	100%	N/A	\$0.19	65
Wyoming	Miscellaneous	Cooling Dx Evap	DX Package-Air Side Economizer	Air-Side Economizer	No Economizer	per DX ton	Existing	54	10	\$155	10%	70%	\$0.48	15
Wyoming	Miscellaneous	Cooling Dx Evap	DX Tune-Up / Diagnostics	DX Tune-Up / Diagnostics	No DX Tune-Up / Diagnostics	per installation	Existing	272	4	\$245	95%	72%	\$0.35	105
Wyoming	Miscellaneous	Cooling Dx Evap	Direct / Indirect Evaporative Cooling, Pre-Cooling	Evaporative Cooler	Standard DX cooling	per building CFM	Existing	0.33	15	\$1	50%	94%	\$0.68	156
Wyoming	Miscellaneous	Cooling Dx Evap	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	Existing	134	15	\$148	75%	76%	\$0.14	109
Wyoming	Miscellaneous	Cooling Dx Evap	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	Existing	0.03	18	\$0.17	45%	65%	\$0.62	10
Wyoming	Miscellaneous	Cooling Dx Evap	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	Existing	0.13	40	\$8	4%	98%	\$5.52	0.38
Wyoming	Miscellaneous	Cooling Dx Evap	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	1	13	\$0.23	10%	39%	\$0.03	2
Wyoming	Miscellaneous	Cooling Dx Evap	Insulation - Ceiling	R-25 (WY State Code)	R-11 (Average Existing Conditions)	per roof sqft	Existing	0.00	25	\$0.57	75%	63%	\$37.70	0.61
Wyoming	Miscellaneous	Cooling Dx Evap	Insulation - Duct	R-5 (WY State Code)	No Insulation	per surface area of duct insul	Existing	0.51	20	\$1	75%	56%	\$0.31	19
Wyoming	Miscellaneous	Cooling Dx Evap	Insulation - Duct	R-8	R-5 (WY State Code)	per surface area of duct insul	Existing	0.34	20	\$0.28	75%	85%	\$0.09	25
Wyoming	Miscellaneous	Cooling Dx Evap	Insulation - Floor (non-slab)	R-30	R-25 (WY State Code)	per floor area	Existing	0.00	25	\$0.10	35%	90%	\$3.56	0.78
Wyoming	Miscellaneous	Cooling Dx Evap	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	Existing	8	30	\$5	50%	95%	\$0.06	153
Wyoming	Miscellaneous	Cooling Dx Evap	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	Existing	201	10	\$122	95%	29%	\$0.10	16
Wyoming	Miscellaneous	Cooling Dx Evap	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	0.16	7	\$0.13	90%	85%	\$0.17	173
Wyoming	Miscellaneous	Cooling Dx Evap	Window Film	Window Film	No Film	per 100 sqft of window glazing	Existing	1	10	\$129	90%	68%	\$18.75	0.23
Wyoming	Miscellaneous	Cooling Dx Evap	Windows-High Efficiency	U-0.32	U-0.50 (WY State Code)	per window sqft	Existing	4	25	\$67	15%	90%	\$1.42	21
Wyoming	Miscellaneous	Cooling Dx Evap	Windows-High Efficiency	U-0.50 (WY State Code)	U-0.65 (Average Existing Conditions)	per window sqft	Existing	5	25	\$25	15%	69%	\$0.50	21

Table C.2.2. Commercial Measure Details

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Wyoming	Miscellaneous	Cooling Dx Evap	Automated Ventilation VFD Control(Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	1 unit per 3,000 sqft	New	266	15	\$365	50%	94%	\$0.18	20
Wyoming	Miscellaneous	Cooling Dx Evap	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	New	0.08	15	\$0.69	45%	98%	\$1.01	15
Wyoming	Miscellaneous	Cooling Dx Evap	DX Package 65 to 135 kBtu/hr - High Efficiency	DX Package 65 to 135 kBtu/hr - High Efficiency - 11.5 EER	DX Package 65 to 135 kBtu/hr - Standard Efficiency - 11.2 EER	Per installation	New	213	15	\$411	100%	N/A	\$0.25	0.34
Wyoming	Miscellaneous	Cooling Dx Evap	DX Package 65 to 135 kBtu/hr - Premium Efficiency	DX Package 65 to 135 kBtu/hr - Premium Efficiency - 12.0 EER	DX Package 65 to 135 kBtu/hr - Standard Efficiency - 11.2 EER	Per installation	New	495	15	\$827	100%	N/A	\$0.22	15
Wyoming	Miscellaneous	Cooling Dx Evap	Direct / Indirect Evaporative Cooling, Pre-Cooling	Evaporative Cooler	Standard DX cooling	per building CFM	New	0.22	15	\$1	50%	94%	\$1.03	43
Wyoming	Miscellaneous	Cooling Dx Evap	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	New	88	15	\$148	75%	76%	\$0.22	23
Wyoming	Miscellaneous	Cooling Dx Evap	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	New	0.02	18	\$0.17	45%	65%	\$0.94	2
Wyoming	Miscellaneous	Cooling Dx Evap	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	New	0.08	40	\$8	4%	98%	\$8.34	0.09
Wyoming	Miscellaneous	Cooling Dx Evap	Insulation - Duct	R-8	R-5 (WY State Code)	per surface area of duct insul	New	0.22	20	\$0.28	75%	85%	\$0.14	5
Wyoming	Miscellaneous	Cooling Dx Evap	Insulation - Floor (non-slab)	R-30	R-25 (WY State Code)	per floor area	New	0.00	25	\$0.10	35%	90%	\$5.39	0.20
Wyoming	Miscellaneous	Cooling Dx Evap	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	New	5	30	\$5	50%	95%	\$0.09	34
Wyoming	Miscellaneous	Cooling Dx Evap	Natural Ventilation	Natural Ventilation Design Reduction in Cooling	None - Standard Ventilation	per building sqft	New	0.08	15	\$0.85	20%	75%	\$1.24	4
Wyoming	Miscellaneous	Cooling Dx Evap	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	New	133	10	\$122	95%	15%	\$0.15	1
Wyoming	Miscellaneous	Cooling Dx Evap	Windows-High Efficiency	U-0.32	U-0.50 (WY State Code)	per window sqft	New	3	25	\$67	80%	90%	\$2.16	32
Wyoming	Miscellaneous	Cooling Room	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	Existing	0.17	15	\$0.69	45%	98%	\$0.50	5
Wyoming	Miscellaneous	Cooling Room	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	Existing	178	15	\$148	75%	76%	\$0.11	8
Wyoming	Miscellaneous	Cooling Room	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	Existing	0.17	40	\$8	4%	98%	\$4.15	0.04
Wyoming	Miscellaneous	Cooling Room	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	1	13	\$0.23	10%	39%	\$0.03	0.18
Wyoming	Miscellaneous	Cooling Room	Insulation - Ceiling	R-25 (WY State Code)	R-11 (Average Existing Conditions)	per roof sqft	Existing	0.00	25	\$0.57	75%	63%	\$28.37	0.07
Wyoming	Miscellaneous	Cooling Room	Insulation - Floor (non-slab)	R-30	R-25 (WY State Code)	per floor area	Existing	0.00	25	\$0.10	35%	90%	\$2.68	0.09
Wyoming	Miscellaneous	Cooling Room	PTAC (10,000 BTU/HR) - Premium-Efficiency	11.4 EER	Room AC (10,000 BTU/HR) Standard-Efficiency 9.8 EER	Per installation	Existing	1,472	15	\$22,052	75%	N/A	\$1.94	16
Wyoming	Miscellaneous	Cooling Room	Room AC (10,000 BTU/HR) High-Efficiency	High Efficiency 10.8 EER (ENERGY STAR)	Room AC (10,000 BTU/HR) Standard-Efficiency 9.8 EER	Per installation	Existing	903	9	\$1,133	100%	N/A	\$0.23	2
Wyoming	Miscellaneous	Cooling Room	Window Film	Window Film	No Film	per 100 sqft of window glazing	Existing	0.05	10	\$129	90%	68%	\$374.23	0.00
Wyoming	Miscellaneous	Cooling Room	Windows-High Efficiency	U-0.32	U-0.50 (WY State Code)	per window sqft	Existing	6	25	\$67	15%	90%	\$1.07	2
Wyoming	Miscellaneous	Cooling Room	Windows-High Efficiency	U-0.50 (WY State Code)	U-0.65 (Average Existing Conditions)	per window sqft	Existing	6	25	\$25	15%	69%	\$0.38	2

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Wyoming	Miscellaneous	Cooling Room	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	New	0.12	15	\$0.69	45%	98%	\$0.73	1
Wyoming	Miscellaneous	Cooling Room	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	New	123	15	\$148	75%	76%	\$0.16	1
Wyoming	Miscellaneous	Cooling Room	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	New	0.12	40	\$8	4%	98%	\$6.03	0.00
Wyoming	Miscellaneous	Cooling Room	Insulation - Floor (non-slab)	R-30	R-25 (WY State Code)	per floor area	New	0.00	25	\$0.10	35%	90%	\$3.89	0.01
Wyoming	Miscellaneous	Cooling Room	Natural Ventilation	Natural Ventilation Design Reduction in Cooling	None - Standard Ventilation	per building sqft	New	0.12	15	\$0.85	20%	75%	\$0.90	0.47
Wyoming	Miscellaneous	Cooling Room	PTAC (10,000 BTU/HR) - Premium-Efficiency	11.4 EER	Room AC (10,000 BTU/HR) Standard-Efficiency 9.8 EER	Per installation	New	1,029	15	\$16,205	75%	N/A	\$2.04	1
Wyoming	Miscellaneous	Cooling Room	Room AC (10,000 BTU/HR) High-Efficiency	High Efficiency 10.8 EER (ENERGY STAR)	Room AC (10,000 BTU/HR) Standard-Efficiency 9.8 EER	Per installation	New	666	9	\$906	100%	N/A	\$0.24	0.29
Wyoming	Miscellaneous	Cooling Room	Windows-High Efficiency	U-0.32	U-0.50 (WY State Code)	per window sqft	New	4	25	\$67	80%	90%	\$1.56	3
Wyoming	Miscellaneous	Hvac Aux	Convert Constant Volume Air System to VAV	Variable Volume Air System	Constant Volume Air System	per building CFM	Existing	0.26	15	\$2	15%	68%	\$1.26	176
Wyoming	Miscellaneous	Hvac Aux	Cooking Hood Controls	Demand-Ventilation Control	No Controls	per installation	Existing	1,831	18	\$3,743	95%	65%	\$0.24	75
Wyoming	Miscellaneous	Hvac Aux	Motor - CEE Premium-Efficiency Plus	CEE PE+ Motor for HVAC Applications	NEMA Efficiency Motors	per HP	Existing	21	15	\$6	95%	76%	\$0.04	86
Wyoming	Miscellaneous	Hvac Aux	Motor - VAV Box High Efficiency (ECM)	ECM Motor	Standard Efficiency Motor	per installation	Existing	55	15	\$176	13%	77%	\$0.42	76
Wyoming	Miscellaneous	Hvac Aux	Motor Rewind	>15, <500 HP	No Rewind	per HP	Existing	3	8	\$4	65%	25%	\$0.25	3
Wyoming	Miscellaneous	Hvac Aux	Optimized Variable Volume Lab Hood Design	Optimized Variable Volume Lab Hood Design	Constant Volume Lab Hood Design	per installation	Existing	176	13	\$1,439	5%	59%	\$1.15	7
Wyoming	Miscellaneous	Hvac Aux	Cooking Hood Controls	Demand-Ventilation Control	No Controls	per installation	New	1,831	18	\$3,740	95%	50%	\$0.24	112
Wyoming	Miscellaneous	Hvac Aux	Low Pressure Distribution Complex HVAC	Low Pressure Distribution Complex HVAC	VAV/CV	per building sqft	New	0.82	50	\$2	16%	98%	\$0.23	214
Wyoming	Miscellaneous	Hvac Aux	Motor - CEE Premium-Efficiency Plus	CEE PE+ Motor for HVAC Applications	NEMA Efficiency Motors	per HP	New	18	15	\$6	95%	76%	\$0.05	28
Wyoming	Miscellaneous	Hvac Aux	Motor - VAV Box High Efficiency (ECM)	ECM Motor	Standard Efficiency Motor	per installation	New	46	15	\$176	13%	77%	\$0.50	18
Wyoming	Miscellaneous	Hvac Aux	Optimized Variable Volume Lab Hood Design	Optimized Variable Volume Lab Hood Design	Constant Volume Lab Hood Design	per installation	New	148	15	\$1,439	5%	59%	\$1.26	1
Wyoming	Miscellaneous	Lighting Exterior	Covered Parking Lighting	Covered Parking Lighting	Normal Lighting	per building sqft	Existing	0.09	10	\$0.02	80%	95%	\$0.05	467
Wyoming	Miscellaneous	Lighting Exterior	Daylighting Controls, Outdoors (Photocell)	Photocell	No Controls	per installation	Existing	46	8	\$28	75%	70%	\$0.12	84
Wyoming	Miscellaneous	Lighting Exterior	Exterior Building Lighting	30% savings	Normal Lighting	per installation	Existing	237	15	\$333	62%	90%	\$0.18	734
Wyoming	Miscellaneous	Lighting Exterior	Solid State LED White Lighting	Landscape, merchandise, signage, structure & task lighting (2.5 W)	50W 10hrs/day, 365 day/yr	per installation	Existing	5	14	\$35	75%	95%	\$0.95	13
Wyoming	Miscellaneous	Lighting Exterior	Surface Parking Lighting	Surface Parking Lighting	Normal Lighting	per building sqft	Existing	0.04	19	\$0.06	62%	95%	\$0.16	195
Wyoming	Miscellaneous	Lighting Exterior	Covered Parking Lighting	Covered Parking Lighting	Normal Lighting	per building sqft	New	0.09	10	\$0.02	80%	95%	\$0.05	150
Wyoming	Miscellaneous	Lighting Exterior	Daylighting Controls, Outdoors (Photocell)	Photocell	No Controls	per installation	New	46	8	\$28	75%	70%	\$0.12	27
Wyoming	Miscellaneous	Lighting Exterior	Exterior Building Lighting	30% savings	Normal Lighting	per installation	New	237	15	\$333	62%	90%	\$0.18	236
Wyoming	Miscellaneous	Lighting Exterior	Solid State LED White Lighting	Landscape, merchandise, signage, structure & task lighting (2.5 W)	50W 10hrs/day, 365 day/yr	per installation	New	5	14	\$35	75%	95%	\$0.95	4
Wyoming	Miscellaneous	Lighting Exterior	Surface Parking Lighting	Surface Parking Lighting	Normal Lighting	per building sqft	New	0.04	19	\$0.06	62%	95%	\$0.16	62
Wyoming	Miscellaneous	Lighting Interior	Cold Cathode Lighting	Cold Cathode Lighting 5 watts	30 W Incandescent Bulb	per installation	Existing	575	5	\$12	15%	94%	\$0.01	102

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Wyoming	Miscellaneous	Lighting Interior	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	Existing	0.77	8	\$0.85	30%	84%	\$0.21	127
Wyoming	Miscellaneous	Lighting Interior	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	Existing	0.58	8	\$0.63	30%	84%	\$0.21	96
Wyoming	Miscellaneous	Lighting Interior	Exit Sign - LED	LED Exit Sign (2 Watts)	CFL Exit Sign (9 Watts)	per installation	Existing	94	16	\$16	95%	50%	\$0.02	213
Wyoming	Miscellaneous	Lighting Interior	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign (2 Watts)	per installation	Existing	17	13	\$30	95%	98%	\$0.25	25
Wyoming	Miscellaneous	Lighting Interior	LED Refrigeration Case Lights	LED Refrigeration Case Lights	Fluorescent Refrigeration Case	per installation	Existing	122	8	\$246	10%	80%	\$0.39	20
Wyoming	Miscellaneous	Lighting Interior	Lighting Package, High Efficiency	15% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	Existing	0.49	13	\$0.06	90%	53%	\$0.02	1,212
Wyoming	Miscellaneous	Lighting Interior	Lighting Package, High Efficiency	Code Required LPD And Control Strategies	Existing Lighting Design LPD	per building sqft	Existing	1	13	\$0.74	90%	41%	\$0.07	3,716
Wyoming	Miscellaneous	Lighting Interior	Lighting Package, Premium Efficiency	25% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	Existing	0.83	13	\$0.26	75%	62%	\$0.05	487
Wyoming	Miscellaneous	Lighting Interior	Lighting Package, Premium High Bay	35% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	Existing	0.38	13	\$0.19	70%	83%	\$0.07	1,420
Wyoming	Miscellaneous	Lighting Interior	Occupancy Sensor Control, Fluorescent	Occupancy Sensor Control, Fluorescent	No Occupancy Sensor	per occupancy sensor	Existing	993	8	\$65	90%	49%	\$0.01	231
Wyoming	Miscellaneous	Lighting Interior	Time Clock	Time Clock	No Controls	per 10,000 Watts	Existing	736	8	\$174	20%	**	\$0.05	102
Wyoming	Miscellaneous	Lighting Interior	Cold Cathode Lighting	Cold Cathode Lighting 5 watts	30 W Incandescent Bulb	per installation	New	405	5	\$12	15%	94%	\$0.01	23
Wyoming	Miscellaneous	Lighting Interior	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	New	0.54	8	\$0.85	30%	84%	\$0.30	30
Wyoming	Miscellaneous	Lighting Interior	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	New	0.41	8	\$0.63	30%	84%	\$0.30	23
Wyoming	Miscellaneous	Lighting Interior	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign (2 Watts)	per installation	New	17	13	\$30	95%	98%	\$0.25	32
Wyoming	Miscellaneous	Lighting Interior	LED Refrigeration Case Lights	LED Refrigeration Case Lights	Fluorescent Refrigeration Case	per installation	New	122	8	\$246	10%	80%	\$0.39	6
Wyoming	Miscellaneous	Lighting Interior	Lighting Package, High Efficiency	15% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	New	0.49	15	\$0.02	90%	53%	\$0.01	389
Wyoming	Miscellaneous	Lighting Interior	Lighting Package, Premium Efficiency	25% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	New	0.83	15	\$0.12	75%	62%	\$0.02	156
Wyoming	Miscellaneous	Lighting Interior	Lighting Package, Premium High Bay	35% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	New	0.38	15	\$0.04	70%	83%	\$0.01	456
Wyoming	Miscellaneous	Lighting Interior	Occupancy Sensor Control, Fluorescent	Occupancy Sensor Control, Fluorescent	No Occupancy Sensor	per occupancy sensor	New	699	8	\$65	90%	49%	\$0.02	55
Wyoming	Miscellaneous	Lighting Interior	Time Clock	Time Clock	No Controls	per 10,000 Watts	New	736	8	\$174	20%	**	\$0.05	24
Wyoming	Miscellaneous	Other Office Equipment	ENERGY STAR - Copiers	ENERGY STAR Copiers	Standard Copier	per installation	Existing	71	6	\$163	95%	45%	\$0.56	4
Wyoming	Miscellaneous	Other Office Equipment	ENERGY STAR - Fax	ENERGY STAR Fax	Standard Fax	per installation	Existing	76	6	\$0.00	95%	45%	\$0.00	4
Wyoming	Miscellaneous	Other Office Equipment	ENERGY STAR - Monitors	ENERGY STAR Features Enabled	Non-ENERGY STAR Features	per installation	Existing	14	5	\$16	64%	15%	\$0.31	4
Wyoming	Miscellaneous	Other Office Equipment	ENERGY STAR - Printers	ENERGY STAR Printers	Standard Printers	per installation	Existing	134	6	\$15	95%	40%	\$0.03	51
Wyoming	Miscellaneous	Other Office Equipment	ENERGY STAR - Scanners	ENERGY STAR Scanners	Standard Scanner	per installation	Existing	69	6	\$0.00	95%	45%	\$0.00	3
Wyoming	Miscellaneous	Other Office Equipment	ENERGY STAR - Copiers	ENERGY STAR Copiers	Standard Copier	per installation	New	71	6	\$163	95%	45%	\$0.56	1
Wyoming	Miscellaneous	Other Office Equipment	ENERGY STAR - Fax	ENERGY STAR Fax	Standard Fax	per installation	New	76	6	\$0.00	95%	45%	\$0.00	1
Wyoming	Miscellaneous	Other Office Equipment	ENERGY STAR - Monitors	ENERGY STAR Features Enabled	Non-ENERGY STAR Features	per installation	New	14	5	\$16	64%	15%	\$0.31	1
Wyoming	Miscellaneous	Other Office Equipment	ENERGY STAR - Printers	ENERGY STAR Printers	Standard Printers	per installation	New	134	6	\$15	95%	40%	\$0.03	16

Table C.2.2. Commercial Measure Details

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Wyoming	Miscellaneous	Other Office Equipment	ENERGY STAR - Scanners	ENERGY STAR Scanners	Standard Scanner	per installation	New	69	6	\$0.00	95%	45%	\$0.00	1
Wyoming	Miscellaneous	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	per installation	Existing	7	7	\$1	20%	90%	\$0.05	1
Wyoming	Miscellaneous	Other Plug Load	ENERGY STAR - Water Cooler	ENERGY STAR Water Cooler (Hot/Cold Water)	Non-ENERGY STAR Water Cooler	per installation	Existing	354	10	\$0.00	95%	75%	\$0.00	33
Wyoming	Miscellaneous	Other Plug Load	Power Supply Transformer/Converter	80 Plus	85% efficient power supply (> 51W)	1 unit per 2,000 sqft	Existing	6	4	\$0.40	95%	86%	\$0.02	17
Wyoming	Miscellaneous	Other Plug Load	Residential Refrigerator	ENERGY STAR	Federal Standard	per installation	Existing	78	12	\$122	10%	65%	\$0.23	6
Wyoming	Miscellaneous	Other Plug Load	Residential Refrigerator/Freezer Recycling	Recycling Existing Refrigerator/Freezer	Existing Refrigerator/Freezer	per installation	Existing	930	4	\$561	25%	35%	\$0.21	35
Wyoming	Miscellaneous	Other Plug Load	Server Virtualization	Server Virtualization	No Virtualization	number of virtualized servers	Existing	2,209	4	\$1,871	72%	85%	\$0.68	289
Wyoming	Miscellaneous	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	1 unit per 5,000 sqft	Existing	98	5	\$20	60%	90%	\$0.06	70
Wyoming	Miscellaneous	Other Plug Load	Vending Machines- High Efficiency	ENERGY STAR (Tier 2) Vending Machines- High Efficiency 500 can capacity Under 5.92 kWh/day	Vending Machines- Standard 13 kWh/day	per installation	Existing	234	14	\$163	10%	80%	\$0.09	2
Wyoming	Miscellaneous	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	per installation	New	7	7	\$1	20%	90%	\$0.05	0.35
Wyoming	Miscellaneous	Other Plug Load	ENERGY STAR - Water Cooler	ENERGY STAR Water Cooler (Hot/Cold Water)	Non-ENERGY STAR Water Cooler	per installation	New	354	10	\$0.00	95%	75%	\$0.00	10
Wyoming	Miscellaneous	Other Plug Load	Power Supply Transformer/Converter	80 Plus	85% efficient power supply (> 51W)	1 unit per 2,000 sqft	New	6	4	\$0.40	95%	86%	\$0.02	5
Wyoming	Miscellaneous	Other Plug Load	Residential Refrigerator	ENERGY STAR	Federal Standard	per installation	New	78	12	\$122	10%	65%	\$0.23	2
Wyoming	Miscellaneous	Other Plug Load	Server Virtualization	Server Virtualization	No Virtualization	number of virtualized servers	New	2,209	4	\$1,871	72%	85%	\$0.68	93
Wyoming	Miscellaneous	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	1 unit per 5,000 sqft	New	98	5	\$20	60%	90%	\$0.06	22
Wyoming	Miscellaneous	Other Plug Load	Vending Machines- High Efficiency	ENERGY STAR (Tier 2) Vending Machines- High Efficiency 500 can capacity Under 5.92 kWh/day	Vending Machines- Standard 13 kWh/day	per installation	New	234	14	\$163	10%	80%	\$0.09	0.80
Wyoming	Miscellaneous	Refrigeration	Case Electronically Commutated Motor	ECM Case Fans	Standard Efficiency Motor	1 unit per 10,000 sqft	Existing	999	12	\$240	3%	77%	\$0.04	1
Wyoming	Miscellaneous	Refrigeration	Case Replacement Low Temp	Case Replacement Low Temp	No replacement	per square foot	Existing	0.01	15	\$0.10	3%	95%	\$0.73	0.26
Wyoming	Miscellaneous	Refrigeration	Case Replacement Med Temp	Case Replacement Med Temp	No replacement	per square foot	Existing	0.00	15	\$0.05	3%	95%	\$4.42	0.02
Wyoming	Miscellaneous	Refrigeration	Night Covers for Display Cases	Night Covers for Display Cases	No Night Covers	per installation	Existing	396	5	\$64	5%	85%	\$0.05	0.65
Wyoming	Miscellaneous	Refrigeration	Standalone to Multiplex Compressor	Standalone to Multiplex Compressor	Standalone compressor	per building sqft	Existing	0.02	13	\$0.00	3%	90%	\$0.02	0.32
Wyoming	Miscellaneous	Refrigeration	Walk-In Electronically Commutated Motor	ECM Evaporator Fans	Standard Efficiency Motor	per installation	Existing	0.03	12	\$0.17	3%	95%	\$0.73	0.48
Wyoming	Miscellaneous	Refrigeration	Case Electronically Commutated Motor	ECM Case Fans	Standard Efficiency Motor	1 unit per 10,000 sqft	New	999	12	\$240	3%	77%	\$0.04	0.35
Wyoming	Miscellaneous	Refrigeration	Night Covers for Display Cases	Night Covers for Display Cases	No Night Covers	per installation	New	396	5	\$64	5%	85%	\$0.05	0.25
Wyoming	Miscellaneous	Refrigeration	Walk-In Electronically Commutated Motor	ECM Evaporator Fans	Standard Efficiency Motor	per installation	New	0.03	12	\$0.17	3%	95%	\$0.73	0.15
Wyoming	Miscellaneous	Space Heat	Convert Constant Volume Air System to VAV	Variable Volume Air System	Constant Volume Air System	per building CFM	Existing	0.96	15	\$2	15%	68%	\$0.35	64
Wyoming	Miscellaneous	Space Heat	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	Existing	745	15	\$148	75%	76%	\$0.03	409
Wyoming	Miscellaneous	Space Heat	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	Existing	0.18	18	\$0.17	45%	65%	\$0.11	36
Wyoming	Miscellaneous	Space Heat	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	Existing	1	14	\$1	5%	94%	\$0.21	34

Table C.2.2. Commercial Measure Details

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Wyoming	Miscellaneous	Space Heat	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	11	13	\$0.23	10%	39%	\$0.00	20
Wyoming	Miscellaneous	Space Heat	Insulation - Ceiling	R-25 (WY State Code)	R-11 (Average Existing Conditions)	per roof sqft	Existing	1	25	\$0.57	75%	63%	\$0.05	372
Wyoming	Miscellaneous	Space Heat	Insulation - Ceiling	R-30	R-25 (WY State Code)	per roof sqft	Existing	0.18	25	\$0.09	75%	85%	\$0.05	86
Wyoming	Miscellaneous	Space Heat	Insulation - Duct	R-5 (WY State Code)	No Insulation	per surface area of duct insul	Existing	2	20	\$1	75%	56%	\$0.06	63
Wyoming	Miscellaneous	Space Heat	Insulation - Duct	R-8	R-5 (WY State Code)	per surface area of duct insul	Existing	1	20	\$0.28	75%	85%	\$0.02	98
Wyoming	Miscellaneous	Space Heat	Insulation - Floor (non-slab)	R-25 (WY State Code)	R-7 (Average Existing Conditions)	per floor area	Existing	2	25	\$0.73	35%	81%	\$0.03	741
Wyoming	Miscellaneous	Space Heat	Insulation - Floor (non-slab)	R-30	R-25 (WY State Code)	per floor area	Existing	0.53	25	\$0.10	35%	90%	\$0.02	170
Wyoming	Miscellaneous	Space Heat	Insulation - Wall	R-13 + 3 (WY State Code)	R-3 (Average Existing Conditions)	per floor area	Existing	5	25	\$1	10%	69%	\$0.02	162
Wyoming	Miscellaneous	Space Heat	Insulation - Wall	R-21	R-13 + 3 (WY State Code)	per floor area	Existing	2	25	\$0.10	10%	85%	\$0.00	89
Wyoming	Miscellaneous	Space Heat	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	Existing	62	30	\$5	50%	95%	\$0.01	854
Wyoming	Miscellaneous	Space Heat	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	Existing	1,117	10	\$122	95%	29%	\$0.02	63
Wyoming	Miscellaneous	Space Heat	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	0.93	7	\$0.13	90%	85%	\$0.03	581
Wyoming	Miscellaneous	Space Heat	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	New	357	15	\$148	75%	76%	\$0.05	59
Wyoming	Miscellaneous	Space Heat	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	New	0.08	18	\$0.17	45%	65%	\$0.23	7
Wyoming	Miscellaneous	Space Heat	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	New	0.53	14	\$1	5%	94%	\$0.44	6
Wyoming	Miscellaneous	Space Heat	Insulation - Ceiling	R-30	R-25 (WY State Code)	per roof sqft	New	0.08	25	\$0.09	75%	85%	\$0.11	15
Wyoming	Miscellaneous	Space Heat	Insulation - Duct	R-8	R-5 (WY State Code)	per surface area of duct insul	New	0.91	20	\$0.28	75%	85%	\$0.03	13
Wyoming	Miscellaneous	Space Heat	Insulation - Floor (non-slab)	R-30	R-25 (WY State Code)	per floor area	New	0.25	25	\$0.10	35%	90%	\$0.04	24
Wyoming	Miscellaneous	Space Heat	Insulation - Wall	R-21	R-13 + 3 (WY State Code)	per floor area	New	1	25	\$0.10	95%	85%	\$0.01	130
Wyoming	Miscellaneous	Space Heat	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	New	30	30	\$5	50%	95%	\$0.02	120
Wyoming	Miscellaneous	Space Heat	Natural Ventilation	Natural Ventilation Design Reduction in Cooling	None - Standard Ventilation	per building sqft	New	0.35	15	\$0.85	20%	75%	\$0.31	14
Wyoming	Miscellaneous	Space Heat	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	New	536	10	\$122	95%	15%	\$0.04	4
Wyoming	Miscellaneous	Water Heat	Clothes Washer Commercial	ENERGY STAR Commercial Clothes Washer MEF=1.80	Standard Clothes Washers	per installation	Existing	531	11	\$131	95%	80%	\$-0.27	2
Wyoming	Miscellaneous	Water Heat	Clothes Washer Residential	Energy Star - CEE Tier 1 (MEF 2.0 - 2.19) - Electric DHW & Dryer	MEF = 1.66 - Electric DHW & Dryer (NWPPC 6th Plan Average Efficiency)	per installation	Existing	129	11	\$288	85%	94%	\$0.04	0.51
Wyoming	Miscellaneous	Water Heat	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	per building sqft	Existing	0.01	10	\$0.23	55%	94%	\$2.15	9
Wyoming	Miscellaneous	Water Heat	Dishwasher Residential	ENERGY STAR <= 324 kWh/yr, <= 5.8 gal/cycle	Federal Standard <= 355 kWh/yr, <= 6.5 gal/cycle	per installation	Existing	30	11	\$30	95%	25%	\$0.10	0.46
Wyoming	Miscellaneous	Water Heat	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	per installation	Existing	7,217	10	\$2,458	95%	95%	\$0.02	0.86
Wyoming	Miscellaneous	Water Heat	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	per installation	Existing	3,372	10	\$983	95%	94%	\$-0.01	0.20
Wyoming	Miscellaneous	Water Heat	Electric Water Heater - High Efficiency	EF = 0.95	EF = 0.92	Per installation	Existing	59	15	\$108	100%	N/A	\$0.24	1
Wyoming	Miscellaneous	Water Heat	Heat Pump Water Heater - Advanced-Efficiency	EF = 2.2	EF = 0.92	Per installation	Existing	1,097	15	\$1,948	75%	N/A	\$0.23	104
Wyoming	Miscellaneous	Water Heat	Hot Water (SHW) Pipe Insulation	1.0" of Insulation, assuming R-4 (WY State Code)	No Insulation	per linear foot	Existing	2	12	\$2	80%	90%	\$0.13	2

Table C.2.2. Commercial Measure Details

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Wyoming	Miscellaneous	Water Heat	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	per installation	Existing	29	9	\$0.25	95%	25%	\$-0.08	3
Wyoming	Miscellaneous	Water Heat	Low-Flow Faucet Aerators	2.2 GPM (Federal Code)	3.0 GPM	per installation	Existing	24	9	\$2	95%	25%	\$-0.07	2
Wyoming	Miscellaneous	Water Heat	Low-Flow Pre-Rinse Spray Valves	0.6 GPM	1.6 GPM (Federal Standard)	per installation	Existing	64	5	\$5	95%	93%	\$-0.07	14
Wyoming	Miscellaneous	Water Heat	Low-Flow Showerheads	2.0 GPM	2.5 GPM (Federal Code)	per installation	Existing	434	10	\$5	95%	73%	\$-0.08	23
Wyoming	Miscellaneous	Water Heat	Low-Flow Showerheads	2.5 GPM (Federal Code)	4.5 GPM	per installation	Existing	965	10	\$11	95%	62%	\$-0.08	43
Wyoming	Miscellaneous	Water Heat	Water Cooled Refrigeration with Heat Recovery	Heat Recovery from refrigeration system. Applied to Water Heating Electric End use	No heat recovery	per sqft of refrigerated area	Existing	0.04	10	\$0.75	3%	94%	\$3.01	0.04
Wyoming	Miscellaneous	Water Heat	Water Heater Temperature Setback	Water Heater Temperature Setback (120 F)	No Change in Water Temperature	per installation	Existing	70	5	\$70	75%	55%	\$0.28	11
Wyoming	Miscellaneous	Water Heat	Clothes Washer Commercial	ENERGY STAR Commercial Clothes Washer MEF=1.80	Standard Clothes Washers	per installation	New	533	11	\$131	95%	80%	\$-0.27	0.64
Wyoming	Miscellaneous	Water Heat	Clothes Washer Residential	Energy Star - CEE Tier 1 (MEF 2.0 - 2.19) - Electric DHW & Dryer	MEF = 1.66 - Electric DHW & Dryer (NWPPC 6th Plan Average Efficiency)	per installation	New	129	11	\$288	85%	94%	\$0.04	0.16
Wyoming	Miscellaneous	Water Heat	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	per building sqft	New	0.01	10	\$0.23	55%	94%	\$2.25	3
Wyoming	Miscellaneous	Water Heat	Dishwasher Residential	ENERGY STAR <= 324 kWh/yr, <= 5.8 gal/cycle	Federal Standard <= 355 kWh/yr, <= 6.5 gal/cycle	per installation	New	30	11	\$30	95%	55%	\$0.10	0.32
Wyoming	Miscellaneous	Water Heat	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	per installation	New	7,234	10	\$2,573	95%	95%	\$0.02	0.26
Wyoming	Miscellaneous	Water Heat	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	per installation	New	3,379	10	\$514	95%	94%	\$-0.03	0.06
Wyoming	Miscellaneous	Water Heat	Electric Water Heater - High Efficiency	EF = 0.95	EF = 0.92	Per installation	New	57	15	\$108	100%	N/A	\$0.24	0.38
Wyoming	Miscellaneous	Water Heat	Heat Pump Water Heater - Advanced-Efficiency	EF = 2.2	EF = 0.92	Per installation	New	1,068	15	\$1,743	75%	N/A	\$0.21	31
Wyoming	Miscellaneous	Water Heat	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	per installation	New	27	9	\$0.25	95%	25%	\$-0.08	1
Wyoming	Miscellaneous	Water Heat	Low-Flow Pre-Rinse Spray Valves	0.6 GPM	1.6 GPM (Federal Standard)	per installation	New	64	5	\$5	95%	93%	\$-0.07	4
Wyoming	Miscellaneous	Water Heat	Low-Flow Showerheads	2.0 GPM	2.5 GPM (Federal Code)	per installation	New	415	10	\$5	95%	73%	\$-0.08	7
Wyoming	Miscellaneous	Water Heat	Water Cooled Refrigeration with Heat Recovery	Heat Recovery from refrigeration system. Applied to Water Heating Electric End use	No heat recovery	per sqft of refrigerated area	New	0.03	10	\$0.75	3%	94%	\$3.15	0.01
Wyoming	Miscellaneous	Water Heat	Water Heater Temperature Setback	Water Heater Temperature Setback (120 F)	No Change in Water Temperature	per installation	New	67	5	\$70	75%	55%	\$0.30	4
Wyoming	Restaurant	Computers	Computer ENERGY STAR	Computer ENERGY STAR	Computer standard non-ENERGY STAR	Per installation	Existing	130	4	\$27	100%	N/A	\$0.07	178
Wyoming	Restaurant	Computers	Computer ENERGY STAR	Computer ENERGY STAR	Computer standard non-ENERGY STAR	Per installation	New	130	4	\$27	100%	N/A	\$0.07	10
Wyoming	Restaurant	Cooking	Combination Oven	60% cooking efficiency	Non ENERGY STAR	per installation	Existing	11,153	12	\$1,816	90%	90%	\$0.02	233
Wyoming	Restaurant	Cooking	Fryers - New CEE Efficient Electric Deep Fat Fryers	15 inch width Deep Fryer CEE 2006 rating: 80% under heavy load, Less than 1000 watt at idle	15 inch width standard electric deep fat fryers	per installation	Existing	964	12	\$1,246	70%	86%	\$0.19	74
Wyoming	Restaurant	Cooking	Griddle	70% cooking efficiency	Non ENERGY STAR	per installation	Existing	2,153	12	\$784	95%	85%	\$0.05	283
Wyoming	Restaurant	Cooking	High Efficiency Convection Oven	Convection Oven	Standard Oven	per installation	Existing	1,782	12	\$1,938	40%	45%	\$0.16	83
Wyoming	Restaurant	Cooking	Hot Food Holding Cabinet	ENERGY STAR	Non ENERGY STAR	per installation	Existing	3,739	12	\$1,680	35%	21%	\$0.07	90
Wyoming	Restaurant	Cooking	Steam Cooker	ENERGY STAR	Non ENERGY STAR	per installation	Existing	4,002	12	\$2,442	39%	75%	\$0.09	394
Wyoming	Restaurant	Cooking	Combination Oven	60% cooking efficiency	Non ENERGY STAR	per installation	New	11,153	12	\$1,816	90%	90%	\$0.02	75
Wyoming	Restaurant	Cooking	Fryers - New CEE Efficient Electric Deep Fat Fryers	15 inch width Deep Fryer CEE 2006 rating: 80% under heavy load, Less than 1000 watt at idle	15 inch width standard electric deep fat fryers	per installation	New	964	12	\$1,246	70%	86%	\$0.19	24

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Wyoming	Restaurant	Cooking	Griddle	70% cooking efficiency	Non ENERGY STAR	per installation	New	2,153	12	\$784	95%	85%	\$0.05	91
Wyoming	Restaurant	Cooking	High Efficiency Convection Oven	Convection Oven	Standard Oven	per installation	New	1,782	12	\$1,938	40%	45%	\$0.16	26
Wyoming	Restaurant	Cooking	Hot Food Holding Cabinet	ENERGY STAR	Non ENERGY STAR	per installation	New	3,739	12	\$1,680	35%	21%	\$0.07	29
Wyoming	Restaurant	Cooking	Steam Cooker	ENERGY STAR	Non ENERGY STAR	per installation	New	4,002	12	\$2,442	39%	75%	\$0.09	126
Wyoming	Restaurant	Cooling Dx Evap	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	Existing	0.34	15	\$0.66	45%	98%	\$0.25	355
Wyoming	Restaurant	Cooling Dx Evap	DX Package 65 to 135 kBTU/hr - High Efficiency	DX Package 65 to 135 kBTU/hr - High Efficiency - 11.5 EER	DX Package 65 to 135 kBTU/hr - Standard Efficiency - 11.2 EER	Per installation	Existing	316	15	\$462	100%	N/A	\$0.19	11
Wyoming	Restaurant	Cooling Dx Evap	DX Package 65 to 135 kBTU/hr - Premium Efficiency	DX Package 65 to 135 kBTU/hr - Premium Efficiency - 12.0 EER	DX Package 65 to 135 kBTU/hr - Standard Efficiency - 11.2 EER	Per installation	Existing	824	15	\$931	100%	N/A	\$0.15	394
Wyoming	Restaurant	Cooling Dx Evap	DX Package-Air Side Economizer	Air-Side Economizer	No Economizer	per DX ton	Existing	78	10	\$149	10%	50%	\$0.32	56
Wyoming	Restaurant	Cooling Dx Evap	DX Tune-Up / Diagnostics	DX Tune-Up / Diagnostics	No DX Tune-Up / Diagnostics	per installation	Existing	393	4	\$235	95%	72%	\$0.23	660
Wyoming	Restaurant	Cooling Dx Evap	Direct / Indirect Evaporative Cooling, Pre-Cooling	Evaporative Cooler	Standard DX cooling	per building CFM	Existing	0.87	15	\$1	50%	94%	\$0.25	1,012
Wyoming	Restaurant	Cooling Dx Evap	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	Existing	0.08	18	\$0.17	45%	65%	\$0.23	71
Wyoming	Restaurant	Cooling Dx Evap	Evaporative Cooler replaces DX Package 65 to 135 kBTU/hr - Advanced Efficiency	Evaporative Cooler replaces DX Package 65 to 135 kBTU/hr - Advanced Efficiency	DX Package 65 to 135 kBTU/hr - Standard Efficiency - 11.2 EER	Per installation	Existing	5,151	15	\$-7965.7059	25%	N/A	\$-0.27	523
Wyoming	Restaurant	Cooling Dx Evap	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	Existing	0.34	40	\$7	4%	98%	\$2.04	2
Wyoming	Restaurant	Cooling Dx Evap	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	1	13	\$0.23	40%	39%	\$0.02	86
Wyoming	Restaurant	Cooling Dx Evap	Insulation - Ceiling	R-25 (WY State Code)	R-11 (Average Existing Conditions)	per roof sqft	Existing	0.00	25	\$0.55	75%	58%	\$13.94	3
Wyoming	Restaurant	Cooling Dx Evap	Insulation - Duct	R-5 (WY State Code)	No Insulation	per surface area of duct insul	Existing	1	20	\$1	75%	59%	\$0.11	131
Wyoming	Restaurant	Cooling Dx Evap	Insulation - Duct	R-8	R-5 (WY State Code)	per surface area of duct insul	Existing	0.89	20	\$0.27	75%	85%	\$0.03	141
Wyoming	Restaurant	Cooling Dx Evap	Insulation - Floor (non-slab)	R-30	R-25 (WY State Code)	per floor area	Existing	0.00	25	\$0.09	35%	90%	\$1.32	5
Wyoming	Restaurant	Cooling Dx Evap	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	Existing	21	30	\$4	50%	95%	\$0.02	874
Wyoming	Restaurant	Cooling Dx Evap	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	Existing	272	10	\$118	95%	27%	\$0.07	76
Wyoming	Restaurant	Cooling Dx Evap	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	0.43	7	\$0.12	90%	85%	\$0.06	1,050
Wyoming	Restaurant	Cooling Dx Evap	Window Film	Window Film	No Film	per 100 sqft of window glazing	Existing	1	10	\$124	90%	68%	\$14.55	2
Wyoming	Restaurant	Cooling Dx Evap	Windows-High Efficiency	U-0.32	U-0.50 (WY State Code)	per window sqft	Existing	4	25	\$65	15%	90%	\$1.62	141
Wyoming	Restaurant	Cooling Dx Evap	Windows-High Efficiency	U-0.50 (WY State Code)	U-0.65 (Average Existing Conditions)	per window sqft	Existing	4	25	\$24	15%	56%	\$0.57	94
Wyoming	Restaurant	Cooling Dx Evap	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	New	0.19	15	\$0.66	45%	98%	\$0.44	83

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Wyoming	Restaurant	Cooling Dx Evap	DX Package 65 to 135 kBTU/hr - High Efficiency	DX Package 65 to 135 kBTU/hr - High Efficiency - 11.5 EER	DX Package 65 to 135 kBTU/hr - Standard Efficiency - 11.2 EER	Per installation	New	189	15	\$370	100%	N/A	\$0.25	1
Wyoming	Restaurant	Cooling Dx Evap	DX Package 65 to 135 kBTU/hr - Premium Efficiency	DX Package 65 to 135 kBTU/hr - Premium Efficiency - 12.0 EER	DX Package 65 to 135 kBTU/hr - Standard Efficiency - 11.2 EER	Per installation	New	497	15	\$744	100%	N/A	\$0.19	78
Wyoming	Restaurant	Cooling Dx Evap	Direct / Indirect Evaporative Cooling, Pre-Cooling	Evaporative Cooler	Standard DX cooling	per building CFM	New	0.49	15	\$1	50%	94%	\$0.45	237
Wyoming	Restaurant	Cooling Dx Evap	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	New	0.04	18	\$0.17	45%	65%	\$0.41	15
Wyoming	Restaurant	Cooling Dx Evap	Evaporative Cooler replaces DX Package 65 to 135 kBTU/hr - Advanced Efficiency	Evaporative Cooler replaces DX Package 65 to 135 kBTU/hr - Advanced Efficiency	DX Package 65 to 135 kBTU/hr - Standard Efficiency - 11.2 EER	Per installation	New	3,153	15	\$-5970.9003	25%	N/A	\$-0.34	106
Wyoming	Restaurant	Cooling Dx Evap	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	New	0.19	40	\$7	4%	98%	\$3.62	0.54
Wyoming	Restaurant	Cooling Dx Evap	Insulation - Duct	R-8	R-5 (WY State Code)	per surface area of duct insul	New	0.50	20	\$0.27	75%	85%	\$0.06	27
Wyoming	Restaurant	Cooling Dx Evap	Insulation - Floor (non-slab)	R-30	R-25 (WY State Code)	per floor area	New	0.00	25	\$0.09	35%	90%	\$2.34	1
Wyoming	Restaurant	Cooling Dx Evap	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	New	12	30	\$4	50%	95%	\$0.04	168
Wyoming	Restaurant	Cooling Dx Evap	Natural Ventilation	Natural Ventilation Design Reduction in Cooling	None - Standard Ventilation	per building sqft	New	0.19	15	\$0.81	20%	75%	\$0.54	26
Wyoming	Restaurant	Cooling Dx Evap	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	New	153	10	\$118	95%	14%	\$0.13	8
Wyoming	Restaurant	Cooling Dx Evap	Windows-High Efficiency	U-0.32	U-0.50 (WY State Code)	per window sqft	New	2	25	\$65	80%	90%	\$2.87	178
Wyoming	Restaurant	Hvac Aux	Cooking Hood Controls	Demand-Ventilation Control	No Controls	per installation	Existing	1,769	18	\$5,620	95%	25%	\$0.37	778
Wyoming	Restaurant	Hvac Aux	Motor - CEE Premium-Efficiency Plus	CEE PE+ Motor for HVAC Applications	NEMA Efficiency Motors	per HP	Existing	37	15	\$6	95%	76%	\$0.02	103
Wyoming	Restaurant	Hvac Aux	Motor Rewind	>15, <500 HP	No Rewind	per HP	Existing	3	8	\$4	65%	25%	\$0.25	3
Wyoming	Restaurant	Hvac Aux	Cooking Hood Controls	Demand-Ventilation Control	No Controls	per installation	New	1,769	18	\$5,620	95%	25%	\$0.37	250
Wyoming	Restaurant	Hvac Aux	Motor - CEE Premium-Efficiency Plus	CEE PE+ Motor for HVAC Applications	NEMA Efficiency Motors	per HP	New	37	15	\$6	95%	76%	\$0.02	41
Wyoming	Restaurant	Lighting Exterior	Covered Parking Lighting	Covered Parking Lighting	Normal Lighting	per building sqft	Existing	0.08	10	\$0.02	80%	95%	\$0.05	325
Wyoming	Restaurant	Lighting Exterior	Daylighting Controls, Outdoors (Photocell)	Photocell	No Controls	per installation	Existing	61	8	\$27	75%	70%	\$0.09	117
Wyoming	Restaurant	Lighting Exterior	Exterior Building Lighting	30% savings	Normal Lighting	per installation	Existing	229	15	\$320	62%	90%	\$0.18	1,023
Wyoming	Restaurant	Lighting Exterior	Solid State LED White Lighting	Landscape, merchandise, signage, structure & task lighting (2.5 W)	50W 10hrs/day, 365 day/yr	per installation	Existing	6	14	\$34	75%	95%	\$0.68	18
Wyoming	Restaurant	Lighting Exterior	Surface Parking Lighting	Surface Parking Lighting	Normal Lighting	per building sqft	Existing	0.04	19	\$0.06	62%	95%	\$0.16	136
Wyoming	Restaurant	Lighting Exterior	Covered Parking Lighting	Covered Parking Lighting	Normal Lighting	per building sqft	New	0.08	10	\$0.02	80%	95%	\$0.05	104
Wyoming	Restaurant	Lighting Exterior	Daylighting Controls, Outdoors (Photocell)	Photocell	No Controls	per installation	New	61	8	\$27	75%	70%	\$0.09	37
Wyoming	Restaurant	Lighting Exterior	Exterior Building Lighting	30% savings	Normal Lighting	per installation	New	229	15	\$320	62%	90%	\$0.18	328
Wyoming	Restaurant	Lighting Exterior	Solid State LED White Lighting	Landscape, merchandise, signage, structure & task lighting (2.5 W)	50W 10hrs/day, 365 day/yr	per installation	New	6	14	\$34	75%	95%	\$0.68	5
Wyoming	Restaurant	Lighting Exterior	Surface Parking Lighting	Surface Parking Lighting	Normal Lighting	per building sqft	New	0.04	19	\$0.06	62%	95%	\$0.16	43
Wyoming	Restaurant	Lighting Interior	Cold Cathode Lighting	Cold Cathode Lighting 5 watts	30 W Incandescent Bulb	per installation	Existing	301	5	\$12	15%	94%	\$0.01	74

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Wyoming	Restaurant	Lighting Interior	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	Existing	0.35	8	\$0.81	30%	98%	\$0.45	51
Wyoming	Restaurant	Lighting Interior	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	Existing	0.13	8	\$0.61	30%	98%	\$0.89	19
Wyoming	Restaurant	Lighting Interior	Exit Sign - LED	LED Exit Sign (2 Watts)	CFL Exit Sign (9 Watts)	per installation	Existing	91	16	\$15	95%	50%	\$0.02	148
Wyoming	Restaurant	Lighting Interior	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign (2 Watts)	per installation	Existing	16	13	\$29	95%	98%	\$0.25	17
Wyoming	Restaurant	Lighting Interior	LED Refrigeration Case Lights	LED Refrigeration Case Lights	Fluorescent Refrigeration Case	per installation	Existing	156	8	\$237	25%	80%	\$0.30	123
Wyoming	Restaurant	Lighting Interior	Lighting Package, High Efficiency	15% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	Existing	0.59	13	\$0.00	90%	53%	\$0.00	1,040
Wyoming	Restaurant	Lighting Interior	Lighting Package, High Efficiency	Code Required LPD And Control Strategies	Existing Lighting Design LPD	per building sqft	Existing	1	13	\$0.02	90%	37%	\$0.00	2,310
Wyoming	Restaurant	Lighting Interior	Lighting Package, Premium Efficiency	25% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	Existing	0.99	13	\$0.01	75%	62%	\$0.00	418
Wyoming	Restaurant	Lighting Interior	Lighting Package, Premium High Bay	35% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	Existing	0.06	13	\$0.04	70%	83%	\$0.09	168
Wyoming	Restaurant	Lighting Interior	Occupancy Sensor Control, Fluorescent	Occupancy Sensor Control, Fluorescent	No Occupancy Sensor	per occupancy sensor	Existing	1,002	8	\$62	45%	48%	\$0.01	98
Wyoming	Restaurant	Lighting Interior	Time Clock	Time Clock	No Controls	per 10,000 Watts	Existing	711	8	\$167	20%	**	\$0.05	87
Wyoming	Restaurant	Lighting Interior	Cold Cathode Lighting	Cold Cathode Lighting 5 watts	30 W Incandescent Bulb	per installation	New	210	5	\$12	15%	94%	\$0.02	16
Wyoming	Restaurant	Lighting Interior	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	New	0.25	8	\$0.81	30%	98%	\$0.64	12
Wyoming	Restaurant	Lighting Interior	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	New	0.09	8	\$0.61	30%	98%	\$1.28	4
Wyoming	Restaurant	Lighting Interior	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign (2 Watts)	per installation	New	16	13	\$29	95%	98%	\$0.25	22
Wyoming	Restaurant	Lighting Interior	LED Refrigeration Case Lights	LED Refrigeration Case Lights	Fluorescent Refrigeration Case	per installation	New	156	8	\$237	25%	80%	\$0.30	39
Wyoming	Restaurant	Lighting Interior	Lighting Package, High Efficiency	15% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	New	0.59	15	\$0.00	90%	53%	\$0.00	334
Wyoming	Restaurant	Lighting Interior	Lighting Package, Premium Efficiency	25% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	New	0.99	15	\$0.01	75%	62%	\$0.00	134
Wyoming	Restaurant	Lighting Interior	Lighting Package, Premium High Bay	35% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	New	0.06	15	\$0.00	70%	83%	\$0.02	54
Wyoming	Restaurant	Lighting Interior	Occupancy Sensor Control, Fluorescent	Occupancy Sensor Control, Fluorescent	No Occupancy Sensor	per occupancy sensor	New	699	8	\$62	45%	48%	\$0.02	23
Wyoming	Restaurant	Lighting Interior	Time Clock	Time Clock	No Controls	per 10,000 Watts	New	711	8	\$167	20%	**	\$0.05	20
Wyoming	Restaurant	Other Office Equipment	ENERGY STAR - Copiers	ENERGY STAR Copiers	Standard Copier	per installation	Existing	69	6	\$153	95%	45%	\$0.54	2
Wyoming	Restaurant	Other Office Equipment	ENERGY STAR - Fax	ENERGY STAR Fax	Standard Fax	per installation	Existing	73	6	\$5	95%	45%	\$0.02	2
Wyoming	Restaurant	Other Office Equipment	ENERGY STAR - Monitors	ENERGY STAR Features Enabled	Non-ENERGY STAR Features	per installation	Existing	14	5	\$15	64%	15%	\$0.31	2
Wyoming	Restaurant	Other Office Equipment	ENERGY STAR - Printers	ENERGY STAR Printers	Standard Printers	per installation	Existing	129	6	\$14	95%	40%	\$0.03	68
Wyoming	Restaurant	Other Office Equipment	ENERGY STAR - Scanners	ENERGY STAR Scanners	Standard Scanner	per installation	Existing	67	6	\$0.00	95%	45%	\$0.00	2
Wyoming	Restaurant	Other Office Equipment	ENERGY STAR - Copiers	ENERGY STAR Copiers	Standard Copier	per installation	New	69	6	\$153	95%	45%	\$0.54	0.88
Wyoming	Restaurant	Other Office Equipment	ENERGY STAR - Fax	ENERGY STAR Fax	Standard Fax	per installation	New	73	6	\$5	95%	45%	\$0.02	0.94
Wyoming	Restaurant	Other Office Equipment	ENERGY STAR - Monitors	ENERGY STAR Features Enabled	Non-ENERGY STAR Features	per installation	New	14	5	\$15	64%	15%	\$0.31	0.86
Wyoming	Restaurant	Other Office Equipment	ENERGY STAR - Printers	ENERGY STAR Printers	Standard Printers	per installation	New	129	6	\$14	95%	40%	\$0.03	22

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Wyoming	Restaurant	Other Office Equipment	ENERGY STAR - Scanners	ENERGY STAR Scanners	Standard Scanner	per installation	New	67	6	\$0.00	95%	45%	\$0.00	0.85
Wyoming	Restaurant	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	per installation	Existing	7	7	\$1	20%	90%	\$0.06	1
Wyoming	Restaurant	Other Plug Load	ENERGY STAR - Water Cooler	ENERGY STAR Water Cooler (Hot/Cold Water)	Non-ENERGY STAR Water Cooler	per installation	Existing	342	10	\$0.72	95%	75%	\$0.00	158
Wyoming	Restaurant	Other Plug Load	Ice Maker	High-Efficiency Ice Maker	Standard Ice Maker	per installation	Existing	399	10	\$135	95%	86%	\$0.03	510
Wyoming	Restaurant	Other Plug Load	Power Supply Transformer/Converter	80 Plus	85% efficient power supply (> 51W)	1 unit per 2,000 sqft	Existing	7	4	\$0.39	95%	86%	\$0.02	15
Wyoming	Restaurant	Other Plug Load	Residential Refrigerator	ENERGY STAR	Federal Standard	per installation	Existing	75	12	\$117	19%	65%	\$0.23	17
Wyoming	Restaurant	Other Plug Load	Residential Refrigerator/Freezer Recycling	Recycling Existing Refrigerator/Freezer	Existing Refrigerator/Freezer	per installation	Existing	899	4	\$539	25%	35%	\$0.21	48
Wyoming	Restaurant	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	1 unit per 5,000 sqft	Existing	94	5	\$19	60%	90%	\$0.06	49
Wyoming	Restaurant	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	per installation	New	7	7	\$1	20%	90%	\$0.06	0.32
Wyoming	Restaurant	Other Plug Load	ENERGY STAR - Water Cooler	ENERGY STAR Water Cooler (Hot/Cold Water)	Non-ENERGY STAR Water Cooler	per installation	New	342	10	\$0.72	95%	75%	\$0.00	50
Wyoming	Restaurant	Other Plug Load	Ice Maker	High-Efficiency Ice Maker	Standard Ice Maker	per installation	New	399	10	\$135	95%	86%	\$0.03	164
Wyoming	Restaurant	Other Plug Load	Power Supply Transformer/Converter	80 Plus	85% efficient power supply (> 51W)	1 unit per 2,000 sqft	New	7	4	\$0.39	95%	86%	\$0.02	4
Wyoming	Restaurant	Other Plug Load	Residential Refrigerator	ENERGY STAR	Federal Standard	per installation	New	75	12	\$117	19%	65%	\$0.23	5
Wyoming	Restaurant	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	1 unit per 5,000 sqft	New	94	5	\$19	60%	90%	\$0.06	15
Wyoming	Restaurant	Refrigeration	Anti-Sweat (Humidistat) Controls	Anti-Sweat (Humidistat) Controls	No Anti-Sweat (Humidistat) Controls	1 unit per 1,000 sqft	Existing	927	12	\$68	25%	45%	\$0.01	170
Wyoming	Restaurant	Refrigeration	Case Electronically Commutated Motor	ECM Case Fans	Standard Efficiency Motor	1 unit per 5,000 sqft	Existing	965	12	\$231	10%	77%	\$0.04	59
Wyoming	Restaurant	Refrigeration	Case Replacement Low Temp	Case Replacement Low Temp	No replacement	per square foot	Existing	0.04	15	\$0.10	10%	95%	\$0.29	17
Wyoming	Restaurant	Refrigeration	Case Replacement Med Temp	Case Replacement Med Temp	No replacement	per square foot	Existing	0.00	15	\$0.05	10%	95%	\$1.76	1
Wyoming	Restaurant	Refrigeration	Demand Control Defrost - Hot Gas	Refrigerant Defrost	Defrost - Electric	per installation	Existing	316	10	\$7	5%	68%	\$0.00	16
Wyoming	Restaurant	Refrigeration	Glass Door ES Refrigerators/Freezers	Glass Door ES Refrigerators/Freezers	Standard Glass Doors	per installation	Existing	2,419	12	\$691	95%	77%	\$0.04	1,204
Wyoming	Restaurant	Refrigeration	Night Covers for Display Cases	Night Covers for Display Cases	No Night Covers	per installation	Existing	382	5	\$61	30%	85%	\$0.05	280
Wyoming	Restaurant	Refrigeration	Refrigeration Commissioning or Re-commissioning	Commissioning / Re-commissioning	No Commissioning / Re-commissioning	per refrigeration ton	Existing	774	3	\$83	10%	85%	\$0.05	178
Wyoming	Restaurant	Refrigeration	Solid Door ES Refrigerators/Freezers	Solid Door ES Refrigerators/Freezers	Standard Solid Door	per installation	Existing	1,096	12	\$181	95%	81%	\$0.02	576
Wyoming	Restaurant	Refrigeration	Standalone to Multiplex Compressor	Standalone to Multiplex Compressor	Standalone compressor	per building sqft	Existing	0.25	13	\$0.03	10%	90%	\$0.02	85
Wyoming	Restaurant	Refrigeration	Strip Curtains for Walk-Ins	Strip Curtains for Walk-Ins	No Strip Curtains for Walk-In	per installation	Existing	486	4	\$176	5%	20%	\$0.12	7
Wyoming	Restaurant	Refrigeration	Walk-In Electronically Commutated Motor	ECM Evaporator Fans	Standard Efficiency Motor	per installation	Existing	0.36	12	\$0.16	75%	95%	\$0.07	1,040
Wyoming	Restaurant	Refrigeration	Anti-Sweat (Humidistat) Controls	Anti-Sweat (Humidistat) Controls	No Anti-Sweat (Humidistat) Controls	1 unit per 1,000 sqft	New	927	12	\$68	25%	45%	\$0.01	54
Wyoming	Restaurant	Refrigeration	Case Electronically Commutated Motor	ECM Case Fans	Standard Efficiency Motor	1 unit per 5,000 sqft	New	965	12	\$231	10%	77%	\$0.04	19
Wyoming	Restaurant	Refrigeration	Demand Control Defrost - Hot Gas	Refrigerant Defrost	Defrost - Electric	per installation	New	316	10	\$7	5%	68%	\$0.00	5
Wyoming	Restaurant	Refrigeration	Glass Door ES Refrigerators/Freezers	Glass Door ES Refrigerators/Freezers	Standard Glass Doors	per installation	New	2,419	12	\$691	95%	77%	\$0.04	387
Wyoming	Restaurant	Refrigeration	Night Covers for Display Cases	Night Covers for Display Cases	No Night Covers	per installation	New	382	5	\$61	30%	85%	\$0.05	110
Wyoming	Restaurant	Refrigeration	Refrigeration Commissioning or Re-commissioning	Commissioning / Re-commissioning	No Commissioning / Re-commissioning	per refrigeration ton	New	478	3	\$32	5%	90%	\$0.03	18

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Wyoming	Restaurant	Refrigeration	Solid Door ES Refrigerators/Freezers	Solid Door ES Refrigerators/Freezers	Standard Solid Door	per installation	New	1,096	12	\$181	95%	81%	\$0.02	185
Wyoming	Restaurant	Refrigeration	Strip Curtains for Walk-Ins	Strip Curtains for Walk-Ins	No Strip Curtains for Walk-Ins	per installation	New	486	4	\$176	5%	20%	\$0.12	2
Wyoming	Restaurant	Refrigeration	Walk-In Electronically Commutated Motor	ECM Evaporator Fans	Standard Efficiency Motor	per installation	New	0.36	12	\$0.16	75%	95%	\$0.07	334
Wyoming	Restaurant	Space Heat	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	Existing	0.11	18	\$0.17	45%	65%	\$0.18	15
Wyoming	Restaurant	Space Heat	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	Existing	0.66	14	\$1	5%	94%	\$0.34	14
Wyoming	Restaurant	Space Heat	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	3	13	\$0.23	40%	39%	\$0.01	51
Wyoming	Restaurant	Space Heat	Insulation - Ceiling	R-25 (WY State Code)	R-11 (Average Existing Conditions)	per roof sqft	Existing	0.64	25	\$0.55	75%	58%	\$0.09	141
Wyoming	Restaurant	Space Heat	Insulation - Ceiling	R-30	R-25 (WY State Code)	per roof sqft	Existing	0.10	25	\$0.08	75%	85%	\$0.08	35
Wyoming	Restaurant	Space Heat	Insulation - Duct	R-5 (WY State Code)	No Insulation	per surface area of duct insul	Existing	1	20	\$1	75%	59%	\$0.09	27
Wyoming	Restaurant	Space Heat	Insulation - Duct	R-8	R-5 (WY State Code)	per surface area of duct insul	Existing	1	20	\$0.27	75%	85%	\$0.03	36
Wyoming	Restaurant	Space Heat	Insulation - Floor (non-slab)	R-25 (WY State Code)	R-11 (Average Existing Conditions)	per floor area	Existing	1	25	\$0.70	35%	83%	\$0.06	187
Wyoming	Restaurant	Space Heat	Insulation - Floor (non-slab)	R-30	R-25 (WY State Code)	per floor area	Existing	0.31	25	\$0.09	35%	90%	\$0.03	64
Wyoming	Restaurant	Space Heat	Insulation - Wall	R-13 + 3 (WY State Code)	R-3 (Average Existing Conditions)	per floor area	Existing	1	25	\$1	10%	62%	\$0.07	46
Wyoming	Restaurant	Space Heat	Insulation - Wall	R-21	R-13 + 3 (WY State Code)	per floor area	Existing	0.74	25	\$0.09	10%	85%	\$0.01	30
Wyoming	Restaurant	Space Heat	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	Existing	37	30	\$4	50%	95%	\$0.01	323
Wyoming	Restaurant	Space Heat	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	Existing	344	10	\$118	95%	27%	\$0.06	19
Wyoming	Restaurant	Space Heat	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	0.55	7	\$0.12	90%	85%	\$0.05	267
Wyoming	Restaurant	Space Heat	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	New	0.05	18	\$0.17	45%	65%	\$0.38	2
Wyoming	Restaurant	Space Heat	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	New	0.31	14	\$1	5%	94%	\$0.72	2
Wyoming	Restaurant	Space Heat	Insulation - Ceiling	R-30	R-25 (WY State Code)	per roof sqft	New	0.05	25	\$0.08	75%	85%	\$0.17	6
Wyoming	Restaurant	Space Heat	Insulation - Duct	R-8	R-5 (WY State Code)	per surface area of duct insul	New	0.53	20	\$0.27	75%	85%	\$0.06	5
Wyoming	Restaurant	Space Heat	Insulation - Floor (non-slab)	R-30	R-25 (WY State Code)	per floor area	New	0.14	25	\$0.09	35%	90%	\$0.07	9
Wyoming	Restaurant	Space Heat	Insulation - Wall	R-21	R-13 + 3 (WY State Code)	per floor area	New	0.35	25	\$0.09	95%	85%	\$0.03	44
Wyoming	Restaurant	Space Heat	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	New	17	30	\$4	50%	95%	\$0.03	50
Wyoming	Restaurant	Space Heat	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	New	163	10	\$118	95%	14%	\$0.12	1
Wyoming	Restaurant	Water Heat	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	per building sqft	Existing	0.43	10	\$0.22	75%	94%	\$0.09	93
Wyoming	Restaurant	Water Heat	Dishwasher Residential	ENERGY STAR <= 324 kWh/yr, <= 5.8 gal/cycle	Federal Standard <= 355 kWh/yr, <= 6.5 gal/cycle	per installation	Existing	29	11	\$29	95%	25%	\$0.10	0.25
Wyoming	Restaurant	Water Heat	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	per installation	Existing	6,956	10	\$2,520	95%	95%	\$0.02	333
Wyoming	Restaurant	Water Heat	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	per installation	Existing	3,249	10	\$784	95%	94%	\$-0.02	77
Wyoming	Restaurant	Water Heat	Electric Water Heater - High Efficiency	EF = 0.95	EF = 0.92	Per installation	Existing	724	15	\$146	100%	N/A	\$0.03	10
Wyoming	Restaurant	Water Heat	Heat Pump Water Heater - Advanced-Efficiency	EF = 2.2	EF = 0.92	Per installation	Existing	13,354	15	\$2,623	75%	N/A	\$0.03	639
Wyoming	Restaurant	Water Heat	Hot Water (SHW) Pipe Insulation	1.0" of Insulation, assuming R-4 (WY State Code)	No Insulation	per linear foot	Existing	28	12	\$1	80%	90%	\$0.01	20

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Wyoming	Restaurant	Water Heat	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	per installation	Existing	361	9	\$0.12	95%	25%	\$-0.08	25
Wyoming	Restaurant	Water Heat	Low-Flow Faucet Aerators	2.2 GPM (Federal Code)	3.0 GPM	per installation	Existing	303	9	\$2	95%	25%	\$-0.08	21
Wyoming	Restaurant	Water Heat	Low-Flow Pre-Rinse Spray Valves	0.6 GPM	1.6 GPM (Federal Standard)	per installation	Existing	848	5	\$4	95%	46%	\$-0.09	104
Wyoming	Restaurant	Water Heat	Water Cooled Refrigeration with Heat Recovery	Heat Recovery from refrigeration system. Applied to Water Heating Electric End use	No heat recovery	per sqft of refrigerated area	Existing	0.69	10	\$0.72	45%	94%	\$0.17	38
Wyoming	Restaurant	Water Heat	Water Heater Temperature Setback	Water Heater Temperature Setback (120 F)	No Change in Water Temperature	per installation	Existing	874	5	\$67	75%	75%	\$0.02	119
Wyoming	Restaurant	Water Heat	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	per building sqft	New	0.42	10	\$0.22	75%	94%	\$0.09	29
Wyoming	Restaurant	Water Heat	Dishwasher Residential	ENERGY STAR <= 324 kWh/yr, <= 5.8 gal/cycle	Federal Standard <= 355 kWh/yr, <= 6.5 gal/cycle	per installation	New	29	11	\$29	95%	55%	\$0.10	0.18
Wyoming	Restaurant	Water Heat	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	per installation	New	6,989	10	\$2,520	95%	95%	\$0.02	104
Wyoming	Restaurant	Water Heat	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	per installation	New	3,265	10	\$784	95%	94%	\$-0.02	24
Wyoming	Restaurant	Water Heat	Electric Water Heater - High Efficiency	EF = 0.95	EF = 0.92	Per installation	New	724	15	\$146	100%	N/A	\$0.03	2
Wyoming	Restaurant	Water Heat	Heat Pump Water Heater - Advanced-Efficiency	EF = 2.2	EF = 0.92	Per installation	New	13,354	15	\$2,347	75%	N/A	\$0.02	180
Wyoming	Restaurant	Water Heat	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	per installation	New	349	9	\$0.12	95%	25%	\$-0.08	7
Wyoming	Restaurant	Water Heat	Low-Flow Pre-Rinse Spray Valves	0.6 GPM	1.6 GPM (Federal Standard)	per installation	New	852	5	\$4	95%	46%	\$-0.09	34
Wyoming	Restaurant	Water Heat	Water Cooled Refrigeration with Heat Recovery	Heat Recovery from refrigeration system. Applied to Water Heating Electric End use	No heat recovery	per sqft of refrigerated area	New	0.67	10	\$0.72	45%	94%	\$0.18	12
Wyoming	Restaurant	Water Heat	Water Heater Temperature Setback	Water Heater Temperature Setback (120 F)	No Change in Water Temperature	per installation	New	846	5	\$67	75%	75%	\$0.02	38
Wyoming	School	Computers	Computer ENERGY STAR	Computer ENERGY STAR	Computer standard non-ENERGY STAR	Per installation	Existing	135	4	\$29	100%	N/A	\$0.08	2,982
Wyoming	School	Computers	Network PC Power Management	Network PC Power Management	No Power Management	per computer	Existing	87	5	\$12	95%	30%	\$0.04	733
Wyoming	School	Computers	Computer ENERGY STAR	Computer ENERGY STAR	Computer standard non-ENERGY STAR	Per installation	New	135	4	\$29	100%	N/A	\$0.08	167
Wyoming	School	Computers	Network PC Power Management	Network PC Power Management	No Power Management	per computer	New	87	5	\$12	95%	30%	\$0.04	235
Wyoming	School	Cooking	Combination Oven	60% cooking efficiency	Non ENERGY STAR	per installation	Existing	11,636	12	\$1,798	90%	90%	\$0.02	3
Wyoming	School	Cooking	Fryers - New CEE Efficient Electric Deep Fat Fryers	15 inch width Deep Fryer CEE 2006 rating; 80% under heavy load, Less than 1000 watt at idle	15 inch width standard electric deep fat fryers	per installation	Existing	434	12	\$1,348	35%	90%	\$0.46	0.22
Wyoming	School	Cooking	Griddle	70% cooking efficiency	Non ENERGY STAR	per installation	Existing	2,246	12	\$807	95%	85%	\$0.05	5
Wyoming	School	Cooking	High Efficiency Convection Oven	Convection Oven	Standard Oven	per installation	Existing	1,859	12	\$2,019	26%	40%	\$0.16	0.97
Wyoming	School	Cooking	Hot Food Holding Cabinet	ENERGY STAR	Non ENERGY STAR	per installation	Existing	3,901	12	\$1,730	75%	21%	\$0.07	3
Wyoming	School	Cooking	Steam Cooker	ENERGY STAR	Non ENERGY STAR	per installation	Existing	4,175	12	\$2,532	14%	75%	\$0.09	2
Wyoming	School	Cooking	Combination Oven	60% cooking efficiency	Non ENERGY STAR	per installation	New	11,636	12	\$1,798	90%	90%	\$0.02	0.99
Wyoming	School	Cooking	Fryers - New CEE Efficient Electric Deep Fat Fryers	15 inch width Deep Fryer CEE 2006 rating; 80% under heavy load, Less than 1000 watt at idle	15 inch width standard electric deep fat fryers	per installation	New	434	12	\$1,348	35%	90%	\$0.46	0.07
Wyoming	School	Cooking	Griddle	70% cooking efficiency	Non ENERGY STAR	per installation	New	2,246	12	\$807	95%	85%	\$0.05	1
Wyoming	School	Cooking	High Efficiency Convection Oven	Convection Oven	Standard Oven	per installation	New	1,859	12	\$2,019	26%	40%	\$0.16	0.31
Wyoming	School	Cooking	Hot Food Holding Cabinet	ENERGY STAR	Non ENERGY STAR	per installation	New	3,901	12	\$1,730	75%	21%	\$0.07	1

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Wyoming	School	Cooking	Steam Cooker	ENERGY STAR	Non ENERGY STAR	per installation	New	4,175	12	\$2,532	14%	75%	\$0.09	0.94
Wyoming	School	Cooling Chillers	Automated Ventilation VFD Control(Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	1 unit per 3,000 sqft	Existing	61	15	\$680	25%	94%	\$1.44	5
Wyoming	School	Cooling Chillers	Chilled Water / Condenser Water Settings-Optimization	Additional Control Features	EMS already installed - No Optimization	1 control point per 1000 sqft	Existing	2	5	\$138	95%	81%	\$15.47	1
Wyoming	School	Cooling Chillers	Chilled Water Piping Loop w/ VSD Control	VSD for secondary chilled water loop	Primary loop only w/ constant speed pump	per chiller ton	Existing	3	10	\$189	25%	70%	\$10.17	2
Wyoming	School	Cooling Chillers	Chiller-Water Side Economizer	Install Economizer	No Economizer	per chiller ton	Existing	2	15	\$419	45%	90%	\$26.36	3
Wyoming	School	Cooling Chillers	Chillers 150-300 tons (screw) - Advanced Efficiency	0.50 kW/ton (full load)	0.680 kW/Ton (full load)	Per installation	Existing	1,693	20	\$10,363	100%	N/A	\$0.69	51
Wyoming	School	Cooling Chillers	Chillers 150-300 tons (screw) - High Efficiency	0.65 kW/ton (full load)	0.680 kW/Ton (full load)	Per installation	Existing	627	20	\$3,198	100%	N/A	\$0.57	0.40
Wyoming	School	Cooling Chillers	Chillers 150-300 tons (screw) - Premium Efficiency	0.57 kW/ton (full load)	0.680 kW/Ton (full load)	Per installation	Existing	1,200	20	\$7,019	100%	N/A	\$0.65	3
Wyoming	School	Cooling Chillers	Convert Constant Volume Air System to VAV	Variable Volume Air System	Constant Volume Air System	per building CFM	Existing	0.06	15	\$2	15%	68%	\$5.49	5
Wyoming	School	Cooling Chillers	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	Existing	0.02	15	\$0.69	65%	98%	\$4.42	12
Wyoming	School	Cooling Chillers	Cooling Tower-Decrease Approach Temperature	6 Deg F	10 Deg F	per chiller ton	Existing	3	8	\$26	10%	94%	\$1.67	1
Wyoming	School	Cooling Chillers	Cooling Tower-Two-Speed Fan Motor	Cooling Tower-Two-Speed Fan Motor	Cooling Tower-One-Speed Fan Motor	per chiller ton	Existing	5	15	\$2	95%	35%	\$0.05	12
Wyoming	School	Cooling Chillers	Cooling Tower-VSD Fan Control	Variable-Speed Tower Fans replace Two-Speed	Cooling Tower-Two-Speed Fan Motor	per chiller ton	Existing	1	13	\$19	95%	75%	\$1.66	6
Wyoming	School	Cooling Chillers	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	Existing	20	15	\$148	75%	76%	\$0.95	14
Wyoming	School	Cooling Chillers	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	Existing	0.02	40	\$8	4%	98%	\$36.46	0.06
Wyoming	School	Cooling Chillers	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	0.13	13	\$0.24	10%	39%	\$0.26	0.50
Wyoming	School	Cooling Chillers	Insulation - Ceiling	R-25 (WY State Code)	R-7 (Average Existing Conditions)	per roof sqft	Existing	0.00	25	\$0.57	75%	67%	\$50.38	0.51
Wyoming	School	Cooling Chillers	Pipe Insulation	1.5" of Insulation, assuming R-6 (WY State Code)	No Insulation	per linear feet of insulation	Existing	0.61	15	\$3	65%	45%	\$0.65	1
Wyoming	School	Cooling Chillers	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	0.02	7	\$0.13	90%	85%	\$1.14	23
Wyoming	School	Cooling Chillers	Window Film	Window Film	No Film	per 100 sqft of window glazing	Existing	0.80	10	\$129	90%	68%	\$26.90	0.33
Wyoming	School	Cooling Chillers	Windows-High Efficiency	U-0.32	U-0.50 (WY State Code)	per window sqft	Existing	0.37	25	\$67	15%	90%	\$18.66	3
Wyoming	School	Cooling Chillers	Windows-High Efficiency	U-0.50 (WY State Code)	U-0.67 (Average Existing Conditions)	per window sqft	Existing	0.38	25	\$25	15%	70%	\$6.68	2
Wyoming	School	Cooling Chillers	Automated Ventilation VFD Control(Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	1 unit per 3,000 sqft	New	46	15	\$365	25%	94%	\$1.01	1
Wyoming	School	Cooling Chillers	Chilled Water / Condenser Water Settings-Optimization	Additional Control Features	EMS already installed - No Optimization	1 control point per 1000 sqft	New	1	5	\$138	95%	81%	\$20.23	0.58
Wyoming	School	Cooling Chillers	Chilled Water Piping Loop w/ VSD Control	VSD for secondary chilled water loop	Primary loop only w/ constant speed pump	per chiller ton	New	2	10	\$189	25%	70%	\$11.96	0.81
Wyoming	School	Cooling Chillers	Chillers 150-300 tons (screw) - Advanced Efficiency	0.50 kW/ton (full load)	0.680 kW/Ton (full load)	Per installation	New	1,519	20	\$9,327	100%	N/A	\$0.69	21
Wyoming	School	Cooling Chillers	Chillers 150-300 tons (screw) - High Efficiency	0.65 kW/ton (full load)	0.680 kW/Ton (full load)	Per installation	New	562	20	\$2,880	100%	N/A	\$0.57	0.13

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Wyoming	School	Cooling Chillers	Chillers 150-300 tons (screw) - Premium Efficiency	0.57 kW/ton (full load)	0.680 kW/ton (full load)	Per installation	New	1,077	20	\$6,317	100%	N/A	\$0.66	0.95
Wyoming	School	Cooling Chillers	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	New	0.01	15	\$0.69	65%	98%	\$5.77	3
Wyoming	School	Cooling Chillers	Cooling Tower-Decrease Approach Temperature	6 Deg F	10 Deg F	per chiller ton	New	2	8	\$26	10%	94%	\$1.96	0.50
Wyoming	School	Cooling Chillers	Cooling Tower-VSD Fan Control	Variable-Speed Tower Fans replace Two-Speed	Cooling Tower-Two-Speed Fan Motor	per chiller ton	New	1	15	\$19	95%	75%	\$1.79	1
Wyoming	School	Cooling Chillers	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	New	15	15	\$148	75%	76%	\$1.24	4
Wyoming	School	Cooling Chillers	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	New	0.01	40	\$8	4%	98%	\$47.67	0.01
Wyoming	School	Cooling Chillers	Natural Ventilation	Natural Ventilation Design Reduction in Cooling	None - Standard Ventilation	per building sqft	New	0.01	15	\$0.85	20%	75%	\$7.08	0.93
Wyoming	School	Cooling Chillers	Windows-High Efficiency	U-0.32	U-0.50 (WY State Code)	per window sqft	New	0.28	25	\$67	80%	90%	\$24.40	6
Wyoming	School	Cooling Dx Evap	Automated Ventilation VFD Control(Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	1 unit per 3,000 sqft	Existing	75	15	\$680	25%	94%	\$1.16	31
Wyoming	School	Cooling Dx Evap	Convert Constant Volume Air System to VAV	Variable Volume Air System	Constant Volume Air System	per building CFM	Existing	0.07	15	\$2	15%	68%	\$4.42	29
Wyoming	School	Cooling Dx Evap	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	Existing	0.02	15	\$0.69	65%	98%	\$3.55	67
Wyoming	School	Cooling Dx Evap	DX Package 135 to 240 kBTU/hr - High Efficiency	DX Package 135 to 240 kBTU/hr - High Efficiency - 11.5 EER	DX Package 135 to 240 kBTU/hr - Standard Efficiency 11.0 EER	Per installation	Existing	264	15	\$2,110	100%	N/A	\$1.03	2
Wyoming	School	Cooling Dx Evap	DX Package 135 to 240 kBTU/hr - Premium Efficiency	DX Package 135 to 240 kBTU/hr - Premium Efficiency - 12.0 EER	DX Package 135 to 240 kBTU/hr - Standard Efficiency 11.0 EER	Per installation	Existing	547	15	\$3,590	100%	N/A	\$0.85	64
Wyoming	School	Cooling Dx Evap	DX Package-Air Side Economizer	Air-Side Economizer	No Economizer	per DX ton	Existing	8	10	\$155	10%	60%	\$3.03	10
Wyoming	School	Cooling Dx Evap	DX Tune-Up / Diagnostics	DX Tune-Up / Diagnostics	No DX Tune-Up / Diagnostics	per installation	Existing	42	4	\$245	95%	72%	\$2.21	88
Wyoming	School	Cooling Dx Evap	Direct / Indirect Evaporative Cooling, Pre-Cooling	Evaporative Cooler	Standard DX cooling	per building CFM	Existing	0.06	15	\$1	50%	94%	\$3.63	131
Wyoming	School	Cooling Dx Evap	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	Existing	25	15	\$148	75%	76%	\$0.76	89
Wyoming	School	Cooling Dx Evap	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	Existing	0.00	18	\$0.17	45%	65%	\$3.29	8
Wyoming	School	Cooling Dx Evap	Evaporative Cooler replaces DX Package 135 to 240 kBTU/hr - Advanced Efficiency	Evaporative Cooler replaces DX Package 135 to 240 kBTU/hr - Advanced Efficiency	DX Package 135 to 240 kBTU/hr - Standard Efficiency 11.0 EER	Per installation	Existing	3,071	15	\$-39935.079	25%	N/A	\$-2.30	18
Wyoming	School	Cooling Dx Evap	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	Existing	0.02	40	\$8	4%	98%	\$29.34	0.31
Wyoming	School	Cooling Dx Evap	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	0.16	13	\$0.24	10%	39%	\$0.21	3
Wyoming	School	Cooling Dx Evap	Insulation - Ceiling	R-25 (WY State Code)	R-7 (Average Existing Conditions)	per roof sqft	Existing	0.00	25	\$0.57	75%	67%	\$200.59	0.53
Wyoming	School	Cooling Dx Evap	Insulation - Duct	R-5 (WY State Code)	No Insulation	per surface area of duct insul	Existing	0.09	20	\$1	75%	59%	\$1.63	17
Wyoming	School	Cooling Dx Evap	Insulation - Duct	R-8	R-5 (WY State Code)	per surface area of duct insul	Existing	0.06	20	\$0.28	75%	85%	\$0.49	20

Table C.2.2. Commercial Measure Details

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Wyoming	School	Cooling Dx Evap	Insulation - Floor (non-slab)	R-30	R-25 (WY State Code)	per floor area	Existing	0.00	25	\$0.10	35%	90%	\$18.95	0.64
Wyoming	School	Cooling Dx Evap	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	Existing	1	30	\$5	50%	95%	\$0.32	124
Wyoming	School	Cooling Dx Evap	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	Existing	147	10	\$123	95%	24%	\$0.14	11
Wyoming	School	Cooling Dx Evap	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	0.03	7	\$0.13	90%	85%	\$0.92	142
Wyoming	School	Cooling Dx Evap	Window Film	Window Film	No Film	per 100 sqft of window glazing	Existing	0.81	10	\$129	90%	68%	\$26.74	1
Wyoming	School	Cooling Dx Evap	Windows-High Efficiency	U-0.32	U-0.50 (WY State Code)	per window sqft	Existing	0.46	25	\$67	15%	90%	\$15.02	17
Wyoming	School	Cooling Dx Evap	Windows-High Efficiency	U-0.50 (WY State Code)	U-0.67 (Average Existing Conditions)	per window sqft	Existing	0.47	25	\$25	15%	70%	\$5.38	14
Wyoming	School	Cooling Dx Evap	Automated Ventilation VFD Control(Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	1 unit per 3,000 sqft	New	63	15	\$365	25%	94%	\$0.75	10
Wyoming	School	Cooling Dx Evap	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	New	0.02	15	\$0.69	65%	98%	\$4.27	23
Wyoming	School	Cooling Dx Evap	DX Package 135 to 240 kBTU/hr - High Efficiency	DX Package 135 to 240 kBTU/hr - High Efficiency - 11.5 EER	DX Package 135 to 240 kBTU/hr - Standard Efficiency 11.0 EER	Per installation	New	276	15	\$1,688	100%	N/A	\$0.79	0.60
Wyoming	School	Cooling Dx Evap	DX Package 135 to 240 kBTU/hr - Premium Efficiency	DX Package 135 to 240 kBTU/hr - Premium Efficiency - 12.0 EER	DX Package 135 to 240 kBTU/hr - Standard Efficiency 11.0 EER	Per installation	New	595	15	\$2,874	100%	N/A	\$0.62	22
Wyoming	School	Cooling Dx Evap	Direct / Indirect Evaporative Cooling, Pre-Cooling	Evaporative Cooler	Standard DX cooling	per building CFM	New	0.05	15	\$1	50%	94%	\$4.36	45
Wyoming	School	Cooling Dx Evap	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	New	21	15	\$148	75%	76%	\$0.92	24
Wyoming	School	Cooling Dx Evap	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	New	0.00	18	\$0.17	45%	65%	\$3.95	3
Wyoming	School	Cooling Dx Evap	Evaporative Cooler replaces DX Package 135 to 240 kBTU/hr - Advanced Efficiency	Evaporative Cooler replaces DX Package 135 to 240 kBTU/hr - Advanced Efficiency	DX Package 135 to 240 kBTU/hr - Standard Efficiency 11.0 EER	Per installation	New	2,804	15	\$-30544.089	25%	N/A	\$-1.95	5
Wyoming	School	Cooling Dx Evap	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	New	0.02	40	\$8	4%	98%	\$35.22	0.10
Wyoming	School	Cooling Dx Evap	Insulation - Duct	R-8	R-5 (WY State Code)	per surface area of duct insul	New	0.05	20	\$0.28	75%	85%	\$0.59	5
Wyoming	School	Cooling Dx Evap	Insulation - Floor (non-slab)	R-30	R-25 (WY State Code)	per floor area	New	0.00	25	\$0.10	35%	90%	\$22.74	0.20
Wyoming	School	Cooling Dx Evap	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	New	1	30	\$5	50%	95%	\$0.38	35
Wyoming	School	Cooling Dx Evap	Natural Ventilation	Natural Ventilation Design Reduction in Cooling	None - Standard Ventilation	per building sqft	New	0.02	15	\$0.85	20%	75%	\$5.23	5
Wyoming	School	Cooling Dx Evap	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	New	123	10	\$123	95%	12%	\$0.17	1
Wyoming	School	Cooling Dx Evap	Windows-High Efficiency	U-0.32	U-0.50 (WY State Code)	per window sqft	New	0.38	25	\$67	80%	90%	\$18.03	33
Wyoming	School	Cooling Room	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	Existing	0.03	15	\$0.69	65%	98%	\$2.88	14
Wyoming	School	Cooling Room	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	Existing	31	15	\$148	75%	76%	\$0.62	15

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Wyoming	School	Cooling Room	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	Existing	0.03	40	\$8	4%	98%	\$23.76	0.07
Wyoming	School	Cooling Room	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	0.20	13	\$0.24	10%	39%	\$0.17	0.52
Wyoming	School	Cooling Room	Insulation - Ceiling	R-25 (WY State Code)	R-7 (Average Existing Conditions)	per roof sqft	Existing	0.00	25	\$0.57	75%	67%	\$162.40	0.13
Wyoming	School	Cooling Room	Insulation - Floor (non-slab)	R-30	R-25 (WY State Code)	per floor area	Existing	0.00	25	\$0.10	35%	90%	\$15.34	0.16
Wyoming	School	Cooling Room	PTAC (10,000 BTU/HR) - Premium-Efficiency	11.4 EER	Room AC (10,000 BTU/HR) Standard-Efficiency 9.8 EER	per installation	Existing	1,064	15	\$3,207	75%	N/A	\$12.56	31
Wyoming	School	Cooling Room	Room AC (10,000 BTU/HR) High-Efficiency	High Efficiency 10.8 EER (ENERGY STAR)	Room AC (10,000 BTU/HR) Standard-Efficiency 9.8 EER	Per installation	Existing	702	9	\$5,303	100%	N/A	\$1.35	5
Wyoming	School	Cooling Room	Window Film	Window Film	No Film	per 100 sqft of window glazing	Existing	0.04	10	\$129	90%	68%	\$532.81	0.01
Wyoming	School	Cooling Room	Windows-High Efficiency	U-0.32	U-0.50 (WY State Code)	per window sqft	Existing	0.56	25	\$67	15%	90%	\$12.16	4
Wyoming	School	Cooling Room	Windows-High Efficiency	U-0.50 (WY State Code)	U-0.67 (Average Existing Conditions)	per window sqft	Existing	0.58	25	\$25	15%	70%	\$4.36	3
Wyoming	School	Cooling Room	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	New	0.02	15	\$0.69	65%	98%	\$3.29	4
Wyoming	School	Cooling Room	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	New	27	15	\$148	75%	76%	\$0.71	4
Wyoming	School	Cooling Room	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	New	0.02	40	\$8	4%	98%	\$27.16	0.02
Wyoming	School	Cooling Room	Insulation - Floor (non-slab)	R-30	R-25 (WY State Code)	per floor area	New	0.00	25	\$0.10	35%	90%	\$17.54	0.04
Wyoming	School	Cooling Room	Natural Ventilation	Natural Ventilation Design Reduction in Cooling	None - Standard Ventilation	per building sqft	New	0.02	15	\$0.85	20%	75%	\$4.03	1
Wyoming	School	Cooling Room	PTAC (10,000 BTU/HR) - Premium-Efficiency	11.4 EER	Room AC (10,000 BTU/HR) Standard-Efficiency 9.8 EER	Per installation	New	1,064	15	\$75,838	75%	N/A	\$9.23	4
Wyoming	School	Cooling Room	Room AC (10,000 BTU/HR) High-Efficiency	High Efficiency 10.8 EER (ENERGY STAR)	Room AC (10,000 BTU/HR) Standard-Efficiency 9.8 EER	Per installation	New	672	9	\$4,244	100%	N/A	\$1.13	0.76
Wyoming	School	Cooling Room	Windows-High Efficiency	U-0.32	U-0.50 (WY State Code)	per window sqft	New	0.49	25	\$67	80%	90%	\$13.90	6
Wyoming	School	Heat Pump	Air Source Heat Pump 135 to 240 kBtu/hr - High Efficiency	11.5 EER, 3.4 COP	10.6 EER, 3.2 COP	Per installation	Existing	1,417	15	\$8,625	100%	N/A	\$0.79	3
Wyoming	School	Heat Pump	Air Source Heat Pump 65 to 135 kBtu/hr - Premium Efficiency	12.0 EER, 3.8 COP	10.6 EER, 3.2 COP	Per installation	Existing	4,636	15	\$14,787	100%	N/A	\$0.41	128
Wyoming	School	Heat Pump	Automated Ventilation VFD Control/Occupancy Sensors / CO2 Sensors	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	1 unit per 3,000 sqft	Existing	84	15	\$680	25%	94%	\$1.04	4
Wyoming	School	Heat Pump	Convert Constant Volume Air System to VAV	Variable Volume Air System	Constant Volume Air System	per building CFM	Existing	0.28	15	\$2	15%	68%	\$1.17	19
Wyoming	School	Heat Pump	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	Existing	0.02	15	\$0.69	65%	98%	\$3.19	10
Wyoming	School	Heat Pump	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	Existing	179	15	\$148	75%	76%	\$0.11	97
Wyoming	School	Heat Pump	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	Existing	0.04	18	\$0.17	45%	65%	\$0.46	9
Wyoming	School	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	Existing	0.22	14	\$0.92	5%	94%	\$0.55	7
Wyoming	School	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	Existing	0.02	40	\$8	4%	98%	\$26.33	0.06
Wyoming	School	Heat Pump	Ground Source Heat Pump Replacing Air Source Heat Pump 65 to 135 kBtu/hr - Advanced Efficiency	16.2 EER 4.0 COP	10.6 EER, 3.2 COP	Per installation	Existing	7,142	30	\$31,457	5%	N/A	\$4.31	8

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Wyoming	School	Heat Pump	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	2	13	\$0.24	10%	39%	\$0.01	9
Wyoming	School	Heat Pump	Insulation - Ceiling	R-25 (WY State Code)	R-7 (Average Existing Conditions)	per roof sqft	Existing	0.27	25	\$0.57	75%	67%	\$0.21	111
Wyoming	School	Heat Pump	Insulation - Ceiling	R-30	R-25 (WY State Code)	per roof sqft	Existing	0.02	25	\$0.09	75%	85%	\$0.34	12
Wyoming	School	Heat Pump	Insulation - Duct	R-5 (WY State Code)	No Insulation	per surface area of duct insul	Existing	0.68	20	\$1	75%	59%	\$0.23	17
Wyoming	School	Heat Pump	Insulation - Duct	R-8	R-5 (WY State Code)	per surface area of duct insul	Existing	0.45	20	\$0.28	75%	85%	\$0.07	22
Wyoming	School	Heat Pump	Insulation - Floor (non-slab)	R-25 (WY State Code)	R-11 (Average Existing Conditions)	per floor area	Existing	0.23	25	\$0.73	35%	83%	\$0.32	49
Wyoming	School	Heat Pump	Insulation - Floor (non-slab)	R-30	R-25 (WY State Code)	per floor area	Existing	0.09	25	\$0.10	35%	90%	\$0.12	26
Wyoming	School	Heat Pump	Insulation - Wall	R-21	R-13 + 3 (WY State Code)	per floor area	Existing	0.22	25	\$0.10	10%	85%	\$0.05	3
Wyoming	School	Heat Pump	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	Existing	15	30	\$5	50%	95%	\$0.03	192
Wyoming	School	Heat Pump	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	Existing	1,050	10	\$123	95%	24%	\$0.02	13
Wyoming	School	Heat Pump	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	0.22	7	\$0.13	90%	85%	\$0.13	152
Wyoming	School	Heat Pump	Window Film	Window Film	No Film	per 100 sqft of window glazing	Existing	0.81	10	\$129	90%	68%	\$26.69	0.25
Wyoming	School	Heat Pump	Windows-High Efficiency	U-0.32	U-0.50 (WY State Code)	per window sqft	Existing	0.13	25	\$67	15%	90%	\$52.37	0.92
Wyoming	School	Heat Pump	Windows-High Efficiency	U-0.50 (WY State Code)	U-0.67 (Average Existing Conditions)	per window sqft	Existing	0.00	25	\$25	15%	70%	\$770.13	0.01
Wyoming	School	Heat Pump	Air Source Heat Pump 135 to 240 kBtu/hr - High Efficiency	11.5 EER, 3.4 COP	10.6 EER, 3.2 COP	Per installation	New	1,737	15	\$6,900	100%	N/A	\$0.51	1
Wyoming	School	Heat Pump	Air Source Heat Pump 65 to 135 kBtu/hr - Premium Efficiency	12.0 EER, 3.8 COP	10.6 EER, 3.2 COP	Per installation	New	5,382	15	\$11,829	100%	N/A	\$0.28	50
Wyoming	School	Heat Pump	Automated Ventilation VFD Control(Occupancy Sensors / CO2 Sensors)	Demand Controlled Ventilation (CO2 sensors)	Constant Ventilation	1 unit per 3,000 sqft	New	72	15	\$365	25%	94%	\$0.66	1
Wyoming	School	Heat Pump	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	New	0.02	15	\$0.69	65%	98%	\$3.74	3
Wyoming	School	Heat Pump	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	New	187	15	\$148	75%	76%	\$0.10	33
Wyoming	School	Heat Pump	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	New	0.04	18	\$0.17	45%	65%	\$0.44	3
Wyoming	School	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	New	0.24	14	\$0.92	5%	94%	\$0.51	3
Wyoming	School	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	New	0.02	40	\$8	4%	98%	\$30.91	0.02
Wyoming	School	Heat Pump	Ground Source Heat Pump Replacing Air Source Heat Pump 65 to 135 kBtu/hr - Advanced Efficiency	16.2 EER 4.0 COP	10.6 EER, 3.2 COP	Per installation	New	7,896	30	\$76,019	5%	N/A	\$2.03	3
Wyoming	School	Heat Pump	Insulation - Ceiling	R-30	R-25 (WY State Code)	per roof sqft	New	0.03	25	\$0.09	75%	85%	\$0.31	5
Wyoming	School	Heat Pump	Insulation - Duct	R-8	R-5 (WY State Code)	per surface area of duct insul	New	0.47	20	\$0.28	75%	85%	\$0.07	7
Wyoming	School	Heat Pump	Insulation - Floor (non-slab)	R-30	R-25 (WY State Code)	per floor area	New	0.10	25	\$0.10	35%	90%	\$0.10	9
Wyoming	School	Heat Pump	Insulation - Wall	R-21	R-13 + 3 (WY State Code)	per floor area	New	0.25	25	\$0.10	95%	85%	\$0.04	14
Wyoming	School	Heat Pump	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	New	15	30	\$5	50%	95%	\$0.03	67
Wyoming	School	Heat Pump	Natural Ventilation	Natural Ventilation Design Reduction in Cooling	None - Standard Ventilation	per building sqft	New	0.18	15	\$0.85	20%	75%	\$0.59	8
Wyoming	School	Heat Pump	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	New	1,098	10	\$123	95%	12%	\$0.02	2

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Wyoming	School	Heat Pump	Windows-High Efficiency	U-0.32	U-0.50 (WY State Code)	per window sqft	New	0.02	25	\$67	80%	90%	\$276.67	0.38
Wyoming	School	Hvac Aux	Convert Constant Volume Air System to VAV	Variable Volume Air System	Constant Volume Air System	per building CFM	Existing	0.25	15	\$2	15%	68%	\$1.31	601
Wyoming	School	Hvac Aux	Cooking Hood Controls	Demand-Ventilation Control	No Controls	per installation	Existing	1,845	18	\$4,213	95%	85%	\$0.27	1,110
Wyoming	School	Hvac Aux	Motor - CEE Premium-Efficiency Plus	CEE PE+ Motor for HVAC Applications	NEMA Efficiency Motors	per HP	Existing	20	15	\$6	95%	76%	\$0.04	293
Wyoming	School	Hvac Aux	Motor - VAV Box High Efficiency (ECM)	ECM Motor	Standard Efficiency Motor	per installation	Existing	53	15	\$177	11%	77%	\$0.43	219
Wyoming	School	Hvac Aux	Motor Rewind	>15, <500 HP	No Rewind	per HP	Existing	3	8	\$4	65%	25%	\$0.31	10
Wyoming	School	Hvac Aux	Optimized Variable Volume Lab Hood Design	Optimized Variable Volume Lab Hood Design	Constant Volume Lab Hood Design	per installation	Existing	663	13	\$1,440	65%	59%	\$0.31	317
Wyoming	School	Hvac Aux	Cooking Hood Controls	Demand-Ventilation Control	No Controls	per installation	New	1,845	18	\$4,213	95%	85%	\$0.27	356
Wyoming	School	Hvac Aux	Low Pressure Distribution Complex HVAC	Low Pressure Distribution Complex HVAC	VAV/CV	per building sqft	New	0.39	50	\$2	15%	98%	\$0.47	337
Wyoming	School	Hvac Aux	Motor - CEE Premium-Efficiency Plus	CEE PE+ Motor for HVAC Applications	NEMA Efficiency Motors	per HP	New	16	15	\$6	95%	76%	\$0.05	95
Wyoming	School	Hvac Aux	Motor - VAV Box High Efficiency (ECM)	ECM Motor	Standard Efficiency Motor	per installation	New	42	15	\$177	11%	77%	\$0.53	55
Wyoming	School	Hvac Aux	Optimized Variable Volume Lab Hood Design	Optimized Variable Volume Lab Hood Design	Constant Volume Lab Hood Design	per installation	New	536	15	\$1,440	63%	59%	\$0.35	79
Wyoming	School	Lighting Exterior	Covered Parking Lighting	Covered Parking Lighting	Normal Lighting	per building sqft	Existing	0.09	10	\$0.02	80%	95%	\$0.05	1,704
Wyoming	School	Lighting Exterior	Daylighting Controls, Outdoors (Photocell)	Photocell	No Controls	per installation	Existing	56	8	\$28	75%	70%	\$0.10	179
Wyoming	School	Lighting Exterior	Exterior Building Lighting	30% savings	Normal Lighting	per installation	Existing	239	15	\$333	62%	90%	\$0.18	1,563
Wyoming	School	Lighting Exterior	Solid State LED White Lighting	Landscape, merchandise, signage, structure & task lighting (2.5 W)	50W 10hrs/day, 365 day/yr	per installation	Existing	6	14	\$35	75%	95%	\$0.78	30
Wyoming	School	Lighting Exterior	Surface Parking Lighting	Surface Parking Lighting	Normal Lighting	per building sqft	Existing	0.05	19	\$0.06	62%	95%	\$0.16	713
Wyoming	School	Lighting Exterior	Covered Parking Lighting	Covered Parking Lighting	Normal Lighting	per building sqft	New	0.09	10	\$0.02	80%	95%	\$0.05	547
Wyoming	School	Lighting Exterior	Daylighting Controls, Outdoors (Photocell)	Photocell	No Controls	per installation	New	56	8	\$28	75%	70%	\$0.10	57
Wyoming	School	Lighting Exterior	Exterior Building Lighting	30% savings	Normal Lighting	per installation	New	239	15	\$333	62%	90%	\$0.18	502
Wyoming	School	Lighting Exterior	Solid State LED White Lighting	Landscape, merchandise, signage, structure & task lighting (2.5 W)	50W 10hrs/day, 365 day/yr	per installation	New	6	14	\$35	75%	95%	\$0.78	9
Wyoming	School	Lighting Exterior	Surface Parking Lighting	Surface Parking Lighting	Normal Lighting	per building sqft	New	0.05	19	\$0.06	62%	95%	\$0.16	229
Wyoming	School	Lighting Interior	Cold Cathode Lighting	Cold Cathode Lighting 5 watts	30 W Incandescent Bulb	per installation	Existing	486	5	\$13	15%	94%	\$0.01	83
Wyoming	School	Lighting Interior	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	Existing	1	8	\$0.85	30%	81%	\$0.13	469
Wyoming	School	Lighting Interior	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	Existing	0.98	8	\$0.63	30%	81%	\$0.13	353
Wyoming	School	Lighting Interior	Exit Sign - LED	LED Exit Sign (2 Watts)	CFL Exit Sign (9 Watts)	per installation	Existing	95	16	\$16	95%	50%	\$0.02	803
Wyoming	School	Lighting Interior	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign (2 Watts)	per installation	Existing	17	13	\$30	95%	98%	\$0.25	95
Wyoming	School	Lighting Interior	LED Refrigeration Case Lights	LED Refrigeration Case Lights	Fluorescent Refrigeration Case	per installation	Existing	68	8	\$246	10%	80%	\$0.71	23
Wyoming	School	Lighting Interior	Lighting Package, High Efficiency	15% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	Existing	0.53	13	\$0.18	90%	53%	\$0.05	4,895
Wyoming	School	Lighting Interior	Lighting Package, High Efficiency	Code Required LPD And Control Strategies	Existing Lighting Design LPD	per building sqft	Existing	0.97	13	\$0.37	90%	41%	\$0.05	8,492
Wyoming	School	Lighting Interior	Lighting Package, Premium Efficiency	25% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	Existing	0.89	13	\$0.36	75%	62%	\$0.06	1,968

Table C.2.2. Commercial Measure Details

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Wyoming	School	Lighting Interior	Lighting Package, Premium High Bay	35% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	Existing	0.13	13	\$0.08	70%	83%	\$0.09	1,913
Wyoming	School	Lighting Interior	Occupancy Sensor Control, Fluorescent	Occupancy Sensor Control, Fluorescent	No Occupancy Sensor	per occupancy sensor	Existing	863	8	\$65	90%	39%	\$0.01	699
Wyoming	School	Lighting Interior	Time Clock	Time Clock	No Controls	per 10,000 Watts	Existing	742	8	\$174	20%	95%	\$0.05	367
Wyoming	School	Lighting Interior	Cold Cathode Lighting	Cold Cathode Lighting 5 watts	30 W Incandescent Bulb	per installation	New	336	5	\$13	15%	94%	\$0.01	18
Wyoming	School	Lighting Interior	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	New	0.91	8	\$0.85	30%	81%	\$0.18	108
Wyoming	School	Lighting Interior	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	New	0.82	8	\$0.63	30%	81%	\$0.15	98
Wyoming	School	Lighting Interior	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign (2 Watts)	per installation	New	17	13	\$30	95%	98%	\$0.25	122
Wyoming	School	Lighting Interior	LED Refrigeration Case Lights	LED Refrigeration Case Lights	Fluorescent Refrigeration Case	per installation	New	68	8	\$246	10%	80%	\$0.71	7
Wyoming	School	Lighting Interior	Lighting Package, High Efficiency	15% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	New	0.53	15	\$0.01	90%	53%	\$0.00	1,573
Wyoming	School	Lighting Interior	Lighting Package, Premium Efficiency	25% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	New	0.82	15	\$0.11	75%	62%	\$0.02	578
Wyoming	School	Lighting Interior	Lighting Package, Premium High Bay	35% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	New	0.13	15	\$0.01	70%	83%	\$0.02	615
Wyoming	School	Lighting Interior	Occupancy Sensor Control, Fluorescent	Occupancy Sensor Control, Fluorescent	No Occupancy Sensor	per occupancy sensor	New	597	8	\$65	90%	39%	\$0.02	161
Wyoming	School	Lighting Interior	Time Clock	Time Clock	No Controls	per 10,000 Watts	New	742	8	\$174	20%	95%	\$0.05	85
Wyoming	School	Other Office Equipment	ENERGY STAR - Copiers	ENERGY STAR Copiers	Standard Copier	per installation	Existing	72	6	\$159	95%	45%	\$0.54	34
Wyoming	School	Other Office Equipment	ENERGY STAR - Fax	ENERGY STAR Fax	Standard Fax	per installation	Existing	77	6	\$0.00	95%	45%	\$0.00	36
Wyoming	School	Other Office Equipment	ENERGY STAR - Monitors	ENERGY STAR Features Enabled	Non-ENERGY STAR Features	per installation	Existing	14	5	\$16	64%	15%	\$0.31	42
Wyoming	School	Other Office Equipment	ENERGY STAR - Printers	ENERGY STAR Printers	Standard Printers	per installation	Existing	135	6	\$15	95%	40%	\$0.03	47
Wyoming	School	Other Office Equipment	ENERGY STAR - Scanners	ENERGY STAR Scanners	Standard Scanner	per installation	Existing	70	6	\$0.00	95%	45%	\$0.00	33
Wyoming	School	Other Office Equipment	ENERGY STAR - Copiers	ENERGY STAR Copiers	Standard Copier	per installation	New	72	6	\$159	95%	45%	\$0.54	11
Wyoming	School	Other Office Equipment	ENERGY STAR - Fax	ENERGY STAR Fax	Standard Fax	per installation	New	77	6	\$0.00	95%	45%	\$0.00	11
Wyoming	School	Other Office Equipment	ENERGY STAR - Monitors	ENERGY STAR Features Enabled	Non-ENERGY STAR Features	per installation	New	14	5	\$16	64%	15%	\$0.31	13
Wyoming	School	Other Office Equipment	ENERGY STAR - Printers	ENERGY STAR Printers	Standard Printers	per installation	New	135	6	\$15	95%	40%	\$0.03	15
Wyoming	School	Other Office Equipment	ENERGY STAR - Scanners	ENERGY STAR Scanners	Standard Scanner	per installation	New	70	6	\$0.00	95%	45%	\$0.00	10
Wyoming	School	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	per installation	Existing	7	7	\$0.00	20%	90%	\$0.00	0.98
Wyoming	School	Other Plug Load	ENERGY STAR - Water Cooler	ENERGY STAR Water Cooler (Hot/Cold Water)	Non-ENERGY STAR Water Cooler	per installation	Existing	357	10	\$0.00	95%	75%	\$0.00	31
Wyoming	School	Other Plug Load	Ice Maker	High-Efficiency Ice Maker	Standard Ice Maker	per installation	Existing	416	10	\$140	95%	86%	\$0.03	315
Wyoming	School	Other Plug Load	Power Supply Transformer/Converter	80 Plus	85% efficient power supply (> 51W)	1 unit per 2,000 sqft	Existing	1	4	\$0.40	95%	86%	\$0.09	15
Wyoming	School	Other Plug Load	Residential Refrigerator	ENERGY STAR	Federal Standard	per installation	Existing	79	12	\$121	40%	65%	\$0.23	25
Wyoming	School	Other Plug Load	Residential Refrigerator/Freezer Recycling	Recycling Existing Refrigerator/Freezer	Existing Refrigerator/Freezer	per installation	Existing	938	4	\$560	25%	35%	\$0.20	33
Wyoming	School	Other Plug Load	Server Virtualization	Server Virtualization	No Virtualization	number of virtualized servers	Existing	2,226	4	\$1,877	72%	85%	\$0.67	270

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Wyoming	School	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	1 unit per 3,000 sqft	Existing	98	5	\$20	60%	90%	\$0.06	430
Wyoming	School	Other Plug Load	Vending Machines- High Efficiency	ENERGY STAR (Tier 2) Vending Machines- High Efficiency 500 can capacity Under 5.92 kWh/day	Vending Machines- Standard 13 kWh/day	per installation	Existing	236	14	\$161	75%	80%	\$0.09	132
Wyoming	School	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	per installation	New	7	7	\$0.00	20%	90%	\$0.00	0.31
Wyoming	School	Other Plug Load	ENERGY STAR - Water Cooler	ENERGY STAR Water Cooler (Hot/Cold Water)	Non-ENERGY STAR Water Cooler	per installation	New	357	10	\$0.00	95%	75%	\$0.00	10
Wyoming	School	Other Plug Load	Ice Maker	High-Efficiency Ice Maker	Standard Ice Maker	per installation	New	416	10	\$140	95%	86%	\$0.03	101
Wyoming	School	Other Plug Load	Power Supply Transformer/Converter	80 Plus	85% efficient power supply (> 51W)	1 unit per 2,000 sqft	New	1	4	\$0.40	95%	86%	\$0.09	4
Wyoming	School	Other Plug Load	Residential Refrigerator	ENERGY STAR	Federal Standard	per installation	New	79	12	\$121	40%	65%	\$0.23	8
Wyoming	School	Other Plug Load	Server Virtualization	Server Virtualization	No Virtualization	number of virtualized servers	New	2,226	4	\$1,877	72%	85%	\$0.67	87
Wyoming	School	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	1 unit per 3,000 sqft	New	98	5	\$20	60%	90%	\$0.06	138
Wyoming	School	Other Plug Load	Vending Machines- High Efficiency	ENERGY STAR (Tier 2) Vending Machines- High Efficiency 500 can capacity Under 5.92 kWh/day	Vending Machines- Standard 13 kWh/day	per installation	New	236	14	\$161	75%	80%	\$0.09	42
Wyoming	School	Refrigeration	Anti-Sweat (Humidistat) Controls	Anti-Sweat (Humidistat) Controls	No Anti-Sweat (Humidistat) Controls	1 unit per 1,000 sqft	Existing	967	12	\$67	15%	45%	\$0.01	14
Wyoming	School	Refrigeration	Case Electronically Commutated Motor	ECM Case Fans	Standard Efficiency Motor	1 unit per 10,000 sqft	Existing	1,007	12	\$240	5%	77%	\$0.04	38
Wyoming	School	Refrigeration	Case Replacement Low Temp	Case Replacement Low Temp	No replacement	per square foot	Existing	0.04	15	\$0.10	5%	95%	\$0.29	23
Wyoming	School	Refrigeration	Case Replacement Med Temp	Case Replacement Med Temp	No replacement	per square foot	Existing	0.00	15	\$0.05	5%	95%	\$1.75	1
Wyoming	School	Refrigeration	Demand Control Defrost - Hot Gas	Refrigerant Defrost	Defrost - Electric	per installation	Existing	127	10	\$55	5%	68%	\$0.07	2
Wyoming	School	Refrigeration	Glass Door ES Refrigerators/Freezers	Glass Door ES Refrigerators/Freezers	Standard Glass Doors	per installation	Existing	2,524	12	\$699	95%	77%	\$0.04	21
Wyoming	School	Refrigeration	Refrigeration Commissioning or Re-commissioning	Commissioning / Re-commissioning	No Commissioning / Re-commissioning	per refrigeration ton	Existing	807	3	\$88	10%	85%	\$0.05	25
Wyoming	School	Refrigeration	Solid Door ES Refrigerators/Freezers	Solid Door ES Refrigerators/Freezers	Standard Solid Door	per installation	Existing	1,144	12	\$174	95%	81%	\$0.02	10
Wyoming	School	Refrigeration	Standalone to Multiplex Compressor	Standalone to Multiplex Compressor	Standalone compressor	per building sqft	Existing	0.01	13	\$0.00	25%	90%	\$0.02	30
Wyoming	School	Refrigeration	Strip Curtains for Walk-Ins	Strip Curtains for Walk-Ins	No Strip Curtains for Walk-In	per installation	Existing	196	4	\$183	95%	20%	\$0.32	19
Wyoming	School	Refrigeration	Walk-In Electronically Commutated Motor	ECM Evaporator Fans	Standard Efficiency Motor	per installation	Existing	0.01	12	\$0.17	10%	95%	\$1.34	18
Wyoming	School	Refrigeration	Anti-Sweat (Humidistat) Controls	Anti-Sweat (Humidistat) Controls	No Anti-Sweat (Humidistat) Controls	1 unit per 1,000 sqft	New	967	12	\$67	15%	45%	\$0.01	4
Wyoming	School	Refrigeration	Case Electronically Commutated Motor	ECM Case Fans	Standard Efficiency Motor	1 unit per 10,000 sqft	New	1,007	12	\$240	5%	77%	\$0.04	12
Wyoming	School	Refrigeration	Demand Control Defrost - Hot Gas	Refrigerant Defrost	Defrost - Electric	per installation	New	127	10	\$55	5%	68%	\$0.07	0.71
Wyoming	School	Refrigeration	Glass Door ES Refrigerators/Freezers	Glass Door ES Refrigerators/Freezers	Standard Glass Doors	per installation	New	2,524	12	\$699	95%	77%	\$0.04	6
Wyoming	School	Refrigeration	Refrigeration Commissioning or Re-commissioning	Commissioning / Re-commissioning	No Commissioning / Re-commissioning	per refrigeration ton	New	499	3	\$35	5%	90%	\$0.03	2
Wyoming	School	Refrigeration	Solid Door ES Refrigerators/Freezers	Solid Door ES Refrigerators/Freezers	Standard Solid Door	per installation	New	1,144	12	\$174	95%	81%	\$0.02	3
Wyoming	School	Refrigeration	Strip Curtains for Walk-Ins	Strip Curtains for Walk-Ins	No Strip Curtains for Walk-In	per installation	New	196	4	\$183	95%	20%	\$0.32	6
Wyoming	School	Refrigeration	Walk-In Electronically Commutated Motor	ECM Evaporator Fans	Standard Efficiency Motor	per installation	New	0.01	12	\$0.17	10%	95%	\$1.34	6

Table C.2.2. Commercial Measure Details

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Wyoming	School	Space Heat	Convert Constant Volume Air System to VAV	Variable Volume Air System	Constant Volume Air System	per building CFM	Existing	2	15	\$2	15%	68%	\$0.13	435
Wyoming	School	Space Heat	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	Existing	1,939	15	\$148	75%	76%	\$0.01	2,790
Wyoming	School	Space Heat	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	Existing	0.48	18	\$0.17	45%	65%	\$0.04	244
Wyoming	School	Space Heat	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	Existing	2	14	\$0.92	5%	94%	\$0.04	236
Wyoming	School	Space Heat	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	25	13	\$0.24	10%	39%	\$0.00	221
Wyoming	School	Space Heat	Insulation - Ceiling	R-25 (WY State Code)	R-7 (Average Existing Conditions)	per roof sqft	Existing	4	25	\$0.57	75%	67%	\$0.01	4,561
Wyoming	School	Space Heat	Insulation - Ceiling	R-30	R-25 (WY State Code)	per roof sqft	Existing	0.47	25	\$0.09	75%	85%	\$0.02	542
Wyoming	School	Space Heat	Insulation - Duct	R-5 (WY State Code)	No Insulation	per surface area of duct insul	Existing	7	20	\$1	75%	59%	\$0.02	448
Wyoming	School	Space Heat	Insulation - Duct	R-8	R-5 (WY State Code)	per surface area of duct insul	Existing	4	20	\$0.28	75%	85%	\$0.01	648
Wyoming	School	Space Heat	Insulation - Floor (non-slab)	R-25 (WY State Code)	R-11 (Average Existing Conditions)	per floor area	Existing	5	25	\$0.73	35%	83%	\$0.02	2,795
Wyoming	School	Space Heat	Insulation - Floor (non-slab)	R-30	R-25 (WY State Code)	per floor area	Existing	1	25	\$0.10	35%	90%	\$0.01	1,132
Wyoming	School	Space Heat	Insulation - Wall	R-21	R-13 + 3 (WY State Code)	per floor area	Existing	11	25	\$0.10	10%	85%	\$0.00	594
Wyoming	School	Space Heat	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	Existing	162	30	\$5	50%	95%	\$0.00	5,639
Wyoming	School	Space Heat	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	Existing	11,340	10	\$123	95%	24%	\$0.00	387
Wyoming	School	Space Heat	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	2	7	\$0.13	90%	85%	\$0.01	4,443
Wyoming	School	Space Heat	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	New	1,149	15	\$148	75%	76%	\$0.02	487
Wyoming	School	Space Heat	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	New	0.28	18	\$0.17	45%	65%	\$0.07	58
Wyoming	School	Space Heat	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	New	1	14	\$0.92	5%	94%	\$0.07	56
Wyoming	School	Space Heat	Insulation - Ceiling	R-30	R-25 (WY State Code)	per roof sqft	New	0.28	25	\$0.09	75%	85%	\$0.03	127
Wyoming	School	Space Heat	Insulation - Duct	R-8	R-5 (WY State Code)	per surface area of duct insul	New	2	20	\$0.28	75%	85%	\$0.01	113
Wyoming	School	Space Heat	Insulation - Floor (non-slab)	R-30	R-25 (WY State Code)	per floor area	New	0.82	25	\$0.10	35%	90%	\$0.01	197
Wyoming	School	Space Heat	Insulation - Wall	R-21	R-13 + 3 (WY State Code)	per floor area	New	6	25	\$0.10	95%	85%	\$0.00	1,076
Wyoming	School	Space Heat	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	New	96	30	\$5	50%	95%	\$0.01	986
Wyoming	School	Space Heat	Low Pressure Distribution Complex HVAC	Low Pressure Distribution Complex HVAC	VAV/CV	per building sqft	New	0.39	50	\$2	15%	98%	\$0.47	30
Wyoming	School	Space Heat	Natural Ventilation	Natural Ventilation Design Reduction in Cooling	None - Standard Ventilation	per building sqft	New	1	15	\$0.85	20%	75%	\$0.10	117
Wyoming	School	Space Heat	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	New	6,717	10	\$123	95%	12%	\$0.00	33
Wyoming	School	Water Heat	Clothes Washer Commercial	ENERGY STAR Commercial Clothes Washer MEF=1.80	Standard Clothes Washers	per installation	Existing	537	11	\$124	95%	80%	\$-0.27	25
Wyoming	School	Water Heat	Clothes Washer Residential	Energy Star - CEE Tier 1 (MEF 2.0 - 2.19) - Electric DHW & Dryer	MEF = 1.66 - Electric DHW & Dryer (NWPPC 6th Plan Average Efficiency)	per installation	Existing	131	11	\$277	85%	94%	\$0.03	6
Wyoming	School	Water Heat	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	per building sqft	Existing	0.07	10	\$0.23	55%	94%	\$0.50	298
Wyoming	School	Water Heat	Dishwasher Residential	ENERGY STAR <= 324 kWh/yr, <= 5.8 gal/cycle	Federal Standard <= 355 kWh/yr, <= 6.5 gal/cycle	per installation	Existing	30	11	\$29	95%	25%	\$0.09	0.83
Wyoming	School	Water Heat	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	per installation	Existing	7,292	10	\$2,621	95%	95%	\$0.02	159

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Wyoming	School	Water Heat	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	per installation	Existing	3,407	10	\$810	95%	94%	\$-0.02	36
Wyoming	School	Water Heat	Electric Water Heater - High Efficiency	EF = 0.95	EF = 0.92	Per installation	Existing	1,011	15	\$306	100%	N/A	\$0.04	45
Wyoming	School	Water Heat	Heat Pump Water Heater - Advanced-Efficiency	EF = 2.2	EF = 0.92	Per installation	Existing	18,633	15	\$5,460	75%	N/A	\$0.04	2,935
Wyoming	School	Water Heat	Hot Water (SHW) Pipe Insulation	1.0" of Insulation, assuming R-4 (WY State Code)	No Insulation	per linear foot	Existing	27	12	\$1	80%	8%	\$0.01	7
Wyoming	School	Water Heat	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	per installation	Existing	251	9	\$0.00	95%	25%	\$-0.08	106
Wyoming	School	Water Heat	Low-Flow Faucet Aerators	2.2 GPM (Federal Code)	3.0 GPM	per installation	Existing	210	9	\$2	95%	25%	\$-0.08	89
Wyoming	School	Water Heat	Low-Flow Pre-Rinse Spray Valves	0.6 GPM	1.6 GPM (Federal Standard)	per installation	Existing	65	5	\$5	95%	65%	\$-0.07	33
Wyoming	School	Water Heat	Low-Flow Showerheads	2.0 GPM	2.5 GPM (Federal Code)	per installation	Existing	500	10	\$5	95%	73%	\$-0.08	698
Wyoming	School	Water Heat	Low-Flow Showerheads	2.5 GPM (Federal Code)	4.5 GPM	per installation	Existing	1,111	10	\$11	95%	62%	\$-0.08	1,313
Wyoming	School	Water Heat	Water Cooled Refrigeration with Heat Recovery	Heat Recovery from refrigeration system. Applied to Water Heating Electric End use	No heat recovery	per sqft of refrigerated area	Existing	0.18	10	\$0.75	25%	94%	\$0.70	6
Wyoming	School	Water Heat	Water Heater Temperature Setback	Water Heater Temperature Setback (120 F)	No Change in Water Temperature	per installation	Existing	591	5	\$70	75%	15%	\$0.03	100
Wyoming	School	Water Heat	Clothes Washer Commercial	ENERGY STAR Commercial Clothes Washer MEF=1.80	Standard Clothes Washers	per installation	New	537	11	\$124	95%	80%	\$-0.27	8
Wyoming	School	Water Heat	Clothes Washer Residential	Energy Star - CEE Tier 1 (MEF 2.0 - 2.19) - Electric DHW & Dryer	MEF = 1.66 - Electric DHW & Dryer (NWPPC 6th Plan Average Efficiency)	per installation	New	131	11	\$277	85%	94%	\$0.03	2
Wyoming	School	Water Heat	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	per building sqft	New	0.07	10	\$0.23	55%	94%	\$0.50	106
Wyoming	School	Water Heat	Dishwasher Residential	ENERGY STAR <= 324 kWh/yr, <= 5.8 gal/cycle	Federal Standard <= 355 kWh/yr, <= 6.5 gal/cycle	per installation	New	30	11	\$29	95%	55%	\$0.09	0.58
Wyoming	School	Water Heat	Dishwashing - Commercial - High Temp	High Efficiency Dishwasher (ENERGY STAR)	Standard High Temp Commercial Dishwasher	per installation	New	7,292	10	\$2,621	95%	95%	\$0.02	50
Wyoming	School	Water Heat	Dishwashing - Commercial - Low Temp	Low-Temp Commercial Dishwasher (Includes Extra Chemical Cost) - (ENERGY STAR)	Standard High Temp Commercial Dishwasher	per installation	New	3,407	10	\$810	95%	94%	\$-0.02	11
Wyoming	School	Water Heat	Electric Water Heater - High Efficiency	EF = 0.95	EF = 0.92	Per installation	New	1,011	15	\$306	100%	N/A	\$0.04	12
Wyoming	School	Water Heat	Heat Pump Water Heater - Advanced-Efficiency	EF = 2.2	EF = 0.92	Per installation	New	18,633	15	\$4,887	75%	N/A	\$0.03	918
Wyoming	School	Water Heat	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	per installation	New	251	9	\$0.00	95%	25%	\$-0.08	33
Wyoming	School	Water Heat	Low-Flow Pre-Rinse Spray Valves	0.6 GPM	1.6 GPM (Federal Standard)	per installation	New	65	5	\$5	95%	65%	\$-0.07	10
Wyoming	School	Water Heat	Low-Flow Showerheads	2.0 GPM	2.5 GPM (Federal Code)	per installation	New	500	10	\$5	95%	73%	\$-0.08	222
Wyoming	School	Water Heat	Water Cooled Refrigeration with Heat Recovery	Heat Recovery from refrigeration system. Applied to Water Heating Electric End use	No heat recovery	per sqft of refrigerated area	New	0.18	10	\$0.75	25%	94%	\$0.70	2
Wyoming	School	Water Heat	Water Heater Temperature Setback	Water Heater Temperature Setback (120 F)	No Change in Water Temperature	per installation	New	591	5	\$70	75%	15%	\$0.03	35
Wyoming	Small Office	Computers	Computer ENERGY STAR	Computer ENERGY STAR	Computer standard non-ENERGY STAR	Per installation	Existing	134	4	\$28	100%	N/A	\$0.07	2,053
Wyoming	Small Office	Computers	Network PC Power Management	Network PC Power Management	No Power Management	per computer	Existing	86	5	\$12	95%	30%	\$0.04	527
Wyoming	Small Office	Computers	Computer ENERGY STAR	Computer ENERGY STAR	Computer standard non-ENERGY STAR	Per installation	New	134	4	\$28	100%	N/A	\$0.07	115
Wyoming	Small Office	Computers	Network PC Power Management	Network PC Power Management	No Power Management	per computer	New	86	5	\$12	95%	30%	\$0.04	169

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Wyoming	Small Office	Cooling Dx Evap	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	Existing	0.15	15	\$0.68	35%	98%	\$0.58	209
Wyoming	Small Office	Cooling Dx Evap	DX Package 65 to 135 kBtu/hr - High Efficiency	DX Package 65 to 135 kBtu/hr - High Efficiency - 11.5 EER	DX Package 65 to 135 kBtu/hr - Standard Efficiency - 11.2 EER	Per installation	Existing	83	15	\$128	100%	N/A	\$0.20	9
Wyoming	Small Office	Cooling Dx Evap	DX Package 65 to 135 kBtu/hr - Premium Efficiency	DX Package 65 to 135 kBtu/hr - Premium Efficiency - 12.0 EER	DX Package 65 to 135 kBtu/hr - Standard Efficiency - 11.2 EER	Per installation	Existing	209	15	\$257	100%	N/A	\$0.16	304
Wyoming	Small Office	Cooling Dx Evap	DX Package-Air Side Economizer	Air-Side Economizer	No Economizer	per DX ton	Existing	74	10	\$153	10%	20%	\$0.34	20
Wyoming	Small Office	Cooling Dx Evap	DX Tune-Up / Diagnostics	DX Tune-Up / Diagnostics	No DX Tune-Up / Diagnostics	per installation	Existing	374	4	\$242	95%	72%	\$0.25	515
Wyoming	Small Office	Cooling Dx Evap	Direct / Indirect Evaporative Cooling, Pre-Cooling	Evaporative Cooler	Standard DX cooling	per building CFM	Existing	0.38	15	\$1	50%	94%	\$0.59	773
Wyoming	Small Office	Cooling Dx Evap	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	Existing	0.03	18	\$0.17	45%	65%	\$0.54	50
Wyoming	Small Office	Cooling Dx Evap	Evaporative Cooler replaces DX Package 65 to 135 kBtu/hr - Advanced Efficiency	Evaporative Cooler replaces DX Package 65 to 135 kBtu/hr - Advanced Efficiency	DX Package 65 to 135 kBtu/hr - Standard Efficiency - 11.2 EER	Per installation	Existing	1,293	15	\$-2205.8642	25%	N/A	\$-0.30	477
Wyoming	Small Office	Cooling Dx Evap	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	Existing	0.15	40	\$8	4%	98%	\$4.77	1
Wyoming	Small Office	Cooling Dx Evap	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	0.80	13	\$0.23	40%	39%	\$0.04	70
Wyoming	Small Office	Cooling Dx Evap	Insulation - Ceiling	R-25 (WY State Code)	R-11 (Average Existing Conditions)	per roof sqft	Existing	0.00	25	\$0.57	75%	67%	\$32.61	3
Wyoming	Small Office	Cooling Dx Evap	Insulation - Duct	R-5 (WY State Code)	No Insulation	per surface area of duct insul	Existing	0.58	20	\$1	75%	58%	\$0.27	91
Wyoming	Small Office	Cooling Dx Evap	Insulation - Duct	R-8	R-5 (WY State Code)	per surface area of duct insul	Existing	0.39	20	\$0.27	75%	85%	\$0.08	107
Wyoming	Small Office	Cooling Dx Evap	Insulation - Floor (non-slab)	R-30	R-25 (WY State Code)	per floor area	Existing	0.00	25	\$0.10	35%	90%	\$3.08	3
Wyoming	Small Office	Cooling Dx Evap	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	Existing	9	30	\$4	50%	95%	\$0.05	658
Wyoming	Small Office	Cooling Dx Evap	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	Existing	69	10	\$121	95%	26%	\$0.29	51
Wyoming	Small Office	Cooling Dx Evap	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	0.19	7	\$0.13	90%	85%	\$0.15	797
Wyoming	Small Office	Cooling Dx Evap	Window Film	Window Film	No Film	per 100 sqft of window glazing	Existing	1	10	\$128	90%	68%	\$17.15	2
Wyoming	Small Office	Cooling Dx Evap	Windows-High Efficiency	U-0.32	U-0.50 (WY State Code)	per window sqft	Existing	2	25	\$66	15%	90%	\$3.01	108
Wyoming	Small Office	Cooling Dx Evap	Windows-High Efficiency	U-0.50 (WY State Code)	U-0.6 (Average Existing Conditions)	per window sqft	Existing	2	25	\$24	15%	71%	\$1.02	96
Wyoming	Small Office	Cooling Dx Evap	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	New	0.09	15	\$0.68	35%	98%	\$0.93	54
Wyoming	Small Office	Cooling Dx Evap	DX Package 65 to 135 kBtu/hr - High Efficiency	DX Package 65 to 135 kBtu/hr - High Efficiency - 11.5 EER	DX Package 65 to 135 kBtu/hr - Standard Efficiency - 11.2 EER	Per installation	New	55	15	\$102	100%	N/A	\$0.24	1
Wyoming	Small Office	Cooling Dx Evap	DX Package 65 to 135 kBtu/hr - Premium Efficiency	DX Package 65 to 135 kBtu/hr - Premium Efficiency - 12.0 EER	DX Package 65 to 135 kBtu/hr - Standard Efficiency - 11.2 EER	Per installation	New	147	15	\$206	100%	N/A	\$0.18	70
Wyoming	Small Office	Cooling Dx Evap	Direct / Indirect Evaporative Cooling, Pre-Cooling	Evaporative Cooler	Standard DX cooling	per building CFM	New	0.23	15	\$1	50%	94%	\$0.95	200

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Wyoming	Small Office	Cooling Dx Evap	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	New	0.02	18	\$0.17	45%	65%	\$0.86	12
Wyoming	Small Office	Cooling Dx Evap	Evaporative Cooler replaces DX Package 65 to 135 kBtu/hr - Advanced Efficiency	Evaporative Cooler replaces DX Package 65 to 135 kBtu/hr - Advanced Efficiency	DX Package 65 to 135 kBtu/hr - Standard Efficiency - 11.2 EER	Per installation	New	875	15	\$-1653.4801	25%	N/A	\$-0.34	106
Wyoming	Small Office	Cooling Dx Evap	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	New	0.09	40	\$8	4%	98%	\$7.68	0.45
Wyoming	Small Office	Cooling Dx Evap	Insulation - Duct	R-8	R-5 (WY State Code)	per surface area of duct insul	New	0.24	20	\$0.27	75%	85%	\$0.13	22
Wyoming	Small Office	Cooling Dx Evap	Insulation - Floor (non-slab)	R-30	R-25 (WY State Code)	per floor area	New	0.00	25	\$0.10	35%	90%	\$4.96	0.92
Wyoming	Small Office	Cooling Dx Evap	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	New	5	30	\$4	50%	95%	\$0.08	140
Wyoming	Small Office	Cooling Dx Evap	Natural Ventilation	Natural Ventilation Design Reduction in Cooling	None - Standard Ventilation	per building sqft	New	0.09	15	\$0.84	20%	75%	\$1.14	22
Wyoming	Small Office	Cooling Dx Evap	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	New	43	10	\$121	95%	13%	\$0.47	6
Wyoming	Small Office	Cooling Dx Evap	Windows-High Efficiency	U-0.32	U-0.50 (WY State Code)	per window sqft	New	1	25	\$66	80%	90%	\$4.85	150
Wyoming	Small Office	Cooling Room	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	Existing	0.17	15	\$0.68	35%	98%	\$0.52	16
Wyoming	Small Office	Cooling Room	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	Existing	0.17	40	\$8	4%	98%	\$4.27	0.16
Wyoming	Small Office	Cooling Room	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	0.89	13	\$0.23	40%	39%	\$0.04	4
Wyoming	Small Office	Cooling Room	Insulation - Ceiling	R-25 (WY State Code)	R-11 (Average Existing Conditions)	per roof sqft	Existing	0.00	25	\$0.57	75%	67%	\$29.17	0.28
Wyoming	Small Office	Cooling Room	Insulation - Floor (non-slab)	R-30	R-25 (WY State Code)	per floor area	Existing	0.00	25	\$0.10	35%	90%	\$2.76	0.34
Wyoming	Small Office	Cooling Room	PTAC (10,000 BTU/HR) - Premium-Efficiency	11.4 EER	Room AC (10,000 BTU/HR) Standard-Efficiency 9.8 EER	Per installation	Existing	427	15	\$5,496	75%	N/A	\$1.67	59
Wyoming	Small Office	Cooling Room	Room AC (10,000 BTU/HR) High-Efficiency	High Efficiency 10.8 EER (ENERGY STAR)	Room AC (10,000 BTU/HR) Standard-Efficiency 9.8 EER	Per installation	Existing	268	9	\$282	100%	N/A	\$0.19	10
Wyoming	Small Office	Cooling Room	Window Film	Window Film	No Film	per 100 sqft of window glazing	Existing	0.06	10	\$128	90%	68%	\$341.77	0.01
Wyoming	Small Office	Cooling Room	Windows-High Efficiency	U-0.32	U-0.50 (WY State Code)	per window sqft	Existing	2	25	\$66	15%	90%	\$2.69	9
Wyoming	Small Office	Cooling Room	Windows-High Efficiency	U-0.50 (WY State Code)	U-0.6 (Average Existing Conditions)	per window sqft	Existing	2	25	\$24	15%	71%	\$0.91	8
Wyoming	Small Office	Cooling Room	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	New	0.11	15	\$0.68	35%	98%	\$0.79	3
Wyoming	Small Office	Cooling Room	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	New	0.11	40	\$8	4%	98%	\$6.52	0.03
Wyoming	Small Office	Cooling Room	Insulation - Floor (non-slab)	R-30	R-25 (WY State Code)	per floor area	New	0.00	25	\$0.10	35%	90%	\$4.21	0.06
Wyoming	Small Office	Cooling Room	Natural Ventilation	Natural Ventilation Design Reduction in Cooling	None - Standard Ventilation	per building sqft	New	0.11	15	\$0.84	20%	75%	\$0.97	1
Wyoming	Small Office	Cooling Room	PTAC (10,000 BTU/HR) - Premium-Efficiency	11.4 EER	Room AC (10,000 BTU/HR) Standard-Efficiency 9.8 EER	Per installation	New	295	15	\$4,038	75%	N/A	\$1.77	5
Wyoming	Small Office	Cooling Room	Room AC (10,000 BTU/HR) High-Efficiency	High Efficiency 10.8 EER (ENERGY STAR)	Room AC (10,000 BTU/HR) Standard-Efficiency 9.8 EER	Per installation	New	179	9	\$225	100%	N/A	\$0.23	1
Wyoming	Small Office	Cooling Room	Windows-High Efficiency	U-0.32	U-0.50 (WY State Code)	per window sqft	New	1	25	\$66	80%	90%	\$4.11	11
Wyoming	Small Office	Heat Pump	Air Source Heat Pump 65 to 135 kBtu/hr - High Efficiency	11.5 EER, 3.4 COP	11.0 EER, 3.3 COP	Per installation	Existing	174	15	\$477	100%	N/A	\$0.35	0.42

Table C.2.2. Commercial Measure Details

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Wyoming	Small Office	Heat Pump	Air Source Heat Pump 65 to 135 kBtu/hr - Premium Efficiency	12.0 EER, 3.8 COP	11.0 EER, 3.3 COP	Per installation	Existing	1,248	15	\$954	100%	N/A	\$0.10	55
Wyoming	Small Office	Heat Pump	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	Existing	0.14	15	\$0.68	35%	98%	\$0.61	6
Wyoming	Small Office	Heat Pump	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	Existing	0.18	18	\$0.17	45%	65%	\$0.11	7
Wyoming	Small Office	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	Existing	0.86	14	\$1	5%	94%	\$0.27	5
Wyoming	Small Office	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	Existing	0.14	40	\$8	4%	98%	\$5.02	0.06
Wyoming	Small Office	Heat Pump	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	9	13	\$0.23	40%	39%	\$0.00	27
Wyoming	Small Office	Heat Pump	Insulation - Ceiling	R-25 (WY State Code)	R-11 (Average Existing Conditions)	per roof sqft	Existing	0.80	25	\$0.57	75%	67%	\$0.07	62
Wyoming	Small Office	Heat Pump	Insulation - Ceiling	R-30	R-25 (WY State Code)	per roof sqft	Existing	0.09	25	\$0.09	75%	85%	\$0.09	8
Wyoming	Small Office	Heat Pump	Insulation - Duct	R-5 (WY State Code)	No Insulation	per surface area of duct insul	Existing	2	20	\$1	75%	58%	\$0.06	15
Wyoming	Small Office	Heat Pump	Insulation - Duct	R-8	R-5 (WY State Code)	per surface area of duct insul	Existing	1	20	\$0.27	75%	85%	\$0.02	16
Wyoming	Small Office	Heat Pump	Insulation - Floor (non-slab)	R-25 (WY State Code)	R-11 (Average Existing Conditions)	per floor area	Existing	0.83	25	\$0.72	35%	83%	\$0.09	35
Wyoming	Small Office	Heat Pump	Insulation - Floor (non-slab)	R-30	R-25 (WY State Code)	per floor area	Existing	0.33	25	\$0.10	35%	90%	\$0.03	18
Wyoming	Small Office	Heat Pump	Insulation - Wall	R-13 + 3 (WY State Code)	R-3 (Average Existing Conditions)	per floor area	Existing	2	25	\$1	10%	70%	\$0.06	15
Wyoming	Small Office	Heat Pump	Insulation - Wall	R-21	R-13 + 3 (WY State Code)	per floor area	Existing	0.28	25	\$0.10	10%	85%	\$0.04	2
Wyoming	Small Office	Heat Pump	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	Existing	60	30	\$4	50%	95%	\$0.01	145
Wyoming	Small Office	Heat Pump	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	Existing	329	10	\$121	95%	26%	\$0.06	8
Wyoming	Small Office	Heat Pump	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	0.90	7	\$0.13	90%	85%	\$0.03	122
Wyoming	Small Office	Heat Pump	Window Film	Window Film	No Film	per 100 sqft of window glazing	Existing	1	10	\$128	90%	68%	\$17.04	0.09
Wyoming	Small Office	Heat Pump	Windows-High Efficiency	U-0.32	U-0.50 (WY State Code)	per window sqft	Existing	0.97	25	\$66	15%	90%	\$7.00	1
Wyoming	Small Office	Heat Pump	Air Source Heat Pump 65 to 135 kBtu/hr - High Efficiency	11.5 EER, 3.4 COP	11.0 EER, 3.3 COP	Per installation	New	147	15	\$381	100%	N/A	\$0.33	0.12
Wyoming	Small Office	Heat Pump	Air Source Heat Pump 65 to 135 kBtu/hr - Premium Efficiency	12.0 EER, 3.8 COP	11.0 EER, 3.3 COP	Per installation	New	645	15	\$763	100%	N/A	\$0.15	13
Wyoming	Small Office	Heat Pump	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	New	0.09	15	\$0.68	35%	98%	\$0.95	1
Wyoming	Small Office	Heat Pump	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	New	0.08	18	\$0.17	45%	65%	\$0.25	1
Wyoming	Small Office	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	New	0.35	14	\$1	5%	94%	\$0.65	0.95
Wyoming	Small Office	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	New	0.09	40	\$8	4%	98%	\$7.85	0.01
Wyoming	Small Office	Heat Pump	Insulation - Ceiling	R-30	R-25 (WY State Code)	per roof sqft	New	0.03	25	\$0.09	75%	85%	\$0.26	1
Wyoming	Small Office	Heat Pump	Insulation - Duct	R-8	R-5 (WY State Code)	per surface area of duct insul	New	0.84	20	\$0.27	75%	85%	\$0.04	2
Wyoming	Small Office	Heat Pump	Insulation - Floor (non-slab)	R-30	R-25 (WY State Code)	per floor area	New	0.12	25	\$0.10	35%	90%	\$0.09	2
Wyoming	Small Office	Heat Pump	Insulation - Wall	R-21	R-13 + 3 (WY State Code)	per floor area	New	0.10	25	\$0.10	95%	85%	\$0.10	2

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Wyoming	Small Office	Heat Pump	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	New	27	30	\$4	50%	95%	\$0.02	22
Wyoming	Small Office	Heat Pump	Natural Ventilation	Natural Ventilation Design Reduction in Cooling	None - Standard Ventilation	per building sqft	New	0.33	15	\$0.84	20%	75%	\$0.33	2
Wyoming	Small Office	Heat Pump	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	New	150	10	\$121	95%	13%	\$0.13	0.72
Wyoming	Small Office	Heat Pump	Windows-High Efficiency	U-0.32	U-0.50 (WY State Code)	per window sqft	New	0.89	25	\$66	80%	90%	\$7.63	3
Wyoming	Small Office	Hvac Aux	Motor - CEE Premium-Efficiency Plus	CEE PE+ Motor for HVAC Applications	NEMA Efficiency Motors	per HP	Existing	21	15	\$6	95%	76%	\$0.04	140
Wyoming	Small Office	Hvac Aux	Motor Rewind	>15, <500 HP	No Rewind	per HP	Existing	4	8	\$4	65%	25%	\$0.21	5
Wyoming	Small Office	Hvac Aux	Motor - CEE Premium-Efficiency Plus	CEE PE+ Motor for HVAC Applications	NEMA Efficiency Motors	per HP	New	18	15	\$6	95%	76%	\$0.05	47
Wyoming	Small Office	Lighting Exterior	Covered Parking Lighting	Covered Parking Lighting	Normal Lighting	per building sqft	Existing	0.09	10	\$0.02	80%	95%	\$0.05	765
Wyoming	Small Office	Lighting Exterior	Daylighting Controls, Outdoors (Photocell)	Photocell	No Controls	per installation	Existing	26	8	\$27	75%	70%	\$0.20	130
Wyoming	Small Office	Lighting Exterior	Exterior Building Lighting	30% savings	Normal Lighting	per installation	Existing	236	15	\$329	62%	90%	\$0.18	1,271
Wyoming	Small Office	Lighting Exterior	Solid State LED White Lighting	Landscape, merchandise, signage, structure & task lighting (2.5 W)	50W 10hrs/day, 365 day/yr	per installation	Existing	2	14	\$35	75%	95%	\$1.65	23
Wyoming	Small Office	Lighting Exterior	Surface Parking Lighting	Surface Parking Lighting	Normal Lighting	per building sqft	Existing	0.04	19	\$0.06	62%	95%	\$0.16	320
Wyoming	Small Office	Lighting Exterior	Covered Parking Lighting	Covered Parking Lighting	Normal Lighting	per building sqft	New	0.09	10	\$0.02	80%	95%	\$0.05	246
Wyoming	Small Office	Lighting Exterior	Daylighting Controls, Outdoors (Photocell)	Photocell	No Controls	per installation	New	26	8	\$27	75%	70%	\$0.20	41
Wyoming	Small Office	Lighting Exterior	Exterior Building Lighting	30% savings	Normal Lighting	per installation	New	236	15	\$329	62%	90%	\$0.18	408
Wyoming	Small Office	Lighting Exterior	Solid State LED White Lighting	Landscape, merchandise, signage, structure & task lighting (2.5 W)	50W 10hrs/day, 365 day/yr	per installation	New	2	14	\$35	75%	95%	\$1.65	7
Wyoming	Small Office	Lighting Exterior	Surface Parking Lighting	Surface Parking Lighting	Normal Lighting	per building sqft	New	0.04	19	\$0.06	62%	95%	\$0.16	103
Wyoming	Small Office	Lighting Interior	Cold Cathode Lighting	Cold Cathode Lighting 5 watts	30 W Incandescent Bulb	per installation	Existing	72	5	\$12	15%	94%	\$0.05	70
Wyoming	Small Office	Lighting Interior	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	Existing	0.68	8	\$0.84	30%	78%	\$0.24	156
Wyoming	Small Office	Lighting Interior	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	Existing	0.51	8	\$0.63	30%	78%	\$0.24	117
Wyoming	Small Office	Lighting Interior	Exit Sign - LED	LED Exit Sign (2 Watts)	CFL Exit Sign (9 Watts)	per installation	Existing	94	16	\$16	95%	50%	\$0.02	350
Wyoming	Small Office	Lighting Interior	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign (2 Watts)	per installation	Existing	17	13	\$30	95%	98%	\$0.25	41
Wyoming	Small Office	Lighting Interior	Lighting Package, High Efficiency	15% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	Existing	0.48	13	\$0.13	90%	53%	\$0.04	1,925
Wyoming	Small Office	Lighting Interior	Lighting Package, High Efficiency	Code Required LPD And Control Strategies	Existing Lighting Design LPD	per building sqft	Existing	1	13	\$0.87	90%	73%	\$0.08	10,754
Wyoming	Small Office	Lighting Interior	Lighting Package, Premium Efficiency	25% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	Existing	0.80	13	\$0.31	75%	62%	\$0.06	774
Wyoming	Small Office	Lighting Interior	Lighting Package, Premium High Bay	35% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	Existing	0.04	13	\$0.02	70%	83%	\$0.09	263
Wyoming	Small Office	Lighting Interior	Occupancy Sensor Control, Fluorescent	Occupancy Sensor Control, Fluorescent	No Occupancy Sensor	per occupancy sensor	Existing	828	8	\$64	90%	53%	\$0.02	332
Wyoming	Small Office	Lighting Interior	Time Clock	Time Clock	No Controls	per 10,000 Watts	Existing	734	8	\$172	20%	88%	\$0.05	118
Wyoming	Small Office	Lighting Interior	Cold Cathode Lighting	Cold Cathode Lighting 5 watts	30 W Incandescent Bulb	per installation	New	44	5	\$12	15%	94%	\$0.08	13
Wyoming	Small Office	Lighting Interior	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	New	0.41	8	\$0.84	30%	78%	\$0.39	37

Table C.2.2. Commercial Measure Details

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Wyoming	Small Office	Lighting Interior	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	New	0.31	8	\$0.63	30%	78%	\$0.39	27
Wyoming	Small Office	Lighting Interior	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign (2 Watts)	per installation	New	17	13	\$30	95%	98%	\$0.25	53
Wyoming	Small Office	Lighting Interior	Lighting Package, High Efficiency	15% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	New	0.48	15	\$0.00	90%	53%	\$0.00	619
Wyoming	Small Office	Lighting Interior	Lighting Package, Premium Efficiency	25% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	New	0.74	15	\$0.10	75%	62%	\$0.02	230
Wyoming	Small Office	Lighting Interior	Lighting Package, Premium High Bay	35% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	New	0.04	15	\$0.00	70%	83%	\$0.02	84
Wyoming	Small Office	Lighting Interior	Occupancy Sensor Control, Fluorescent	Occupancy Sensor Control, Fluorescent	No Occupancy Sensor	per occupancy sensor	New	510	8	\$64	90%	53%	\$0.02	78
Wyoming	Small Office	Lighting Interior	Time Clock	Time Clock	No Controls	per 10,000 Watts	New	734	8	\$172	20%	88%	\$0.05	28
Wyoming	Small Office	Other Office Equipment	ENERGY STAR - Copiers	ENERGY STAR Copiers	Standard Copier	per installation	Existing	71	6	\$158	95%	45%	\$0.54	199
Wyoming	Small Office	Other Office Equipment	ENERGY STAR - Fax	ENERGY STAR Fax	Standard Fax	per installation	Existing	76	6	\$1	95%	45%	\$0.00	212
Wyoming	Small Office	Other Office Equipment	ENERGY STAR - Monitors	ENERGY STAR Features Enabled	Non-ENERGY STAR Features	per installation	Existing	14	5	\$16	64%	15%	\$0.31	30
Wyoming	Small Office	Other Office Equipment	ENERGY STAR - Printers	ENERGY STAR Printers	Standard Printers	per installation	Existing	134	6	\$15	95%	40%	\$0.03	276
Wyoming	Small Office	Other Office Equipment	ENERGY STAR - Scanners	ENERGY STAR Scanners	Standard Scanner	per installation	Existing	69	6	\$1	95%	45%	\$0.00	193
Wyoming	Small Office	Other Office Equipment	ENERGY STAR - Copiers	ENERGY STAR Copiers	Standard Copier	per installation	New	71	6	\$158	95%	45%	\$0.54	63
Wyoming	Small Office	Other Office Equipment	ENERGY STAR - Fax	ENERGY STAR Fax	Standard Fax	per installation	New	76	6	\$1	95%	45%	\$0.00	68
Wyoming	Small Office	Other Office Equipment	ENERGY STAR - Monitors	ENERGY STAR Features Enabled	Non-ENERGY STAR Features	per installation	New	14	5	\$16	64%	15%	\$0.31	9
Wyoming	Small Office	Other Office Equipment	ENERGY STAR - Printers	ENERGY STAR Printers	Standard Printers	per installation	New	134	6	\$15	95%	40%	\$0.03	88
Wyoming	Small Office	Other Office Equipment	ENERGY STAR - Scanners	ENERGY STAR Scanners	Standard Scanner	per installation	New	69	6	\$1	95%	45%	\$0.00	62
Wyoming	Small Office	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	per installation	Existing	7	7	\$1	20%	90%	\$0.05	1
Wyoming	Small Office	Other Plug Load	ENERGY STAR - Water Cooler	ENERGY STAR Water Cooler (Hot/Cold Water)	Non-ENERGY STAR Water Cooler	per installation	Existing	353	10	\$0.94	95%	75%	\$0.00	1,186
Wyoming	Small Office	Other Plug Load	Power Supply Transformer/Converter	80 Plus	85% efficient power supply (> 51W)	1 unit per 2,000 sqft	Existing	5	4	\$0.40	95%	86%	\$0.02	25
Wyoming	Small Office	Other Plug Load	Residential Refrigerator	ENERGY STAR	Federal Standard	per installation	Existing	78	12	\$120	19%	65%	\$0.23	69
Wyoming	Small Office	Other Plug Load	Residential Refrigerator/Freezer Recycling	Recycling Existing Refrigerator/Freezer	Existing Refrigerator/Freezer	per installation	Existing	928	4	\$554	25%	35%	\$0.20	193
Wyoming	Small Office	Other Plug Load	Server Virtualization	Server Virtualization	No Virtualization	number of virtualized servers	Existing	2,202	4	\$1,847	72%	85%	\$0.67	1,561
Wyoming	Small Office	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	1 unit per 500 sqft	Existing	97	5	\$20	60%	90%	\$0.06	1,161
Wyoming	Small Office	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	per installation	New	7	7	\$1	20%	90%	\$0.05	0.53
Wyoming	Small Office	Other Plug Load	ENERGY STAR - Water Cooler	ENERGY STAR Water Cooler (Hot/Cold Water)	Non-ENERGY STAR Water Cooler	per installation	New	353	10	\$0.94	95%	75%	\$0.00	381
Wyoming	Small Office	Other Plug Load	Power Supply Transformer/Converter	80 Plus	85% efficient power supply (> 51W)	1 unit per 2,000 sqft	New	5	4	\$0.40	95%	86%	\$0.02	8
Wyoming	Small Office	Other Plug Load	Residential Refrigerator	ENERGY STAR	Federal Standard	per installation	New	78	12	\$120	19%	65%	\$0.23	22
Wyoming	Small Office	Other Plug Load	Server Virtualization	Server Virtualization	No Virtualization	number of virtualized servers	New	2,202	4	\$1,847	72%	85%	\$0.67	501

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Wyoming	Small Office	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	1 unit per 500 sqft	New	97	5	\$20	60%	90%	\$0.06	373
Wyoming	Small Office	Space Heat	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	Existing	0.22	18	\$0.17	45%	65%	\$0.09	96
Wyoming	Small Office	Space Heat	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	Existing	1	14	\$1	5%	94%	\$0.17	92
Wyoming	Small Office	Space Heat	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	9	13	\$0.23	40%	39%	\$0.00	331
Wyoming	Small Office	Space Heat	Insulation - Ceiling	R-25 (WY State Code)	R-11 (Average Existing Conditions)	per roof sqft	Existing	1	25	\$0.57	75%	67%	\$0.04	1,077
Wyoming	Small Office	Space Heat	Insulation - Ceiling	R-30	R-25 (WY State Code)	per roof sqft	Existing	0.21	25	\$0.09	75%	85%	\$0.04	232
Wyoming	Small Office	Space Heat	Insulation - Duct	R-5 (WY State Code)	No Insulation	per surface area of duct insul	Existing	3	20	\$1	75%	58%	\$0.05	176
Wyoming	Small Office	Space Heat	Insulation - Duct	R-8	R-5 (WY State Code)	per surface area of duct insul	Existing	2	20	\$0.27	75%	85%	\$0.01	238
Wyoming	Small Office	Space Heat	Insulation - Floor (non-slab)	R-25 (WY State Code)	R-11 (Average Existing Conditions)	per floor area	Existing	2	25	\$0.72	35%	83%	\$0.03	1,197
Wyoming	Small Office	Space Heat	Insulation - Floor (non-slab)	R-30	R-25 (WY State Code)	per floor area	Existing	0.63	25	\$0.10	35%	90%	\$0.02	416
Wyoming	Small Office	Space Heat	Insulation - Wall	R-13 + 3 (WY State Code)	R-3 (Average Existing Conditions)	per floor area	Existing	4	25	\$1	10%	70%	\$0.03	365
Wyoming	Small Office	Space Heat	Insulation - Wall	R-21	R-13 + 3 (WY State Code)	per floor area	Existing	1	25	\$0.10	10%	85%	\$0.01	216
Wyoming	Small Office	Space Heat	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	Existing	74	30	\$4	50%	95%	\$0.01	2,076
Wyoming	Small Office	Space Heat	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	Existing	403	10	\$121	95%	26%	\$0.05	99
Wyoming	Small Office	Space Heat	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	1	7	\$0.13	90%	85%	\$0.03	1,734
Wyoming	Small Office	Space Heat	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	New	0.09	18	\$0.17	45%	65%	\$0.21	17
Wyoming	Small Office	Space Heat	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	New	0.58	14	\$1	5%	94%	\$0.40	16
Wyoming	Small Office	Space Heat	Insulation - Ceiling	R-30	R-25 (WY State Code)	per roof sqft	New	0.09	25	\$0.09	75%	85%	\$0.10	37
Wyoming	Small Office	Space Heat	Insulation - Duct	R-8	R-5 (WY State Code)	per surface area of duct insul	New	0.99	20	\$0.27	75%	85%	\$0.03	31
Wyoming	Small Office	Space Heat	Insulation - Floor (non-slab)	R-30	R-25 (WY State Code)	per floor area	New	0.27	25	\$0.10	35%	90%	\$0.04	54
Wyoming	Small Office	Space Heat	Insulation - Wall	R-21	R-13 + 3 (WY State Code)	per floor area	New	0.79	25	\$0.10	95%	85%	\$0.01	296
Wyoming	Small Office	Space Heat	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	New	32	30	\$4	50%	95%	\$0.01	272
Wyoming	Small Office	Space Heat	Natural Ventilation	Natural Ventilation Design Reduction in Cooling	None - Standard Ventilation	per building sqft	New	0.39	15	\$0.84	20%	75%	\$0.28	34
Wyoming	Small Office	Space Heat	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	New	177	10	\$121	95%	13%	\$0.11	8
Wyoming	Small Office	Water Heat	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	per building sqft	Existing	0.02	10	\$0.23	55%	80%	\$1.57	34
Wyoming	Small Office	Water Heat	Dishwasher Residential	ENERGY STAR <= 324 kWh/yr, <= 5.8 gal/cycle	Federal Standard <= 355 kWh/yr, <= 6.5 gal/cycle	per installation	Existing	30	11	\$30	95%	25%	\$0.10	15
Wyoming	Small Office	Water Heat	Electric Water Heater - High Efficiency	EF = 0.95	EF = 0.92	Per installation	Existing	24	15	\$64	100%	N/A	\$0.35	5
Wyoming	Small Office	Water Heat	Heat Pump Water Heater - Advanced-Efficiency	EF = 2.2	EF = 0.92	Per installation	Existing	445	15	\$1,155	75%	N/A	\$0.34	441
Wyoming	Small Office	Water Heat	Hot Water (SHW) Pipe Insulation	1.0" of Insulation, assuming R-4 (WY State Code)	No Insulation	per linear foot	Existing	0.94	12	\$2	80%	30%	\$0.32	3
Wyoming	Small Office	Water Heat	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	per installation	Existing	11	9	\$0.07	95%	25%	\$-0.08	12
Wyoming	Small Office	Water Heat	Low-Flow Faucet Aerators	2.2 GPM (Federal Code)	3.0 GPM	per installation	Existing	10	9	\$2	95%	25%	\$-0.04	10
Wyoming	Small Office	Water Heat	Water Heater Temperature Setback	Water Heater Temperature Setback (120 F)	No Change in Water Temperature	per installation	Existing	57	5	\$69	75%	40%	\$0.34	36
Wyoming	Small Office	Water Heat	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	per building sqft	New	0.02	10	\$0.23	55%	80%	\$1.64	10

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Wyoming	Small Office	Water Heat	Dishwasher Residential	ENERGY STAR <= 324 kWh/yr, <= 5.8 gal/cycle	Federal Standard <= 355 kWh/yr, <= 6.5 gal/cycle	per installation	New	30	11	\$30	95%	55%	\$0.10	11
Wyoming	Small Office	Water Heat	Electric Water Heater - High Efficiency	EF = 0.95	EF = 0.92	Per installation	New	23	15	\$64	100%	N/A	\$0.35	1
Wyoming	Small Office	Water Heat	Heat Pump Water Heater - Advanced-Efficiency	EF = 2.2	EF = 0.92	Per installation	New	436	15	\$1,034	75%	N/A	\$0.31	121
Wyoming	Small Office	Water Heat	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	per installation	New	11	9	\$0.07	95%	25%	\$-0.08	3
Wyoming	Small Office	Water Heat	Water Heater Temperature Setback	Water Heater Temperature Setback (120 F)	No Change in Water Temperature	per installation	New	55	5	\$69	75%	40%	\$0.36	11
Wyoming	Small Retail	Computers	Computer ENERGY STAR	Computer ENERGY STAR	Computer standard non-ENERGY STAR	Per installation	Existing	139	4	\$29	100%	N/A	\$0.07	394
Wyoming	Small Retail	Computers	Computer ENERGY STAR	Computer ENERGY STAR	Computer standard non-ENERGY STAR	Per installation	New	139	4	\$29	100%	N/A	\$0.07	22
Wyoming	Small Retail	Cooling Dx Evap	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	Existing	0.14	15	\$0.71	80%	98%	\$0.65	132
Wyoming	Small Retail	Cooling Dx Evap	DX Package 65 to 135 kBtu/hr - High Efficiency	DX Package 65 to 135 kBtu/hr - High Efficiency - 11.5 EER	DX Package 65 to 135 kBtu/hr - Standard Efficiency - 11.2 EER	Per installation	Existing	256	15	\$694	100%	N/A	\$0.35	1
Wyoming	Small Retail	Cooling Dx Evap	DX Package 65 to 135 kBtu/hr - Premium Efficiency	DX Package 65 to 135 kBtu/hr - Premium Efficiency - 12.0 EER	DX Package 65 to 135 kBtu/hr - Standard Efficiency - 11.2 EER	Per installation	Existing	741	15	\$1,397	100%	N/A	\$0.24	85
Wyoming	Small Retail	Cooling Dx Evap	DX Package-Air Side Economizer	Air-Side Economizer	No Economizer	per DX ton	Existing	42	10	\$159	10%	80%	\$0.63	22
Wyoming	Small Retail	Cooling Dx Evap	DX Tune-Up / Diagnostics	DX Tune-Up / Diagnostics	No DX Tune-Up / Diagnostics	per installation	Existing	212	4	\$252	95%	72%	\$0.46	140
Wyoming	Small Retail	Cooling Dx Evap	Direct / Indirect Evaporative Cooling, Pre-Cooling	Evaporative Cooler	Standard DX cooling	per building CFM	Existing	0.35	15	\$1	50%	94%	\$0.67	204
Wyoming	Small Retail	Cooling Dx Evap	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	Existing	0.03	18	\$0.18	45%	65%	\$0.61	14
Wyoming	Small Retail	Cooling Dx Evap	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	Existing	0.14	40	\$8	4%	98%	\$5.40	0.50
Wyoming	Small Retail	Cooling Dx Evap	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	0.83	13	\$0.24	10%	39%	\$0.04	4
Wyoming	Small Retail	Cooling Dx Evap	Insulation - Ceiling	R-25 (WY State Code)	R-7 (Average Existing Conditions)	per roof sqft	Existing	0.00	25	\$0.59	75%	66%	\$36.92	0.84
Wyoming	Small Retail	Cooling Dx Evap	Insulation - Duct	R-5 (WY State Code)	No Insulation	per surface area of duct insul	Existing	0.54	20	\$1	75%	57%	\$0.30	26
Wyoming	Small Retail	Cooling Dx Evap	Insulation - Duct	R-8	R-5 (WY State Code)	per surface area of duct insul	Existing	0.36	20	\$0.29	75%	85%	\$0.09	29
Wyoming	Small Retail	Cooling Dx Evap	Insulation - Floor (non-slab)	R-30	R-25 (WY State Code)	per floor area	Existing	0.00	25	\$0.10	35%	90%	\$3.49	1
Wyoming	Small Retail	Cooling Dx Evap	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	Existing	8	30	\$5	50%	95%	\$0.06	183
Wyoming	Small Retail	Cooling Dx Evap	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	Existing	205	10	\$126	95%	33%	\$0.10	21
Wyoming	Small Retail	Cooling Dx Evap	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	0.17	7	\$0.13	90%	85%	\$0.17	220
Wyoming	Small Retail	Cooling Dx Evap	Window Film	Window Film	No Film	per 100 sqft of window glazing	Existing	1	10	\$133	90%	68%	\$18.69	0.63
Wyoming	Small Retail	Cooling Dx Evap	Windows-High Efficiency	U-0.32	U-0.50 (WY State Code)	per window sqft	Existing	2	25	\$69	15%	90%	\$2.94	28
Wyoming	Small Retail	Cooling Dx Evap	Windows-High Efficiency	U-0.50 (WY State Code)	U-0.68 (Average Existing Conditions)	per window sqft	Existing	2	25	\$25	15%	71%	\$1.06	23

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Wyoming	Small Retail	Cooling Dx Evap	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	New	0.09	15	\$0.71	80%	98%	\$0.94	38
Wyoming	Small Retail	Cooling Dx Evap	DX Package 65 to 135 kBTU/hr - High Efficiency	DX Package 65 to 135 kBTU/hr - High Efficiency - 11.5 EER	DX Package 65 to 135 kBTU/hr - Standard Efficiency - 11.2 EER	Per installation	New	241	15	\$555	100%	N/A	\$0.30	0.45
Wyoming	Small Retail	Cooling Dx Evap	DX Package 65 to 135 kBTU/hr - Premium Efficiency	DX Package 65 to 135 kBTU/hr - Premium Efficiency - 12.0 EER	DX Package 65 to 135 kBTU/hr - Standard Efficiency - 11.2 EER	Per installation	New	544	15	\$1,118	100%	N/A	\$0.27	20
Wyoming	Small Retail	Cooling Dx Evap	Direct / Indirect Evaporative Cooling, Pre-Cooling	Evaporative Cooler	Standard DX cooling	per building CFM	New	0.24	15	\$1	50%	94%	\$0.96	59
Wyoming	Small Retail	Cooling Dx Evap	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	New	0.02	18	\$0.18	45%	65%	\$0.87	4
Wyoming	Small Retail	Cooling Dx Evap	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	New	0.09	40	\$8	4%	98%	\$7.74	0.13
Wyoming	Small Retail	Cooling Dx Evap	Insulation - Duct	R-8	R-5 (WY State Code)	per surface area of duct insul	New	0.25	20	\$0.29	75%	85%	\$0.13	7
Wyoming	Small Retail	Cooling Dx Evap	Insulation - Floor (non-slab)	R-30	R-25 (WY State Code)	per floor area	New	0.00	25	\$0.10	35%	90%	\$5.00	0.27
Wyoming	Small Retail	Cooling Dx Evap	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	New	6	30	\$5	50%	95%	\$0.08	43
Wyoming	Small Retail	Cooling Dx Evap	Natural Ventilation	Natural Ventilation Design Reduction in Cooling	None - Standard Ventilation	per building sqft	New	0.09	15	\$0.87	20%	75%	\$1.15	6
Wyoming	Small Retail	Cooling Dx Evap	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	New	143	10	\$126	95%	16%	\$0.15	2
Wyoming	Small Retail	Cooling Dx Evap	Windows-High Efficiency	U-0.32	U-0.50 (WY State Code)	per window sqft	New	1	25	\$69	80%	90%	\$4.21	44
Wyoming	Small Retail	Cooling Room	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	Existing	0.19	15	\$0.71	80%	98%	\$0.48	15
Wyoming	Small Retail	Cooling Room	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	Existing	0.19	40	\$8	4%	98%	\$3.98	0.06
Wyoming	Small Retail	Cooling Room	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	1	13	\$0.24	10%	39%	\$0.03	0.41
Wyoming	Small Retail	Cooling Room	Insulation - Ceiling	R-25 (WY State Code)	R-7 (Average Existing Conditions)	per roof sqft	Existing	0.00	25	\$0.59	75%	66%	\$27.22	0.11
Wyoming	Small Retail	Cooling Room	Insulation - Floor (non-slab)	R-30	R-25 (WY State Code)	per floor area	Existing	0.00	25	\$0.10	35%	90%	\$2.57	0.13
Wyoming	Small Retail	Cooling Room	PTAC (10,000 BTU/HR) - Premium-Efficiency	11.4 EER	Room AC (10,000 BTU/HR) Standard-Efficiency 9.8 EER	Per installation	Existing	1,521	15	\$29,771	75%	N/A	\$2.53	23
Wyoming	Small Retail	Cooling Room	Room AC (10,000 BTU/HR) High-Efficiency	High Efficiency 10.8 EER (ENERGY STAR)	Room AC (10,000 BTU/HR) Standard-Efficiency 9.8 EER	Per installation	Existing	913	9	\$1,530	100%	N/A	\$0.30	4
Wyoming	Small Retail	Cooling Room	Window Film	Window Film	No Film	per 100 sqft of window glazing	Existing	0.05	10	\$133	90%	68%	\$373.03	0.00
Wyoming	Small Retail	Cooling Room	Windows-High Efficiency	U-0.32	U-0.50 (WY State Code)	per window sqft	Existing	3	25	\$69	15%	90%	\$2.16	3
Wyoming	Small Retail	Cooling Room	Windows-High Efficiency	U-0.50 (WY State Code)	U-0.68 (Average Existing Conditions)	per window sqft	Existing	3	25	\$25	15%	71%	\$0.78	3
Wyoming	Small Retail	Cooling Room	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	New	0.13	15	\$0.71	80%	98%	\$0.66	3
Wyoming	Small Retail	Cooling Room	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	New	0.13	40	\$8	4%	98%	\$5.49	0.01
Wyoming	Small Retail	Cooling Room	Insulation - Floor (non-slab)	R-30	R-25 (WY State Code)	per floor area	New	0.00	25	\$0.10	35%	90%	\$3.55	0.03

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Wyoming	Small Retail	Cooling Room	Natural Ventilation	Natural Ventilation Design Reduction in Cooling	None - Standard Ventilation	per building sqft	New	0.13	15	\$0.87	20%	75%	\$0.81	0.73
Wyoming	Small Retail	Cooling Room	PTAC (10,000 BTU/HR) - Premium-Efficiency	11.4 EER	Room AC (10,000 BTU/HR) Standard-Efficiency 9.8 EER	Per installation	New	1,127	15	\$21,876	75%	N/A	\$2.51	2
Wyoming	Small Retail	Cooling Room	Room AC (10,000 BTU/HR) High-Efficiency	High Efficiency 10.8 EER (ENERGY STAR)	Room AC (10,000 BTU/HR) Standard-Efficiency 9.8 EER	Per installation	New	736	9	\$1,224	100%	N/A	\$0.30	0.46
Wyoming	Small Retail	Cooling Room	Windows-High Efficiency	U-0.32	U-0.50 (WY State Code)	per window sqft	New	2	25	\$69	80%	90%	\$2.98	4
Wyoming	Small Retail	Hvac Aux	Motor - CEE Premium-Efficiency Plus	CEE PE+ Motor for HVAC Applications	NEMA Efficiency Motors	per HP	Existing	22	15	\$6	95%	76%	\$0.04	75
Wyoming	Small Retail	Hvac Aux	Motor Rewind	>15, <500 HP	No Rewind	per HP	Existing	3	8	\$4	65%	25%	\$0.33	2
Wyoming	Small Retail	Hvac Aux	Motor - CEE Premium-Efficiency Plus	CEE PE+ Motor for HVAC Applications	NEMA Efficiency Motors	per HP	New	18	15	\$6	95%	76%	\$0.05	25
Wyoming	Small Retail	Lighting Exterior	Covered Parking Lighting	Covered Parking Lighting	Normal Lighting	per building sqft	Existing	0.09	10	\$0.02	80%	95%	\$0.05	402
Wyoming	Small Retail	Lighting Exterior	Daylighting Controls, Outdoors (Photocell)	Photocell	No Controls	per installation	Existing	42	8	\$28	75%	70%	\$0.13	65
Wyoming	Small Retail	Lighting Exterior	Exterior Building Lighting	30% savings	Normal Lighting	per installation	Existing	246	15	\$343	62%	90%	\$0.18	565
Wyoming	Small Retail	Lighting Exterior	Solid State LED White Lighting	Landscape, merchandise, signage, structure & task lighting (2.5 W)	50W 10hrs/day, 365 day/yr	per installation	Existing	4	14	\$36	75%	95%	\$1.07	10
Wyoming	Small Retail	Lighting Exterior	Surface Parking Lighting	Surface Parking Lighting	Normal Lighting	per building sqft	Existing	0.05	19	\$0.07	62%	95%	\$0.16	168
Wyoming	Small Retail	Lighting Exterior	Covered Parking Lighting	Covered Parking Lighting	Normal Lighting	per building sqft	New	0.09	10	\$0.02	80%	95%	\$0.05	129
Wyoming	Small Retail	Lighting Exterior	Daylighting Controls, Outdoors (Photocell)	Photocell	No Controls	per installation	New	42	8	\$28	75%	70%	\$0.13	20
Wyoming	Small Retail	Lighting Exterior	Exterior Building Lighting	30% savings	Normal Lighting	per installation	New	246	15	\$343	62%	90%	\$0.18	181
Wyoming	Small Retail	Lighting Exterior	Solid State LED White Lighting	Landscape, merchandise, signage, structure & task lighting (2.5 W)	50W 10hrs/day, 365 day/yr	per installation	New	4	14	\$36	75%	95%	\$1.07	3
Wyoming	Small Retail	Lighting Exterior	Surface Parking Lighting	Surface Parking Lighting	Normal Lighting	per building sqft	New	0.05	19	\$0.07	62%	95%	\$0.16	54
Wyoming	Small Retail	Lighting Interior	Cold Cathode Lighting	Cold Cathode Lighting 5 watts	30 W Incandescent Bulb	per installation	Existing	1,011	5	\$13	15%	94%	\$0.00	151
Wyoming	Small Retail	Lighting Interior	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	Existing	0.35	8	\$0.87	30%	84%	\$0.48	48
Wyoming	Small Retail	Lighting Interior	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	Existing	0.26	8	\$0.65	30%	84%	\$0.48	36
Wyoming	Small Retail	Lighting Interior	Exit Sign - LED	LED Exit Sign (2 Watts)	CFL Exit Sign (9 Watts)	per installation	Existing	98	16	\$16	95%	50%	\$0.02	180
Wyoming	Small Retail	Lighting Interior	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign (2 Watts)	per installation	Existing	17	13	\$31	95%	98%	\$0.25	21
Wyoming	Small Retail	Lighting Interior	Lighting Package, High Efficiency	15% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	Existing	0.74	13	\$0.08	90%	53%	\$0.02	1,488
Wyoming	Small Retail	Lighting Interior	Lighting Package, High Efficiency	Code Required LPD And Control Strategies	Existing Lighting Design LPD	per building sqft	Existing	1	13	\$0.76	90%	39%	\$0.06	3,404
Wyoming	Small Retail	Lighting Interior	Lighting Package, Premium Efficiency	25% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	Existing	1	13	\$0.44	75%	62%	\$0.05	598
Wyoming	Small Retail	Lighting Interior	Lighting Package, Premium High Bay	35% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	Existing	0.28	13	\$0.15	70%	83%	\$0.08	851
Wyoming	Small Retail	Lighting Interior	Occupancy Sensor Control, Fluorescent	Occupancy Sensor Control, Fluorescent	No Occupancy Sensor	per occupancy sensor	Existing	1,201	8	\$67	45%	53%	\$0.01	118
Wyoming	Small Retail	Lighting Interior	Time Clock	Time Clock	No Controls	per 10,000 Watts	Existing	763	8	\$179	20%	86%	\$0.05	83
Wyoming	Small Retail	Lighting Interior	Cold Cathode Lighting	Cold Cathode Lighting 5 watts	30 W Incandescent Bulb	per installation	New	774	5	\$13	15%	94%	\$0.00	37
Wyoming	Small Retail	Lighting Interior	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	New	0.27	8	\$0.87	30%	84%	\$0.63	12

Table C.2.2. Commercial Measure Details

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Wyoming	Small Retail	Lighting Interior	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	New	0.20	8	\$0.65	30%	84%	\$0.63	9
Wyoming	Small Retail	Lighting Interior	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign (2 Watts)	per installation	New	17	13	\$31	95%	98%	\$0.25	27
Wyoming	Small Retail	Lighting Interior	Lighting Package, High Efficiency	15% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	New	0.74	15	\$0.03	90%	53%	\$0.01	478
Wyoming	Small Retail	Lighting Interior	Lighting Package, Premium Efficiency	25% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	New	1	15	\$0.20	75%	62%	\$0.02	192
Wyoming	Small Retail	Lighting Interior	Lighting Package, Premium High Bay	35% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	New	0.28	15	\$0.03	70%	83%	\$0.01	273
Wyoming	Small Retail	Lighting Interior	Occupancy Sensor Control, Fluorescent	Occupancy Sensor Control, Fluorescent	No Occupancy Sensor	per occupancy sensor	New	919	8	\$67	45%	53%	\$0.01	31
Wyoming	Small Retail	Lighting Interior	Time Clock	Time Clock	No Controls	per 10,000 Watts	New	763	8	\$179	20%	86%	\$0.05	21
Wyoming	Small Retail	Other Office Equipment	ENERGY STAR - Copiers	ENERGY STAR Copiers	Standard Copier	per installation	Existing	74	6	\$163	95%	45%	\$0.54	7
Wyoming	Small Retail	Other Office Equipment	ENERGY STAR - Fax	ENERGY STAR Fax	Standard Fax	per installation	Existing	79	6	\$0.00	95%	45%	\$0.00	7
Wyoming	Small Retail	Other Office Equipment	ENERGY STAR - Monitors	ENERGY STAR Features Enabled	Non-ENERGY STAR Features	per installation	Existing	15	5	\$16	64%	15%	\$0.31	4
Wyoming	Small Retail	Other Office Equipment	ENERGY STAR - Printers	ENERGY STAR Printers	Standard Printers	per installation	Existing	139	6	\$15	95%	40%	\$0.03	45
Wyoming	Small Retail	Other Office Equipment	ENERGY STAR - Scanners	ENERGY STAR Scanners	Standard Scanner	per installation	Existing	72	6	\$2	95%	45%	\$0.01	7
Wyoming	Small Retail	Other Office Equipment	ENERGY STAR - Copiers	ENERGY STAR Copiers	Standard Copier	per installation	New	74	6	\$163	95%	45%	\$0.54	2
Wyoming	Small Retail	Other Office Equipment	ENERGY STAR - Fax	ENERGY STAR Fax	Standard Fax	per installation	New	79	6	\$0.00	95%	45%	\$0.00	2
Wyoming	Small Retail	Other Office Equipment	ENERGY STAR - Monitors	ENERGY STAR Features Enabled	Non-ENERGY STAR Features	per installation	New	15	5	\$16	64%	15%	\$0.31	1
Wyoming	Small Retail	Other Office Equipment	ENERGY STAR - Printers	ENERGY STAR Printers	Standard Printers	per installation	New	139	6	\$15	95%	40%	\$0.03	14
Wyoming	Small Retail	Other Office Equipment	ENERGY STAR - Scanners	ENERGY STAR Scanners	Standard Scanner	per installation	New	72	6	\$2	95%	45%	\$0.01	2
Wyoming	Small Retail	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	per installation	Existing	7	7	\$2	20%	90%	\$0.06	0.71
Wyoming	Small Retail	Other Plug Load	ENERGY STAR - Water Cooler	ENERGY STAR Water Cooler (Hot/Cold Water)	Non-ENERGY STAR Water Cooler	per installation	Existing	368	10	\$0.00	95%	75%	\$0.00	45
Wyoming	Small Retail	Other Plug Load	Power Supply Transformer/Converter	80 Plus	85% efficient power supply (> 51W)	1 unit per 2,000 sqft	Existing	4	4	\$0.42	95%	86%	\$0.03	11
Wyoming	Small Retail	Other Plug Load	Residential Refrigerator	ENERGY STAR	Federal Standard	per installation	Existing	81	12	\$125	3%	65%	\$0.23	1
Wyoming	Small Retail	Other Plug Load	Residential Refrigerator/Freezer Recycling	Recycling Existing Refrigerator/Freezer	Existing Refrigerator/Freezer	per installation	Existing	965	4	\$578	25%	35%	\$0.21	31
Wyoming	Small Retail	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	1 unit per 5,000 sqft	Existing	101	5	\$21	60%	90%	\$0.06	61
Wyoming	Small Retail	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	per installation	New	7	7	\$2	20%	90%	\$0.06	0.22
Wyoming	Small Retail	Other Plug Load	ENERGY STAR - Water Cooler	ENERGY STAR Water Cooler (Hot/Cold Water)	Non-ENERGY STAR Water Cooler	per installation	New	368	10	\$0.00	95%	75%	\$0.00	14
Wyoming	Small Retail	Other Plug Load	Power Supply Transformer/Converter	80 Plus	85% efficient power supply (> 51W)	1 unit per 2,000 sqft	New	4	4	\$0.42	95%	86%	\$0.03	3
Wyoming	Small Retail	Other Plug Load	Residential Refrigerator	ENERGY STAR	Federal Standard	per installation	New	81	12	\$125	3%	65%	\$0.23	0.52
Wyoming	Small Retail	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	1 unit per 5,000 sqft	New	101	5	\$21	60%	90%	\$0.06	19
Wyoming	Small Retail	Space Heat	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	Existing	0.15	18	\$0.18	45%	65%	\$0.14	24
Wyoming	Small Retail	Space Heat	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	Existing	0.93	14	\$1	5%	94%	\$0.26	23

Table C.2.2. Commercial Measure Details

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Wyoming	Small Retail	Space Heat	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	7	13	\$0.24	10%	39%	\$0.00	20
Wyoming	Small Retail	Space Heat	Insulation - Ceiling	R-25 (WY State Code)	R-7 (Average Existing Conditions)	per roof sqft	Existing	1	25	\$0.59	75%	66%	\$0.05	439
Wyoming	Small Retail	Space Heat	Insulation - Ceiling	R-30	R-25 (WY State Code)	per roof sqft	Existing	0.15	25	\$0.09	75%	85%	\$0.06	53
Wyoming	Small Retail	Space Heat	Insulation - Duct	R-5 (WY State Code)	No Insulation	per surface area of duct insul	Existing	2	20	\$1	75%	57%	\$0.07	43
Wyoming	Small Retail	Space Heat	Insulation - Duct	R-8	R-5 (WY State Code)	per surface area of duct insul	Existing	1	20	\$0.29	75%	85%	\$0.02	62
Wyoming	Small Retail	Space Heat	Insulation - Floor (non-slab)	R-25 (WY State Code)	R-11 (Average Existing Conditions)	per floor area	Existing	1	25	\$0.75	35%	82%	\$0.05	272
Wyoming	Small Retail	Space Heat	Insulation - Floor (non-slab)	R-30	R-25 (WY State Code)	per floor area	Existing	0.44	25	\$0.10	35%	90%	\$0.02	107
Wyoming	Small Retail	Space Heat	Insulation - Wall	R-13 + 3 (WY State Code)	R-3 (Average Existing Conditions)	per floor area	Existing	3	25	\$1	10%	70%	\$0.04	104
Wyoming	Small Retail	Space Heat	Insulation - Wall	R-21	R-13 + 3 (WY State Code)	per floor area	Existing	1	25	\$0.10	10%	85%	\$0.01	56
Wyoming	Small Retail	Space Heat	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	Existing	52	30	\$5	50%	95%	\$0.01	542
Wyoming	Small Retail	Space Heat	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	Existing	908	10	\$126	95%	33%	\$0.02	45
Wyoming	Small Retail	Space Heat	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	0.78	7	\$0.13	90%	85%	\$0.04	438
Wyoming	Small Retail	Space Heat	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	New	0.08	18	\$0.18	45%	65%	\$0.26	5
Wyoming	Small Retail	Space Heat	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	New	0.50	14	\$1	5%	94%	\$0.48	5
Wyoming	Small Retail	Space Heat	Insulation - Ceiling	R-30	R-25 (WY State Code)	per roof sqft	New	0.08	25	\$0.09	75%	85%	\$0.12	11
Wyoming	Small Retail	Space Heat	Insulation - Duct	R-8	R-5 (WY State Code)	per surface area of duct insul	New	0.85	20	\$0.29	75%	85%	\$0.04	9
Wyoming	Small Retail	Space Heat	Insulation - Floor (non-slab)	R-30	R-25 (WY State Code)	per floor area	New	0.23	25	\$0.10	35%	90%	\$0.05	17
Wyoming	Small Retail	Space Heat	Insulation - Wall	R-21	R-13 + 3 (WY State Code)	per floor area	New	0.76	25	\$0.10	95%	85%	\$0.01	92
Wyoming	Small Retail	Space Heat	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	New	28	30	\$5	50%	95%	\$0.02	85
Wyoming	Small Retail	Space Heat	Natural Ventilation	Natural Ventilation Design Reduction in Cooling	None - Standard Ventilation	per building sqft	New	0.33	15	\$0.87	20%	75%	\$0.34	10
Wyoming	Small Retail	Space Heat	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	New	486	10	\$126	95%	16%	\$0.04	3
Wyoming	Small Retail	Water Heat	Clothes Washer Commercial	ENERGY STAR Commercial Clothes Washer MEF=1.80	Standard Clothes Washers	per installation	Existing	553	11	\$131	95%	80%	\$-0.27	2
Wyoming	Small Retail	Water Heat	Clothes Washer Residential	Energy Star - CEE Tier 1 (MEF 2.0 - 2.19) - Electric DHW & Dryer (NWPPC 6th Plan Average Efficiency)	MEF = 1.66 - Electric DHW & Dryer (NWPPC 6th Plan Average Efficiency)	per installation	Existing	134	11	\$301	85%	94%	\$0.05	0.61
Wyoming	Small Retail	Water Heat	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	per building sqft	Existing	0.01	10	\$0.24	75%	94%	\$3.35	11
Wyoming	Small Retail	Water Heat	Dishwasher Residential	ENERGY STAR <= 324 kWh/yr, <= 5.8 gal/cycle	Federal Standard <= 355 kWh/yr, <= 6.5 gal/cycle	per installation	Existing	31	11	\$31	95%	25%	\$0.10	2
Wyoming	Small Retail	Water Heat	Electric Water Heater - High Efficiency	EF = 0.95	EF = 0.92	Per installation	Existing	38	15	\$67	100%	N/A	\$0.23	1
Wyoming	Small Retail	Water Heat	Heat Pump Water Heater - Advanced-Efficiency	EF = 2.2	EF = 0.92	Per installation	Existing	712	15	\$1,205	75%	N/A	\$0.22	91
Wyoming	Small Retail	Water Heat	Hot Water (SHW) Pipe Insulation	1.0" of Insulation, assuming R-4 (WY State Code)	No Insulation	per linear foot	Existing	1	12	\$2	80%	90%	\$0.21	2
Wyoming	Small Retail	Water Heat	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	per installation	Existing	18	9	\$0.00	95%	25%	\$-0.08	2
Wyoming	Small Retail	Water Heat	Low-Flow Faucet Aerators	2.2 GPM (Federal Code)	3.0 GPM	per installation	Existing	15	9	\$2	95%	25%	\$-0.05	2
Wyoming	Small Retail	Water Heat	Water Heater Temperature Setback	Water Heater Temperature Setback (120 F)	No Change in Water Temperature	per installation	Existing	90	5	\$72	75%	45%	\$0.23	8
Wyoming	Small Retail	Water Heat	Clothes Washer Commercial	ENERGY STAR Commercial Clothes Washer MEF=1.80	Standard Clothes Washers	per installation	New	553	11	\$131	95%	80%	\$-0.27	0.76

Table C.2.2. Commercial Measure Details

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Wyoming	Small Retail	Water Heat	Clothes Washer Residential	Energy Star - CEE Tier 1 (MEF 2.0 - 2.19) - Electric DHW & Dryer	MEF = 1.66 - Electric DHW & Dryer (NWPPC 6th Plan Average Efficiency)	per installation	New	134	11	\$301	85%	94%	\$0.05	0.19
Wyoming	Small Retail	Water Heat	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	per building sqft	New	0.01	10	\$0.24	75%	94%	\$3.50	3
Wyoming	Small Retail	Water Heat	Dishwasher Residential	ENERGY STAR <= 324 kWh/yr, <= 5.8 gal/cycle	Federal Standard <= 355 kWh/yr, <= 6.5 gal/cycle	per installation	New	31	11	\$31	95%	55%	\$0.10	1
Wyoming	Small Retail	Water Heat	Electric Water Heater - High Efficiency	EF = 0.95	EF = 0.92	Per installation	New	37	15	\$67	100%	N/A	\$0.24	0.30
Wyoming	Small Retail	Water Heat	Heat Pump Water Heater - Advanced-Efficiency	EF = 2.2	EF = 0.92	Per installation	New	682	15	\$1,079	75%	N/A	\$0.20	24
Wyoming	Small Retail	Water Heat	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	per installation	New	17	9	\$0.00	95%	25%	\$-0.08	0.79
Wyoming	Small Retail	Water Heat	Water Heater Temperature Setback	Water Heater Temperature Setback (120 F)	No Change in Water Temperature	per installation	New	86	5	\$72	75%	45%	\$0.24	2
Wyoming	Warehouse	Computers	Computer ENERGY STAR	Computer ENERGY STAR	Computer standard non-ENERGY STAR	Per installation	Existing	135	4	\$28	100%	N/A	\$0.07	114
Wyoming	Warehouse	Computers	Computer ENERGY STAR	Computer ENERGY STAR	Computer standard non-ENERGY STAR	Per installation	New	135	4	\$28	100%	N/A	\$0.07	6
Wyoming	Warehouse	Cooling Chillers	Chilled Water / Condenser Water Settings-Optimization	Additional Control Features	EMS already installed - No Optimization	1 control point per 1000 sqft	Existing	5	5	\$138	95%	81%	\$7.79	0.69
Wyoming	Warehouse	Cooling Chillers	Chilled Water Piping Loop w/ VSD Control	VSD for secondary chilled water loop	Primary loop only w/ constant speed pump	per chiller ton	Existing	10	10	\$189	25%	70%	\$2.88	0.98
Wyoming	Warehouse	Cooling Chillers	Chiller-Water Side Economizer	Install Economizer	No Economizer	per chiller ton	Existing	7	15	\$419	45%	90%	\$7.47	1
Wyoming	Warehouse	Cooling Chillers	Chillers <150 tons (screw) - Advanced Efficiency	0.58 kW/ton (full load)	0.790 kW/Ton (full load)	Per installation	Existing	947	20	\$4,826	100%	N/A	\$0.57	11
Wyoming	Warehouse	Cooling Chillers	Chillers <150 tons (screw) - High Efficiency	0.71 kW/ton (full load)	0.790 kW/Ton (full load)	Per installation	Existing	361	20	\$1,838	100%	N/A	\$0.57	0.09
Wyoming	Warehouse	Cooling Chillers	Chillers <150 tons (screw) - Premium Efficiency	0.63 kW/ton	0.790 kW/Ton (full load)	Per installation	Existing	704	20	\$3,676	100%	N/A	\$0.58	0.72
Wyoming	Warehouse	Cooling Chillers	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	Existing	0.04	15	\$0.69	80%	98%	\$2.22	5
Wyoming	Warehouse	Cooling Chillers	Cooling Tower-Decrease Approach Temperature	6 Deg F	10 Deg F	per chiller ton	Existing	11	8	\$26	10%	94%	\$0.47	0.73
Wyoming	Warehouse	Cooling Chillers	Cooling Tower-Two-Speed Fan Motor	Cooling Tower-Two-Speed Fan Motor	Cooling Tower-One-Speed Fan Motor	per chiller ton	Existing	20	15	\$2	95%	35%	\$0.02	4
Wyoming	Warehouse	Cooling Chillers	Cooling Tower-VSD Fan Control	Variable-Speed Tower Fans replace Two-Speed	Cooling Tower-Two-Speed Fan Motor	per chiller ton	Existing	5	13	\$19	95%	75%	\$0.47	2
Wyoming	Warehouse	Cooling Chillers	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	Existing	40	15	\$148	75%	76%	\$0.48	5
Wyoming	Warehouse	Cooling Chillers	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	Existing	0.04	40	\$8	4%	98%	\$18.36	0.02
Wyoming	Warehouse	Cooling Chillers	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	0.30	13	\$0.24	10%	39%	\$0.11	0.06
Wyoming	Warehouse	Cooling Chillers	Insulation - Ceiling	R-25 (WY State Code)	R-8 (Average Existing Conditions)	per roof sqft	Existing	0.00	25	\$0.57	75%	61%	\$75.83	0.06
Wyoming	Warehouse	Cooling Chillers	Pipe Insulation	1.5" of Insulation, assuming R-6 (WY State Code)	No Insulation	per linear feet of insulation	Existing	1	15	\$3	65%	45%	\$0.32	0.44
Wyoming	Warehouse	Cooling Chillers	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	0.05	7	\$0.13	90%	85%	\$0.57	8
Wyoming	Warehouse	Cooling Chillers	Window Film	Window Film	No Film	per 100 sqft of window glazing	Existing	0.78	10	\$129	90%	68%	\$27.65	0.01
Wyoming	Warehouse	Cooling Chillers	Windows-High Efficiency	U-0.32	U-0.50 (WY State Code)	per window sqft	Existing	2	25	\$67	15%	90%	\$2.51	1

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Wyoming	Warehouse	Cooling Chillers	Windows-High Efficiency	U-0.50 (WY State Code)	U-0.65 (Average Existing Conditions)	per window sqft	Existing	2	25	\$25	15%	70%	\$0.89	1
Wyoming	Warehouse	Cooling Chillers	Chilled Water / Condenser Water Settings-Optimization	Additional Control Features	EMS already installed - No Optimization	1 control point per 1000 sqft	New	2	5	\$138	95%	81%	\$13.67	0.15
Wyoming	Warehouse	Cooling Chillers	Chilled Water Piping Loop w/ VSD Control	VSD for secondary chilled water loop	Primary loop only w/ constant speed pump	per chiller ton	New	6	10	\$189	25%	70%	\$4.55	0.21
Wyoming	Warehouse	Cooling Chillers	Chillers <150 tons (screw) - Advanced Efficiency	0.58 kW/ton (full load)	0.790 kW/Ton (full load)	Per installation	New	637	20	\$4,342	100%	N/A	\$0.76	3
Wyoming	Warehouse	Cooling Chillers	Chillers <150 tons (screw) - High Efficiency	0.71 kW/ton (full load)	0.790 kW/Ton (full load)	Per installation	New	243	20	\$1,653	100%	N/A	\$0.76	0.02
Wyoming	Warehouse	Cooling Chillers	Chillers <150 tons (screw) - Premium Efficiency	0.63 kW/ton	0.790 kW/Ton (full load)	Per installation	New	473	20	\$3,308	100%	N/A	\$0.78	0.16
Wyoming	Warehouse	Cooling Chillers	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	New	0.02	15	\$0.69	80%	98%	\$3.90	1
Wyoming	Warehouse	Cooling Chillers	Cooling Tower-Decrease Approach Temperature	6 Deg F	10 Deg F	per chiller ton	New	7	8	\$26	10%	94%	\$0.75	0.15
Wyoming	Warehouse	Cooling Chillers	Cooling Tower-VSD Fan Control	Variable-Speed Tower Fans replace Two-Speed	Cooling Tower-Two-Speed Fan Motor	per chiller ton	New	3	15	\$19	95%	75%	\$0.68	0.61
Wyoming	Warehouse	Cooling Chillers	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	New	23	15	\$148	75%	76%	\$0.84	1
Wyoming	Warehouse	Cooling Chillers	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	New	0.02	40	\$8	4%	98%	\$32.23	0.00
Wyoming	Warehouse	Cooling Chillers	Natural Ventilation	Natural Ventilation Design Reduction in Cooling	None - Standard Ventilation	per building sqft	New	0.02	15	\$0.85	20%	75%	\$4.79	0.24
Wyoming	Warehouse	Cooling Chillers	Windows-High Efficiency	U-0.32	U-0.50 (WY State Code)	per window sqft	New	1	25	\$67	80%	90%	\$4.41	1
Wyoming	Warehouse	Cooling Dx Evap	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	Existing	0.05	15	\$0.69	80%	98%	\$1.79	39
Wyoming	Warehouse	Cooling Dx Evap	DX Package 65 to 135 kBtu/hr - High Efficiency	DX Package 65 to 135 kBtu/hr - High Efficiency - 11.5 EER	DX Package 65 to 135 kBtu/hr - Standard Efficiency - 11.2 EER	Per installation	Existing	172	15	\$694	100%	N/A	\$0.52	0.69
Wyoming	Warehouse	Cooling Dx Evap	DX Package 65 to 135 kBtu/hr - Premium Efficiency	DX Package 65 to 135 kBtu/hr - Premium Efficiency - 12.0 EER	DX Package 65 to 135 kBtu/hr - Standard Efficiency - 11.2 EER	Per installation	Existing	463	15	\$1,397	100%	N/A	\$0.39	24
Wyoming	Warehouse	Cooling Dx Evap	DX Package-Air Side Economizer	Air-Side Economizer	No Economizer	per DX ton	Existing	30	10	\$155	10%	40%	\$0.86	3
Wyoming	Warehouse	Cooling Dx Evap	DX Tune-Up / Diagnostics	DX Tune-Up / Diagnostics	No DX Tune-Up / Diagnostics	per installation	Existing	150	4	\$245	95%	72%	\$0.63	43
Wyoming	Warehouse	Cooling Dx Evap	Direct / Indirect Evaporative Cooling, Pre-Cooling	Evaporative Cooler	Standard DX cooling	per building CFM	Existing	0.12	15	\$1	50%	94%	\$1.83	61
Wyoming	Warehouse	Cooling Dx Evap	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	Existing	50	15	\$148	75%	76%	\$0.38	42
Wyoming	Warehouse	Cooling Dx Evap	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	Existing	0.01	18	\$0.17	45%	65%	\$1.66	4
Wyoming	Warehouse	Cooling Dx Evap	Evaporative Cooler replaces DX Package 65 to 135 kBtu/hr - Advanced Efficiency	Evaporative Cooler replaces DX Package 65 to 135 kBtu/hr - Advanced Efficiency	DX Package 65 to 135 kBtu/hr - Standard Efficiency - 11.2 EER	Per installation	Existing	3,051	15	\$-11948.431	25%	N/A	\$-0.69	8
Wyoming	Warehouse	Cooling Dx Evap	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	Existing	0.05	40	\$8	4%	98%	\$14.81	0.15
Wyoming	Warehouse	Cooling Dx Evap	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	0.37	13	\$0.24	10%	39%	\$0.09	0.49
Wyoming	Warehouse	Cooling Dx Evap	Insulation - Duct	R-5 (WY State Code)	No Insulation	per surface area of duct insul	Existing	0.19	20	\$1	75%	58%	\$0.82	7

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Wyoming	Warehouse	Cooling Dx Evap	Insulation - Duct	R-8	R-5 (WY State Code)	per surface area of duct insul	Existing	0.12	20	\$0.28	75%	85%	\$0.25	9
Wyoming	Warehouse	Cooling Dx Evap	Insulation - Floor (non-slab)	R-30	R-25 (WY State Code)	per floor area	Existing	0.00	25	\$0.10	35%	90%	\$9.56	0.31
Wyoming	Warehouse	Cooling Dx Evap	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	Existing	3	30	\$5	50%	95%	\$0.16	58
Wyoming	Warehouse	Cooling Dx Evap	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	Existing	150	10	\$122	95%	24%	\$0.14	5
Wyoming	Warehouse	Cooling Dx Evap	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	0.06	7	\$0.13	90%	85%	\$0.46	67
Wyoming	Warehouse	Cooling Dx Evap	Window Film	Window Film	No Film	per 100 sqft of window glazing	Existing	0.78	10	\$129	90%	68%	\$27.50	0.09
Wyoming	Warehouse	Cooling Dx Evap	Windows-High Efficiency	U-0.32	U-0.50 (WY State Code)	per window sqft	Existing	3	25	\$67	15%	90%	\$2.03	8
Wyoming	Warehouse	Cooling Dx Evap	Windows-High Efficiency	U-0.50 (WY State Code)	U-0.65 (Average Existing Conditions)	per window sqft	Existing	3	25	\$25	15%	70%	\$0.72	9
Wyoming	Warehouse	Cooling Dx Evap	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	New	0.03	15	\$0.69	80%	98%	\$2.87	10
Wyoming	Warehouse	Cooling Dx Evap	DX Package 65 to 135 kBTU/hr - High Efficiency	DX Package 65 to 135 kBTU/hr - High Efficiency - 11.5 EER	DX Package 65 to 135 kBTU/hr - Standard Efficiency - 11.2 EER	Per installation	New	48	15	\$554	100%	N/A	\$1.48	0.05
Wyoming	Warehouse	Cooling Dx Evap	DX Package 65 to 135 kBTU/hr - Premium Efficiency	DX Package 65 to 135 kBTU/hr - Premium Efficiency - 12.0 EER	DX Package 65 to 135 kBTU/hr - Standard Efficiency - 11.2 EER	Per installation	New	236	15	\$1,117	100%	N/A	\$0.61	4
Wyoming	Warehouse	Cooling Dx Evap	Direct / Indirect Evaporative Cooling, Pre-Cooling	Evaporative Cooler	Standard DX cooling	per building CFM	New	0.07	15	\$1	50%	94%	\$2.94	16
Wyoming	Warehouse	Cooling Dx Evap	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	New	31	15	\$148	75%	76%	\$0.62	8
Wyoming	Warehouse	Cooling Dx Evap	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	New	0.00	18	\$0.17	45%	65%	\$2.66	1
Wyoming	Warehouse	Cooling Dx Evap	Evaporative Cooler replaces DX Package 65 to 135 kBTU/hr - Advanced Efficiency	Evaporative Cooler replaces DX Package 65 to 135 kBTU/hr - Advanced Efficiency	DX Package 65 to 135 kBTU/hr - Standard Efficiency - 11.2 EER	Per installation	New	2,015	15	\$-8956.478	25%	N/A	\$-0.79	1
Wyoming	Warehouse	Cooling Dx Evap	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	New	0.03	40	\$8	4%	98%	\$23.73	0.03
Wyoming	Warehouse	Cooling Dx Evap	Insulation - Duct	R-8	R-5 (WY State Code)	per surface area of duct insul	New	0.07	20	\$0.28	75%	85%	\$0.40	2
Wyoming	Warehouse	Cooling Dx Evap	Insulation - Floor (non-slab)	R-30	R-25 (WY State Code)	per floor area	New	0.00	25	\$0.10	35%	90%	\$15.32	0.07
Wyoming	Warehouse	Cooling Dx Evap	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	New	1	30	\$5	50%	95%	\$0.26	12
Wyoming	Warehouse	Cooling Dx Evap	Natural Ventilation	Natural Ventilation Design Reduction in Cooling	None - Standard Ventilation	per building sqft	New	0.03	15	\$0.85	20%	75%	\$3.52	1
Wyoming	Warehouse	Cooling Dx Evap	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	New	93	10	\$122	95%	12%	\$0.22	0.59
Wyoming	Warehouse	Cooling Dx Evap	Windows-High Efficiency	U-0.32	U-0.50 (WY State Code)	per window sqft	New	2	25	\$67	80%	90%	\$3.25	12
Wyoming	Warehouse	Cooling Room	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	Existing	0.06	15	\$0.69	80%	98%	\$1.46	6
Wyoming	Warehouse	Cooling Room	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	Existing	61	15	\$148	75%	76%	\$0.31	5

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Wyoming	Warehouse	Cooling Room	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	Existing	0.06	40	\$8	4%	98%	\$12.02	0.02
Wyoming	Warehouse	Cooling Room	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	0.46	13	\$0.24	10%	39%	\$0.07	0.05
Wyoming	Warehouse	Cooling Room	Insulation - Floor (non-slab)	R-30	R-25 (WY State Code)	per floor area	Existing	0.00	25	\$0.10	35%	90%	\$7.76	0.05
Wyoming	Warehouse	Cooling Room	PTAC (10,000 BTU/HR) - Premium-Efficiency	11.4 EER	Room AC (10,000 BTU/HR) Standard-Efficiency 9.8 EER	Per installation	Existing	978	15	\$29,771	75%	N/A	\$3.94	9
Wyoming	Warehouse	Cooling Room	Room AC (10,000 BTU/HR) High-Efficiency	High Efficiency 10.8 EER (ENERGY STAR)	Room AC (10,000 BTU/HR) Standard-Efficiency 9.8 EER	Per installation	Existing	607	9	\$1,530	100%	N/A	\$0.45	1
Wyoming	Warehouse	Cooling Room	Window Film	Window Film	No Film	per 100 sqft of window glazing	Existing	0.03	10	\$129	90%	68%	\$548.46	0.00
Wyoming	Warehouse	Cooling Room	Windows-High Efficiency	U-0.32	U-0.50 (WY State Code)	per window sqft	Existing	4	25	\$67	15%	90%	\$1.64	1
Wyoming	Warehouse	Cooling Room	Windows-High Efficiency	U-0.50 (WY State Code)	U-0.65 (Average Existing Conditions)	per window sqft	Existing	4	25	\$25	15%	70%	\$0.58	1
Wyoming	Warehouse	Cooling Room	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	New	0.04	15	\$0.69	80%	98%	\$2.23	1
Wyoming	Warehouse	Cooling Room	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	New	40	15	\$148	75%	76%	\$0.48	1
Wyoming	Warehouse	Cooling Room	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	New	0.04	40	\$8	4%	98%	\$18.42	0.00
Wyoming	Warehouse	Cooling Room	Insulation - Floor (non-slab)	R-30	R-25 (WY State Code)	per floor area	New	0.00	25	\$0.10	35%	90%	\$11.89	0.01
Wyoming	Warehouse	Cooling Room	Natural Ventilation	Natural Ventilation Design Reduction in Cooling	None - Standard Ventilation	per building sqft	New	0.04	15	\$0.85	20%	75%	\$2.74	0.23
Wyoming	Warehouse	Cooling Room	PTAC (10,000 BTU/HR) - Premium-Efficiency	11.4 EER	Room AC (10,000 BTU/HR) Standard-Efficiency 9.8 EER	Per installation	New	578	15	\$21,876	75%	N/A	\$4.89	0.74
Wyoming	Warehouse	Cooling Room	Room AC (10,000 BTU/HR) High-Efficiency	High Efficiency 10.8 EER (ENERGY STAR)	Room AC (10,000 BTU/HR) Standard-Efficiency 9.8 EER	Per installation	New	337	9	\$1,224	100%	N/A	\$0.65	0.12
Wyoming	Warehouse	Cooling Room	Windows-High Efficiency	U-0.32	U-0.50 (WY State Code)	per window sqft	New	2	25	\$67	80%	90%	\$2.52	1
Wyoming	Warehouse	Heat Pump	Air Source Heat Pump 65 to 135 kBtu/hr - High Efficiency	11.5 EER, 3.4 COP	11.0 EER, 3.3 COP	Per installation	Existing	614	15	\$2,583	100%	N/A	\$0.54	0.78
Wyoming	Warehouse	Heat Pump	Air Source Heat Pump 65 to 135 kBtu/hr - Premium Efficiency	12.0 EER, 3.8 COP	11.0 EER, 3.3 COP	Per installation	Existing	3,915	15	\$5,168	100%	N/A	\$0.17	52
Wyoming	Warehouse	Heat Pump	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	Existing	0.05	15	\$0.69	80%	98%	\$1.57	7
Wyoming	Warehouse	Heat Pump	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	Existing	354	15	\$148	75%	76%	\$0.05	51
Wyoming	Warehouse	Heat Pump	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	Existing	0.08	18	\$0.17	45%	65%	\$0.24	4
Wyoming	Warehouse	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	Existing	0.44	14	\$0.92	5%	94%	\$0.28	3
Wyoming	Warehouse	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	Existing	0.05	40	\$8	4%	98%	\$12.93	0.03
Wyoming	Warehouse	Heat Pump	Ground Source Heat Pump Replacing Air Source Heat Pump 65 to 135 kBtu/hr - Advanced Efficiency	16.2 EER 4.0 COP	11.0 EER, 3.3 COP	Per installation	Existing	6,485	30	\$95,197	5%	N/A	\$1.36	4
Wyoming	Warehouse	Heat Pump	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	6	13	\$0.24	10%	39%	\$0.01	1
Wyoming	Warehouse	Heat Pump	Insulation - Ceiling	R-25 (WY State Code)	R-8 (Average Existing Conditions)	per roof sqft	Existing	0.46	25	\$0.57	75%	61%	\$0.13	41
Wyoming	Warehouse	Heat Pump	Insulation - Ceiling	R-30	R-25 (WY State Code)	per roof sqft	Existing	0.05	25	\$0.09	75%	85%	\$0.18	6
Wyoming	Warehouse	Heat Pump	Insulation - Duct	R-5 (WY State Code)	No Insulation	per surface area of duct insul	Existing	1	20	\$1	75%	58%	\$0.12	9

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Wyoming	Warehouse	Heat Pump	Insulation - Duct	R-8	R-5 (WY State Code)	per surface area of duct insul	Existing	0.90	20	\$0.28	75%	85%	\$0.04	11
Wyoming	Warehouse	Heat Pump	Insulation - Floor (non-slab)	R-25 (WY State Code)	R-8 (Average Existing Conditions)	per floor area	Existing	0.76	25	\$0.73	35%	80%	\$0.10	45
Wyoming	Warehouse	Heat Pump	Insulation - Floor (non-slab)	R-30	R-25 (WY State Code)	per floor area	Existing	0.17	25	\$0.10	35%	90%	\$0.06	13
Wyoming	Warehouse	Heat Pump	Insulation - Wall	R-13 + 3 (WY State Code)	R-3 (Average Existing Conditions)	per floor area	Existing	1	25	\$1	10%	65%	\$0.07	10
Wyoming	Warehouse	Heat Pump	Insulation - Wall	R-21	R-13 + 3 (WY State Code)	per floor area	Existing	0.22	25	\$0.10	10%	85%	\$0.05	2
Wyoming	Warehouse	Heat Pump	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	Existing	29	30	\$5	50%	95%	\$0.02	102
Wyoming	Warehouse	Heat Pump	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	Existing	1,062	10	\$122	95%	24%	\$0.02	6
Wyoming	Warehouse	Heat Pump	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	0.44	7	\$0.13	90%	85%	\$0.07	80
Wyoming	Warehouse	Heat Pump	Window Film	Window Film	No Film	per 100 sqft of window glazing	Existing	0.79	10	\$129	90%	68%	\$27.17	0.01
Wyoming	Warehouse	Heat Pump	Windows-High Efficiency	U-0.32	U-0.50 (WY State Code)	per window sqft	Existing	1	25	\$67	15%	90%	\$6.21	0.55
Wyoming	Warehouse	Heat Pump	Air Source Heat Pump 65 to 135 kBtu/hr - High Efficiency	11.5 EER, 3.4 COP	11.0 EER, 3.3 COP	Per installation	New	637	15	\$2,067	100%	N/A	\$0.42	0.22
Wyoming	Warehouse	Heat Pump	Air Source Heat Pump 65 to 135 kBtu/hr - Premium Efficiency	12.0 EER, 3.8 COP	11.0 EER, 3.3 COP	Per installation	New	2,719	15	\$4,135	100%	N/A	\$0.20	13
Wyoming	Warehouse	Heat Pump	Cool Roof	Light color Coating: ENERGY STAR Rating Low Slope roofs must have an initial solar reflectance of >= 0.65. After 3 years, the solar reflectance must be >= 0.50.	Standard Dark Colored Roof	per roof sqft	New	0.03	15	\$0.69	80%	98%	\$2.47	1
Wyoming	Warehouse	Heat Pump	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	New	275	15	\$148	75%	76%	\$0.07	13
Wyoming	Warehouse	Heat Pump	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	New	0.06	18	\$0.17	45%	65%	\$0.30	1
Wyoming	Warehouse	Heat Pump	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	New	0.35	14	\$0.92	5%	94%	\$0.35	1
Wyoming	Warehouse	Heat Pump	Green Roof	Vegetation on Roof	Standard Dark Colored Roof	per roof sqft	New	0.03	40	\$8	4%	98%	\$20.43	0.00
Wyoming	Warehouse	Heat Pump	Ground Source Heat Pump Replacing Air Source Heat Pump 65 to 135 kBtu/hr - Advanced Efficiency	16.2 EER 4.0 COP	11.0 EER, 3.3 COP	Per installation	New	4,724	30	\$50,534	5%	N/A	\$0.97	1
Wyoming	Warehouse	Heat Pump	Insulation - Ceiling	R-30	R-25 (WY State Code)	per roof sqft	New	0.04	25	\$0.09	75%	85%	\$0.21	2
Wyoming	Warehouse	Heat Pump	Insulation - Duct	R-8	R-5 (WY State Code)	per surface area of duct insul	New	0.70	20	\$0.28	75%	85%	\$0.05	3
Wyoming	Warehouse	Heat Pump	Insulation - Floor (non-slab)	R-30	R-25 (WY State Code)	per floor area	New	0.14	25	\$0.10	35%	90%	\$0.07	3
Wyoming	Warehouse	Heat Pump	Insulation - Wall	R-21	R-13 + 3 (WY State Code)	per floor area	New	0.19	25	\$0.10	95%	85%	\$0.05	5
Wyoming	Warehouse	Heat Pump	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	New	23	30	\$5	50%	95%	\$0.02	26
Wyoming	Warehouse	Heat Pump	Natural Ventilation	Natural Ventilation Design Reduction in Cooling	None - Standard Ventilation	per building sqft	New	0.27	15	\$0.85	20%	75%	\$0.40	3
Wyoming	Warehouse	Heat Pump	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	New	825	10	\$122	95%	12%	\$0.02	0.82
Wyoming	Warehouse	Heat Pump	Windows-High Efficiency	U-0.32	U-0.50 (WY State Code)	per window sqft	New	0.22	25	\$67	80%	90%	\$30.78	0.24
Wyoming	Warehouse	Hvac Aux	Motor - CEE Premium-Efficiency Plus	CEE PE+ Motor for HVAC Applications	NEMA Efficiency Motors	per HP	Existing	14	15	\$6	95%	76%	\$0.06	60
Wyoming	Warehouse	Hvac Aux	Motor Rewind	>15, <500 HP	No Rewind	per HP	Existing	3	8	\$4	65%	25%	\$0.26	2
Wyoming	Warehouse	Hvac Aux	Motor - CEE Premium-Efficiency Plus	CEE PE+ Motor for HVAC Applications	NEMA Efficiency Motors	per HP	New	9	15	\$6	95%	76%	\$0.08	16
Wyoming	Warehouse	Lighting Exterior	Covered Parking Lighting	Covered Parking Lighting	Normal Lighting	per building sqft	Existing	0.09	10	\$0.02	80%	95%	\$0.05	498
Wyoming	Warehouse	Lighting Exterior	Daylighting Controls, Outdoors (Photocell)	Photocell	No Controls	per installation	Existing	14	8	\$28	75%	70%	\$0.37	12

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Wyoming	Warehouse	Lighting Exterior	Exterior Building Lighting	30% savings	Normal Lighting	per installation	Existing	238	15	\$333	62%	90%	\$0.18	125
Wyoming	Warehouse	Lighting Exterior	Solid State LED White Lighting	Landscape, merchandise, signage, structure & task lighting (2.5 W)	50W 10hrs/day, 365 day/yr	per installation	Existing	1	14	\$35	75%	95%	\$2.95	3
Wyoming	Warehouse	Lighting Exterior	Surface Parking Lighting	Surface Parking Lighting	Normal Lighting	per building sqft	Existing	0.04	19	\$0.06	62%	95%	\$0.16	208
Wyoming	Warehouse	Lighting Exterior	Covered Parking Lighting	Covered Parking Lighting	Normal Lighting	per building sqft	New	0.09	10	\$0.02	80%	95%	\$0.05	160
Wyoming	Warehouse	Lighting Exterior	Daylighting Controls, Outdoors (Photocell)	Photocell	No Controls	per installation	New	14	8	\$28	75%	70%	\$0.37	4
Wyoming	Warehouse	Lighting Exterior	Exterior Building Lighting	30% savings	Normal Lighting	per installation	New	238	15	\$333	62%	90%	\$0.18	40
Wyoming	Warehouse	Lighting Exterior	Solid State LED White Lighting	Landscape, merchandise, signage, structure & task lighting (2.5 W)	50W 10hrs/day, 365 day/yr	per installation	New	1	14	\$35	75%	95%	\$2.95	1
Wyoming	Warehouse	Lighting Exterior	Surface Parking Lighting	Surface Parking Lighting	Normal Lighting	per building sqft	New	0.04	19	\$0.06	62%	95%	\$0.16	67
Wyoming	Warehouse	Lighting Interior	Cold Cathode Lighting	Cold Cathode Lighting 5 wats	30 W Incandescent Bulb	per installation	Existing	186	5	\$13	15%	94%	\$0.02	18
Wyoming	Warehouse	Lighting Interior	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	Existing	0.22	8	\$0.85	30%	98%	\$0.73	40
Wyoming	Warehouse	Lighting Interior	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	Existing	0.08	8	\$0.63	30%	98%	\$1.46	15
Wyoming	Warehouse	Lighting Interior	Exit Sign - LED	LED Exit Sign (2 Watts)	CFL Exit Sign (9 Watts)	per installation	Existing	95	16	\$16	95%	50%	\$0.02	233
Wyoming	Warehouse	Lighting Interior	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign (2 Watts)	per installation	Existing	17	13	\$30	95%	98%	\$0.25	27
Wyoming	Warehouse	Lighting Interior	Lighting Package, High Efficiency	15% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	Existing	0.19	13	\$0.00	90%	53%	\$0.00	519
Wyoming	Warehouse	Lighting Interior	Lighting Package, High Efficiency	Code Required LPD And Control Strategies	Existing Lighting Design LPD	per building sqft	Existing	0.67	13	\$0.46	90%	30%	\$0.10	1,261
Wyoming	Warehouse	Lighting Interior	Lighting Package, Premium Efficiency	25% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	Existing	0.32	13	\$0.10	75%	62%	\$0.05	209
Wyoming	Warehouse	Lighting Interior	Lighting Package, Premium High Bay	35% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	Existing	0.33	13	\$0.25	70%	84%	\$0.10	1,362
Wyoming	Warehouse	Lighting Interior	Occupancy Sensor Control, Fluorescent	Occupancy Sensor Control, Fluorescent	No Occupancy Sensor	per occupancy sensor	Existing	644	8	\$65	90%	50%	\$0.02	158
Wyoming	Warehouse	Lighting Interior	Time Clock	Time Clock	No Controls	per 10,000 Watts	Existing	740	8	\$174	20%	**%	\$0.05	68
Wyoming	Warehouse	Lighting Interior	Cold Cathode Lighting	Cold Cathode Lighting 5 wats	30 W Incandescent Bulb	per installation	New	125	5	\$13	15%	94%	\$0.03	3
Wyoming	Warehouse	Lighting Interior	Dimming-Continuous, Fluorescent Fixtures	Continuous Dimming, Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	New	0.15	8	\$0.85	30%	98%	\$1.08	8
Wyoming	Warehouse	Lighting Interior	Dimming-Stepped, Fluorescent Fixtures	3-stepped Dimming of Fluorescent Fixtures (Day-Lighting)	No Dimming Controls	per sqft of dimmable perimeter	New	0.05	8	\$0.63	30%	98%	\$2.17	3
Wyoming	Warehouse	Lighting Interior	Exit Sign - Photoluminescent or Tritium	Photoluminescent or Tritium	LED Exit Sign (2 Watts)	per installation	New	17	13	\$30	95%	98%	\$0.25	35
Wyoming	Warehouse	Lighting Interior	Lighting Package, High Efficiency	15% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	New	0.19	15	\$0.00	90%	53%	\$0.00	167
Wyoming	Warehouse	Lighting Interior	Lighting Package, Premium Efficiency	25% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	New	0.32	15	\$0.05	75%	62%	\$0.02	67
Wyoming	Warehouse	Lighting Interior	Lighting Package, Premium High Bay	35% Reduction in W/sqft	Baseline Lighting Power density	per building sqft	New	0.33	15	\$0.05	70%	84%	\$0.02	438
Wyoming	Warehouse	Lighting Interior	Occupancy Sensor Control, Fluorescent	Occupancy Sensor Control, Fluorescent	No Occupancy Sensor	per occupancy sensor	New	433	8	\$65	90%	50%	\$0.03	34
Wyoming	Warehouse	Lighting Interior	Time Clock	Time Clock	No Controls	per 10,000 Watts	New	740	8	\$174	20%	**%	\$0.05	15
Wyoming	Warehouse	Other Office Equipment	ENERGY STAR - Copiers	ENERGY STAR Copiers	Standard Copier	per installation	Existing	72	6	\$163	95%	45%	\$0.55	1

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State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Wyoming	Warehouse	Other Office Equipment	ENERGY STAR - Fax	ENERGY STAR Fax	Standard Fax	per installation	Existing	77	6	\$0.00	95%	45%	\$0.00	1
Wyoming	Warehouse	Other Office Equipment	ENERGY STAR - Monitors	ENERGY STAR Features Enabled	Non-ENERGY STAR Features	per installation	Existing	14	5	\$16	64%	15%	\$0.31	1
Wyoming	Warehouse	Other Office Equipment	ENERGY STAR - Printers	ENERGY STAR Printers	Standard Printers	per installation	Existing	135	6	\$14	95%	40%	\$0.03	27
Wyoming	Warehouse	Other Office Equipment	ENERGY STAR - Scanners	ENERGY STAR Scanners	Standard Scanner	per installation	Existing	70	6	\$20	95%	45%	\$0.07	1
Wyoming	Warehouse	Other Office Equipment	ENERGY STAR - Copiers	ENERGY STAR Copiers	Standard Copier	per installation	New	72	6	\$163	95%	45%	\$0.55	0.35
Wyoming	Warehouse	Other Office Equipment	ENERGY STAR - Fax	ENERGY STAR Fax	Standard Fax	per installation	New	77	6	\$0.00	95%	45%	\$0.00	0.37
Wyoming	Warehouse	Other Office Equipment	ENERGY STAR - Monitors	ENERGY STAR Features Enabled	Non-ENERGY STAR Features	per installation	New	14	5	\$16	64%	15%	\$0.31	0.48
Wyoming	Warehouse	Other Office Equipment	ENERGY STAR - Printers	ENERGY STAR Printers	Standard Printers	per installation	New	135	6	\$14	95%	40%	\$0.03	8
Wyoming	Warehouse	Other Office Equipment	ENERGY STAR - Scanners	ENERGY STAR Scanners	Standard Scanner	per installation	New	70	6	\$20	95%	45%	\$0.07	0.34
Wyoming	Warehouse	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	per installation	Existing	7	7	\$2	20%	90%	\$0.06	0.45
Wyoming	Warehouse	Other Plug Load	ENERGY STAR - Water Cooler	ENERGY STAR Water Cooler (Hot/Cold Water)	Non-ENERGY STAR Water Cooler	per installation	Existing	356	10	\$0.00	95%	75%	\$0.00	135
Wyoming	Warehouse	Other Plug Load	Power Supply Transformer/Converter	80 Plus	85% efficient power supply (> 51W)	1 unit per 2,000 sqft	Existing	2	4	\$0.40	95%	86%	\$0.06	6
Wyoming	Warehouse	Other Plug Load	Residential Refrigerator	ENERGY STAR	Federal Standard	per installation	Existing	78	12	\$122	20%	65%	\$0.23	7
Wyoming	Warehouse	Other Plug Load	Residential Refrigerator/Freezer Recycling	Recycling Existing Refrigerator/Freezer	Existing Refrigerator/Freezer	per installation	Existing	936	4	\$561	25%	35%	\$0.21	19
Wyoming	Warehouse	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	1 unit per 15,000 sqft	Existing	98	5	\$19	60%	90%	\$0.06	25
Wyoming	Warehouse	Other Plug Load	Vending Machines- High Efficiency	ENERGY STAR (Tier 2) Vending Machines- High Efficiency 500 can capacity Under 5.92 kWh/day	Vending Machines- Standard 13 kWh/day	per installation	Existing	235	14	\$163	10%	80%	\$0.09	1
Wyoming	Warehouse	Other Plug Load	ENERGY STAR - Battery Charging System	ENERGY STAR Battery Charging System	Non-ENERGY STAR Battery Chargers	per installation	New	7	7	\$2	20%	90%	\$0.06	0.14
Wyoming	Warehouse	Other Plug Load	ENERGY STAR - Water Cooler	ENERGY STAR Water Cooler (Hot/Cold Water)	Non-ENERGY STAR Water Cooler	per installation	New	356	10	\$0.00	95%	75%	\$0.00	43
Wyoming	Warehouse	Other Plug Load	Power Supply Transformer/Converter	80 Plus	85% efficient power supply (> 51W)	1 unit per 2,000 sqft	New	2	4	\$0.40	95%	86%	\$0.06	2
Wyoming	Warehouse	Other Plug Load	Residential Refrigerator	ENERGY STAR	Federal Standard	per installation	New	78	12	\$122	20%	65%	\$0.23	2
Wyoming	Warehouse	Other Plug Load	Smart Strips	Smart Strip Power Strip	Standard surge protector	1 unit per 15,000 sqft	New	98	5	\$19	60%	90%	\$0.06	8
Wyoming	Warehouse	Other Plug Load	Vending Machines- High Efficiency	ENERGY STAR (Tier 2) Vending Machines- High Efficiency 500 can capacity Under 5.92 kWh/day	Vending Machines- Standard 13 kWh/day	per installation	New	235	14	\$163	10%	80%	\$0.09	0.42
Wyoming	Warehouse	Refrigeration	Refrigeration Commissioning or Re-commissioning	Commissioning / Re-commissioning	No Commissioning / Re-commissioning	per refrigeration ton	Existing	805	3	\$87	5%	85%	\$0.05	64
Wyoming	Warehouse	Refrigeration	Standalone to Multiplex Compressor	Standalone to Multiplex Compressor	Standalone compressor	per building sqft	Existing	0.36	13	\$0.05	3%	90%	\$0.02	15
Wyoming	Warehouse	Refrigeration	Strip Curtains for Walk-Ins	Strip Curtains for Walk-Ins	No Strip Curtains for Walk-In	per installation	Existing	2,654	4	\$183	5%	20%	\$0.02	4
Wyoming	Warehouse	Refrigeration	Walk-In Electronically Commutated Motor	ECM Evaporator Fans	Standard Efficiency Motor	per installation	Existing	0.51	12	\$0.17	5%	95%	\$0.05	45
Wyoming	Warehouse	Refrigeration	Refrigeration Commissioning or Re-commissioning	Commissioning / Re-commissioning	No Commissioning / Re-commissioning	per refrigeration ton	New	498	3	\$33	3%	90%	\$0.03	6
Wyoming	Warehouse	Refrigeration	Strip Curtains for Walk-Ins	Strip Curtains for Walk-Ins	No Strip Curtains for Walk-In	per installation	New	2,654	4	\$183	5%	20%	\$0.02	1
Wyoming	Warehouse	Refrigeration	Walk-In Electronically Commutated Motor	ECM Evaporator Fans	Standard Efficiency Motor	per installation	New	0.51	12	\$0.17	5%	95%	\$0.05	14

Table C.2.2. Commercial Measure Details

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Wyoming	Warehouse	Space Heat	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	Existing	756	15	\$148	75%	76%	\$0.03	241
Wyoming	Warehouse	Space Heat	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	Existing	0.18	18	\$0.17	45%	65%	\$0.11	20
Wyoming	Warehouse	Space Heat	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	Existing	1	14	\$0.92	5%	94%	\$0.11	20
Wyoming	Warehouse	Space Heat	Infiltration Reduction	Install Caulking And Weatherstripping (ACH 0.65)	Infiltration Conditions (ACH 1.0)	per window sqft	Existing	11	13	\$0.24	10%	39%	\$0.00	6
Wyoming	Warehouse	Space Heat	Insulation - Ceiling	R-25 (WY State Code)	R-8 (Average Existing Conditions)	per roof sqft	Existing	1	25	\$0.57	75%	61%	\$0.04	279
Wyoming	Warehouse	Space Heat	Insulation - Ceiling	R-30	R-25 (WY State Code)	per roof sqft	Existing	0.18	25	\$0.09	75%	85%	\$0.05	46
Wyoming	Warehouse	Space Heat	Insulation - Duct	R-5 (WY State Code)	No Insulation	per surface area of duct insul	Existing	2	20	\$1	75%	58%	\$0.05	37
Wyoming	Warehouse	Space Heat	Insulation - Duct	R-8	R-5 (WY State Code)	per surface area of duct insul	Existing	1	20	\$0.28	75%	85%	\$0.02	57
Wyoming	Warehouse	Space Heat	Insulation - Floor (non-slab)	R-25 (WY State Code)	R-8 (Average Existing Conditions)	per floor area	Existing	2	25	\$0.73	35%	80%	\$0.03	426
Wyoming	Warehouse	Space Heat	Insulation - Floor (non-slab)	R-30	R-25 (WY State Code)	per floor area	Existing	0.54	25	\$0.10	35%	90%	\$0.02	99
Wyoming	Warehouse	Space Heat	Insulation - Wall	R-13 + 3 (WY State Code)	R-3 (Average Existing Conditions)	per floor area	Existing	5	25	\$1	10%	65%	\$0.02	90
Wyoming	Warehouse	Space Heat	Insulation - Wall	R-21	R-13 + 3 (WY State Code)	per floor area	Existing	2	25	\$0.10	10%	85%	\$0.00	52
Wyoming	Warehouse	Space Heat	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	Existing	63	30	\$5	50%	95%	\$0.01	501
Wyoming	Warehouse	Space Heat	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	Existing	2,269	10	\$122	95%	24%	\$0.01	30
Wyoming	Warehouse	Space Heat	Re-Commissioning	Re-Commissioning	Average Existing Conditions	per building sqft	Existing	0.94	7	\$0.13	90%	85%	\$0.03	342
Wyoming	Warehouse	Space Heat	Direct Digital Control System-Optimization	Premium Efficiency EMS System	High Efficiency EMS System	per control zone	New	563	15	\$148	75%	76%	\$0.03	54
Wyoming	Warehouse	Space Heat	Duct Repair and Sealing	Reduction In Duct Losses to 5 %	No Repair or Sealing 15% duct losses	per building sqft	New	0.14	18	\$0.17	45%	65%	\$0.15	6
Wyoming	Warehouse	Space Heat	Exhaust Air to Ventilation Air Heat Recovery	Exhaust Air to Ventilation Air Heat Recovery	No Heat Recovery	per building CFM	New	0.84	14	\$0.92	5%	94%	\$0.15	6
Wyoming	Warehouse	Space Heat	Insulation - Ceiling	R-30	R-25 (WY State Code)	per roof sqft	New	0.13	25	\$0.09	75%	85%	\$0.07	14
Wyoming	Warehouse	Space Heat	Insulation - Duct	R-8	R-5 (WY State Code)	per surface area of duct insul	New	1	20	\$0.28	75%	85%	\$0.02	12
Wyoming	Warehouse	Space Heat	Insulation - Floor (non-slab)	R-30	R-25 (WY State Code)	per floor area	New	0.40	25	\$0.10	35%	90%	\$0.03	21
Wyoming	Warehouse	Space Heat	Insulation - Wall	R-21	R-13 + 3 (WY State Code)	per floor area	New	1	25	\$0.10	95%	85%	\$0.01	119
Wyoming	Warehouse	Space Heat	Leak Proof Duct Fittings	Quick connect fittings that do not require mastic or drawbands	Standard Duct Fittings	per linear feet of duct insula	New	47	30	\$5	50%	95%	\$0.01	109
Wyoming	Warehouse	Space Heat	Natural Ventilation	Natural Ventilation Design Reduction in Cooling	None - Standard Ventilation	per building sqft	New	0.56	15	\$0.85	20%	75%	\$0.20	13
Wyoming	Warehouse	Space Heat	Programmable Thermostat	Programmable Thermostat	No Programmable Thermostat	per installation	New	1,691	10	\$122	95%	12%	\$0.01	3
Wyoming	Warehouse	Water Heat	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	per building sqft	Existing	0.01	10	\$0.23	55%	94%	\$2.30	22
Wyoming	Warehouse	Water Heat	Dishwasher Residential	ENERGY STAR <= 324 kWh/yr, <= 5.8 gal/cycle	Federal Standard <= 355 kWh/yr, <= 6.5 gal/cycle	per installation	Existing	30	11	\$30	95%	25%	\$0.10	2
Wyoming	Warehouse	Water Heat	Heat Pump Water Heater - Advanced-Efficiency	EF = 2.2	EF = 0.92	Per installation	Existing	2,077	15	\$1,169	75%	N/A	\$0.07	250
Wyoming	Warehouse	Water Heat	Hot Water (SHW) Pipe Insulation	1.0" of Insulation, assuming R-4 (WY State Code)	No Insulation	per linear foot	Existing	4	12	\$2	80%	90%	\$0.07	6
Wyoming	Warehouse	Water Heat	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	per installation	Existing	54	9	\$0.00	95%	25%	\$-0.08	8
Wyoming	Warehouse	Water Heat	Low-Flow Faucet Aerators	2.2 GPM (Federal Code)	3.0 GPM	per installation	Existing	45	9	\$2	95%	25%	\$-0.07	6
Wyoming	Warehouse	Water Heat	Low-Flow Showerheads	2.0 GPM	2.5 GPM (Federal Code)	per installation	Existing	813	10	\$6	95%	73%	\$-0.08	53
Wyoming	Warehouse	Water Heat	Low-Flow Showerheads	2.5 GPM (Federal Code)	4.5 GPM	per installation	Existing	1,807	10	\$10	95%	62%	\$-0.08	99

Table C.2.2. Commercial Measure Details

State	Segment	End Use	Measure Name	Measure Description	Baseline Description	Unit Description	Construction Vintage	Savings per Unit (kWh)	Measure Life	Incremental Cost per Unit	Percent of Installations Technically Feasible	Percent of Installations Incomplete	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Wyoming	Warehouse	Water Heat	Water Cooled Refrigeration with Heat Recovery	Heat Recovery from refrigeration system. Applied to Water Heating Electric End use	No heat recovery	per sqft of refrigerated area	Existing	0.03	10	\$0.75	3%	94%	\$3.22	1
Wyoming	Warehouse	Water Heat	Water Heater Temperature Setback	Water Heater Temperature Setback (120 F)	No Change in Water Temperature	per installation	Existing	263	5	\$70	75%	45%	\$0.08	23
Wyoming	Warehouse	Water Heat	Demand Controlled Circulating Systems	Demand Controlled Circulating Systems (VFD control by demand)	Constant Circulation	per building sqft	New	0.01	10	\$0.23	55%	94%	\$2.37	7
Wyoming	Warehouse	Water Heat	Dishwasher Residential	ENERGY STAR <= 324 kWh/yr, <= 5.8 gal/cycle	Federal Standard <= 355 kWh/yr, <= 6.5 gal/cycle	per installation	New	30	11	\$30	95%	55%	\$0.10	1
Wyoming	Warehouse	Water Heat	Heat Pump Water Heater - Advanced-Efficiency	EF = 2.2	EF = 0.92	Per installation	New	2,017	15	\$1,046	75%	N/A	\$0.07	75
Wyoming	Warehouse	Water Heat	Low-Flow Faucet Aerators	1.5 GPM	2.2 GPM (Federal Code)	per installation	New	52	9	\$0.00	95%	25%	\$-0.08	2
Wyoming	Warehouse	Water Heat	Low-Flow Showerheads	2.0 GPM	2.5 GPM (Federal Code)	per installation	New	790	10	\$6	95%	73%	\$-0.08	16
Wyoming	Warehouse	Water Heat	Water Cooled Refrigeration with Heat Recovery	Heat Recovery from refrigeration system. Applied to Water Heating Electric End use	No heat recovery	per sqft of refrigerated area	New	0.03	10	\$0.75	3%	94%	\$3.22	0.47
Wyoming	Warehouse	Water Heat	Water Heater Temperature Setback	Water Heater Temperature Setback (120 F)	No Change in Water Temperature	per installation	New	255	5	\$70	75%	45%	\$0.08	8

Table C.2.3. Industrial Measure Details

State	Segment	End Use	Measure Name	Percent of End Use Consumption Saved	Measure Life	Incremental Cost per kWh	Measure Applicability	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
California	Lumber Wood Products	Fans	Efficient Centrifugal Fan	20%	10	\$0.18	11%	\$0.03	53
California	Lumber Wood Products	Fans	Fan System Optimization	8%	10	\$0.20	30%	\$0.03	33
California	Lumber Wood Products	Fans	High Efficiency Motors	1%	15	\$0.44	77%	\$0.06	26
California	Lumber Wood Products	Fans	Improved Controls	6%	10	\$0.09	34%	\$0.05	49
California	Lumber Wood Products	Fans	Properly Sized Fans	10%	10	\$0.16	15%	\$0.04	38
California	Lumber Wood Products	Fans	Synchronous Belts	1%	10	\$0.21	21%	\$0.04	5
California	Lumber Wood Products	Hvac	Equipment Upgrades	33%	12	\$0.12	32%	\$0.02	159
California	Lumber Wood Products	Hvac	Improved Controls	21%	10	\$0.05	33%	\$-0.04	117
California	Lumber Wood Products	Hvac	Recommissioning	5%	10	\$0.03	73%	\$-0.02	58
California	Lumber Wood Products	Lighting	Efficient Lighting 1 Shift	20%	10	\$0.08	4%	\$0.01	15
California	Lumber Wood Products	Lighting	Efficient Lighting 2 Shift	20%	10	\$0.05	5%	\$0.01	17
California	Lumber Wood Products	Lighting	Efficient Lighting 3 Shift	20%	10	\$0.03	10%	\$0.00	37
California	Lumber Wood Products	Lighting	HighBay Lighting 1 Shift	48%	10	\$0.24	7%	\$0.04	47
California	Lumber Wood Products	Lighting	HighBay Lighting 2 Shift	48%	10	\$0.14	7%	\$0.02	54
California	Lumber Wood Products	Lighting	HighBay Lighting 3 Shift	48%	10	\$0.08	15%	\$0.01	128
California	Lumber Wood Products	Lighting	Lighting Controls	18%	10	\$0.13	28%	\$0.02	84
California	Lumber Wood Products	Motors Other	High Efficiency Motors	1%	15	\$0.44	75%	\$0.06	58
California	Lumber Wood Products	Motors Other	Improved Controls	3%	10	\$0.10	34%	\$0.02	71
California	Lumber Wood Products	Motors Other	Material Handling	5%	10	\$0.47	53%	\$0.08	137
California	Lumber Wood Products	Motors Other	Material Handling VFD	19%	10	\$0.30	53%	\$0.05	579
California	Lumber Wood Products	Motors Other	Motor Management Plan	3%	10	\$0.07	50%	\$0.02	50
California	Lumber Wood Products	Motors Other	Motors Other	1%	15	\$0.02	90%	\$0.00	43
California	Lumber Wood Products	Motors Other	Motors: Rewind 101-200 HP	1%	15	\$0.25	7%	\$0.03	1
California	Lumber Wood Products	Motors Other	Motors: Rewind 20-50 HP	1%	15	\$0.34	5%	\$0.04	2
California	Lumber Wood Products	Motors Other	Motors: Rewind 201-500 HP	1%	15	\$0.16	4%	\$0.02	1
California	Lumber Wood Products	Motors Other	Motors: Rewind 500+ HP	1%	15	\$0.14	4%	\$0.02	1
California	Lumber Wood Products	Motors Other	Motors: Rewind 51-100 HP	1%	15	\$0.31	7%	\$0.04	2
California	Lumber Wood Products	Motors Other	Switch from Belt drive to Direct Drive	8%	12	\$0.21	11%	\$0.03	46
California	Lumber Wood Products	Motors Other	Synchronous Belts	1%	10	\$0.21	21%	\$0.04	13
California	Lumber Wood Products	Motors Other	Wood: Replace Pneumatic Conveyor	29%	10	\$0.01	50%	\$-0.06	1,036
California	Lumber Wood Products	Other	Bldg Improvements	20%	15	\$0.13	35%	\$-0.03	141
California	Lumber Wood Products	Other	Energy Project Management	29%	11	\$0.12	27%	\$0.05	71
California	Lumber Wood Products	Other	Integrated Plant Energy Management	50%	11	\$0.20	22%	\$-0.00	118
California	Lumber Wood Products	Other	Plant Energy Management	12%	10	\$0.02	27%	\$0.03	30
California	Lumber Wood Products	Other	Transformers	2%	30	\$0.20	80%	\$0.02	20
California	Lumber Wood Products	Process Aircomp	Air Compressor Demand Reduction	16%	10	\$0.05	27%	\$0.03	101
California	Lumber Wood Products	Process Aircomp	Air Compressor Equipment	9%	10	\$0.13	18%	\$0.05	34
California	Lumber Wood Products	Process Aircomp	Air Compressor Optimization	30%	10	\$0.11	37%	\$-0.01	187
California	Lumber Wood Products	Process Aircomp	High efficiency Compressor motors	1%	15	\$0.34	78%	\$0.04	19
California	Lumber Wood Products	Process Aircomp	Improved Controls	19%	10	\$0.03	35%	\$0.01	166
California	Lumber Wood Products	Process Aircomp	Motor Management Plan	3%	10	\$0.07	52%	\$0.02	21
California	Lumber Wood Products	Process Cool	Equipment: Chillers	18%	20	\$0.26	8%	\$0.03	2
California	Lumber Wood Products	Process Cool	Improved Controls	6%	15	\$0.88	32%	\$0.11	3
California	Lumber Wood Products	Process Heat	Improved Controls	30%	15	\$0.05	33%	\$-0.09	133
California	Lumber Wood Products	Process Heat	Process Heat O&M	29%	2	\$0.05	63%	\$0.04	127
California	Lumber Wood Products	Process Refrig	Adjustable speed drive on compressors	12%	10	\$0.16	34%	\$0.03	48
California	Lumber Wood Products	Process Refrig	Optimization of operating parameters	13%	3	\$0.06	85%	\$0.03	76
California	Lumber Wood Products	Process Refrig	Synchronous Belts	1%	10	\$0.21	21%	\$0.04	2
California	Lumber Wood Products	Pumps	High Efficiency Motors	1%	15	\$0.44	72%	\$0.06	39
California	Lumber Wood Products	Pumps	Improved Controls	30%	10	\$0.12	32%	\$0.02	439
California	Lumber Wood Products	Pumps	Motor rewinds	1%	15	\$0.24	5%	\$0.03	1
California	Lumber Wood Products	Pumps	Pump Energy Management	8%	10	\$0.07	30%	\$0.04	52

Table C.2.3. Industrial Measure Details

State	Segment	End Use	Measure Name	Percnet of End Use Consumption Saved	Measure Life	Incremental Cost per kWh	Measure Applicability	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
California	Lumber Wood Products	Pumps	Pump Equipment Upgrade	20%	10	\$0.13	32%	\$0.05	252
California	Lumber Wood Products	Pumps	Pump System Optimization	12%	12	\$0.26	15%	-\$0.02	47
California	Lumber Wood Products	Pumps	Synchronous Belts	1%	10	\$0.21	20%	\$0.04	9
California	Miscellaneous Mfg	Fans	Efficient Centrifugal Fan	20%	10	\$0.18	11%	\$0.03	0.85
California	Miscellaneous Mfg	Fans	Fan System Optimization	8%	10	\$0.20	30%	\$0.03	0.53
California	Miscellaneous Mfg	Fans	High Efficiency Motors	1%	15	\$0.44	76%	\$0.06	0.41
California	Miscellaneous Mfg	Fans	Improved Controls	6%	10	\$0.09	34%	\$0.05	0.79
California	Miscellaneous Mfg	Fans	Properly Sized Fans	10%	10	\$0.16	15%	\$0.04	0.60
California	Miscellaneous Mfg	Fans	Synchronous Belts	1%	10	\$0.21	21%	\$0.04	0.09
California	Miscellaneous Mfg	Hvac	Equipment Upgrades	33%	12	\$0.12	32%	\$0.02	13
California	Miscellaneous Mfg	Hvac	Improved Controls	21%	10	\$0.05	33%	-\$0.04	10
California	Miscellaneous Mfg	Hvac	Recommissioning	5%	10	\$0.03	74%	-\$0.02	5
California	Miscellaneous Mfg	Lighting	Efficient Lighting 1 Shift	20%	10	\$0.08	5%	\$0.01	1
California	Miscellaneous Mfg	Lighting	Efficient Lighting 2 Shift	20%	10	\$0.05	2%	\$0.01	0.35
California	Miscellaneous Mfg	Lighting	Efficient Lighting 3 Shift	20%	10	\$0.03	13%	\$0.00	2
California	Miscellaneous Mfg	Lighting	HighBay Lighting 1 Shift	48%	10	\$0.24	8%	\$0.04	3
California	Miscellaneous Mfg	Lighting	HighBay Lighting 2 Shift	48%	10	\$0.14	3%	\$0.02	1
California	Miscellaneous Mfg	Lighting	HighBay Lighting 3 Shift	48%	10	\$0.08	19%	\$0.01	9
California	Miscellaneous Mfg	Lighting	Lighting Controls	18%	10	\$0.13	28%	\$0.02	4
California	Miscellaneous Mfg	Motors Other	High Efficiency Motors	1%	15	\$0.44	75%	\$0.06	1
California	Miscellaneous Mfg	Motors Other	Improved Controls	3%	10	\$0.10	34%	\$0.02	1
California	Miscellaneous Mfg	Motors Other	Material Handling	5%	10	\$0.47	53%	\$0.08	3
California	Miscellaneous Mfg	Motors Other	Material Handling VFD	19%	10	\$0.30	53%	\$0.05	15
California	Miscellaneous Mfg	Motors Other	Motor Management Plan	3%	10	\$0.07	50%	\$0.02	1
California	Miscellaneous Mfg	Motors Other	Motors Other	1%	15	\$0.02	90%	\$0.00	1
California	Miscellaneous Mfg	Motors Other	Motors: Rewind 101-200 HP	1%	15	\$0.25	7%	\$0.03	0.05
California	Miscellaneous Mfg	Motors Other	Motors: Rewind 20-50 HP	1%	15	\$0.34	5%	\$0.04	0.06
California	Miscellaneous Mfg	Motors Other	Motors: Rewind 201-500 HP	1%	15	\$0.16	4%	\$0.02	0.03
California	Miscellaneous Mfg	Motors Other	Motors: Rewind 500+ HP	1%	15	\$0.14	4%	\$0.02	0.03
California	Miscellaneous Mfg	Motors Other	Motors: Rewind 51-100 HP	1%	15	\$0.31	7%	\$0.04	0.06
California	Miscellaneous Mfg	Motors Other	Switch from Belt drive to Direct Drive	8%	12	\$0.21	10%	\$0.03	1
California	Miscellaneous Mfg	Motors Other	Synchronous Belts	1%	10	\$0.21	21%	\$0.04	0.36
California	Miscellaneous Mfg	Other	Bldg Improvements	20%	15	\$0.13	35%	-\$0.03	2
California	Miscellaneous Mfg	Other	Energy Project Management	29%	11	\$0.12	27%	\$0.05	1
California	Miscellaneous Mfg	Other	Integrated Plant Energy Management	50%	11	\$0.20	22%	-\$0.00	1
California	Miscellaneous Mfg	Other	Plant Energy Management	12%	10	\$0.02	27%	\$0.03	0.47
California	Miscellaneous Mfg	Other	Transformers	2%	30	\$0.20	80%	\$0.02	0.32
California	Miscellaneous Mfg	Process Aircomp	Air Compressor Demand Reduction	16%	10	\$0.05	26%	\$0.03	1
California	Miscellaneous Mfg	Process Aircomp	Air Compressor Equipment	9%	10	\$0.13	17%	\$0.05	0.43
California	Miscellaneous Mfg	Process Aircomp	Air Compressor Optimization	30%	10	\$0.11	36%	-\$0.01	2
California	Miscellaneous Mfg	Process Aircomp	High efficiency Compressor motors	1%	15	\$0.34	75%	\$0.04	0.24
California	Miscellaneous Mfg	Process Aircomp	Improved Controls	19%	10	\$0.03	34%	\$0.01	2
California	Miscellaneous Mfg	Process Aircomp	Motor Management Plan	3%	10	\$0.07	50%	\$0.02	0.26
California	Miscellaneous Mfg	Process Cool	Equipment: Chillers	18%	20	\$0.26	8%	\$0.03	0.61
California	Miscellaneous Mfg	Process Cool	Improved Controls	6%	15	\$0.88	34%	\$0.11	0.85
California	Miscellaneous Mfg	Process Heat	Improved Controls	30%	15	\$0.05	36%	-\$0.09	7
California	Miscellaneous Mfg	Process Heat	Process Heat O&M	29%	2	\$0.05	70%	\$0.04	6
California	Miscellaneous Mfg	Process Refrig	Adjustable speed drive on compressors	12%	10	\$0.16	34%	\$0.03	0.01
California	Miscellaneous Mfg	Process Refrig	Cold Storage Retrofit	21%	10	\$0.20	26%	\$0.03	0.01
California	Miscellaneous Mfg	Process Refrig	Cold Storage Tuneup	16%	3	\$0.04	10%	\$0.02	0.00
California	Miscellaneous Mfg	Process Refrig	Optimization of operating parameters	13%	3	\$0.06	85%	\$0.03	0.01
California	Miscellaneous Mfg	Process Refrig	Synchronous Belts	1%	10	\$0.21	21%	\$0.04	0.00

Table C.2.3. Industrial Measure Details

State	Segment	End Use	Measure Name	Percnet of End Use Consumption Saved	Measure Life	Incremental Cost per kWh	Measure Applicability	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
California	Miscellaneous Mfg	Pumps	High Efficiency Motors	1%	15	\$0.44	76%	\$0.06	0.20
California	Miscellaneous Mfg	Pumps	Improved Controls	30%	10	\$0.12	34%	\$0.02	2
California	Miscellaneous Mfg	Pumps	Motor rewinds	1%	15	\$0.24	5%	\$0.03	0.00
California	Miscellaneous Mfg	Pumps	Pump Energy Management	8%	10	\$0.07	31%	\$0.04	0.27
California	Miscellaneous Mfg	Pumps	Pump Equipment Upgrade	20%	10	\$0.13	34%	\$0.05	1
California	Miscellaneous Mfg	Pumps	Pump System Optimization	12%	12	\$0.26	16%	\$-0.02	0.25
California	Miscellaneous Mfg	Pumps	Synchronous Belts	1%	10	\$0.21	21%	\$0.04	0.04
California	Wastewater	Lighting	Efficient Lighting 1 Shift	20%	10	\$0.08	5%	\$0.01	0.24
California	Wastewater	Lighting	Efficient Lighting 2 Shift	20%	10	\$0.05	2%	\$0.01	0.08
California	Wastewater	Lighting	Efficient Lighting 3 Shift	20%	10	\$0.03	13%	\$0.00	0.60
California	Wastewater	Lighting	HighBay Lighting 1 Shift	48%	10	\$0.24	8%	\$0.04	0.73
California	Wastewater	Lighting	HighBay Lighting 2 Shift	48%	10	\$0.14	3%	\$0.02	0.24
California	Wastewater	Lighting	HighBay Lighting 3 Shift	48%	10	\$0.08	19%	\$0.01	2
California	Wastewater	Lighting	Lighting Controls	18%	10	\$0.13	28%	\$0.02	1
California	Wastewater	Other	Bldg Improvements	20%	15	\$0.13	35%	\$-0.03	12
California	Wastewater	Other	Energy Project Management	29%	11	\$0.12	27%	\$0.05	6
California	Wastewater	Other	Integrated Plant Energy Management	50%	11	\$0.20	22%	\$-0.00	10
California	Wastewater	Other	Plant Energy Management	12%	10	\$0.02	27%	\$0.03	2
California	Wastewater	Other	Transformers	2%	30	\$0.20	80%	\$0.02	1
California	Wastewater	Process Aircomp	Air Compressor Demand Reduction	16%	10	\$0.05	26%	\$0.03	28
California	Wastewater	Process Aircomp	Air Compressor Equipment	9%	10	\$0.13	17%	\$0.05	9
California	Wastewater	Process Aircomp	Air Compressor Optimization	30%	10	\$0.11	36%	\$-0.01	52
California	Wastewater	Process Aircomp	High efficiency Compressor motors	1%	15	\$0.34	75%	\$0.04	5
California	Wastewater	Process Aircomp	Improved Controls	19%	10	\$0.03	34%	\$0.01	46
California	Wastewater	Process Aircomp	Motor Management Plan	3%	10	\$0.07	50%	\$0.02	5
California	Wastewater	Pumps	High Efficiency Motors	1%	15	\$0.44	75%	\$0.06	1
California	Wastewater	Pumps	Improved Controls	30%	10	\$0.12	34%	\$0.02	22
California	Wastewater	Pumps	Motor rewinds	1%	15	\$0.24	5%	\$0.03	0.06
California	Wastewater	Pumps	Pump Energy Management	8%	10	\$0.07	31%	\$0.04	2
California	Wastewater	Pumps	Pump Equipment Upgrade	20%	10	\$0.13	34%	\$0.05	12
California	Wastewater	Pumps	Pump System Optimization	12%	12	\$0.26	15%	\$-0.02	2
California	Wastewater	Pumps	Synchronous Belts	1%	10	\$0.21	21%	\$0.04	0.46
California	Water	Fans	Efficient Centrifugal Fan	20%	10	\$0.18	11%	\$0.03	5
California	Water	Fans	Fan System Optimization	8%	10	\$0.20	30%	\$0.03	3
California	Water	Fans	High Efficiency Motors	1%	15	\$0.44	75%	\$0.06	2
California	Water	Fans	Improved Controls	6%	10	\$0.09	34%	\$0.05	5
California	Water	Fans	Properly Sized Fans	10%	10	\$0.16	15%	\$0.04	3
California	Water	Fans	Synchronous Belts	1%	10	\$0.21	21%	\$0.04	0.58
California	Water	Lighting	Efficient Lighting 1 Shift	20%	10	\$0.08	5%	\$0.01	0.50
California	Water	Lighting	Efficient Lighting 2 Shift	20%	10	\$0.05	2%	\$0.01	0.16
California	Water	Lighting	Efficient Lighting 3 Shift	20%	10	\$0.03	13%	\$0.00	1
California	Water	Lighting	HighBay Lighting 1 Shift	48%	10	\$0.24	8%	\$0.04	1
California	Water	Lighting	HighBay Lighting 2 Shift	48%	10	\$0.14	3%	\$0.02	0.51
California	Water	Lighting	HighBay Lighting 3 Shift	48%	10	\$0.08	19%	\$0.01	4
California	Water	Lighting	Lighting Controls	18%	10	\$0.13	28%	\$0.02	2
California	Water	Motors Other	High Efficiency Motors	1%	15	\$0.44	75%	\$0.06	2
California	Water	Motors Other	Improved Controls	3%	10	\$0.10	34%	\$0.02	3
California	Water	Motors Other	Material Handling	5%	10	\$0.47	53%	\$0.08	5
California	Water	Motors Other	Material Handling VFD	19%	10	\$0.30	53%	\$0.05	24
California	Water	Motors Other	Motor Management Plan	3%	10	\$0.07	50%	\$0.02	2
California	Water	Motors Other	Motors Other	1%	15	\$0.02	90%	\$0.00	1
California	Water	Motors Other	Motors: Rewind 101-200 HP	1%	15	\$0.25	7%	\$0.03	0.08

Table C.2.3. Industrial Measure Details

State	Segment	End Use	Measure Name	Percnet of End Use Consumption Saved	Measure Life	Incremental Cost per kWh	Measure Applicability	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
California	Water	Motors Other	Motors: Rewind 20-50 HP	1%	15	\$0.34	5%	\$0.04	0.10
California	Water	Motors Other	Motors: Rewind 201-500 HP	1%	15	\$0.16	4%	\$0.02	0.05
California	Water	Motors Other	Motors: Rewind 500+ HP	1%	15	\$0.14	4%	\$0.02	0.05
California	Water	Motors Other	Motors: Rewind 51-100 HP	1%	15	\$0.31	7%	\$0.04	0.10
California	Water	Motors Other	Switch from Belt drive to Direct Drive	8%	12	\$0.21	11%	\$0.03	1
California	Water	Motors Other	Synchronous Belts	1%	10	\$0.21	21%	\$0.04	0.58
California	Water	Other	Bldg Improvements	20%	15	\$0.13	35%	-\$0.03	26
California	Water	Other	Energy Project Management	29%	11	\$0.12	27%	\$0.05	13
California	Water	Other	Integrated Plant Energy Management	50%	11	\$0.20	22%	-\$0.00	22
California	Water	Other	Plant Energy Management	12%	10	\$0.02	27%	\$0.03	5
California	Water	Other	Transformers	2%	30	\$0.20	80%	\$0.02	3
California	Water	Pumps	High Efficiency Motors	1%	15	\$0.44	75%	\$0.06	14
California	Water	Pumps	Improved Controls	30%	10	\$0.12	34%	\$0.02	168
California	Water	Pumps	Motor rewinds	1%	15	\$0.24	5%	\$0.03	0.46
California	Water	Pumps	Pump Energy Management	8%	10	\$0.07	31%	\$0.04	20
California	Water	Pumps	Pump Equipment Upgrade	20%	10	\$0.13	34%	\$0.05	96
California	Water	Pumps	Pump System Optimization	12%	12	\$0.26	15%	-\$0.02	18
California	Water	Pumps	Synchronous Belts	1%	10	\$0.21	21%	\$0.04	3
Idaho	Chemical Mfg	Fans	Efficient Centrifugal Fan	20%	10	\$0.18	10%	\$0.03	278
Idaho	Chemical Mfg	Fans	Fan System Optimization	8%	10	\$0.20	29%	\$0.03	174
Idaho	Chemical Mfg	Fans	High Efficiency Motors	1%	15	\$0.44	73%	\$0.06	136
Idaho	Chemical Mfg	Fans	Improved Controls	6%	10	\$0.09	33%	\$0.05	258
Idaho	Chemical Mfg	Fans	Property Sized Fans	10%	10	\$0.16	15%	\$0.04	198
Idaho	Chemical Mfg	Fans	Synchronous Belts	1%	10	\$0.21	21%	\$0.04	29
Idaho	Chemical Mfg	Hvac	Equipment Upgrades	33%	12	\$0.12	31%	\$0.02	1,069
Idaho	Chemical Mfg	Hvac	Improved Controls	21%	10	\$0.05	33%	-\$0.04	787
Idaho	Chemical Mfg	Hvac	Recommissioning	5%	10	\$0.03	73%	-\$0.02	390
Idaho	Chemical Mfg	Lighting	Efficient Lighting 1 Shift	20%	10	\$0.08	8%	\$0.01	131
Idaho	Chemical Mfg	Lighting	Efficient Lighting 2 Shift	20%	10	\$0.05	3%	\$0.01	43
Idaho	Chemical Mfg	Lighting	Efficient Lighting 3 Shift	20%	10	\$0.03	20%	\$0.00	332
Idaho	Chemical Mfg	Lighting	HighBay Lighting 1 Shift	48%	10	\$0.24	12%	\$0.04	371
Idaho	Chemical Mfg	Lighting	HighBay Lighting 2 Shift	48%	10	\$0.14	4%	\$0.02	126
Idaho	Chemical Mfg	Lighting	HighBay Lighting 3 Shift	48%	10	\$0.08	29%	\$0.01	1,124
Idaho	Chemical Mfg	Lighting	Lighting Controls	18%	10	\$0.13	28%	\$0.02	357
Idaho	Chemical Mfg	Motors Other	High Efficiency Motors	1%	15	\$0.44	74%	\$0.06	288
Idaho	Chemical Mfg	Motors Other	Improved Controls	3%	10	\$0.10	33%	\$0.02	350
Idaho	Chemical Mfg	Motors Other	Material Handling	5%	10	\$0.47	52%	\$0.08	681
Idaho	Chemical Mfg	Motors Other	Material Handling VFD	19%	10	\$0.30	52%	\$0.05	2,856
Idaho	Chemical Mfg	Motors Other	Motor Management Plan	3%	10	\$0.07	49%	\$0.02	250
Idaho	Chemical Mfg	Motors Other	Motors Other	1%	15	\$0.02	89%	\$0.00	214
Idaho	Chemical Mfg	Motors Other	Motors: Rewind 101-200 HP	1%	15	\$0.25	7%	\$0.03	9
Idaho	Chemical Mfg	Motors Other	Motors: Rewind 20-50 HP	1%	15	\$0.34	5%	\$0.04	12
Idaho	Chemical Mfg	Motors Other	Motors: Rewind 201-500 HP	1%	15	\$0.16	4%	\$0.02	5
Idaho	Chemical Mfg	Motors Other	Motors: Rewind 500+ HP	1%	15	\$0.14	4%	\$0.02	5
Idaho	Chemical Mfg	Motors Other	Motors: Rewind 51-100 HP	1%	15	\$0.31	7%	\$0.04	11
Idaho	Chemical Mfg	Motors Other	Switch from Belt drive to Direct Drive	8%	12	\$0.21	10%	\$0.03	229
Idaho	Chemical Mfg	Motors Other	Synchronous Belts	1%	10	\$0.21	21%	\$0.04	67
Idaho	Chemical Mfg	Other	Bldg Improvements	20%	15	\$0.13	35%	-\$0.03	244
Idaho	Chemical Mfg	Other	Energy Project Management	29%	11	\$0.12	27%	\$0.05	124
Idaho	Chemical Mfg	Other	Integrated Plant Energy Management	50%	11	\$0.20	22%	-\$0.00	205
Idaho	Chemical Mfg	Other	Plant Energy Management	12%	10	\$0.02	27%	\$0.03	53
Idaho	Chemical Mfg	Other	Transformers	2%	30	\$0.20	80%	\$0.02	36

Table C.2.3. Industrial Measure Details

State	Segment	End Use	Measure Name	Percnet of End Use Consumption Saved	Measure Life	Incremental Cost per kWh	Measure Applicability	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Idaho	Chemical Mfg	Process Aircomp	Air Compressor Demand Reduction	16%	10	\$0.05	28%	\$0.03	1,144
Idaho	Chemical Mfg	Process Aircomp	Air Compressor Equipment	9%	10	\$0.13	18%	\$0.05	390
Idaho	Chemical Mfg	Process Aircomp	Air Compressor Optimization	30%	10	\$0.11	38%	\$-0.01	2,147
Idaho	Chemical Mfg	Process Aircomp	High efficiency Compressor motors	1%	15	\$0.34	81%	\$0.04	217
Idaho	Chemical Mfg	Process Aircomp	Improved Controls	19%	10	\$0.03	36%	\$0.01	1,894
Idaho	Chemical Mfg	Process Aircomp	Motor Management Plan	3%	10	\$0.07	54%	\$0.02	238
Idaho	Chemical Mfg	Process Cool	Clean Room: Change Filter Strategy	40%	1	\$0.01	10%	\$0.01	671
Idaho	Chemical Mfg	Process Cool	Clean Room: Chiller Optimize	15%	10	\$0.08	28%	\$0.01	677
Idaho	Chemical Mfg	Process Cool	Clean Room: Clean Room HVAC	9%	20	\$0.16	30%	\$0.02	417
Idaho	Chemical Mfg	Process Cool	Equipment: Chillers	18%	20	\$0.26	8%	\$0.03	214
Idaho	Chemical Mfg	Process Cool	Improved Controls	6%	15	\$0.88	34%	\$0.11	299
Idaho	Chemical Mfg	Process Heat	Improved Controls	30%	15	\$0.05	33%	\$-0.09	660
Idaho	Chemical Mfg	Process Heat	Process Heat O&M	29%	2	\$0.05	63%	\$0.04	633
Idaho	Chemical Mfg	Process Refrig	Adjustable speed drive on compressors	12%	10	\$0.16	34%	\$0.03	343
Idaho	Chemical Mfg	Process Refrig	Cold Storage Retrofit	21%	10	\$0.20	26%	\$0.03	440
Idaho	Chemical Mfg	Process Refrig	Cold Storage Tuneup	16%	3	\$0.04	10%	\$0.02	137
Idaho	Chemical Mfg	Process Refrig	Optimization of operating parameters	13%	3	\$0.06	85%	\$0.03	514
Idaho	Chemical Mfg	Process Refrig	Synchronous Belts	1%	10	\$0.21	21%	\$0.04	16
Idaho	Chemical Mfg	Pumps	High Efficiency Motors	1%	15	\$0.44	76%	\$0.06	272
Idaho	Chemical Mfg	Pumps	Improved Controls	30%	10	\$0.12	34%	\$0.02	3,092
Idaho	Chemical Mfg	Pumps	Motor rewinds	1%	15	\$0.24	5%	\$0.03	8
Idaho	Chemical Mfg	Pumps	Pump Energy Management	8%	10	\$0.07	31%	\$0.04	368
Idaho	Chemical Mfg	Pumps	Pump Equipment Upgrade	20%	10	\$0.13	34%	\$0.05	1,763
Idaho	Chemical Mfg	Pumps	Synchronous Belts	1%	10	\$0.21	21%	\$0.04	63
Idaho	Food Mfg	Fans	Efficient Centrifugal Fan	20%	10	\$0.18	11%	\$0.03	80
Idaho	Food Mfg	Fans	Fan System Optimization	8%	10	\$0.20	30%	\$0.03	50
Idaho	Food Mfg	Fans	High Efficiency Motors	1%	15	\$0.44	75%	\$0.06	39
Idaho	Food Mfg	Fans	Improved Controls	6%	10	\$0.09	34%	\$0.05	74
Idaho	Food Mfg	Fans	Properly Sized Fans	10%	10	\$0.16	15%	\$0.04	57
Idaho	Food Mfg	Fans	Synchronous Belts	1%	10	\$0.21	21%	\$0.04	8
Idaho	Food Mfg	Hvac	Equipment Upgrades	33%	12	\$0.12	31%	\$0.02	654
Idaho	Food Mfg	Hvac	Improved Controls	21%	10	\$0.05	33%	\$-0.04	481
Idaho	Food Mfg	Hvac	Recommissioning	5%	10	\$0.03	73%	\$-0.02	238
Idaho	Food Mfg	Lighting	Efficient Lighting 1 Shift	20%	10	\$0.08	4%	\$0.01	58
Idaho	Food Mfg	Lighting	Efficient Lighting 2 Shift	20%	10	\$0.05	3%	\$0.01	43
Idaho	Food Mfg	Lighting	Efficient Lighting 3 Shift	20%	10	\$0.03	12%	\$0.00	158
Idaho	Food Mfg	Lighting	HighBay Lighting 1 Shift	48%	10	\$0.24	7%	\$0.04	176
Idaho	Food Mfg	Lighting	HighBay Lighting 2 Shift	48%	10	\$0.14	5%	\$0.02	134
Idaho	Food Mfg	Lighting	HighBay Lighting 3 Shift	48%	10	\$0.08	18%	\$0.01	549
Idaho	Food Mfg	Lighting	Lighting Controls	18%	10	\$0.13	28%	\$0.02	309
Idaho	Food Mfg	Motors Other	High Efficiency Motors	1%	15	\$0.44	73%	\$0.06	186
Idaho	Food Mfg	Motors Other	Improved Controls	3%	10	\$0.10	33%	\$0.02	226
Idaho	Food Mfg	Motors Other	Material Handling	5%	10	\$0.47	52%	\$0.08	440
Idaho	Food Mfg	Motors Other	Material Handling VFD	19%	10	\$0.30	52%	\$0.05	1,845
Idaho	Food Mfg	Motors Other	Motor Management Plan	3%	10	\$0.07	49%	\$0.02	161
Idaho	Food Mfg	Motors Other	Motors Other	1%	15	\$0.02	88%	\$0.00	138
Idaho	Food Mfg	Motors Other	Motors: Rewind 101-200 HP	1%	15	\$0.25	7%	\$0.03	6
Idaho	Food Mfg	Motors Other	Motors: Rewind 20-50 HP	1%	15	\$0.34	5%	\$0.04	7
Idaho	Food Mfg	Motors Other	Motors: Rewind 201-500 HP	1%	15	\$0.16	4%	\$0.02	3
Idaho	Food Mfg	Motors Other	Motors: Rewind 500+ HP	1%	15	\$0.14	4%	\$0.02	3
Idaho	Food Mfg	Motors Other	Motors: Rewind 51-100 HP	1%	15	\$0.31	7%	\$0.04	7
Idaho	Food Mfg	Motors Other	Switch from Belt drive to Direct Drive	8%	12	\$0.21	10%	\$0.03	148

Table C.2.3. Industrial Measure Details

State	Segment	End Use	Measure Name	Percnet of End Use Consumption Saved	Measure Life	Incremental Cost per kWh	Measure Applicability	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Idaho	Food Mfg	Motors Other	Synchronous Belts	1%	10	\$0.21	20%	\$0.04	43
Idaho	Food Mfg	Other	Bldg Improvements	20%	15	\$0.13	35%	\$-0.03	524
Idaho	Food Mfg	Other	Energy Project Management	29%	11	\$0.12	27%	\$0.05	267
Idaho	Food Mfg	Other	Integrated Plant Energy Management	50%	11	\$0.20	22%	\$-0.00	441
Idaho	Food Mfg	Other	Plant Energy Management	12%	10	\$0.02	27%	\$0.03	114
Idaho	Food Mfg	Other	Transformers	2%	30	\$0.20	80%	\$0.02	77
Idaho	Food Mfg	Process Aircomp	Air Compressor Demand Reduction	16%	10	\$0.05	26%	\$0.03	132
Idaho	Food Mfg	Process Aircomp	Air Compressor Equipment	9%	10	\$0.13	17%	\$0.05	45
Idaho	Food Mfg	Process Aircomp	Air Compressor Optimization	30%	10	\$0.11	35%	\$-0.01	243
Idaho	Food Mfg	Process Aircomp	High efficiency Compressor motors	1%	15	\$0.34	74%	\$0.04	25
Idaho	Food Mfg	Process Aircomp	Improved Controls	19%	10	\$0.03	33%	\$0.01	217
Idaho	Food Mfg	Process Aircomp	Motor Management Plan	3%	10	\$0.07	49%	\$0.02	27
Idaho	Food Mfg	Process Cool	Equipment: Chillers	18%	20	\$0.26	8%	\$0.03	379
Idaho	Food Mfg	Process Cool	Improved Controls	6%	15	\$0.88	35%	\$0.11	529
Idaho	Food Mfg	Process Heat	Improved Controls	30%	15	\$0.05	34%	\$-0.09	320
Idaho	Food Mfg	Process Heat	Process Heat O&M	29%	2	\$0.05	65%	\$0.04	306
Idaho	Food Mfg	Process Refrig	Adjustable speed drive on compressors	12%	10	\$0.16	34%	\$0.03	580
Idaho	Food Mfg	Process Refrig	Food: Cooling and Storage	15%	10	\$0.20	15%	\$0.03	249
Idaho	Food Mfg	Process Refrig	Food: Refrig Storage Tuneup	14%	3	\$0.04	8%	\$0.02	161
Idaho	Food Mfg	Process Refrig	Fruit Storage Refer Retrofit	38%	10	\$0.17	61%	\$0.03	3,260
Idaho	Food Mfg	Process Refrig	Fruit Storage Tuneup	16%	3	\$0.04	10%	\$0.02	232
Idaho	Food Mfg	Process Refrig	Optimization of operating parameters	13%	3	\$0.06	85%	\$0.03	688
Idaho	Food Mfg	Process Refrig	Synchronous Belts	1%	10	\$0.21	21%	\$0.04	22
Idaho	Food Mfg	Pumps	High Efficiency Motors	1%	15	\$0.44	74%	\$0.06	73
Idaho	Food Mfg	Pumps	Improved Controls	30%	10	\$0.12	33%	\$0.02	830
Idaho	Food Mfg	Pumps	Motor rewinds	1%	15	\$0.24	5%	\$0.03	2
Idaho	Food Mfg	Pumps	Pump Energy Management	8%	10	\$0.07	30%	\$0.04	99
Idaho	Food Mfg	Pumps	Pump Equipment Upgrade	20%	10	\$0.13	33%	\$0.05	475
Idaho	Food Mfg	Pumps	Pump System Optimization	12%	12	\$0.26	15%	\$-0.02	90
Idaho	Food Mfg	Pumps	Synchronous Belts	1%	10	\$0.21	21%	\$0.04	17
Idaho	Miscellaneous Mfg	Fans	Efficient Centrifugal Fan	20%	10	\$0.18	11%	\$0.03	36
Idaho	Miscellaneous Mfg	Fans	Fan System Optimization	8%	10	\$0.20	30%	\$0.03	22
Idaho	Miscellaneous Mfg	Fans	High Efficiency Motors	1%	15	\$0.44	76%	\$0.06	17
Idaho	Miscellaneous Mfg	Fans	Improved Controls	6%	10	\$0.09	34%	\$0.05	33
Idaho	Miscellaneous Mfg	Fans	Properly Sized Fans	10%	10	\$0.16	15%	\$0.04	25
Idaho	Miscellaneous Mfg	Fans	Synchronous Belts	1%	10	\$0.21	21%	\$0.04	3
Idaho	Miscellaneous Mfg	Hvac	Equipment Upgrades	33%	12	\$0.12	32%	\$0.02	587
Idaho	Miscellaneous Mfg	Hvac	Improved Controls	21%	10	\$0.05	33%	\$-0.04	433
Idaho	Miscellaneous Mfg	Hvac	Recommissioning	5%	10	\$0.03	74%	\$-0.02	214
Idaho	Miscellaneous Mfg	Lighting	Efficient Lighting 1 Shift	20%	10	\$0.08	5%	\$0.01	45
Idaho	Miscellaneous Mfg	Lighting	Efficient Lighting 2 Shift	20%	10	\$0.05	2%	\$0.01	15
Idaho	Miscellaneous Mfg	Lighting	Efficient Lighting 3 Shift	20%	10	\$0.03	13%	\$0.00	112
Idaho	Miscellaneous Mfg	Lighting	HighBay Lighting 1 Shift	48%	10	\$0.24	8%	\$0.04	136
Idaho	Miscellaneous Mfg	Lighting	HighBay Lighting 2 Shift	48%	10	\$0.14	3%	\$0.02	45
Idaho	Miscellaneous Mfg	Lighting	HighBay Lighting 3 Shift	48%	10	\$0.08	19%	\$0.01	387
Idaho	Miscellaneous Mfg	Lighting	Lighting Controls	18%	10	\$0.13	28%	\$0.02	202
Idaho	Miscellaneous Mfg	Motors Other	High Efficiency Motors	1%	15	\$0.44	75%	\$0.06	65
Idaho	Miscellaneous Mfg	Motors Other	Improved Controls	3%	10	\$0.10	34%	\$0.02	79
Idaho	Miscellaneous Mfg	Motors Other	Material Handling	5%	10	\$0.47	53%	\$0.08	154
Idaho	Miscellaneous Mfg	Motors Other	Material Handling VFD	19%	10	\$0.30	53%	\$0.05	648
Idaho	Miscellaneous Mfg	Motors Other	Motor Management Plan	3%	10	\$0.07	50%	\$0.02	56
Idaho	Miscellaneous Mfg	Motors Other	Motors Other	1%	15	\$0.02	90%	\$0.00	48

Table C.2.3. Industrial Measure Details

State	Segment	End Use	Measure Name	Percnet of End Use Consumption Saved	Measure Life	Incremental Cost per kWh	Measure Applicability	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Idaho	Miscellaneous Mfg	Motors Other	Motors: Rewind 101-200 HP	1%	15	\$0.25	7%	\$0.03	2
Idaho	Miscellaneous Mfg	Motors Other	Motors: Rewind 20-50 HP	1%	15	\$0.34	5%	\$0.04	2
Idaho	Miscellaneous Mfg	Motors Other	Motors: Rewind 201-500 HP	1%	15	\$0.16	4%	\$0.02	1
Idaho	Miscellaneous Mfg	Motors Other	Motors: Rewind 500+ HP	1%	15	\$0.14	4%	\$0.02	1
Idaho	Miscellaneous Mfg	Motors Other	Motors: Rewind 51-100 HP	1%	15	\$0.31	7%	\$0.04	2
Idaho	Miscellaneous Mfg	Motors Other	Switch from Belt drive to Direct Drive	8%	12	\$0.21	10%	\$0.03	52
Idaho	Miscellaneous Mfg	Motors Other	Synchronous Belts	1%	10	\$0.21	21%	\$0.04	15
Idaho	Miscellaneous Mfg	Other	Bldg Improvements	20%	15	\$0.13	35%	\$-0.03	92
Idaho	Miscellaneous Mfg	Other	Energy Project Management	29%	11	\$0.12	27%	\$0.05	47
Idaho	Miscellaneous Mfg	Other	Integrated Plant Energy Management	50%	11	\$0.20	22%	\$-0.00	77
Idaho	Miscellaneous Mfg	Other	Plant Energy Management	12%	10	\$0.02	27%	\$0.03	20
Idaho	Miscellaneous Mfg	Other	Transformers	2%	30	\$0.20	80%	\$0.02	13
Idaho	Miscellaneous Mfg	Process Aircomp	Air Compressor Demand Reduction	16%	10	\$0.05	26%	\$0.03	54
Idaho	Miscellaneous Mfg	Process Aircomp	Air Compressor Equipment	9%	10	\$0.13	17%	\$0.05	18
Idaho	Miscellaneous Mfg	Process Aircomp	Air Compressor Optimization	30%	10	\$0.11	36%	\$-0.01	100
Idaho	Miscellaneous Mfg	Process Aircomp	High efficiency Compressor motors	1%	15	\$0.34	75%	\$0.04	10
Idaho	Miscellaneous Mfg	Process Aircomp	Improved Controls	19%	10	\$0.03	34%	\$0.01	89
Idaho	Miscellaneous Mfg	Process Aircomp	Motor Management Plan	3%	10	\$0.07	50%	\$0.02	11
Idaho	Miscellaneous Mfg	Process Cool	Equipment: Chillers	18%	20	\$0.26	8%	\$0.03	26
Idaho	Miscellaneous Mfg	Process Cool	Improved Controls	6%	15	\$0.88	34%	\$0.11	36
Idaho	Miscellaneous Mfg	Process Heat	Improved Controls	30%	15	\$0.05	36%	\$-0.09	311
Idaho	Miscellaneous Mfg	Process Heat	Process Heat O&M	29%	2	\$0.05	70%	\$0.04	295
Idaho	Miscellaneous Mfg	Process Refrig	Adjustable speed drive on compressors	12%	10	\$0.16	34%	\$0.03	0.43
Idaho	Miscellaneous Mfg	Process Refrig	Cold Storage Retrofit	21%	10	\$0.20	26%	\$0.03	0.55
Idaho	Miscellaneous Mfg	Process Refrig	Cold Storage Tuneup	16%	3	\$0.04	10%	\$0.02	0.17
Idaho	Miscellaneous Mfg	Process Refrig	Optimization of operating parameters	13%	3	\$0.06	85%	\$0.03	0.64
Idaho	Miscellaneous Mfg	Process Refrig	Synchronous Belts	1%	10	\$0.21	21%	\$0.04	0.02
Idaho	Miscellaneous Mfg	Pumps	High Efficiency Motors	1%	15	\$0.44	76%	\$0.06	8
Idaho	Miscellaneous Mfg	Pumps	Improved Controls	30%	10	\$0.12	34%	\$0.02	98
Idaho	Miscellaneous Mfg	Pumps	Motor rewinds	1%	15	\$0.24	5%	\$0.03	0.26
Idaho	Miscellaneous Mfg	Pumps	Pump Energy Management	8%	10	\$0.07	31%	\$0.04	11
Idaho	Miscellaneous Mfg	Pumps	Pump Equipment Upgrade	20%	10	\$0.13	34%	\$0.05	55
Idaho	Miscellaneous Mfg	Pumps	Pump System Optimization	12%	12	\$0.26	16%	\$-0.02	10
Idaho	Miscellaneous Mfg	Pumps	Synchronous Belts	1%	10	\$0.21	21%	\$0.04	2
Idaho	Wastewater	Lighting	Efficient Lighting 1 Shift	20%	10	\$0.08	5%	\$0.01	0.84
Idaho	Wastewater	Lighting	Efficient Lighting 2 Shift	20%	10	\$0.05	2%	\$0.01	0.28
Idaho	Wastewater	Lighting	Efficient Lighting 3 Shift	20%	10	\$0.03	13%	\$0.00	2
Idaho	Wastewater	Lighting	HighBay Lighting 1 Shift	48%	10	\$0.24	8%	\$0.04	2
Idaho	Wastewater	Lighting	HighBay Lighting 2 Shift	48%	10	\$0.14	3%	\$0.02	0.86
Idaho	Wastewater	Lighting	HighBay Lighting 3 Shift	48%	10	\$0.08	19%	\$0.01	7
Idaho	Wastewater	Lighting	Lighting Controls	18%	10	\$0.13	28%	\$0.02	3
Idaho	Wastewater	Other	Bldg Improvements	20%	15	\$0.13	35%	\$-0.03	44
Idaho	Wastewater	Other	Energy Project Management	29%	11	\$0.12	27%	\$0.05	22
Idaho	Wastewater	Other	Integrated Plant Energy Management	50%	11	\$0.20	22%	\$-0.00	37
Idaho	Wastewater	Other	Plant Energy Management	12%	10	\$0.02	27%	\$0.03	9
Idaho	Wastewater	Other	Transformers	2%	30	\$0.20	80%	\$0.02	6
Idaho	Wastewater	Process Aircomp	Air Compressor Demand Reduction	16%	10	\$0.05	26%	\$0.03	99
Idaho	Wastewater	Process Aircomp	Air Compressor Equipment	9%	10	\$0.13	17%	\$0.05	34
Idaho	Wastewater	Process Aircomp	Air Compressor Optimization	30%	10	\$0.11	36%	\$-0.01	183
Idaho	Wastewater	Process Aircomp	High efficiency Compressor motors	1%	15	\$0.34	75%	\$0.04	18
Idaho	Wastewater	Process Aircomp	Improved Controls	19%	10	\$0.03	34%	\$0.01	163
Idaho	Wastewater	Process Aircomp	Motor Management Plan	3%	10	\$0.07	50%	\$0.02	20

Table C.2.3. Industrial Measure Details

State	Segment	End Use	Measure Name	Percnet of End Use Consumption Saved	Measure Life	Incremental Cost per kWh	Measure Applicability	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Idaho	Wastewater	Pumps	High Efficiency Motors	1%	15	\$0.44	75%	\$0.06	6
Idaho	Wastewater	Pumps	Improved Controls	30%	10	\$0.12	34%	\$0.02	78
Idaho	Wastewater	Pumps	Motor rewinds	1%	15	\$0.24	5%	\$0.03	0.21
Idaho	Wastewater	Pumps	Pump Energy Management	8%	10	\$0.07	31%	\$0.04	9
Idaho	Wastewater	Pumps	Pump Equipment Upgrade	20%	10	\$0.13	34%	\$0.05	44
Idaho	Wastewater	Pumps	Pump System Optimization	12%	12	\$0.26	15%	\$-0.02	8
Idaho	Wastewater	Pumps	Synchronous Belts	1%	10	\$0.21	21%	\$0.04	1
Idaho	Water	Fans	Efficient Centrifugal Fan	20%	10	\$0.18	11%	\$0.03	21
Idaho	Water	Fans	Fan System Optimization	8%	10	\$0.20	30%	\$0.03	13
Idaho	Water	Fans	High Efficiency Motors	1%	15	\$0.44	75%	\$0.06	10
Idaho	Water	Fans	Improved Controls	6%	10	\$0.09	34%	\$0.05	19
Idaho	Water	Fans	Properly Sized Fans	10%	10	\$0.16	15%	\$0.04	15
Idaho	Water	Fans	Synchronous Belts	1%	10	\$0.21	21%	\$0.04	2
Idaho	Water	Lighting	Efficient Lighting 1 Shift	20%	10	\$0.08	5%	\$0.01	1
Idaho	Water	Lighting	Efficient Lighting 2 Shift	20%	10	\$0.05	2%	\$0.01	0.65
Idaho	Water	Lighting	Efficient Lighting 3 Shift	20%	10	\$0.03	13%	\$0.00	4
Idaho	Water	Lighting	HighBay Lighting 1 Shift	48%	10	\$0.24	8%	\$0.04	5
Idaho	Water	Lighting	HighBay Lighting 2 Shift	48%	10	\$0.14	3%	\$0.02	2
Idaho	Water	Lighting	HighBay Lighting 3 Shift	48%	10	\$0.08	19%	\$0.01	17
Idaho	Water	Lighting	Lighting Controls	18%	10	\$0.13	28%	\$0.02	8
Idaho	Water	Motors Other	High Efficiency Motors	1%	15	\$0.44	75%	\$0.06	9
Idaho	Water	Motors Other	Improved Controls	3%	10	\$0.10	34%	\$0.02	11
Idaho	Water	Motors Other	Material Handling	5%	10	\$0.47	53%	\$0.08	22
Idaho	Water	Motors Other	Material Handling VFD	19%	10	\$0.30	53%	\$0.05	96
Idaho	Water	Motors Other	Motor Management Plan	3%	10	\$0.07	50%	\$0.02	8
Idaho	Water	Motors Other	Motors Other	1%	15	\$0.02	90%	\$0.00	7
Idaho	Water	Motors Other	Motors: Rewind 101-200 HP	1%	15	\$0.25	7%	\$0.03	0.33
Idaho	Water	Motors Other	Motors: Rewind 20-50 HP	1%	15	\$0.34	5%	\$0.04	0.40
Idaho	Water	Motors Other	Motors: Rewind 201-500 HP	1%	15	\$0.16	4%	\$0.02	0.20
Idaho	Water	Motors Other	Motors: Rewind 500+ HP	1%	15	\$0.14	4%	\$0.02	0.20
Idaho	Water	Motors Other	Motors: Rewind 51-100 HP	1%	15	\$0.31	7%	\$0.04	0.39
Idaho	Water	Motors Other	Switch from Belt drive to Direct Drive	8%	12	\$0.21	11%	\$0.03	7
Idaho	Water	Motors Other	Synchronous Belts	1%	10	\$0.21	21%	\$0.04	2
Idaho	Water	Other	Bldg Improvements	20%	15	\$0.13	35%	\$-0.03	104
Idaho	Water	Other	Energy Project Management	29%	11	\$0.12	27%	\$0.05	53
Idaho	Water	Other	Integrated Plant Energy Management	50%	11	\$0.20	22%	\$-0.00	88
Idaho	Water	Other	Plant Energy Management	12%	10	\$0.02	27%	\$0.03	22
Idaho	Water	Other	Transformers	2%	30	\$0.20	80%	\$0.02	15
Idaho	Water	Pumps	High Efficiency Motors	1%	15	\$0.44	75%	\$0.06	58
Idaho	Water	Pumps	Improved Controls	30%	10	\$0.12	34%	\$0.02	662
Idaho	Water	Pumps	Motor rewinds	1%	15	\$0.24	5%	\$0.03	1
Idaho	Water	Pumps	Pump Energy Management	8%	10	\$0.07	31%	\$0.04	79
Idaho	Water	Pumps	Pump Equipment Upgrade	20%	10	\$0.13	34%	\$0.05	378
Idaho	Water	Pumps	Pump System Optimization	12%	12	\$0.26	15%	\$-0.02	72
Idaho	Water	Pumps	Synchronous Belts	1%	10	\$0.21	21%	\$0.04	13
Utah	Chemical Mfg	Fans	Efficient Centrifugal Fan	20%	10	\$0.18	10%	\$0.03	1,490
Utah	Chemical Mfg	Fans	Fan System Optimization	8%	10	\$0.20	29%	\$0.03	930
Utah	Chemical Mfg	Fans	High Efficiency Motors	1%	15	\$0.44	73%	\$0.05	728
Utah	Chemical Mfg	Fans	Improved Controls	6%	10	\$0.09	33%	\$0.01	1,383
Utah	Chemical Mfg	Fans	Properly Sized Fans	10%	10	\$0.16	15%	\$0.02	1,060
Utah	Chemical Mfg	Fans	Synchronous Belts	1%	10	\$0.21	21%	\$0.03	159
Utah	Chemical Mfg	Hvac	Equipment Upgrades	33%	12	\$0.12	31%	\$0.02	5,714

Table C.2.3. Industrial Measure Details

State	Segment	End Use	Measure Name	Percnet of End Use Consumption Saved	Measure Life	Incremental Cost per kWh	Measure Applicability	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Utah	Chemical Mfg	Hvac	Improved Controls	21%	10	\$0.05	33%	\$0.01	4,207
Utah	Chemical Mfg	Hvac	Recommissioning	5%	10	\$0.03	73%	\$0.00	2,085
Utah	Chemical Mfg	Lighting	Efficient Lighting 1 Shift	20%	10	\$0.08	8%	\$0.01	701
Utah	Chemical Mfg	Lighting	Efficient Lighting 2 Shift	20%	10	\$0.05	3%	\$0.01	234
Utah	Chemical Mfg	Lighting	Efficient Lighting 3 Shift	20%	10	\$0.03	20%	\$0.00	1,775
Utah	Chemical Mfg	Lighting	HighBay Lighting 1 Shift	48%	10	\$0.24	12%	\$0.04	1,986
Utah	Chemical Mfg	Lighting	HighBay Lighting 2 Shift	48%	10	\$0.14	4%	\$0.02	673
Utah	Chemical Mfg	Lighting	HighBay Lighting 3 Shift	48%	10	\$0.08	29%	\$0.01	6,011
Utah	Chemical Mfg	Lighting	Lighting Controls	18%	10	\$0.13	28%	\$0.02	1,909
Utah	Chemical Mfg	Motors Other	High Efficiency Motors	1%	15	\$0.44	74%	\$0.05	1,543
Utah	Chemical Mfg	Motors Other	Improved Controls	3%	10	\$0.10	33%	\$0.02	1,871
Utah	Chemical Mfg	Motors Other	Material Handling	5%	10	\$0.47	52%	\$0.07	3,642
Utah	Chemical Mfg	Motors Other	Material Handling VFD	19%	10	\$0.30	52%	\$0.04	15,263
Utah	Chemical Mfg	Motors Other	Motor Management Plan	3%	10	\$0.07	49%	\$0.01	1,339
Utah	Chemical Mfg	Motors Other	Motors Other	1%	15	\$0.02	89%	\$0.00	1,148
Utah	Chemical Mfg	Motors Other	Motors: Rewind 101-200 HP	1%	15	\$0.25	7%	\$0.03	52
Utah	Chemical Mfg	Motors Other	Motors: Rewind 20-50 HP	1%	15	\$0.34	5%	\$0.04	64
Utah	Chemical Mfg	Motors Other	Motors: Rewind 201-500 HP	1%	15	\$0.16	4%	\$0.02	31
Utah	Chemical Mfg	Motors Other	Motors: Rewind 500+ HP	1%	15	\$0.14	4%	\$0.02	31
Utah	Chemical Mfg	Motors Other	Motors: Rewind 51-100 HP	1%	15	\$0.31	7%	\$0.03	62
Utah	Chemical Mfg	Motors Other	Switch from Bell drive to Direct Drive	8%	12	\$0.21	10%	\$0.03	1,224
Utah	Chemical Mfg	Motors Other	Synchronous Belts	1%	10	\$0.21	21%	\$0.03	362
Utah	Chemical Mfg	Other	Bldg Improvements	20%	15	\$0.13	35%	\$0.01	1,307
Utah	Chemical Mfg	Other	Energy Project Management	29%	11	\$0.12	27%	\$0.02	666
Utah	Chemical Mfg	Other	Integrated Plant Energy Management	50%	11	\$0.20	22%	\$0.03	1,100
Utah	Chemical Mfg	Other	Plant Energy Management	12%	10	\$0.02	27%	\$0.00	284
Utah	Chemical Mfg	Other	Transformers	2%	30	\$0.20	80%	\$0.02	193
Utah	Chemical Mfg	Process Aircomp	Air Compressor Demand Reduction	16%	10	\$0.05	28%	\$0.01	6,116
Utah	Chemical Mfg	Process Aircomp	Air Compressor Equipment	9%	10	\$0.13	18%	\$0.02	2,088
Utah	Chemical Mfg	Process Aircomp	Air Compressor Optimization	30%	10	\$0.11	38%	\$0.02	11,475
Utah	Chemical Mfg	Process Aircomp	High efficiency Compressor motors	1%	15	\$0.34	81%	\$0.04	1,163
Utah	Chemical Mfg	Process Aircomp	Improved Controls	19%	10	\$0.03	36%	\$0.00	10,123
Utah	Chemical Mfg	Process Aircomp	Motor Management Plan	3%	10	\$0.07	54%	\$0.01	1,275
Utah	Chemical Mfg	Process Cool	Clean Room: Change Filter Strategy	40%	1	\$0.01	10%	\$0.01	3,589
Utah	Chemical Mfg	Process Cool	Clean Room: Chiller Optimize	15%	10	\$0.08	28%	\$0.01	3,619
Utah	Chemical Mfg	Process Cool	Clean Room: Clean Room HVAC	9%	20	\$0.16	30%	\$0.02	2,228
Utah	Chemical Mfg	Process Cool	Equipment: Chillers	18%	20	\$0.26	8%	\$0.03	1,148
Utah	Chemical Mfg	Process Cool	Improved Controls	6%	15	\$0.88	34%	\$0.10	1,602
Utah	Chemical Mfg	Process Heat	Improved Controls	30%	15	\$0.05	33%	\$0.01	3,528
Utah	Chemical Mfg	Process Heat	Process Heat O&M	29%	2	\$0.05	63%	\$0.03	3,382
Utah	Chemical Mfg	Process Refrig	Adjustable speed drive on compressors	12%	10	\$0.16	34%	\$0.02	1,835
Utah	Chemical Mfg	Process Refrig	Cold Storage Retrofit	21%	10	\$0.20	26%	\$0.03	2,354
Utah	Chemical Mfg	Process Refrig	Cold Storage Tuneup	16%	3	\$0.04	10%	\$0.02	733
Utah	Chemical Mfg	Process Refrig	Optimization of operating parameters	13%	3	\$0.06	85%	\$0.02	2,748
Utah	Chemical Mfg	Process Refrig	Synchronous Belts	1%	10	\$0.21	21%	\$0.03	87
Utah	Chemical Mfg	Pumps	High Efficiency Motors	1%	15	\$0.44	76%	\$0.05	1,428
Utah	Chemical Mfg	Pumps	Improved Controls	30%	10	\$0.12	34%	\$0.02	16,212
Utah	Chemical Mfg	Pumps	Motor rewinds	1%	15	\$0.24	5%	\$0.03	44
Utah	Chemical Mfg	Pumps	Pump Energy Management	8%	10	\$0.07	31%	\$0.01	1,929
Utah	Chemical Mfg	Pumps	Pump Equipment Upgrade	20%	10	\$0.13	34%	\$0.02	9,242
Utah	Chemical Mfg	Pumps	Pump System Optimization	12%	12	\$0.26	16%	\$0.03	1,767
Utah	Chemical Mfg	Pumps	Synchronous Belts	1%	10	\$0.21	21%	\$0.03	332

Table C.2.3. Industrial Measure Details

State	Segment	End Use	Measure Name	Percnet of End Use Consumption Saved	Measure Life	Incremental Cost per kWh	Measure Applicability	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Utah	Electronic Equipment Mfg	Fans	Efficient Centrifugal Fan	20%	10	\$0.18	10%	\$0.03	330
Utah	Electronic Equipment Mfg	Fans	Fan System Optimization	8%	10	\$0.20	29%	\$0.03	206
Utah	Electronic Equipment Mfg	Fans	High Efficiency Motors	1%	15	\$0.44	74%	\$0.05	161
Utah	Electronic Equipment Mfg	Fans	Improved Controls	6%	10	\$0.09	33%	\$0.01	306
Utah	Electronic Equipment Mfg	Fans	Properly Sized Fans	10%	10	\$0.16	15%	\$0.02	234
Utah	Electronic Equipment Mfg	Fans	Synchronous Belts	1%	10	\$0.21	21%	\$0.03	35
Utah	Electronic Equipment Mfg	Hvac	Equipment Upgrades	33%	12	\$0.12	37%	\$0.02	6,922
Utah	Electronic Equipment Mfg	Hvac	Improved Controls	21%	10	\$0.05	39%	\$0.01	5,206
Utah	Electronic Equipment Mfg	Hvac	Recommissioning	5%	10	\$0.03	86%	\$0.00	2,544
Utah	Electronic Equipment Mfg	Lighting	Efficient Lighting 1 Shift	20%	10	\$0.08	8%	\$0.01	749
Utah	Electronic Equipment Mfg	Lighting	Efficient Lighting 2 Shift	20%	10	\$0.05	3%	\$0.01	250
Utah	Electronic Equipment Mfg	Lighting	Efficient Lighting 3 Shift	20%	10	\$0.03	20%	\$0.00	1,895
Utah	Electronic Equipment Mfg	Lighting	HighBay Lighting 1 Shift	48%	10	\$0.24	12%	\$0.04	2,120
Utah	Electronic Equipment Mfg	Lighting	HighBay Lighting 2 Shift	48%	10	\$0.14	4%	\$0.02	718
Utah	Electronic Equipment Mfg	Lighting	HighBay Lighting 3 Shift	48%	10	\$0.08	29%	\$0.01	6,416
Utah	Electronic Equipment Mfg	Lighting	Lighting Controls	18%	10	\$0.13	28%	\$0.02	2,038
Utah	Electronic Equipment Mfg	Motors Other	High Efficiency Motors	1%	15	\$0.44	75%	\$0.05	343
Utah	Electronic Equipment Mfg	Motors Other	Improved Controls	3%	10	\$0.10	34%	\$0.02	416
Utah	Electronic Equipment Mfg	Motors Other	Material Handling	5%	10	\$0.47	53%	\$0.07	809
Utah	Electronic Equipment Mfg	Motors Other	Material Handling VFD	19%	10	\$0.30	53%	\$0.04	3,396
Utah	Electronic Equipment Mfg	Motors Other	Motor Management Plan	3%	10	\$0.07	50%	\$0.01	298
Utah	Electronic Equipment Mfg	Motors Other	Motors Other	1%	15	\$0.02	90%	\$0.00	255
Utah	Electronic Equipment Mfg	Motors Other	Motors: Rewind 101-200 HP	1%	15	\$0.25	7%	\$0.03	11
Utah	Electronic Equipment Mfg	Motors Other	Motors: Rewind 20-50 HP	1%	15	\$0.34	5%	\$0.04	14
Utah	Electronic Equipment Mfg	Motors Other	Motors: Rewind 201-500 HP	1%	15	\$0.16	4%	\$0.02	7
Utah	Electronic Equipment Mfg	Motors Other	Motors: Rewind 500+ HP	1%	15	\$0.14	4%	\$0.02	7
Utah	Electronic Equipment Mfg	Motors Other	Motors: Rewind 51-100 HP	1%	15	\$0.31	7%	\$0.03	13
Utah	Electronic Equipment Mfg	Motors Other	Switch from Belt drive to Direct Drive	8%	12	\$0.21	10%	\$0.03	272
Utah	Electronic Equipment Mfg	Motors Other	Synchronous Belts	1%	10	\$0.21	21%	\$0.03	80
Utah	Electronic Equipment Mfg	Other	Bldg Improvements	20%	15	\$0.13	35%	\$0.01	2,032
Utah	Electronic Equipment Mfg	Other	Energy Project Management	29%	11	\$0.12	27%	\$0.02	1,035
Utah	Electronic Equipment Mfg	Other	Integrated Plant Energy Management	50%	11	\$0.20	22%	\$0.03	1,710
Utah	Electronic Equipment Mfg	Other	Plant Energy Management	12%	10	\$0.02	27%	\$0.00	442
Utah	Electronic Equipment Mfg	Other	Transformers	2%	30	\$0.20	80%	\$0.02	301
Utah	Electronic Equipment Mfg	Process Aircomp	Air Compressor Demand Reduction	16%	10	\$0.05	26%	\$0.01	1,252
Utah	Electronic Equipment Mfg	Process Aircomp	Air Compressor Equipment	9%	10	\$0.13	17%	\$0.02	429
Utah	Electronic Equipment Mfg	Process Aircomp	Air Compressor Optimization	30%	10	\$0.11	35%	\$0.02	2,306
Utah	Electronic Equipment Mfg	Process Aircomp	High efficiency Compressor motors	1%	15	\$0.34	74%	\$0.04	239
Utah	Electronic Equipment Mfg	Process Aircomp	Improved Controls	19%	10	\$0.03	33%	\$0.00	2,057
Utah	Electronic Equipment Mfg	Process Aircomp	Motor Management Plan	3%	10	\$0.07	49%	\$0.01	261
Utah	Electronic Equipment Mfg	Process Cool	Clean Room: Change Filter Strategy	40%	1	\$0.01	10%	\$0.01	543
Utah	Electronic Equipment Mfg	Process Cool	Clean Room: Chiller Optimize	15%	10	\$0.08	28%	\$0.01	548
Utah	Electronic Equipment Mfg	Process Cool	Clean Room: Clean Room HVAC	9%	20	\$0.16	30%	\$0.02	337
Utah	Electronic Equipment Mfg	Process Cool	Elec Chip Fab: Solidstate Chiller	90%	10	\$0.51	20%	\$0.07	2,982
Utah	Electronic Equipment Mfg	Process Cool	Equipment: Chillers	18%	20	\$0.26	8%	\$0.03	173
Utah	Electronic Equipment Mfg	Process Cool	Improved Controls	6%	15	\$0.88	34%	\$0.10	242
Utah	Electronic Equipment Mfg	Process Heat	Improved Controls	30%	15	\$0.05	36%	\$0.01	7,694
Utah	Electronic Equipment Mfg	Process Heat	Process Heat O&M	29%	2	\$0.05	69%	\$0.03	7,298
Utah	Electronic Equipment Mfg	Process Other	Elec Chip Fab: Eliminate Exhaust	5%	10	\$0.19	80%	\$0.03	56
Utah	Electronic Equipment Mfg	Process Other	Elec Chip Fab: Exhaust Injector	**%	10	\$0.45	35%	\$0.07	794
Utah	Electronic Equipment Mfg	Process Other	Elec Chip Fab: Reduce Gas Pressure	10%	10	\$0.00	50%	\$0.00	73
Utah	Electronic Equipment Mfg	Process Refrig	Adjustable speed drive on compressors	12%	10	\$0.16	34%	\$0.02	404

Table C.2.3. Industrial Measure Details

State	Segment	End Use	Measure Name	Percnet of End Use Consumption Saved	Measure Life	Incremental Cost per kWh	Measure Applicability	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Utah	Electronic Equipment Mfg	Process Refrig	Cold Storage Retrofit	21%	10	\$0.20	26%	\$0.03	518
Utah	Electronic Equipment Mfg	Process Refrig	Cold Storage Tuneup	16%	3	\$0.04	10%	\$0.02	161
Utah	Electronic Equipment Mfg	Process Refrig	Optimization of operating parameters	13%	3	\$0.06	85%	\$0.02	605
Utah	Electronic Equipment Mfg	Process Refrig	Synchronous Belts	1%	10	\$0.21	21%	\$0.03	19
Utah	Electronic Equipment Mfg	Pumps	High Efficiency Motors	1%	15	\$0.44	73%	\$0.05	304
Utah	Electronic Equipment Mfg	Pumps	Improved Controls	30%	10	\$0.12	33%	\$0.02	3,426
Utah	Electronic Equipment Mfg	Pumps	Motor rewinds	1%	15	\$0.24	5%	\$0.03	9
Utah	Electronic Equipment Mfg	Pumps	Pump Energy Management	8%	10	\$0.07	30%	\$0.01	409
Utah	Electronic Equipment Mfg	Pumps	Pump Equipment Upgrade	20%	10	\$0.13	33%	\$0.02	1,964
Utah	Electronic Equipment Mfg	Pumps	Pump System Optimization	12%	12	\$0.26	15%	\$0.03	373
Utah	Electronic Equipment Mfg	Pumps	Synchronous Belts	1%	10	\$0.21	20%	\$0.03	70
Utah	Food Mfg	Fans	Efficient Centrifugal Fan	20%	10	\$0.18	11%	\$0.03	442
Utah	Food Mfg	Fans	Fan System Optimization	8%	10	\$0.20	30%	\$0.03	276
Utah	Food Mfg	Fans	High Efficiency Motors	1%	15	\$0.44	75%	\$0.05	215
Utah	Food Mfg	Fans	Improved Controls	6%	10	\$0.09	34%	\$0.01	410
Utah	Food Mfg	Fans	Properly Sized Fans	10%	10	\$0.16	15%	\$0.02	314
Utah	Food Mfg	Fans	Synchronous Belts	1%	10	\$0.21	21%	\$0.03	47
Utah	Food Mfg	Hvac	Equipment Upgrades	33%	12	\$0.12	31%	\$0.02	3,592
Utah	Food Mfg	Hvac	Improved Controls	21%	10	\$0.05	33%	\$0.01	2,645
Utah	Food Mfg	Hvac	Recommissioning	5%	10	\$0.03	73%	\$0.00	1,311
Utah	Food Mfg	Lighting	Efficient Lighting 1 Shift	20%	10	\$0.08	4%	\$0.01	321
Utah	Food Mfg	Lighting	Efficient Lighting 2 Shift	20%	10	\$0.05	3%	\$0.01	240
Utah	Food Mfg	Lighting	Efficient Lighting 3 Shift	20%	10	\$0.03	12%	\$0.00	872
Utah	Food Mfg	Lighting	HighBay Lighting 1 Shift	48%	10	\$0.24	7%	\$0.04	971
Utah	Food Mfg	Lighting	HighBay Lighting 2 Shift	48%	10	\$0.14	5%	\$0.02	740
Utah	Food Mfg	Lighting	HighBay Lighting 3 Shift	48%	10	\$0.08	18%	\$0.01	3,019
Utah	Food Mfg	Lighting	Lighting Controls	18%	10	\$0.13	28%	\$0.02	1,698
Utah	Food Mfg	Motors Other	High Efficiency Motors	1%	15	\$0.44	73%	\$0.05	1,026
Utah	Food Mfg	Motors Other	Improved Controls	3%	10	\$0.10	33%	\$0.02	1,242
Utah	Food Mfg	Motors Other	Material Handling	5%	10	\$0.47	52%	\$0.07	2,422
Utah	Food Mfg	Motors Other	Material Handling VFD	19%	10	\$0.30	52%	\$0.04	10,134
Utah	Food Mfg	Motors Other	Motor Management Plan	3%	10	\$0.07	49%	\$0.01	889
Utah	Food Mfg	Motors Other	Motors Other	1%	15	\$0.02	88%	\$0.00	762
Utah	Food Mfg	Motors Other	Motors: Rewind 101-200 HP	1%	15	\$0.25	7%	\$0.03	34
Utah	Food Mfg	Motors Other	Motors: Rewind 20-50 HP	1%	15	\$0.34	5%	\$0.04	42
Utah	Food Mfg	Motors Other	Motors: Rewind 201-500 HP	1%	15	\$0.16	4%	\$0.02	21
Utah	Food Mfg	Motors Other	Motors: Rewind 500+ HP	1%	15	\$0.14	4%	\$0.02	21
Utah	Food Mfg	Motors Other	Motors: Rewind 51-100 HP	1%	15	\$0.31	7%	\$0.03	41
Utah	Food Mfg	Motors Other	Switch from Belt drive to Direct Drive	8%	12	\$0.21	10%	\$0.03	813
Utah	Food Mfg	Motors Other	Synchronous Belts	1%	10	\$0.21	20%	\$0.03	240
Utah	Food Mfg	Other	Bldg Improvements	20%	15	\$0.13	35%	\$0.01	2,882
Utah	Food Mfg	Other	Energy Project Management	29%	11	\$0.12	27%	\$0.02	1,467
Utah	Food Mfg	Other	Integrated Plant Energy Management	50%	11	\$0.20	22%	\$0.03	2,425
Utah	Food Mfg	Other	Plant Energy Management	12%	10	\$0.02	27%	\$0.00	627
Utah	Food Mfg	Other	Transformers	2%	30	\$0.20	80%	\$0.02	427
Utah	Food Mfg	Process Aircomp	Air Compressor Demand Reduction	16%	10	\$0.05	26%	\$0.01	727
Utah	Food Mfg	Process Aircomp	Air Compressor Equipment	9%	10	\$0.13	17%	\$0.02	249
Utah	Food Mfg	Process Aircomp	Air Compressor Optimization	30%	10	\$0.11	35%	\$0.02	1,339
Utah	Food Mfg	Process Aircomp	High efficiency Compressor motors	1%	15	\$0.34	74%	\$0.04	138
Utah	Food Mfg	Process Aircomp	Improved Controls	19%	10	\$0.03	33%	\$0.00	1,195
Utah	Food Mfg	Process Aircomp	Motor Management Plan	3%	10	\$0.07	49%	\$0.01	151
Utah	Food Mfg	Process Cool	Equipment: Chillers	18%	20	\$0.26	8%	\$0.03	2,086

Table C.2.3. Industrial Measure Details

State	Segment	End Use	Measure Name	Percnet of End Use Consumption Saved	Measure Life	Incremental Cost per kWh	Measure Applicability	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Utah	Food Mfg	Process Cool	Improved Controls	6%	15	\$0.88	35%	\$0.10	2,910
Utah	Food Mfg	Process Heat	Improved Controls	30%	15	\$0.05	34%	\$0.01	1,761
Utah	Food Mfg	Process Heat	Process Heat O&M	29%	2	\$0.05	65%	\$0.03	1,684
Utah	Food Mfg	Process Refrig	Adjustable speed drive on compressors	12%	10	\$0.16	34%	\$0.02	3,188
Utah	Food Mfg	Process Refrig	Food: Cooling and Storage	15%	10	\$0.20	15%	\$0.03	1,368
Utah	Food Mfg	Process Refrig	Food: Refrig Storage Tuneup	14%	3	\$0.04	8%	\$0.02	889
Utah	Food Mfg	Process Refrig	Fruit Storage Refer Retrofit	38%	10	\$0.17	61%	\$0.02	17,909
Utah	Food Mfg	Process Refrig	Fruit Storage Tuneup	16%	3	\$0.04	10%	\$0.02	1,274
Utah	Food Mfg	Process Refrig	Optimization of operating parameters	13%	3	\$0.06	85%	\$0.02	3,782
Utah	Food Mfg	Process Refrig	Synchronous Belts	1%	10	\$0.21	21%	\$0.03	121
Utah	Food Mfg	Pumps	High Efficiency Motors	1%	15	\$0.44	74%	\$0.05	404
Utah	Food Mfg	Pumps	Improved Controls	30%	10	\$0.12	33%	\$0.02	4,563
Utah	Food Mfg	Pumps	Motor rewinds	1%	15	\$0.24	5%	\$0.03	12
Utah	Food Mfg	Pumps	Pump Energy Management	8%	10	\$0.07	30%	\$0.01	545
Utah	Food Mfg	Pumps	Pump Equipment Upgrade	20%	10	\$0.13	33%	\$0.02	2,613
Utah	Food Mfg	Pumps	Pump System Optimization	12%	12	\$0.26	15%	\$0.03	497
Utah	Food Mfg	Pumps	Synchronous Belts	1%	10	\$0.21	21%	\$0.03	93
Utah	Industrial Machinery	Fans	Efficient Centrifugal Fan	20%	10	\$0.18	11%	\$0.03	531
Utah	Industrial Machinery	Fans	Fan System Optimization	8%	10	\$0.20	30%	\$0.03	331
Utah	Industrial Machinery	Fans	High Efficiency Motors	1%	15	\$0.44	76%	\$0.05	258
Utah	Industrial Machinery	Fans	Improved Controls	6%	10	\$0.09	34%	\$0.01	492
Utah	Industrial Machinery	Fans	Properly Sized Fans	10%	10	\$0.16	15%	\$0.02	377
Utah	Industrial Machinery	Fans	Synchronous Belts	1%	10	\$0.21	21%	\$0.03	56
Utah	Industrial Machinery	Hvac	Equipment Upgrades	33%	12	\$0.12	32%	\$0.02	6,524
Utah	Industrial Machinery	Hvac	Improved Controls	21%	10	\$0.05	33%	\$0.01	4,816
Utah	Industrial Machinery	Hvac	Recommissioning	5%	10	\$0.03	74%	\$0.00	2,383
Utah	Industrial Machinery	Lighting	Efficient Lighting 1 Shift	20%	10	\$0.08	5%	\$0.01	519
Utah	Industrial Machinery	Lighting	Efficient Lighting 2 Shift	20%	10	\$0.05	2%	\$0.01	173
Utah	Industrial Machinery	Lighting	Efficient Lighting 3 Shift	20%	10	\$0.03	13%	\$0.00	1,292
Utah	Industrial Machinery	Lighting	HighBay Lighting 1 Shift	48%	10	\$0.24	8%	\$0.04	1,574
Utah	Industrial Machinery	Lighting	HighBay Lighting 2 Shift	48%	10	\$0.14	3%	\$0.02	530
Utah	Industrial Machinery	Lighting	HighBay Lighting 3 Shift	48%	10	\$0.08	19%	\$0.01	4,471
Utah	Industrial Machinery	Lighting	Lighting Controls	18%	10	\$0.13	28%	\$0.02	2,331
Utah	Industrial Machinery	Motors Other	High Efficiency Motors	1%	15	\$0.44	75%	\$0.05	677
Utah	Industrial Machinery	Motors Other	Improved Controls	3%	10	\$0.10	34%	\$0.02	823
Utah	Industrial Machinery	Motors Other	Material Handling	5%	10	\$0.47	53%	\$0.07	1,598
Utah	Industrial Machinery	Motors Other	Material Handling VFD	19%	10	\$0.30	53%	\$0.04	6,709
Utah	Industrial Machinery	Motors Other	Motor Management Plan	3%	10	\$0.07	50%	\$0.01	589
Utah	Industrial Machinery	Motors Other	Motors Other	1%	15	\$0.02	90%	\$0.00	505
Utah	Industrial Machinery	Motors Other	Motors: Rewind 101-200 HP	1%	15	\$0.25	7%	\$0.03	22
Utah	Industrial Machinery	Motors Other	Motors: Rewind 20-50 HP	1%	15	\$0.34	5%	\$0.04	28
Utah	Industrial Machinery	Motors Other	Motors: Rewind 201-500 HP	1%	15	\$0.16	4%	\$0.02	13
Utah	Industrial Machinery	Motors Other	Motors: Rewind 500+ HP	1%	15	\$0.14	4%	\$0.02	13
Utah	Industrial Machinery	Motors Other	Motors: Rewind 51-100 HP	1%	15	\$0.31	7%	\$0.03	27
Utah	Industrial Machinery	Motors Other	Switch from Belt drive to Direct Drive	8%	12	\$0.21	10%	\$0.03	538
Utah	Industrial Machinery	Motors Other	Synchronous Belts	1%	10	\$0.21	21%	\$0.03	159
Utah	Industrial Machinery	Other	Bldg Improvements	20%	15	\$0.13	35%	\$0.01	1,884
Utah	Industrial Machinery	Other	Energy Project Management	29%	11	\$0.12	27%	\$0.02	959
Utah	Industrial Machinery	Other	Integrated Plant Energy Management	50%	11	\$0.20	22%	\$0.03	1,585
Utah	Industrial Machinery	Other	Plant Energy Management	12%	10	\$0.02	27%	\$0.00	410
Utah	Industrial Machinery	Other	Transformers	2%	30	\$0.20	80%	\$0.02	279
Utah	Industrial Machinery	Process Aircomp	Air Compressor Demand Reduction	16%	10	\$0.05	26%	\$0.01	979

Table C.2.3. Industrial Measure Details

State	Segment	End Use	Measure Name	Percnet of End Use Consumption Saved	Measure Life	Incremental Cost per kWh	Measure Applicability	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Utah	Industrial Machinery	Process Aircomp	Air Compressor Equipment	9%	10	\$0.13	17%	\$0.02	335
Utah	Industrial Machinery	Process Aircomp	Air Compressor Optimization	30%	10	\$0.11	36%	\$0.02	1,809
Utah	Industrial Machinery	Process Aircomp	High efficiency Compressor motors	1%	15	\$0.34	75%	\$0.04	186
Utah	Industrial Machinery	Process Aircomp	Improved Controls	19%	10	\$0.03	34%	\$0.00	1,611
Utah	Industrial Machinery	Process Aircomp	Motor Management Plan	3%	10	\$0.07	50%	\$0.01	204
Utah	Industrial Machinery	Process Cool	Equipment: Chillers	18%	20	\$0.26	8%	\$0.03	174
Utah	Industrial Machinery	Process Cool	Improved Controls	6%	15	\$0.88	34%	\$0.10	243
Utah	Industrial Machinery	Process Heat	Improved Controls	30%	15	\$0.05	36%	\$0.01	3,066
Utah	Industrial Machinery	Process Heat	Process Heat O&M	29%	2	\$0.05	70%	\$0.03	2,907
Utah	Industrial Machinery	Process Refrig	Adjustable speed drive on compressors	12%	10	\$0.16	34%	\$0.02	482
Utah	Industrial Machinery	Process Refrig	Optimization of operating parameters	13%	3	\$0.06	85%	\$0.02	762
Utah	Industrial Machinery	Process Refrig	Synchronous Belts	1%	10	\$0.21	21%	\$0.03	24
Utah	Industrial Machinery	Pumps	High Efficiency Motors	1%	15	\$0.44	76%	\$0.05	403
Utah	Industrial Machinery	Pumps	Improved Controls	30%	10	\$0.12	34%	\$0.02	4,570
Utah	Industrial Machinery	Pumps	Motor rewinds	1%	15	\$0.24	5%	\$0.03	12
Utah	Industrial Machinery	Pumps	Pump Energy Management	8%	10	\$0.07	31%	\$0.01	544
Utah	Industrial Machinery	Pumps	Pump Equipment Upgrade	20%	10	\$0.13	34%	\$0.02	2,607
Utah	Industrial Machinery	Pumps	Pump System Optimization	12%	12	\$0.26	16%	\$0.03	498
Utah	Industrial Machinery	Pumps	Synchronous Belts	1%	10	\$0.21	21%	\$0.03	93
Utah	Mining	Motors Other	High Efficiency Motors	1%	15	\$0.44	25%	\$0.05	5,152
Utah	Mining	Motors Other	Material Handling	5%	10	\$0.47	25%	\$0.07	17,329
Utah	Mining	Motors Other	Motors Other	1%	15	\$0.02	25%	\$0.00	2,764
Utah	Mining	Motors Other	Motors: Rewind 101-200 HP	1%	15	\$0.25	7%	\$0.03	471
Utah	Mining	Motors Other	Motors: Rewind 20-50 HP	1%	15	\$0.34	5%	\$0.04	579
Utah	Mining	Motors Other	Motors: Rewind 201-500 HP	1%	15	\$0.16	4%	\$0.02	279
Utah	Mining	Motors Other	Motors: Rewind 500+ HP	1%	15	\$0.14	4%	\$0.02	279
Utah	Mining	Motors Other	Motors: Rewind 51-100 HP	1%	15	\$0.31	7%	\$0.03	567
Utah	Miscellaneous Mfg	Fans	Efficient Centrifugal Fan	20%	10	\$0.18	11%	\$0.03	1,156
Utah	Miscellaneous Mfg	Fans	Fan System Optimization	8%	10	\$0.20	30%	\$0.03	721
Utah	Miscellaneous Mfg	Fans	High Efficiency Motors	1%	15	\$0.44	76%	\$0.05	563
Utah	Miscellaneous Mfg	Fans	Improved Controls	6%	10	\$0.09	34%	\$0.01	1,070
Utah	Miscellaneous Mfg	Fans	Properly Sized Fans	10%	10	\$0.16	15%	\$0.02	821
Utah	Miscellaneous Mfg	Fans	Synchronous Belts	1%	10	\$0.21	21%	\$0.03	123
Utah	Miscellaneous Mfg	Hvac	Equipment Upgrades	33%	12	\$0.12	32%	\$0.02	18,695
Utah	Miscellaneous Mfg	Hvac	Improved Controls	21%	10	\$0.05	33%	\$0.01	13,801
Utah	Miscellaneous Mfg	Hvac	Recommissioning	5%	10	\$0.03	74%	\$0.00	6,829
Utah	Miscellaneous Mfg	Lighting	Efficient Lighting 1 Shift	20%	10	\$0.08	5%	\$0.01	1,433
Utah	Miscellaneous Mfg	Lighting	Efficient Lighting 2 Shift	20%	10	\$0.05	2%	\$0.01	478
Utah	Miscellaneous Mfg	Lighting	Efficient Lighting 3 Shift	20%	10	\$0.03	13%	\$0.00	3,567
Utah	Miscellaneous Mfg	Lighting	HighBay Lighting 1 Shift	48%	10	\$0.24	8%	\$0.04	4,345
Utah	Miscellaneous Mfg	Lighting	HighBay Lighting 2 Shift	48%	10	\$0.14	3%	\$0.02	1,463
Utah	Miscellaneous Mfg	Lighting	HighBay Lighting 3 Shift	48%	10	\$0.08	19%	\$0.01	12,343
Utah	Miscellaneous Mfg	Lighting	Lighting Controls	18%	10	\$0.13	28%	\$0.02	6,436
Utah	Miscellaneous Mfg	Motors Other	High Efficiency Motors	1%	15	\$0.44	75%	\$0.05	2,084
Utah	Miscellaneous Mfg	Motors Other	Improved Controls	3%	10	\$0.10	34%	\$0.02	2,531
Utah	Miscellaneous Mfg	Motors Other	Material Handling	5%	10	\$0.47	53%	\$0.07	4,917
Utah	Miscellaneous Mfg	Motors Other	Material Handling VFD	19%	10	\$0.30	53%	\$0.04	20,636
Utah	Miscellaneous Mfg	Motors Other	Motor Management Plan	3%	10	\$0.07	50%	\$0.01	1,811
Utah	Miscellaneous Mfg	Motors Other	Motors Other	1%	15	\$0.02	90%	\$0.00	1,553
Utah	Miscellaneous Mfg	Motors Other	Motors: Rewind 101-200 HP	1%	15	\$0.25	7%	\$0.03	70
Utah	Miscellaneous Mfg	Motors Other	Motors: Rewind 20-50 HP	1%	15	\$0.34	5%	\$0.04	86
Utah	Miscellaneous Mfg	Motors Other	Motors: Rewind 201-500 HP	1%	15	\$0.16	4%	\$0.02	42

Table C.2.3. Industrial Measure Details

State	Segment	End Use	Measure Name	Percnet of End Use Consumption Saved	Measure Life	Incremental Cost per kWh	Measure Applicability	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Utah	Miscellaneous Mfg	Motors Other	Motors: Rewind 500+ HP	1%	15	\$0.14	4%	\$0.02	42
Utah	Miscellaneous Mfg	Motors Other	Motors: Rewind 51-100 HP	1%	15	\$0.31	7%	\$0.03	85
Utah	Miscellaneous Mfg	Motors Other	Switch from Belt drive to Direct Drive	8%	12	\$0.21	10%	\$0.03	1,656
Utah	Miscellaneous Mfg	Motors Other	Synchronous Belts	1%	10	\$0.21	21%	\$0.03	490
Utah	Miscellaneous Mfg	Other	Bldg Improvements	20%	15	\$0.13	35%	\$0.01	2,948
Utah	Miscellaneous Mfg	Other	Energy Project Management	29%	11	\$0.12	27%	\$0.02	1,501
Utah	Miscellaneous Mfg	Other	Integrated Plant Energy Management	50%	11	\$0.20	22%	\$0.03	2,481
Utah	Miscellaneous Mfg	Other	Plant Energy Management	12%	10	\$0.02	27%	\$0.00	642
Utah	Miscellaneous Mfg	Other	Transformers	2%	30	\$0.20	80%	\$0.02	436
Utah	Miscellaneous Mfg	Process Aircomp	Air Compressor Demand Reduction	16%	10	\$0.05	26%	\$0.01	1,726
Utah	Miscellaneous Mfg	Process Aircomp	Air Compressor Equipment	9%	10	\$0.13	17%	\$0.02	591
Utah	Miscellaneous Mfg	Process Aircomp	Air Compressor Optimization	30%	10	\$0.11	36%	\$0.02	3,189
Utah	Miscellaneous Mfg	Process Aircomp	High efficiency Compressor motors	1%	15	\$0.34	75%	\$0.04	329
Utah	Miscellaneous Mfg	Process Aircomp	Improved Controls	19%	10	\$0.03	34%	\$0.00	2,839
Utah	Miscellaneous Mfg	Process Aircomp	Motor Management Plan	3%	10	\$0.07	50%	\$0.01	359
Utah	Miscellaneous Mfg	Process Cool	Equipment: Chillers	18%	20	\$0.26	8%	\$0.03	830
Utah	Miscellaneous Mfg	Process Cool	Improved Controls	6%	15	\$0.88	34%	\$0.10	1,159
Utah	Miscellaneous Mfg	Process Heat	Improved Controls	30%	15	\$0.05	36%	\$0.01	9,907
Utah	Miscellaneous Mfg	Process Heat	Process Heat O&M	29%	2	\$0.05	70%	\$0.03	9,392
Utah	Miscellaneous Mfg	Process Refrig	Adjustable speed drive on compressors	12%	10	\$0.16	34%	\$0.02	13
Utah	Miscellaneous Mfg	Process Refrig	Cold Storage Retrofit	21%	10	\$0.20	26%	\$0.03	17
Utah	Miscellaneous Mfg	Process Refrig	Cold Storage Tuneup	16%	3	\$0.04	10%	\$0.02	5
Utah	Miscellaneous Mfg	Process Refrig	Optimization of operating parameters	13%	3	\$0.06	85%	\$0.02	20
Utah	Miscellaneous Mfg	Process Refrig	Synchronous Belts	1%	10	\$0.21	21%	\$0.03	0.66
Utah	Miscellaneous Mfg	Pumps	High Efficiency Motors	1%	15	\$0.44	76%	\$0.05	275
Utah	Miscellaneous Mfg	Pumps	Improved Controls	30%	10	\$0.12	34%	\$0.02	3,121
Utah	Miscellaneous Mfg	Pumps	Motor rewinds	1%	15	\$0.24	5%	\$0.03	8
Utah	Miscellaneous Mfg	Pumps	Pump Energy Management	8%	10	\$0.07	31%	\$0.01	371
Utah	Miscellaneous Mfg	Pumps	Pump Equipment Upgrade	20%	10	\$0.13	34%	\$0.02	1,781
Utah	Miscellaneous Mfg	Pumps	Pump System Optimization	12%	12	\$0.26	16%	\$0.03	340
Utah	Miscellaneous Mfg	Pumps	Synchronous Belts	1%	10	\$0.21	21%	\$0.03	64
Utah	Petroleum Refining	Fans	Efficient Centrifugal Fan	20%	10	\$0.18	11%	\$0.03	1,743
Utah	Petroleum Refining	Fans	Fan System Optimization	8%	10	\$0.20	30%	\$0.03	1,088
Utah	Petroleum Refining	Fans	High Efficiency Motors	1%	15	\$0.44	76%	\$0.05	849
Utah	Petroleum Refining	Fans	Improved Controls	6%	10	\$0.09	34%	\$0.01	1,614
Utah	Petroleum Refining	Fans	Properly Sized Fans	10%	10	\$0.16	15%	\$0.02	1,238
Utah	Petroleum Refining	Fans	Synchronous Belts	1%	10	\$0.21	21%	\$0.03	186
Utah	Petroleum Refining	Hvac	Equipment Upgrades	33%	12	\$0.12	32%	\$0.02	2,238
Utah	Petroleum Refining	Hvac	Improved Controls	21%	10	\$0.05	33%	\$0.01	1,650
Utah	Petroleum Refining	Hvac	Recommissioning	5%	10	\$0.03	73%	\$0.00	817
Utah	Petroleum Refining	Lighting	Efficient Lighting 1 Shift	20%	10	\$0.08	8%	\$0.01	283
Utah	Petroleum Refining	Lighting	Efficient Lighting 2 Shift	20%	10	\$0.05	3%	\$0.01	94
Utah	Petroleum Refining	Lighting	Efficient Lighting 3 Shift	20%	10	\$0.03	20%	\$0.00	717
Utah	Petroleum Refining	Lighting	HighBay Lighting 1 Shift	48%	10	\$0.24	12%	\$0.04	802
Utah	Petroleum Refining	Lighting	HighBay Lighting 2 Shift	48%	10	\$0.14	4%	\$0.02	272
Utah	Petroleum Refining	Lighting	HighBay Lighting 3 Shift	48%	10	\$0.08	29%	\$0.01	2,428
Utah	Petroleum Refining	Lighting	Lighting Controls	18%	10	\$0.13	28%	\$0.02	771
Utah	Petroleum Refining	Motors Other	High Efficiency Motors	1%	15	\$0.44	76%	\$0.05	2,276
Utah	Petroleum Refining	Motors Other	Improved Controls	3%	10	\$0.10	34%	\$0.02	2,770
Utah	Petroleum Refining	Motors Other	Material Handling	5%	10	\$0.47	54%	\$0.07	5,368
Utah	Petroleum Refining	Motors Other	Material Handling VFD	19%	10	\$0.30	54%	\$0.04	22,572
Utah	Petroleum Refining	Motors Other	Motor Management Plan	3%	10	\$0.07	51%	\$0.01	1,982

Table C.2.3. Industrial Measure Details

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Utah	Petroleum Refining	Motors Other	Motors Other	1%	15	\$0.02	91%	\$0.00	1,700
Utah	Petroleum Refining	Motors Other	Motors: Rewind 101-200 HP	1%	15	\$0.25	7%	\$0.03	77
Utah	Petroleum Refining	Motors Other	Motors: Rewind 20-50 HP	1%	15	\$0.34	5%	\$0.04	94
Utah	Petroleum Refining	Motors Other	Motors: Rewind 201-500 HP	1%	15	\$0.16	4%	\$0.02	46
Utah	Petroleum Refining	Motors Other	Motors: Rewind 500+ HP	1%	15	\$0.14	4%	\$0.02	46
Utah	Petroleum Refining	Motors Other	Motors: Rewind 51-100 HP	1%	15	\$0.31	7%	\$0.03	92
Utah	Petroleum Refining	Motors Other	Switch from Belt drive to Direct Drive	8%	12	\$0.21	11%	\$0.03	1,811
Utah	Petroleum Refining	Motors Other	Synchronous Belts	1%	10	\$0.21	21%	\$0.03	536
Utah	Petroleum Refining	Other	Bldg Improvements	20%	15	\$0.13	35%	\$0.01	604
Utah	Petroleum Refining	Other	Energy Project Management	29%	11	\$0.12	27%	\$0.02	307
Utah	Petroleum Refining	Other	Integrated Plant Energy Management	50%	11	\$0.20	22%	\$0.03	508
Utah	Petroleum Refining	Other	Plant Energy Management	12%	10	\$0.02	27%	\$0.00	131
Utah	Petroleum Refining	Other	Transformers	2%	30	\$0.20	80%	\$0.02	89
Utah	Petroleum Refining	Process Aircomp	Air Compressor Demand Reduction	16%	10	\$0.05	27%	\$0.01	3,324
Utah	Petroleum Refining	Process Aircomp	Air Compressor Equipment	9%	10	\$0.13	18%	\$0.02	1,137
Utah	Petroleum Refining	Process Aircomp	Air Compressor Optimization	30%	10	\$0.11	37%	\$0.02	6,180
Utah	Petroleum Refining	Process Aircomp	High efficiency Compressor motors	1%	15	\$0.34	77%	\$0.04	633
Utah	Petroleum Refining	Process Aircomp	Improved Controls	19%	10	\$0.03	35%	\$0.00	5,482
Utah	Petroleum Refining	Process Aircomp	Motor Management Plan	3%	10	\$0.07	52%	\$0.01	693
Utah	Petroleum Refining	Process Cool	Equipment: Chillers	18%	20	\$0.26	8%	\$0.03	595
Utah	Petroleum Refining	Process Cool	Improved Controls	6%	15	\$0.88	34%	\$0.10	830
Utah	Petroleum Refining	Process Heat	Improved Controls	30%	15	\$0.05	33%	\$0.01	4,407
Utah	Petroleum Refining	Process Heat	Process Heat O&M	29%	2	\$0.05	63%	\$0.03	4,225
Utah	Petroleum Refining	Process Refrig	Adjustable speed drive on compressors	12%	10	\$0.16	34%	\$0.02	1,599
Utah	Petroleum Refining	Process Refrig	Optimization of operating parameters	13%	3	\$0.06	85%	\$0.02	2,528
Utah	Petroleum Refining	Process Refrig	Synchronous Belts	1%	10	\$0.21	21%	\$0.03	80
Utah	Petroleum Refining	Pumps	High Efficiency Motors	1%	15	\$0.44	79%	\$0.05	1,376
Utah	Petroleum Refining	Pumps	Improved Controls	30%	10	\$0.12	35%	\$0.02	15,737
Utah	Petroleum Refining	Pumps	Motor rewinds	1%	15	\$0.24	6%	\$0.03	43
Utah	Petroleum Refining	Pumps	Pump Energy Management	8%	10	\$0.07	32%	\$0.01	1,865
Utah	Petroleum Refining	Pumps	Pump Equipment Upgrade	20%	10	\$0.13	35%	\$0.02	8,929
Utah	Petroleum Refining	Pumps	Pump System Optimization	12%	12	\$0.26	16%	\$0.03	1,716
Utah	Petroleum Refining	Pumps	Synchronous Belts	1%	10	\$0.21	22%	\$0.03	321
Utah	Primary Metal Mfg	Fans	Efficient Centrifugal Fan	20%	10	\$0.18	10%	\$0.03	697
Utah	Primary Metal Mfg	Fans	Fan System Optimization	8%	10	\$0.20	29%	\$0.03	435
Utah	Primary Metal Mfg	Fans	High Efficiency Motors	1%	15	\$0.44	73%	\$0.05	340
Utah	Primary Metal Mfg	Fans	Improved Controls	6%	10	\$0.09	33%	\$0.01	646
Utah	Primary Metal Mfg	Fans	Properly Sized Fans	10%	10	\$0.16	15%	\$0.02	495
Utah	Primary Metal Mfg	Fans	Synchronous Belts	1%	10	\$0.21	21%	\$0.03	74
Utah	Primary Metal Mfg	Hvac	Equipment Upgrades	33%	12	\$0.12	32%	\$0.02	2,403
Utah	Primary Metal Mfg	Hvac	Improved Controls	21%	10	\$0.05	34%	\$0.01	1,775
Utah	Primary Metal Mfg	Hvac	Recommissioning	5%	10	\$0.03	75%	\$0.00	878
Utah	Primary Metal Mfg	Lighting	Efficient Lighting 1 Shift	20%	10	\$0.08	1%	\$0.01	50
Utah	Primary Metal Mfg	Lighting	Efficient Lighting 2 Shift	20%	10	\$0.05	3%	\$0.01	111
Utah	Primary Metal Mfg	Lighting	Efficient Lighting 3 Shift	20%	10	\$0.03	15%	\$0.00	623
Utah	Primary Metal Mfg	Lighting	HighBay Lighting 1 Shift	48%	10	\$0.24	2%	\$0.04	148
Utah	Primary Metal Mfg	Lighting	HighBay Lighting 2 Shift	48%	10	\$0.14	4%	\$0.02	336
Utah	Primary Metal Mfg	Lighting	HighBay Lighting 3 Shift	48%	10	\$0.08	23%	\$0.01	2,158
Utah	Primary Metal Mfg	Lighting	Lighting Controls	18%	10	\$0.13	28%	\$0.02	899
Utah	Primary Metal Mfg	Motors Other	High Efficiency Motors	1%	15	\$0.44	74%	\$0.05	1,294
Utah	Primary Metal Mfg	Motors Other	Improved Controls	3%	10	\$0.10	33%	\$0.02	1,569
Utah	Primary Metal Mfg	Motors Other	Material Handling	5%	10	\$0.47	52%	\$0.07	3,053

Table C.2.3. Industrial Measure Details

State	Segment	End Use	Measure Name	Percnet of End Use Consumption Saved	Measure Life	Incremental Cost per kWh	Measure Applicability	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Utah	Primary Metal Mfg	Motors Other	Material Handling VFD	19%	10	\$0.30	52%	\$0.04	12,796
Utah	Primary Metal Mfg	Motors Other	Motor Management Plan	3%	10	\$0.07	49%	\$0.01	1,123
Utah	Primary Metal Mfg	Motors Other	Motors Other	1%	15	\$0.02	89%	\$0.00	962
Utah	Primary Metal Mfg	Motors Other	Motors: Rewind 101-200 HP	1%	15	\$0.25	7%	\$0.03	43
Utah	Primary Metal Mfg	Motors Other	Motors: Rewind 20-50 HP	1%	15	\$0.34	5%	\$0.04	53
Utah	Primary Metal Mfg	Motors Other	Motors: Rewind 201-500 HP	1%	15	\$0.16	4%	\$0.02	26
Utah	Primary Metal Mfg	Motors Other	Motors: Rewind 500+ HP	1%	15	\$0.14	4%	\$0.02	26
Utah	Primary Metal Mfg	Motors Other	Motors: Rewind 51-100 HP	1%	15	\$0.31	7%	\$0.03	52
Utah	Primary Metal Mfg	Motors Other	Switch from Belt drive to Direct Drive	8%	12	\$0.21	10%	\$0.03	1,026
Utah	Primary Metal Mfg	Motors Other	Synchronous Belts	1%	10	\$0.21	21%	\$0.03	304
Utah	Primary Metal Mfg	Other	Bldg Improvements	20%	15	\$0.13	35%	\$0.01	647
Utah	Primary Metal Mfg	Other	Energy Project Management	29%	11	\$0.12	27%	\$0.02	329
Utah	Primary Metal Mfg	Other	Integrated Plant Energy Management	50%	11	\$0.20	22%	\$0.03	545
Utah	Primary Metal Mfg	Other	Plant Energy Management	12%	10	\$0.02	27%	\$0.00	141
Utah	Primary Metal Mfg	Other	Transformers	2%	30	\$0.20	80%	\$0.02	95
Utah	Primary Metal Mfg	Process Aircomp	Air Compressor Demand Reduction	16%	10	\$0.05	25%	\$0.01	1,057
Utah	Primary Metal Mfg	Process Aircomp	Air Compressor Equipment	9%	10	\$0.13	17%	\$0.02	363
Utah	Primary Metal Mfg	Process Aircomp	Air Compressor Optimization	30%	10	\$0.11	35%	\$0.02	1,943
Utah	Primary Metal Mfg	Process Aircomp	High efficiency Compressor motors	1%	15	\$0.34	73%	\$0.04	202
Utah	Primary Metal Mfg	Process Aircomp	Improved Controls	19%	10	\$0.03	33%	\$0.00	1,736
Utah	Primary Metal Mfg	Process Aircomp	Motor Management Plan	3%	10	\$0.07	49%	\$0.01	220
Utah	Primary Metal Mfg	Process Cool	Equipment: Chillers	18%	20	\$0.26	8%	\$0.03	80
Utah	Primary Metal Mfg	Process Cool	Improved Controls	6%	15	\$0.88	34%	\$0.10	112
Utah	Primary Metal Mfg	Process Heat	Improved Controls	30%	15	\$0.05	35%	\$0.01	19,580
Utah	Primary Metal Mfg	Process Heat	Metal: New Arc Furnace	45%	10	\$0.09	10%	\$0.01	8,997
Utah	Primary Metal Mfg	Process Heat	Process Heat O&M	29%	2	\$0.05	67%	\$0.03	18,649
Utah	Primary Metal Mfg	Process Refrig	Adjustable speed drive on compressors	12%	10	\$0.16	34%	\$0.02	8
Utah	Primary Metal Mfg	Process Refrig	Optimization of operating parameters	13%	3	\$0.06	85%	\$0.02	13
Utah	Primary Metal Mfg	Process Refrig	Synchronous Belts	1%	10	\$0.21	21%	\$0.03	0.44
Utah	Primary Metal Mfg	Pumps	High Efficiency Motors	1%	15	\$0.44	72%	\$0.05	166
Utah	Primary Metal Mfg	Pumps	Improved Controls	30%	10	\$0.12	32%	\$0.02	1,870
Utah	Primary Metal Mfg	Pumps	Motor rewinds	1%	15	\$0.24	5%	\$0.03	5
Utah	Primary Metal Mfg	Pumps	Pump Energy Management	8%	10	\$0.07	30%	\$0.01	223
Utah	Primary Metal Mfg	Pumps	Pump Equipment Upgrade	20%	10	\$0.13	32%	\$0.02	1,074
Utah	Primary Metal Mfg	Pumps	Pump System Optimization	12%	12	\$0.26	15%	\$0.03	203
Utah	Primary Metal Mfg	Pumps	Synchronous Belts	1%	10	\$0.21	20%	\$0.03	38
Utah	Stone Clay Glass Products	Fans	Efficient Centrifugal Fan	20%	10	\$0.18	11%	\$0.03	1,416
Utah	Stone Clay Glass Products	Fans	Fan System Optimization	8%	10	\$0.20	30%	\$0.03	883
Utah	Stone Clay Glass Products	Fans	High Efficiency Motors	1%	15	\$0.44	76%	\$0.05	689
Utah	Stone Clay Glass Products	Fans	Improved Controls	6%	10	\$0.09	34%	\$0.01	1,310
Utah	Stone Clay Glass Products	Fans	Properly Sized Fans	10%	10	\$0.16	15%	\$0.02	1,005
Utah	Stone Clay Glass Products	Fans	Synchronous Belts	1%	10	\$0.21	21%	\$0.03	151
Utah	Stone Clay Glass Products	Hvac	Equipment Upgrades	33%	12	\$0.12	32%	\$0.02	4,777
Utah	Stone Clay Glass Products	Hvac	Improved Controls	21%	10	\$0.05	33%	\$0.01	3,527
Utah	Stone Clay Glass Products	Hvac	Recommissioning	5%	10	\$0.03	74%	\$0.00	1,745
Utah	Stone Clay Glass Products	Lighting	Efficient Lighting 1 Shift	20%	10	\$0.08	5%	\$0.01	396
Utah	Stone Clay Glass Products	Lighting	Efficient Lighting 2 Shift	20%	10	\$0.05	2%	\$0.01	132
Utah	Stone Clay Glass Products	Lighting	Efficient Lighting 3 Shift	20%	10	\$0.03	13%	\$0.00	987
Utah	Stone Clay Glass Products	Lighting	HighBay Lighting 1 Shift	48%	10	\$0.24	8%	\$0.04	1,203
Utah	Stone Clay Glass Products	Lighting	HighBay Lighting 2 Shift	48%	10	\$0.14	3%	\$0.02	405
Utah	Stone Clay Glass Products	Lighting	HighBay Lighting 3 Shift	48%	10	\$0.08	19%	\$0.01	3,418
Utah	Stone Clay Glass Products	Lighting	Lighting Controls	18%	10	\$0.13	28%	\$0.02	1,782

Table C.2.3. Industrial Measure Details

State	Segment	End Use	Measure Name	Percnet of End Use Consumption Saved	Measure Life	Incremental Cost per kWh	Measure Applicability	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Utah	Stone Clay Glass Products	Motors Other	High Efficiency Motors	1%	15	\$0.44	75%	\$0.05	1,804
Utah	Stone Clay Glass Products	Motors Other	Improved Controls	3%	10	\$0.10	34%	\$0.02	2,191
Utah	Stone Clay Glass Products	Motors Other	Material Handling	5%	10	\$0.47	53%	\$0.07	4,257
Utah	Stone Clay Glass Products	Motors Other	Material Handling VFD	19%	10	\$0.30	53%	\$0.04	17,867
Utah	Stone Clay Glass Products	Motors Other	Motor Management Plan	3%	10	\$0.07	50%	\$0.01	1,568
Utah	Stone Clay Glass Products	Motors Other	Motors Other	1%	15	\$0.02	90%	\$0.00	1,344
Utah	Stone Clay Glass Products	Motors Other	Motors: Rewind 101-200 HP	1%	15	\$0.25	7%	\$0.03	61
Utah	Stone Clay Glass Products	Motors Other	Motors: Rewind 20-50 HP	1%	15	\$0.34	5%	\$0.04	75
Utah	Stone Clay Glass Products	Motors Other	Motors: Rewind 201-500 HP	1%	15	\$0.16	4%	\$0.02	37
Utah	Stone Clay Glass Products	Motors Other	Motors: Rewind 500+ HP	1%	15	\$0.14	4%	\$0.02	37
Utah	Stone Clay Glass Products	Motors Other	Motors: Rewind 51-100 HP	1%	15	\$0.31	7%	\$0.03	73
Utah	Stone Clay Glass Products	Motors Other	Switch from Belt drive to Direct Drive	8%	12	\$0.21	10%	\$0.03	1,433
Utah	Stone Clay Glass Products	Motors Other	Synchronous Belts	1%	10	\$0.21	21%	\$0.03	424
Utah	Stone Clay Glass Products	Other	Bldg Improvements	20%	15	\$0.13	35%	\$0.01	2,574
Utah	Stone Clay Glass Products	Other	Energy Project Management	29%	11	\$0.12	27%	\$0.02	1,310
Utah	Stone Clay Glass Products	Other	Integrated Plant Energy Management	50%	11	\$0.20	22%	\$0.03	2,166
Utah	Stone Clay Glass Products	Other	Plant Energy Management	12%	10	\$0.02	27%	\$0.00	560
Utah	Stone Clay Glass Products	Other	Transformers	2%	30	\$0.20	80%	\$0.02	381
Utah	Stone Clay Glass Products	Process Aircomp	Air Compressor Demand Reduction	16%	10	\$0.05	26%	\$0.01	2,608
Utah	Stone Clay Glass Products	Process Aircomp	Air Compressor Equipment	9%	10	\$0.13	17%	\$0.02	894
Utah	Stone Clay Glass Products	Process Aircomp	Air Compressor Optimization	30%	10	\$0.11	36%	\$0.02	4,819
Utah	Stone Clay Glass Products	Process Aircomp	High efficiency Compressor motors	1%	15	\$0.34	75%	\$0.04	497
Utah	Stone Clay Glass Products	Process Aircomp	Improved Controls	19%	10	\$0.03	34%	\$0.00	4,290
Utah	Stone Clay Glass Products	Process Aircomp	Motor Management Plan	3%	10	\$0.07	50%	\$0.01	543
Utah	Stone Clay Glass Products	Process Cool	Equipment: Chillers	18%	20	\$0.26	8%	\$0.03	402
Utah	Stone Clay Glass Products	Process Cool	Improved Controls	6%	15	\$0.88	34%	\$0.10	561
Utah	Stone Clay Glass Products	Process Heat	Improved Controls	30%	15	\$0.05	36%	\$0.01	18,153
Utah	Stone Clay Glass Products	Process Heat	Process Heat O&M	29%	2	\$0.05	70%	\$0.03	17,210
Utah	Stone Clay Glass Products	Process Refrig	Adjustable speed drive on compressors	12%	10	\$0.16	34%	\$0.02	1,285
Utah	Stone Clay Glass Products	Process Refrig	Optimization of operating parameters	13%	3	\$0.06	85%	\$0.02	2,031
Utah	Stone Clay Glass Products	Process Refrig	Synchronous Belts	1%	10	\$0.21	21%	\$0.03	65
Utah	Stone Clay Glass Products	Pumps	High Efficiency Motors	1%	15	\$0.44	76%	\$0.05	1,073
Utah	Stone Clay Glass Products	Pumps	Improved Controls	30%	10	\$0.12	34%	\$0.02	12,170
Utah	Stone Clay Glass Products	Pumps	Motor rewinds	1%	15	\$0.24	5%	\$0.03	33
Utah	Stone Clay Glass Products	Pumps	Pump Energy Management	8%	10	\$0.07	31%	\$0.01	1,449
Utah	Stone Clay Glass Products	Pumps	Pump Equipment Upgrade	20%	10	\$0.13	34%	\$0.02	6,944
Utah	Stone Clay Glass Products	Pumps	Pump System Optimization	12%	12	\$0.26	16%	\$0.03	1,326
Utah	Stone Clay Glass Products	Pumps	Synchronous Belts	1%	10	\$0.21	21%	\$0.03	249
Utah	Transportation Equipment Mfg	Fans	Efficient Centrifugal Fan	20%	10	\$0.18	11%	\$0.03	598
Utah	Transportation Equipment Mfg	Fans	Fan System Optimization	8%	10	\$0.20	30%	\$0.03	373
Utah	Transportation Equipment Mfg	Fans	High Efficiency Motors	1%	15	\$0.44	76%	\$0.05	291
Utah	Transportation Equipment Mfg	Fans	Improved Controls	6%	10	\$0.09	34%	\$0.01	554
Utah	Transportation Equipment Mfg	Fans	Properly Sized Fans	10%	10	\$0.16	15%	\$0.02	425
Utah	Transportation Equipment Mfg	Fans	Synchronous Belts	1%	10	\$0.21	21%	\$0.03	64
Utah	Transportation Equipment Mfg	Hvac	Equipment Upgrades	33%	12	\$0.12	32%	\$0.02	9,780
Utah	Transportation Equipment Mfg	Hvac	Improved Controls	21%	10	\$0.05	33%	\$0.01	7,219
Utah	Transportation Equipment Mfg	Hvac	Recommissioning	5%	10	\$0.03	74%	\$0.00	3,572
Utah	Transportation Equipment Mfg	Lighting	Efficient Lighting 1 Shift	20%	10	\$0.08	5%	\$0.01	818
Utah	Transportation Equipment Mfg	Lighting	Efficient Lighting 2 Shift	20%	10	\$0.05	2%	\$0.01	273
Utah	Transportation Equipment Mfg	Lighting	Efficient Lighting 3 Shift	20%	10	\$0.03	13%	\$0.00	2,038
Utah	Transportation Equipment Mfg	Lighting	HighBay Lighting 1 Shift	48%	10	\$0.24	8%	\$0.04	2,483
Utah	Transportation Equipment Mfg	Lighting	HighBay Lighting 2 Shift	48%	10	\$0.14	3%	\$0.02	836

Table C.2.3. Industrial Measure Details

State	Segment	End Use	Measure Name	Percnet of End Use Consumption Saved	Measure Life	Incremental Cost per kWh	Measure Applicability	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Utah	Transportation Equipment Mfg	Lighting	HighBay Lighting 3 Shift	48%	10	\$0.08	19%	\$0.01	7,053
Utah	Transportation Equipment Mfg	Lighting	Lighting Controls	18%	10	\$0.13	28%	\$0.02	3,677
Utah	Transportation Equipment Mfg	Motors Other	High Efficiency Motors	1%	15	\$0.44	75%	\$0.05	601
Utah	Transportation Equipment Mfg	Motors Other	Improved Controls	3%	10	\$0.10	34%	\$0.02	730
Utah	Transportation Equipment Mfg	Motors Other	Material Handling	5%	10	\$0.47	53%	\$0.07	1,419
Utah	Transportation Equipment Mfg	Motors Other	Material Handling VFD	19%	10	\$0.30	53%	\$0.04	5,955
Utah	Transportation Equipment Mfg	Motors Other	Motor Management Plan	3%	10	\$0.07	50%	\$0.01	522
Utah	Transportation Equipment Mfg	Motors Other	Motors Other	1%	15	\$0.02	90%	\$0.00	448
Utah	Transportation Equipment Mfg	Motors Other	Motors: Rewind 101-200 HP	1%	15	\$0.25	7%	\$0.03	20
Utah	Transportation Equipment Mfg	Motors Other	Motors: Rewind 20-50 HP	1%	15	\$0.34	5%	\$0.04	25
Utah	Transportation Equipment Mfg	Motors Other	Motors: Rewind 201-500 HP	1%	15	\$0.16	4%	\$0.02	12
Utah	Transportation Equipment Mfg	Motors Other	Motors: Rewind 500+ HP	1%	15	\$0.14	4%	\$0.02	12
Utah	Transportation Equipment Mfg	Motors Other	Motors: Rewind 51-100 HP	1%	15	\$0.31	7%	\$0.03	24
Utah	Transportation Equipment Mfg	Motors Other	Switch from Belt drive to Direct Drive	8%	12	\$0.21	10%	\$0.03	477
Utah	Transportation Equipment Mfg	Motors Other	Synchronous Belts	1%	10	\$0.21	21%	\$0.03	141
Utah	Transportation Equipment Mfg	Other	Bldg Improvements	20%	15	\$0.13	35%	\$0.01	1,603
Utah	Transportation Equipment Mfg	Other	Energy Project Management	29%	11	\$0.12	27%	\$0.02	816
Utah	Transportation Equipment Mfg	Other	Integrated Plant Energy Management	50%	11	\$0.20	22%	\$0.03	1,349
Utah	Transportation Equipment Mfg	Other	Plant Energy Management	12%	10	\$0.02	27%	\$0.00	349
Utah	Transportation Equipment Mfg	Other	Transformers	2%	30	\$0.20	80%	\$0.02	237
Utah	Transportation Equipment Mfg	Process Aircomp	Air Compressor Demand Reduction	16%	10	\$0.05	26%	\$0.01	2,226
Utah	Transportation Equipment Mfg	Process Aircomp	Air Compressor Equipment	9%	10	\$0.13	17%	\$0.02	763
Utah	Transportation Equipment Mfg	Process Aircomp	Air Compressor Optimization	30%	10	\$0.11	36%	\$0.02	4,113
Utah	Transportation Equipment Mfg	Process Aircomp	High efficiency Compressor motors	1%	15	\$0.34	75%	\$0.04	424
Utah	Transportation Equipment Mfg	Process Aircomp	Improved Controls	19%	10	\$0.03	34%	\$0.00	3,662
Utah	Transportation Equipment Mfg	Process Aircomp	Motor Management Plan	3%	10	\$0.07	50%	\$0.01	463
Utah	Transportation Equipment Mfg	Process Cool	Equipment: Chillers	18%	20	\$0.26	8%	\$0.03	349
Utah	Transportation Equipment Mfg	Process Cool	Improved Controls	6%	15	\$0.88	34%	\$0.10	488
Utah	Transportation Equipment Mfg	Process Heat	Improved Controls	30%	15	\$0.05	36%	\$0.01	5,729
Utah	Transportation Equipment Mfg	Process Heat	Process Heat O&M	29%	2	\$0.05	70%	\$0.03	5,432
Utah	Transportation Equipment Mfg	Process Refrig	Adjustable speed drive on compressors	12%	10	\$0.16	34%	\$0.02	718
Utah	Transportation Equipment Mfg	Process Refrig	Optimization of operating parameters	13%	3	\$0.06	85%	\$0.02	1,136
Utah	Transportation Equipment Mfg	Process Refrig	Synchronous Belts	1%	10	\$0.21	21%	\$0.03	36
Utah	Transportation Equipment Mfg	Pumps	High Efficiency Motors	1%	15	\$0.44	76%	\$0.05	547
Utah	Transportation Equipment Mfg	Pumps	Improved Controls	30%	10	\$0.12	34%	\$0.02	6,211
Utah	Transportation Equipment Mfg	Pumps	Motor rewinds	1%	15	\$0.24	5%	\$0.03	17
Utah	Transportation Equipment Mfg	Pumps	Pump Energy Management	8%	10	\$0.07	31%	\$0.01	739
Utah	Transportation Equipment Mfg	Pumps	Pump Equipment Upgrade	20%	10	\$0.13	34%	\$0.02	3,544
Utah	Transportation Equipment Mfg	Pumps	Pump System Optimization	12%	12	\$0.26	16%	\$0.03	676
Utah	Transportation Equipment Mfg	Pumps	Synchronous Belts	1%	10	\$0.21	21%	\$0.03	127
Utah	Wastewater	Lighting	Efficient Lighting 1 Shift	20%	10	\$0.08	5%	\$0.01	12
Utah	Wastewater	Lighting	Efficient Lighting 2 Shift	20%	10	\$0.05	2%	\$0.01	4
Utah	Wastewater	Lighting	Efficient Lighting 3 Shift	20%	10	\$0.03	13%	\$0.00	31
Utah	Wastewater	Lighting	HighBay Lighting 1 Shift	48%	10	\$0.24	8%	\$0.04	38
Utah	Wastewater	Lighting	HighBay Lighting 2 Shift	48%	10	\$0.14	3%	\$0.02	13
Utah	Wastewater	Lighting	HighBay Lighting 3 Shift	48%	10	\$0.08	19%	\$0.01	110
Utah	Wastewater	Lighting	Lighting Controls	18%	10	\$0.13	28%	\$0.02	57
Utah	Wastewater	Other	Bldg Improvements	20%	15	\$0.13	35%	\$0.01	679
Utah	Wastewater	Other	Energy Project Management	29%	11	\$0.12	27%	\$0.02	345
Utah	Wastewater	Other	Integrated Plant Energy Management	50%	11	\$0.20	22%	\$0.03	571
Utah	Wastewater	Other	Plant Energy Management	12%	10	\$0.02	27%	\$0.00	147
Utah	Wastewater	Other	Transformers	2%	30	\$0.20	80%	\$0.02	100

Table C.2.3. Industrial Measure Details

State	Segment	End Use	Measure Name	Percnet of End Use Consumption Saved	Measure Life	Incremental Cost per kWh	Measure Applicability	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Utah	Wastewater	Process Aircomp	Air Compressor Demand Reduction	16%	10	\$0.05	26%	\$0.01	1,502
Utah	Wastewater	Process Aircomp	Air Compressor Equipment	9%	10	\$0.13	17%	\$0.02	514
Utah	Wastewater	Process Aircomp	Air Compressor Optimization	30%	10	\$0.11	36%	\$0.02	2,774
Utah	Wastewater	Process Aircomp	High efficiency Compressor motors	1%	15	\$0.34	75%	\$0.04	286
Utah	Wastewater	Process Aircomp	Improved Controls	19%	10	\$0.03	34%	\$0.00	2,470
Utah	Wastewater	Process Aircomp	Motor Management Plan	3%	10	\$0.07	50%	\$0.01	313
Utah	Wastewater	Pumps	High Efficiency Motors	1%	15	\$0.44	75%	\$0.05	104
Utah	Wastewater	Pumps	Improved Controls	30%	10	\$0.12	34%	\$0.02	1,180
Utah	Wastewater	Pumps	Motor rewinds	1%	15	\$0.24	5%	\$0.03	3
Utah	Wastewater	Pumps	Pump Energy Management	8%	10	\$0.07	31%	\$0.01	140
Utah	Wastewater	Pumps	Pump Equipment Upgrade	20%	10	\$0.13	34%	\$0.02	674
Utah	Wastewater	Pumps	Pump System Optimization	12%	12	\$0.26	15%	\$0.03	128
Utah	Wastewater	Pumps	Synchronous Belts	1%	10	\$0.21	21%	\$0.03	24
Utah	Water	Fans	Efficient Centrifugal Fan	20%	10	\$0.18	11%	\$0.03	206
Utah	Water	Fans	Fan System Optimization	8%	10	\$0.20	30%	\$0.03	128
Utah	Water	Fans	High Efficiency Motors	1%	15	\$0.44	75%	\$0.05	100
Utah	Water	Fans	Improved Controls	6%	10	\$0.09	34%	\$0.01	191
Utah	Water	Fans	Properly Sized Fans	10%	10	\$0.16	15%	\$0.02	146
Utah	Water	Fans	Synchronous Belts	1%	10	\$0.21	21%	\$0.03	22
Utah	Water	Lighting	Efficient Lighting 1 Shift	20%	10	\$0.08	5%	\$0.01	19
Utah	Water	Lighting	Efficient Lighting 2 Shift	20%	10	\$0.05	2%	\$0.01	6
Utah	Water	Lighting	Efficient Lighting 3 Shift	20%	10	\$0.03	13%	\$0.00	47
Utah	Water	Lighting	HighBay Lighting 1 Shift	48%	10	\$0.24	8%	\$0.04	57
Utah	Water	Lighting	HighBay Lighting 2 Shift	48%	10	\$0.14	3%	\$0.02	19
Utah	Water	Lighting	HighBay Lighting 3 Shift	48%	10	\$0.08	19%	\$0.01	164
Utah	Water	Lighting	Lighting Controls	18%	10	\$0.13	28%	\$0.02	85
Utah	Water	Motors Other	High Efficiency Motors	1%	15	\$0.44	75%	\$0.05	94
Utah	Water	Motors Other	Improved Controls	3%	10	\$0.10	34%	\$0.02	114
Utah	Water	Motors Other	Material Handling	5%	10	\$0.47	53%	\$0.07	221
Utah	Water	Motors Other	Material Handling VFD	19%	10	\$0.30	53%	\$0.04	931
Utah	Water	Motors Other	Motor Management Plan	3%	10	\$0.07	50%	\$0.01	81
Utah	Water	Motors Other	Motors Other	1%	15	\$0.02	90%	\$0.00	70
Utah	Water	Motors Other	Motors: Rewind 101-200 HP	1%	15	\$0.25	7%	\$0.03	3
Utah	Water	Motors Other	Motors: Rewind 20-50 HP	1%	15	\$0.34	5%	\$0.04	3
Utah	Water	Motors Other	Motors: Rewind 201-500 HP	1%	15	\$0.16	4%	\$0.02	1
Utah	Water	Motors Other	Motors: Rewind 500+ HP	1%	15	\$0.14	4%	\$0.02	1
Utah	Water	Motors Other	Motors: Rewind 51-100 HP	1%	15	\$0.31	7%	\$0.03	3
Utah	Water	Motors Other	Switch from Belt drive to Direct Drive	8%	12	\$0.21	11%	\$0.03	74
Utah	Water	Motors Other	Synchronous Belts	1%	10	\$0.21	21%	\$0.03	22
Utah	Water	Other	Bldg Improvements	20%	15	\$0.13	35%	\$0.01	1,012
Utah	Water	Other	Energy Project Management	29%	11	\$0.12	27%	\$0.02	515
Utah	Water	Other	Integrated Plant Energy Management	50%	11	\$0.20	22%	\$0.03	852
Utah	Water	Other	Plant Energy Management	12%	10	\$0.02	27%	\$0.00	220
Utah	Water	Other	Transformers	2%	30	\$0.20	80%	\$0.02	150
Utah	Water	Pumps	High Efficiency Motors	1%	15	\$0.44	75%	\$0.05	565
Utah	Water	Pumps	Improved Controls	30%	10	\$0.12	34%	\$0.02	6,397
Utah	Water	Pumps	Motor rewinds	1%	15	\$0.24	5%	\$0.03	17
Utah	Water	Pumps	Pump Energy Management	8%	10	\$0.07	31%	\$0.01	762
Utah	Water	Pumps	Pump Equipment Upgrade	20%	10	\$0.13	34%	\$0.02	3,654
Utah	Water	Pumps	Pump System Optimization	12%	12	\$0.26	15%	\$0.03	697
Utah	Water	Pumps	Synchronous Belts	1%	10	\$0.21	21%	\$0.03	131
Washington	Food Mfg	Fans	Efficient Centrifugal Fan	20%	10	\$0.18	11%	\$0.03	107

Table C.2.3. Industrial Measure Details

State	Segment	End Use	Measure Name	Percnet of End Use Consumption Saved	Measure Life	Incremental Cost per kWh	Measure Applicability	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Washington	Food Mfg	Fans	Fan System Optimization	8%	10	\$0.20	30%	\$0.03	67
Washington	Food Mfg	Fans	High Efficiency Motors	1%	15	\$0.44	75%	\$0.06	52
Washington	Food Mfg	Fans	Improved Controls	6%	10	\$0.09	34%	\$0.05	99
Washington	Food Mfg	Fans	Properly Sized Fans	10%	10	\$0.16	15%	\$0.04	76
Washington	Food Mfg	Fans	Synchronous Belts	1%	10	\$0.21	21%	\$0.04	11
Washington	Food Mfg	Hvac	Equipment Upgrades	33%	12	\$0.12	31%	\$0.02	874
Washington	Food Mfg	Hvac	Improved Controls	21%	10	\$0.05	33%	\$-0.04	644
Washington	Food Mfg	Hvac	Recommissioning	5%	10	\$0.03	73%	\$-0.02	319
Washington	Food Mfg	Lighting	Efficient Lighting 1 Shift	20%	10	\$0.08	4%	\$0.01	78
Washington	Food Mfg	Lighting	Efficient Lighting 2 Shift	20%	10	\$0.05	3%	\$0.01	58
Washington	Food Mfg	Lighting	Efficient Lighting 3 Shift	20%	10	\$0.03	12%	\$0.00	212
Washington	Food Mfg	Lighting	HighBay Lighting 1 Shift	48%	10	\$0.24	7%	\$0.04	236
Washington	Food Mfg	Lighting	HighBay Lighting 2 Shift	48%	10	\$0.14	5%	\$0.02	180
Washington	Food Mfg	Lighting	HighBay Lighting 3 Shift	48%	10	\$0.08	18%	\$0.01	735
Washington	Food Mfg	Lighting	Lighting Controls	18%	10	\$0.13	28%	\$0.02	413
Washington	Food Mfg	Motors Other	High Efficiency Motors	1%	15	\$0.44	73%	\$0.06	249
Washington	Food Mfg	Motors Other	Improved Controls	3%	10	\$0.10	33%	\$0.02	302
Washington	Food Mfg	Motors Other	Material Handling	5%	10	\$0.47	52%	\$0.08	589
Washington	Food Mfg	Motors Other	Material Handling VFD	19%	10	\$0.30	52%	\$0.05	2,467
Washington	Food Mfg	Motors Other	Motor Management Plan	3%	10	\$0.07	49%	\$0.02	216
Washington	Food Mfg	Motors Other	Motors Other	1%	15	\$0.02	88%	\$0.00	185
Washington	Food Mfg	Motors Other	Motors: Rewind 101-200 HP	1%	15	\$0.25	7%	\$0.03	8
Washington	Food Mfg	Motors Other	Motors: Rewind 20-50 HP	1%	15	\$0.34	5%	\$0.04	10
Washington	Food Mfg	Motors Other	Motors: Rewind 201-500 HP	1%	15	\$0.16	4%	\$0.02	5
Washington	Food Mfg	Motors Other	Motors: Rewind 500+ HP	1%	15	\$0.14	4%	\$0.02	5
Washington	Food Mfg	Motors Other	Motors: Rewind 51-100 HP	1%	15	\$0.31	7%	\$0.04	10
Washington	Food Mfg	Motors Other	Switch from Belt drive to Direct Drive	8%	12	\$0.21	10%	\$0.03	197
Washington	Food Mfg	Motors Other	Synchronous Belts	1%	10	\$0.21	20%	\$0.04	58
Washington	Food Mfg	Other	Bldg Improvements	20%	15	\$0.13	35%	\$-0.03	701
Washington	Food Mfg	Other	Energy Project Management	29%	11	\$0.12	27%	\$0.05	357
Washington	Food Mfg	Other	Integrated Plant Energy Management	50%	11	\$0.20	22%	\$-0.00	590
Washington	Food Mfg	Other	Plant Energy Management	12%	10	\$0.02	27%	\$0.03	152
Washington	Food Mfg	Other	Transformers	2%	30	\$0.20	80%	\$0.02	103
Washington	Food Mfg	Process Aircomp	Air Compressor Demand Reduction	16%	10	\$0.05	26%	\$0.03	177
Washington	Food Mfg	Process Aircomp	Air Compressor Equipment	9%	10	\$0.13	17%	\$0.05	60
Washington	Food Mfg	Process Aircomp	Air Compressor Optimization	30%	10	\$0.11	35%	\$-0.01	326
Washington	Food Mfg	Process Aircomp	High efficiency Compressor motors	1%	15	\$0.34	74%	\$0.04	33
Washington	Food Mfg	Process Aircomp	Improved Controls	19%	10	\$0.03	33%	\$0.01	290
Washington	Food Mfg	Process Aircomp	Motor Management Plan	3%	10	\$0.07	49%	\$0.02	36
Washington	Food Mfg	Process Cool	Equipment: Chillers	18%	20	\$0.26	8%	\$0.03	508
Washington	Food Mfg	Process Cool	Improved Controls	6%	15	\$0.88	35%	\$0.11	708
Washington	Food Mfg	Process Heat	Improved Controls	30%	15	\$0.05	34%	\$-0.09	428
Washington	Food Mfg	Process Heat	Process Heat O&M	29%	2	\$0.05	65%	\$0.04	410
Washington	Food Mfg	Process Refrig	Adjustable speed drive on compressors	12%	10	\$0.16	34%	\$0.03	776
Washington	Food Mfg	Process Refrig	Food: Cooling and Storage	15%	10	\$0.20	15%	\$0.03	333
Washington	Food Mfg	Process Refrig	Food: Refrig Storage Tuneup	14%	3	\$0.04	8%	\$0.02	216
Washington	Food Mfg	Process Refrig	Fruit Storage Refer Retrofit	38%	10	\$0.17	61%	\$0.03	4,360
Washington	Food Mfg	Process Refrig	Fruit Storage Tuneup	16%	3	\$0.04	10%	\$0.02	310
Washington	Food Mfg	Process Refrig	Optimization of operating parameters	13%	3	\$0.06	85%	\$0.03	920
Washington	Food Mfg	Process Refrig	Synchronous Belts	1%	10	\$0.21	21%	\$0.04	29
Washington	Food Mfg	Pumps	High Efficiency Motors	1%	15	\$0.44	74%	\$0.06	98
Washington	Food Mfg	Pumps	Improved Controls	30%	10	\$0.12	33%	\$0.02	1,111

Table C.2.3. Industrial Measure Details

State	Segment	End Use	Measure Name	Percnet of End Use Consumption Saved	Measure Life	Incremental Cost per kWh	Measure Applicability	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Washington	Food Mfg	Pumps	Motor rewinds	1%	15	\$0.24	5%	\$0.03	3
Washington	Food Mfg	Pumps	Pump Energy Management	8%	10	\$0.07	30%	\$0.04	132
Washington	Food Mfg	Pumps	Pump Equipment Upgrade	20%	10	\$0.13	33%	\$0.05	636
Washington	Food Mfg	Pumps	Pump System Optimization	12%	12	\$0.26	15%	\$-0.02	121
Washington	Food Mfg	Pumps	Synchronous Belts	1%	10	\$0.21	21%	\$0.04	22
Washington	Lumber Wood Products	Fans	Efficient Centrifugal Fan	20%	10	\$0.18	11%	\$0.03	175
Washington	Lumber Wood Products	Fans	Fan System Optimization	8%	10	\$0.20	30%	\$0.03	109
Washington	Lumber Wood Products	Fans	High Efficiency Motors	1%	15	\$0.44	77%	\$0.06	85
Washington	Lumber Wood Products	Fans	Improved Controls	6%	10	\$0.09	34%	\$0.05	162
Washington	Lumber Wood Products	Fans	Properly Sized Fans	10%	10	\$0.16	15%	\$0.04	124
Washington	Lumber Wood Products	Fans	Synchronous Belts	1%	10	\$0.21	21%	\$0.04	18
Washington	Lumber Wood Products	Hvac	Equipment Upgrades	33%	12	\$0.12	32%	\$0.02	521
Washington	Lumber Wood Products	Hvac	Improved Controls	21%	10	\$0.05	33%	\$-0.04	384
Washington	Lumber Wood Products	Hvac	Recommissioning	5%	10	\$0.03	73%	\$-0.02	190
Washington	Lumber Wood Products	Lighting	Efficient Lighting 1 Shift	20%	10	\$0.08	4%	\$0.01	50
Washington	Lumber Wood Products	Lighting	Efficient Lighting 2 Shift	20%	10	\$0.05	5%	\$0.01	57
Washington	Lumber Wood Products	Lighting	Efficient Lighting 3 Shift	20%	10	\$0.03	10%	\$0.00	121
Washington	Lumber Wood Products	Lighting	HighBay Lighting 1 Shift	48%	10	\$0.24	7%	\$0.04	153
Washington	Lumber Wood Products	Lighting	HighBay Lighting 2 Shift	48%	10	\$0.14	7%	\$0.02	176
Washington	Lumber Wood Products	Lighting	HighBay Lighting 3 Shift	48%	10	\$0.08	15%	\$0.01	419
Washington	Lumber Wood Products	Lighting	Lighting Controls	18%	10	\$0.13	28%	\$0.02	274
Washington	Lumber Wood Products	Motors Other	High Efficiency Motors	1%	15	\$0.44	75%	\$0.06	191
Washington	Lumber Wood Products	Motors Other	Improved Controls	3%	10	\$0.10	34%	\$0.02	232
Washington	Lumber Wood Products	Motors Other	Material Handling	5%	10	\$0.47	53%	\$0.08	451
Washington	Lumber Wood Products	Motors Other	Material Handling VFD	19%	10	\$0.30	53%	\$0.05	1,894
Washington	Lumber Wood Products	Motors Other	Motor Management Plan	3%	10	\$0.07	50%	\$0.02	166
Washington	Lumber Wood Products	Motors Other	Motors Other	1%	15	\$0.02	90%	\$0.00	142
Washington	Lumber Wood Products	Motors Other	Motors: Rewind 101-200 HP	1%	15	\$0.25	7%	\$0.03	6
Washington	Lumber Wood Products	Motors Other	Motors: Rewind 20-50 HP	1%	15	\$0.34	5%	\$0.04	7
Washington	Lumber Wood Products	Motors Other	Motors: Rewind 201-500 HP	1%	15	\$0.16	4%	\$0.02	3
Washington	Lumber Wood Products	Motors Other	Motors: Rewind 500+ HP	1%	15	\$0.14	4%	\$0.02	3
Washington	Lumber Wood Products	Motors Other	Motors: Rewind 51-100 HP	1%	15	\$0.31	7%	\$0.04	7
Washington	Lumber Wood Products	Motors Other	Switch from Belt drive to Direct Drive	8%	12	\$0.21	11%	\$0.03	152
Washington	Lumber Wood Products	Motors Other	Synchronous Belts	1%	10	\$0.21	21%	\$0.04	45
Washington	Lumber Wood Products	Motors Other	Wood: Replace Pneumatic Conveyor	29%	10	\$0.01	50%	\$-0.06	3,389
Washington	Lumber Wood Products	Other	Bldg Improvements	20%	15	\$0.13	35%	\$-0.03	461
Washington	Lumber Wood Products	Other	Energy Project Management	29%	11	\$0.12	27%	\$0.05	234
Washington	Lumber Wood Products	Other	Integrated Plant Energy Management	50%	11	\$0.20	22%	\$-0.00	388
Washington	Lumber Wood Products	Other	Plant Energy Management	12%	10	\$0.02	27%	\$0.03	100
Washington	Lumber Wood Products	Other	Transformers	2%	30	\$0.20	80%	\$0.02	68
Washington	Lumber Wood Products	Process Aircomp	Air Compressor Demand Reduction	16%	10	\$0.05	27%	\$0.03	330
Washington	Lumber Wood Products	Process Aircomp	Air Compressor Equipment	9%	10	\$0.13	18%	\$0.05	113
Washington	Lumber Wood Products	Process Aircomp	Air Compressor Optimization	30%	10	\$0.11	37%	\$-0.01	614
Washington	Lumber Wood Products	Process Aircomp	High efficiency Compressor motors	1%	15	\$0.34	78%	\$0.04	62
Washington	Lumber Wood Products	Process Aircomp	Improved Controls	19%	10	\$0.03	35%	\$0.01	545
Washington	Lumber Wood Products	Process Aircomp	Motor Management Plan	3%	10	\$0.07	52%	\$0.02	68
Washington	Lumber Wood Products	Process Cool	Equipment: Chillers	18%	20	\$0.26	8%	\$0.03	7
Washington	Lumber Wood Products	Process Cool	Improved Controls	6%	15	\$0.88	32%	\$0.11	10
Washington	Lumber Wood Products	Process Heat	Improved Controls	30%	15	\$0.05	33%	\$-0.09	435
Washington	Lumber Wood Products	Process Heat	Process Heat O&M	29%	2	\$0.05	63%	\$0.04	417
Washington	Lumber Wood Products	Process Refrig	Adjustable speed drive on compressors	12%	10	\$0.16	34%	\$0.03	158
Washington	Lumber Wood Products	Process Refrig	Optimization of operating parameters	13%	3	\$0.06	85%	\$0.03	251

Table C.2.3. Industrial Measure Details

State	Segment	End Use	Measure Name	Percnet of End Use Consumption Saved	Measure Life	Incremental Cost per kWh	Measure Applicability	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Washington	Lumber Wood Products	Process Refrig	Synchronous Belts	1%	10	\$0.21	21%	\$0.04	8
Washington	Lumber Wood Products	Pumps	High Efficiency Motors	1%	15	\$0.44	72%	\$0.06	128
Washington	Lumber Wood Products	Pumps	Improved Controls	30%	10	\$0.12	32%	\$0.02	1,438
Washington	Lumber Wood Products	Pumps	Motor rewinds	1%	15	\$0.24	5%	\$0.03	3
Washington	Lumber Wood Products	Pumps	Pump Energy Management	8%	10	\$0.07	30%	\$0.04	172
Washington	Lumber Wood Products	Pumps	Pump Equipment Upgrade	20%	10	\$0.13	32%	\$0.05	825
Washington	Lumber Wood Products	Pumps	Pump System Optimization	12%	12	\$0.26	15%	\$-0.02	156
Washington	Lumber Wood Products	Pumps	Synchronous Belts	1%	10	\$0.21	20%	\$0.04	29
Washington	Miscellaneous Mfg	Fans	Efficient Centrifugal Fan	20%	10	\$0.18	11%	\$0.03	275
Washington	Miscellaneous Mfg	Fans	Fan System Optimization	8%	10	\$0.20	30%	\$0.03	172
Washington	Miscellaneous Mfg	Fans	High Efficiency Motors	1%	15	\$0.44	76%	\$0.06	134
Washington	Miscellaneous Mfg	Fans	Improved Controls	6%	10	\$0.09	34%	\$0.05	255
Washington	Miscellaneous Mfg	Fans	Properly Sized Fans	10%	10	\$0.16	15%	\$0.04	195
Washington	Miscellaneous Mfg	Fans	Synchronous Belts	1%	10	\$0.21	21%	\$0.04	29
Washington	Miscellaneous Mfg	Hvac	Equipment Upgrades	33%	12	\$0.12	32%	\$0.02	4,460
Washington	Miscellaneous Mfg	Hvac	Improved Controls	21%	10	\$0.05	33%	\$-0.04	3,292
Washington	Miscellaneous Mfg	Hvac	Recommissioning	5%	10	\$0.03	74%	\$-0.02	1,629
Washington	Miscellaneous Mfg	Lighting	Efficient Lighting 1 Shift	20%	10	\$0.08	5%	\$0.01	341
Washington	Miscellaneous Mfg	Lighting	Efficient Lighting 2 Shift	20%	10	\$0.05	2%	\$0.01	114
Washington	Miscellaneous Mfg	Lighting	Efficient Lighting 3 Shift	20%	10	\$0.03	13%	\$0.00	851
Washington	Miscellaneous Mfg	Lighting	HighBay Lighting 1 Shift	48%	10	\$0.24	8%	\$0.04	1,036
Washington	Miscellaneous Mfg	Lighting	HighBay Lighting 2 Shift	48%	10	\$0.14	3%	\$0.02	349
Washington	Miscellaneous Mfg	Lighting	HighBay Lighting 3 Shift	48%	10	\$0.08	19%	\$0.01	2,944
Washington	Miscellaneous Mfg	Lighting	Lighting Controls	18%	10	\$0.13	28%	\$0.02	1,535
Washington	Miscellaneous Mfg	Motors Other	High Efficiency Motors	1%	15	\$0.44	75%	\$0.06	497
Washington	Miscellaneous Mfg	Motors Other	Improved Controls	3%	10	\$0.10	34%	\$0.02	603
Washington	Miscellaneous Mfg	Motors Other	Material Handling	5%	10	\$0.47	53%	\$0.08	1,173
Washington	Miscellaneous Mfg	Motors Other	Material Handling VFD	19%	10	\$0.30	53%	\$0.05	4,923
Washington	Miscellaneous Mfg	Motors Other	Motor Management Plan	3%	10	\$0.07	50%	\$0.02	432
Washington	Miscellaneous Mfg	Motors Other	Motors Other	1%	15	\$0.02	90%	\$0.00	370
Washington	Miscellaneous Mfg	Motors Other	Motors: Rewind 101-200 HP	1%	15	\$0.25	7%	\$0.03	16
Washington	Miscellaneous Mfg	Motors Other	Motors: Rewind 20-50 HP	1%	15	\$0.34	5%	\$0.04	20
Washington	Miscellaneous Mfg	Motors Other	Motors: Rewind 201-500 HP	1%	15	\$0.16	4%	\$0.02	10
Washington	Miscellaneous Mfg	Motors Other	Motors: Rewind 500+ HP	1%	15	\$0.14	4%	\$0.02	10
Washington	Miscellaneous Mfg	Motors Other	Motors: Rewind 51-100 HP	1%	15	\$0.31	7%	\$0.04	20
Washington	Miscellaneous Mfg	Motors Other	Switch from Belt drive to Direct Drive	8%	12	\$0.21	10%	\$0.03	395
Washington	Miscellaneous Mfg	Motors Other	Synchronous Belts	1%	10	\$0.21	21%	\$0.04	116
Washington	Miscellaneous Mfg	Other	Bldg Improvements	20%	15	\$0.13	35%	\$-0.03	703
Washington	Miscellaneous Mfg	Other	Energy Project Management	29%	11	\$0.12	27%	\$0.05	358
Washington	Miscellaneous Mfg	Other	Integrated Plant Energy Management	50%	11	\$0.20	22%	\$-0.00	591
Washington	Miscellaneous Mfg	Other	Plant Energy Management	12%	10	\$0.02	27%	\$0.03	153
Washington	Miscellaneous Mfg	Other	Transformers	2%	30	\$0.20	80%	\$0.02	104
Washington	Miscellaneous Mfg	Process Aircomp	Air Compressor Demand Reduction	16%	10	\$0.05	26%	\$0.03	411
Washington	Miscellaneous Mfg	Process Aircomp	Air Compressor Equipment	9%	10	\$0.13	17%	\$0.05	141
Washington	Miscellaneous Mfg	Process Aircomp	Air Compressor Optimization	30%	10	\$0.11	36%	\$-0.01	760
Washington	Miscellaneous Mfg	Process Aircomp	High efficiency Compressor motors	1%	15	\$0.34	75%	\$0.04	78
Washington	Miscellaneous Mfg	Process Aircomp	Improved Controls	19%	10	\$0.03	34%	\$0.01	677
Washington	Miscellaneous Mfg	Process Aircomp	Motor Management Plan	3%	10	\$0.07	50%	\$0.02	85
Washington	Miscellaneous Mfg	Process Cool	Equipment: Chillers	18%	20	\$0.26	8%	\$0.03	198
Washington	Miscellaneous Mfg	Process Cool	Improved Controls	6%	15	\$0.88	34%	\$0.11	276
Washington	Miscellaneous Mfg	Process Heat	Improved Controls	30%	15	\$0.05	36%	\$-0.09	2,363
Washington	Miscellaneous Mfg	Process Heat	Process Heat O&M	29%	2	\$0.05	70%	\$0.04	2,240

Table C.2.3. Industrial Measure Details

State	Segment	End Use	Measure Name	Percnet of End Use Consumption Saved	Measure Life	Incremental Cost per kWh	Measure Applicability	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Washington	Miscellaneous Mfg	Process Refrig	Adjustable speed drive on compressors	12%	10	\$0.16	34%	\$0.03	3
Washington	Miscellaneous Mfg	Process Refrig	Cold Storage Retrofit	21%	10	\$0.20	26%	\$0.03	4
Washington	Miscellaneous Mfg	Process Refrig	Cold Storage Tuneup	16%	3	\$0.04	10%	\$0.02	1
Washington	Miscellaneous Mfg	Process Refrig	Optimization of operating parameters	13%	3	\$0.06	85%	\$0.03	4
Washington	Miscellaneous Mfg	Process Refrig	Synchronous Belts	1%	10	\$0.21	21%	\$0.04	0.15
Washington	Miscellaneous Mfg	Pumps	High Efficiency Motors	1%	15	\$0.44	76%	\$0.06	65
Washington	Miscellaneous Mfg	Pumps	Improved Controls	30%	10	\$0.12	34%	\$0.02	744
Washington	Miscellaneous Mfg	Pumps	Motor rewinds	1%	15	\$0.24	5%	\$0.03	2
Washington	Miscellaneous Mfg	Pumps	Pump Energy Management	8%	10	\$0.07	31%	\$0.04	88
Washington	Miscellaneous Mfg	Pumps	Pump Equipment Upgrade	20%	10	\$0.13	34%	\$0.05	425
Washington	Miscellaneous Mfg	Pumps	Pump System Optimization	12%	12	\$0.26	16%	\$-0.02	81
Washington	Miscellaneous Mfg	Pumps	Synchronous Belts	1%	10	\$0.21	21%	\$0.04	15
Washington	Paper Mfg	Fans	Efficient Centrifugal Fan	20%	10	\$0.18	11%	\$0.03	1,094
Washington	Paper Mfg	Fans	Fan System Optimization	8%	10	\$0.20	30%	\$0.03	682
Washington	Paper Mfg	Fans	High Efficiency Motors	1%	15	\$0.44	77%	\$0.06	532
Washington	Paper Mfg	Fans	Improved Controls	6%	10	\$0.09	34%	\$0.05	1,013
Washington	Paper Mfg	Fans	Paper: Premium Fan	20%	10	\$0.18	26%	\$0.03	2,747
Washington	Paper Mfg	Fans	Properly Sized Fans	10%	10	\$0.16	15%	\$0.04	777
Washington	Paper Mfg	Fans	Synchronous Belts	1%	10	\$0.21	21%	\$0.04	117
Washington	Paper Mfg	Hvac	Equipment Upgrades	33%	12	\$0.12	31%	\$0.02	1,256
Washington	Paper Mfg	Hvac	Improved Controls	21%	10	\$0.05	32%	\$-0.04	924
Washington	Paper Mfg	Hvac	Recommissioning	5%	10	\$0.03	72%	\$-0.02	458
Washington	Paper Mfg	Lighting	Efficient Lighting 1 Shift	20%	10	\$0.08	8%	\$0.01	204
Washington	Paper Mfg	Lighting	Efficient Lighting 2 Shift	20%	10	\$0.05	3%	\$0.01	68
Washington	Paper Mfg	Lighting	Efficient Lighting 3 Shift	20%	10	\$0.03	20%	\$0.00	516
Washington	Paper Mfg	Lighting	HighBay Lighting 1 Shift	48%	10	\$0.24	12%	\$0.04	577
Washington	Paper Mfg	Lighting	HighBay Lighting 2 Shift	48%	10	\$0.14	4%	\$0.02	195
Washington	Paper Mfg	Lighting	HighBay Lighting 3 Shift	48%	10	\$0.08	29%	\$0.01	1,749
Washington	Paper Mfg	Lighting	Lighting Controls	18%	10	\$0.13	28%	\$0.02	555
Washington	Paper Mfg	Motors Other	High Efficiency Motors	1%	15	\$0.44	76%	\$0.06	1,025
Washington	Paper Mfg	Motors Other	Improved Controls	3%	10	\$0.10	34%	\$0.02	1,247
Washington	Paper Mfg	Motors Other	Material Handling	5%	10	\$0.47	53%	\$0.08	2,305
Washington	Paper Mfg	Motors Other	Material Handling VFD	19%	10	\$0.30	53%	\$0.05	10,162
Washington	Paper Mfg	Motors Other	Motor Management Plan	3%	10	\$0.07	50%	\$0.02	892
Washington	Paper Mfg	Motors Other	Motors Other	1%	15	\$0.02	91%	\$0.00	765
Washington	Paper Mfg	Motors Other	Motors: Rewind 101-200 HP	1%	15	\$0.25	7%	\$0.03	34
Washington	Paper Mfg	Motors Other	Motors: Rewind 20-50 HP	1%	15	\$0.34	5%	\$0.04	42
Washington	Paper Mfg	Motors Other	Motors: Rewind 201-500 HP	1%	15	\$0.16	4%	\$0.02	21
Washington	Paper Mfg	Motors Other	Motors: Rewind 500+ HP	1%	15	\$0.14	4%	\$0.02	21
Washington	Paper Mfg	Motors Other	Motors: Rewind 51-100 HP	1%	15	\$0.31	7%	\$0.04	41
Washington	Paper Mfg	Motors Other	Paper: Large Material Handling	10%	10	\$0.77	25%	\$0.13	1,989
Washington	Paper Mfg	Motors Other	Paper: Material Handling	13%	10	\$0.64	25%	\$0.11	2,769
Washington	Paper Mfg	Motors Other	Paper: Premium Control Large Material	19%	10	\$0.44	25%	\$0.07	4,266
Washington	Paper Mfg	Motors Other	Switch from Belt drive to Direct Drive	8%	12	\$0.21	11%	\$0.03	815
Washington	Paper Mfg	Motors Other	Synchronous Belts	1%	10	\$0.21	21%	\$0.04	241
Washington	Paper Mfg	Other	Bldg Improvements	20%	15	\$0.13	35%	\$-0.03	504
Washington	Paper Mfg	Other	Energy Project Management	29%	11	\$0.12	27%	\$0.05	256
Washington	Paper Mfg	Other	Integrated Plant Energy Management	50%	11	\$0.20	22%	\$-0.00	424
Washington	Paper Mfg	Other	Plant Energy Management	12%	10	\$0.02	27%	\$0.03	109
Washington	Paper Mfg	Other	Transformers	2%	30	\$0.20	80%	\$0.02	74
Washington	Paper Mfg	Process Aircomp	Air Compressor Demand Reduction	16%	10	\$0.05	26%	\$0.03	424
Washington	Paper Mfg	Process Aircomp	Air Compressor Equipment	9%	10	\$0.13	17%	\$0.05	145

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State	Segment	End Use	Measure Name	Percnet of End Use Consumption Saved	Measure Life	Incremental Cost per kWh	Measure Applicability	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Washington	Paper Mfg	Process Aircomp	Air Compressor Optimization	30%	10	\$0.11	35%	\$-0.01	783
Washington	Paper Mfg	Process Aircomp	High efficiency Compressor motors	1%	15	\$0.34	75%	\$0.04	81
Washington	Paper Mfg	Process Aircomp	Improved Controls	19%	10	\$0.03	34%	\$0.01	698
Washington	Paper Mfg	Process Aircomp	Motor Management Plan	3%	10	\$0.07	50%	\$0.02	88
Washington	Paper Mfg	Process Cool	Equipment: Chillers	18%	20	\$0.26	8%	\$0.03	71
Washington	Paper Mfg	Process Cool	Improved Controls	6%	15	\$0.88	34%	\$0.11	100
Washington	Paper Mfg	Process Heat	Improved Controls	30%	15	\$0.05	33%	\$-0.09	842
Washington	Paper Mfg	Process Heat	Process Heat O&M	29%	2	\$0.05	64%	\$0.04	807
Washington	Paper Mfg	Process Other	Kraft: Efficient Agitator	50%	10	\$0.08	14%	\$0.01	110
Washington	Paper Mfg	Process Other	Kraft: Effluent Treatment System	15%	10	\$0.07	9%	\$0.01	22
Washington	Paper Mfg	Process Other	Mech Pulp: Premium Process	0%	5	\$0.11	22%	\$0.03	0.55
Washington	Paper Mfg	Process Other	Mech Pulp: Refiner Plate Improvement	0%	1	\$0.04	35%	\$0.04	2
Washington	Paper Mfg	Process Other	Mech Pulp: Refiner Replacement	10%	12	\$0.59	24%	\$0.05	34
Washington	Paper Mfg	Process Other	Paper: Efficient Pulp Screen	15%	10	\$0.18	14%	\$0.03	30
Washington	Paper Mfg	Process Refrig	Adjustable speed drive on compressors	12%	10	\$0.16	34%	\$0.03	538
Washington	Paper Mfg	Process Refrig	Optimization of operating parameters	13%	3	\$0.06	85%	\$0.03	851
Washington	Paper Mfg	Process Refrig	Synchronous Belts	1%	10	\$0.21	21%	\$0.04	27
Washington	Paper Mfg	Pumps	High Efficiency Motors	1%	15	\$0.44	78%	\$0.06	782
Washington	Paper Mfg	Pumps	Improved Controls	30%	10	\$0.12	35%	\$0.02	8,939
Washington	Paper Mfg	Pumps	Motor rewinds	1%	15	\$0.24	6%	\$0.03	24
Washington	Paper Mfg	Pumps	Pump Energy Management	8%	10	\$0.07	32%	\$0.04	1,060
Washington	Paper Mfg	Pumps	Pump Equipment Upgrade	20%	10	\$0.13	35%	\$0.05	5,076
Washington	Paper Mfg	Pumps	Pump System Optimization	12%	12	\$0.26	16%	\$-0.02	974
Washington	Paper Mfg	Pumps	Synchronous Belts	1%	10	\$0.21	22%	\$0.04	182
Washington	Wastewater	Lighting	Efficient Lighting 1 Shift	20%	10	\$0.08	5%	\$0.01	3
Washington	Wastewater	Lighting	Efficient Lighting 2 Shift	20%	10	\$0.05	2%	\$0.01	1
Washington	Wastewater	Lighting	Efficient Lighting 3 Shift	20%	10	\$0.03	13%	\$0.00	7
Washington	Wastewater	Lighting	HighBay Lighting 1 Shift	48%	10	\$0.24	8%	\$0.04	9
Washington	Wastewater	Lighting	HighBay Lighting 2 Shift	48%	10	\$0.14	3%	\$0.02	3
Washington	Wastewater	Lighting	HighBay Lighting 3 Shift	48%	10	\$0.08	19%	\$0.01	27
Washington	Wastewater	Lighting	Lighting Controls	18%	10	\$0.13	28%	\$0.02	14
Washington	Wastewater	Other	Bldg Improvements	20%	15	\$0.13	35%	\$-0.03	170
Washington	Wastewater	Other	Energy Project Management	29%	11	\$0.12	27%	\$0.05	86
Washington	Wastewater	Other	Integrated Plant Energy Management	50%	11	\$0.20	22%	\$-0.00	143
Washington	Wastewater	Other	Plant Energy Management	12%	10	\$0.02	27%	\$0.03	37
Washington	Wastewater	Other	Transformers	2%	30	\$0.20	80%	\$0.02	25
Washington	Wastewater	Process Aircomp	Air Compressor Demand Reduction	16%	10	\$0.05	26%	\$0.03	376
Washington	Wastewater	Process Aircomp	Air Compressor Equipment	9%	10	\$0.13	17%	\$0.05	129
Washington	Wastewater	Process Aircomp	Air Compressor Optimization	30%	10	\$0.11	36%	\$-0.01	695
Washington	Wastewater	Process Aircomp	High efficiency Compressor motors	1%	15	\$0.34	75%	\$0.04	71
Washington	Wastewater	Process Aircomp	Improved Controls	19%	10	\$0.03	34%	\$0.01	619
Washington	Wastewater	Process Aircomp	Motor Management Plan	3%	10	\$0.07	50%	\$0.02	78
Washington	Wastewater	Pumps	High Efficiency Motors	1%	15	\$0.44	75%	\$0.06	26
Washington	Wastewater	Pumps	Improved Controls	30%	10	\$0.12	34%	\$0.02	296
Washington	Wastewater	Pumps	Motor rewinds	1%	15	\$0.24	5%	\$0.03	0.81
Washington	Wastewater	Pumps	Pump Energy Management	8%	10	\$0.07	31%	\$0.04	35
Washington	Wastewater	Pumps	Pump Equipment Upgrade	20%	10	\$0.13	34%	\$0.05	169
Washington	Wastewater	Pumps	Pump System Optimization	12%	12	\$0.26	15%	\$-0.02	32
Washington	Wastewater	Pumps	Synchronous Belts	1%	10	\$0.21	21%	\$0.04	6
Washington	Water	Fans	Efficient Centrifugal Fan	20%	10	\$0.18	11%	\$0.03	33
Washington	Water	Fans	Fan System Optimization	8%	10	\$0.20	30%	\$0.03	20
Washington	Water	Fans	High Efficiency Motors	1%	15	\$0.44	75%	\$0.06	16

Table C.2.3. Industrial Measure Details

State	Segment	End Use	Measure Name	Percnet of End Use Consumption Saved	Measure Life	Incremental Cost per kWh	Measure Applicability	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Washington	Water	Fans	Improved Controls	6%	10	\$0.09	34%	\$0.05	30
Washington	Water	Fans	Properly Sized Fans	10%	10	\$0.16	15%	\$0.04	23
Washington	Water	Fans	Synchronous Belts	1%	10	\$0.21	21%	\$0.04	3
Washington	Water	Lighting	Efficient Lighting 1 Shift	20%	10	\$0.08	5%	\$0.01	3
Washington	Water	Lighting	Efficient Lighting 2 Shift	20%	10	\$0.05	2%	\$0.01	1
Washington	Water	Lighting	Efficient Lighting 3 Shift	20%	10	\$0.03	13%	\$0.00	7
Washington	Water	Lighting	HighBay Lighting 1 Shift	48%	10	\$0.24	8%	\$0.04	9
Washington	Water	Lighting	HighBay Lighting 2 Shift	48%	10	\$0.14	3%	\$0.02	3
Washington	Water	Lighting	HighBay Lighting 3 Shift	48%	10	\$0.08	19%	\$0.01	26
Washington	Water	Lighting	Lighting Controls	18%	10	\$0.13	28%	\$0.02	13
Washington	Water	Motors Other	High Efficiency Motors	1%	15	\$0.44	75%	\$0.06	15
Washington	Water	Motors Other	Improved Controls	3%	10	\$0.10	34%	\$0.02	18
Washington	Water	Motors Other	Material Handling	5%	10	\$0.47	53%	\$0.08	35
Washington	Water	Motors Other	Material Handling VFD	19%	10	\$0.30	53%	\$0.05	149
Washington	Water	Motors Other	Motor Management Plan	3%	10	\$0.07	50%	\$0.02	13
Washington	Water	Motors Other	Motors Other	1%	15	\$0.02	90%	\$0.00	11
Washington	Water	Motors Other	Motors: Rewind 101-200 HP	1%	15	\$0.25	7%	\$0.03	0.51
Washington	Water	Motors Other	Motors: Rewind 20-50 HP	1%	15	\$0.34	5%	\$0.04	0.62
Washington	Water	Motors Other	Motors: Rewind 201-500 HP	1%	15	\$0.16	4%	\$0.02	0.30
Washington	Water	Motors Other	Motors: Rewind 500+ HP	1%	15	\$0.14	4%	\$0.02	0.30
Washington	Water	Motors Other	Motors: Rewind 51-100 HP	1%	15	\$0.31	7%	\$0.04	0.61
Washington	Water	Motors Other	Switch from Belt drive to Direct Drive	8%	12	\$0.21	11%	\$0.03	11
Washington	Water	Motors Other	Synchronous Belts	1%	10	\$0.21	21%	\$0.04	3
Washington	Water	Other	Bldg Improvements	20%	15	\$0.13	35%	\$-0.03	162
Washington	Water	Other	Energy Project Management	29%	11	\$0.12	27%	\$0.05	82
Washington	Water	Other	Integrated Plant Energy Management	50%	11	\$0.20	22%	\$-0.00	136
Washington	Water	Other	Plant Energy Management	12%	10	\$0.02	27%	\$0.03	35
Washington	Water	Other	Transformers	2%	30	\$0.20	80%	\$0.02	24
Washington	Water	Pumps	High Efficiency Motors	1%	15	\$0.44	75%	\$0.06	90
Washington	Water	Pumps	Improved Controls	30%	10	\$0.12	34%	\$0.02	1,024
Washington	Water	Pumps	Motor rewinds	1%	15	\$0.24	5%	\$0.03	2
Washington	Water	Pumps	Pump Energy Management	8%	10	\$0.07	31%	\$0.04	122
Washington	Water	Pumps	Pump Equipment Upgrade	20%	10	\$0.13	34%	\$0.05	585
Washington	Water	Pumps	Pump System Optimization	12%	12	\$0.26	15%	\$-0.02	111
Washington	Water	Pumps	Synchronous Belts	1%	10	\$0.21	21%	\$0.04	21
Wyoming	Chemical Mfg	Fans	Efficient Centrifugal Fan	20%	10	\$0.18	10%	\$0.03	4,341
Wyoming	Chemical Mfg	Fans	Fan System Optimization	8%	10	\$0.20	29%	\$0.03	2,711
Wyoming	Chemical Mfg	Fans	High Efficiency Motors	1%	15	\$0.44	73%	\$0.06	2,121
Wyoming	Chemical Mfg	Fans	Improved Controls	6%	10	\$0.09	33%	\$0.05	4,028
Wyoming	Chemical Mfg	Fans	Properly Sized Fans	10%	10	\$0.16	15%	\$0.04	3,087
Wyoming	Chemical Mfg	Fans	Synchronous Belts	1%	10	\$0.21	21%	\$0.04	465
Wyoming	Chemical Mfg	Hvac	Equipment Upgrades	33%	12	\$0.12	31%	\$0.02	16,643
Wyoming	Chemical Mfg	Hvac	Improved Controls	21%	10	\$0.05	33%	\$-0.04	12,255
Wyoming	Chemical Mfg	Hvac	Recommissioning	5%	10	\$0.03	73%	\$-0.02	6,074
Wyoming	Chemical Mfg	Lighting	Efficient Lighting 1 Shift	20%	10	\$0.08	8%	\$0.01	2,044
Wyoming	Chemical Mfg	Lighting	Efficient Lighting 2 Shift	20%	10	\$0.05	3%	\$0.01	683
Wyoming	Chemical Mfg	Lighting	Efficient Lighting 3 Shift	20%	10	\$0.03	20%	\$0.00	5,172
Wyoming	Chemical Mfg	Lighting	HighBay Lighting 1 Shift	48%	10	\$0.24	12%	\$0.04	5,785
Wyoming	Chemical Mfg	Lighting	HighBay Lighting 2 Shift	48%	10	\$0.14	4%	\$0.02	1,961
Wyoming	Chemical Mfg	Lighting	HighBay Lighting 3 Shift	48%	10	\$0.08	29%	\$0.01	17,507
Wyoming	Chemical Mfg	Lighting	Lighting Controls	18%	10	\$0.13	28%	\$0.02	5,562
Wyoming	Chemical Mfg	Motors Other	High Efficiency Motors	1%	15	\$0.44	74%	\$0.06	4,496

Table C.2.3. Industrial Measure Details

State	Segment	End Use	Measure Name	Percnet of End Use Consumption Saved	Measure Life	Incremental Cost per kWh	Measure Applicability	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Wyoming	Chemical Mfg	Motors Other	Improved Controls	3%	10	\$0.10	33%	\$0.02	5,450
Wyoming	Chemical Mfg	Motors Other	Material Handling	5%	10	\$0.47	52%	\$0.08	10,609
Wyoming	Chemical Mfg	Motors Other	Material Handling VFD	19%	10	\$0.30	52%	\$0.05	44,454
Wyoming	Chemical Mfg	Motors Other	Motor Management Plan	3%	10	\$0.07	49%	\$0.02	3,901
Wyoming	Chemical Mfg	Motors Other	Motors Other	1%	15	\$0.02	89%	\$0.00	3,344
Wyoming	Chemical Mfg	Motors Other	Motors: Rewind 101-200 HP	1%	15	\$0.25	7%	\$0.03	152
Wyoming	Chemical Mfg	Motors Other	Motors: Rewind 20-50 HP	1%	15	\$0.34	5%	\$0.04	186
Wyoming	Chemical Mfg	Motors Other	Motors: Rewind 201-500 HP	1%	15	\$0.16	4%	\$0.02	92
Wyoming	Chemical Mfg	Motors Other	Motors: Rewind 500+ HP	1%	15	\$0.14	4%	\$0.02	92
Wyoming	Chemical Mfg	Motors Other	Motors: Rewind 51-100 HP	1%	15	\$0.31	7%	\$0.04	183
Wyoming	Chemical Mfg	Motors Other	Switch from Belt drive to Direct Drive	8%	12	\$0.21	10%	\$0.03	3,567
Wyoming	Chemical Mfg	Motors Other	Synchronous Belts	1%	10	\$0.21	21%	\$0.04	1,056
Wyoming	Chemical Mfg	Other	Bldg Improvements	20%	15	\$0.13	35%	\$-0.03	3,809
Wyoming	Chemical Mfg	Other	Energy Project Management	29%	11	\$0.12	27%	\$0.05	1,939
Wyoming	Chemical Mfg	Other	Integrated Plant Energy Management	50%	11	\$0.20	22%	\$-0.00	3,205
Wyoming	Chemical Mfg	Other	Plant Energy Management	12%	10	\$0.02	27%	\$0.03	829
Wyoming	Chemical Mfg	Other	Transformers	2%	30	\$0.20	80%	\$0.02	564
Wyoming	Chemical Mfg	Process Aircomp	Air Compressor Demand Reduction	16%	10	\$0.05	28%	\$0.03	17,814
Wyoming	Chemical Mfg	Process Aircomp	Air Compressor Equipment	9%	10	\$0.13	18%	\$0.05	6,082
Wyoming	Chemical Mfg	Process Aircomp	Air Compressor Optimization	30%	10	\$0.11	38%	\$-0.01	33,422
Wyoming	Chemical Mfg	Process Aircomp	High efficiency Compressor motors	1%	15	\$0.34	81%	\$0.04	3,387
Wyoming	Chemical Mfg	Process Aircomp	Improved Controls	19%	10	\$0.03	36%	\$0.01	29,483
Wyoming	Chemical Mfg	Process Aircomp	Motor Management Plan	3%	10	\$0.07	54%	\$0.02	3,716
Wyoming	Chemical Mfg	Process Cool	Clean Room: Change Filter Strategy	40%	1	\$0.01	10%	\$0.01	10,454
Wyoming	Chemical Mfg	Process Cool	Clean Room: Chiller Optimize	15%	10	\$0.08	28%	\$0.01	10,541
Wyoming	Chemical Mfg	Process Cool	Clean Room: Clean Room HVAC	9%	20	\$0.16	30%	\$0.02	6,490
Wyoming	Chemical Mfg	Process Cool	Equipment: Chillers	18%	20	\$0.26	8%	\$0.03	3,345
Wyoming	Chemical Mfg	Process Cool	Improved Controls	6%	15	\$0.88	34%	\$0.11	4,668
Wyoming	Chemical Mfg	Process Heat	Improved Controls	30%	15	\$0.05	33%	\$-0.09	10,276
Wyoming	Chemical Mfg	Process Heat	Process Heat O&M	29%	2	\$0.05	63%	\$0.04	9,852
Wyoming	Chemical Mfg	Process Refrig	Adjustable speed drive on compressors	12%	10	\$0.16	34%	\$0.03	5,345
Wyoming	Chemical Mfg	Process Refrig	Cold Storage Retrofit	21%	10	\$0.20	26%	\$0.03	6,857
Wyoming	Chemical Mfg	Process Refrig	Cold Storage Tuneup	16%	3	\$0.04	10%	\$0.02	2,137
Wyoming	Chemical Mfg	Process Refrig	Optimization of operating parameters	13%	3	\$0.06	85%	\$0.03	8,004
Wyoming	Chemical Mfg	Process Refrig	Synchronous Belts	1%	10	\$0.21	21%	\$0.04	256
Wyoming	Chemical Mfg	Pumps	High Efficiency Motors	1%	15	\$0.44	76%	\$0.06	4,240
Wyoming	Chemical Mfg	Pumps	Improved Controls	30%	10	\$0.12	34%	\$0.02	48,130
Wyoming	Chemical Mfg	Pumps	Motor rewinds	1%	15	\$0.24	5%	\$0.03	132
Wyoming	Chemical Mfg	Pumps	Pump Energy Management	8%	10	\$0.07	31%	\$0.04	5,727
Wyoming	Chemical Mfg	Pumps	Pump Equipment Upgrade	20%	10	\$0.13	34%	\$0.05	27,439
Wyoming	Chemical Mfg	Pumps	Synchronous Belts	1%	10	\$0.21	21%	\$0.04	986
Wyoming	Mining	Motors Other	High Efficiency Motors	1%	15	\$0.44	25%	\$0.06	17,862
Wyoming	Mining	Motors Other	Material Handling	5%	10	\$0.47	25%	\$0.08	60,079
Wyoming	Mining	Motors Other	Motors Other	1%	15	\$0.02	25%	\$0.00	9,584
Wyoming	Mining	Motors Other	Motors: Rewind 101-200 HP	1%	15	\$0.25	7%	\$0.03	1,634
Wyoming	Mining	Motors Other	Motors: Rewind 20-50 HP	1%	15	\$0.34	5%	\$0.04	2,009
Wyoming	Mining	Motors Other	Motors: Rewind 201-500 HP	1%	15	\$0.16	4%	\$0.02	967
Wyoming	Mining	Motors Other	Motors: Rewind 500+ HP	1%	15	\$0.14	4%	\$0.02	967
Wyoming	Mining	Motors Other	Motors: Rewind 51-100 HP	1%	15	\$0.31	7%	\$0.04	1,968
Wyoming	Miscellaneous Mfg	Fans	Efficient Centrifugal Fan	20%	10	\$0.18	11%	\$0.03	3,398
Wyoming	Miscellaneous Mfg	Fans	Fan System Optimization	8%	10	\$0.20	30%	\$0.03	2,120
Wyoming	Miscellaneous Mfg	Fans	High Efficiency Motors	1%	15	\$0.44	76%	\$0.06	1,654

Table C.2.3. Industrial Measure Details

State	Segment	End Use	Measure Name	Percnet of End Use Consumption Saved	Measure Life	Incremental Cost per kWh	Measure Applicability	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Wyoming	Miscellaneous Mfg	Fans	Improved Controls	6%	10	\$0.09	34%	\$0.05	3,145
Wyoming	Miscellaneous Mfg	Fans	Properly Sized Fans	10%	10	\$0.16	15%	\$0.04	2,412
Wyoming	Miscellaneous Mfg	Fans	Synchronous Belts	1%	10	\$0.21	21%	\$0.04	363
Wyoming	Miscellaneous Mfg	Hvac	Equipment Upgrades	33%	12	\$0.12	32%	\$0.02	54,931
Wyoming	Miscellaneous Mfg	Hvac	Improved Controls	21%	10	\$0.05	33%	\$-0.04	40,550
Wyoming	Miscellaneous Mfg	Hvac	Recommissioning	5%	10	\$0.03	74%	\$-0.02	20,065
Wyoming	Miscellaneous Mfg	Lighting	Efficient Lighting 1 Shift	20%	10	\$0.08	5%	\$0.01	4,210
Wyoming	Miscellaneous Mfg	Lighting	Efficient Lighting 2 Shift	20%	10	\$0.05	2%	\$0.01	1,404
Wyoming	Miscellaneous Mfg	Lighting	Efficient Lighting 3 Shift	20%	10	\$0.03	13%	\$0.00	10,481
Wyoming	Miscellaneous Mfg	Lighting	HighBay Lighting 1 Shift	48%	10	\$0.24	8%	\$0.04	12,768
Wyoming	Miscellaneous Mfg	Lighting	HighBay Lighting 2 Shift	48%	10	\$0.14	3%	\$0.02	4,298
Wyoming	Miscellaneous Mfg	Lighting	HighBay Lighting 3 Shift	48%	10	\$0.08	19%	\$0.01	36,266
Wyoming	Miscellaneous Mfg	Lighting	Lighting Controls	18%	10	\$0.13	28%	\$0.02	18,911
Wyoming	Miscellaneous Mfg	Motors Other	High Efficiency Motors	1%	15	\$0.44	75%	\$0.06	6,124
Wyoming	Miscellaneous Mfg	Motors Other	Improved Controls	3%	10	\$0.10	34%	\$0.02	7,437
Wyoming	Miscellaneous Mfg	Motors Other	Material Handling	5%	10	\$0.47	53%	\$0.08	14,449
Wyoming	Miscellaneous Mfg	Motors Other	Material Handling VFD	19%	10	\$0.30	53%	\$0.05	60,633
Wyoming	Miscellaneous Mfg	Motors Other	Motor Management Plan	3%	10	\$0.07	50%	\$0.02	5,323
Wyoming	Miscellaneous Mfg	Motors Other	Motors Other	1%	15	\$0.02	90%	\$0.00	4,564
Wyoming	Miscellaneous Mfg	Motors Other	Motors: Rewind 101-200 HP	1%	15	\$0.25	7%	\$0.03	207
Wyoming	Miscellaneous Mfg	Motors Other	Motors: Rewind 20-50 HP	1%	15	\$0.34	5%	\$0.04	255
Wyoming	Miscellaneous Mfg	Motors Other	Motors: Rewind 201-500 HP	1%	15	\$0.16	4%	\$0.02	125
Wyoming	Miscellaneous Mfg	Motors Other	Motors: Rewind 500+ HP	1%	15	\$0.14	4%	\$0.02	125
Wyoming	Miscellaneous Mfg	Motors Other	Motors: Rewind 51-100 HP	1%	15	\$0.31	7%	\$0.04	249
Wyoming	Miscellaneous Mfg	Motors Other	Switch from Belt drive to Direct Drive	8%	12	\$0.21	10%	\$0.03	4,865
Wyoming	Miscellaneous Mfg	Motors Other	Synchronous Belts	1%	10	\$0.21	21%	\$0.04	1,440
Wyoming	Miscellaneous Mfg	Other	Bldg Improvements	20%	15	\$0.13	35%	\$-0.03	8,663
Wyoming	Miscellaneous Mfg	Other	Energy Project Management	29%	11	\$0.12	27%	\$0.05	4,411
Wyoming	Miscellaneous Mfg	Other	Integrated Plant Energy Management	50%	11	\$0.20	22%	\$-0.00	7,290
Wyoming	Miscellaneous Mfg	Other	Plant Energy Management	12%	10	\$0.02	27%	\$0.03	1,886
Wyoming	Miscellaneous Mfg	Other	Transformers	2%	30	\$0.20	80%	\$0.02	1,283
Wyoming	Miscellaneous Mfg	Process Aircomp	Air Compressor Demand Reduction	16%	10	\$0.05	26%	\$0.03	5,072
Wyoming	Miscellaneous Mfg	Process Aircomp	Air Compressor Equipment	9%	10	\$0.13	17%	\$0.05	1,738
Wyoming	Miscellaneous Mfg	Process Aircomp	Air Compressor Optimization	30%	10	\$0.11	36%	\$-0.01	9,371
Wyoming	Miscellaneous Mfg	Process Aircomp	High efficiency Compressor motors	1%	15	\$0.34	75%	\$0.04	967
Wyoming	Miscellaneous Mfg	Process Aircomp	Improved Controls	19%	10	\$0.03	34%	\$0.01	8,343
Wyoming	Miscellaneous Mfg	Process Aircomp	Motor Management Plan	3%	10	\$0.07	50%	\$0.02	1,056
Wyoming	Miscellaneous Mfg	Process Cool	Equipment: Chillers	18%	20	\$0.26	8%	\$0.03	2,441
Wyoming	Miscellaneous Mfg	Process Cool	Improved Controls	6%	15	\$0.88	34%	\$0.11	3,406
Wyoming	Miscellaneous Mfg	Process Heat	Improved Controls	30%	15	\$0.05	36%	\$-0.09	29,108
Wyoming	Miscellaneous Mfg	Process Heat	Process Heat O&M	29%	2	\$0.05	70%	\$0.04	27,596
Wyoming	Miscellaneous Mfg	Process Refrig	Adjustable speed drive on compressors	12%	10	\$0.16	34%	\$0.03	40
Wyoming	Miscellaneous Mfg	Process Refrig	Cold Storage Retrofit	21%	10	\$0.20	26%	\$0.03	52
Wyoming	Miscellaneous Mfg	Process Refrig	Cold Storage Tuneup	16%	3	\$0.04	10%	\$0.02	16
Wyoming	Miscellaneous Mfg	Process Refrig	Optimization of operating parameters	13%	3	\$0.06	85%	\$0.03	60
Wyoming	Miscellaneous Mfg	Process Refrig	Synchronous Belts	1%	10	\$0.21	21%	\$0.04	1
Wyoming	Miscellaneous Mfg	Pumps	High Efficiency Motors	1%	15	\$0.44	76%	\$0.06	809
Wyoming	Miscellaneous Mfg	Pumps	Improved Controls	30%	10	\$0.12	34%	\$0.02	9,172
Wyoming	Miscellaneous Mfg	Pumps	Motor rewinds	1%	15	\$0.24	5%	\$0.03	25
Wyoming	Miscellaneous Mfg	Pumps	Pump Energy Management	8%	10	\$0.07	31%	\$0.04	1,092
Wyoming	Miscellaneous Mfg	Pumps	Pump Equipment Upgrade	20%	10	\$0.13	34%	\$0.05	5,234
Wyoming	Miscellaneous Mfg	Pumps	Pump System Optimization	12%	12	\$0.26	16%	\$-0.02	999

Table C.2.3. Industrial Measure Details

State	Segment	End Use	Measure Name	Percnet of End Use Consumption Saved	Measure Life	Incremental Cost per kWh	Measure Applicability	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Wyoming	Miscellaneous Mfg	Pumps	Synchronous Belts	1%	10	\$0.21	21%	\$0.04	188
Wyoming	Petroleum Refining	Fans	Efficient Centrifugal Fan	20%	10	\$0.18	11%	\$0.03	1,059
Wyoming	Petroleum Refining	Fans	Fan System Optimization	8%	10	\$0.20	30%	\$0.03	661
Wyoming	Petroleum Refining	Fans	High Efficiency Motors	1%	15	\$0.44	76%	\$0.06	516
Wyoming	Petroleum Refining	Fans	Improved Controls	6%	10	\$0.09	34%	\$0.05	981
Wyoming	Petroleum Refining	Fans	Properly Sized Fans	10%	10	\$0.16	15%	\$0.04	752
Wyoming	Petroleum Refining	Fans	Synchronous Belts	1%	10	\$0.21	21%	\$0.04	113
Wyoming	Petroleum Refining	Hvac	Equipment Upgrades	33%	12	\$0.12	32%	\$0.02	1,360
Wyoming	Petroleum Refining	Hvac	Improved Controls	21%	10	\$0.05	33%	\$-0.04	1,002
Wyoming	Petroleum Refining	Hvac	Recommissioning	5%	10	\$0.03	73%	\$-0.02	496
Wyoming	Petroleum Refining	Lighting	Efficient Lighting 1 Shift	20%	10	\$0.08	8%	\$0.01	172
Wyoming	Petroleum Refining	Lighting	Efficient Lighting 2 Shift	20%	10	\$0.05	3%	\$0.01	57
Wyoming	Petroleum Refining	Lighting	Efficient Lighting 3 Shift	20%	10	\$0.03	20%	\$0.00	436
Wyoming	Petroleum Refining	Lighting	HighBay Lighting 1 Shift	48%	10	\$0.24	12%	\$0.04	487
Wyoming	Petroleum Refining	Lighting	HighBay Lighting 2 Shift	48%	10	\$0.14	4%	\$0.02	165
Wyoming	Petroleum Refining	Lighting	HighBay Lighting 3 Shift	48%	10	\$0.08	29%	\$0.01	1,475
Wyoming	Petroleum Refining	Lighting	Lighting Controls	18%	10	\$0.13	28%	\$0.02	468
Wyoming	Petroleum Refining	Motors Other	High Efficiency Motors	1%	15	\$0.44	76%	\$0.06	1,382
Wyoming	Petroleum Refining	Motors Other	Improved Controls	3%	10	\$0.10	34%	\$0.02	1,683
Wyoming	Petroleum Refining	Motors Other	Material Handling	5%	10	\$0.47	54%	\$0.08	3,261
Wyoming	Petroleum Refining	Motors Other	Material Handling VFD	19%	10	\$0.30	54%	\$0.05	13,714
Wyoming	Petroleum Refining	Motors Other	Motor Management Plan	3%	10	\$0.07	51%	\$0.02	1,204
Wyoming	Petroleum Refining	Motors Other	Motors Other	1%	15	\$0.02	91%	\$0.00	1,033
Wyoming	Petroleum Refining	Motors Other	Motors: Rewind 101-200 HP	1%	15	\$0.25	7%	\$0.03	47
Wyoming	Petroleum Refining	Motors Other	Motors: Rewind 20-50 HP	1%	15	\$0.34	5%	\$0.04	57
Wyoming	Petroleum Refining	Motors Other	Motors: Rewind 201-500 HP	1%	15	\$0.16	4%	\$0.02	28
Wyoming	Petroleum Refining	Motors Other	Motors: Rewind 500+ HP	1%	15	\$0.14	4%	\$0.02	28
Wyoming	Petroleum Refining	Motors Other	Motors: Rewind 51-100 HP	1%	15	\$0.31	7%	\$0.04	56
Wyoming	Petroleum Refining	Motors Other	Switch from Belt drive to Direct Drive	8%	12	\$0.21	11%	\$0.03	1,100
Wyoming	Petroleum Refining	Motors Other	Synchronous Belts	1%	10	\$0.21	21%	\$0.04	325
Wyoming	Petroleum Refining	Other	Bldg Improvements	20%	15	\$0.13	35%	\$-0.03	367
Wyoming	Petroleum Refining	Other	Energy Project Management	29%	11	\$0.12	27%	\$0.05	186
Wyoming	Petroleum Refining	Other	Integrated Plant Energy Management	50%	11	\$0.20	22%	\$-0.00	308
Wyoming	Petroleum Refining	Other	Plant Energy Management	12%	10	\$0.02	27%	\$0.03	79
Wyoming	Petroleum Refining	Other	Transformers	2%	30	\$0.20	80%	\$0.02	54
Wyoming	Petroleum Refining	Process Aircomp	Air Compressor Demand Reduction	16%	10	\$0.05	27%	\$0.03	2,019
Wyoming	Petroleum Refining	Process Aircomp	Air Compressor Equipment	9%	10	\$0.13	18%	\$0.05	691
Wyoming	Petroleum Refining	Process Aircomp	Air Compressor Optimization	30%	10	\$0.11	37%	\$-0.01	3,755
Wyoming	Petroleum Refining	Process Aircomp	High efficiency Compressor motors	1%	15	\$0.34	77%	\$0.04	384
Wyoming	Petroleum Refining	Process Aircomp	Improved Controls	19%	10	\$0.03	35%	\$0.01	3,330
Wyoming	Petroleum Refining	Process Aircomp	Motor Management Plan	3%	10	\$0.07	52%	\$0.02	421
Wyoming	Petroleum Refining	Process Cool	Equipment: Chillers	18%	20	\$0.26	8%	\$0.03	361
Wyoming	Petroleum Refining	Process Cool	Improved Controls	6%	15	\$0.88	34%	\$0.11	504
Wyoming	Petroleum Refining	Process Heat	Improved Controls	30%	15	\$0.05	33%	\$-0.09	2,677
Wyoming	Petroleum Refining	Process Heat	Process Heat O&M	29%	2	\$0.05	63%	\$0.04	2,567
Wyoming	Petroleum Refining	Process Refrig	Adjustable speed drive on compressors	12%	10	\$0.16	34%	\$0.03	971
Wyoming	Petroleum Refining	Process Refrig	Optimization of operating parameters	13%	3	\$0.06	85%	\$0.03	1,536
Wyoming	Petroleum Refining	Process Refrig	Synchronous Belts	1%	10	\$0.21	21%	\$0.04	49
Wyoming	Petroleum Refining	Pumps	High Efficiency Motors	1%	15	\$0.44	79%	\$0.06	836
Wyoming	Petroleum Refining	Pumps	Improved Controls	30%	10	\$0.12	35%	\$0.02	9,561
Wyoming	Petroleum Refining	Pumps	Motor rewinds	1%	15	\$0.24	6%	\$0.03	26
Wyoming	Petroleum Refining	Pumps	Pump Energy Management	8%	10	\$0.07	32%	\$0.04	1,133

Table C.2.3. Industrial Measure Details

State	Segment	End Use	Measure Name	Percnet of End Use Consumption Saved	Measure Life	Incremental Cost per kWh	Measure Applicability	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Wyoming	Petroleum Refining	Pumps	Pump Equipment Upgrade	20%	10	\$0.13	35%	\$0.05	5,425
Wyoming	Petroleum Refining	Pumps	Pump System Optimization	12%	12	\$0.26	16%	-\$0.02	1,042
Wyoming	Petroleum Refining	Pumps	Synchronous Belts	1%	10	\$0.21	22%	\$0.04	195
Wyoming	Wastewater	Lighting	Efficient Lighting 1 Shift	20%	10	\$0.08	5%	\$0.01	5
Wyoming	Wastewater	Lighting	Efficient Lighting 2 Shift	20%	10	\$0.05	2%	\$0.01	1
Wyoming	Wastewater	Lighting	Efficient Lighting 3 Shift	20%	10	\$0.03	13%	\$0.00	14
Wyoming	Wastewater	Lighting	HighBay Lighting 1 Shift	48%	10	\$0.24	8%	\$0.04	18
Wyoming	Wastewater	Lighting	HighBay Lighting 2 Shift	48%	10	\$0.14	3%	\$0.02	6
Wyoming	Wastewater	Lighting	HighBay Lighting 3 Shift	48%	10	\$0.08	19%	\$0.01	51
Wyoming	Wastewater	Lighting	Lighting Controls	18%	10	\$0.13	28%	\$0.02	26
Wyoming	Wastewater	Other	Bldg Improvements	20%	15	\$0.13	35%	-\$0.03	316
Wyoming	Wastewater	Other	Energy Project Management	29%	11	\$0.12	27%	\$0.05	161
Wyoming	Wastewater	Other	Integrated Plant Energy Management	50%	11	\$0.20	22%	-\$0.00	266
Wyoming	Wastewater	Other	Plant Energy Management	12%	10	\$0.02	27%	\$0.03	68
Wyoming	Wastewater	Other	Transformers	2%	30	\$0.20	80%	\$0.02	46
Wyoming	Wastewater	Process Aircomp	Air Compressor Demand Reduction	16%	10	\$0.05	26%	\$0.03	699
Wyoming	Wastewater	Process Aircomp	Air Compressor Equipment	9%	10	\$0.13	17%	\$0.05	239
Wyoming	Wastewater	Process Aircomp	Air Compressor Optimization	30%	10	\$0.11	36%	-\$0.01	1,292
Wyoming	Wastewater	Process Aircomp	High efficiency Compressor motors	1%	15	\$0.34	75%	\$0.04	133
Wyoming	Wastewater	Process Aircomp	Improved Controls	19%	10	\$0.03	34%	\$0.01	1,151
Wyoming	Wastewater	Process Aircomp	Motor Management Plan	3%	10	\$0.07	50%	\$0.02	145
Wyoming	Wastewater	Pumps	High Efficiency Motors	1%	15	\$0.44	75%	\$0.06	48
Wyoming	Wastewater	Pumps	Improved Controls	30%	10	\$0.12	34%	\$0.02	549
Wyoming	Wastewater	Pumps	Motor rewinds	1%	15	\$0.24	5%	\$0.03	1
Wyoming	Wastewater	Pumps	Pump Energy Management	8%	10	\$0.07	31%	\$0.04	65
Wyoming	Wastewater	Pumps	Pump Equipment Upgrade	20%	10	\$0.13	34%	\$0.05	314
Wyoming	Wastewater	Pumps	Pump System Optimization	12%	12	\$0.26	15%	-\$0.02	59
Wyoming	Wastewater	Pumps	Synchronous Belts	1%	10	\$0.21	21%	\$0.04	11
Wyoming	Water	Fans	Efficient Centrifugal Fan	20%	10	\$0.18	11%	\$0.03	100
Wyoming	Water	Fans	Fan System Optimization	8%	10	\$0.20	30%	\$0.03	62
Wyoming	Water	Fans	High Efficiency Motors	1%	15	\$0.44	75%	\$0.06	48
Wyoming	Water	Fans	Improved Controls	6%	10	\$0.09	34%	\$0.05	93
Wyoming	Water	Fans	Properly Sized Fans	10%	10	\$0.16	15%	\$0.04	71
Wyoming	Water	Fans	Synchronous Belts	1%	10	\$0.21	21%	\$0.04	10
Wyoming	Water	Lighting	Efficient Lighting 1 Shift	20%	10	\$0.08	5%	\$0.01	9
Wyoming	Water	Lighting	Efficient Lighting 2 Shift	20%	10	\$0.05	2%	\$0.01	3
Wyoming	Water	Lighting	Efficient Lighting 3 Shift	20%	10	\$0.03	13%	\$0.00	23
Wyoming	Water	Lighting	HighBay Lighting 1 Shift	48%	10	\$0.24	8%	\$0.04	28
Wyoming	Water	Lighting	HighBay Lighting 2 Shift	48%	10	\$0.14	3%	\$0.02	9
Wyoming	Water	Lighting	HighBay Lighting 3 Shift	48%	10	\$0.08	19%	\$0.01	79
Wyoming	Water	Lighting	Lighting Controls	18%	10	\$0.13	28%	\$0.02	41
Wyoming	Water	Motors Other	High Efficiency Motors	1%	15	\$0.44	75%	\$0.06	45
Wyoming	Water	Motors Other	Improved Controls	3%	10	\$0.10	34%	\$0.02	55
Wyoming	Water	Motors Other	Material Handling	5%	10	\$0.47	53%	\$0.08	108
Wyoming	Water	Motors Other	Material Handling VFD	19%	10	\$0.30	53%	\$0.05	453
Wyoming	Water	Motors Other	Motor Management Plan	3%	10	\$0.07	50%	\$0.02	39
Wyoming	Water	Motors Other	Motors Other	1%	15	\$0.02	90%	\$0.00	34
Wyoming	Water	Motors Other	Motors: Rewind 101-200 HP	1%	15	\$0.25	7%	\$0.03	1
Wyoming	Water	Motors Other	Motors: Rewind 20-50 HP	1%	15	\$0.34	5%	\$0.04	1
Wyoming	Water	Motors Other	Motors: Rewind 201-500 HP	1%	15	\$0.16	4%	\$0.02	0.94
Wyoming	Water	Motors Other	Motors: Rewind 500+ HP	1%	15	\$0.14	4%	\$0.02	0.94
Wyoming	Water	Motors Other	Motors: Rewind 51-100 HP	1%	15	\$0.31	7%	\$0.04	1

Table C.2.3. Industrial Measure Details

State	Segment	End Use	Measure Name	Percnet of End Use Consumption Saved	Measure Life	Incremental Cost per kWh	Measure Applicability	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
Wyoming	Water	Motors Other	Switch from Belt drive to Direct Drive	8%	12	\$0.21	11%	\$0.03	36
Wyoming	Water	Motors Other	Synchronous Belts	1%	10	\$0.21	21%	\$0.04	10
Wyoming	Water	Other	Bldg Improvements	20%	15	\$0.13	35%	\$-0.03	493
Wyoming	Water	Other	Energy Project Management	29%	11	\$0.12	27%	\$0.05	251
Wyoming	Water	Other	Integrated Plant Energy Management	50%	11	\$0.20	22%	\$-0.00	415
Wyoming	Water	Other	Plant Energy Management	12%	10	\$0.02	27%	\$0.03	107
Wyoming	Water	Other	Transformers	2%	30	\$0.20	80%	\$0.02	73
Wyoming	Water	Pumps	High Efficiency Motors	1%	15	\$0.44	75%	\$0.06	275
Wyoming	Water	Pumps	Improved Controls	30%	10	\$0.12	34%	\$0.02	3,116
Wyoming	Water	Pumps	Motor rewinds	1%	15	\$0.24	5%	\$0.03	8
Wyoming	Water	Pumps	Pump Energy Management	8%	10	\$0.07	31%	\$0.04	371
Wyoming	Water	Pumps	Pump Equipment Upgrade	20%	10	\$0.13	34%	\$0.05	1,780
Wyoming	Water	Pumps	Pump System Optimization	12%	12	\$0.26	15%	\$-0.02	339
Wyoming	Water	Pumps	Synchronous Belts	1%	10	\$0.21	21%	\$0.04	63

Table C.2.4. Irrigation Measure Details

State	Segment	End Use	Measure Name	Percent of End Use Consumption Saved	Measure Life	Incremental Cost per kWh	Measure Applicability	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
California	Irrigation	Pumps	High Efficiency Motors	1%	15	\$0.44	75%	\$0.06	897
California	Irrigation	Pumps	SIS	8%	7	\$0.84	77%	\$-0.26	4,909
California	Irrigation	Pumps	System Improvements	8%	5	\$0.33	85%	\$0.08	5,423
Idaho	Irrigation	Pumps	High Efficiency Motors	1%	15	\$0.44	75%	\$0.06	5,011
Idaho	Irrigation	Pumps	SIS	8%	7	\$0.84	77%	\$-0.26	27,408
Idaho	Irrigation	Pumps	System Improvements	8%	5	\$0.33	85%	\$0.08	30,279
Utah	Irrigation	Pumps	High Efficiency Motors	1%	15	\$0.44	75%	\$0.05	1,658
Utah	Irrigation	Pumps	SIS	8%	7	\$0.84	77%	\$0.16	9,072
Utah	Irrigation	Pumps	System Improvements	8%	5	\$0.33	85%	\$0.08	10,022
Washington	Irrigation	Pumps	High Efficiency Motors	1%	15	\$0.44	75%	\$0.06	1,392
Washington	Irrigation	Pumps	SIS	8%	7	\$0.84	77%	\$-0.26	7,618
Washington	Irrigation	Pumps	System Improvements	8%	5	\$0.33	85%	\$0.08	8,416
Wyoming	Irrigation	Pumps	High Efficiency Motors	1%	15	\$0.44	75%	\$0.06	190
Wyoming	Irrigation	Pumps	SIS	8%	7	\$0.84	77%	\$-0.26	1,039
Wyoming	Irrigation	Pumps	System Improvements	8%	5	\$0.33	85%	\$0.08	1,148

Table C.2.5. Street Lighting Measure Details

State	Segment	End Use	Measure Name	Percnet of End Use Consumption Saved	Measure Life	Incremental Cost per kWh	Measure Applicability	Levelized Cost (\$ per kWh)	2030 Achievable Technical Potential (MWh)
California	Street Lighting	Lighting	Streetlight - HPS 100W - Group Relamp - to LED 62W - NR	55%	26	\$0.00	38%	\$0.00	478
California	Street Lighting	Lighting	Streetlight - HPS 150W - Group Relamp - to LED 113W - NR	40%	19	\$0.00	4%	\$0.00	40
California	Street Lighting	Lighting	Streetlight - HPS 150W - Tariff Relamp - to LED 113W - NR	40%	19	\$0.00	0%	\$-0.12	1
California	Street Lighting	Lighting	Streetlight - HPS 200W - Group Relamp - to LED 120W - NR	52%	12	\$0.00	17%	\$0.00	203
California	Street Lighting	Lighting	Streetlight - HPS 250W - Group Relamp - to LED 150W - NR	49%	12	\$0.00	6%	\$0.00	67
California	Street Lighting	Lighting	Streetlight - HPS 400W - Group Relamp - to LED 225W - NR	52%	12	\$0.00	0%	\$0.00	5
California	Street Lighting	Lighting	Streetlight - HPS 70W - Group Relamp - to LED 42W - NR	56%	15	\$0.00	13%	\$0.00	159
Idaho	Street Lighting	Lighting	Streetlight - HPS 100W - Group Relamp - to LED 62W - NR	55%	26	\$0.00	38%	\$0.00	471
Idaho	Street Lighting	Lighting	Streetlight - HPS 150W - Group Relamp - to LED 113W - NR	40%	19	\$0.00	4%	\$0.00	39
Idaho	Street Lighting	Lighting	Streetlight - HPS 150W - Tariff Relamp - to LED 113W - NR	40%	19	\$0.00	0%	\$-0.12	1
Idaho	Street Lighting	Lighting	Streetlight - HPS 200W - Group Relamp - to LED 120W - NR	52%	12	\$0.00	17%	\$0.00	199
Idaho	Street Lighting	Lighting	Streetlight - HPS 250W - Group Relamp - to LED 150W - NR	49%	12	\$0.00	6%	\$0.00	66
Idaho	Street Lighting	Lighting	Streetlight - HPS 400W - Group Relamp - to LED 225W - NR	52%	12	\$0.00	0%	\$0.00	5
Idaho	Street Lighting	Lighting	Streetlight - HPS 70W - Group Relamp - to LED 42W - NR	56%	15	\$0.00	13%	\$0.00	157
Utah	Street Lighting	Lighting	Streetlight - HPS 100W - Group Relamp - to LED 62W - NR	55%	26	\$0.00	38%	\$0.00	13,560
Utah	Street Lighting	Lighting	Streetlight - HPS 150W - Group Relamp - to LED 113W - NR	40%	19	\$0.00	4%	\$0.00	1,133
Utah	Street Lighting	Lighting	Streetlight - HPS 150W - Tariff Relamp - to LED 113W - NR	40%	19	\$0.00	0%	\$0.00	50
Utah	Street Lighting	Lighting	Streetlight - HPS 200W - Group Relamp - to LED 120W - NR	52%	12	\$0.00	17%	\$0.00	5,750
Utah	Street Lighting	Lighting	Streetlight - HPS 250W - Group Relamp - to LED 150W - NR	49%	12	\$0.00	6%	\$0.00	1,909
Utah	Street Lighting	Lighting	Streetlight - HPS 400W - Group Relamp - to LED 225W - NR	52%	12	\$0.00	0%	\$0.00	162
Utah	Street Lighting	Lighting	Streetlight - HPS 70W - Group Relamp - to LED 42W - NR	56%	15	\$0.00	13%	\$0.00	4,522
Washington	Street Lighting	Lighting	Streetlight - HPS 100W - Group Relamp - to LED 62W - NR	55%	26	\$0.00	38%	\$0.00	1,987
Washington	Street Lighting	Lighting	Streetlight - HPS 150W - Group Relamp - to LED 113W - NR	40%	19	\$0.00	4%	\$0.00	166
Washington	Street Lighting	Lighting	Streetlight - HPS 150W - Tariff Relamp - to LED 113W - NR	40%	19	\$0.00	0%	\$-0.12	7
Washington	Street Lighting	Lighting	Streetlight - HPS 200W - Group Relamp - to LED 120W - NR	52%	12	\$0.00	17%	\$0.00	842
Washington	Street Lighting	Lighting	Streetlight - HPS 250W - Group Relamp - to LED 150W - NR	49%	12	\$0.00	6%	\$0.00	279
Washington	Street Lighting	Lighting	Streetlight - HPS 400W - Group Relamp - to LED 225W - NR	52%	12	\$0.00	0%	\$0.00	23
Washington	Street Lighting	Lighting	Streetlight - HPS 70W - Group Relamp - to LED 42W - NR	56%	15	\$0.00	13%	\$0.00	662
Wyoming	Street Lighting	Lighting	Streetlight - HPS 100W - Group Relamp - to LED 62W - NR	55%	26	\$0.00	38%	\$0.00	2,210
Wyoming	Street Lighting	Lighting	Streetlight - HPS 150W - Group Relamp - to LED 113W - NR	40%	19	\$0.00	4%	\$0.00	184
Wyoming	Street Lighting	Lighting	Streetlight - HPS 150W - Tariff Relamp - to LED 113W - NR	40%	19	\$0.00	0%	\$-0.12	8
Wyoming	Street Lighting	Lighting	Streetlight - HPS 200W - Group Relamp - to LED 120W - NR	52%	12	\$0.00	17%	\$0.00	937
Wyoming	Street Lighting	Lighting	Streetlight - HPS 250W - Group Relamp - to LED 150W - NR	49%	12	\$0.00	6%	\$0.00	311
Wyoming	Street Lighting	Lighting	Streetlight - HPS 400W - Group Relamp - to LED 225W - NR	52%	12	\$0.00	0%	\$0.00	26
Wyoming	Street Lighting	Lighting	Streetlight - HPS 70W - Group Relamp - to LED 42W - NR	56%	15	\$0.00	13%	\$0.00	737

Appendix C-3. Technical Supplements: Energy Efficiency Resources, Baseline Sales

Figure C.3.1. Residential Baseline Forecast 2009 - 2030, Overall

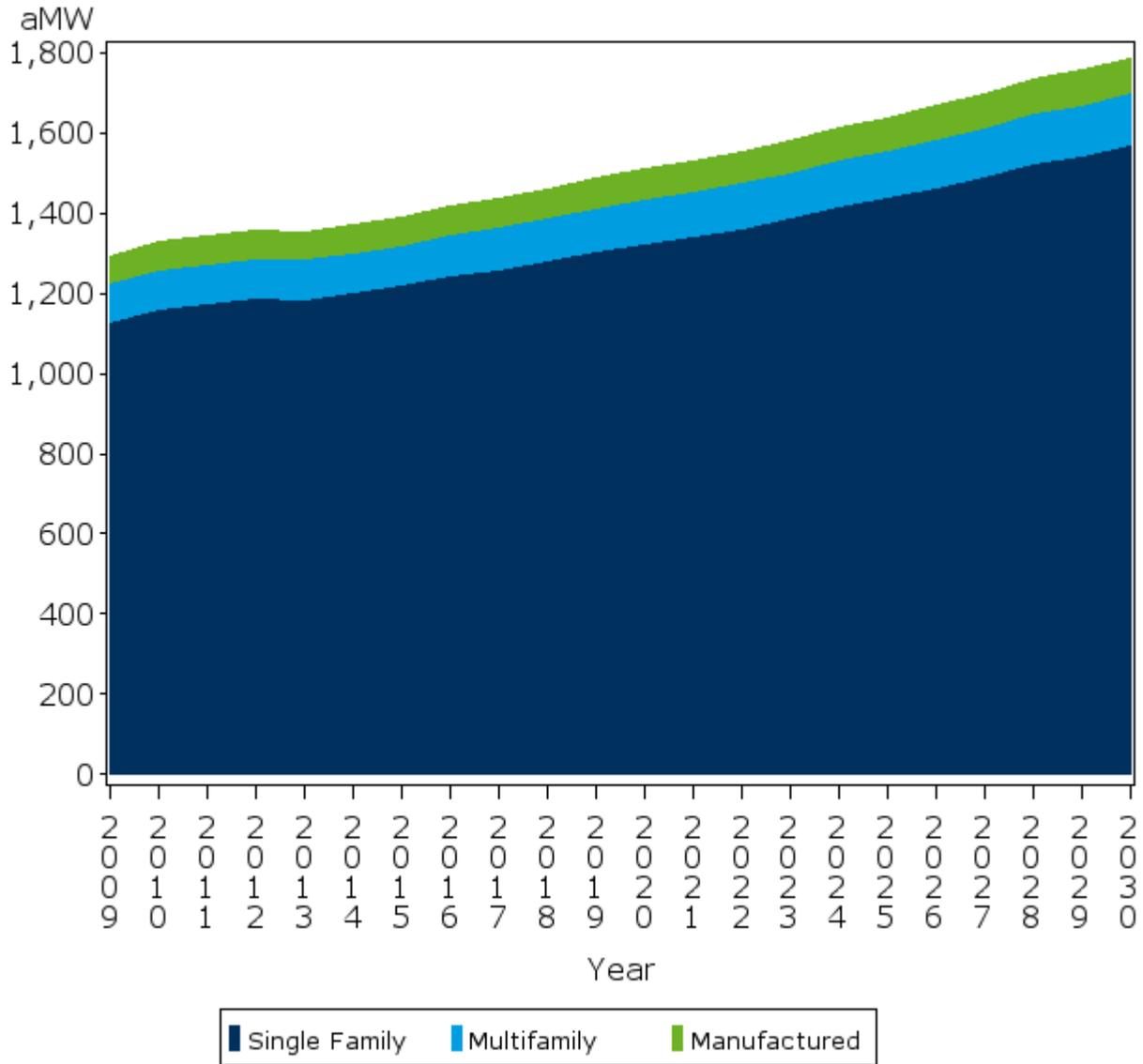


Figure C.3.2. Residential Baseline Forecast 2009 - 2030, Pacific Power

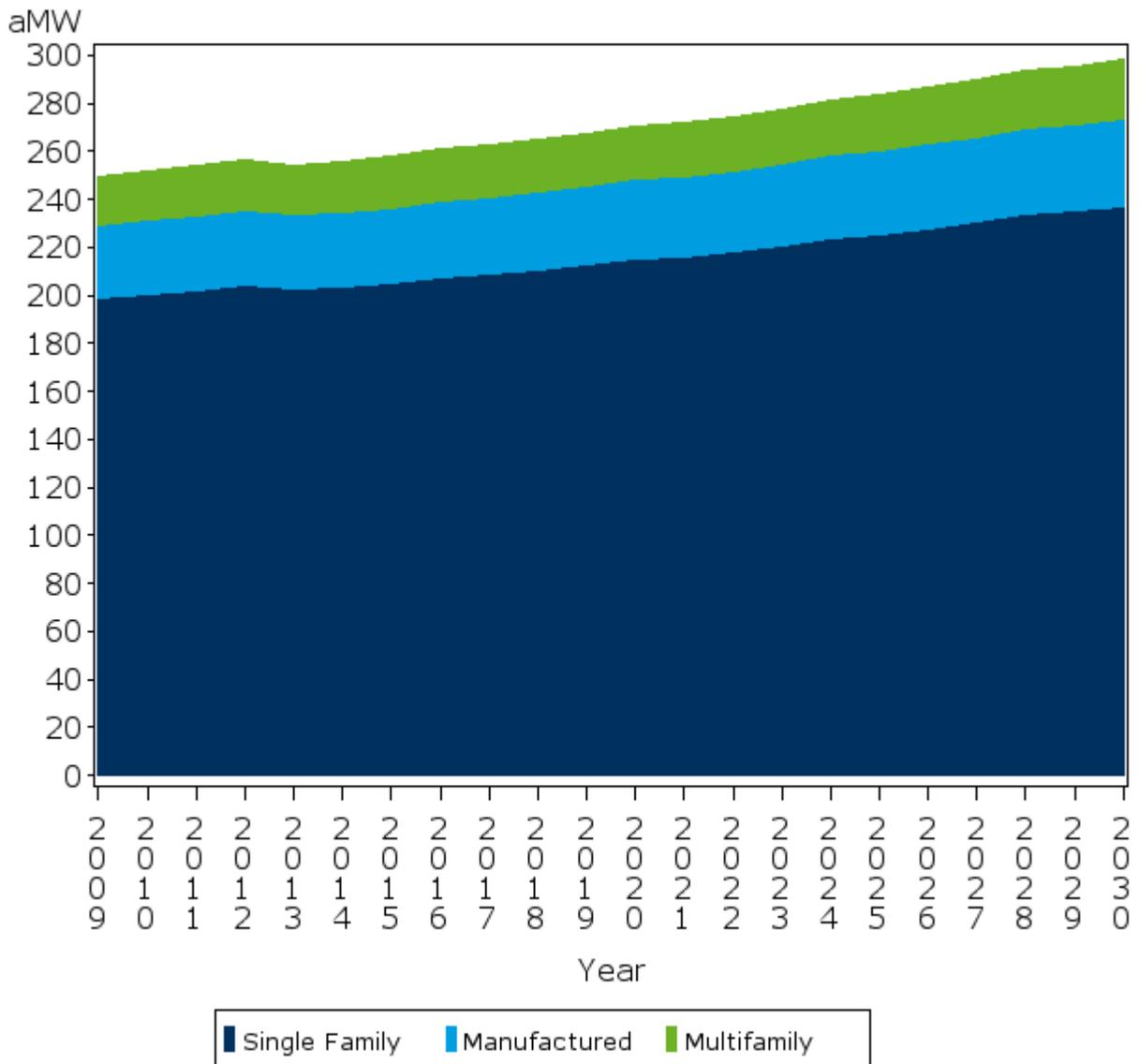


Figure C.3.3. Residential Baseline Forecast 2009 - 2030, Rocky Mountain Power

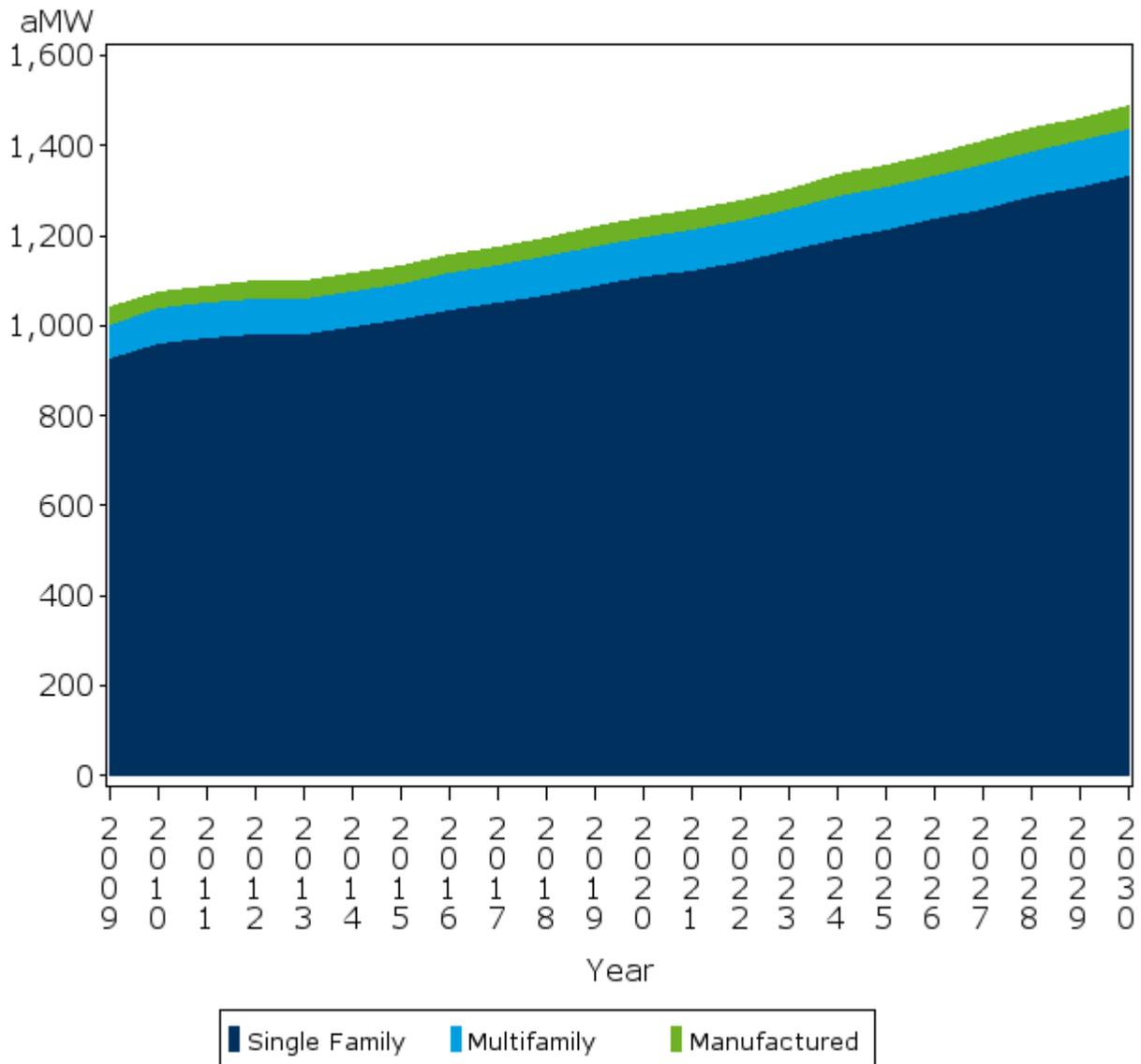


Figure C.3.4. Commercial Baseline Forecast 2009 - 2030, Overall

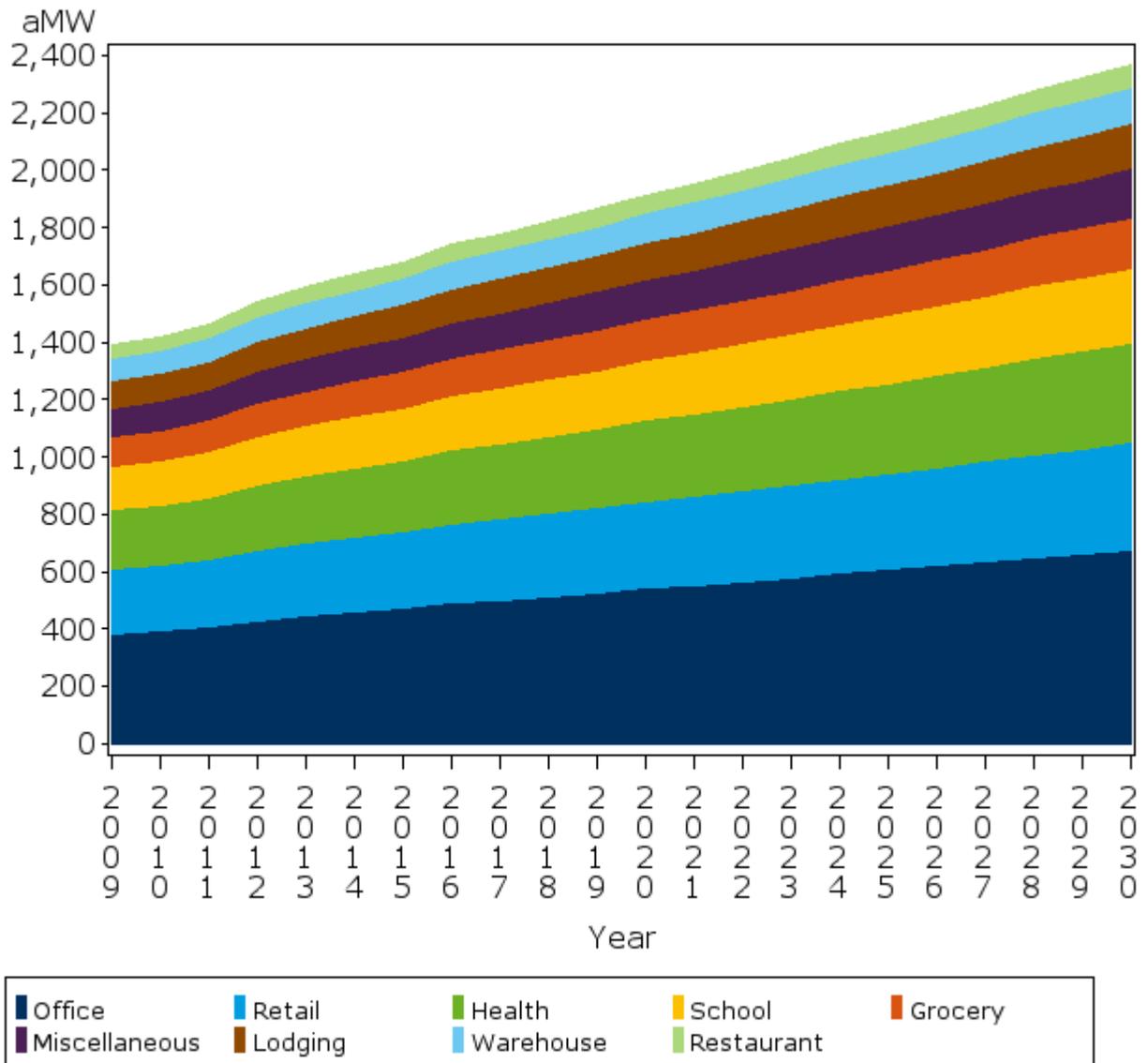


Figure C.3.5. Commercial Baseline Forecast 2009 - 2030, Pacific Power

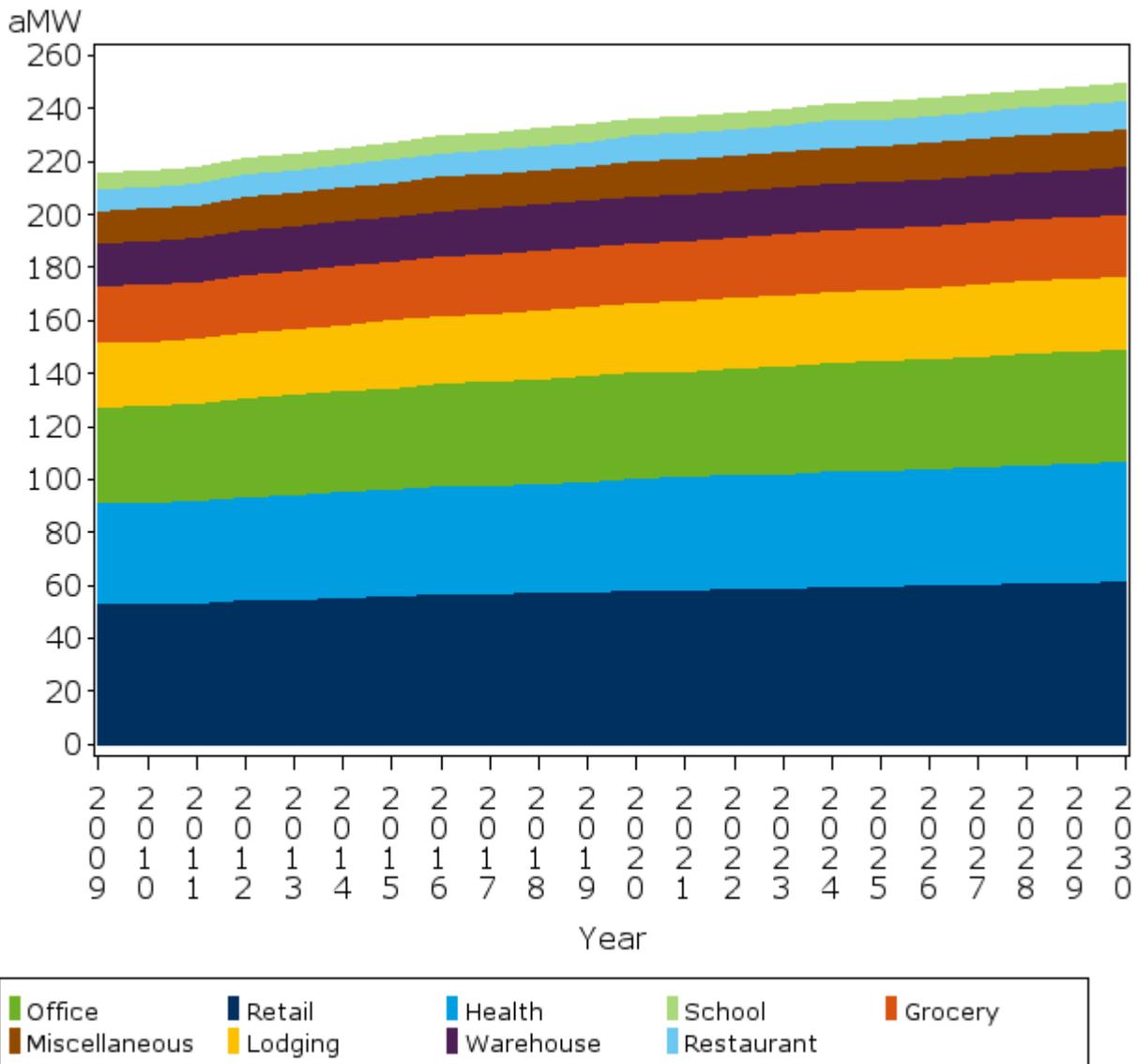


Figure C.3.6. Commercial Baseline Forecast 2009 - 2030, Rocky Mountain Power

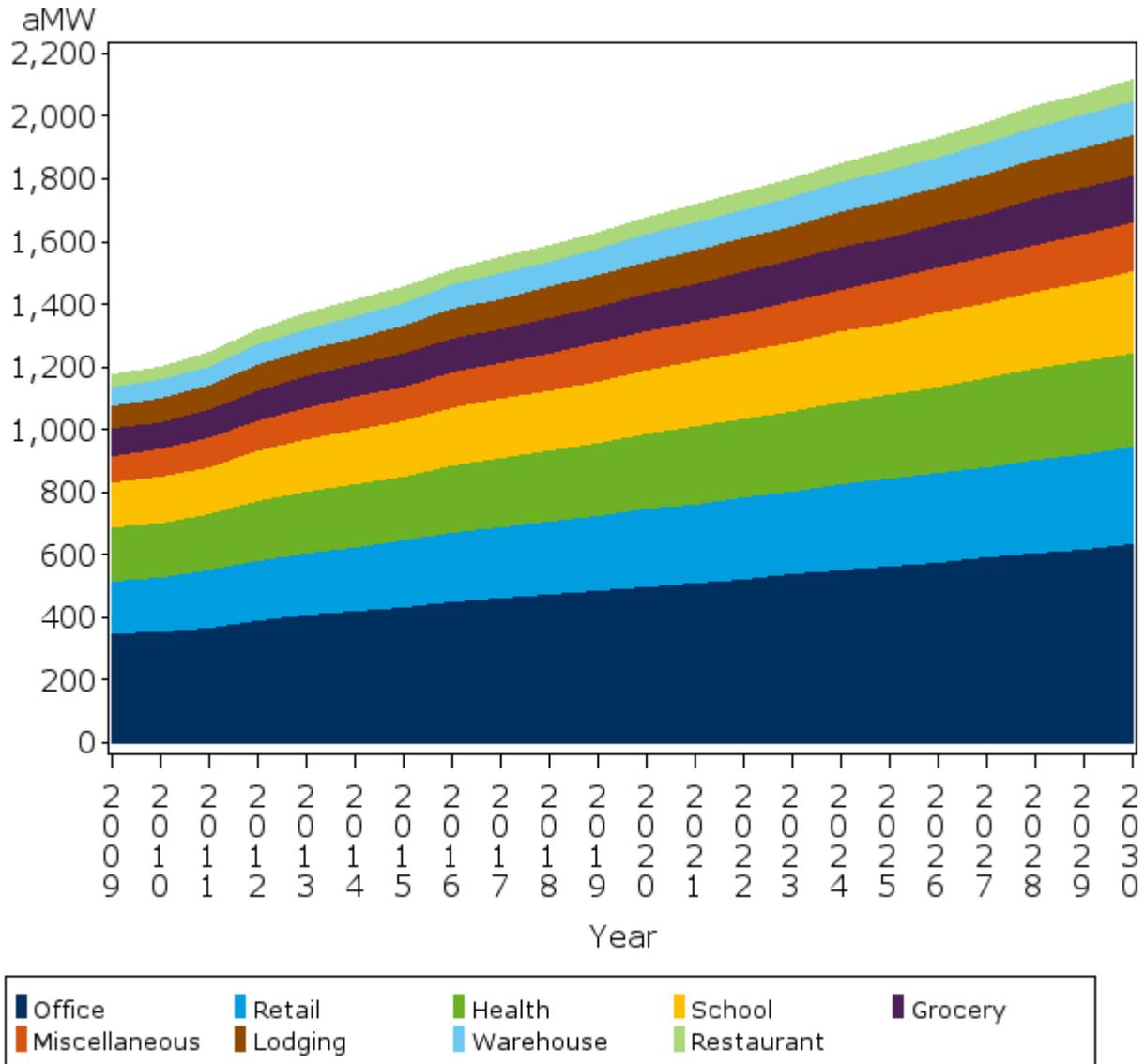


Figure C.3.7. Industrial Baseline Forecast 2009 - 2030, Overall

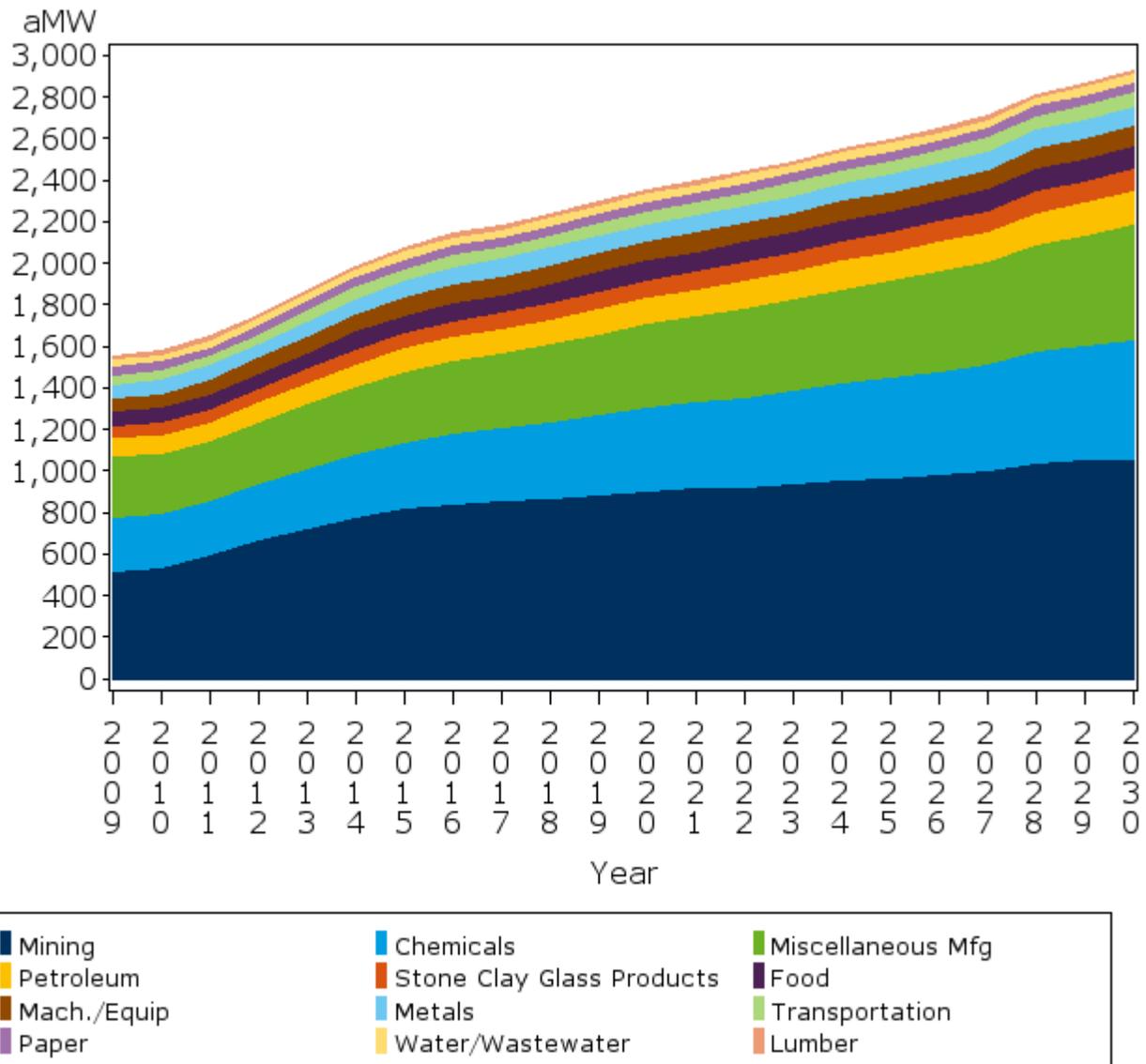


Figure C.3.8. Industrial Baseline Forecast 2009 - 2030, Pacific Power

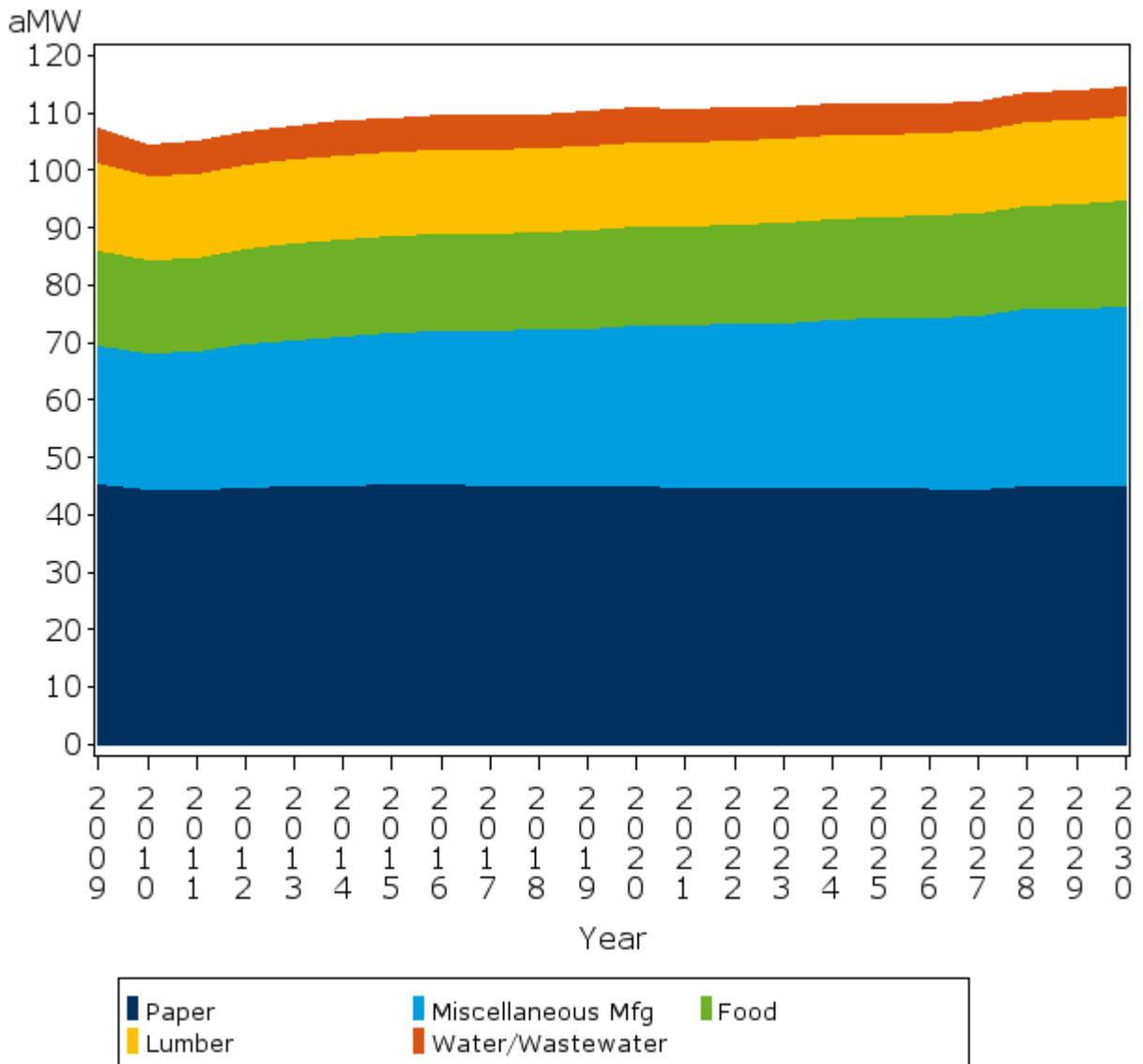


Figure C.3.9. Industrial Baseline Forecast 2009 - 2030, Rocky Mountain Power

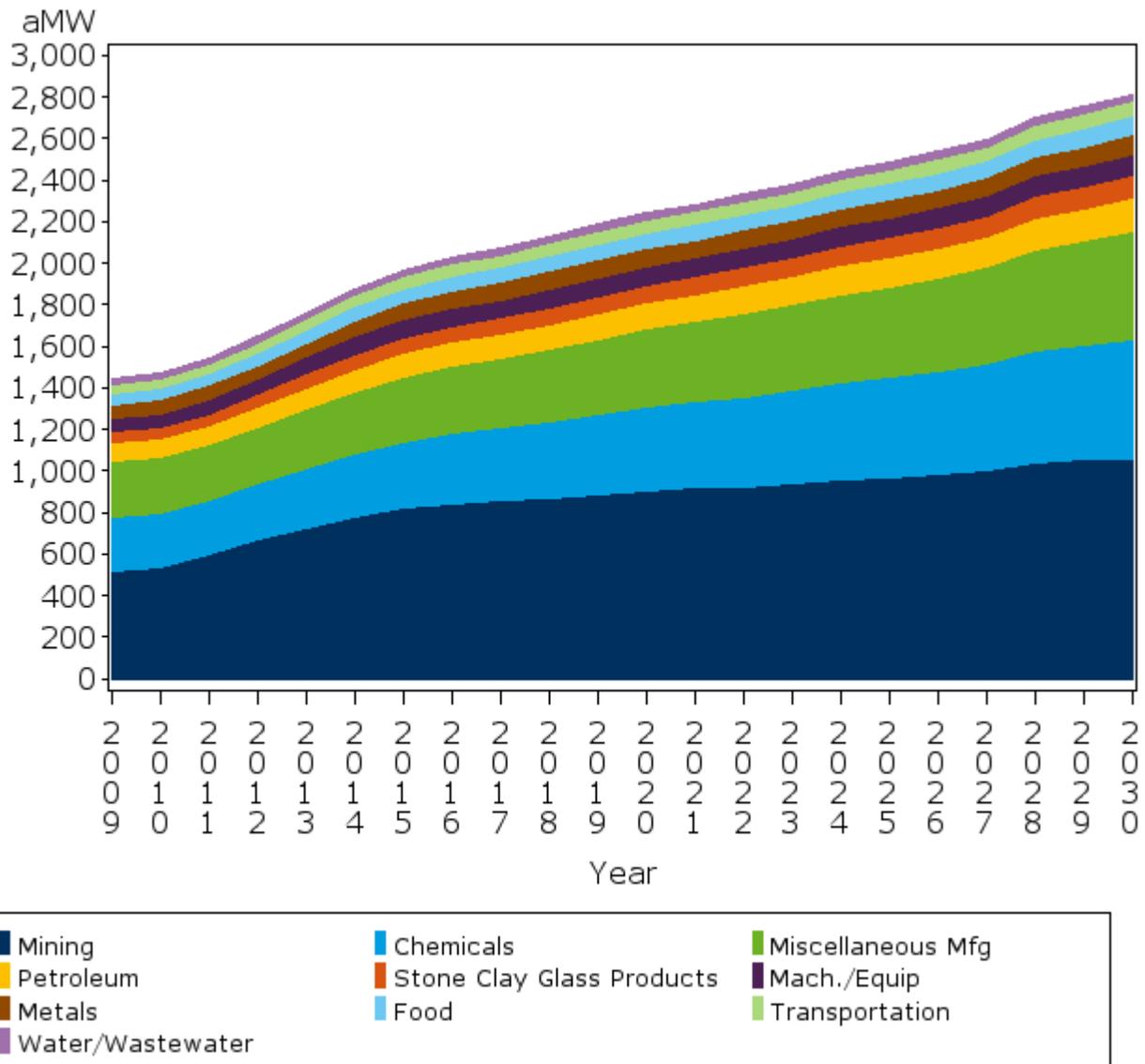


Figure C.3.10. Irrigation Baseline Forecast 2009 - 2030, Overall

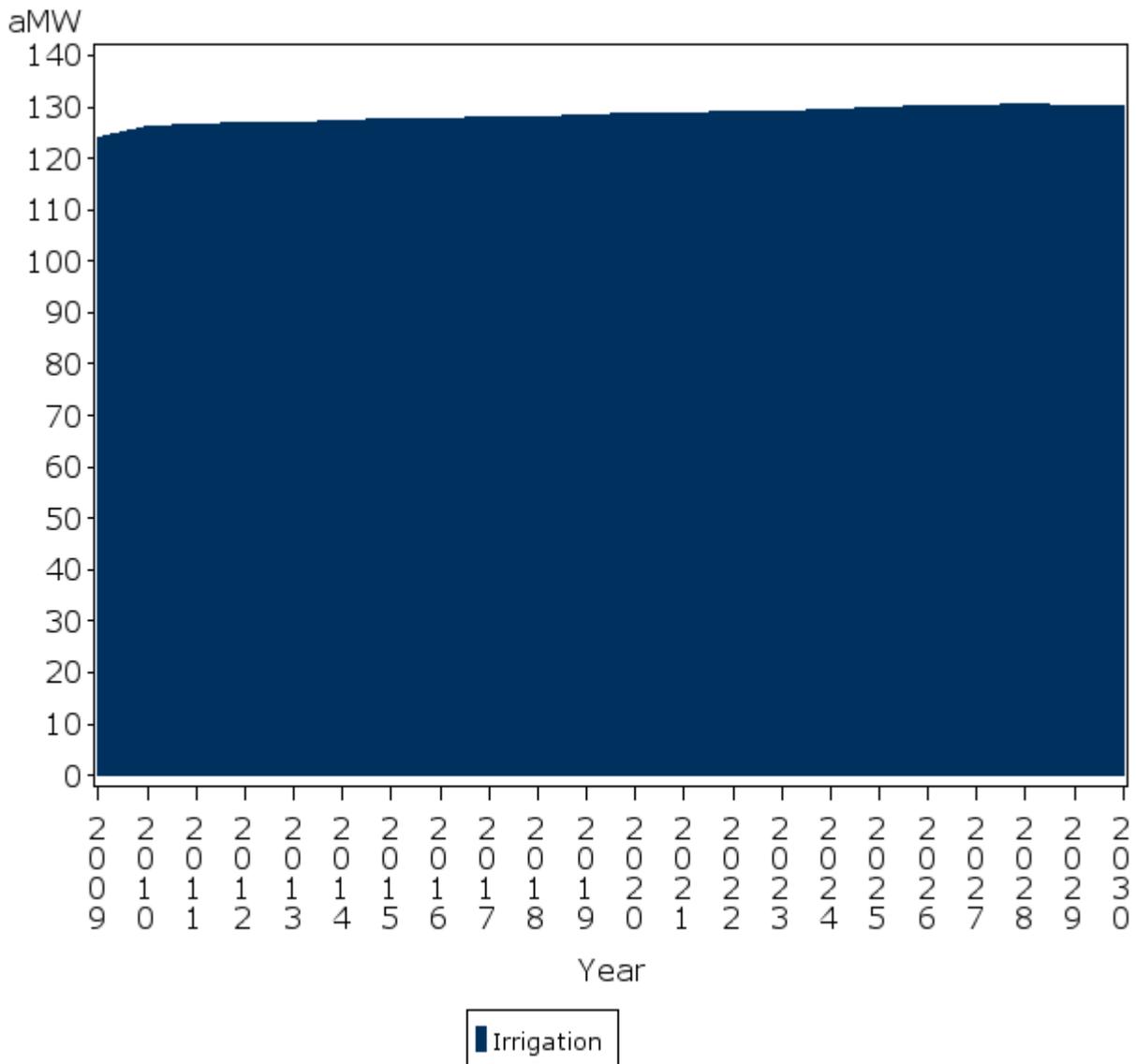


Figure C.3.11. Irrigation Baseline Forecast 2009 - 2030, Pacific Power

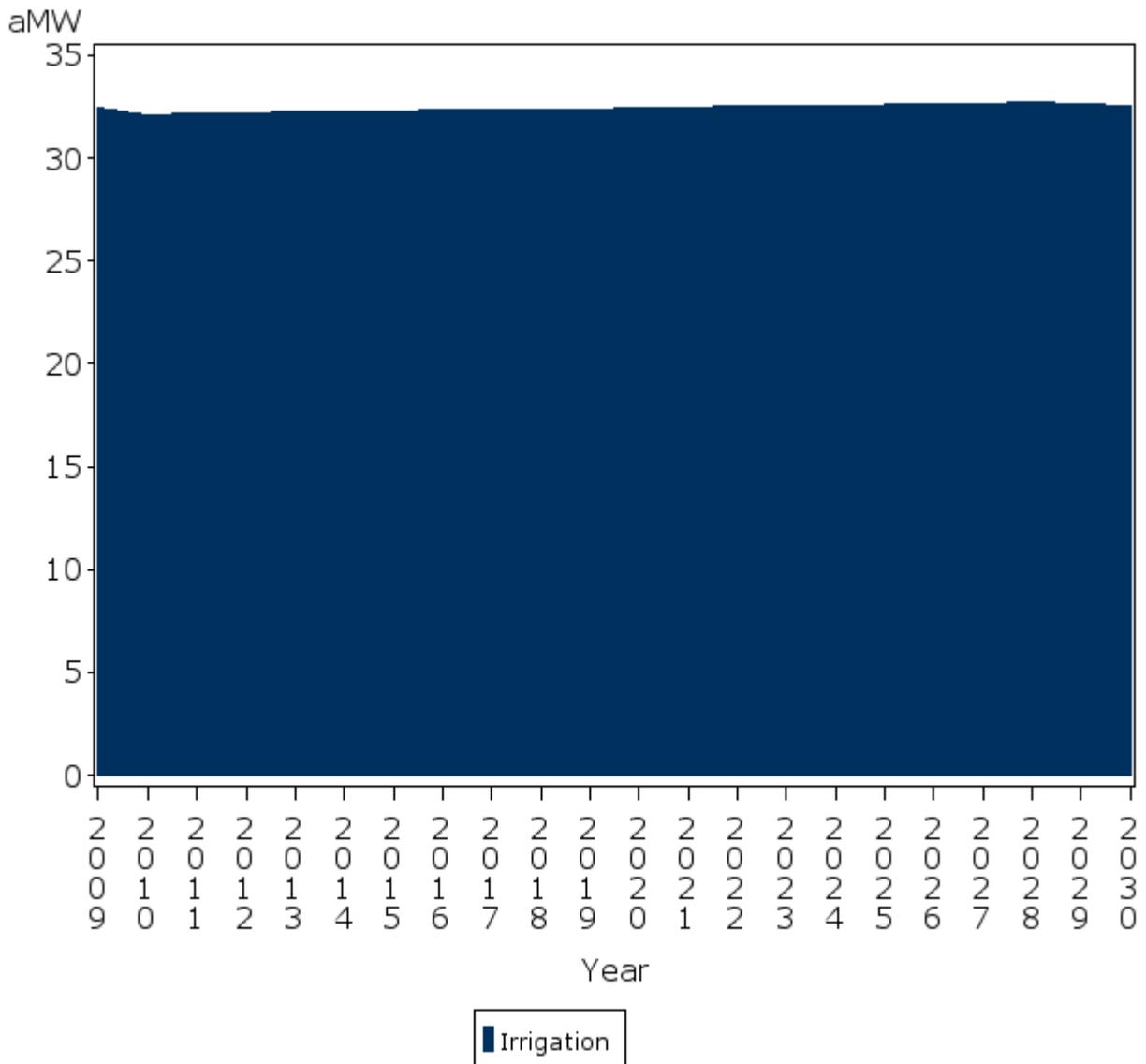


Figure C.3.12. Irrigation Baseline Forecast 2009 - 2030, Rocky Mountain Power

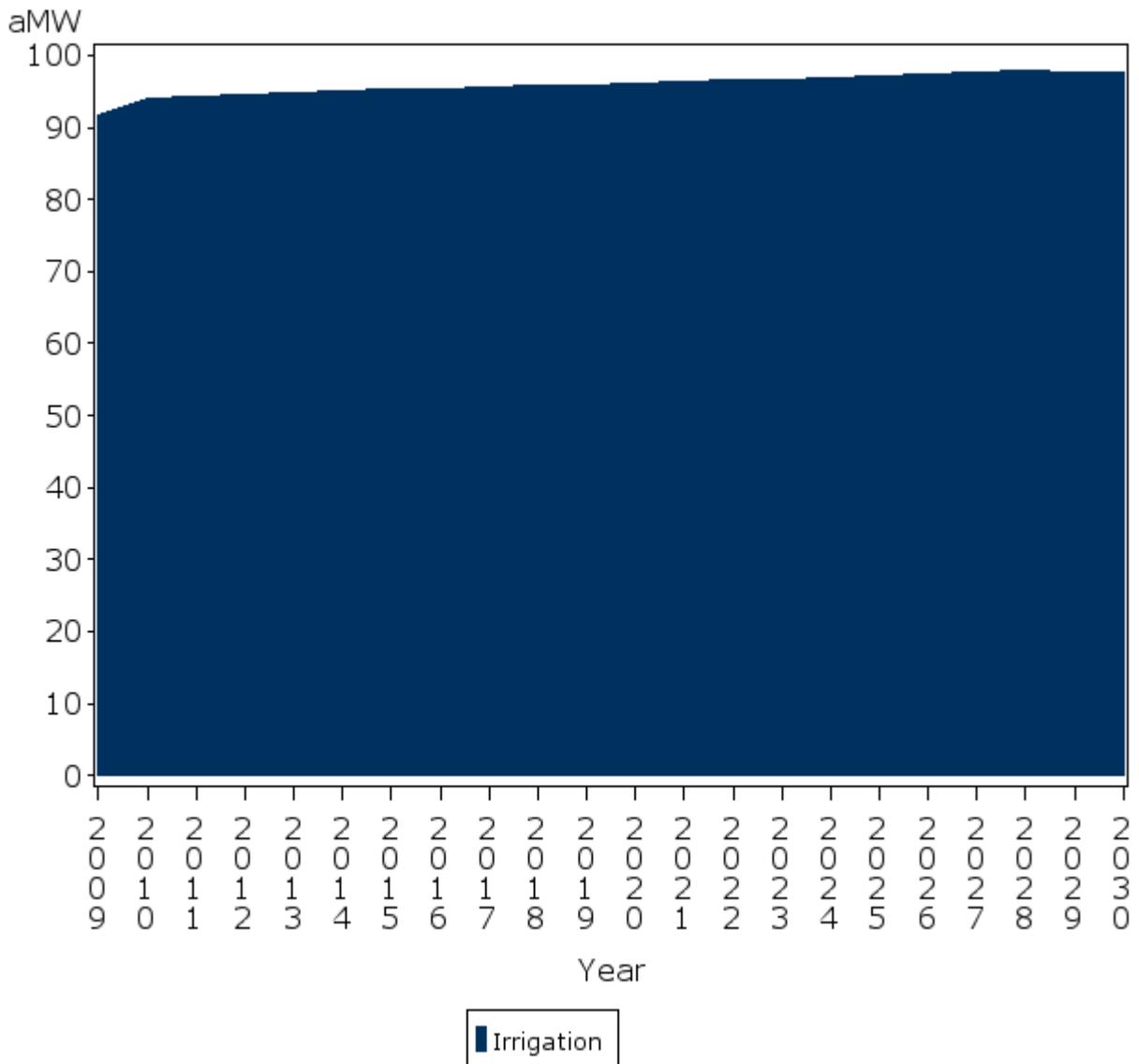


Figure C.3.13. Street Lighting Baseline Forecast 2009 - 2030, Overall

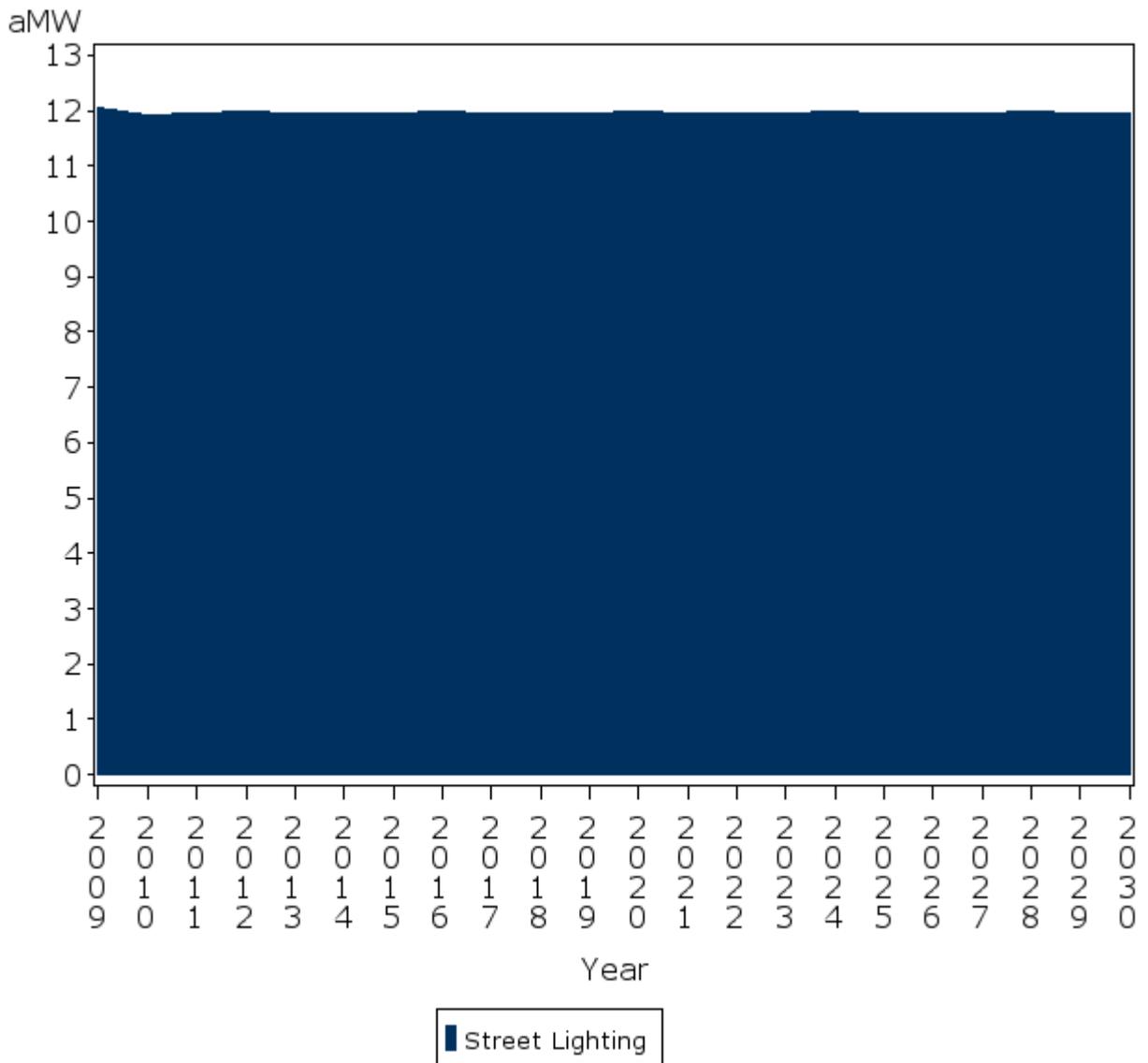


Figure C.3.14. Street Lighting Baseline Forecast 2009 - 2030, Pacific Power

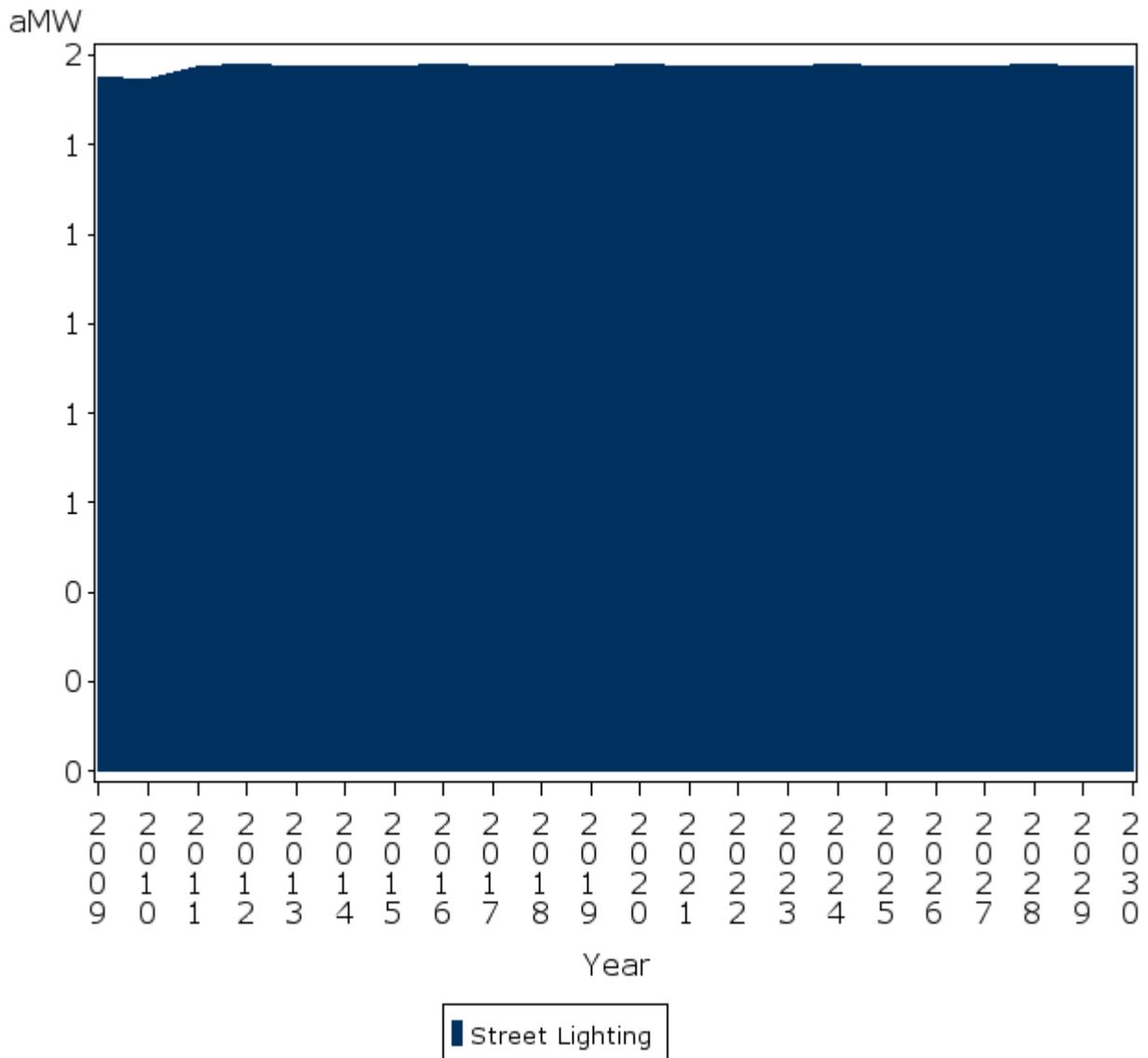


Figure C.3.15. Street Lighting Baseline Forecast 2009 - 2030, Rocky Mountain Power

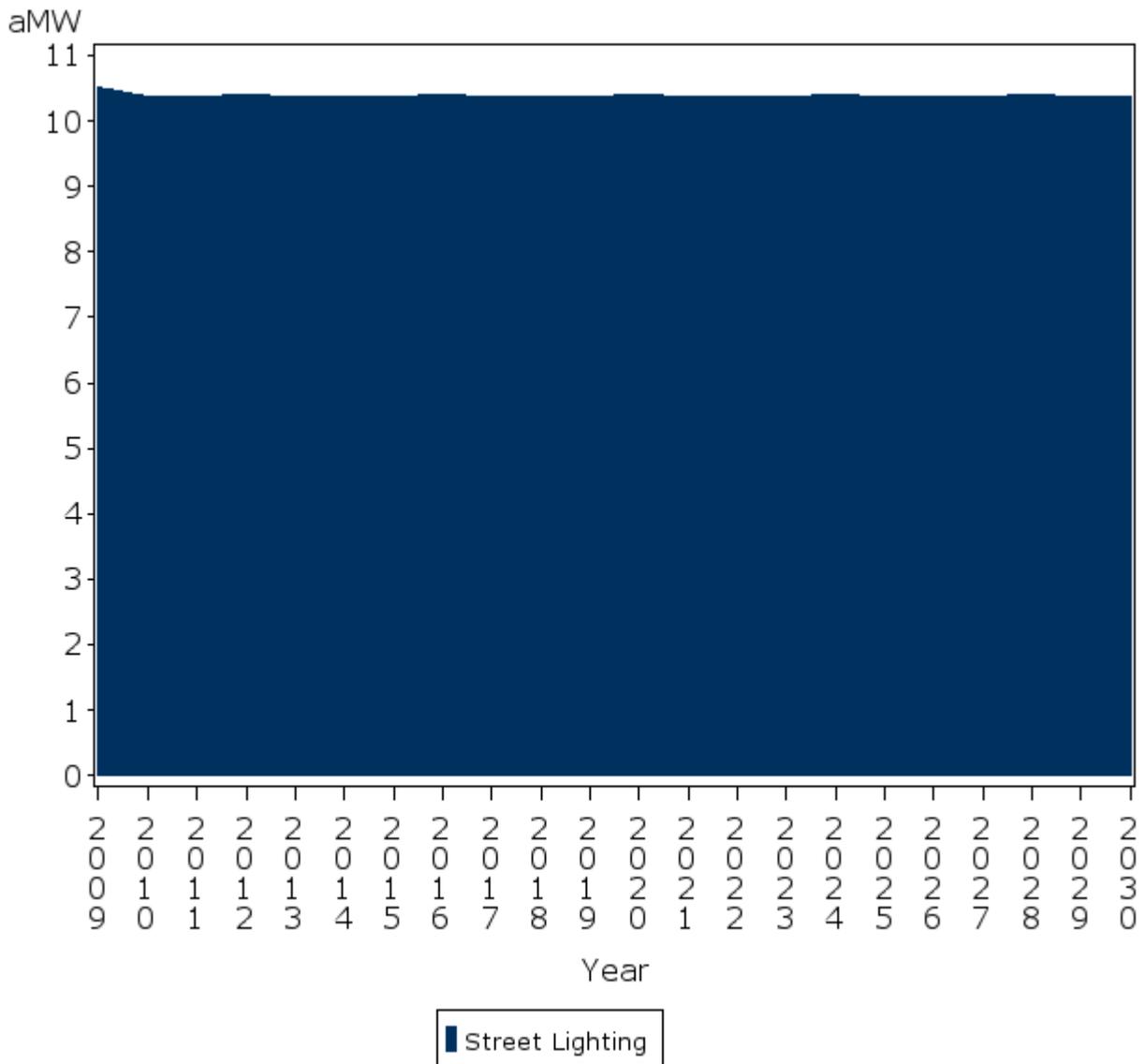


Figure C.3.16 Baseline Sales 2030 - California: Residential by Segment

Total: 60 aMW

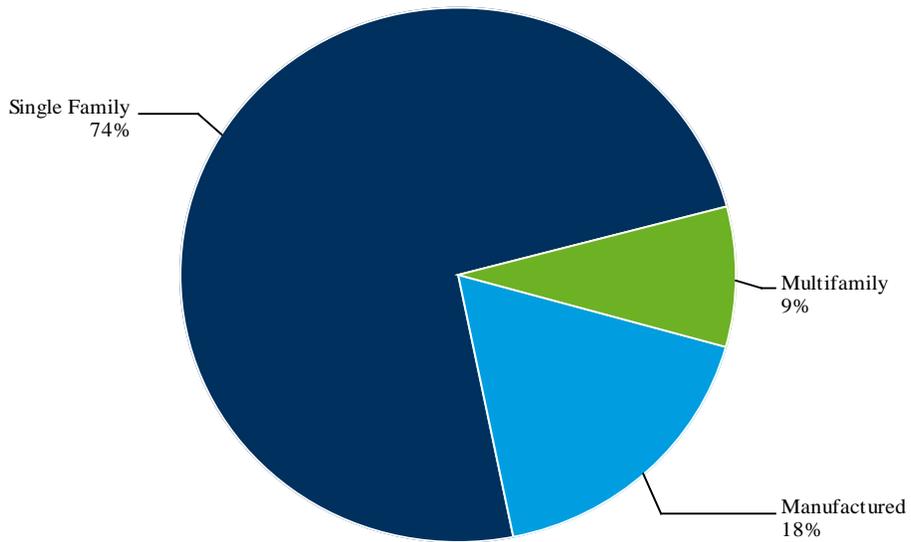


Figure C.3.17 Baseline Sales 2030 - Idaho: Residential by Segment

Total: 146 aMW

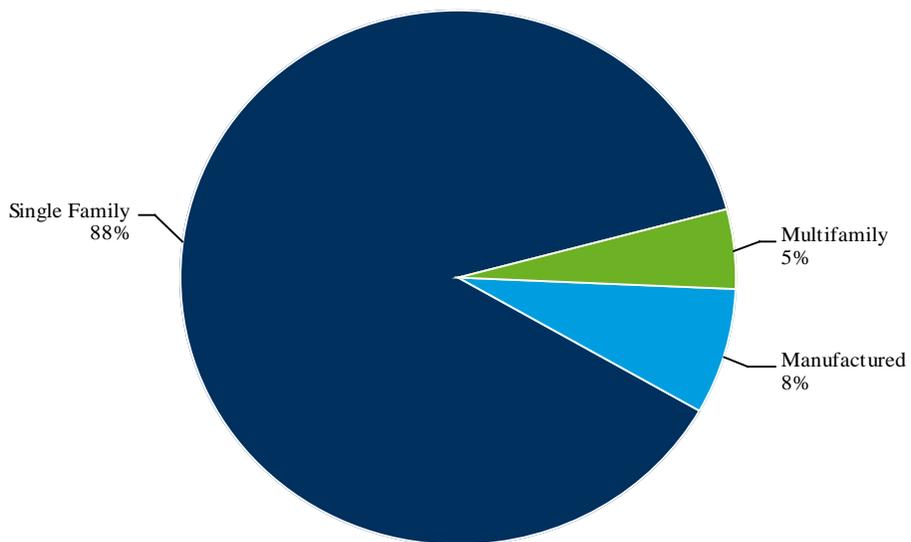


Figure C.3.18 Baseline Sales 2030 - Utah: Residential by Segment

Total: 1,181 aMW

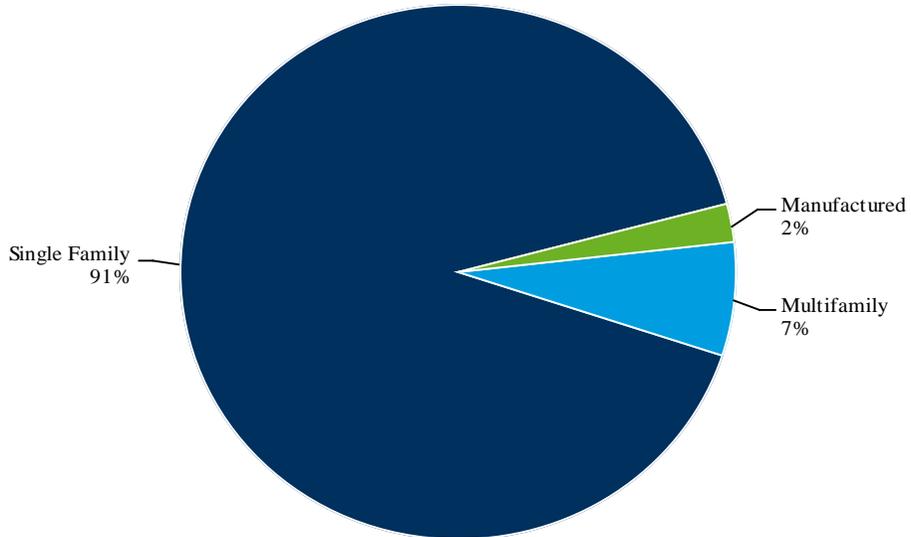


Figure C.3.19 Baseline Sales 2030 - Washington: Residential by Segment

Total: 238 aMW

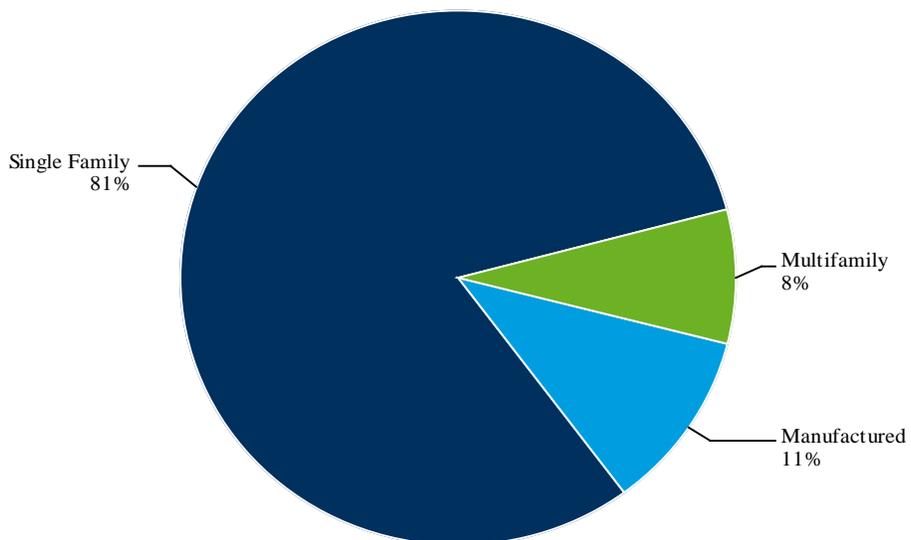


Figure C.3.20 Baseline Sales 2030 - Wyoming: Residential by Segment

Total: 162 aMW

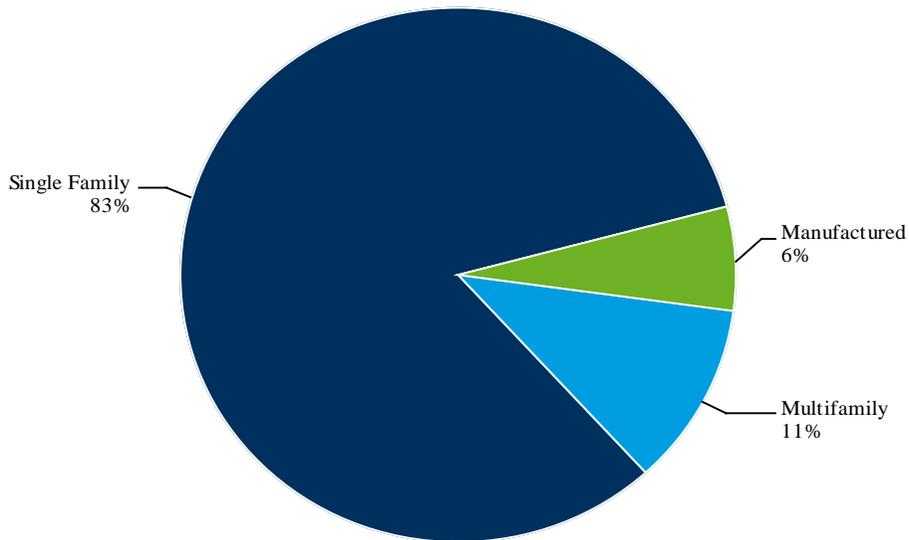
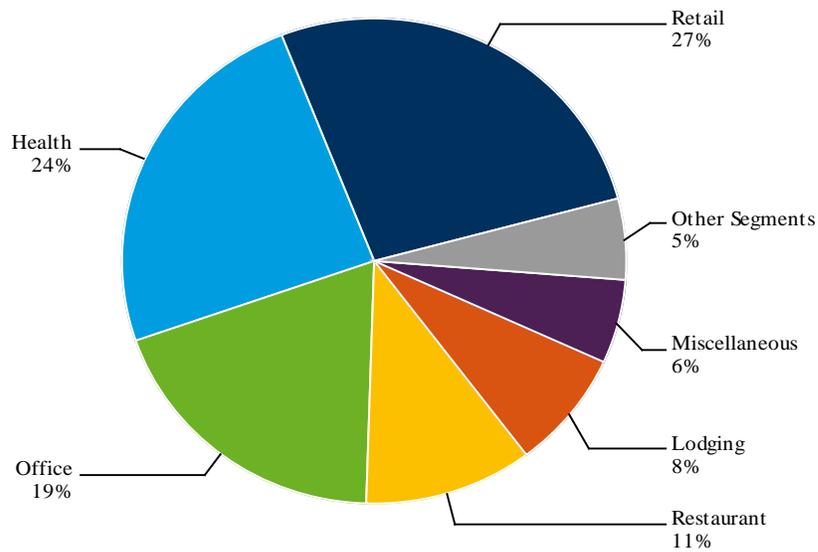


Figure C.3.21 Baseline Sales 2030 - California: Commercial by Segment

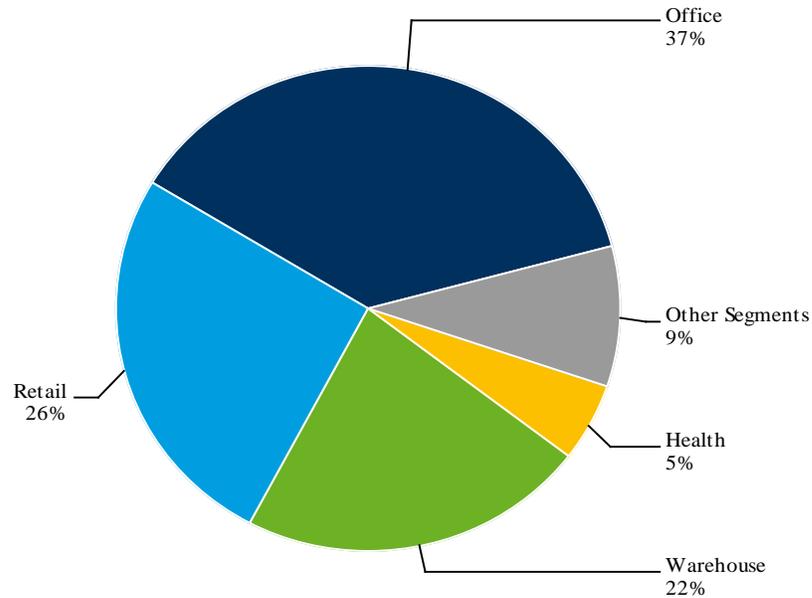
Total: 55 aMW



Note: 'Other Segments' includes:
 Grocery: 3%, School: 2%, Warehouse: <1%

Figure C.3.22 Baseline Sales 2030 - Idaho: Commercial by Segment

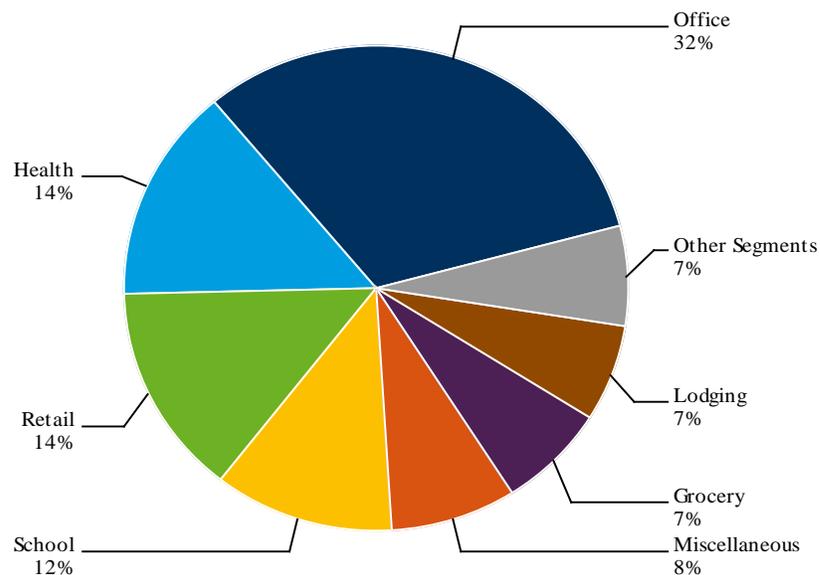
Total: 92 aMW



Note: 'Other Segments' includes:
Lodging: 4%, Grocery: 2%, School: 1%, Restaurant: 1%, Miscellaneous: <1%

Figure C.3.23 Baseline Sales 2030 - Utah: Commercial by Segment

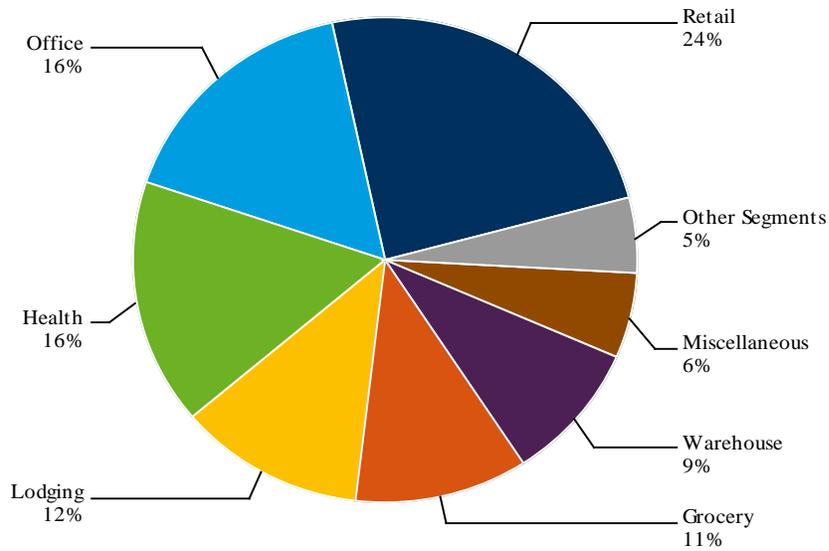
Total: 1,743 aMW



Note: 'Other Segments' includes:
Warehouse: 4%, Restaurant: 2%

Figure C.3.24 Baseline Sales 2030 - Washington: Commercial by Segment

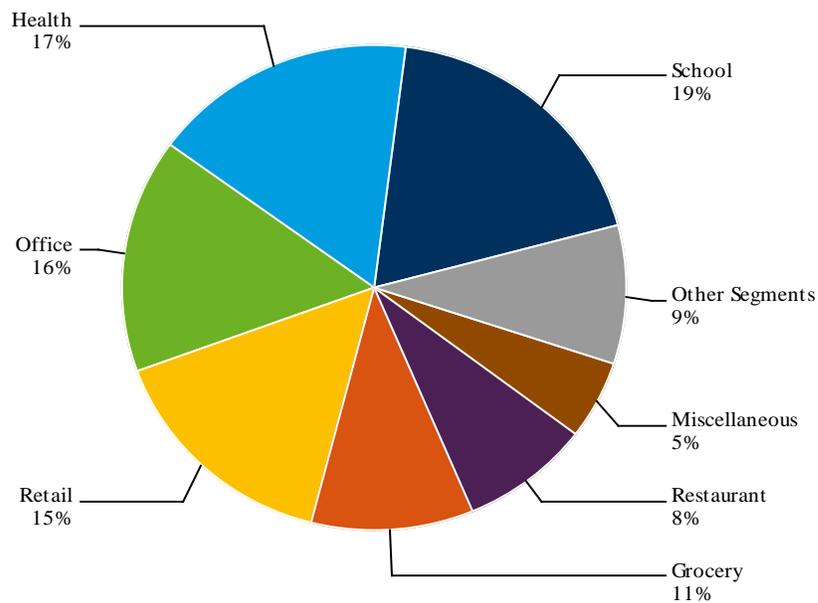
Total: 194 aMW



Note: 'Other Segments' includes:
School: 3%, Restaurant: 2%

Figure C.3.25 Baseline Sales 2030 - Wyoming: Commercial by Segment

Total: 284 aMW



Note: 'Other Segments' includes:
Warehouse: 5%, Lodging: 4%

Figure C.3.26 Baseline Sales 2030 - California: Industrial by Segment

Total: 4 aMW

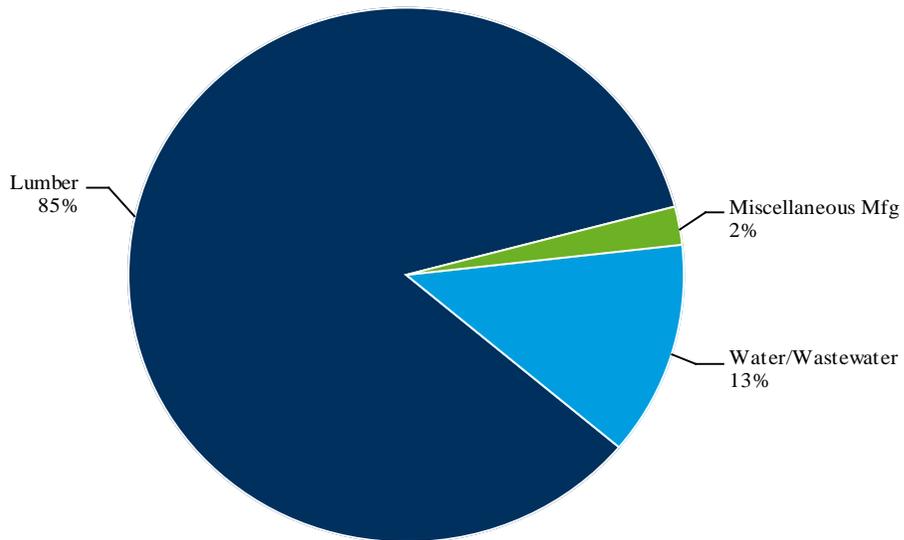


Figure C.3.27 Baseline Sales 2030 - Idaho: Industrial by Segment

Total: 46 aMW

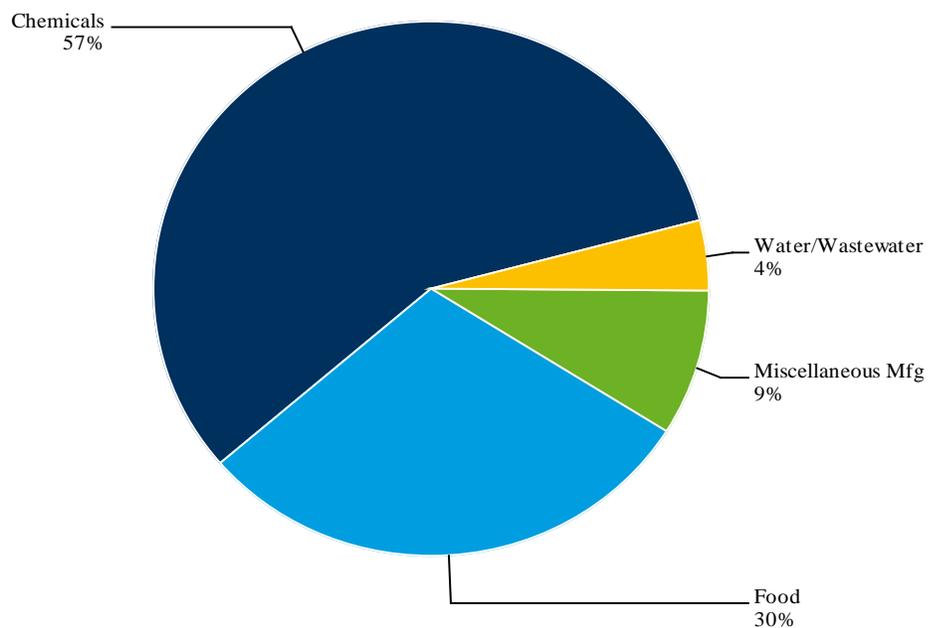


Figure C.3.28 Baseline Sales 2030 - Utah: Industrial by Segment

Total: 1,057 aMW

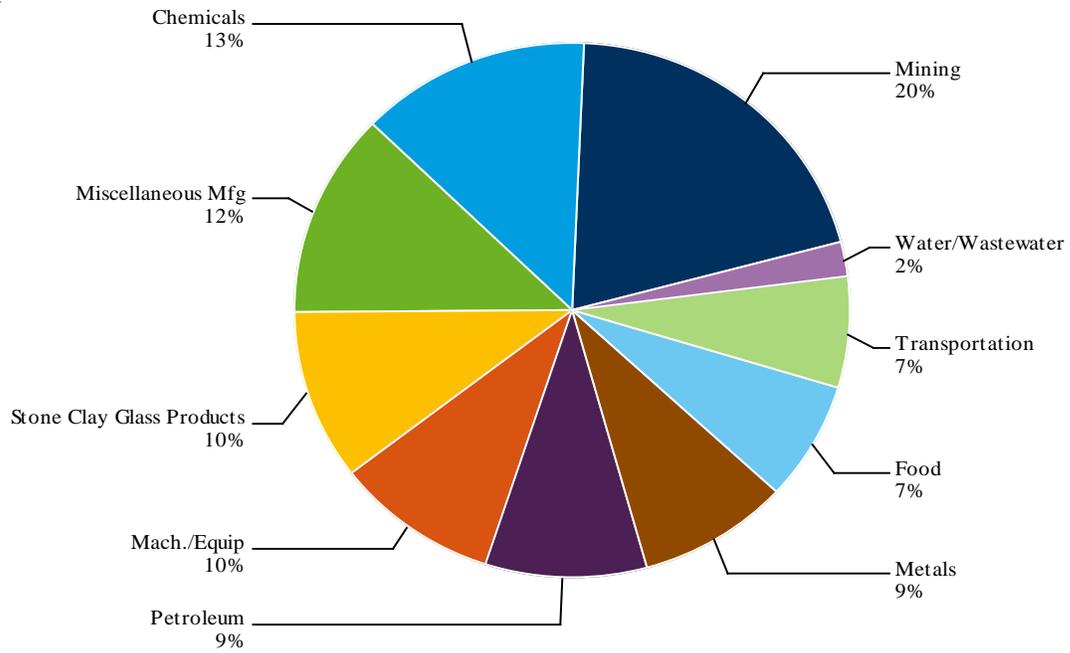


Figure C.3.29 Baseline Sales 2030 - Washington: Industrial by Segment

Total: 110 aMW

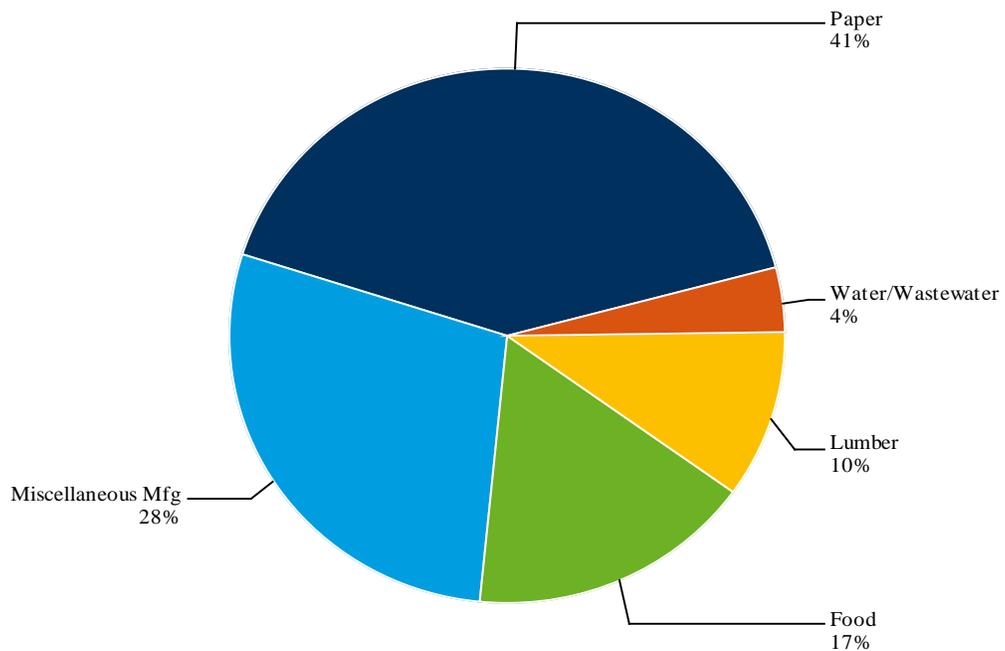
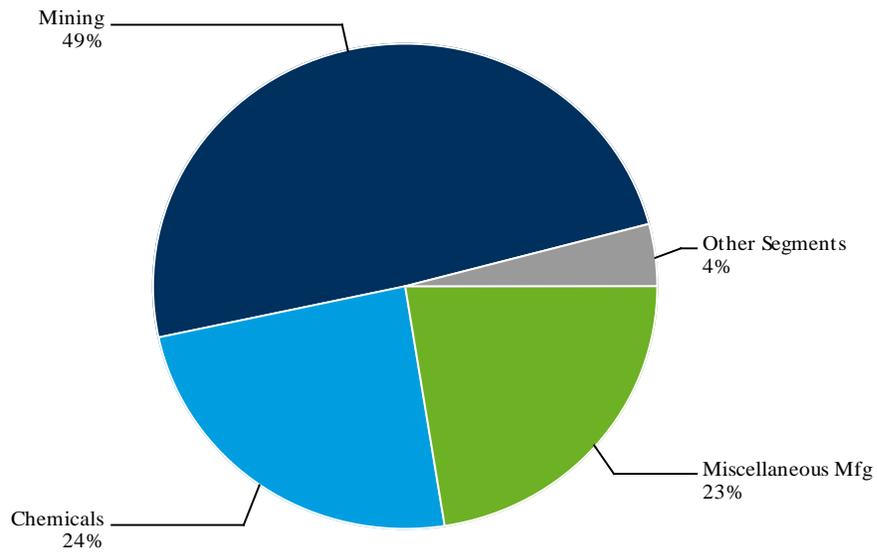


Figure C.3.30 Baseline Sales 2030 - Wyoming: Industrial by Segment

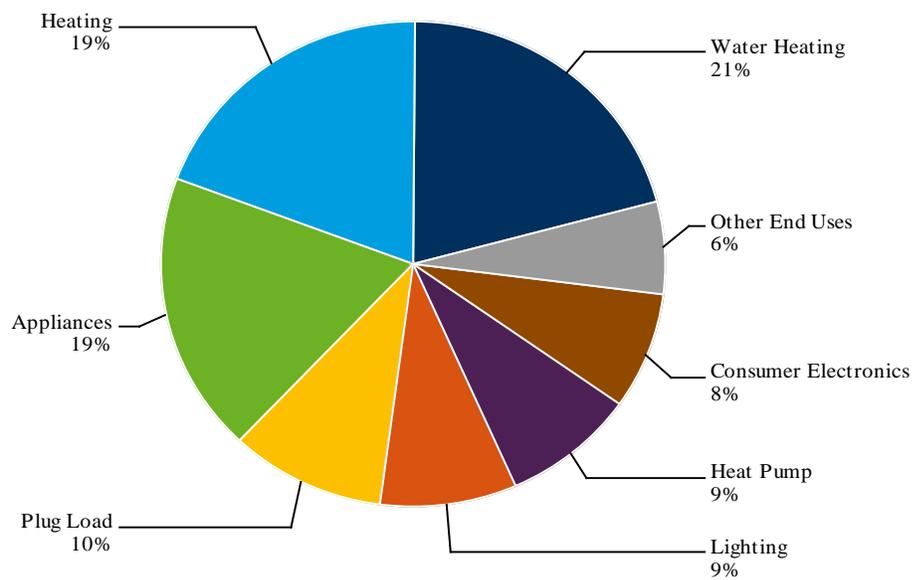
Total: 1,712 aMW



Note: 'Other Segments' includes:
 Petroleum: 4%, Water/Wastewater: <1%

Figure C.3.31 Baseline Sales 2030 - California: Residential by End Use

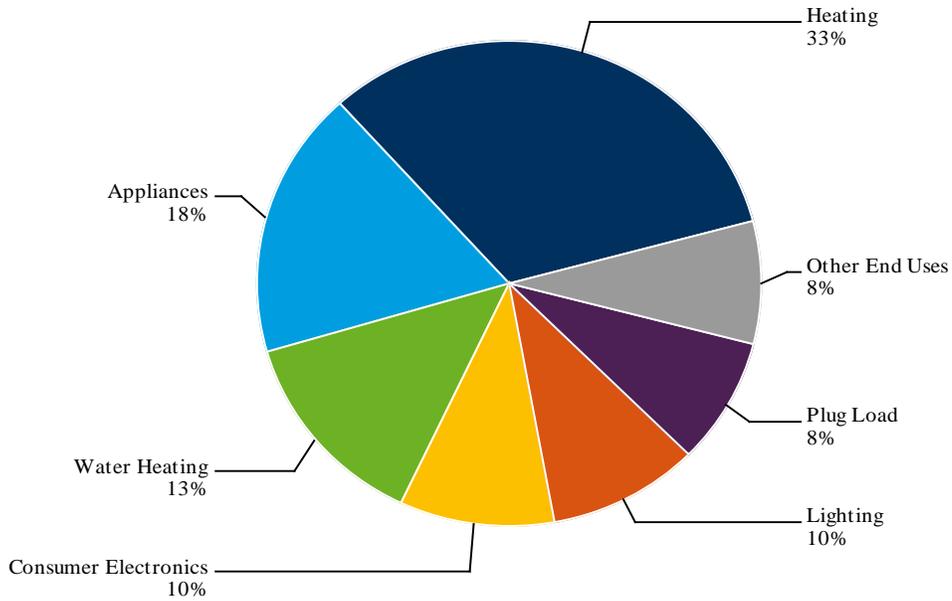
Total: 60 aMW



Note: 'Other End Uses' includes:
 Cooling: 5%, Ventilation And Circulation: 2%, Pool Pump: <1%

Figure C.3.32 Baseline Sales 2030 - Idaho: Residential by End Use

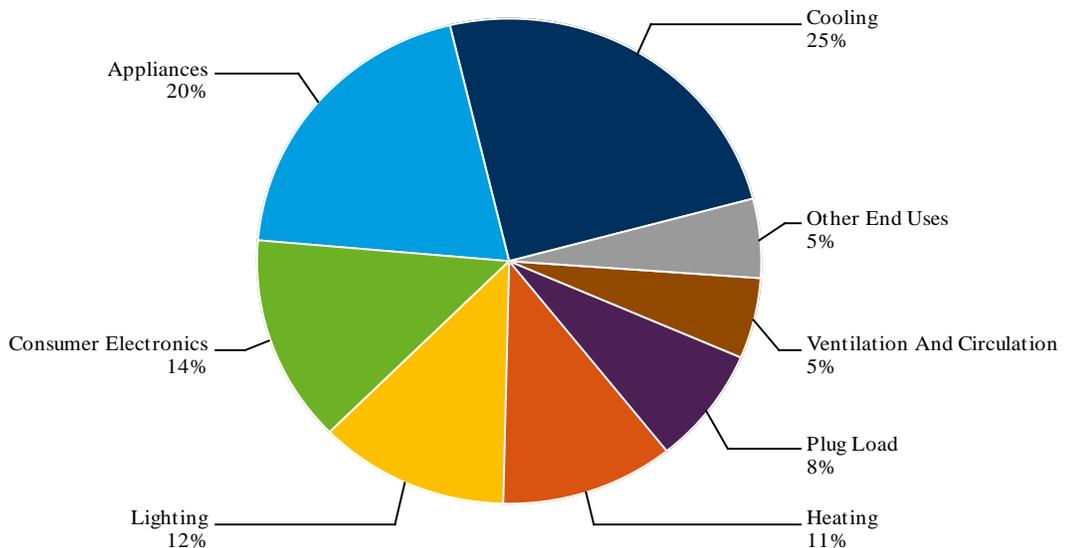
Total: 146 aMW



Note: 'Other End Uses' includes:
Cooling: 4%, Ventilation And Circulation: 3%, Heat Pump: 1%, Pool Pump: <1%

Figure C.3.33 Baseline Sales 2030 - Utah: Residential by End Use

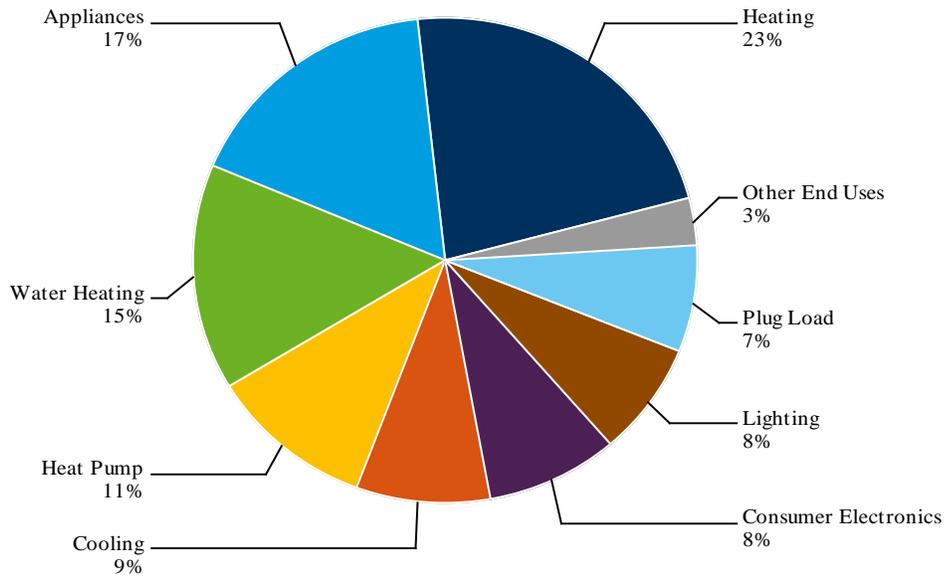
Total: 1,181 aMW



Note: 'Other End Uses' includes:
Water Heating: 4%, Heat Pump: <1%, Pool Pump: <1%

Figure C.3.34 Baseline Sales 2030 - Washington: Residential by End Use

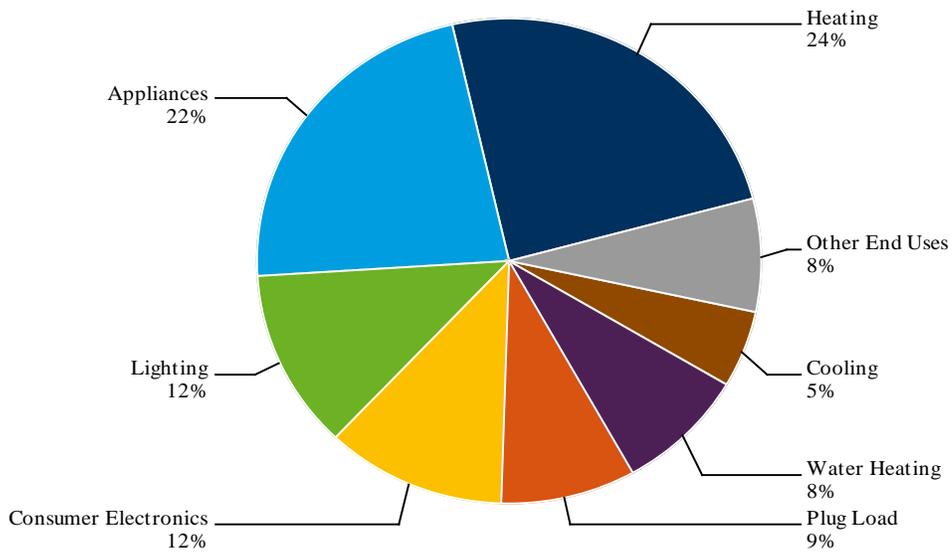
Total: 238 aMW



Note: 'Other End Uses' includes:
 Ventilation And Circulation: 3%, Pool Pump: <1%

Figure C.3.35 Baseline Sales 2030 - Wyoming: Residential by End Use

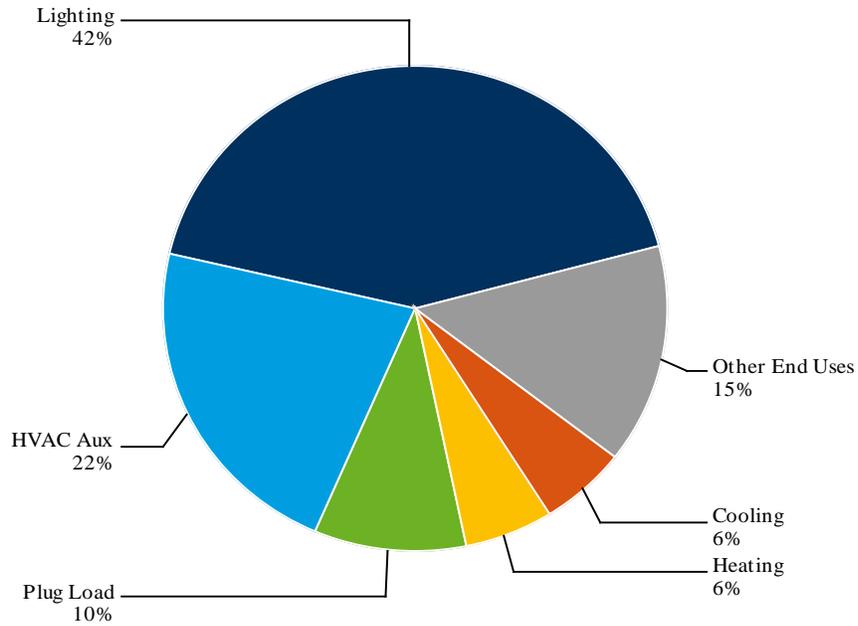
Total: 162 aMW



Note: 'Other End Uses' includes:
 Ventilation And Circulation: 5%, Heat Pump: 3%, Pool Pump: <1%

Figure C.3.36 Baseline Sales 2030 - California: Commercial by End Use

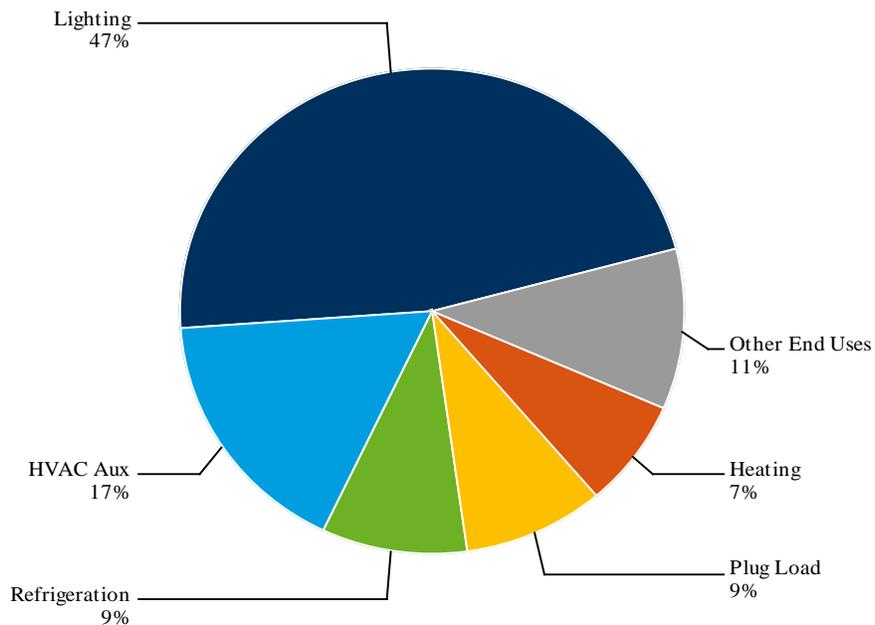
Total: 55 aMW



Note: 'Other End Uses' includes:
 Refrigeration: 4%, Heat Pump: 4%, Water Heating: 4%, Other Office Equipment: 3%, Cooking: <1%

Figure C.3.37 Baseline Sales 2030 - Idaho: Commercial by End Use

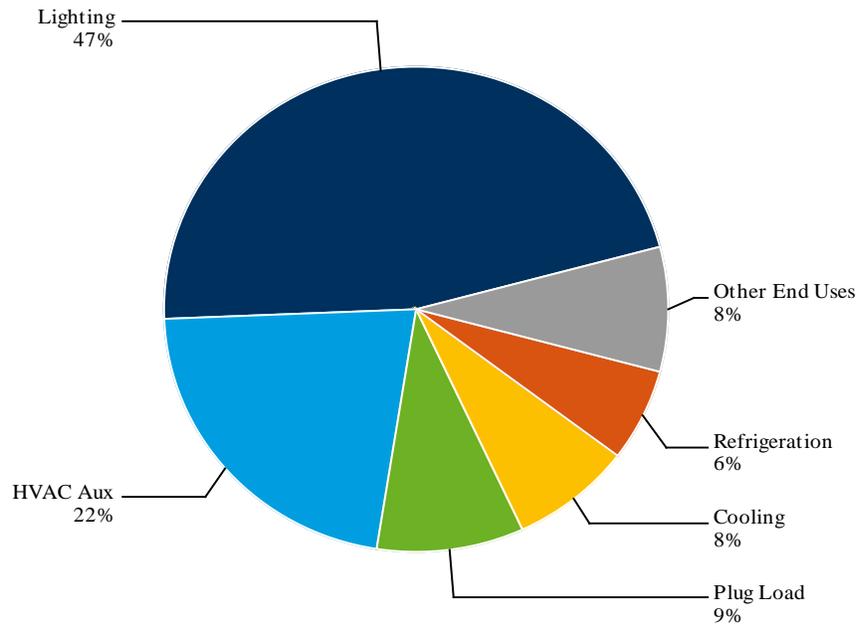
Total: 92 aMW



Note: 'Other End Uses' includes:
 Cooling: 5%, Other Office Equipment: 3%, Heat Pump: 2%, Water Heating: 1%, Cooking: <1%

Figure C.3.38 Baseline Sales 2030 - Utah: Commercial by End Use

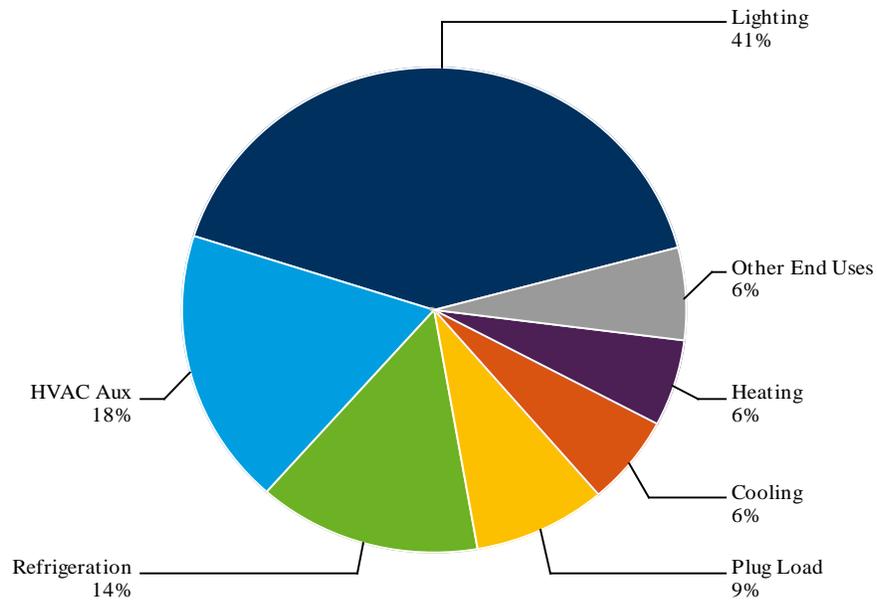
Total: 1,743 aMW



Note: 'Other End Uses' includes: Heating: 3%, Other Office Equipment: 2%, Heat Pump: 2%, Water Heating: 1%, Cooking: <1%

Figure C.3.39 Baseline Sales 2030 - Washington: Commercial by End Use

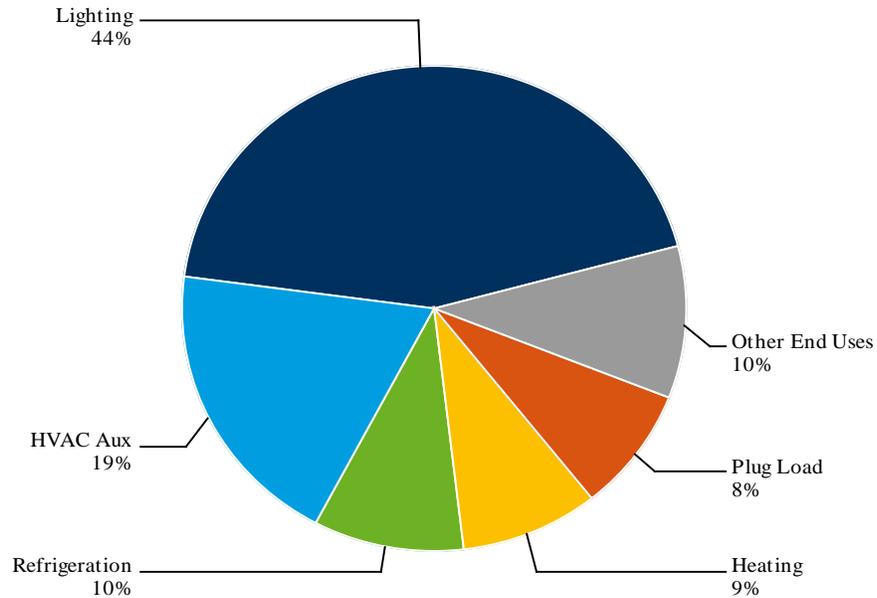
Total: 194 aMW



Note: 'Other End Uses' includes: Heat Pump: 2%, Water Heating: 2%, Other Office Equipment: 2%, Cooking: <1%

Figure C.3.40 Baseline Sales 2030 - Wyoming: Commercial by End Use

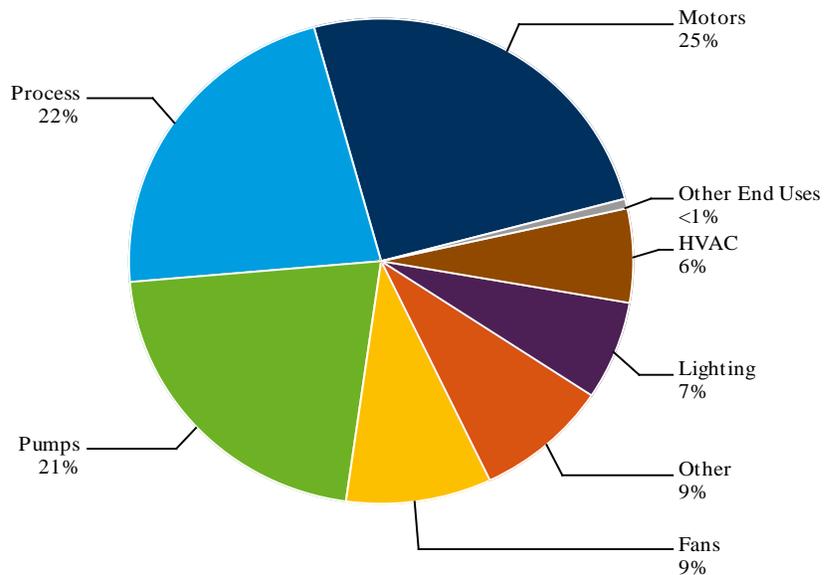
Total: 284 aMW



Note: 'Other End Uses' includes:
Cooling: 4%, Water Heating: 2%, Other Office Equipment: 2%, Heat Pump: 2%, Cooking: <1%

Figure C.3.41 Baseline Sales 2030 - California: Industrial by End Use

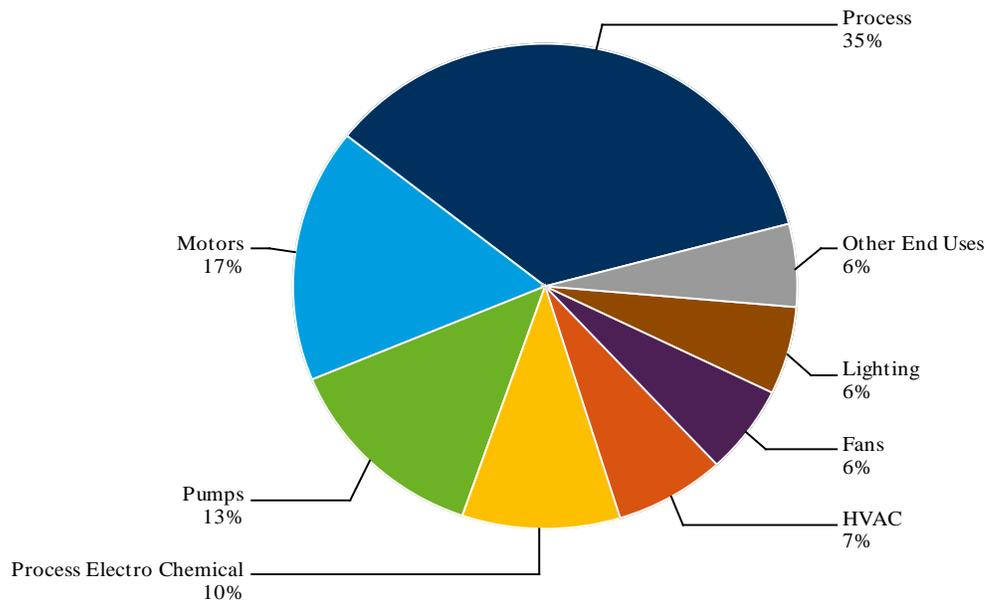
Total: 4 aMW



Note: 'Other End Uses' includes:
Indirect Boiler: <1%, Process Electro Chemical: <1%

Figure C.3.42 Baseline Sales 2030 - Idaho: Industrial by End Use

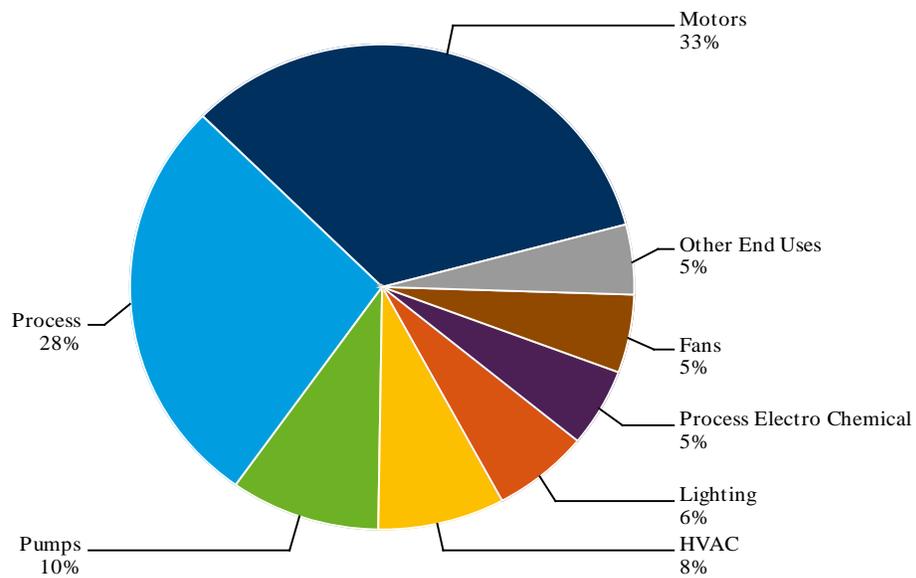
Total: 46 aMW



Note: 'Other End Uses' includes:
Other: 4%, Indirect Boiler: 1%

Figure C.3.43 Baseline Sales 2030 - Utah: Industrial by End Use

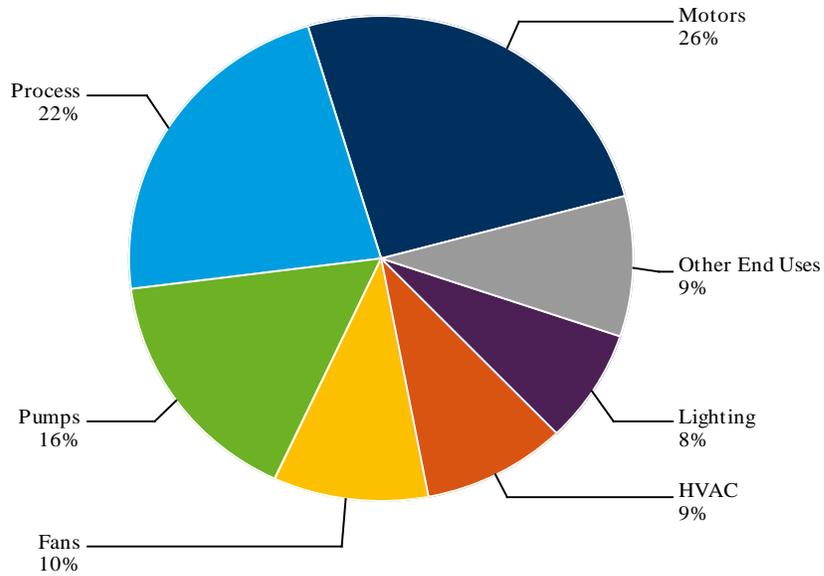
Total: 1,057 aMW



Note: 'Other End Uses' includes:
Other: 3%, Indirect Boiler: 1%

Figure C.3.44 Baseline Sales 2030 - Washington: Industrial by End Use

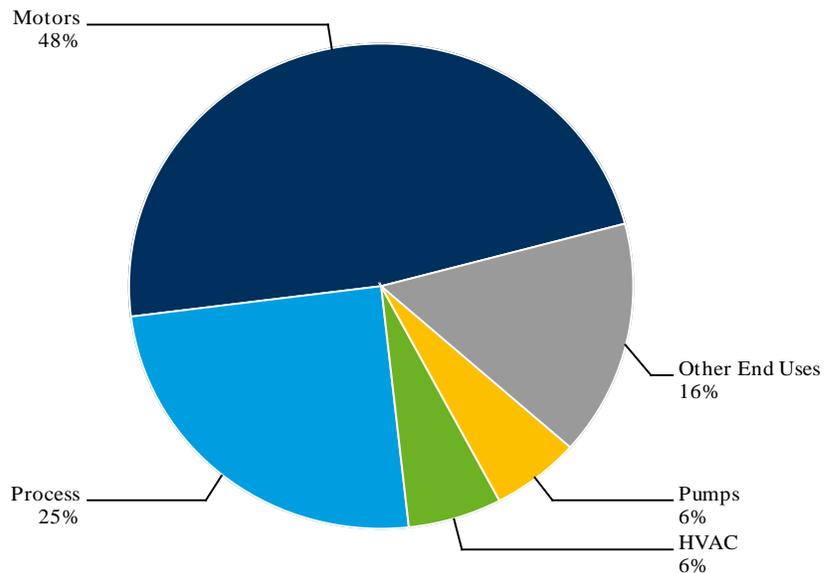
Total: 110 aMW



Note: 'Other End Uses' includes:
 Other: 5%, Indirect Boiler: 4%, Process Electro Chemical: <1%

Figure C.3.45 Baseline Sales 2030 - Wyoming: Industrial by End Use

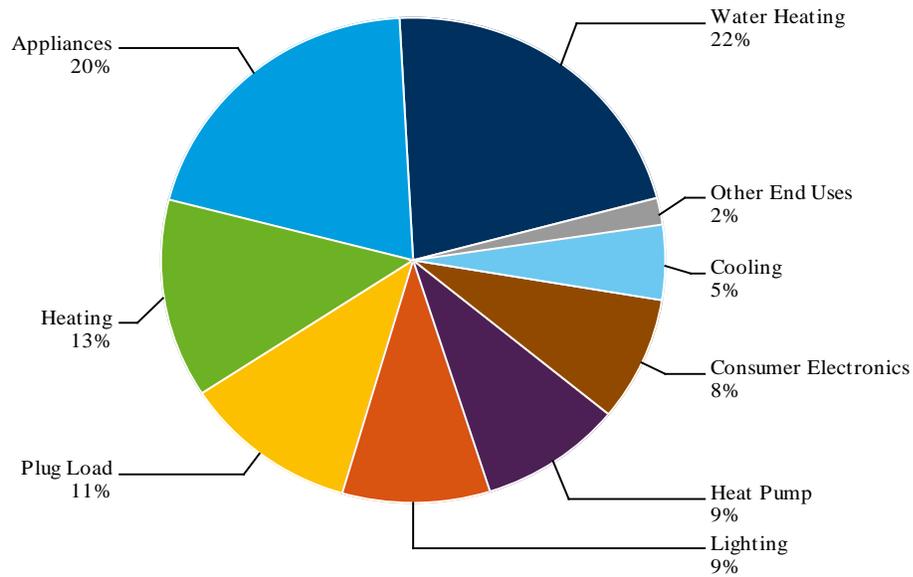
Total: 1,712 aMW



Note: 'Other End Uses' includes:
 Lighting: 4%, Process Electro Chemical: 4%, Fans: 3%, Indirect Boiler: 2%, Other: 1%

Figure C.3.46 Baseline Sales 2030 - California: Residential Single Family by End Use

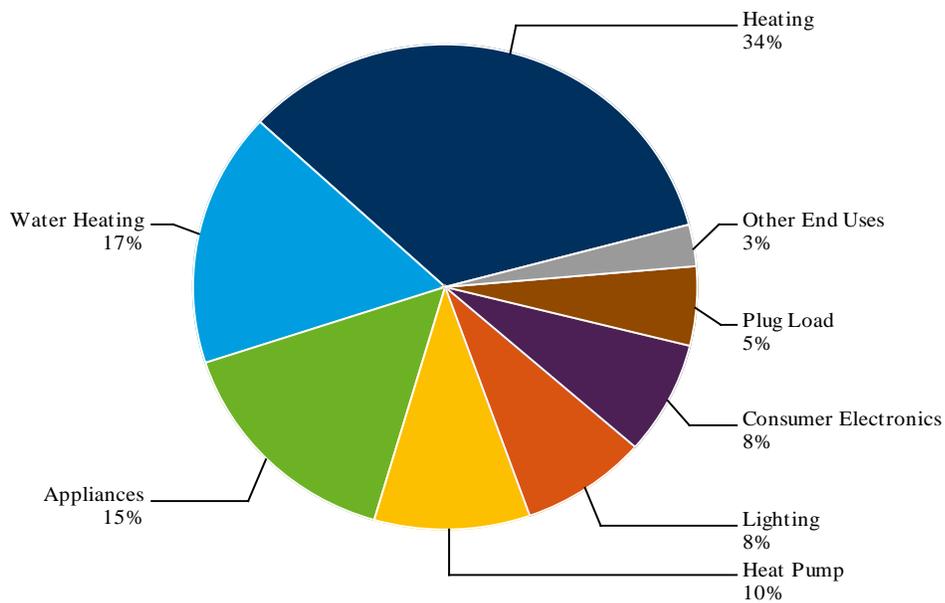
Total: 45 aMW



Note: 'Other End Uses' includes:
Ventilation And Circulation: 2%, Pool Pump: <1%

Figure C.3.47 Baseline Sales 2030 - California: Residential Multifamily by End Use

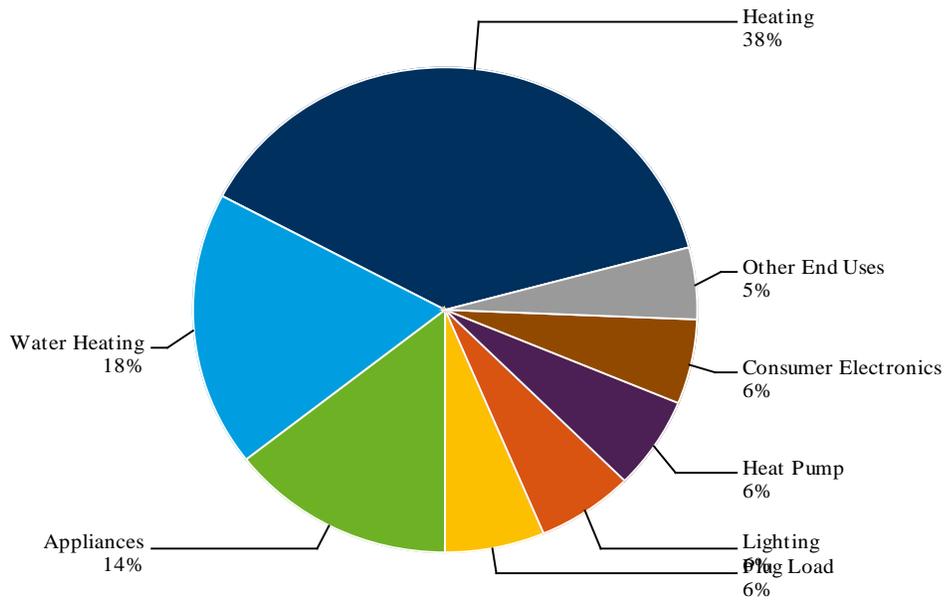
Total: 5 aMW



Note: 'Other End Uses' includes:
Cooling: 3%, Ventilation And Circulation: <1%

Figure C.3.48 Baseline Sales 2030 - California: Residential Manufactured by End Use

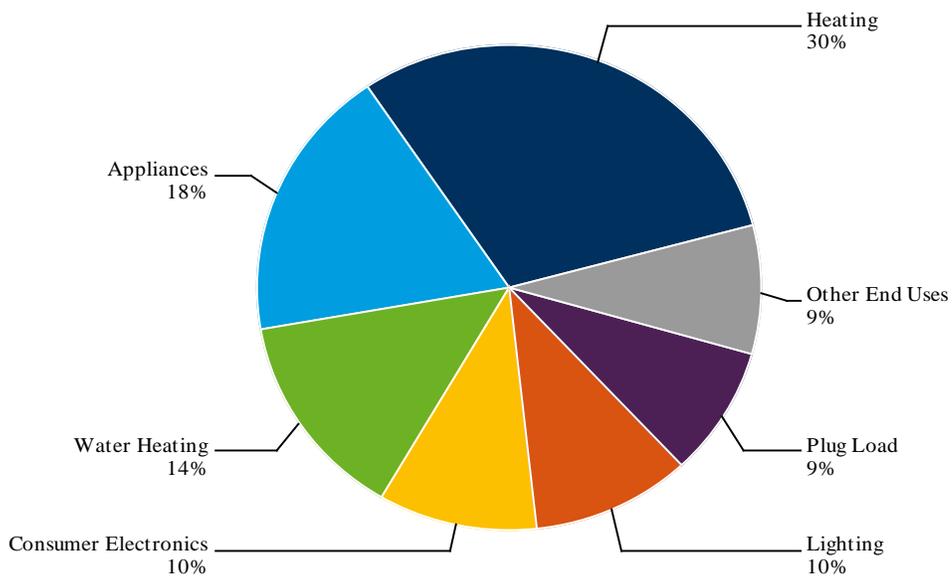
Total: 11 aMW



Note: 'Other End Uses' includes:
Cooling: 3%, Ventilation And Circulation: 1%

Figure C.3.49 Baseline Sales 2030 - Idaho: Residential Single Family by End Use

Total: 128 aMW



Note: 'Other End Uses' includes:
Cooling: 4%, Ventilation And Circulation: 3%, Heat Pump: 1%, Pool Pump: <1%

Figure C.3.50 Baseline Sales 2030 - Idaho: Residential Multifamily by End Use

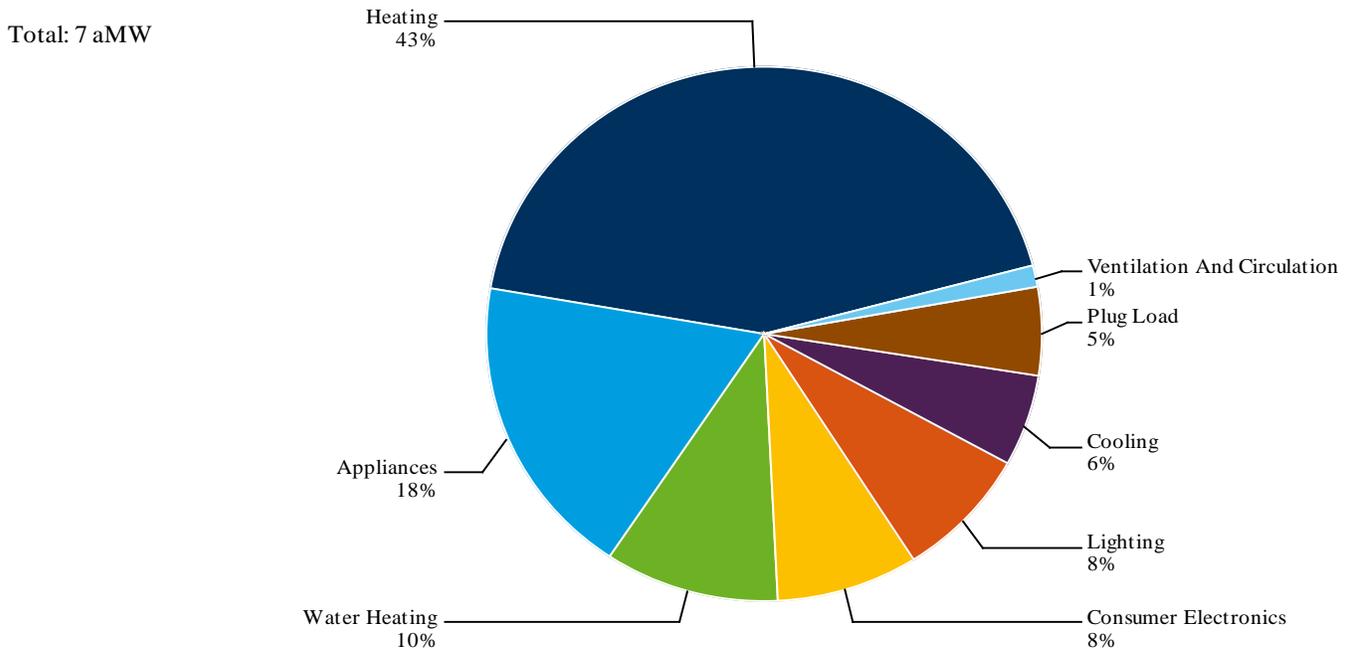
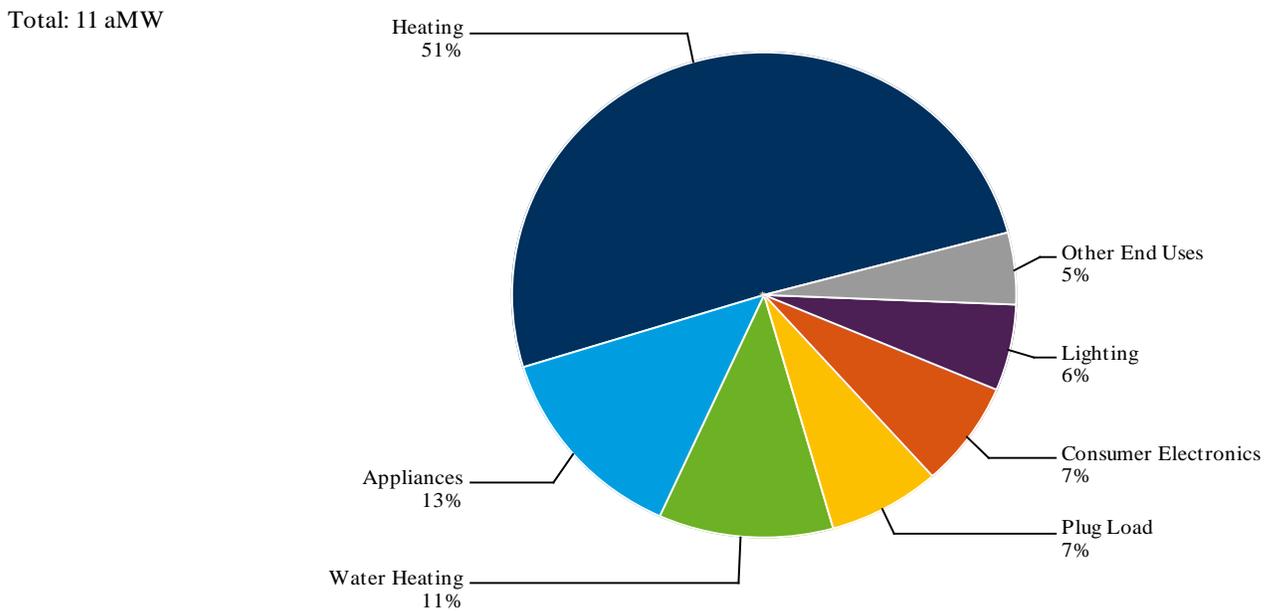


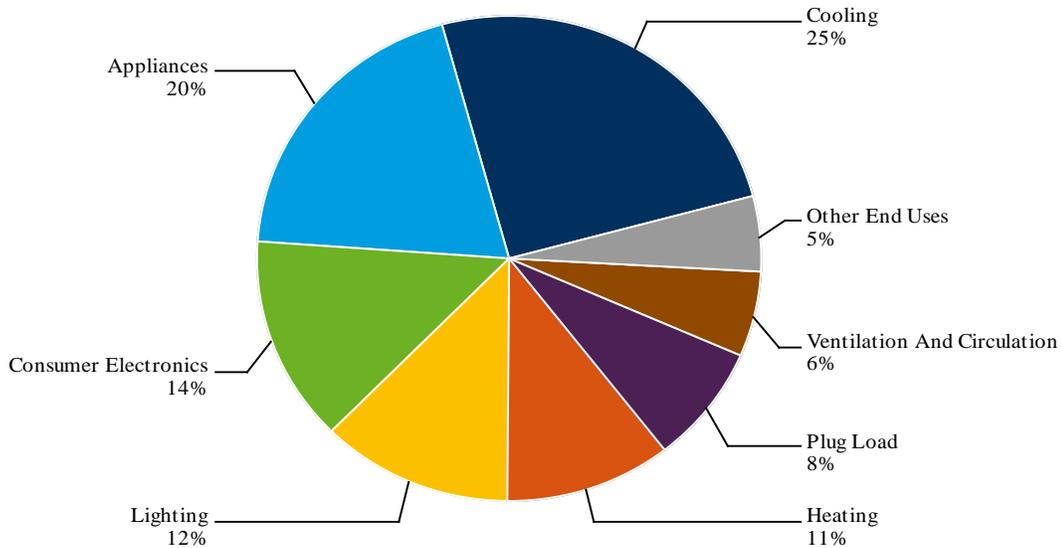
Figure C.3.51 Baseline Sales 2030 - Idaho: Residential Manufactured by End Use



Note: 'Other End Uses' includes:
Cooling: 3%, Ventilation And Circulation: 2%

Figure C.3.52 Baseline Sales 2030 - Utah: Residential Single Family by End Use

Total: 1,072 aMW



Note: 'Other End Uses' includes:
 Water Heating: 4%, Heat Pump: 1%, Pool Pump: <1%

Figure C.3.53 Baseline Sales 2030 - Utah: Residential Multifamily by End Use

Total: 80 aMW

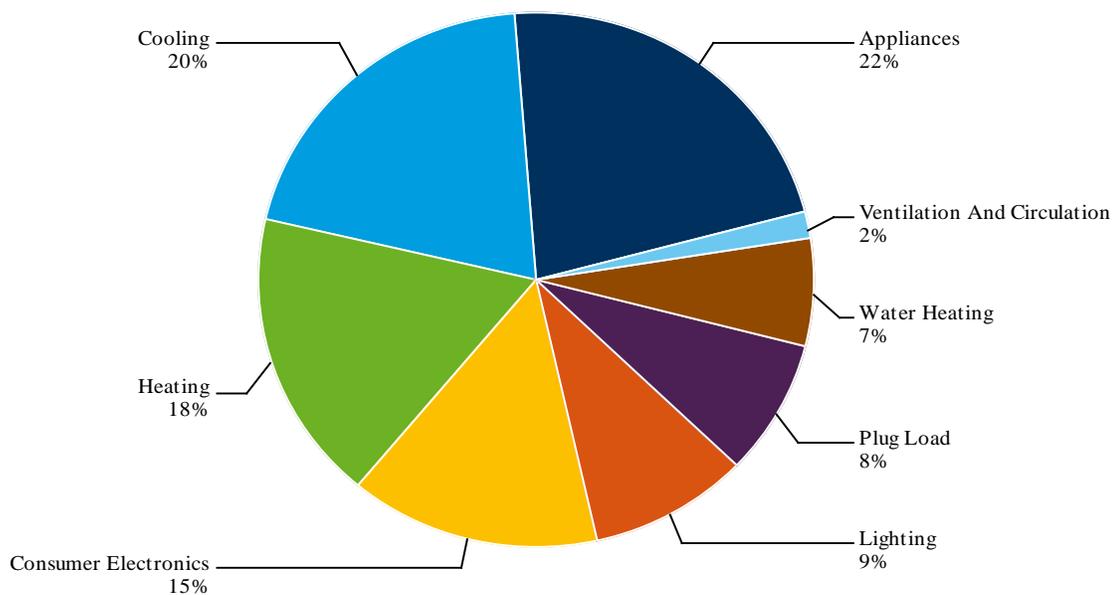


Figure C.3.54 Baseline Sales 2030 - Utah: Residential Manufactured by End Use

Total: 28 aMW

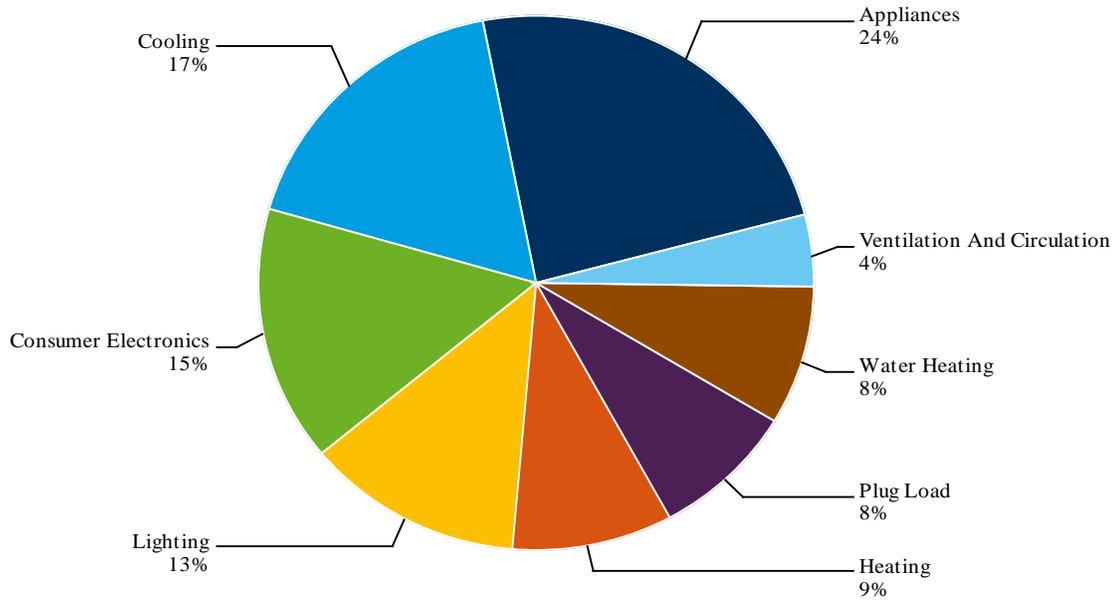
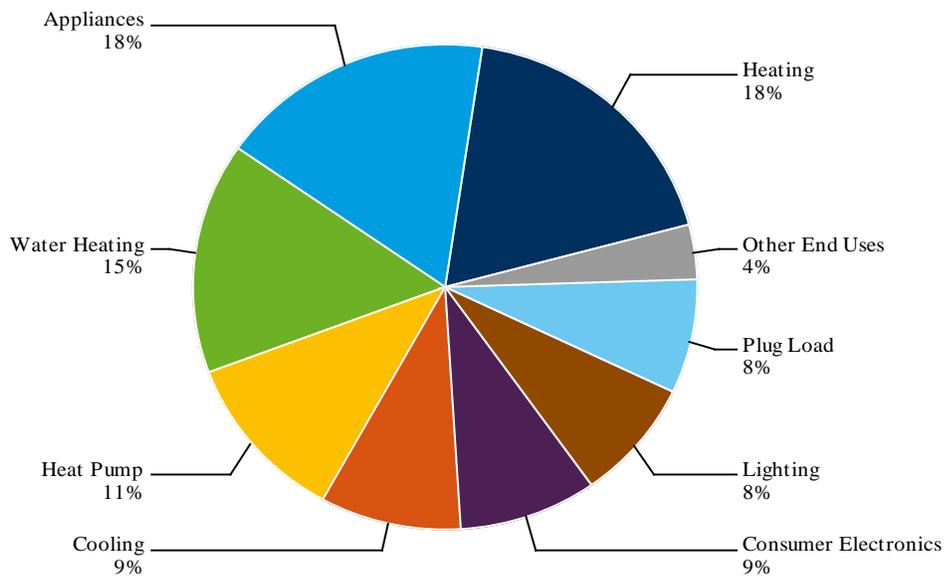


Figure C.3.55 Baseline Sales 2030 - Washington: Residential Single Family by End Use

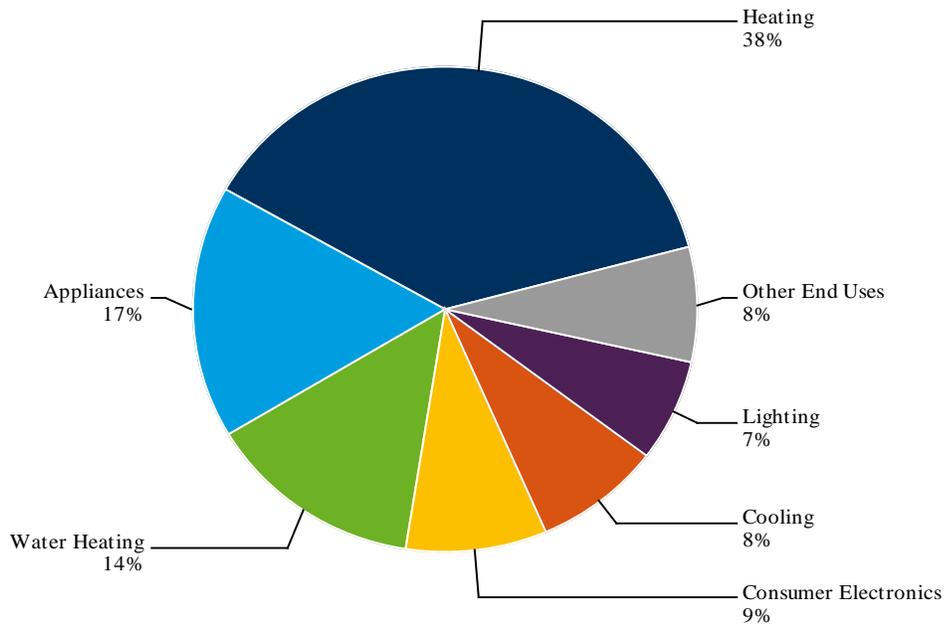
Total: 193 aMW



Note: 'Other End Uses' includes:
 Ventilation And Circulation: 3%, Pool Pump: <1%

Figure C.3.56 Baseline Sales 2030 - Washington: Residential Multifamily by End Use

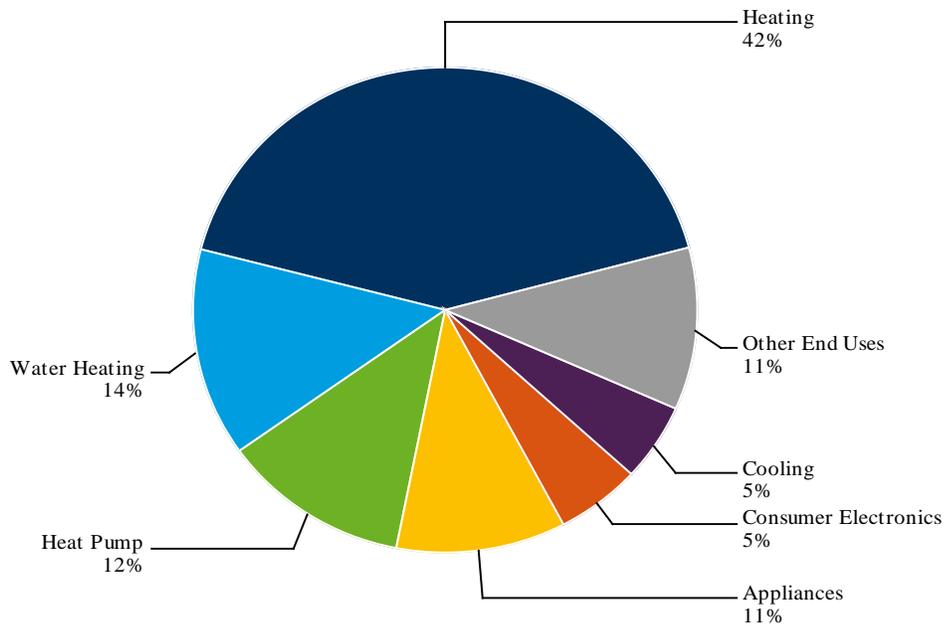
Total: 19 aMW



Note: 'Other End Uses' includes:
 Plug Load: 4%, Heat Pump: 3%, Ventilation And Circulation: <1%

Figure C.3.57 Baseline Sales 2030 - Washington: Residential Manufactured by End Use

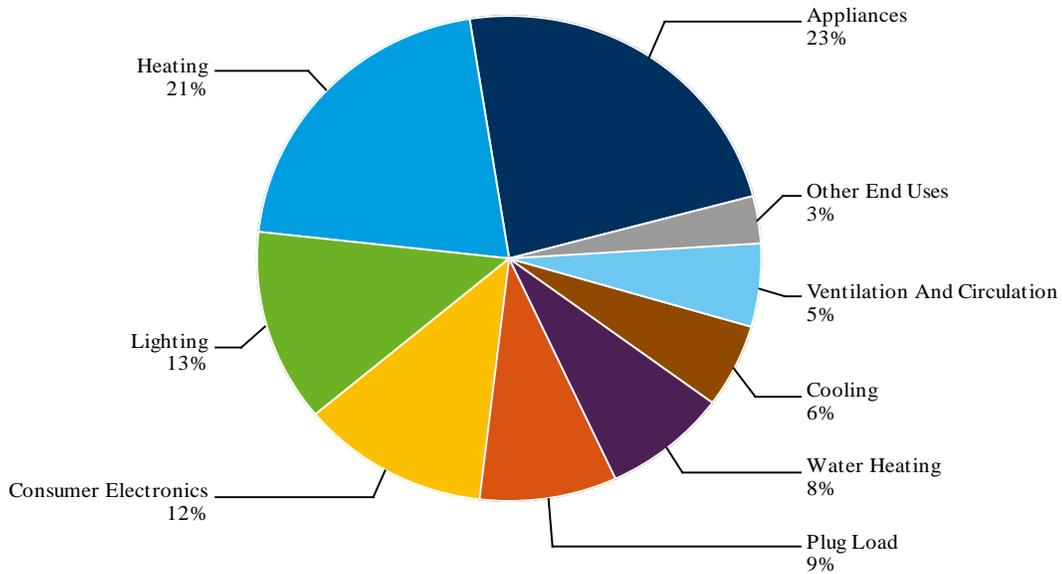
Total: 26 aMW



Note: 'Other End Uses' includes:
 Plug Load: 5%, Lighting: 5%, Ventilation And Circulation: 1%

Figure C.3.58 Baseline Sales 2030 - Wyoming: Residential Single Family by End Use

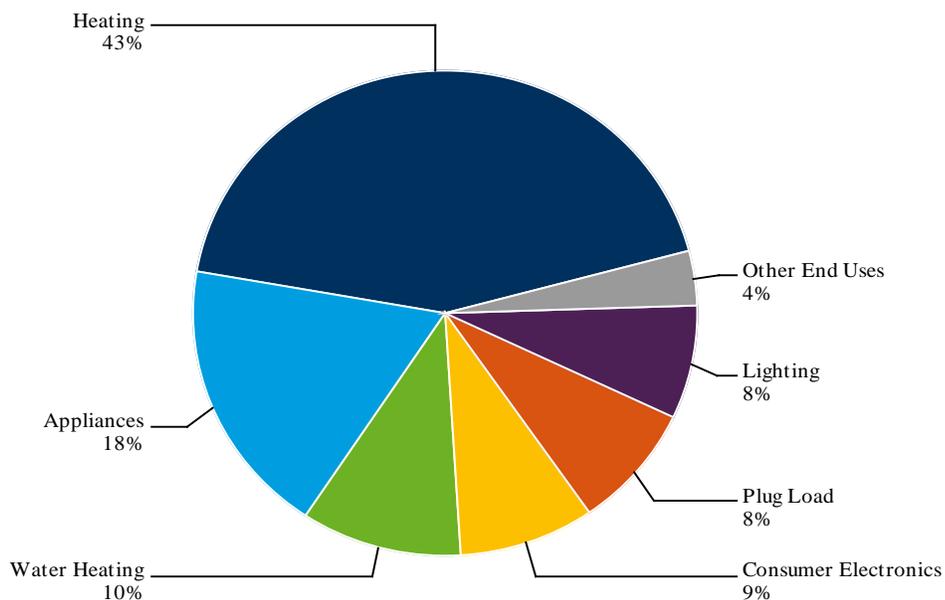
Total: 133 aMW



Note: 'Other End Uses' includes:
Heat Pump: 3%, Pool Pump: <1%

Figure C.3.59 Baseline Sales 2030 - Wyoming: Residential Multifamily by End Use

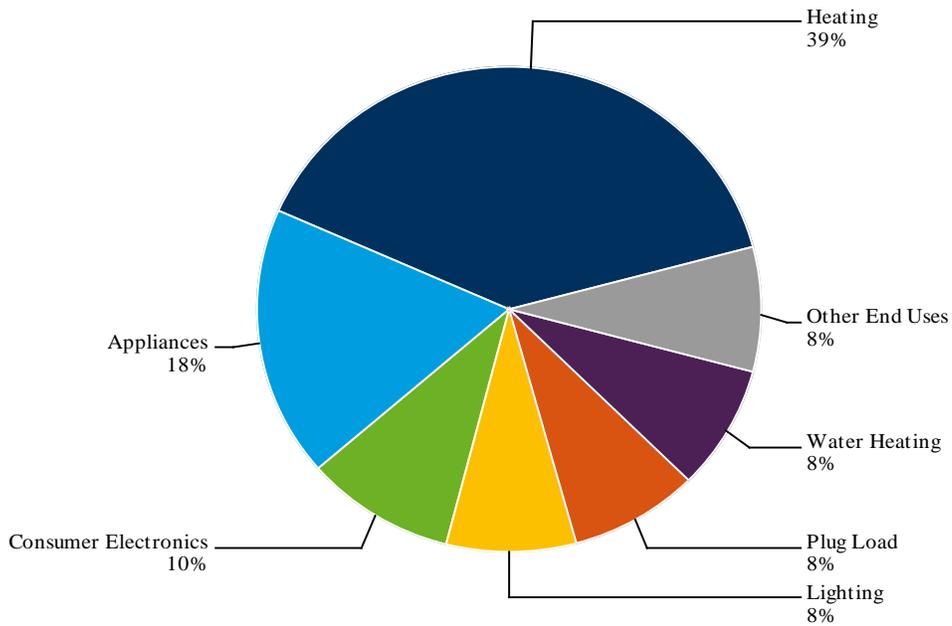
Total: 18 aMW



Note: 'Other End Uses' includes:
Cooling: 2%, Ventilation And Circulation: 1%

Figure C.3.60 Baseline Sales 2030 - Wyoming: Residential Manufactured by End Use

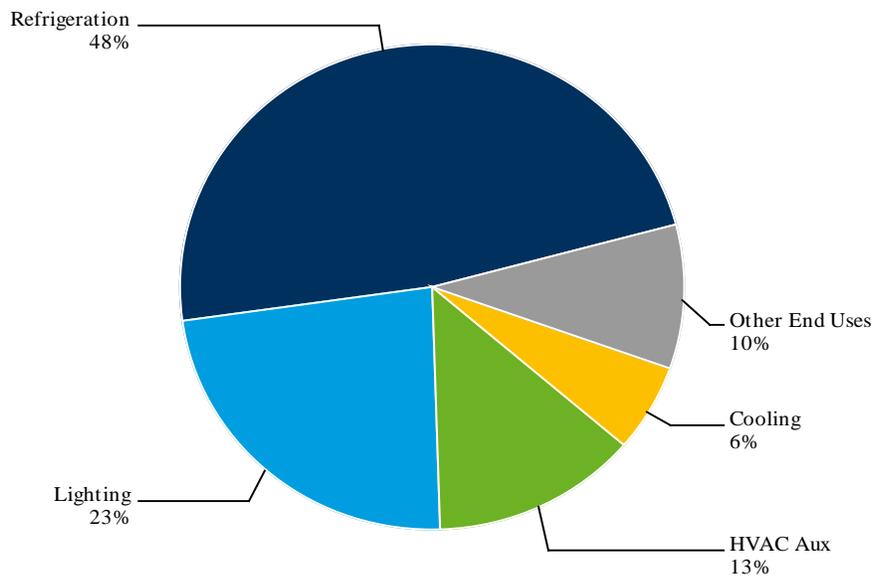
Total: 10 aMW



Note: 'Other End Uses' includes:
Cooling: 5%, Ventilation And Circulation: 4%

Figure C.3.61 Baseline Sales 2030 - California: Commercial Grocery by End Use

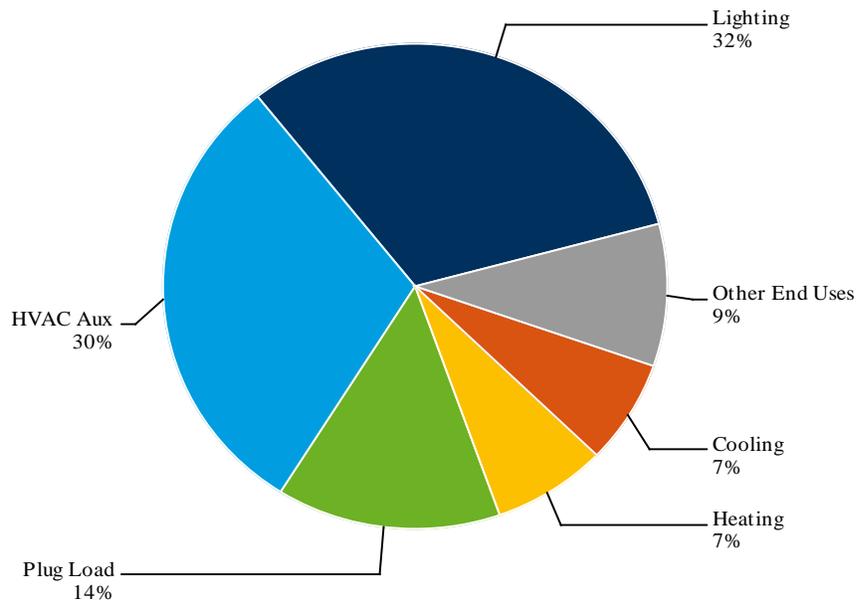
Total: 2 aMW



Note: 'Other End Uses' includes:
Plug Load: 4%, Heating: 3%, Heat Pump: 2%, Cooking: <1%, Water Heating: <1%, Other Office Equipment: <1%

Figure C.3.62 Baseline Sales 2030 - California: Commercial Health by End Use

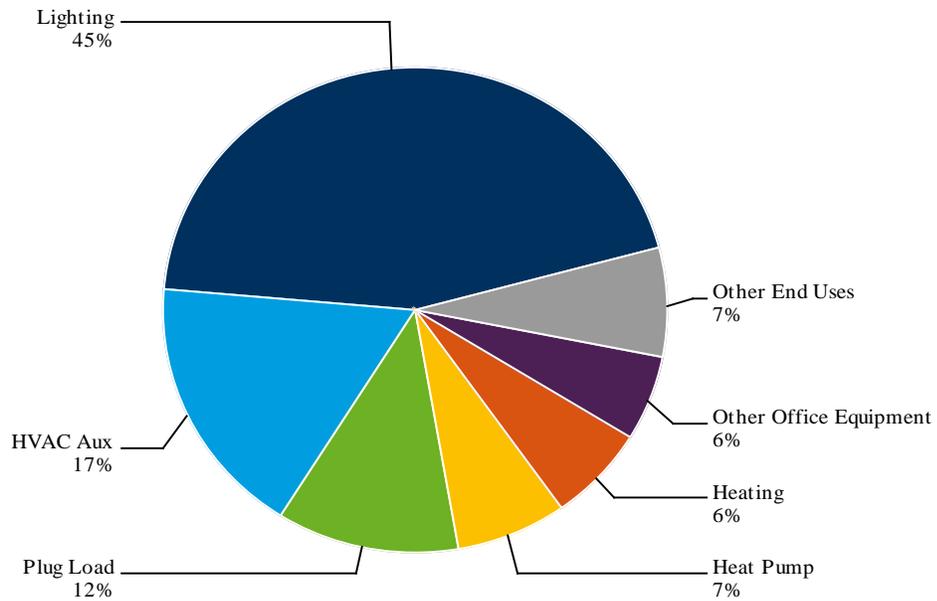
Total: 13 aMW



Note: 'Other End Uses' includes:
Heat Pump: 4%, Other Office Equipment: 3%, Water Heating: 2%, Refrigeration: <1%, Cooking: <1%

Figure C.3.63 Baseline Sales 2030 - California: Commercial Office by End Use

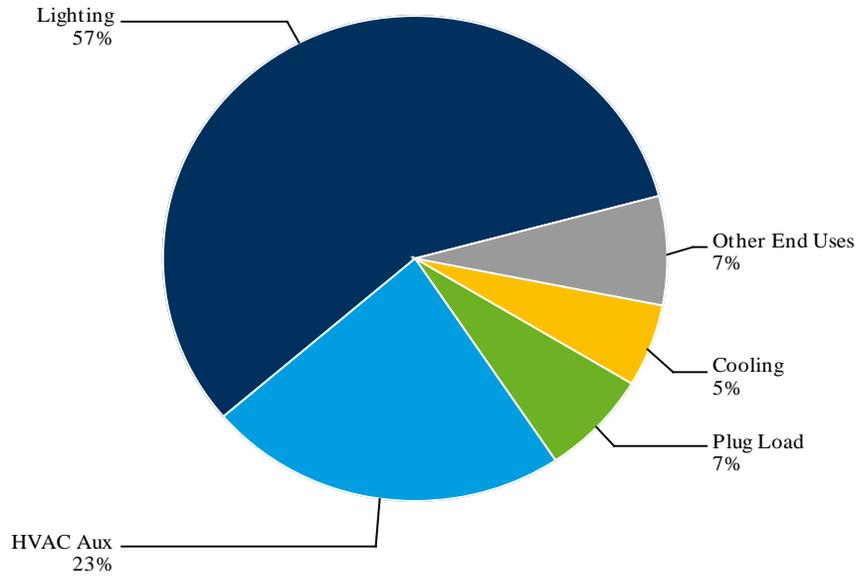
Total: 10 aMW



Note: 'Other End Uses' includes:
Cooling: 4%, Water Heating: 3%

Figure C.3.64 Baseline Sales 2030 - California: Commercial Retail by End Use

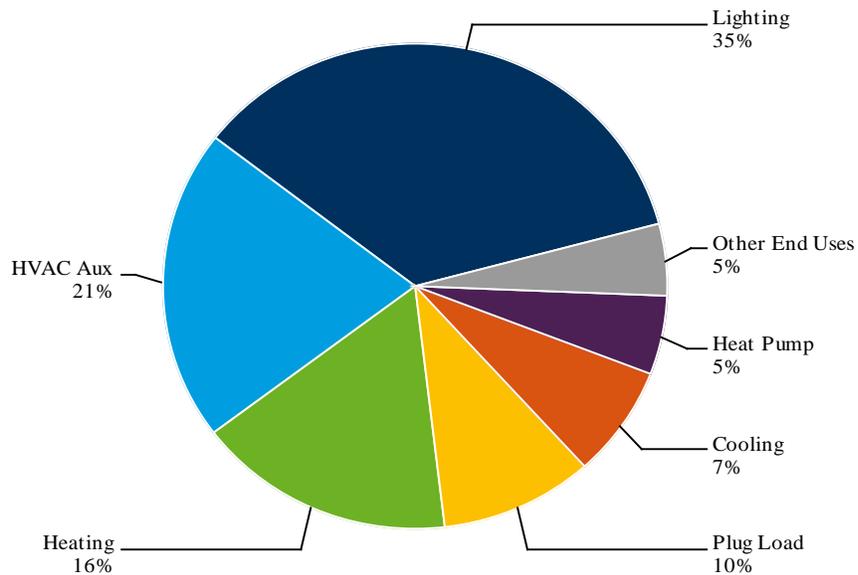
Total: 15 aMW



Note: 'Other End Uses' includes:
 Other Office Equipment: 2%, Heating: 2%, Heat Pump: 2%, Water Heating: 1%

Figure C.3.65 Baseline Sales 2030 - California: Commercial Lodging by End Use

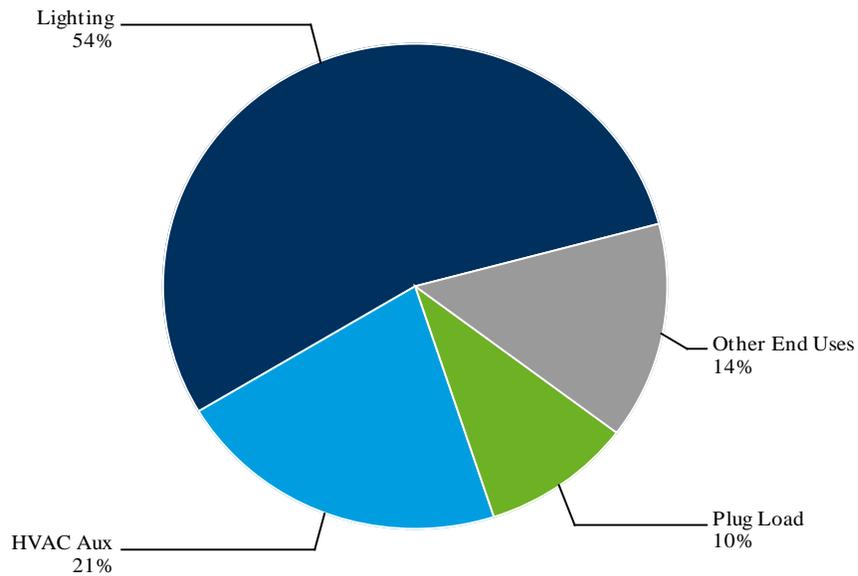
Total: 4 aMW



Note: 'Other End Uses' includes:
 Water Heating: 4%, Other Office Equipment: <1%, Cooking: <1%

Figure C.3.66 Baseline Sales 2030 - California: Commercial Miscellaneous by End Use

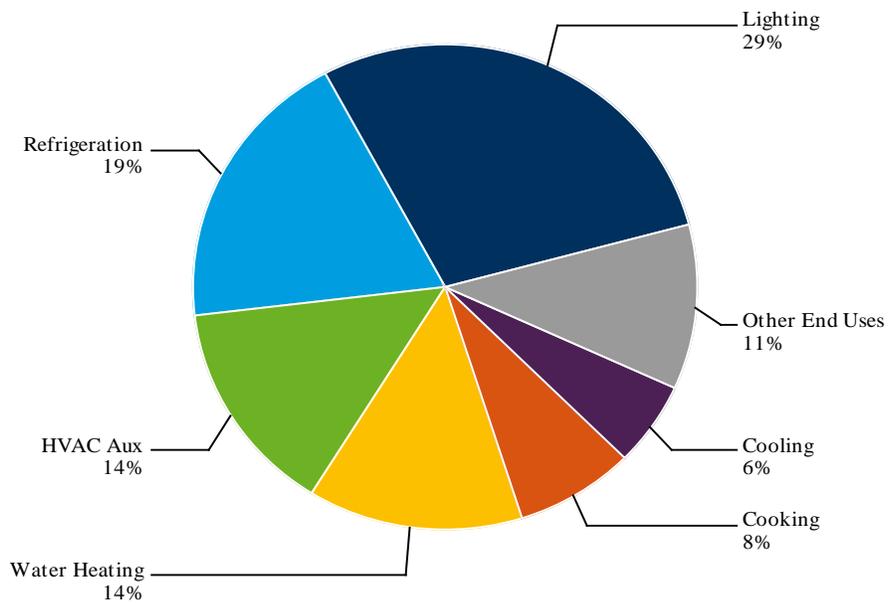
Total: 3 aMW



Note: 'Other End Uses' includes:
 Heating: 4%, Heat Pump: 3%, Cooling: 3%, Other Office Equipment: 2%, Water Heating: 2%, Refrigeration: <1%, Cooking: <1%

Figure C.3.67 Baseline Sales 2030 - California: Commercial Restaurant by End Use

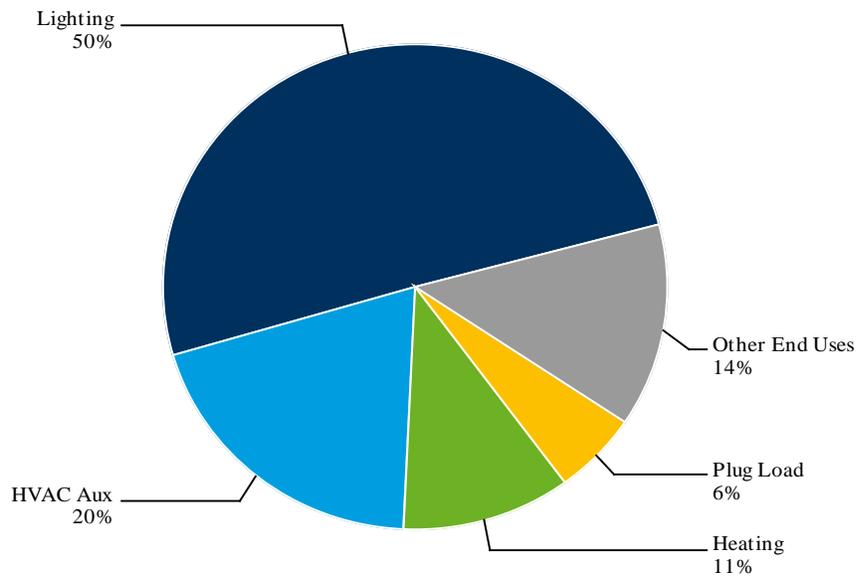
Total: 6 aMW



Note: 'Other End Uses' includes:
 Plug Load: 5%, Heating: 3%, Heat Pump: 2%, Other Office Equipment: <1%

Figure C.3.68 Baseline Sales 2030 - California: Commercial School by End Use

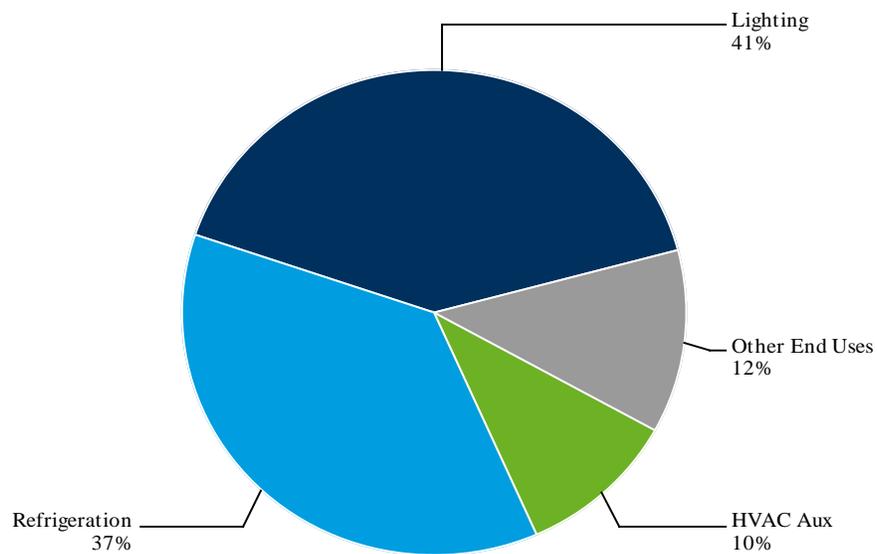
Total: 1 aMW



Note: 'Other End Uses' includes:
 Water Heating: 5%, Cooling: 3%, Heat Pump: 2%, Other Office Equipment: 2%, Refrigeration: 2%, Cooking: <1%

Figure C.3.69 Baseline Sales 2030 - California: Commercial Warehouse by End Use

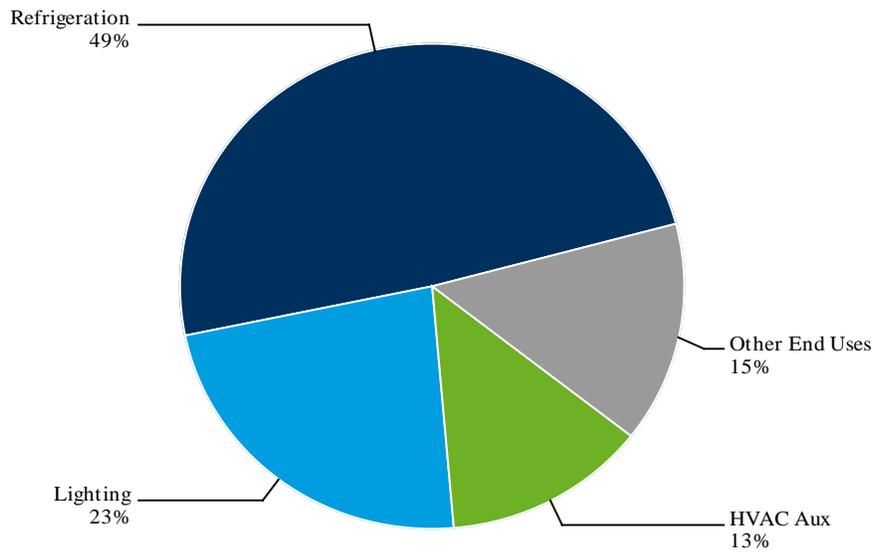
Total: 0 aMW



Note: 'Other End Uses' includes:
 Plug Load: 5%, Cooling: 2%, Heating: 2%, Water Heating: 1%, Heat Pump: 1%, Other Office Equipment: <1%

Figure C.3.70 Baseline Sales 2030 - Idaho: Commercial Grocery by End Use

Total: 2 aMW

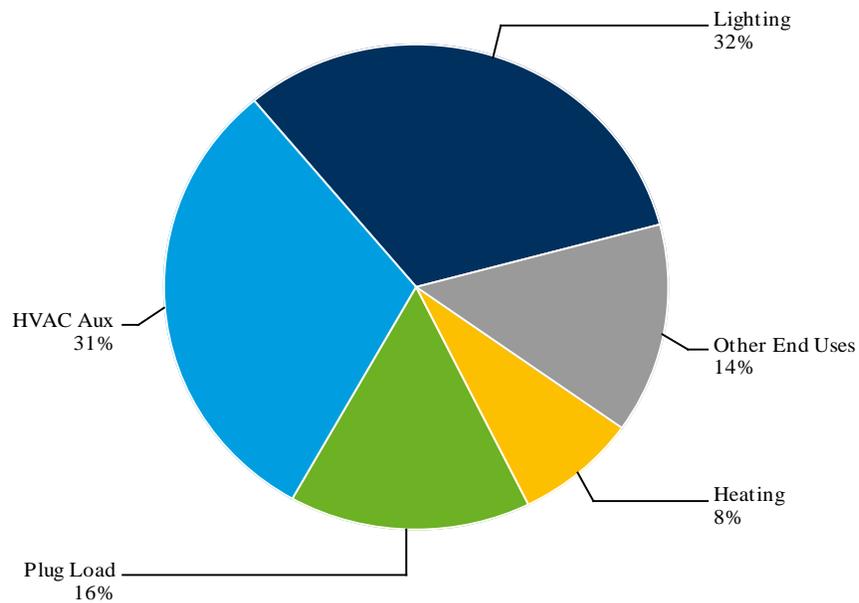


Note: 'Other End Uses' includes:

Cooling: 5%, Plug Load: 4%, Heating: 3%, Heat Pump: 1%, Cooking: <1%, Water Heating: <1%, Other Office Equipment: <1%

Figure C.3.71 Baseline Sales 2030 - Idaho: Commercial Health by End Use

Total: 5 aMW

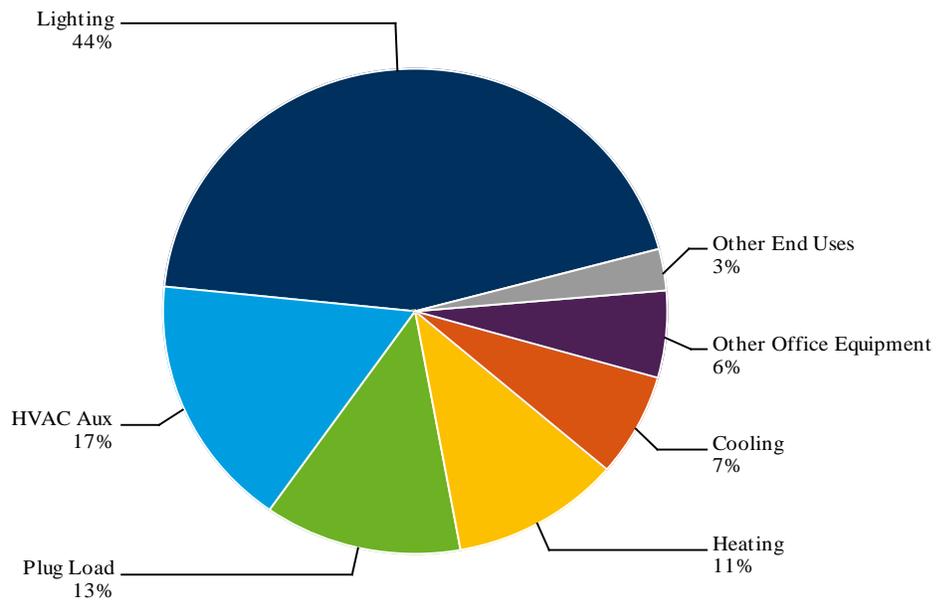


Note: 'Other End Uses' includes:

Cooling: 4%, Heat Pump: 4%, Other Office Equipment: 3%, Water Heating: 3%, Refrigeration: <1%, Cooking: <1%

Figure C.3.72 Baseline Sales 2030 - Idaho: Commercial Office by End Use

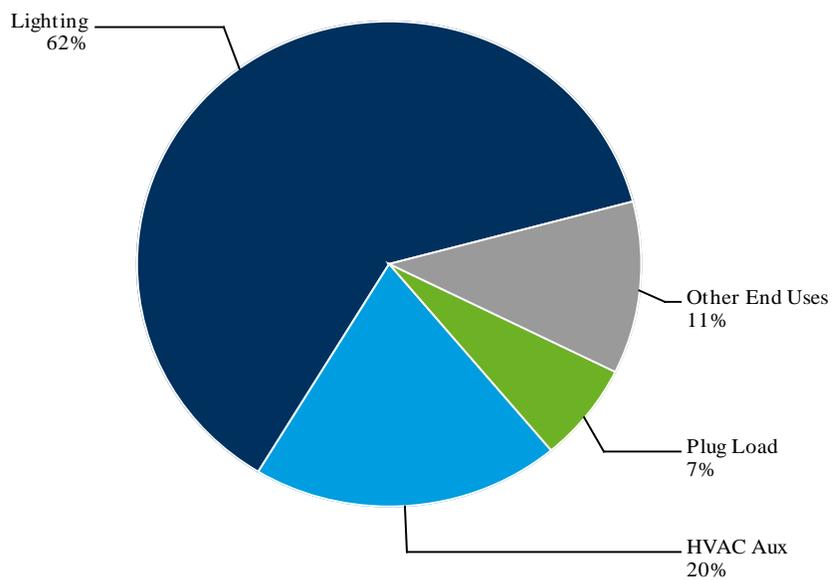
Total: 34 aMW



Note: 'Other End Uses' includes:
Heat Pump: 2%, Water Heating: 1%

Figure C.3.73 Baseline Sales 2030 - Idaho: Commercial Retail by End Use

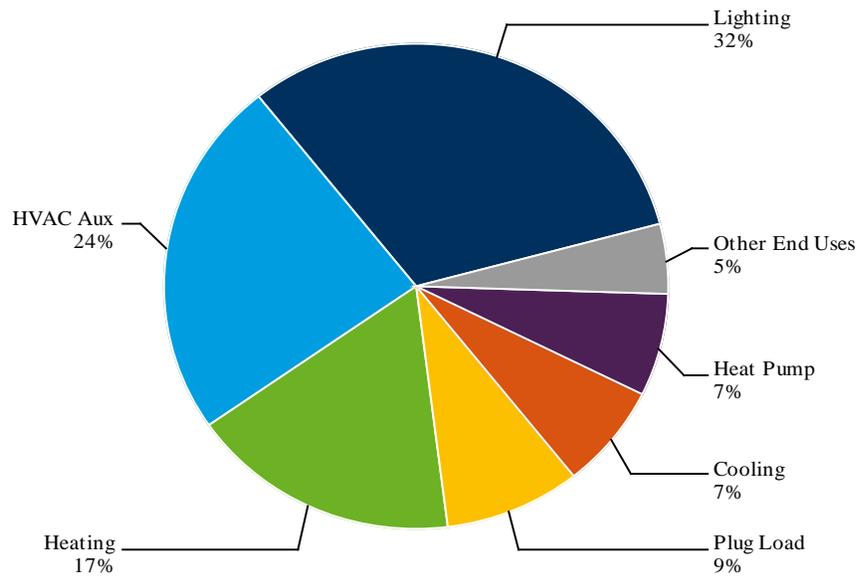
Total: 24 aMW



Note: 'Other End Uses' includes:
Cooling: 5%, Heating: 4%, Heat Pump: 2%, Water Heating: <1%, Other Office Equipment: <1%

Figure C.3.74 Baseline Sales 2030 - Idaho: Commercial Lodging by End Use

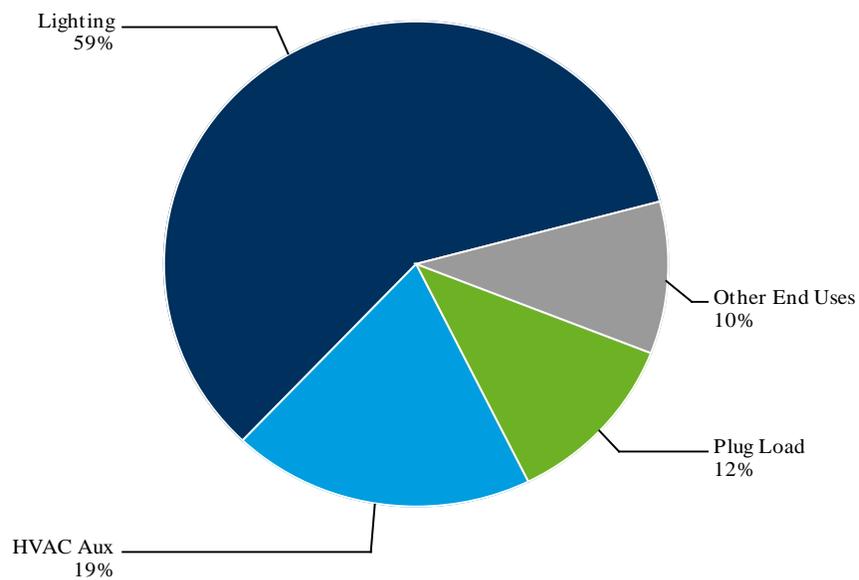
Total: 4 aMW



Note: 'Other End Uses' includes:
Water Heating: 4%, Other Office Equipment: <1%, Cooking: <1%

Figure C.3.75 Baseline Sales 2030 - Idaho: Commercial Miscellaneous by End Use

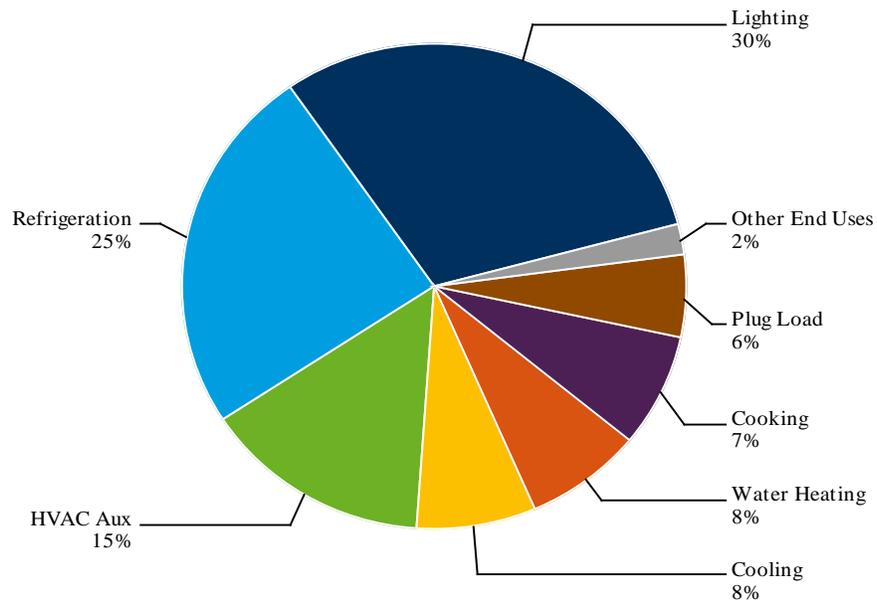
Total: 1 aMW



Note: 'Other End Uses' includes:
Heating: 4%, Cooling: 3%, Other Office Equipment: 2%, Water Heating: 1%, Refrigeration: <1%, Heat Pump: <1%, Cooking: <1%

Figure C.3.76 Baseline Sales 2030 - Idaho: Commercial Restaurant by End Use

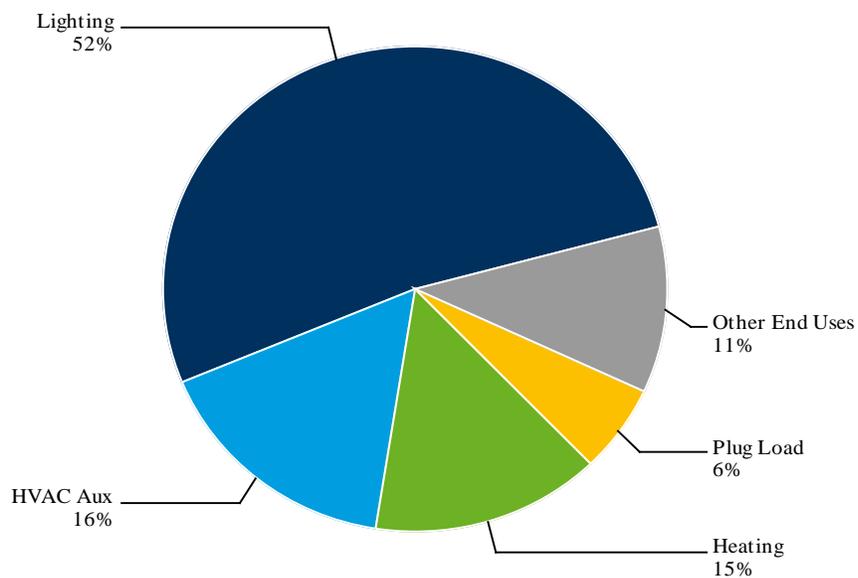
Total: 1 aMW



Note: 'Other End Uses' includes:
Heating: 1%, Other Office Equipment: <1%

Figure C.3.77 Baseline Sales 2030 - Idaho: Commercial School by End Use

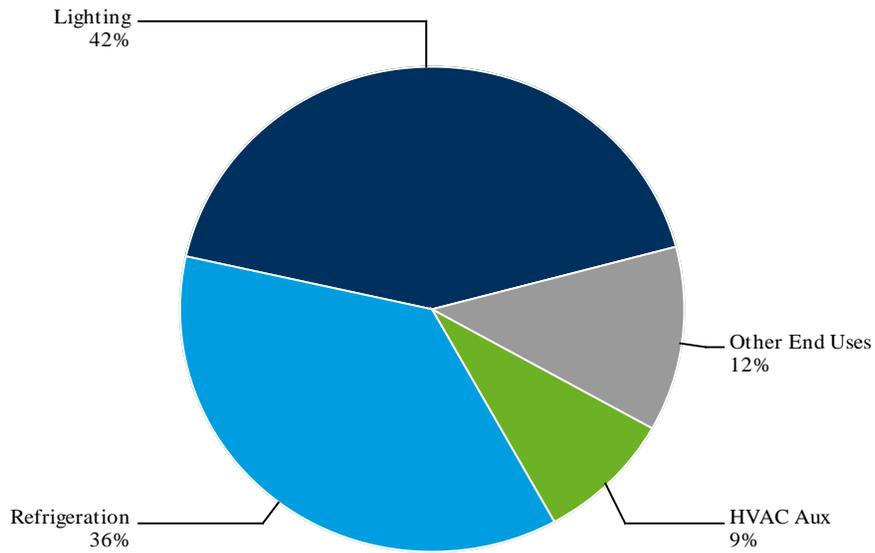
Total: 1 aMW



Note: 'Other End Uses' includes:
Water Heating: 5%, Other Office Equipment: 2%, Refrigeration: 2%, Cooling: 1%, Heat Pump: <1%, Cooking: <1%

Figure C.3.78 Baseline Sales 2030 - Idaho: Commercial Warehouse by End Use

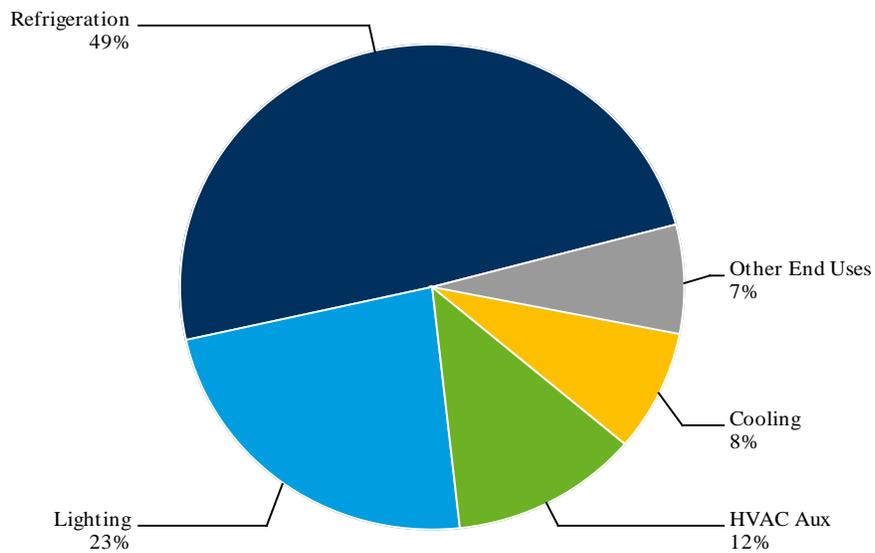
Total: 21 aMW



Note: 'Other End Uses' includes:
 Plug Load: 5%, Heating: 4%, Cooling: 1%, Water Heating: 1%, Heat Pump: 1%, Other Office Equipment: <1%

Figure C.3.79 Baseline Sales 2030 - Utah: Commercial Grocery by End Use

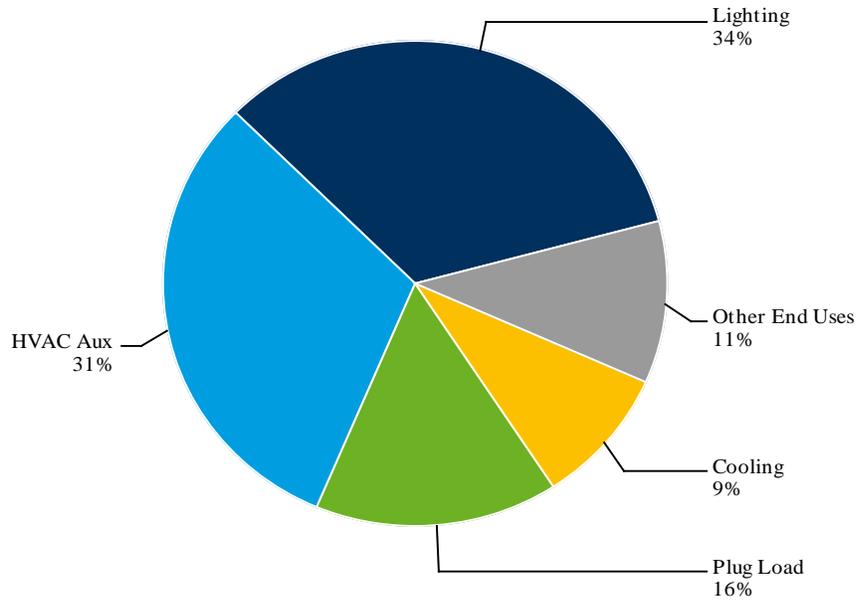
Total: 120 aMW



Note: 'Other End Uses' includes:
 Plug Load: 3%, Heating: 2%, Heat Pump: <1%, Cooking: <1%, Other Office Equipment: <1%, Water Heating: <1%

Figure C.3.80 Baseline Sales 2030 - Utah: Commercial Health by End Use

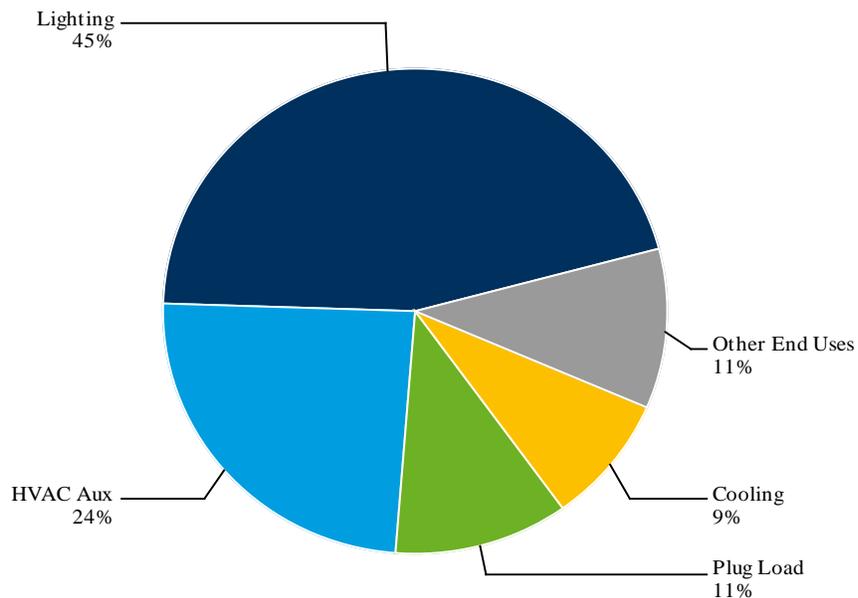
Total: 250 aMW



Note: 'Other End Uses' includes: Heating: 5%, Other Office Equipment: 3%, Refrigeration: 1%, Heat Pump: 1%, Water Heating: <1%, Cooking: <1%

Figure C.3.81 Baseline Sales 2030 - Utah: Commercial Office by End Use

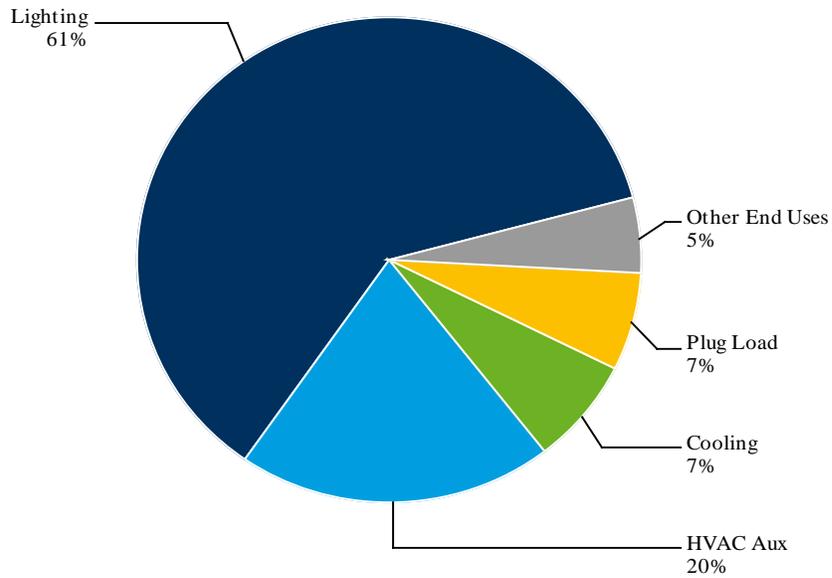
Total: 557 aMW



Note: 'Other End Uses' includes: Other Office Equipment: 5%, Heating: 3%, Heat Pump: 2%, Water Heating: <1%

Figure C.3.82 Baseline Sales 2030 - Utah: Commercial Retail by End Use

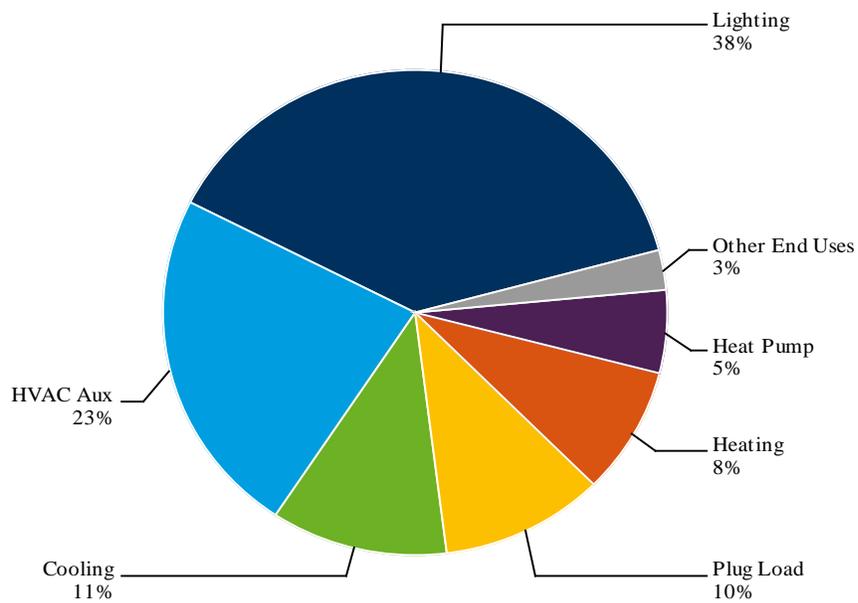
Total: 243 aMW



Note: 'Other End Uses' includes:
Heat Pump: 2%, Heating: 1%, Water Heating: <1%, Other Office Equipment: <1%

Figure C.3.83 Baseline Sales 2030 - Utah: Commercial Lodging by End Use

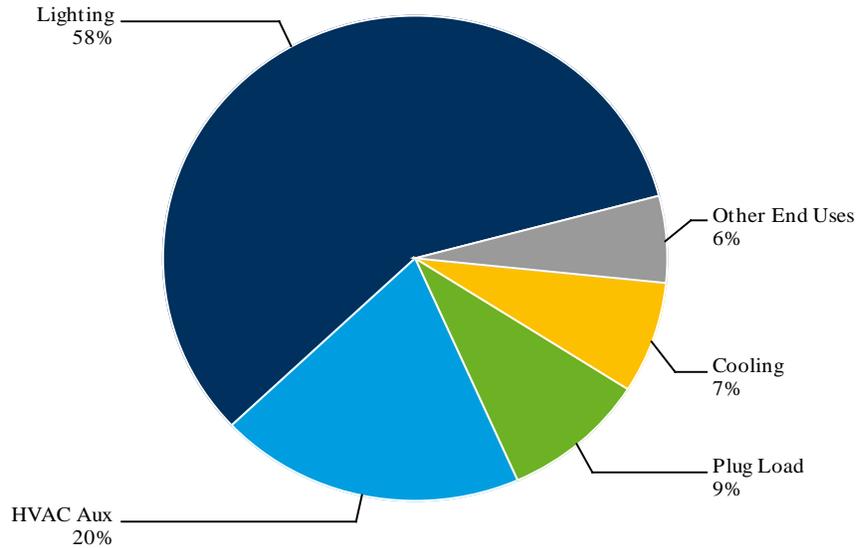
Total: 114 aMW



Note: 'Other End Uses' includes:
Water Heating: 2%, Other Office Equipment: <1%, Cooking: <1%

Figure C.3.84 Baseline Sales 2030 - Utah: Commercial Miscellaneous by End Use

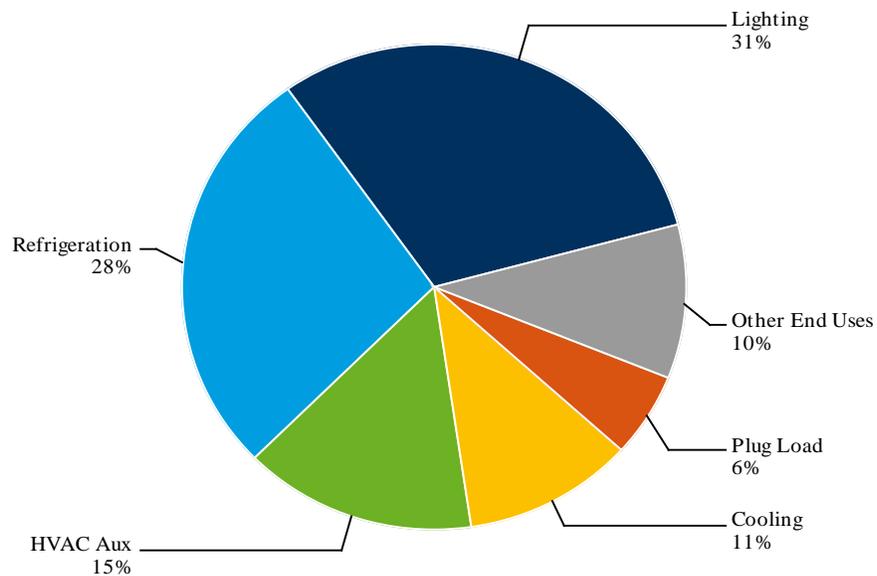
Total: 141 aMW



Note: 'Other End Uses' includes: Heating: 3%, Refrigeration: <1%, Heat Pump: <1%, Water Heating: <1%, Other Office Equipment: <1%, Cooking: <1%

Figure C.3.85 Baseline Sales 2030 - Utah: Commercial Restaurant by End Use

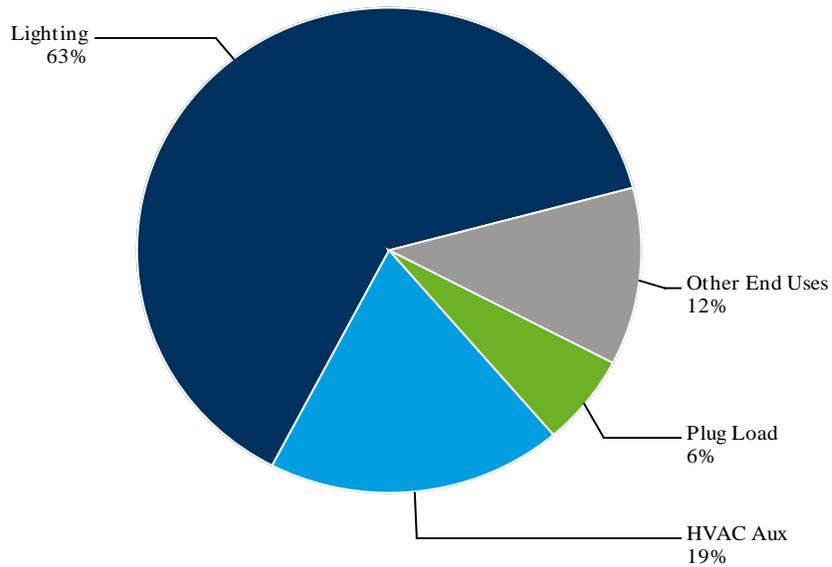
Total: 41 aMW



Note: 'Other End Uses' includes: Water Heating: 5%, Heating: 3%, Cooking: 2%, Other Office Equipment: <1%

Figure C.3.86 Baseline Sales 2030 - Utah: Commercial School by End Use

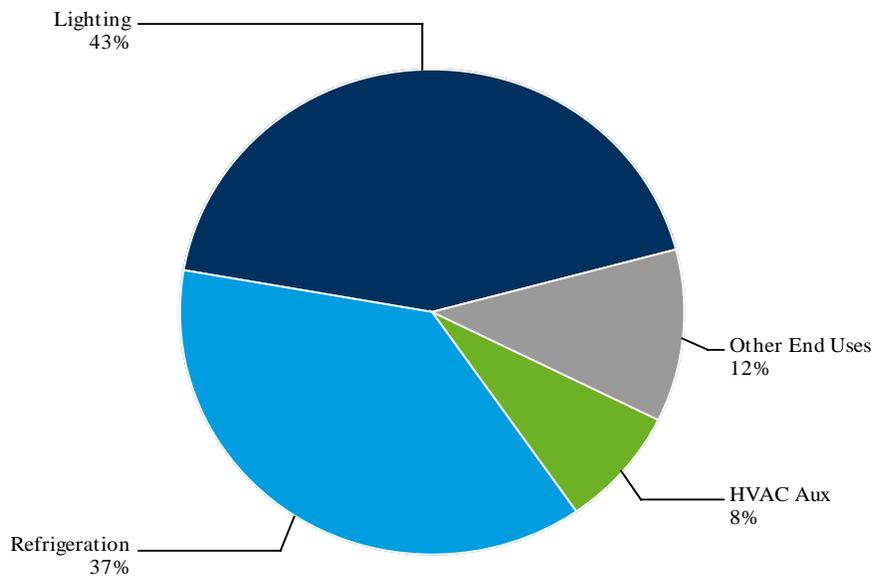
Total: 203 aMW



Note: 'Other End Uses' includes:
Cooling: 4%, Other Office Equipment: 3%, Water Heating: 2%, Refrigeration: 2%, Cooking: <1%

Figure C.3.87 Baseline Sales 2030 - Utah: Commercial Warehouse by End Use

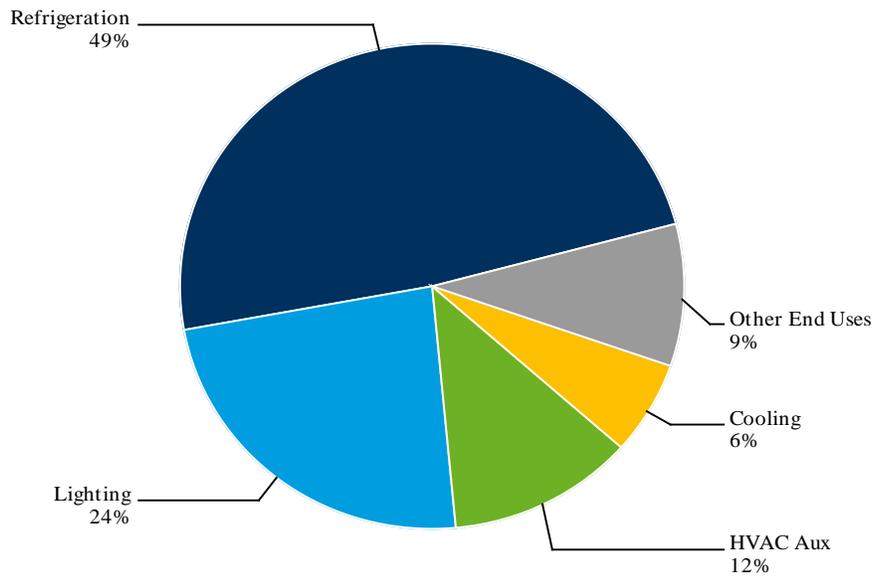
Total: 74 aMW



Note: 'Other End Uses' includes:
Plug Load: 5%, Cooling: 2%, Heating: 2%, Water Heating: <1%, Heat Pump: <1%, Other Office Equipment: <1%

Figure C.3.88 Baseline Sales 2030 - Washington: Commercial Grocery by End Use

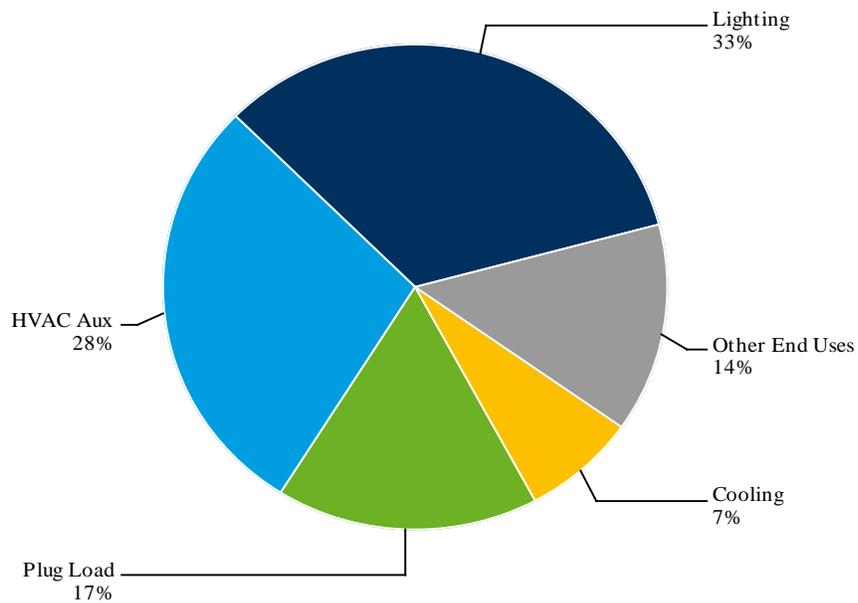
Total: 22 aMW



Note: 'Other End Uses' includes:
 Plug Load: 4%, Heating: 3%, Heat Pump: 1%, Cooking: <1%, Water Heating: <1%, Other Office Equipment: <1%

Figure C.3.89 Baseline Sales 2030 - Washington: Commercial Health by End Use

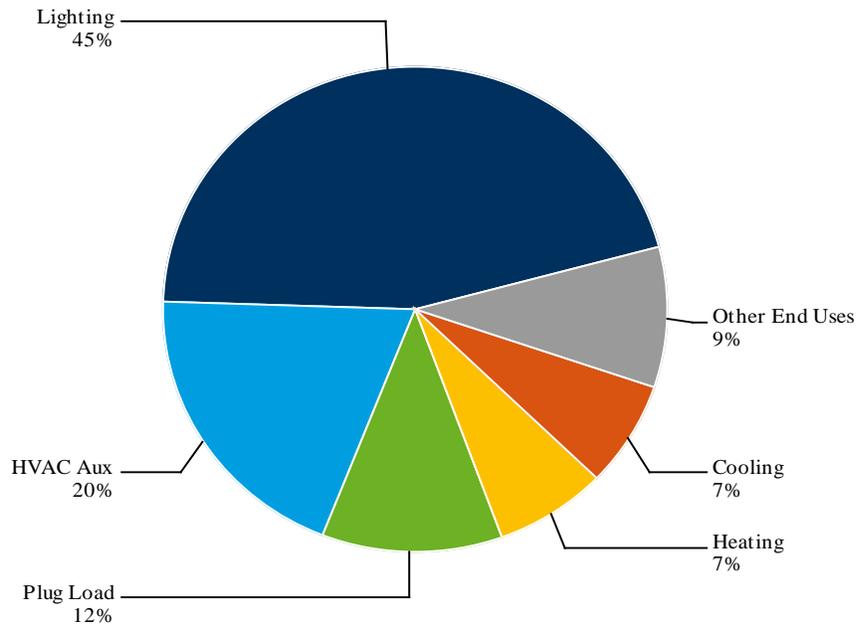
Total: 32 aMW



Note: 'Other End Uses' includes:
 Heating: 4%, Other Office Equipment: 4%, Water Heating: 3%, Heat Pump: 1%, Refrigeration: 1%, Cooking: <1%

Figure C.3.90 Baseline Sales 2030 - Washington: Commercial Office by End Use

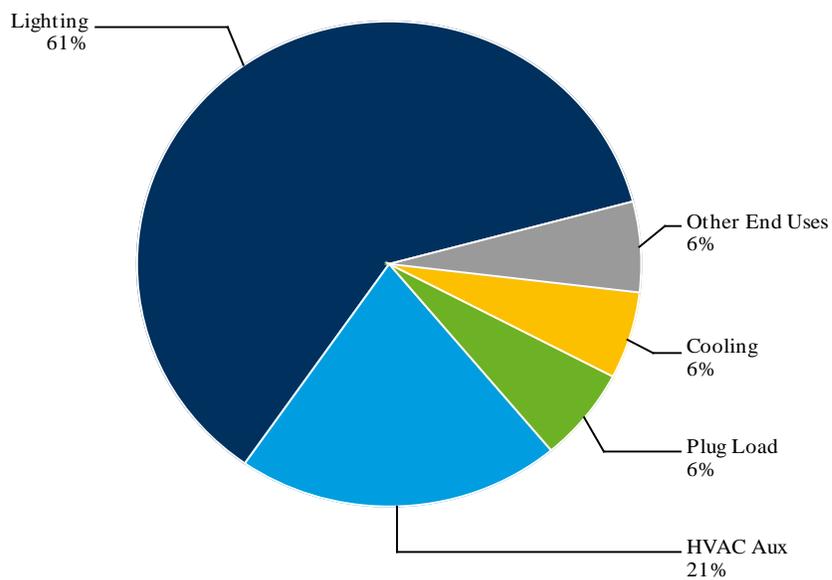
Total: 32 aMW



Note: 'Other End Uses' includes:
Other Office Equipment: 5%, Heat Pump: 3%, Water Heating: 1%

Figure C.3.91 Baseline Sales 2030 - Washington: Commercial Retail by End Use

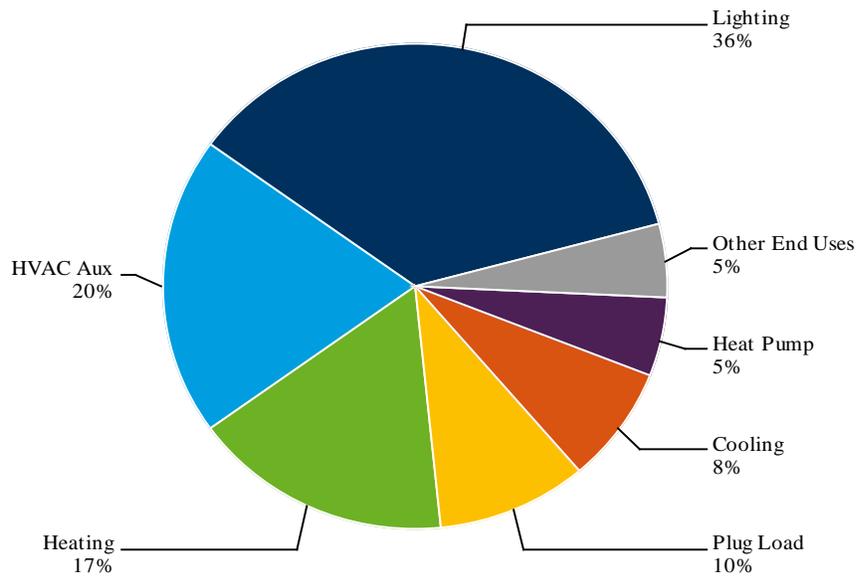
Total: 47 aMW



Note: 'Other End Uses' includes:
Heating: 3%, Heat Pump: 2%, Water Heating: <1%, Other Office Equipment: <1%

Figure C.3.92 Baseline Sales 2030 - Washington: Commercial Lodging by End Use

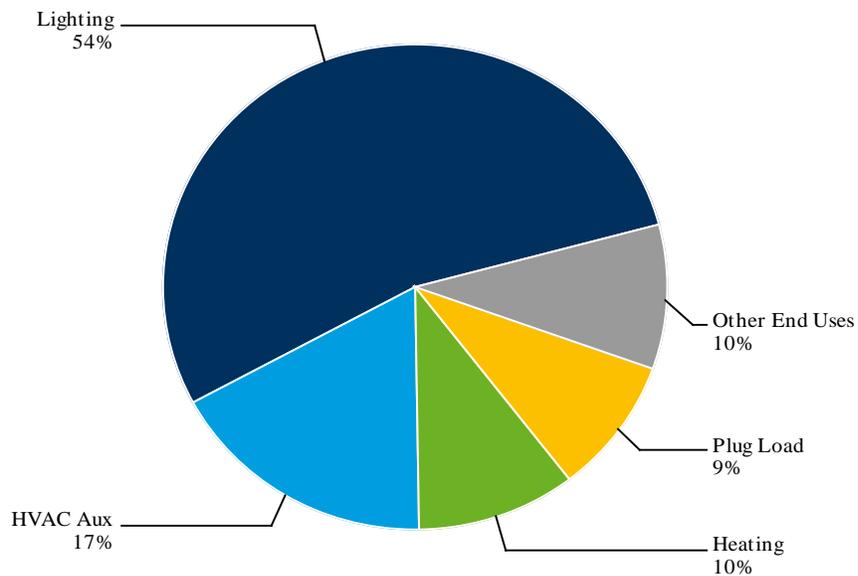
Total: 23 aMW



Note: 'Other End Uses' includes:
 Water Heating: 4%, Other Office Equipment: <1%, Cooking: <1%

Figure C.3.93 Baseline Sales 2030 - Washington: Commercial Miscellaneous by End Use

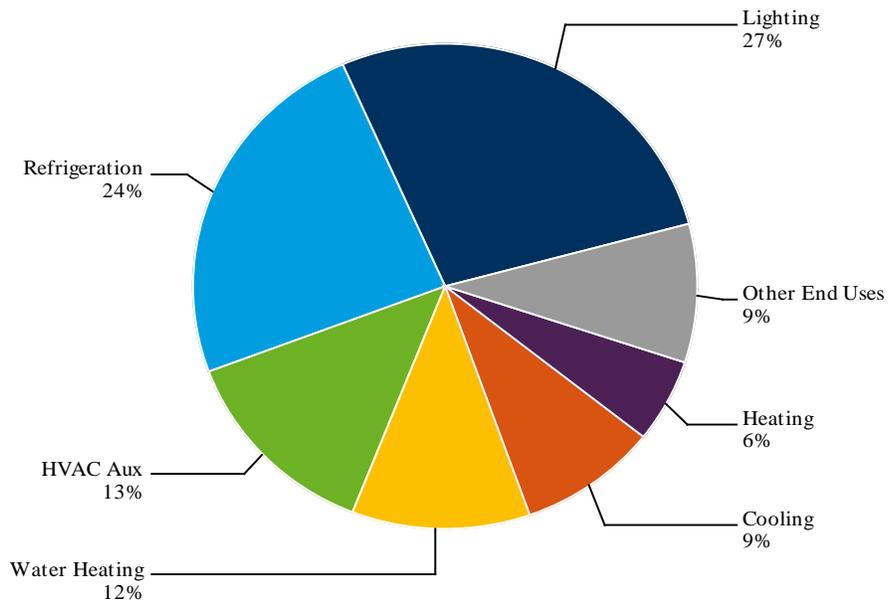
Total: 11 aMW



Note: 'Other End Uses' includes:
 Cooling: 4%, Water Heating: 2%, Other Office Equipment: 2%, Heat Pump: 1%, Refrigeration: <1%, Cooking: <1%

Figure C.3.94 Baseline Sales 2030 - Washington: Commercial Restaurant by End Use

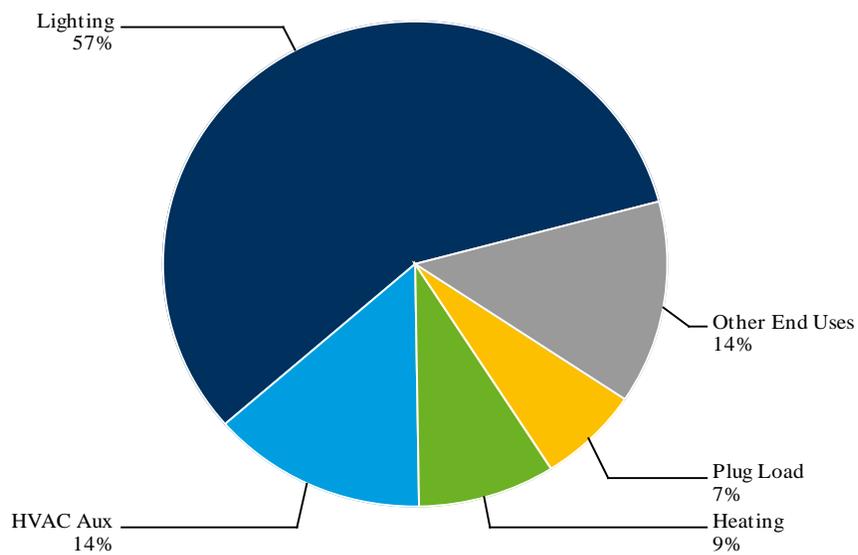
Total: 5 aMW



Note: 'Other End Uses' includes:
 Plug Load: 5%, Cooking: 3%, Other Office Equipment: <1%, Heat Pump: <1%

Figure C.3.95 Baseline Sales 2030 - Washington: Commercial School by End Use

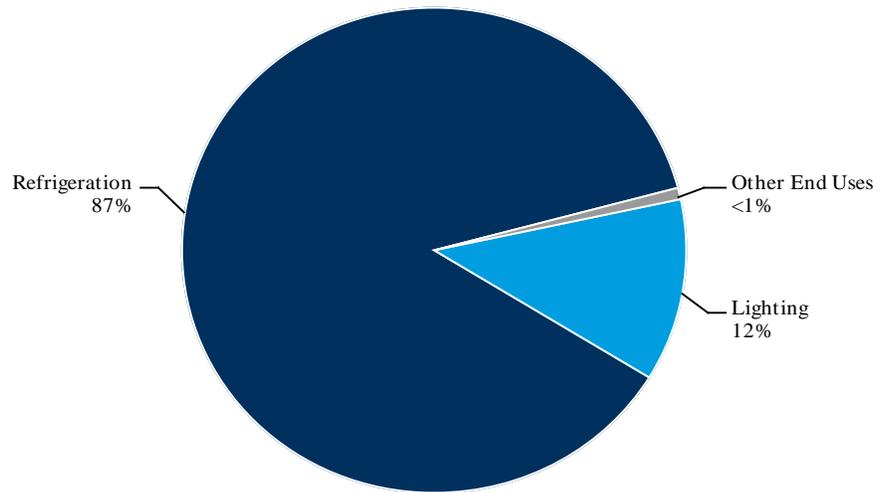
Total: 5 aMW



Note: 'Other End Uses' includes:
 Water Heating: 5%, Other Office Equipment: 2%, Heat Pump: 2%, Refrigeration: 2%, Cooling: 2%, Cooking: <1%

Figure C.3.96 Baseline Sales 2030 - Washington: Commercial Warehouse by End Use

Total: 18 aMW

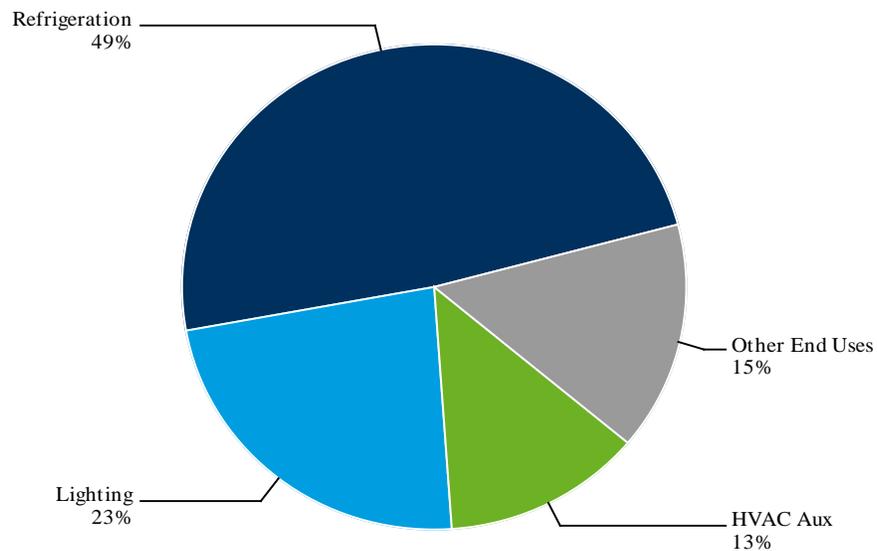


Note: 'Other End Uses' includes:

HVAC Aux: <1%, Plug Load: <1%, Heating: <1%, Cooling: <1%, Water Heating: <1%, Other Office Equipment: <1%, Heat Pump: <1%

Figure C.3.97 Baseline Sales 2030 - Wyoming: Commercial Grocery by End Use

Total: 30 aMW

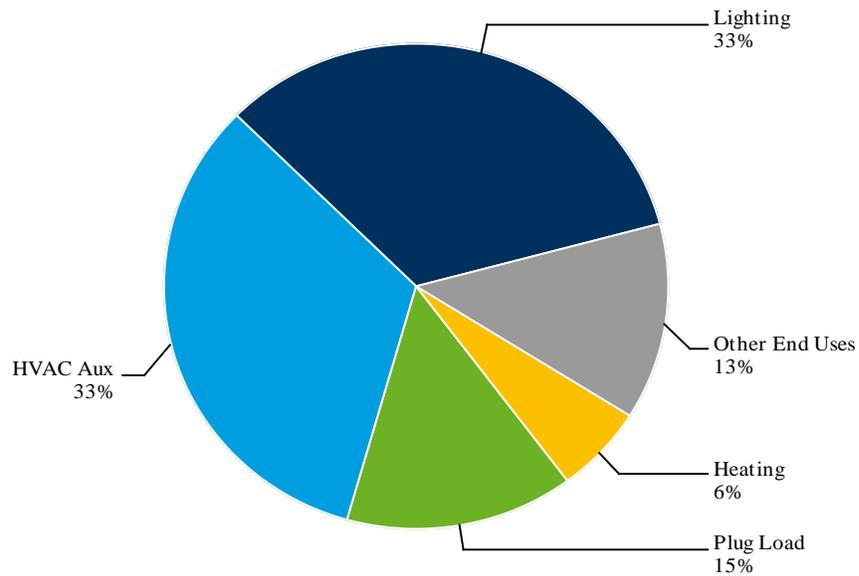


Note: 'Other End Uses' includes:

Cooling: 5%, Plug Load: 4%, Heating: 3%, Heat Pump: 2%, Cooking: <1%, Water Heating: <1%, Other Office Equipment: <1%

Figure C.3.98 Baseline Sales 2030 - Wyoming: Commercial Health by End Use

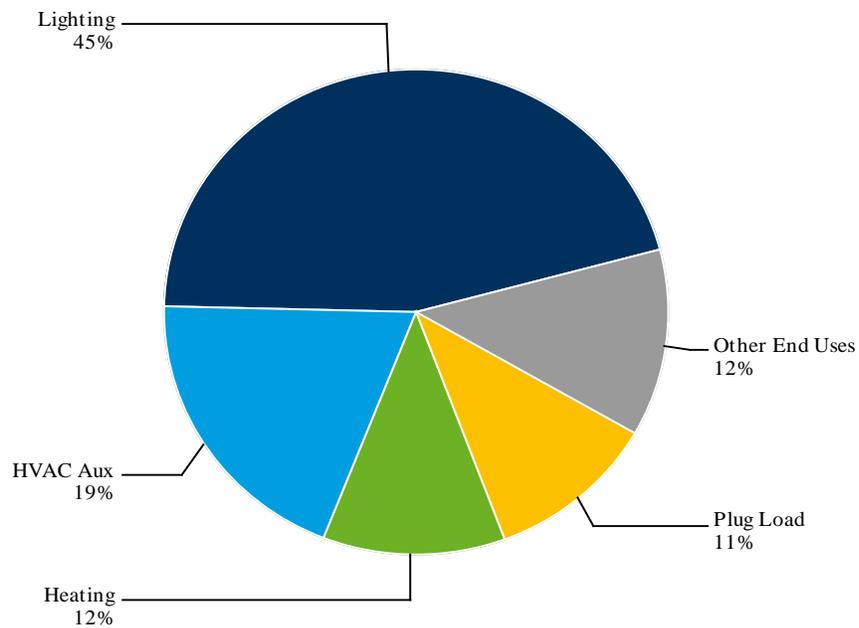
Total: 48 aMW



Note: 'Other End Uses' includes: Cooling: 4%, Heat Pump: 4%, Water Heating: 3%, Other Office Equipment: 2%, Refrigeration: <1%, Cooking: <1%

Figure C.3.99 Baseline Sales 2030 - Wyoming: Commercial Office by End Use

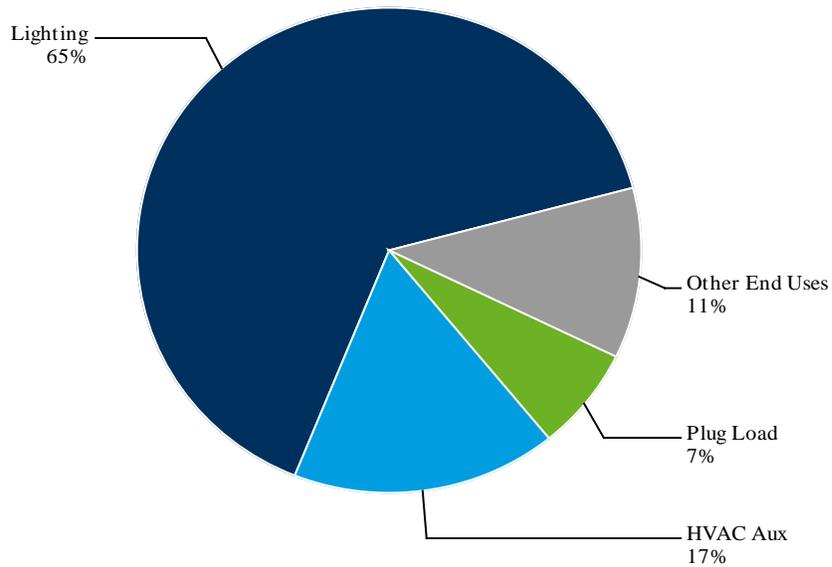
Total: 44 aMW



Note: 'Other End Uses' includes: Cooling: 5%, Other Office Equipment: 4%, Heat Pump: 2%, Water Heating: 1%

Figure C.3.100 Baseline Sales 2030 - Wyoming: Commercial Retail by End Use

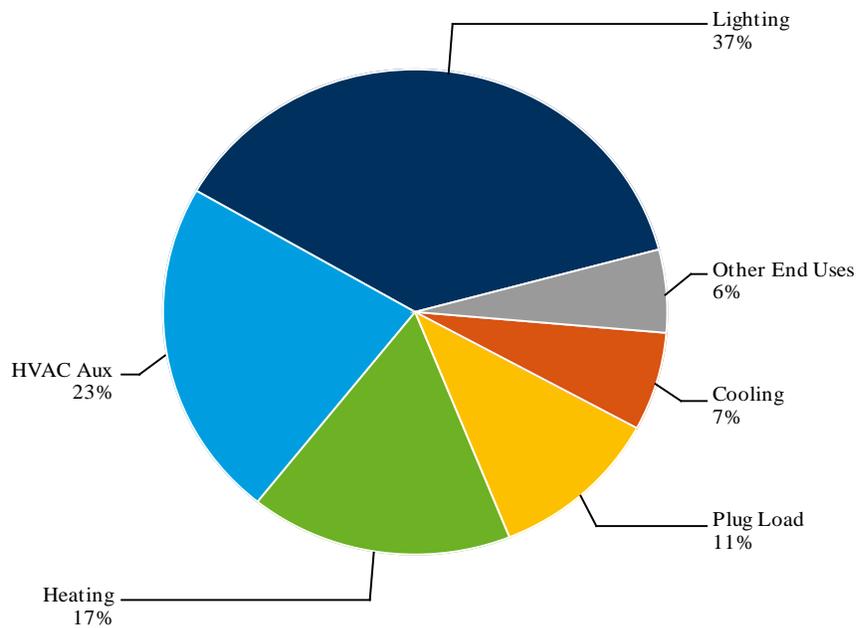
Total: 44 aMW



Note: 'Other End Uses' includes: Heating: 4%, Cooling: 4%, Heat Pump: 2%, Other Office Equipment: <1%, Water Heating: <1%

Figure C.3.101 Baseline Sales 2030 - Wyoming: Commercial Lodging by End Use

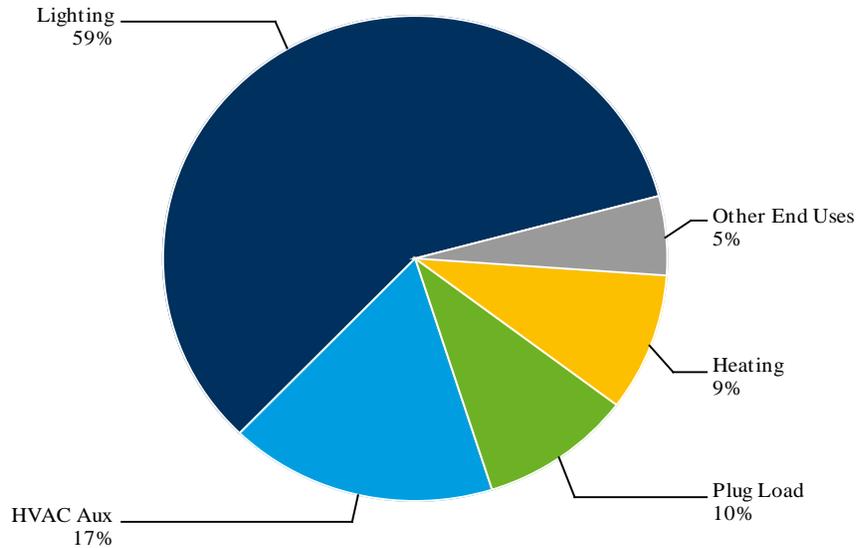
Total: 13 aMW



Note: 'Other End Uses' includes: Water Heating: 3%, Heat Pump: 1%, Other Office Equipment: 1%

Figure C.3.102 Baseline Sales 2030 - Wyoming: Commercial Miscellaneous by End Use

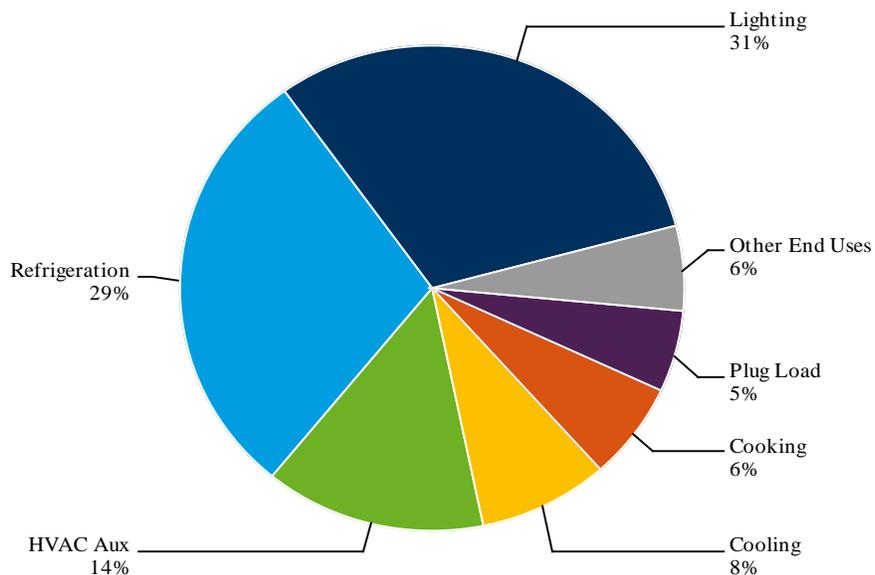
Total: 15 aMW



Note: 'Other End Uses' includes:
Cooling: 3%, Other Office Equipment: 1%, Refrigeration: <1%, Water Heating: <1%, Cooking: <1%

Figure C.3.103 Baseline Sales 2030 - Wyoming: Commercial Restaurant by End Use

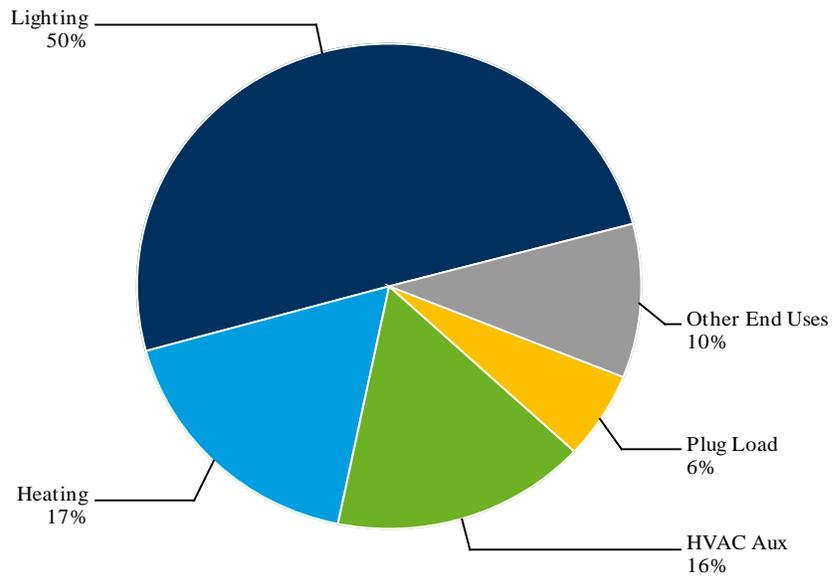
Total: 23 aMW



Note: 'Other End Uses' includes:
Water Heating: 3%, Heating: 2%, Other Office Equipment: <1%

Figure C.3.104 Baseline Sales 2030 - Wyoming: Commercial School by End Use

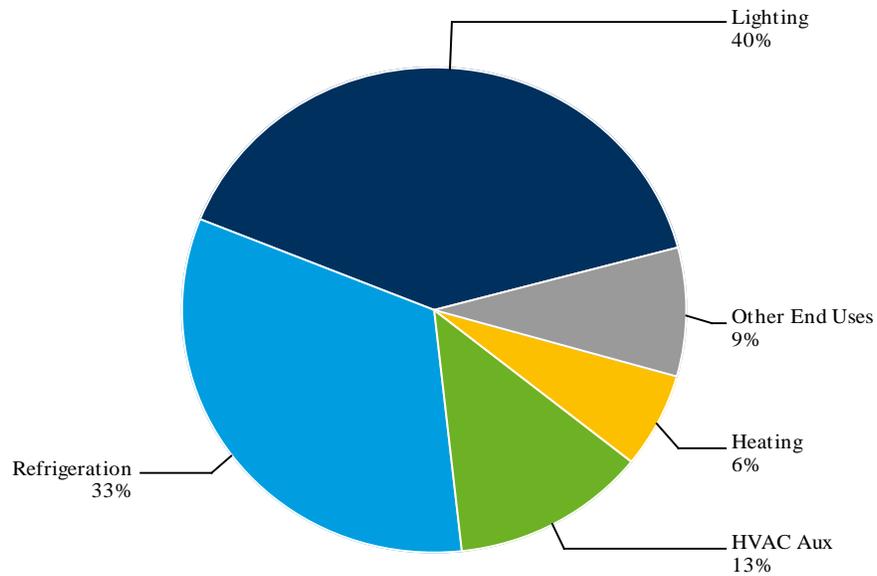
Total: 53 aMW



Note: 'Other End Uses' includes:
 Water Heating: 5%, Other Office Equipment: 2%, Refrigeration: 2%, Cooling: <1%, Heat Pump: <1%, Cooking: <1%

Figure C.3.105 Baseline Sales 2030 - Wyoming: Commercial Warehouse by End Use

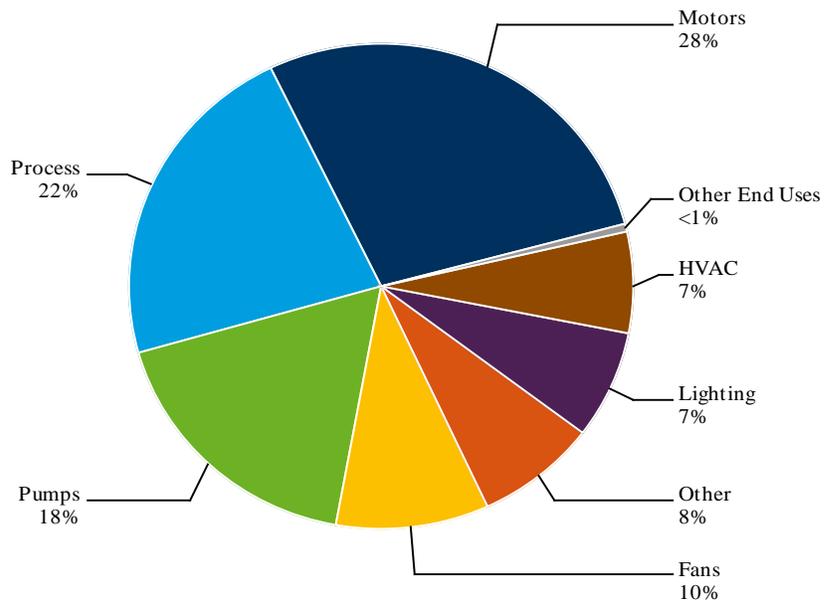
Total: 14 aMW



Note: 'Other End Uses' includes:
 Plug Load: 4%, Water Heating: 1%, Heat Pump: 1%, Cooling: 1%, Other Office Equipment: <1%

Figure C.3.110 Baseline Sales 2030 - California: Industrial Lumber by End Use

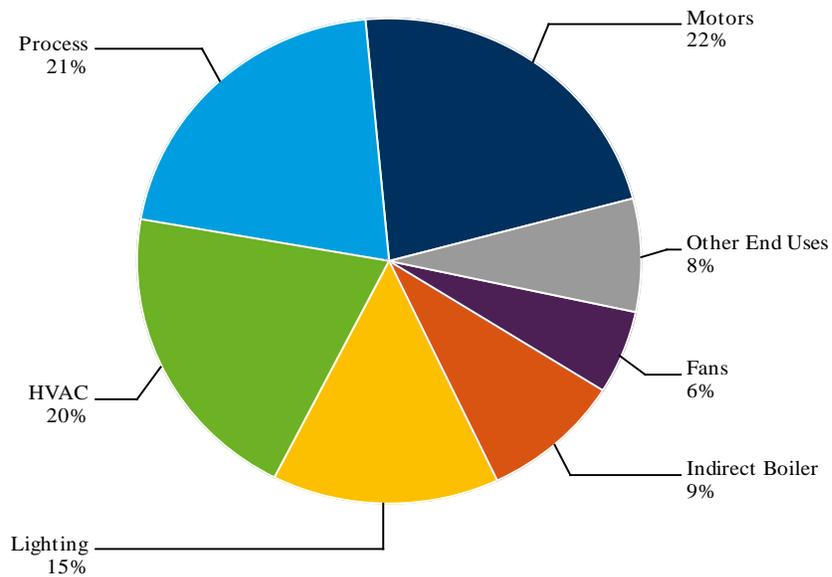
Total: 3 aMW



Note: 'Other End Uses' includes:
 Indirect Boiler: <1%, Process Electro Chemical: <1%

Figure C.3.112 Baseline Sales 2030 - California: Industrial Miscellaneous Mfg by End Use

Total: 0 aMW



Note: 'Other End Uses' includes:
 Other: 4%, Pumps: 3%, Process Electro Chemical: <1%

Figure C.3.118 Baseline Sales 2030 - California: Industrial Water/Wastewater by End Use

Total: 1 aMW

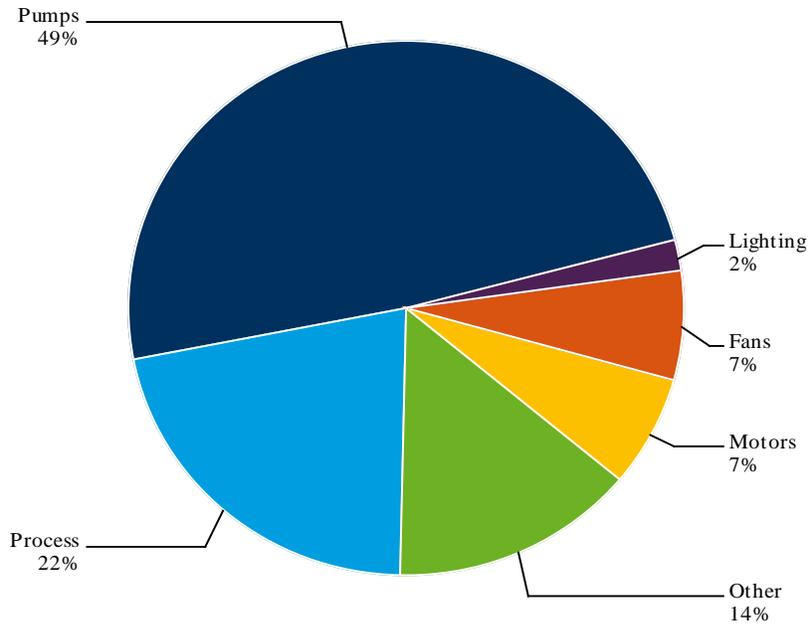
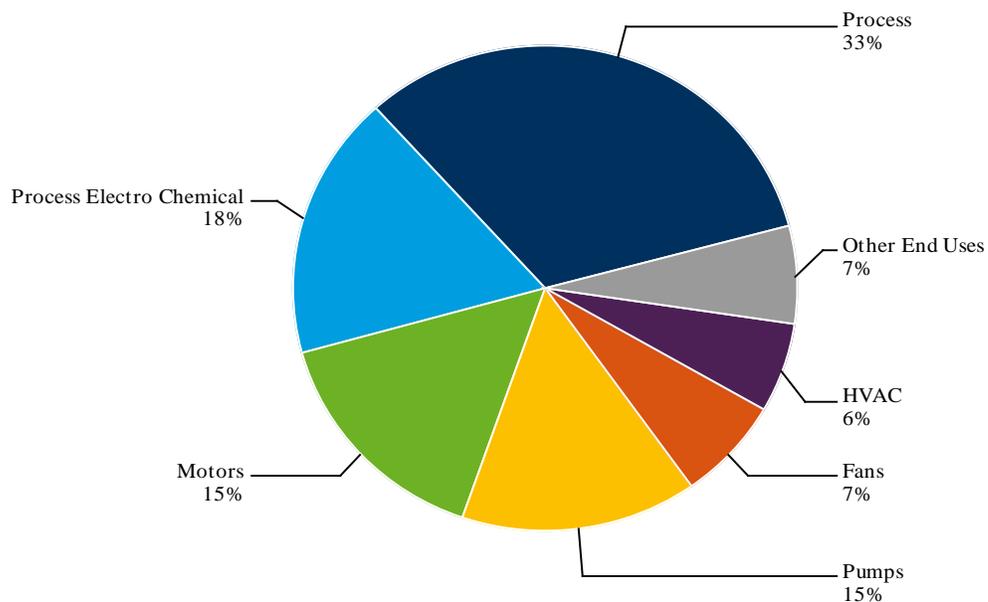


Figure C.3.119 Baseline Sales 2030 - Idaho: Industrial Chemicals by End Use

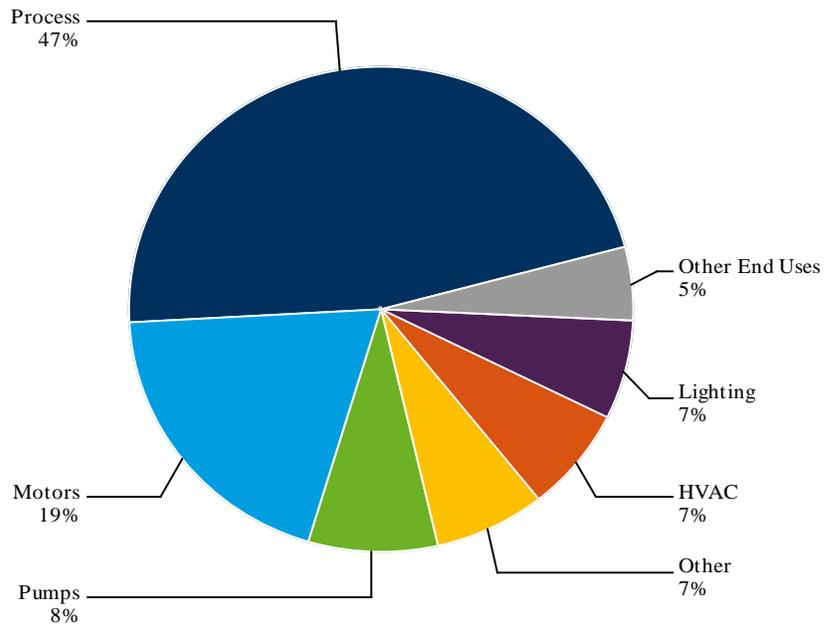
Total: 26 aMW



Note: 'Other End Uses' includes:
 Lighting: 4%, Other: 2%, Indirect Boiler: <1%

Figure C.3.121 Baseline Sales 2030 - Idaho: Industrial Food by End Use

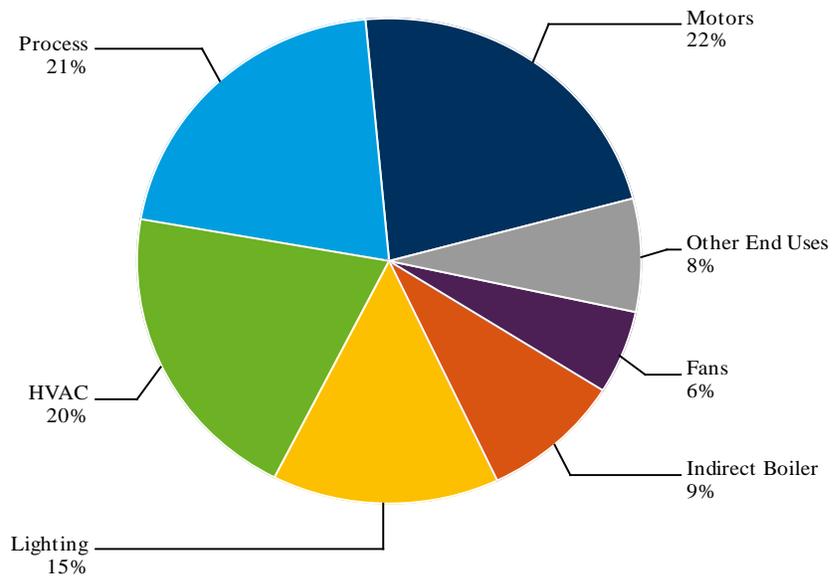
Total: 14 aMW



Note: 'Other End Uses' includes:
Fans: 4%, Indirect Boiler: 1%

Figure C.3.125 Baseline Sales 2030 - Idaho: Industrial Miscellaneous Mfg by End Use

Total: 4 aMW



Note: 'Other End Uses' includes:
Other: 4%, Pumps: 3%, Process Electro Chemical: <1%

Figure C.3.131 Baseline Sales 2030 - Idaho: Industrial Water/Wastewater by End Use

Total: 2 aMW

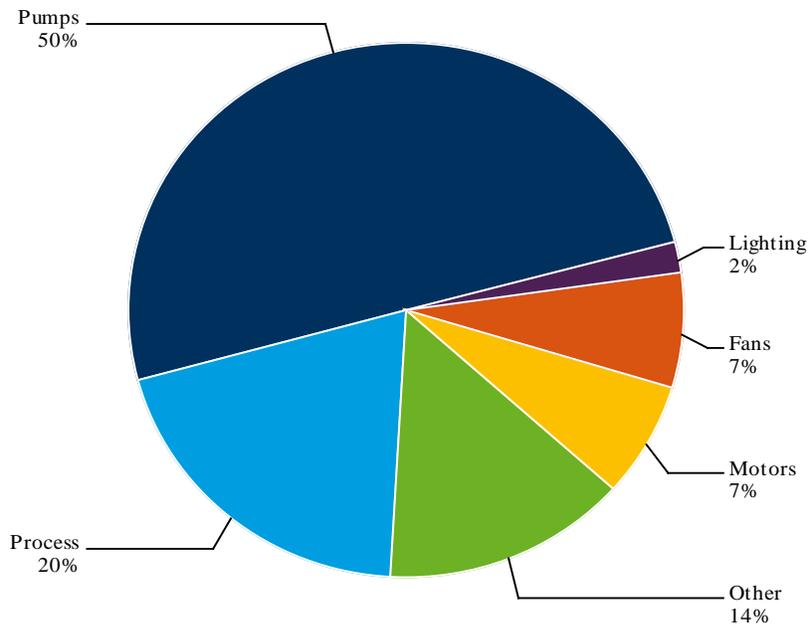
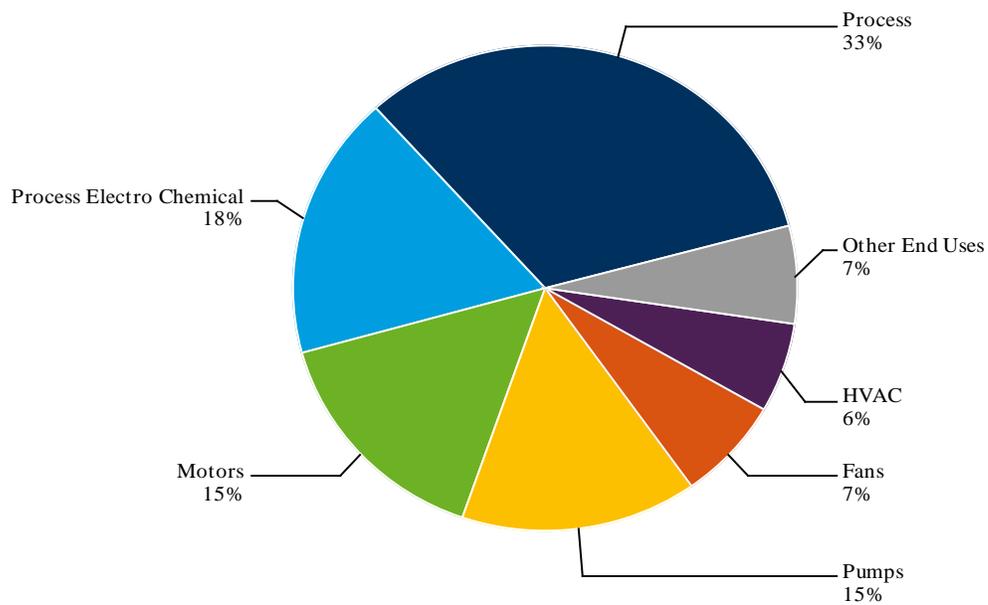


Figure C.3.132 Baseline Sales 2030 - Utah: Industrial Chemicals by End Use

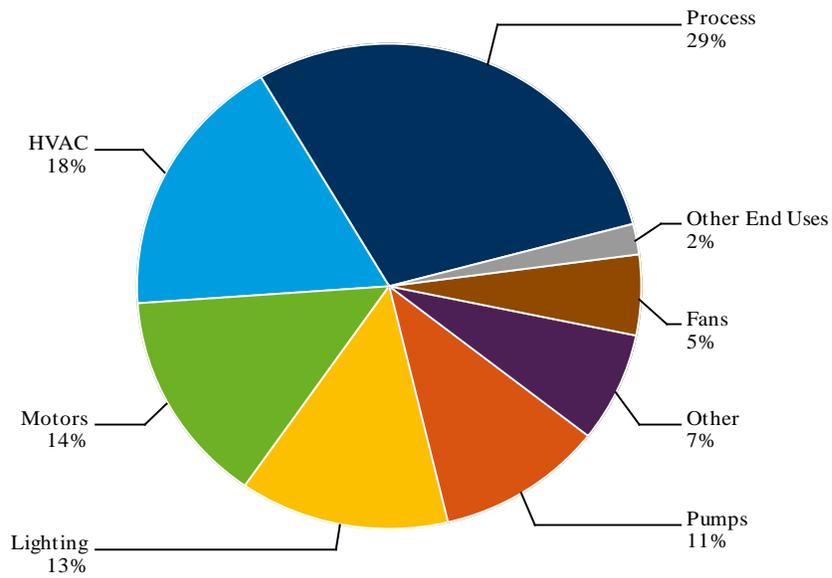
Total: 141 aMW



Note: 'Other End Uses' includes:
 Lighting: 4%, Other: 2%, Indirect Boiler: <1%

Figure C.3.133 Baseline Sales 2030 - Utah: Industrial Mach./Equip by End Use

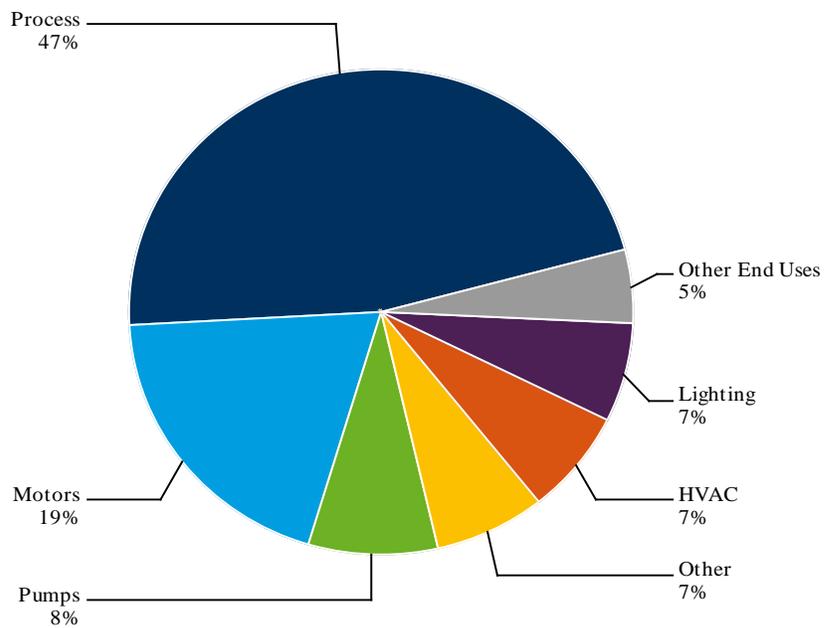
Total: 101 aMW



Note: 'Other End Uses' includes:
 Process Electro Chemical: 2%, Indirect Boiler: <1%

Figure C.3.134 Baseline Sales 2030 - Utah: Industrial Food by End Use

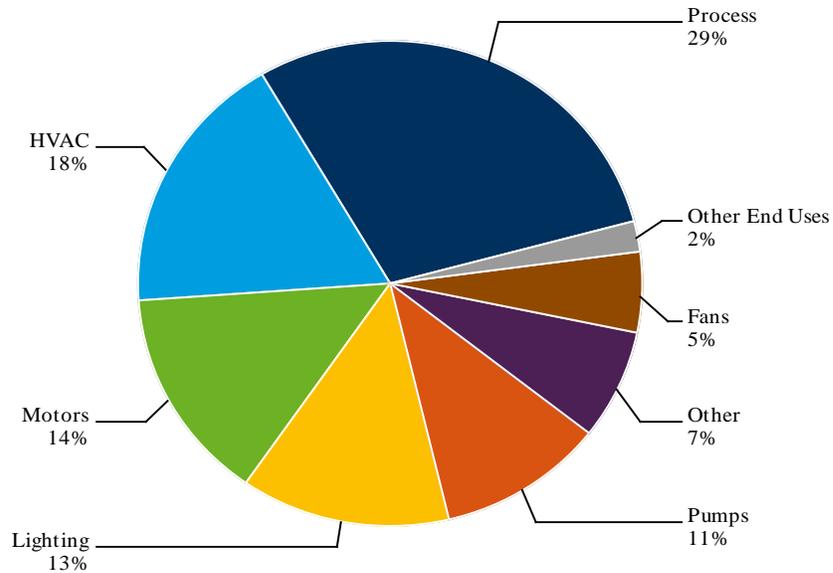
Total: 76 aMW



Note: 'Other End Uses' includes:
 Fans: 4%, Indirect Boiler: 1%

Figure C.3.135 Baseline Sales 2030 - Utah: Industrial Mach./Equip by End Use

Total: 101 aMW



Note: 'Other End Uses' includes:
 Process Electro Chemical: 2%, Indirect Boiler: <1%

Figure C.3.137 Baseline Sales 2030 - Utah: Industrial Mining by End Use

Total: 213 aMW

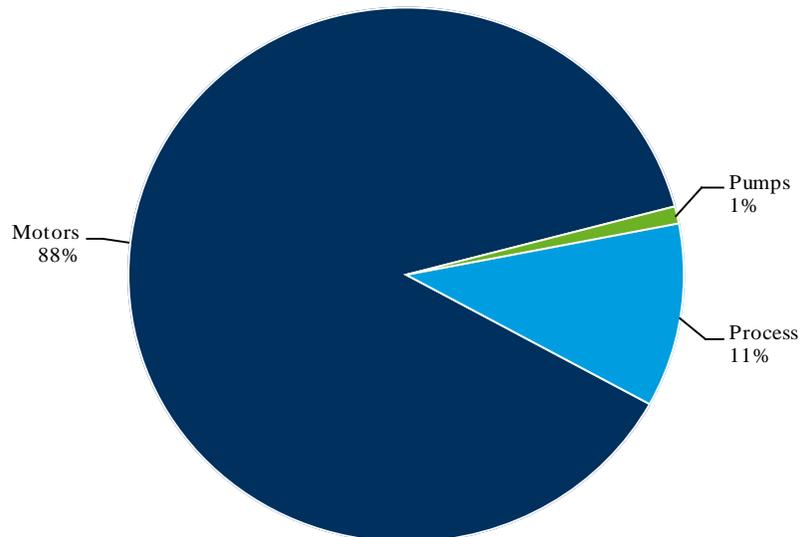
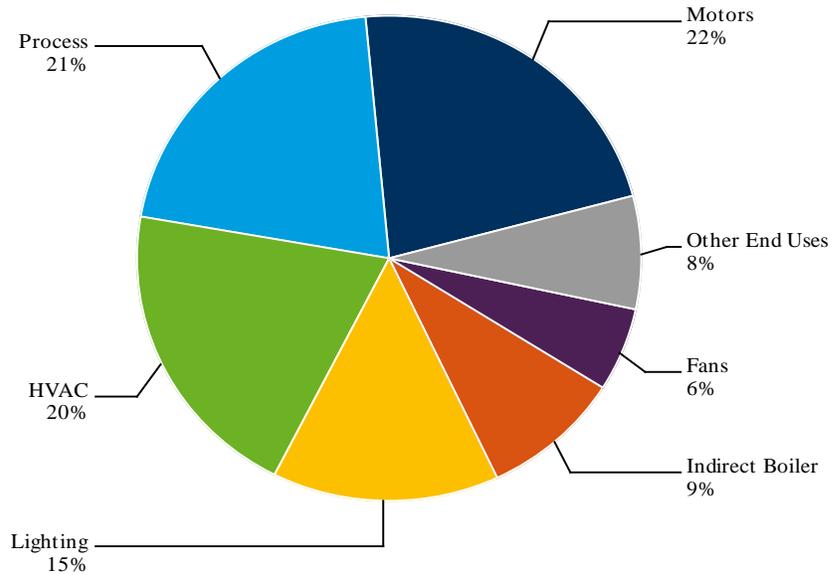


Figure C.3.138 Baseline Sales 2030 - Utah: Industrial Miscellaneous Mfg by End Use

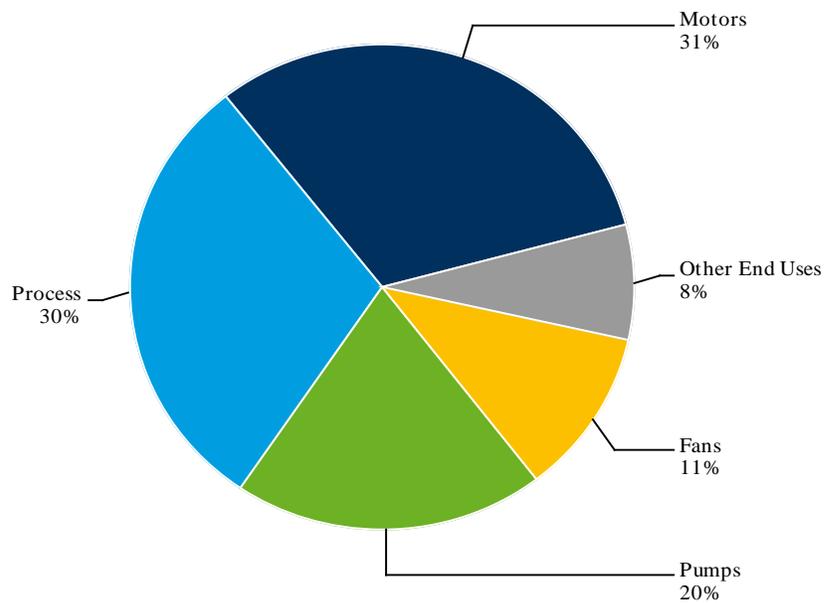
Total: 131 aMW



Note: 'Other End Uses' includes:
 Other: 4%, Pumps: 3%, Process Electro Chemical: <1%

Figure C.3.140 Baseline Sales 2030 - Utah: Industrial Petroleum by End Use

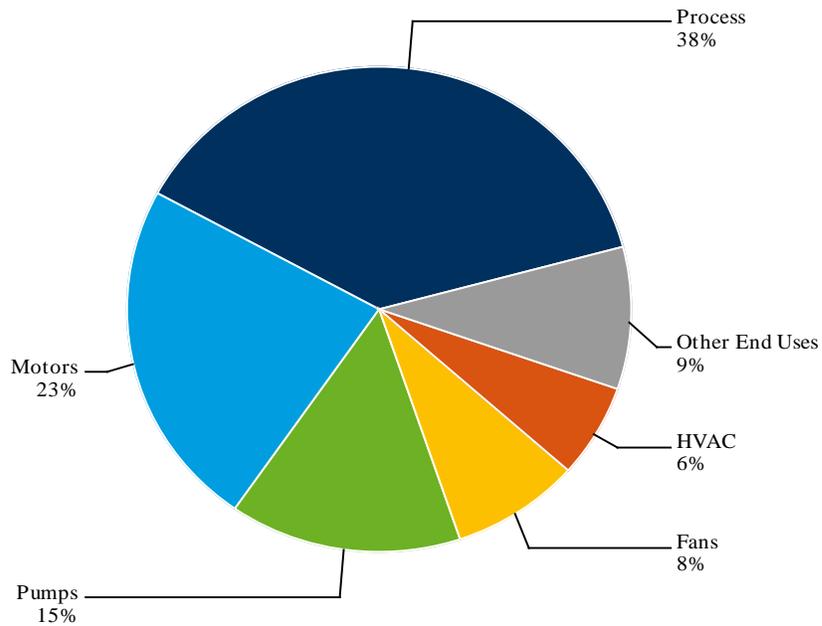
Total: 100 aMW



Note: 'Other End Uses' includes:
 HVAC: 3%, Lighting: 2%, Other: 1%, Indirect Boiler: <1%, Process Electro Chemical: <1%

Figure C.3.142 Baseline Sales 2030 - Utah: Industrial Stone Clay Glass Products by End Use

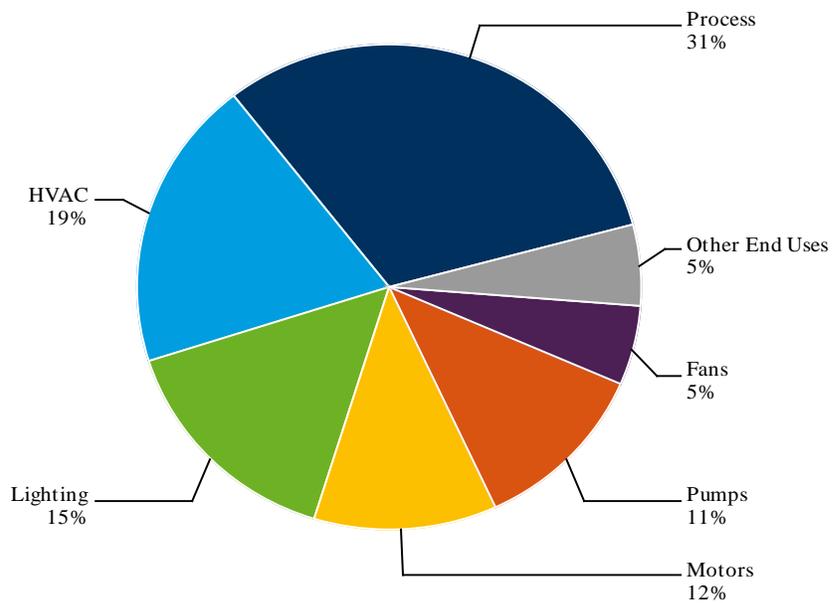
Total: 109 aMW



Note: 'Other End Uses' includes:
 Lighting: 5%, Other: 4%, Indirect Boiler: <1%

Figure C.3.143 Baseline Sales 2030 - Utah: Industrial Transportation by End Use

Total: 71 aMW



Note: 'Other End Uses' includes:
 Other: 4%, Process Electro Chemical: 1%, Indirect Boiler: <1%

Figure C.3.144 Baseline Sales 2030 - Utah: Industrial Water/Wastewater by End Use

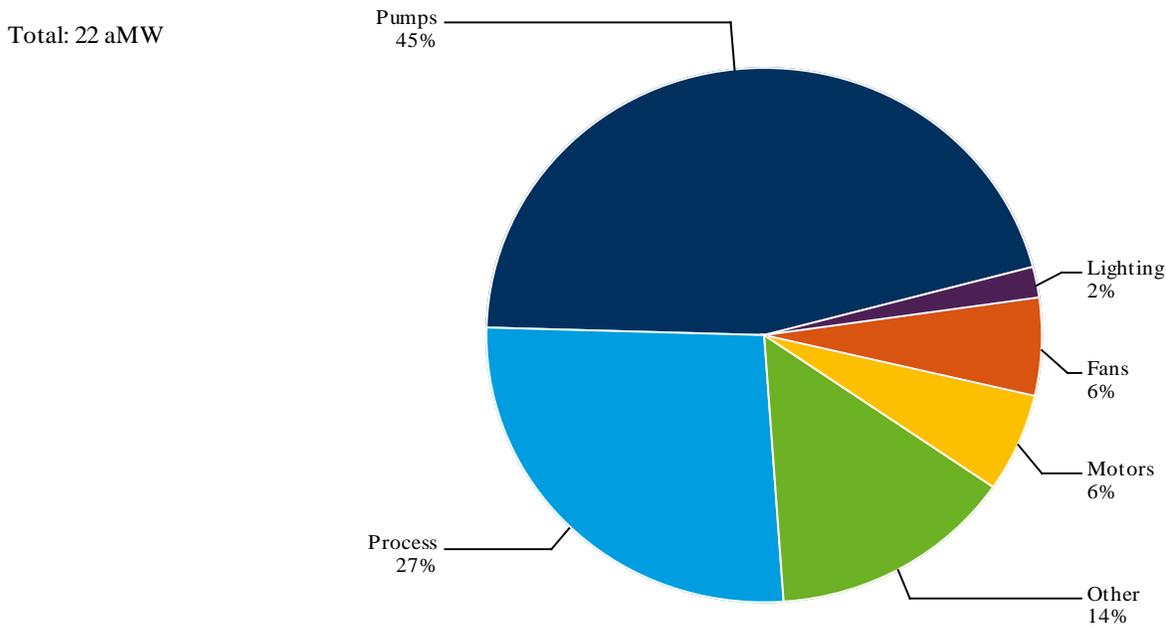
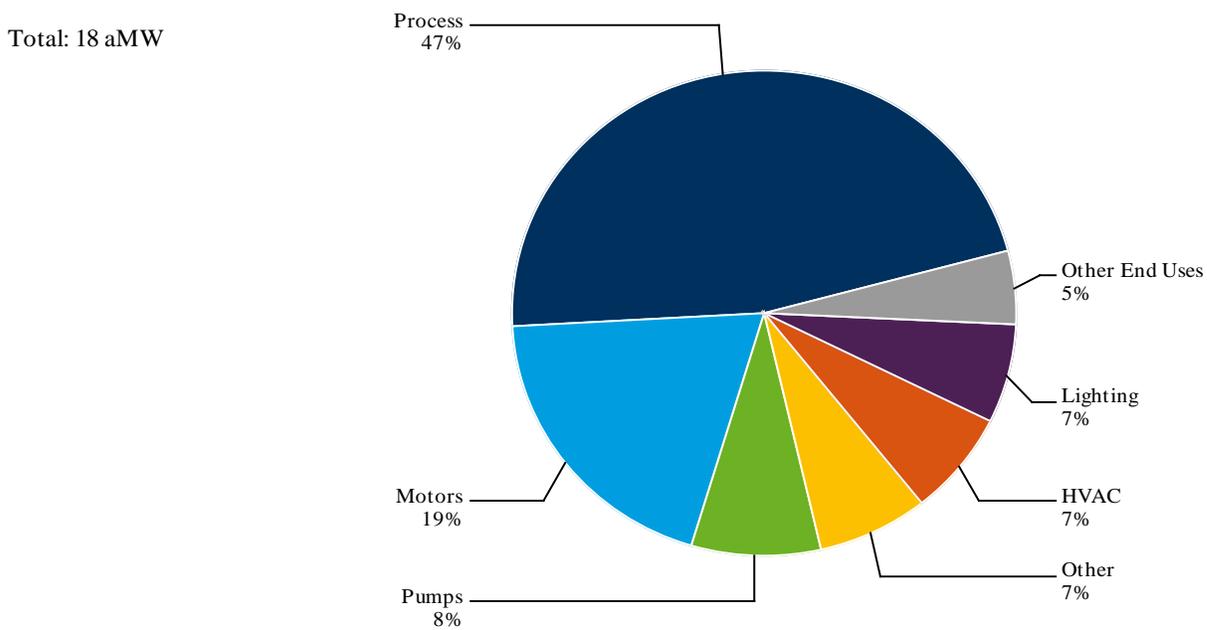


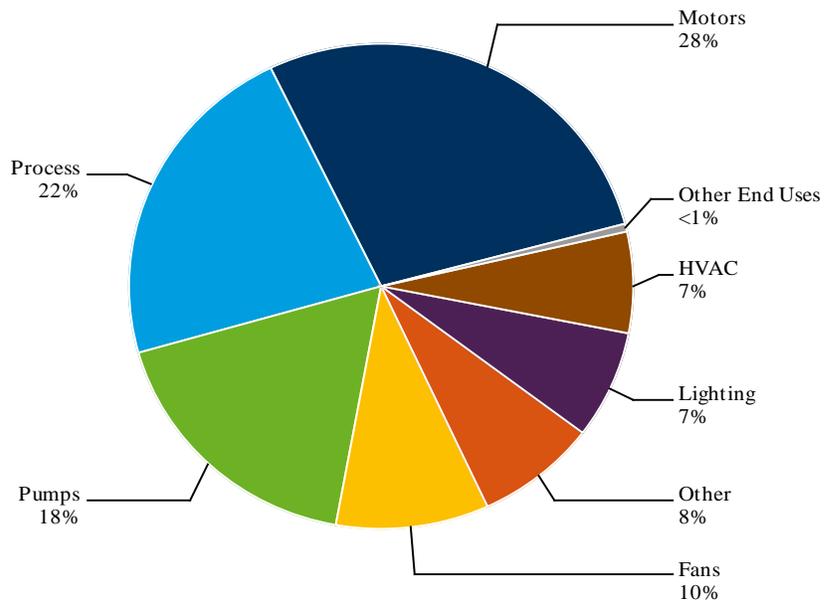
Figure C.3.147 Baseline Sales 2030 - Washington: Industrial Food by End Use



Note: 'Other End Uses' includes:
Fans: 4%, Indirect Boiler: 1%

Figure C.3.149 Baseline Sales 2030 - Washington: Industrial Lumber by End Use

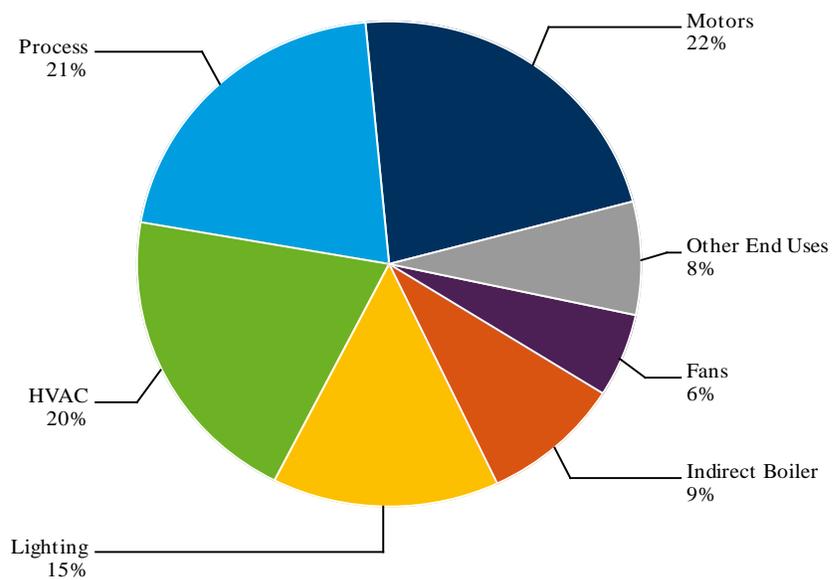
Total: 11 aMW



Note: 'Other End Uses' includes:
 Indirect Boiler: <1%, Process Electro Chemical: <1%

Figure C.3.151 Baseline Sales 2030 - Washington: Industrial Miscellaneous Mfg by End Use

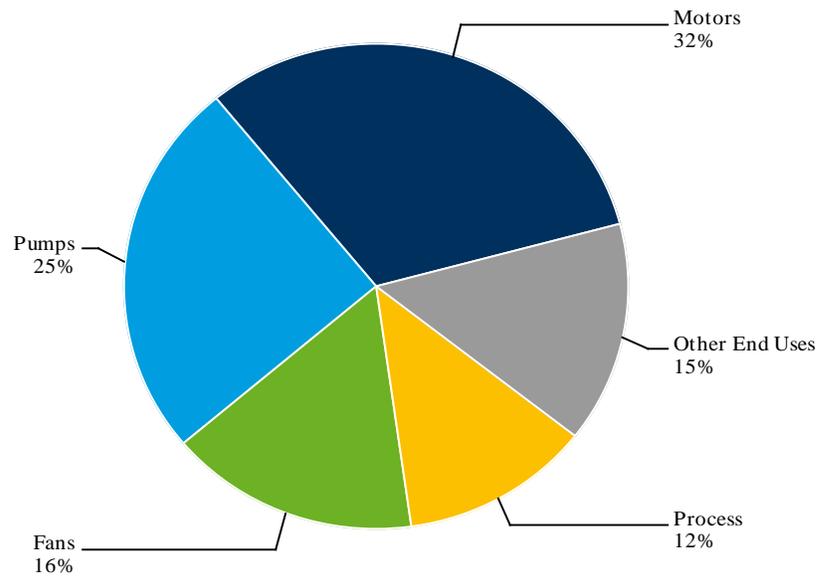
Total: 31 aMW



Note: 'Other End Uses' includes:
 Other: 4%, Pumps: 3%, Process Electro Chemical: <1%

Figure C.3.152 Baseline Sales 2030 - Washington: Industrial Paper by End Use

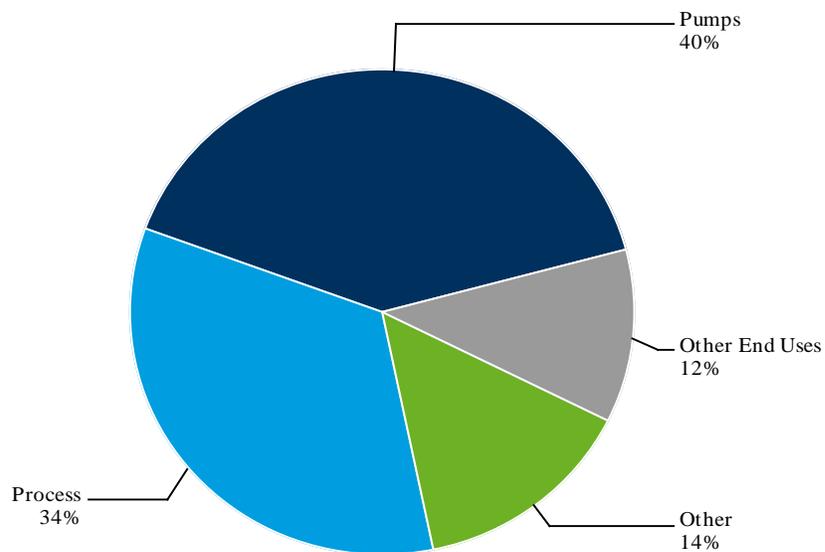
Total: 45 aMW



Note: 'Other End Uses' includes:
 HVAC: 4%, Lighting: 4%, Indirect Boiler: 3%, Other: 2%, Process Electro Chemical: 2%

Figure C.3.157 Baseline Sales 2030 - Washington: Industrial Water/Wastewater by End Use

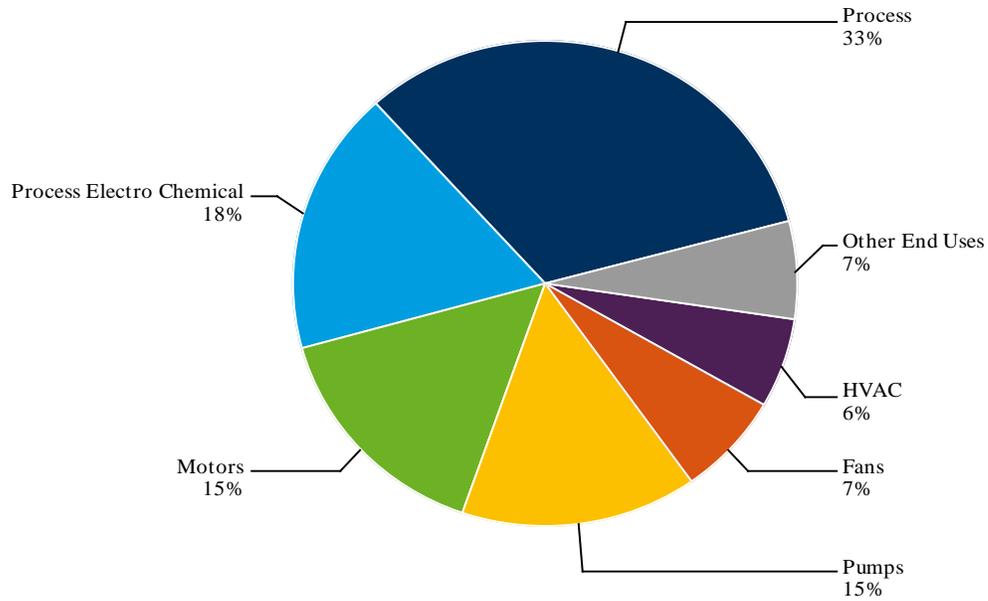
Total: 4 aMW



Note: 'Other End Uses' includes:
 Motors: 5%, Fans: 5%, Lighting: 2%

Figure C.3.158 Baseline Sales 2030 - Wyoming: Industrial Chemicals by End Use

Total: 412 aMW



Note: 'Other End Uses' includes:
Lighting: 4%, Other: 2%, Indirect Boiler: <1%

Figure C.3.163 Baseline Sales 2030 - Wyoming: Industrial Mining by End Use

Total: 843 aMW

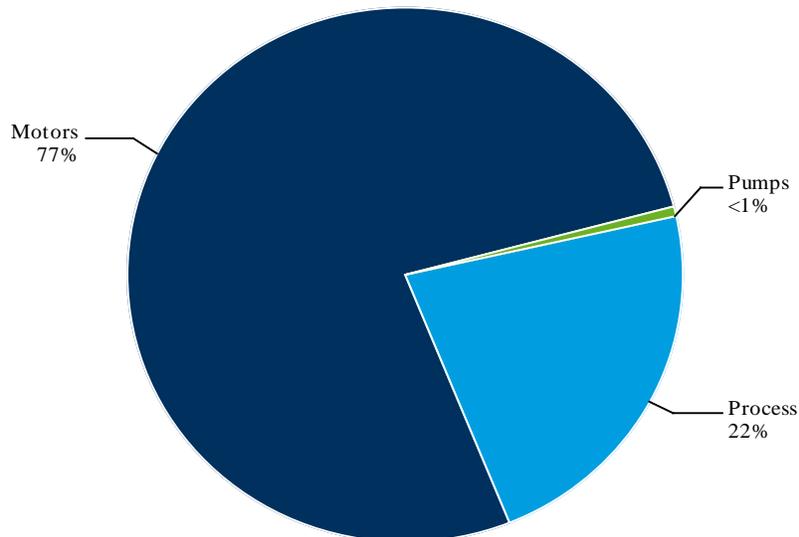
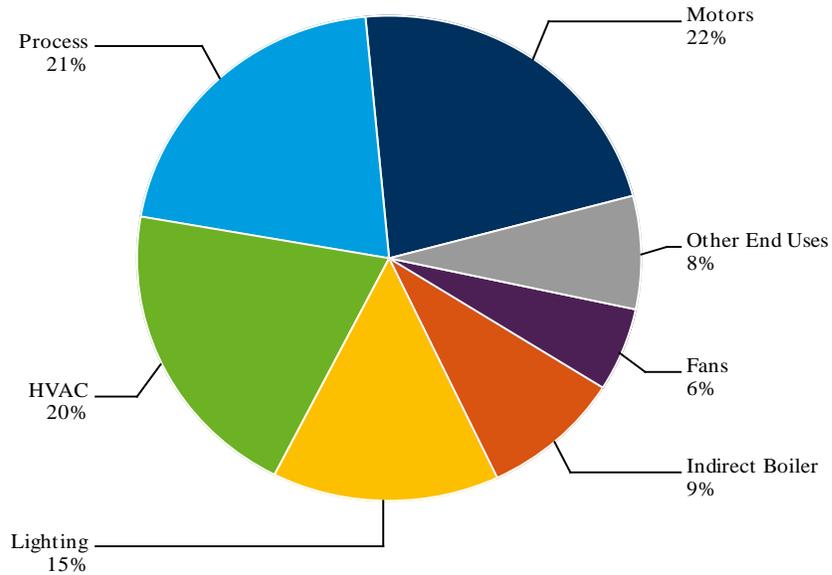


Figure C.3.164 Baseline Sales 2030 - Wyoming: Industrial Miscellaneous Mfg by End Use

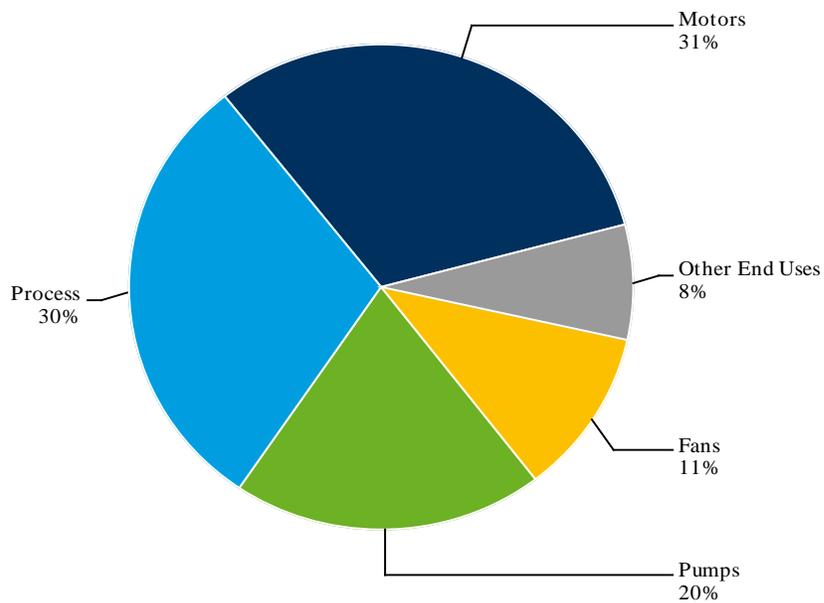
Total: 385 aMW



Note: 'Other End Uses' includes:
 Other: 4%, Pumps: 3%, Process Electro Chemical: <1%

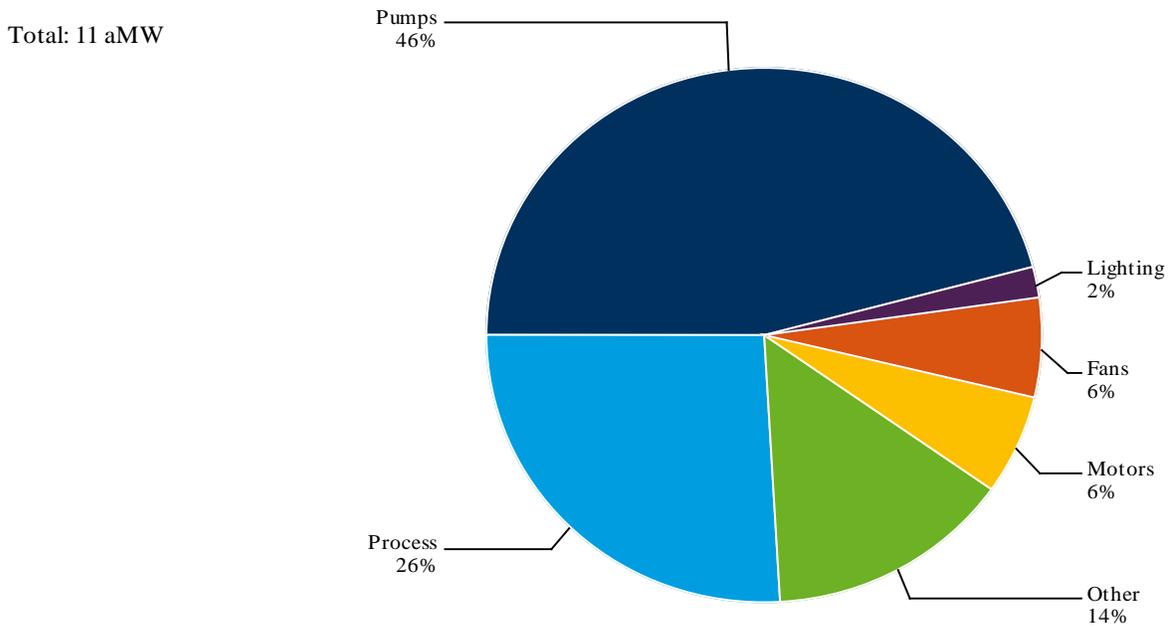
Figure C.3.166 Baseline Sales 2030 - Wyoming: Industrial Petroleum by End Use

Total: 61 aMW



Note: 'Other End Uses' includes:
 HVAC: 3%, Lighting: 2%, Other: 1%, Indirect Boiler: <1%, Process Electro Chemical: <1%

Figure C.3.170 Baseline Sales 2030 - Wyoming: Industrial Water/Wastewater by End Use



Appendix C-4. Technical Supplements: Energy Efficiency Resources, Achievable Technical Potentials

Figure C.4.1 Technical Achievable Potential Resource Acquisition, California

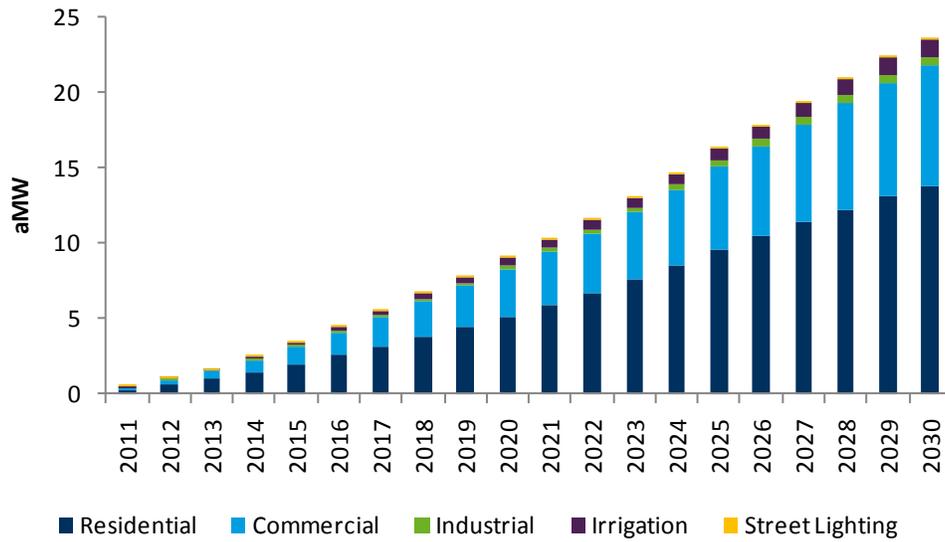


Figure C.4.2 Technical Achievable Potential Resource Acquisition, Idaho

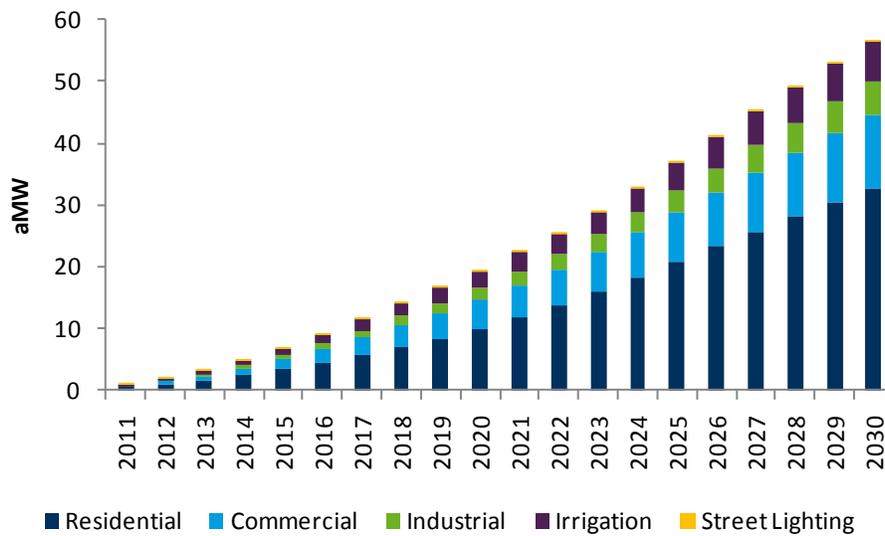


Figure C.4.3 Technical Achievable Potential Resource Acquisition, Utah

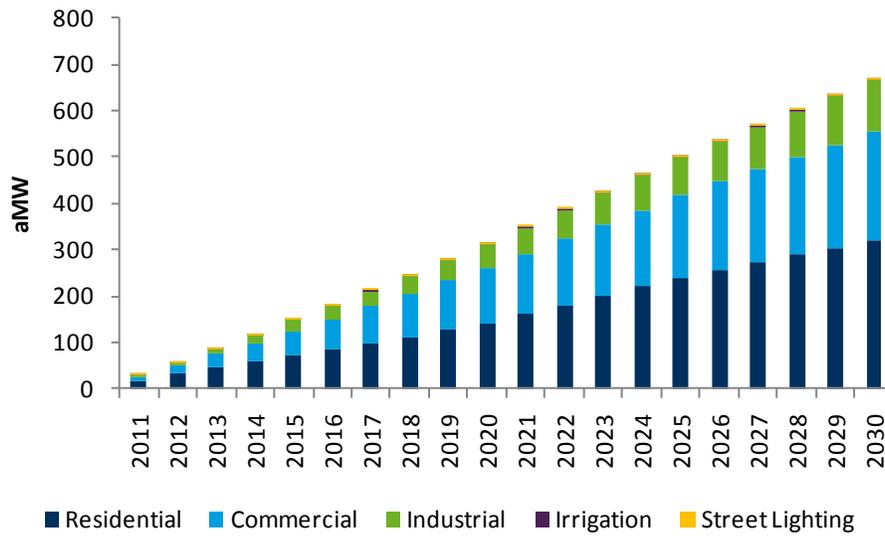


Figure C.4.4 Technical Achievable Potential Resource Acquisition, Washington

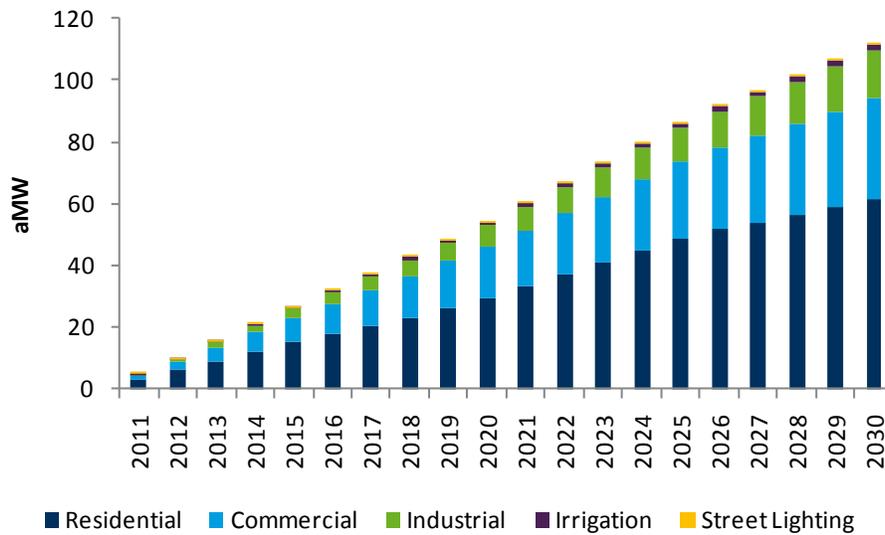


Figure C.4.5 Technical Achievable Potential Resource Acquisition, Wyoming

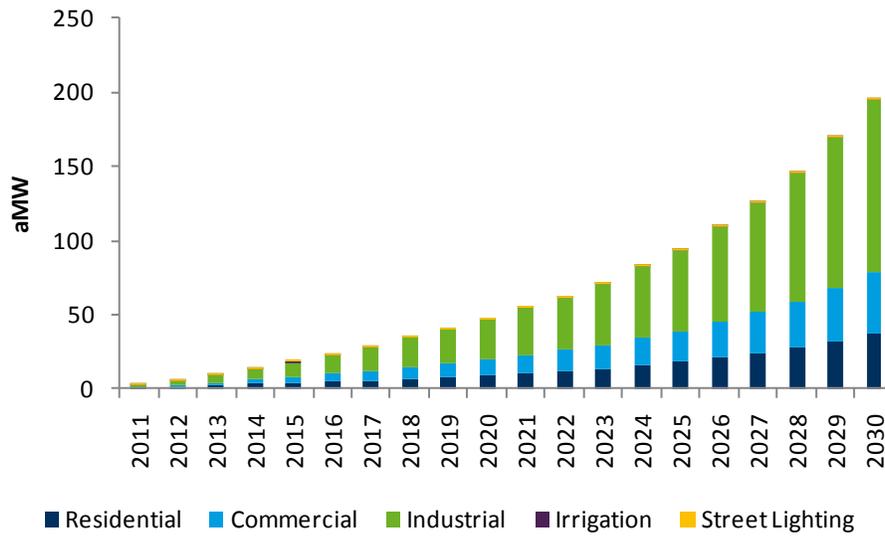


Figure C.4.6 Achievable Technical Potential - California: Residential by Segment

Total: 15 aMW

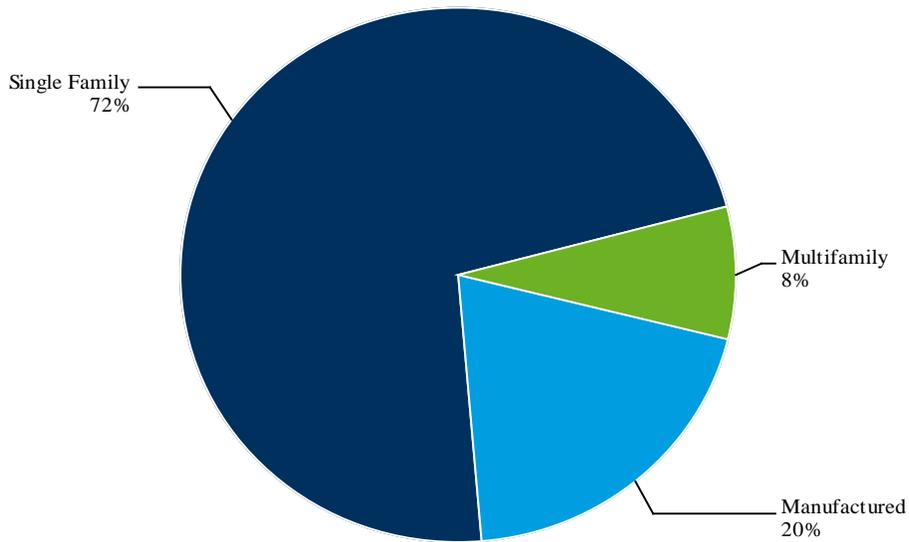


Figure C.4.7 Achievable Technical Potential - Idaho: Residential by Segment

Total: 36 aMW

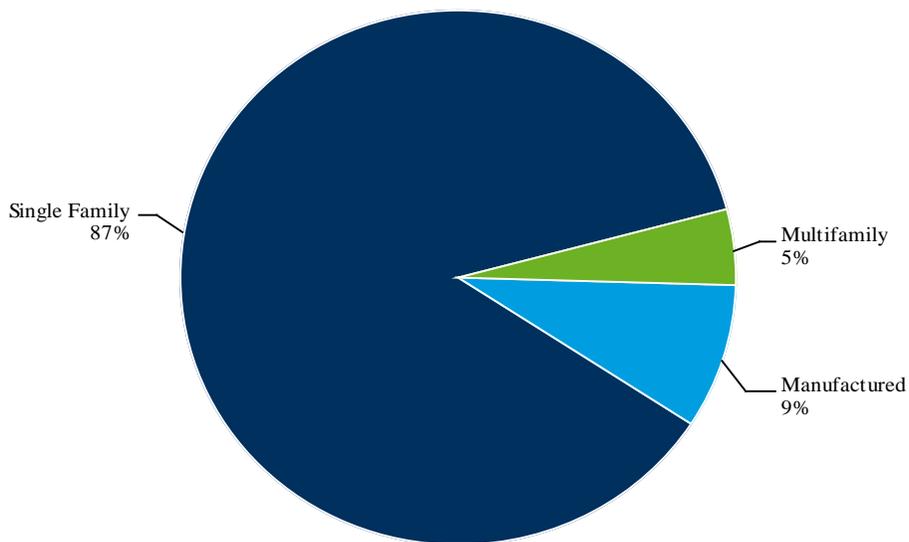


Figure C.4.8 Achievable Technical Potential - Utah: Residential by Segment

Total: 355 aMW

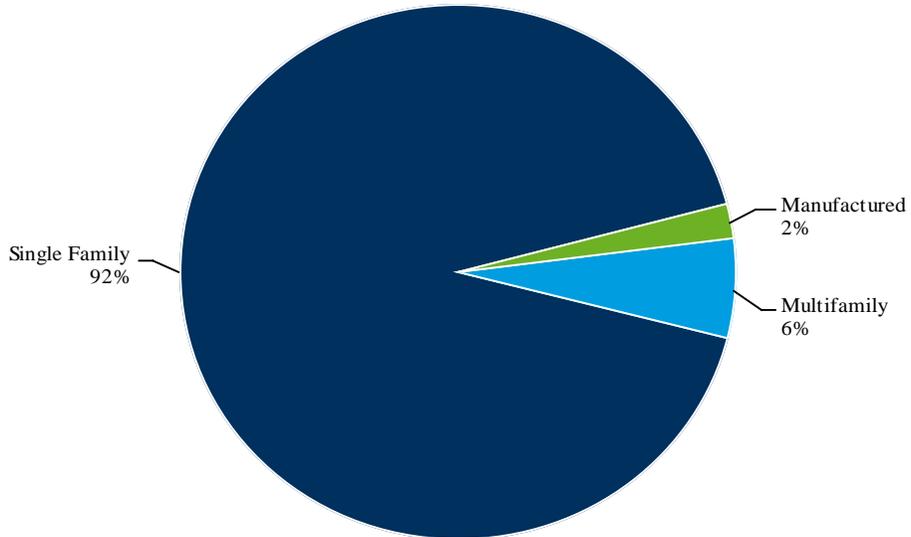


Figure C.4.9 Achievable Technical Potential - Washington: Residential by Segment

Total: 68 aMW

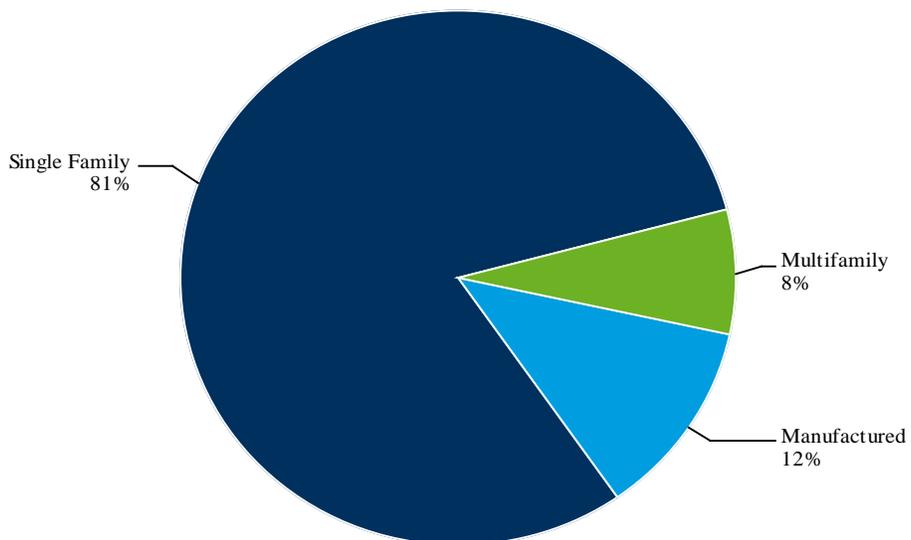


Figure C.4.10 Achievable Technical Potential - Wyoming: Residential by Segment

Total: 40 aMW

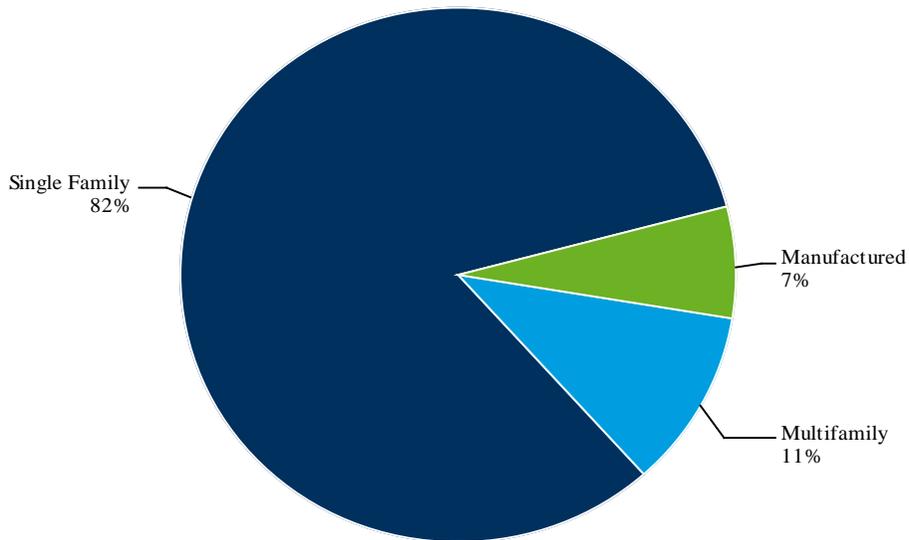
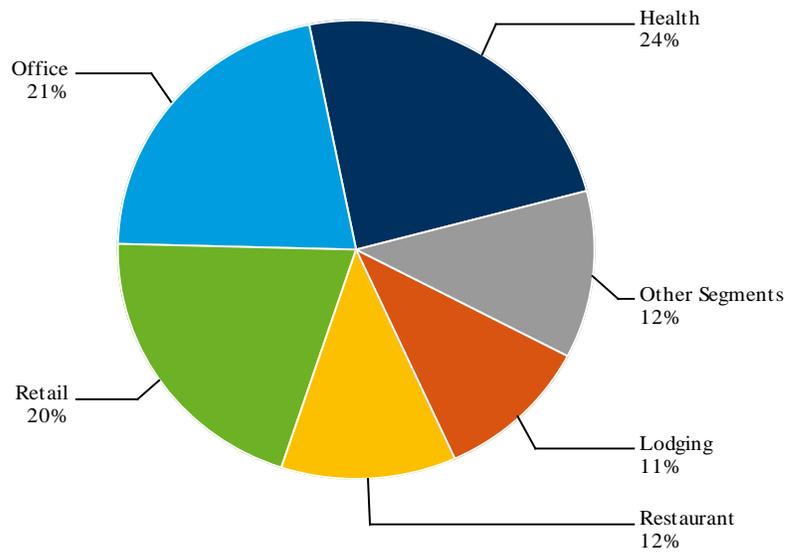


Figure C.4.11 Achievable Technical Potential - California: Commercial by Segment

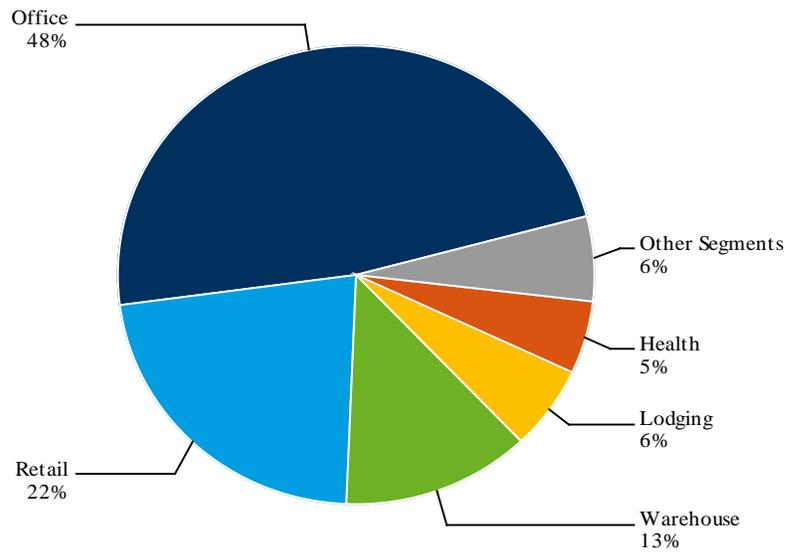
Total: 9 aMW



Note: 'Other Segments' includes:
 Miscellaneous: 5%, Grocery: 5%, School: 2%, Warehouse: <1%

Figure C.4.12 Achievable Technical Potential - Idaho: Commercial by Segment

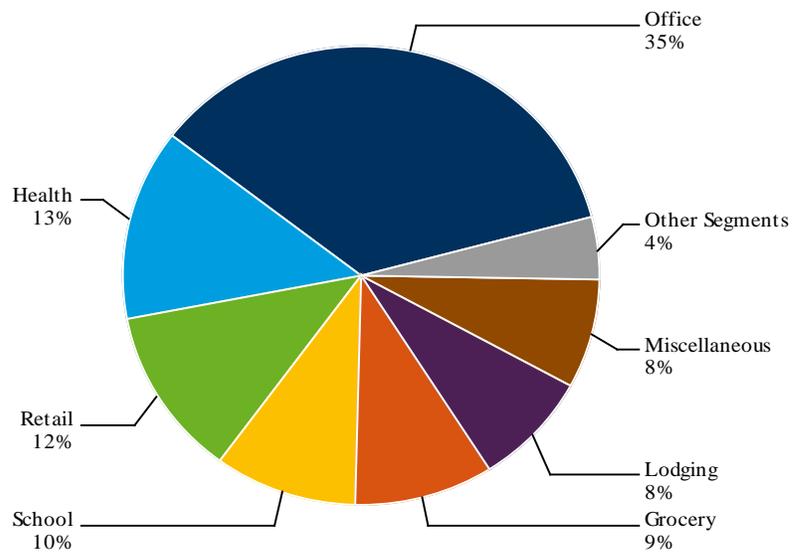
Total: 13 aMW



Note: 'Other Segments' includes:
 Grocery: 3%, School: 1%, Restaurant: 1%, Miscellaneous: <1%

Figure C.4.13 Achievable Technical Potential - Utah: Commercial by Segment

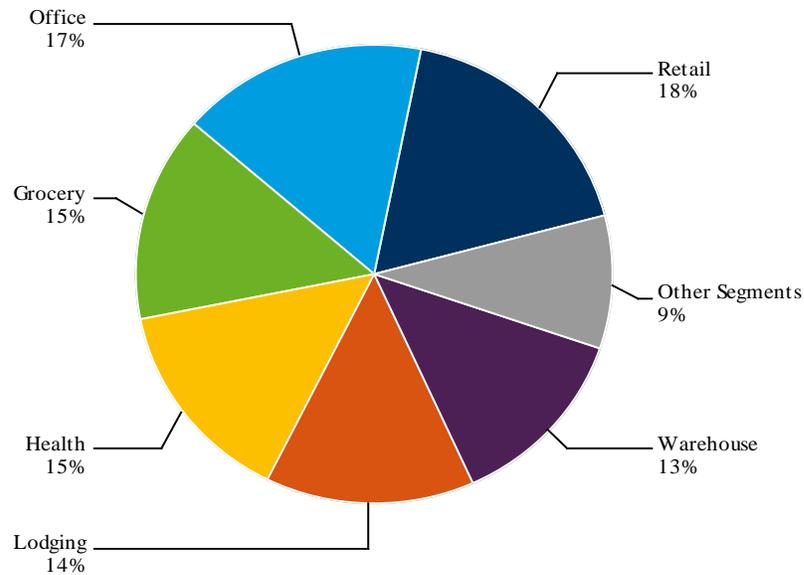
Total: 258 aMW



Note: 'Other Segments' includes:
 Warehouse: 2%, Restaurant: 2%

Figure C.4.14 Achievable Technical Potential - Washington: Commercial by Segment

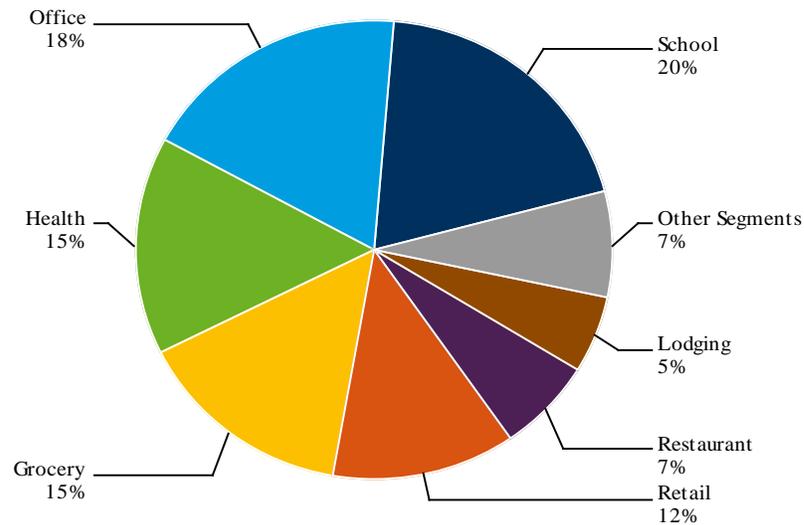
Total: 35 aMW



Note: 'Other Segments' includes:
Miscellaneous: 5%, School: 2%, Restaurant: 2%

Figure C.4.15 Achievable Technical Potential - Wyoming: Commercial by Segment

Total: 45 aMW



Note: 'Other Segments' includes:
Miscellaneous: 5%, Warehouse: 3%

Figure C.4.16 Achievable Technical Potential - California: Industrial by Segment

Total: 1 aMW

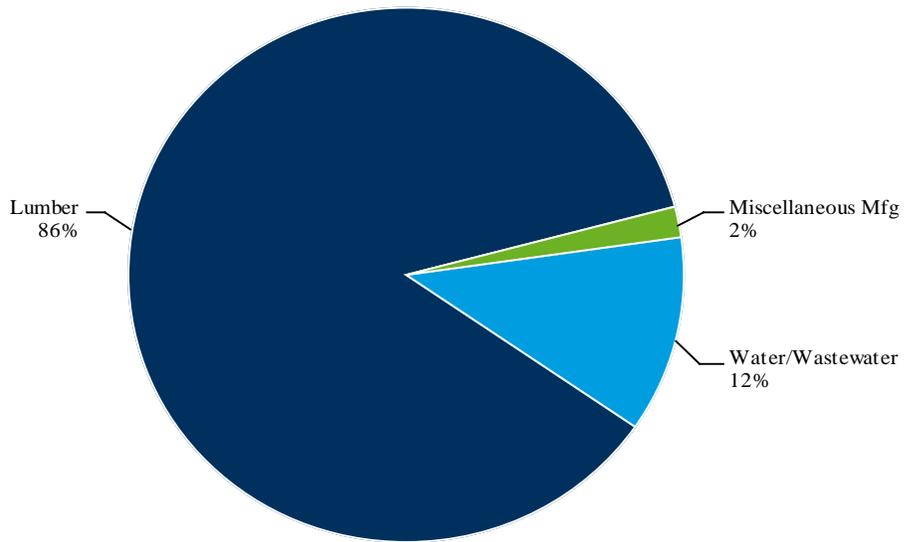


Figure C.4.17 Achievable Technical Potential - Idaho: Industrial by Segment

Total: 6 aMW

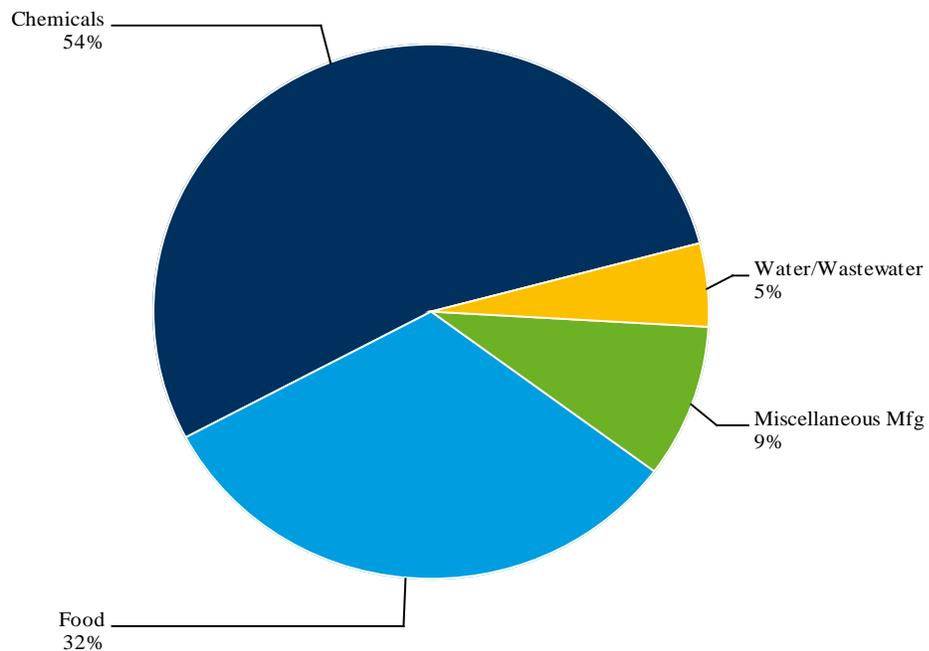
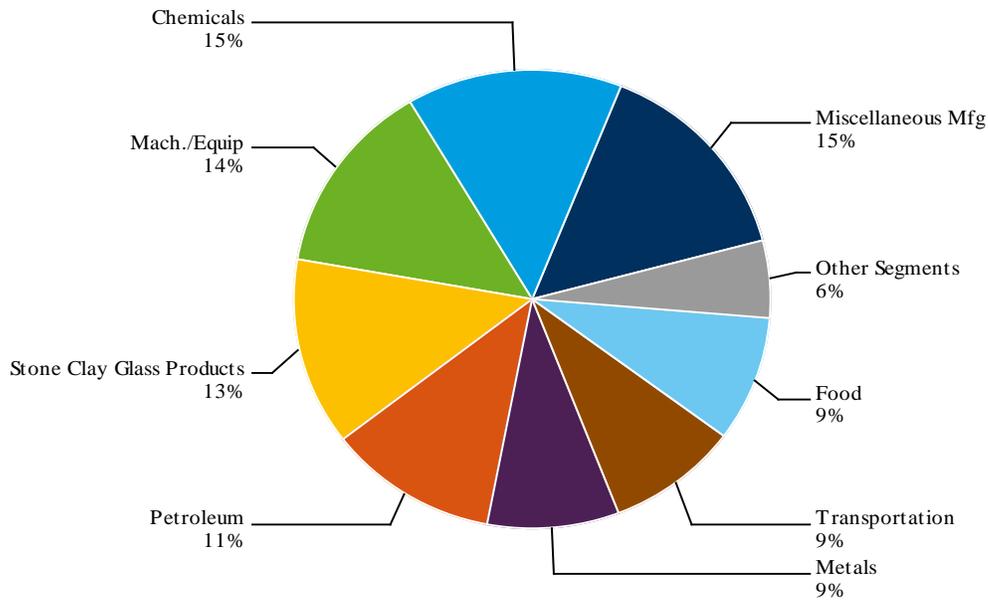


Figure C.4.18 Achievable Technical Potential - Utah: Industrial by Segment

Total: 119 aMW



Note: 'Other Segments' includes:
Water/Wastewater: 3%, Mining: 3%

Figure C.4.19 Achievable Technical Potential - Washington: Industrial by Segment

Total: 17 aMW

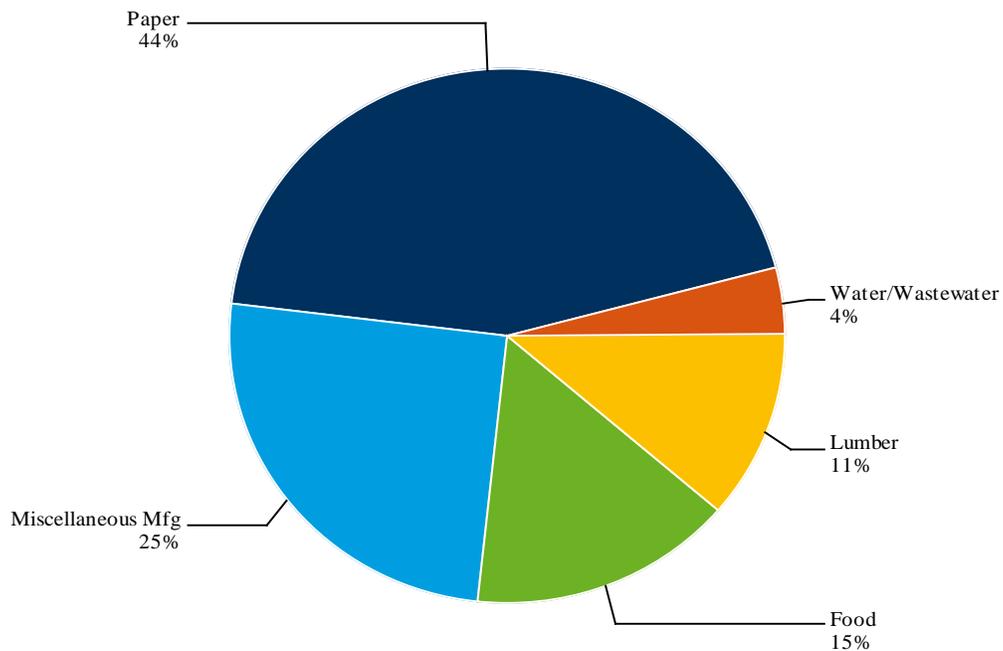


Figure C.4.20 Achievable Technical Potential - Wyoming: Industrial by Segment

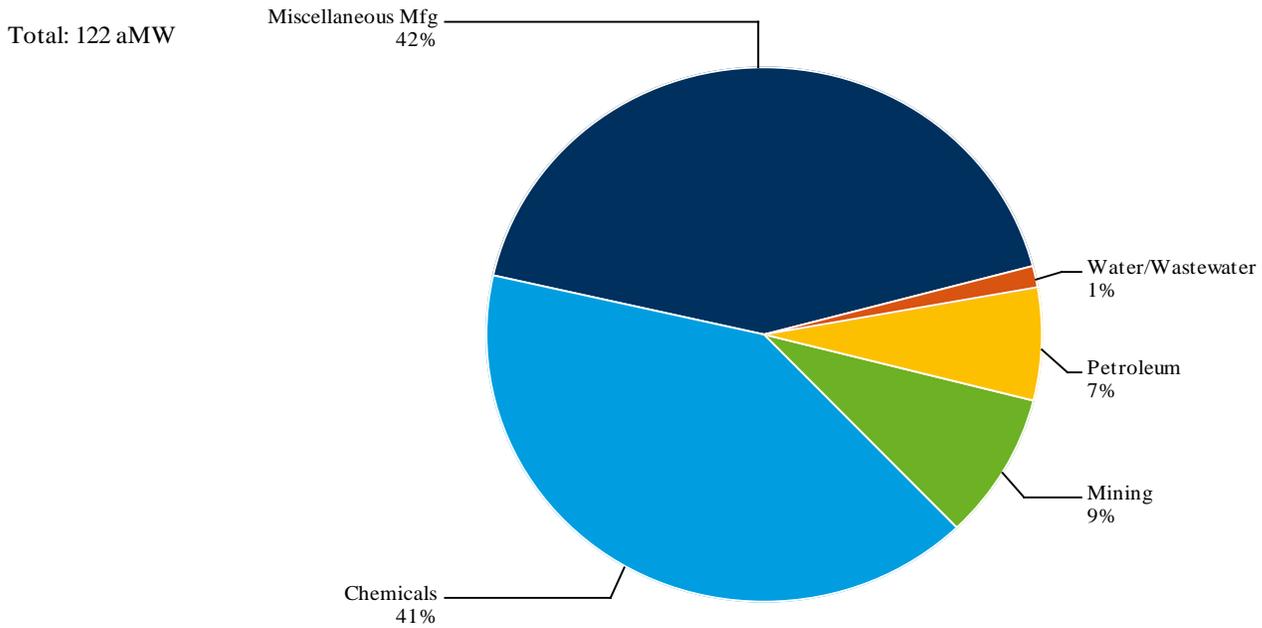
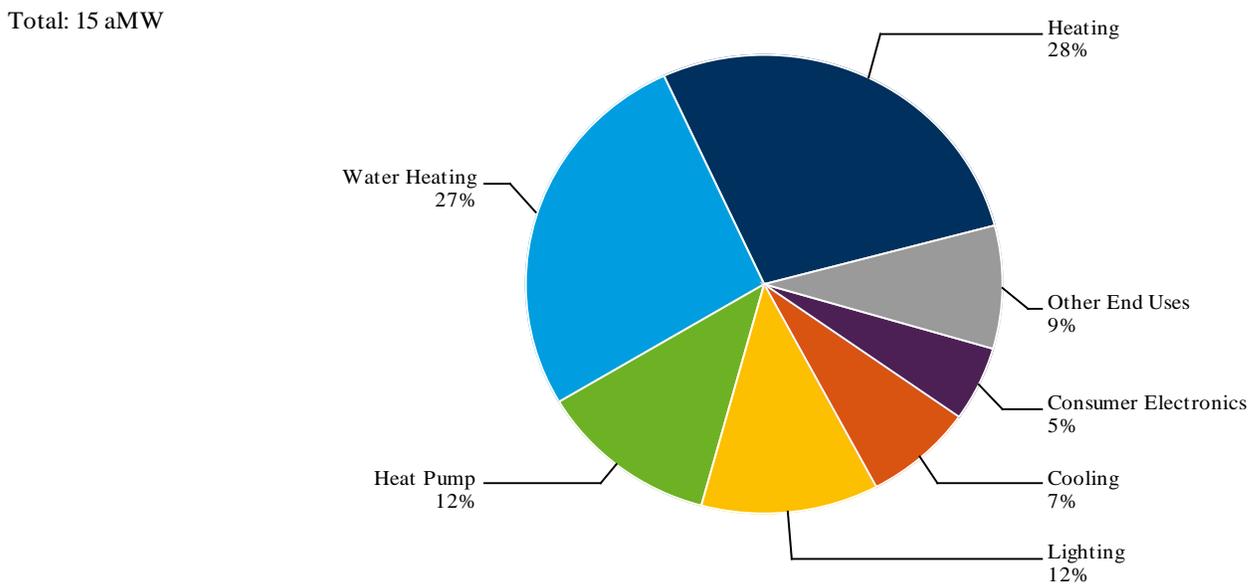


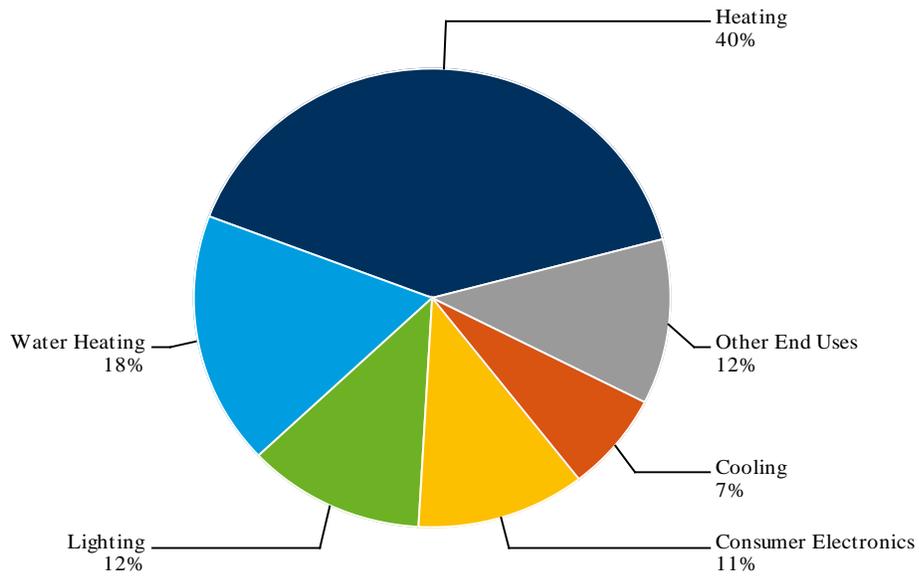
Figure C.4.21 Achievable Technical Potential - California: Residential by End Use



Note: 'Other End Uses' includes:
 Appliances: 4%, Plug Load: 3%, Ventilation And Circulation: 1%, Pool Pump: <1%

Figure C.4.22 Achievable Technical Potential - Idaho: Residential by End Use

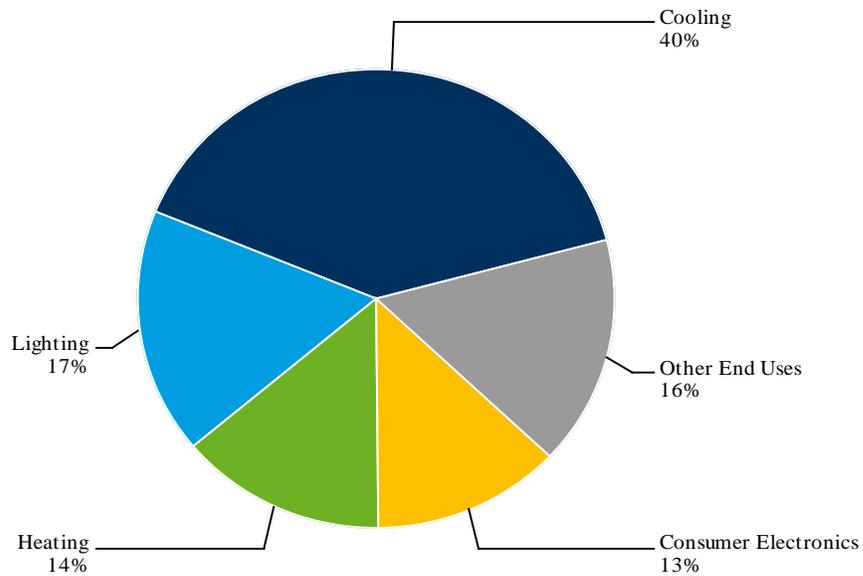
Total: 36 aMW



Note: 'Other End Uses' includes:
 Appliances: 4%, Plug Load: 3%, Ventilation And Circulation: 2%, Heat Pump: 2%, Pool Pump: <1%

Figure C.4.23 Achievable Technical Potential - Utah: Residential by End Use

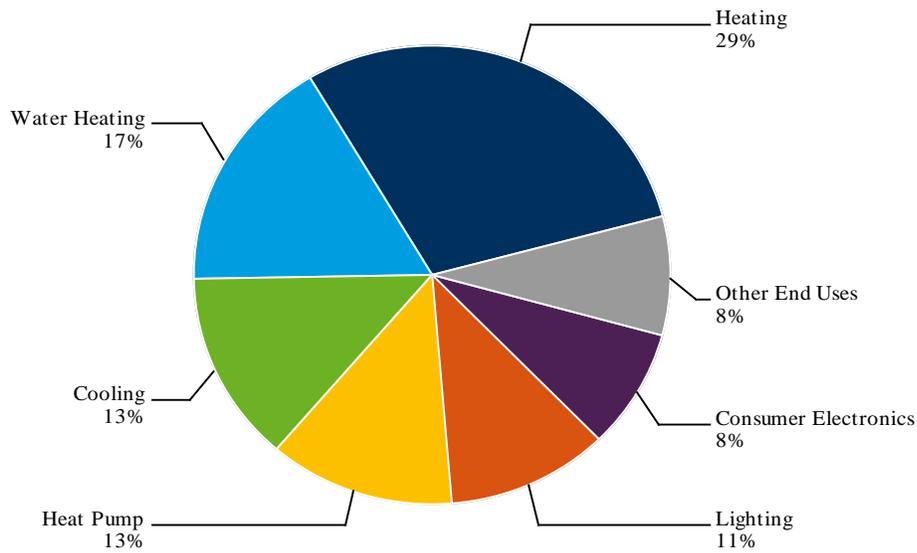
Total: 355 aMW



Note: 'Other End Uses' includes:
 Water Heating: 4%, Appliances: 4%, Plug Load: 3%, Ventilation And Circulation: 3%, Heat Pump: 1%, Pool Pump: <1%

Figure C.4.24 Achievable Technical Potential - Washington: Residential by End Use

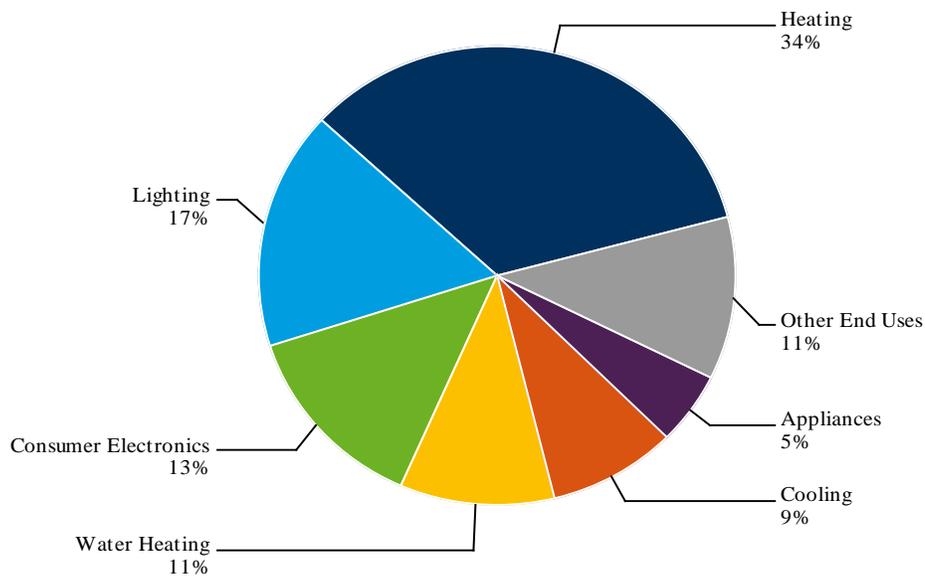
Total: 68 aMW



Note: 'Other End Uses' includes:
Appliances: 4%, Plug Load: 2%, Ventilation And Circulation: 2%, Pool Pump: <1%

Figure C.4.25 Achievable Technical Potential - Wyoming: Residential by End Use

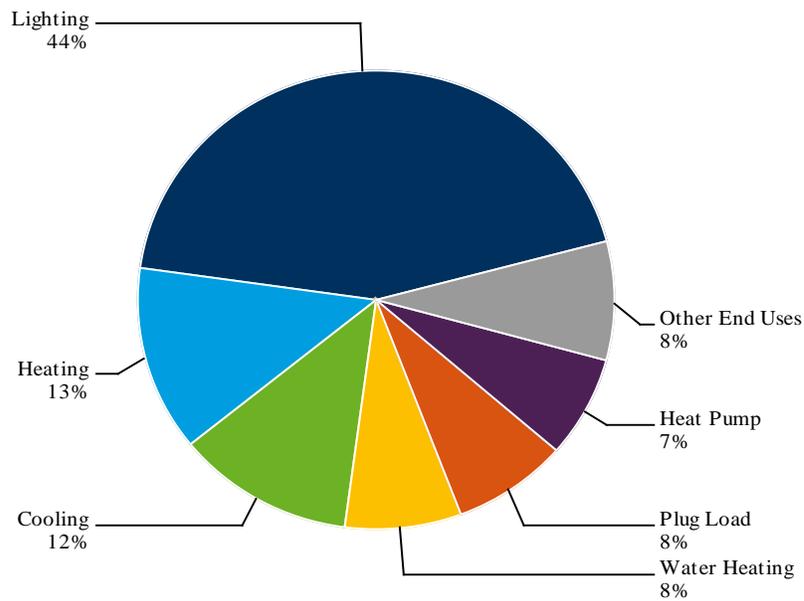
Total: 40 aMW



Note: 'Other End Uses' includes:
Plug Load: 4%, Heat Pump: 4%, Ventilation And Circulation: 4%, Pool Pump: <1%

Figure C.4.26 Achievable Technical Potential - California: Commercial by End Use

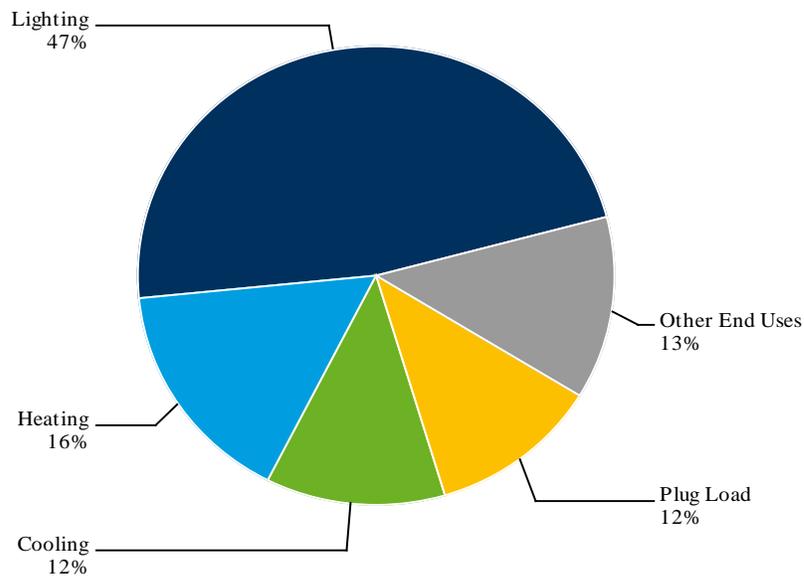
Total: 9 aMW



Note: 'Other End Uses' includes:
 Refrigeration: 4%, HVAC Aux: 3%, Cooking: <1%, Other Office Equipment: <1%

Figure C.4.27 Achievable Technical Potential - Idaho: Commercial by End Use

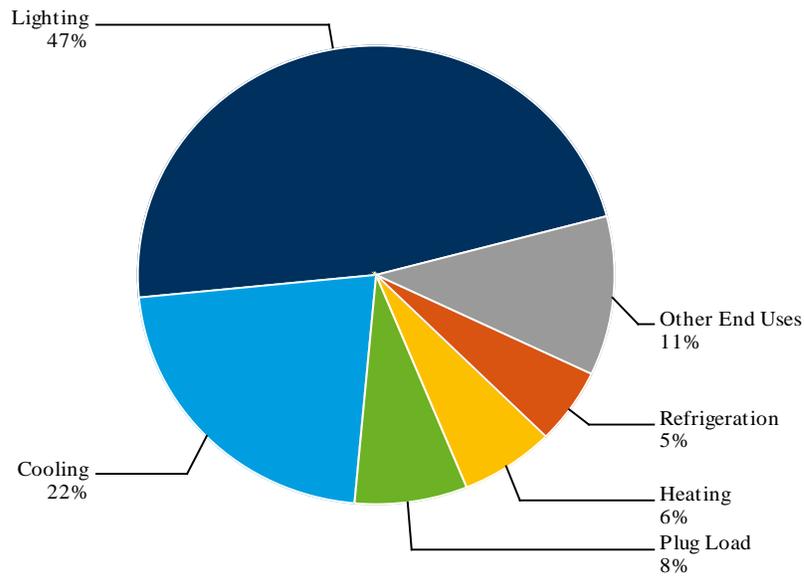
Total: 13 aMW



Note: 'Other End Uses' includes:
 Heat Pump: 4%, Water Heating: 3%, HVAC Aux: 2%, Refrigeration: 2%, Other Office Equipment: 1%, Cooking: <1%

Figure C.4.28 Achievable Technical Potential - Utah: Commercial by End Use

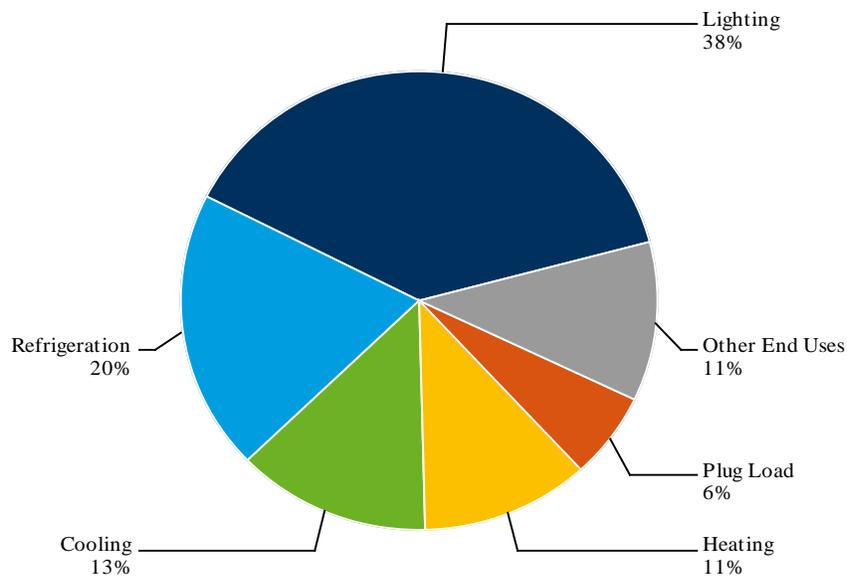
Total: 258 aMW



Note: 'Other End Uses' includes:
 HVAC Aux: 4%, Heat Pump: 4%, Water Heating: 2%, Other Office Equipment: <1%, Cooking: <1%

Figure C.4.29 Achievable Technical Potential - Washington: Commercial by End Use

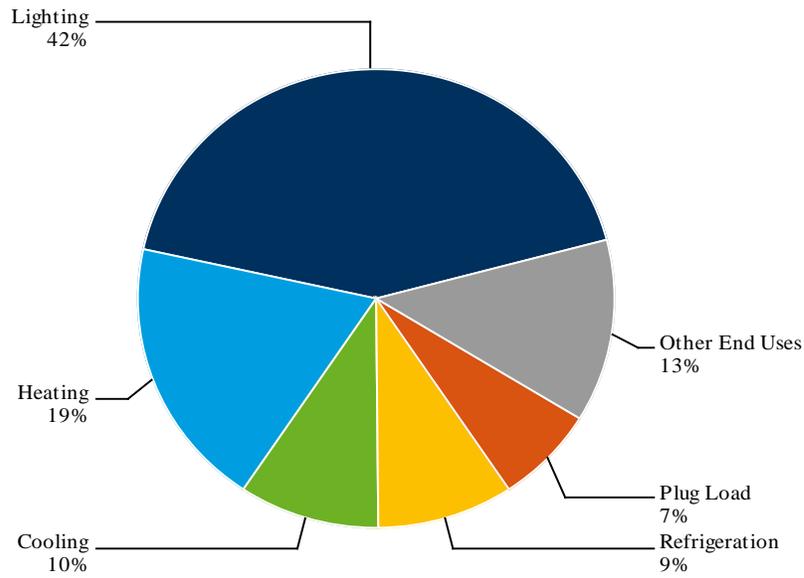
Total: 35 aMW



Note: 'Other End Uses' includes:
 Heat Pump: 4%, Water Heating: 4%, HVAC Aux: 3%, Other Office Equipment: <1%, Cooking: <1%

Figure C.4.30 Achievable Technical Potential - Wyoming: Commercial by End Use

Total: 45 aMW



Note: 'Other End Uses' includes:

Water Heating: 5%, HVAC Aux: 4%, Heat Pump: 4%, Other Office Equipment: <1%, Cooking: <1%

Figure C.4.31 Achievable Technical Potential - California: Industrial by End Use

Total: 1 aMW

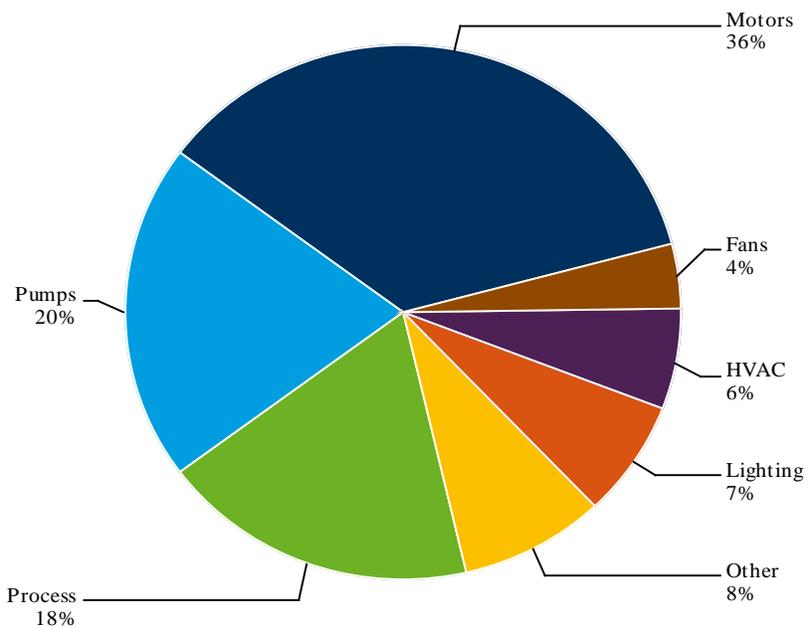


Figure C.4.32 Achievable Technical Potential - Idaho: Industrial by End Use

Total: 6 aMW

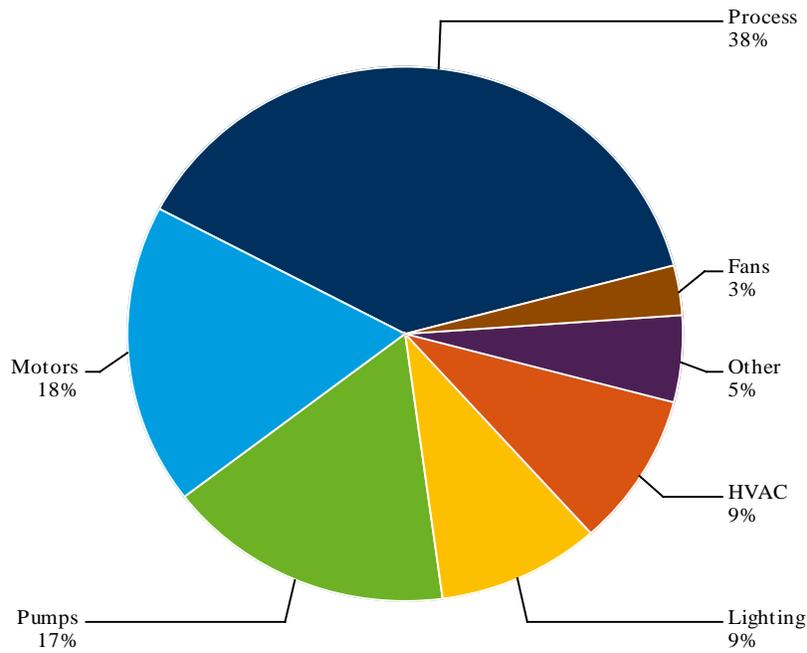
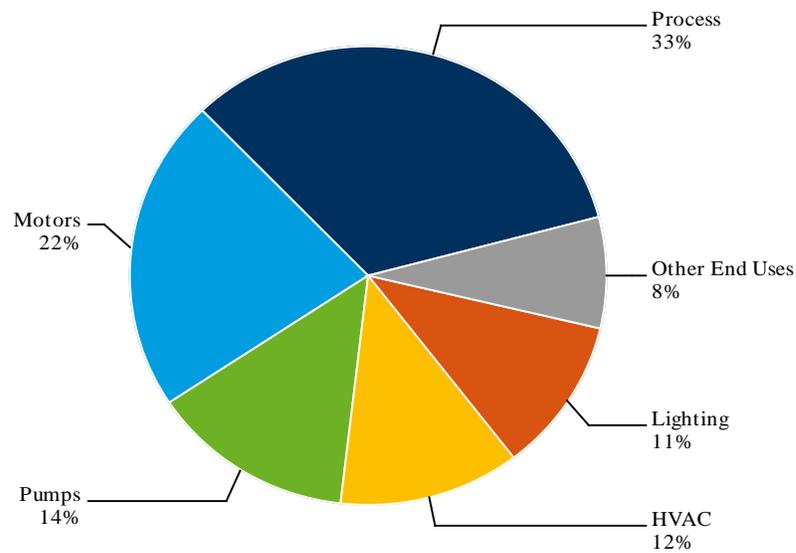


Figure C.4.33 Achievable Technical Potential - Utah: Industrial by End Use

Total: 119 aMW



Note: 'Other End Uses' includes:
Other: 5%, Fans: 3%

Figure C.4.34 Achievable Technical Potential - Washington: Industrial by End Use

Total: 17 aMW

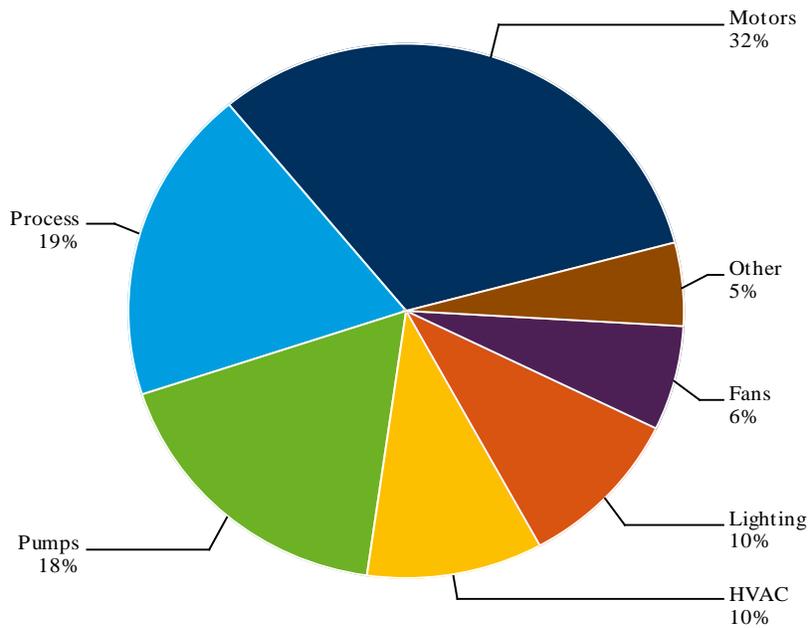
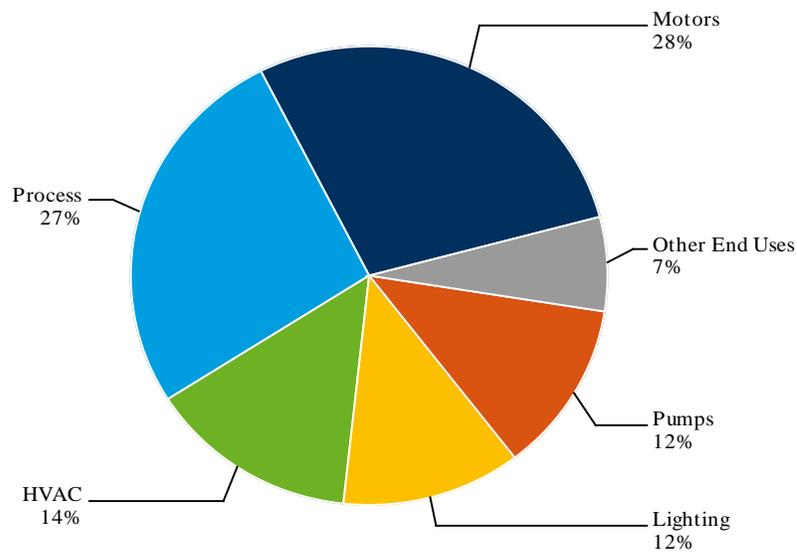


Figure C.4.35 Achievable Technical Potential - Wyoming: Industrial by End Use

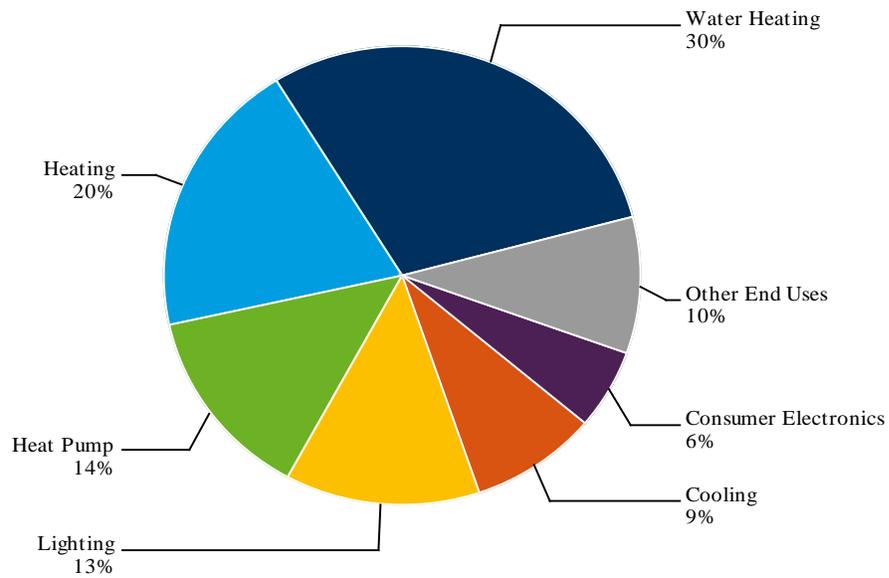
Total: 122 aMW



Note: 'Other End Uses' includes:
Other: 3%, Fans: 3%

Figure C.4.36 Achievable Technical Potential - California: Residential Single Family by End Use

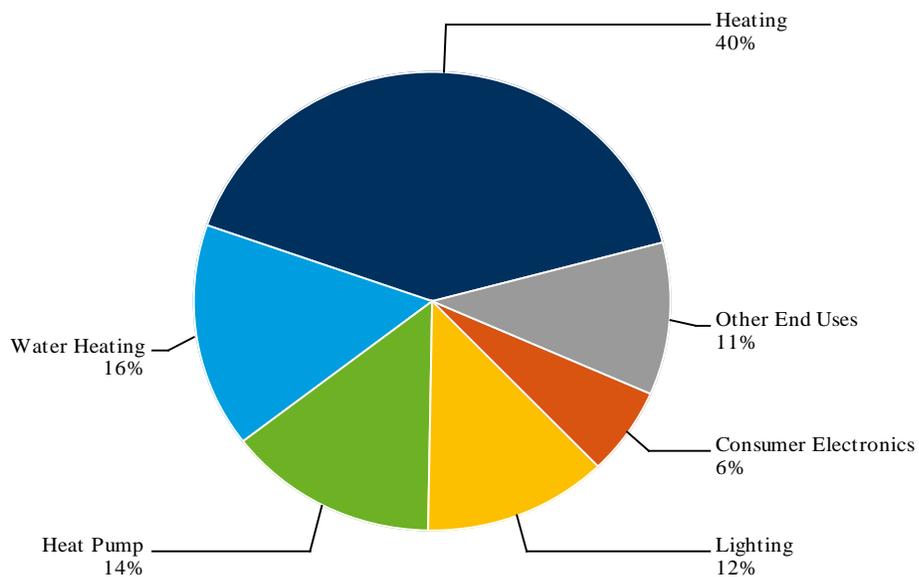
Total: 11 aMW



Note: 'Other End Uses' includes:
 Appliances: 4%, Plug Load: 4%, Ventilation And Circulation: 1%, Pool Pump: <1%

Figure C.4.37 Achievable Technical Potential - California: Residential Multifamily by End Use

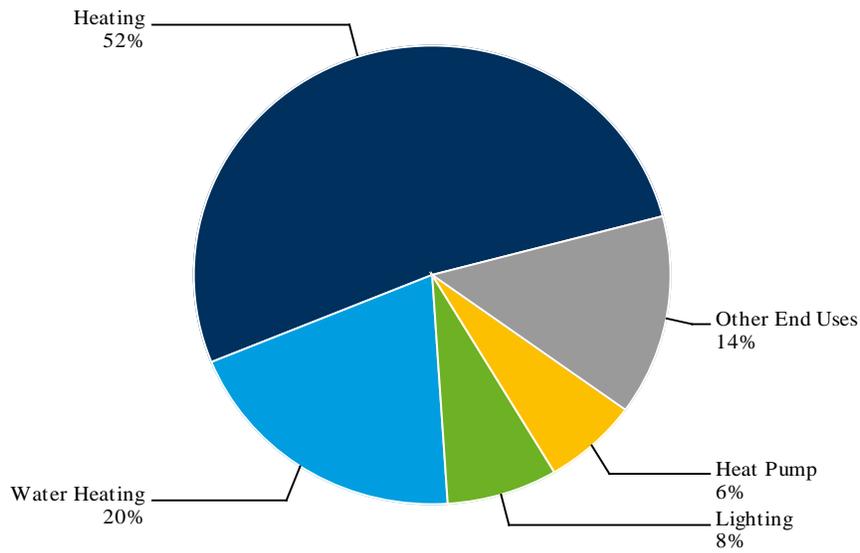
Total: 1 aMW



Note: 'Other End Uses' includes:
 Plug Load: 4%, Appliances: 3%, Cooling: 3%, Ventilation And Circulation: <1%

Figure C.4.38 Achievable Technical Potential - California: Residential Manufactured by End Use

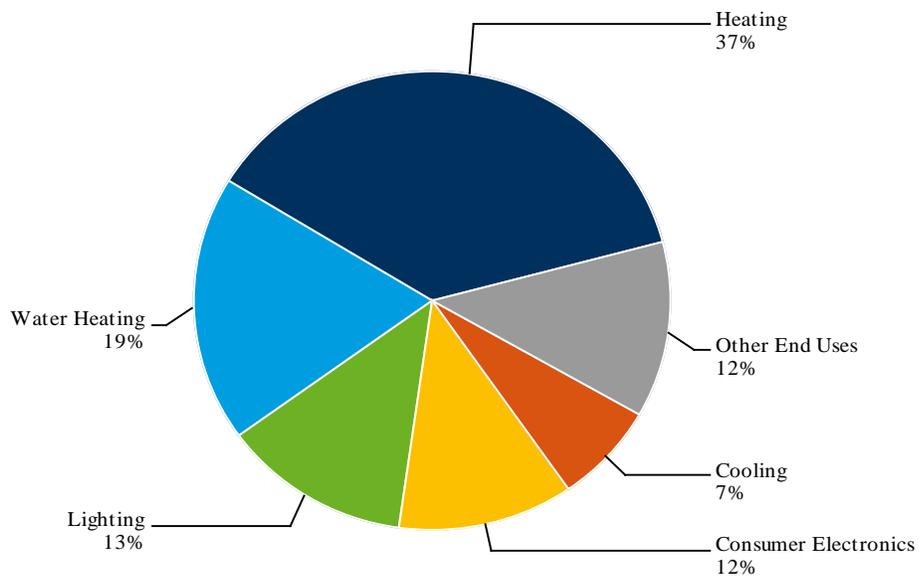
Total: 3 aMW



Note: 'Other End Uses' includes:
Cooling: 5%, Consumer Electronics: 4%, Appliances: 3%, Plug Load: 2%, Ventilation And Circulation: <1%

Figure C.4.39 Achievable Technical Potential - Idaho: Residential Single Family by End Use

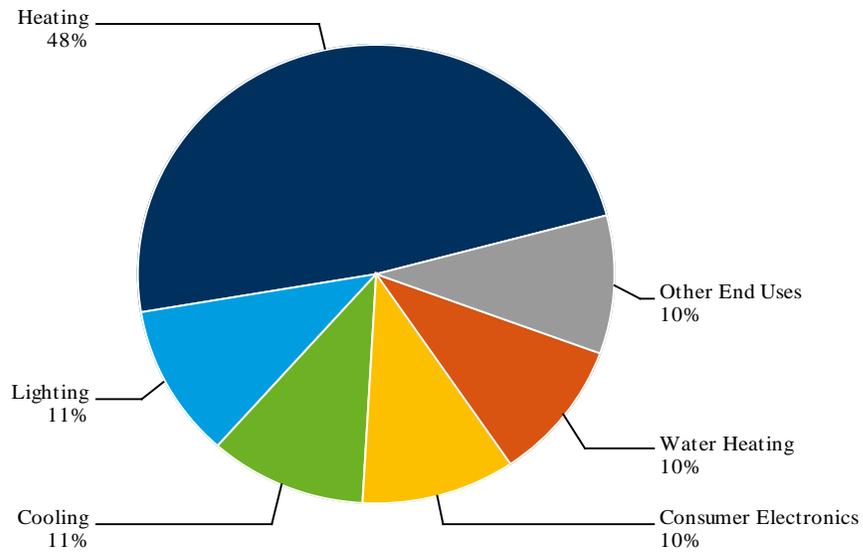
Total: 31 aMW



Note: 'Other End Uses' includes:
Appliances: 5%, Plug Load: 3%, Ventilation And Circulation: 2%, Heat Pump: 2%, Pool Pump: <1%

Figure C.4.40 Achievable Technical Potential - Idaho: Residential Multifamily by End Use

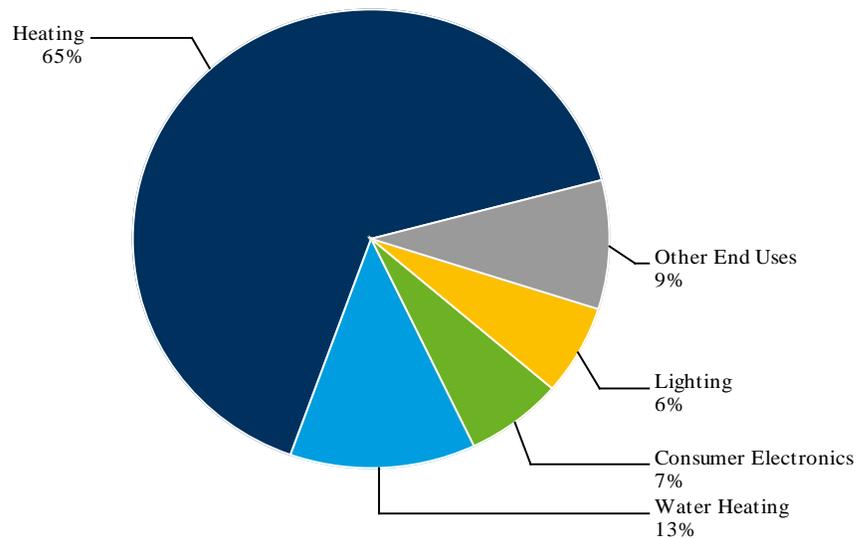
Total: 2 aMW



Note: 'Other End Uses' includes:
Appliances: 5%, Plug Load: 4%, Ventilation And Circulation: 1%

Figure C.4.41 Achievable Technical Potential - Idaho: Residential Manufactured by End Use

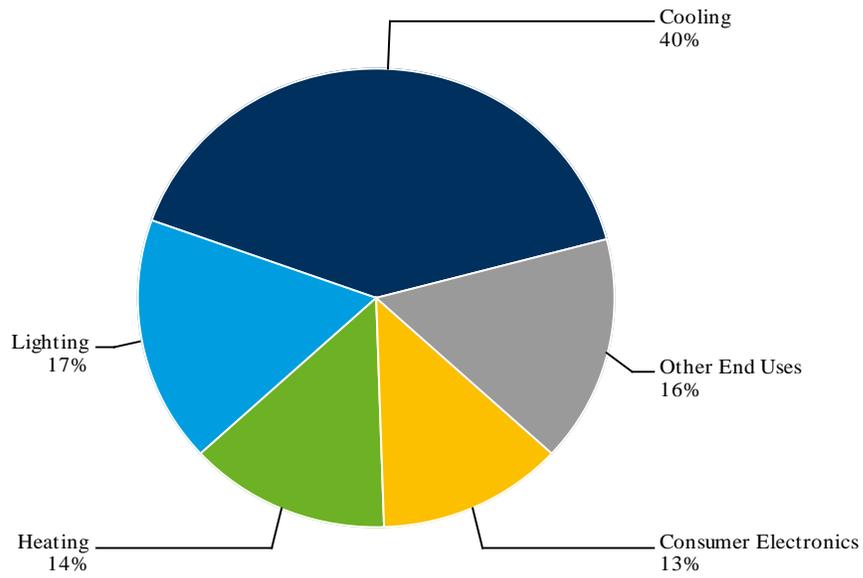
Total: 3 aMW



Note: 'Other End Uses' includes:
Cooling: 3%, Appliances: 3%, Plug Load: 2%, Ventilation And Circulation: 1%

Figure C.4.42 Achievable Technical Potential - Utah: Residential Single Family by End Use

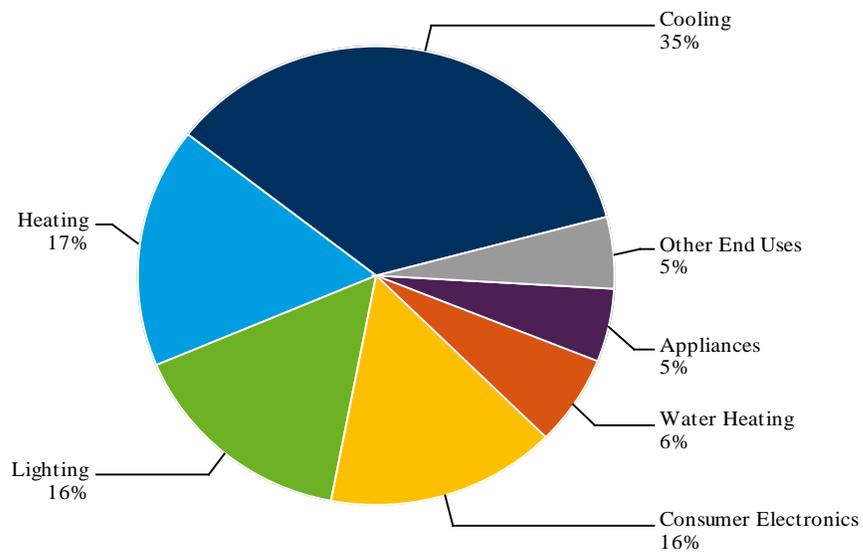
Total: 326 aMW



Note: 'Other End Uses' includes:
 Water Heating: 4%, Appliances: 4%, Ventilation And Circulation: 3%, Plug Load: 3%, Heat Pump: 1%, Pool Pump: <1%

Figure C.4.43 Achievable Technical Potential - Utah: Residential Multifamily by End Use

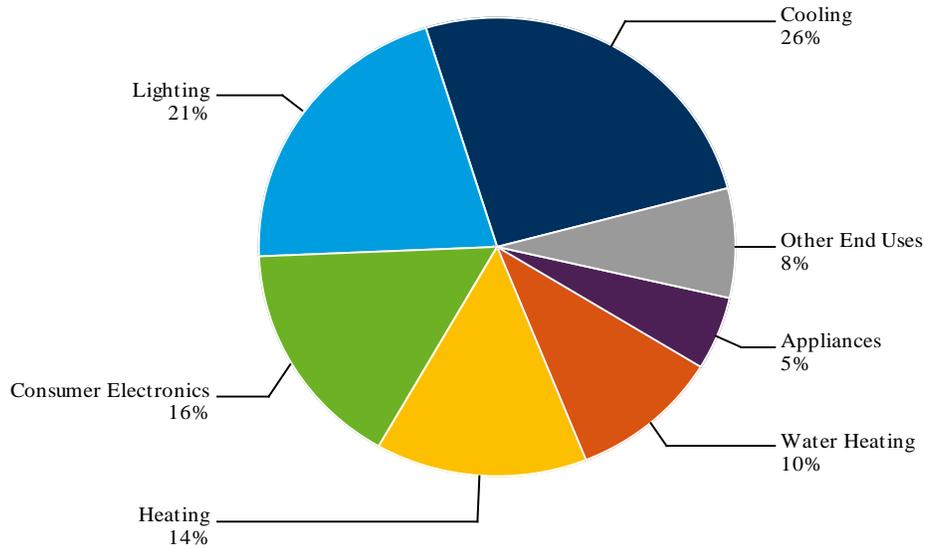
Total: 21 aMW



Note: 'Other End Uses' includes:
 Plug Load: 4%, Ventilation And Circulation: 1%

Figure C.4.44 Achievable Technical Potential - Utah: Residential Manufactured by End Use

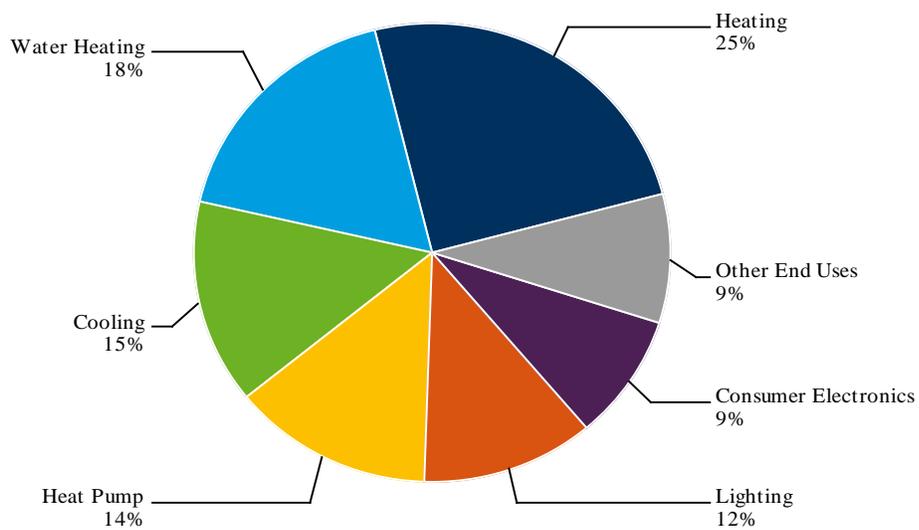
Total: 7 aMW



Note: 'Other End Uses' includes:
Plug Load: 5%, Ventilation And Circulation: 3%

Figure C.4.45 Achievable Technical Potential - Washington: Residential Single Family by End Use

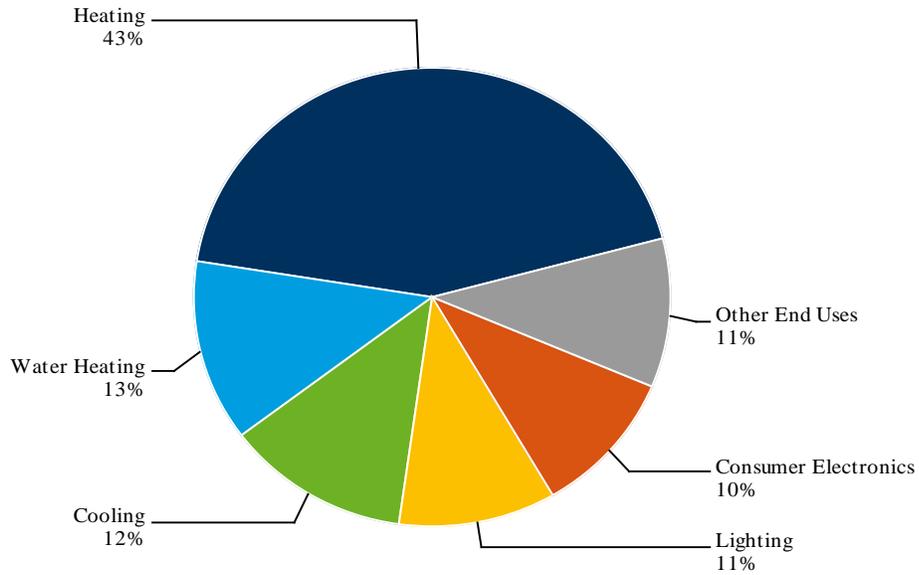
Total: 55 aMW



Note: 'Other End Uses' includes:
Appliances: 4%, Plug Load: 3%, Ventilation And Circulation: 2%, Pool Pump: <1%

Figure C.4.46 Achievable Technical Potential - Washington: Residential Multifamily by End Use

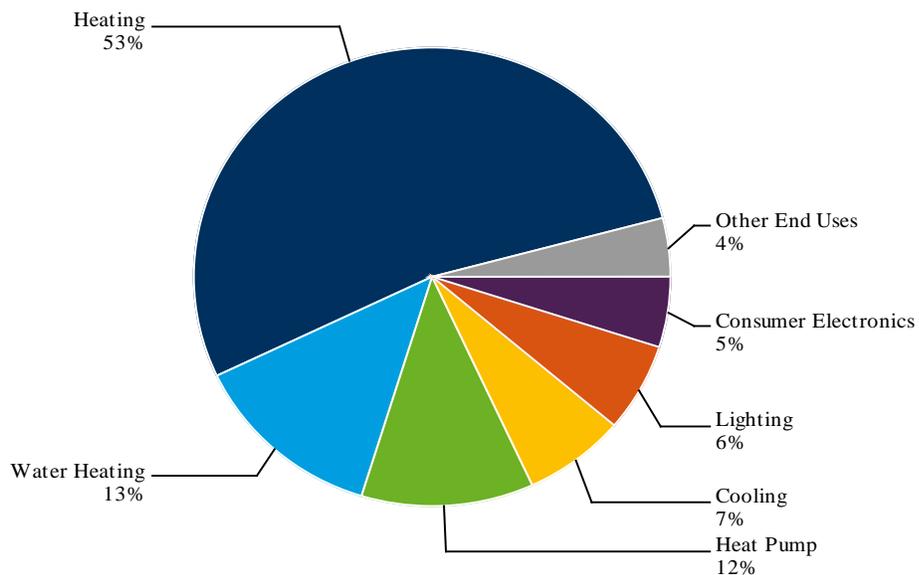
Total: 5 aMW



Note: 'Other End Uses' includes:
Appliances: 4%, Heat Pump: 3%, Plug Load: 3%, Ventilation And Circulation: <1%

Figure C.4.47 Achievable Technical Potential - Washington: Residential Manufactured by End Use

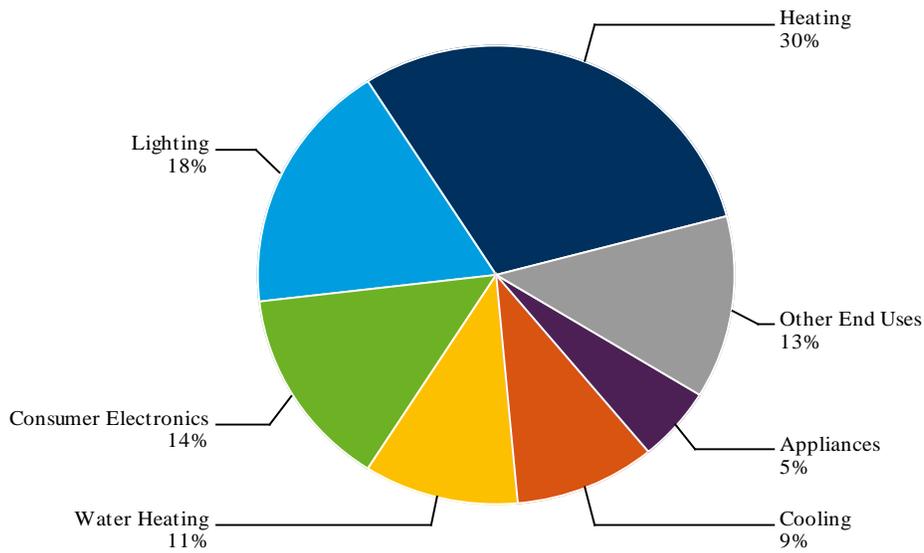
Total: 8 aMW



Note: 'Other End Uses' includes:
Appliances: 2%, Plug Load: 1%, Ventilation And Circulation: <1%

Figure C.4.48 Achievable Technical Potential - Wyoming: Residential Single Family by End Use

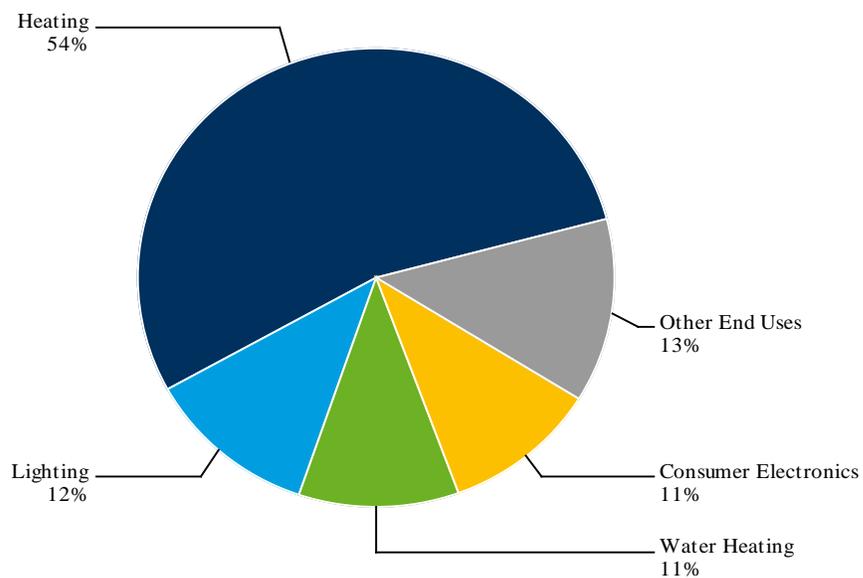
Total: 33 aMW



Note: 'Other End Uses' includes:
Heat Pump: 5%, Plug Load: 4%, Ventilation And Circulation: 4%, Pool Pump: <1%

Figure C.4.49 Achievable Technical Potential - Wyoming: Residential Multifamily by End Use

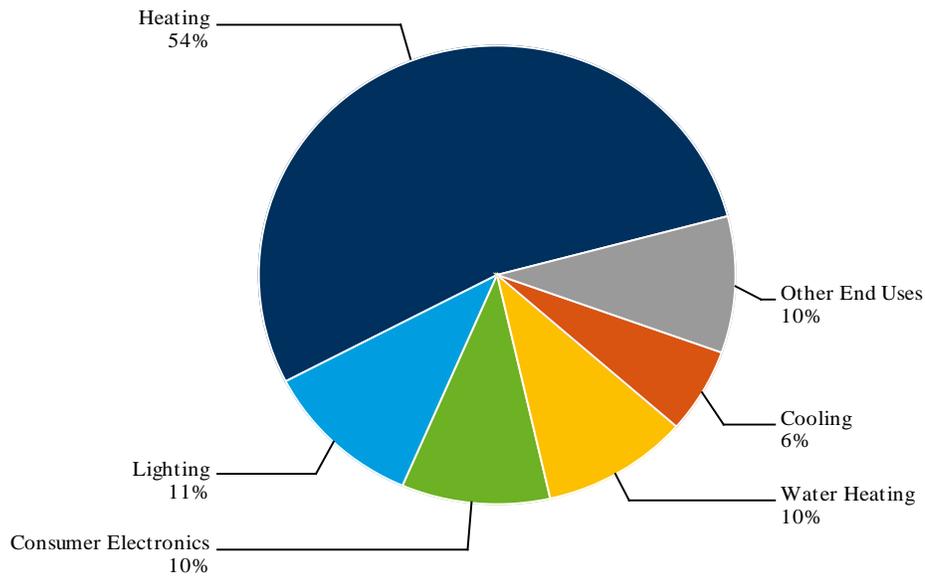
Total: 4 aMW



Note: 'Other End Uses' includes:
Appliances: 5%, Cooling: 4%, Plug Load: 4%, Ventilation And Circulation: <1%

Figure C.4.50 Achievable Technical Potential - Wyoming: Residential Manufactured by End Use

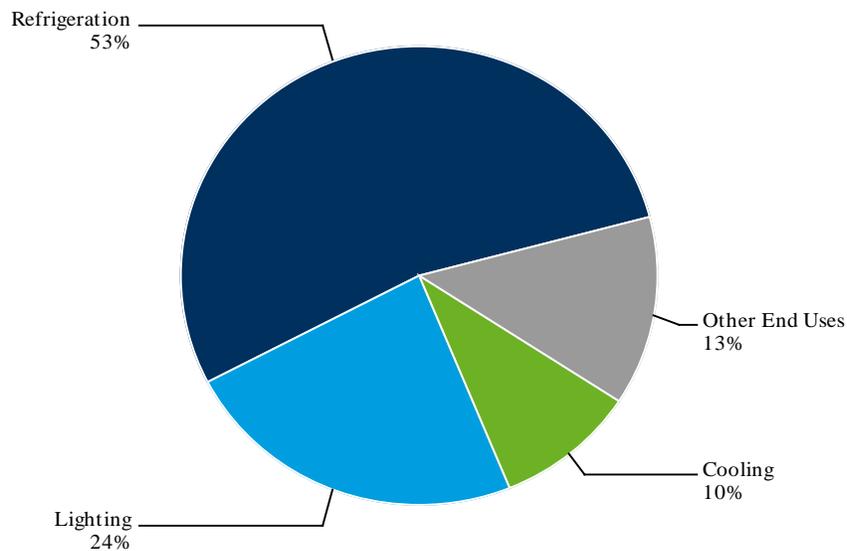
Total: 3 aMW



Note: 'Other End Uses' includes:
Appliances: 4%, Plug Load: 3%, Ventilation And Circulation: 3%

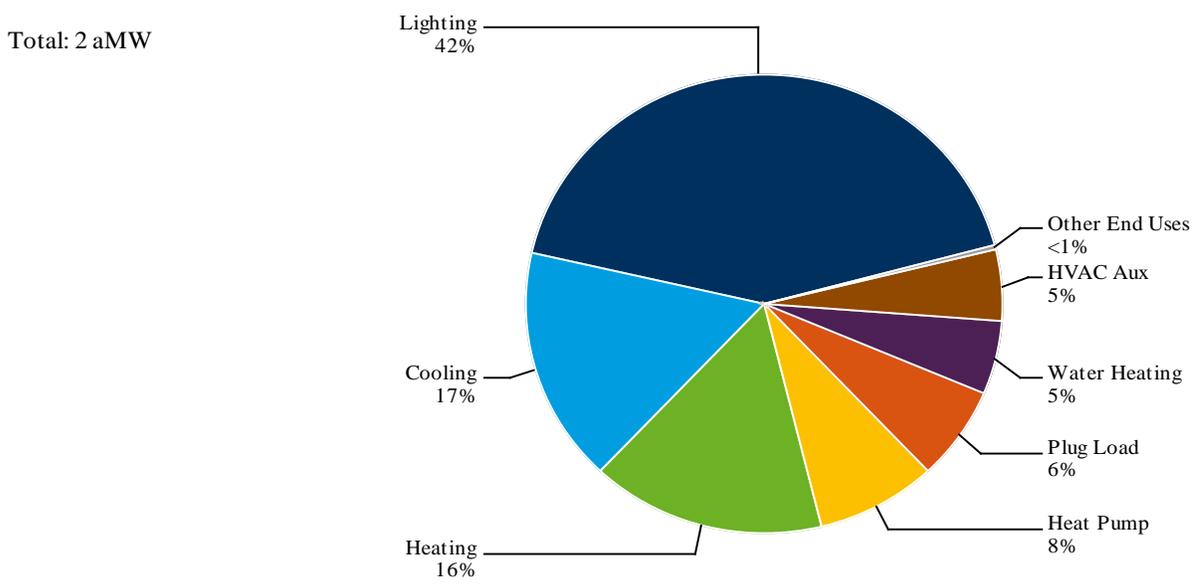
Figure C.4.51 Achievable Technical Potential - California: Commercial Grocery by End Use

Total: 0 aMW



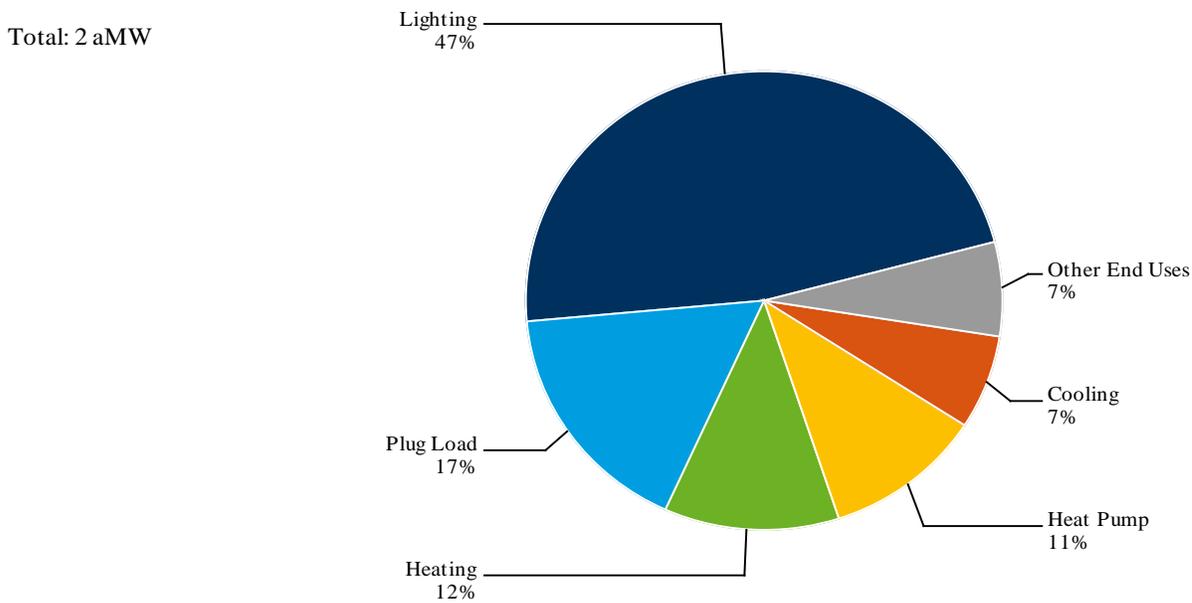
Note: 'Other End Uses' includes:
Heating: 4%, HVAC Aux: 3%, Plug Load: 2%, Heat Pump: 2%, Water Heating: 1%, Other Office Equipment: <1%, Cooking: <1%

Figure C.4.52 Achievable Technical Potential - California: Commercial Health by End Use



Note: 'Other End Uses' includes:
 Other Office Equipment: <1%, Refrigeration: <1%, Cooking: <1%

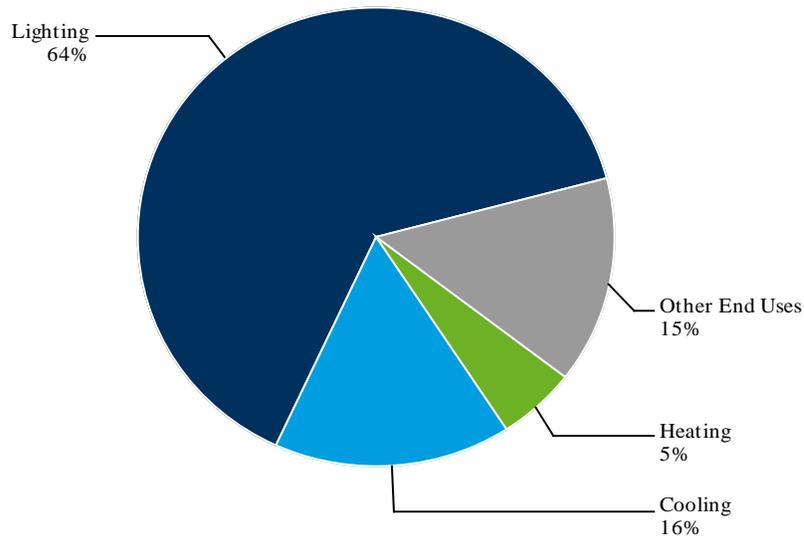
Figure C.4.53 Achievable Technical Potential - California: Commercial Office by End Use



Note: 'Other End Uses' includes:
 Water Heating: 4%, Other Office Equipment: 2%, HVAC Aux: <1%

Figure C.4.54 Achievable Technical Potential - California: Commercial Retail by End Use

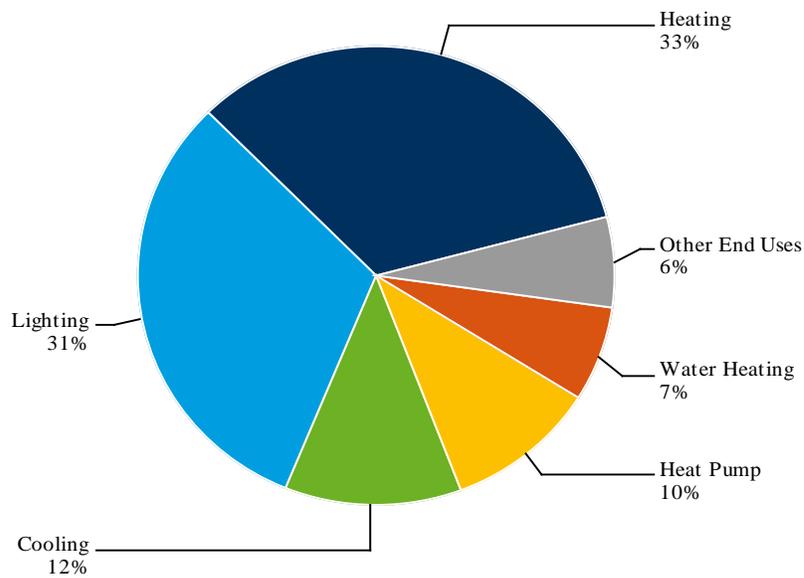
Total: 2 aMW



Note: 'Other End Uses' includes: Plug Load: 5%, Heat Pump: 4%, Water Heating: 4%, Other Office Equipment: 1%, HVAC Aux: 1%

Figure C.4.55 Achievable Technical Potential - California: Commercial Lodging by End Use

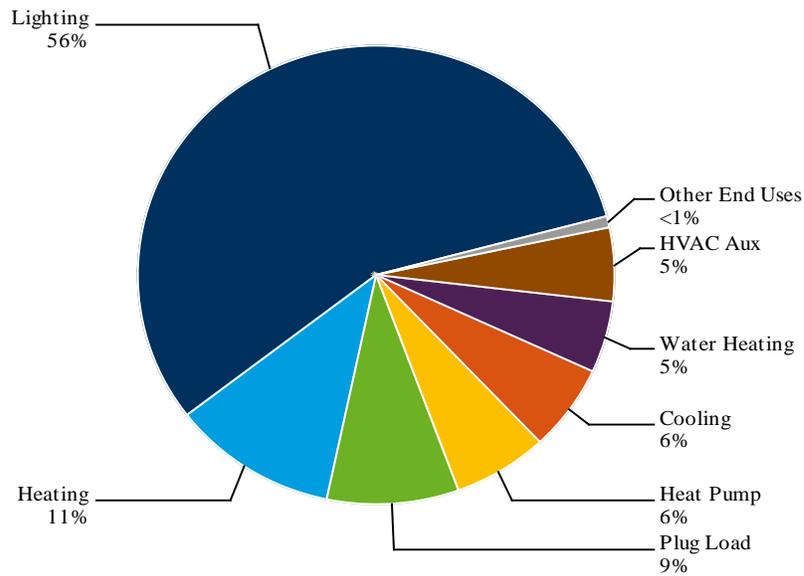
Total: 1 aMW



Note: 'Other End Uses' includes: Plug Load: 4%, HVAC Aux: 2%, Other Office Equipment: <1%, Cooking: <1%

Figure C.4.56 Achievable Technical Potential - California: Commercial Miscellaneous by End Use

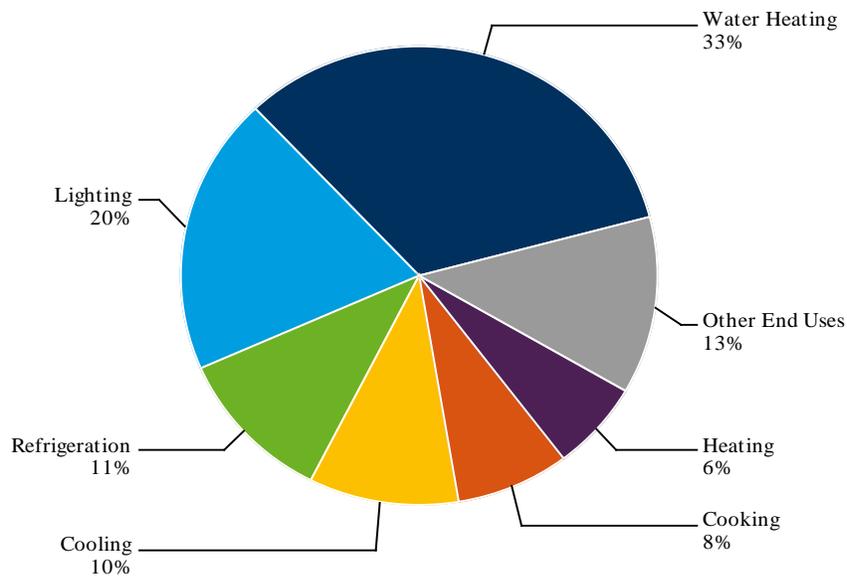
Total: 0 aMW



Note: 'Other End Uses' includes:
Other Office Equipment: <1%, Refrigeration: <1%

Figure C.4.57 Achievable Technical Potential - California: Commercial Restaurant by End Use

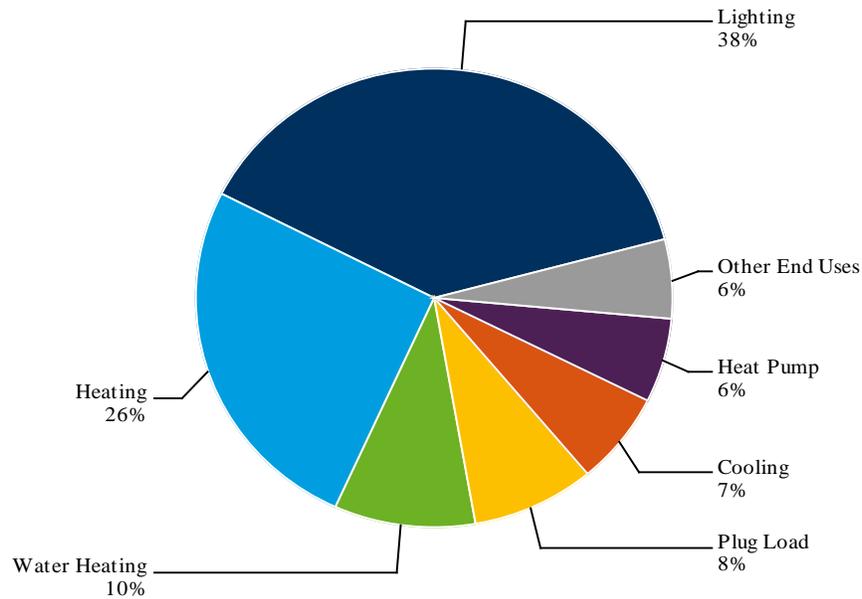
Total: 1 aMW



Note: 'Other End Uses' includes:
HVAC Aux: 4%, Plug Load: 4%, Heat Pump: 3%, Other Office Equipment: <1%

Figure C.4.58 Achievable Technical Potential - California: Commercial School by End Use

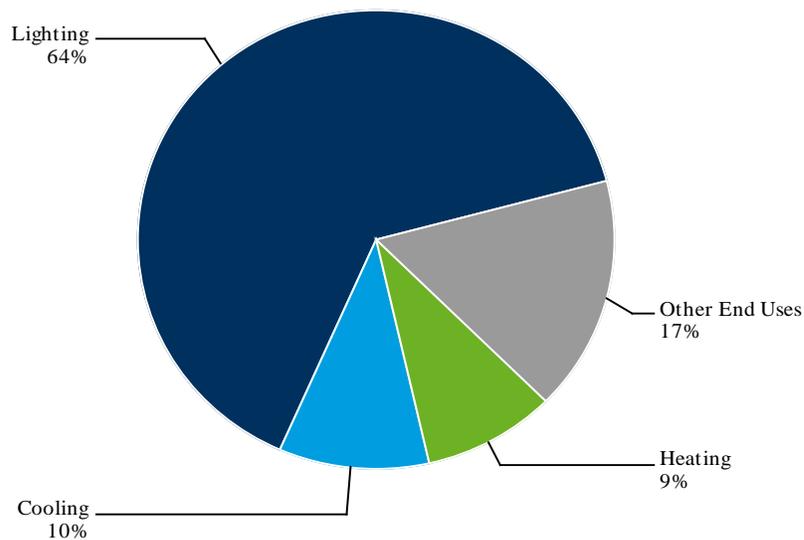
Total: 0 aMW



Note: 'Other End Uses' includes:
 HVAC Aux: 5%, Refrigeration: <1%, Other Office Equipment: <1%, Cooking: <1%

Figure C.4.59 Achievable Technical Potential - California: Commercial Warehouse by End Use

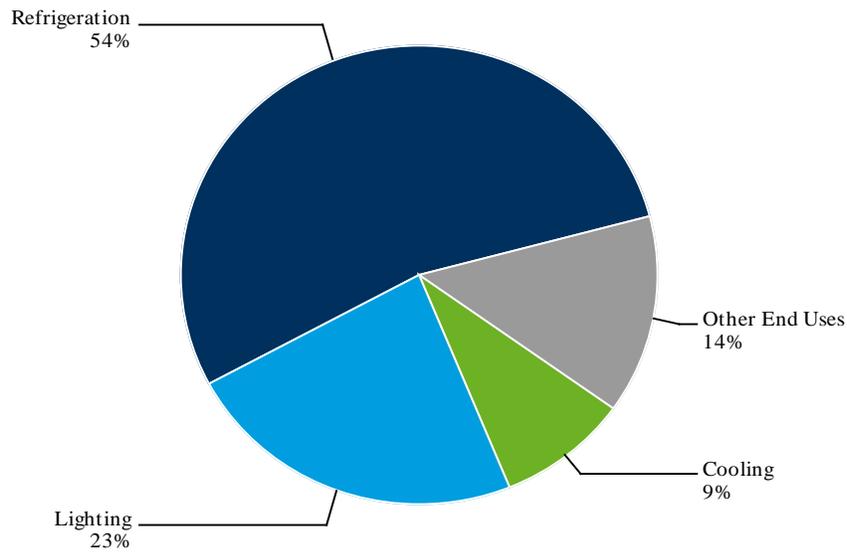
Total: 0 aMW



Note: 'Other End Uses' includes:
 Water Heating: 5%, Heat Pump: 5%, Plug Load: 4%, Refrigeration: 2%, HVAC Aux: <1%, Other Office Equipment: <1%

Figure C.4.60 Achievable Technical Potential - Idaho: Commercial Grocery by End Use

Total: 0 aMW

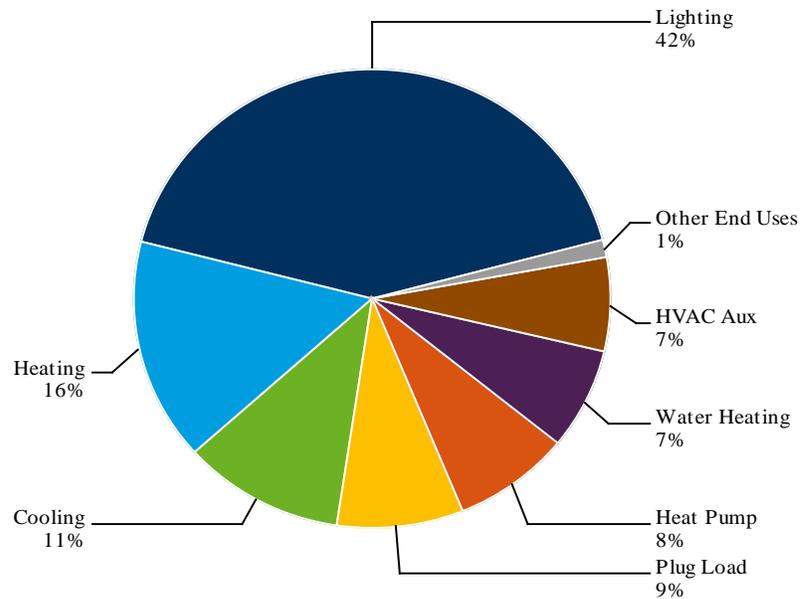


Note: 'Other End Uses' includes:

Heating: 5%, HVAC Aux: 3%, Plug Load: 2%, Heat Pump: 2%, Water Heating: 1%, Other Office Equipment: <1%, Cooking: <1%

Figure C.4.61 Achievable Technical Potential - Idaho: Commercial Health by End Use

Total: 1 aMW

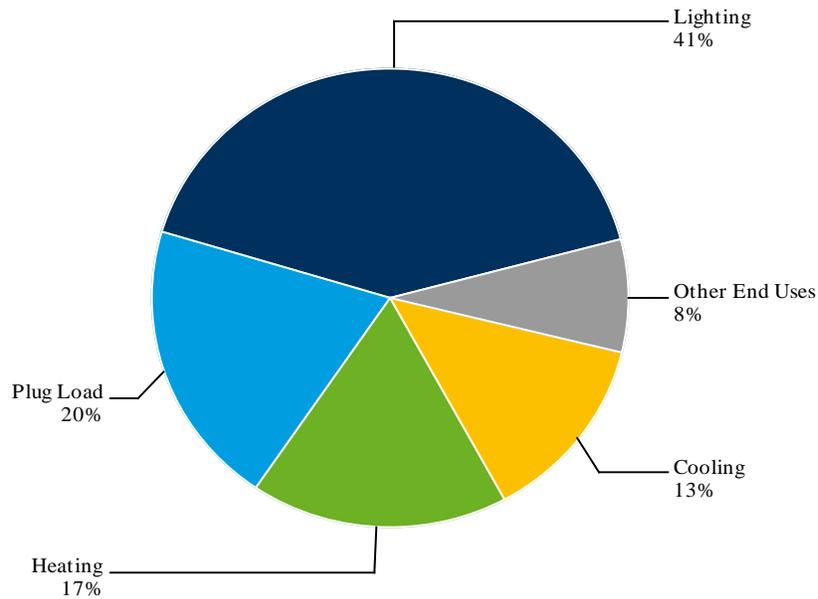


Note: 'Other End Uses' includes:

Other Office Equipment: <1%, Refrigeration: <1%, Cooking: <1%

Figure C.4.62 Achievable Technical Potential - Idaho: Commercial Office by End Use

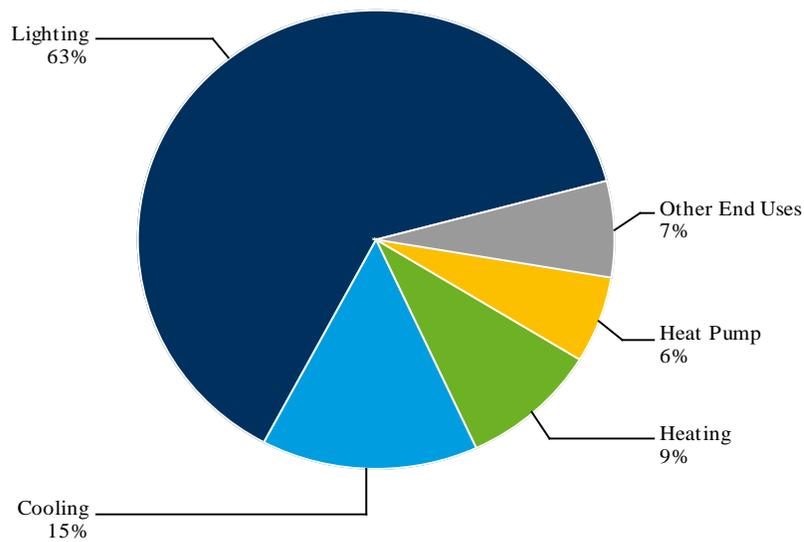
Total: 6 aMW



Note: 'Other End Uses' includes:
 Other Office Equipment: 3%, Heat Pump: 3%, Water Heating: 2%, HVAC Aux: <1%

Figure C.4.63 Achievable Technical Potential - Idaho: Commercial Retail by End Use

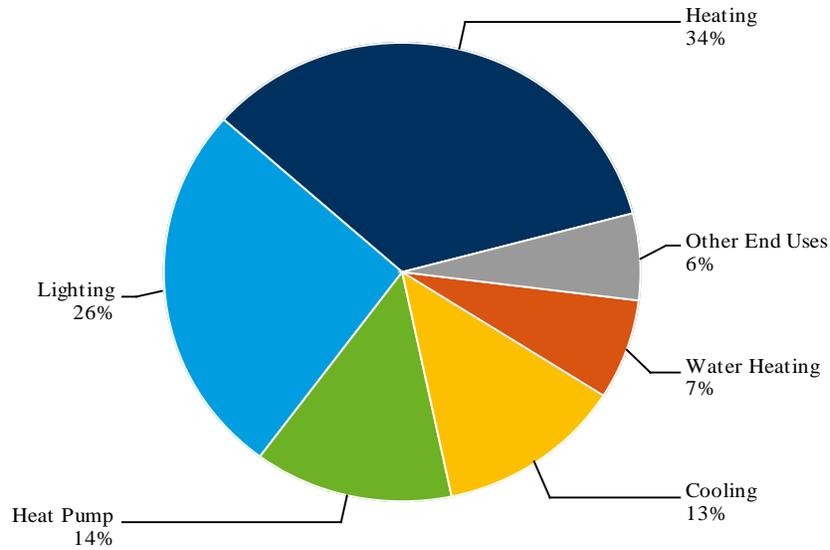
Total: 3 aMW



Note: 'Other End Uses' includes:
 HVAC Aux: 3%, Plug Load: 2%, Water Heating: 2%, Other Office Equipment: <1%

Figure C.4.64 Achievable Technical Potential - Idaho: Commercial Lodging by End Use

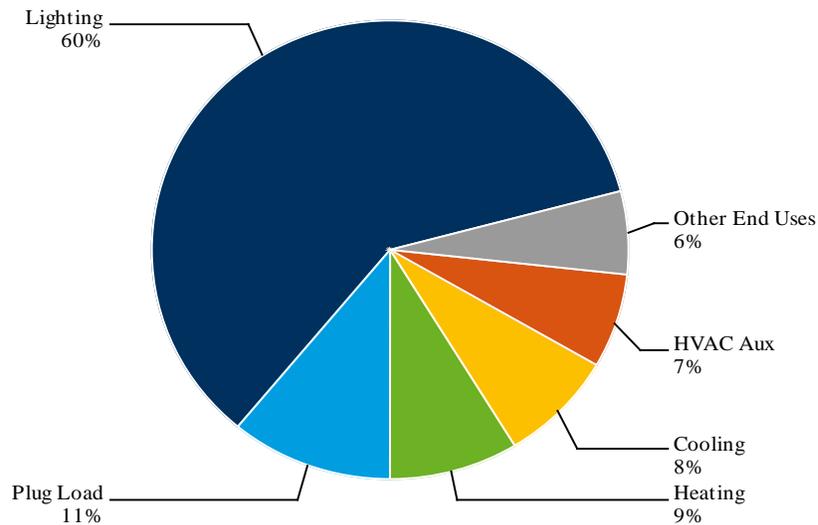
Total: 1 aMW



Note: 'Other End Uses' includes:
 Plug Load: 3%, HVAC Aux: 2%, Other Office Equipment: <1%, Cooking: <1%

Figure C.4.65 Achievable Technical Potential - Idaho: Commercial Miscellaneous by End Use

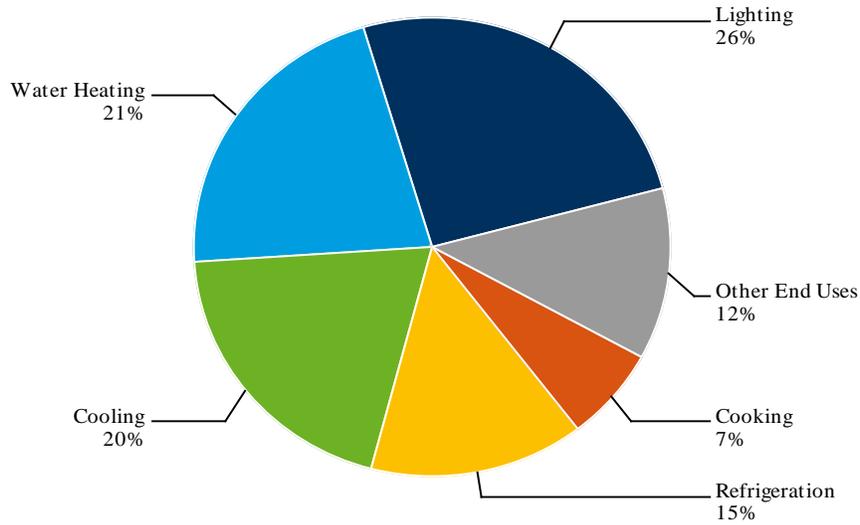
Total: 0 aMW



Note: 'Other End Uses' includes:
 Water Heating: 4%, Other Office Equipment: <1%, Heat Pump: <1%, Refrigeration: <1%

Figure C.4.66 Achievable Technical Potential - Idaho: Commercial Restaurant by End Use

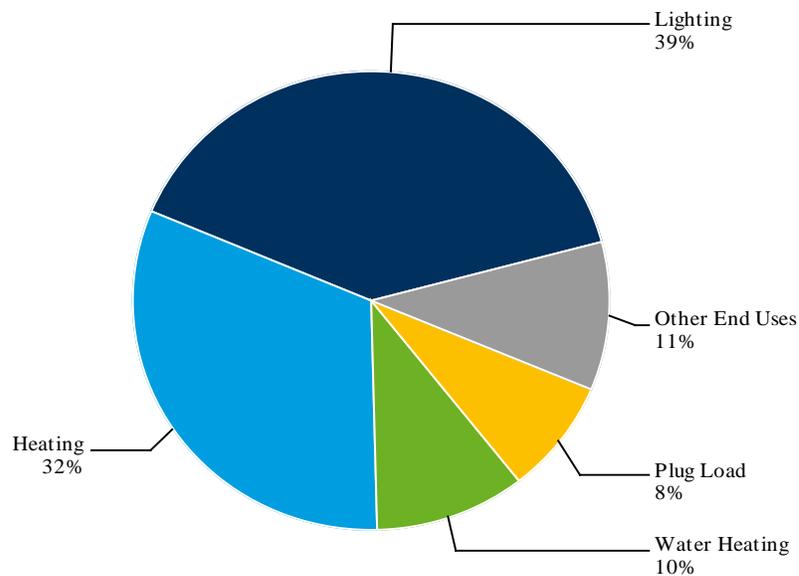
Total: 0 aMW



Note: 'Other End Uses' includes:
 Plug Load: 5%, HVAC Aux: 4%, Heating: 2%, Other Office Equipment: <1%

Figure C.4.67 Achievable Technical Potential - Idaho: Commercial School by End Use

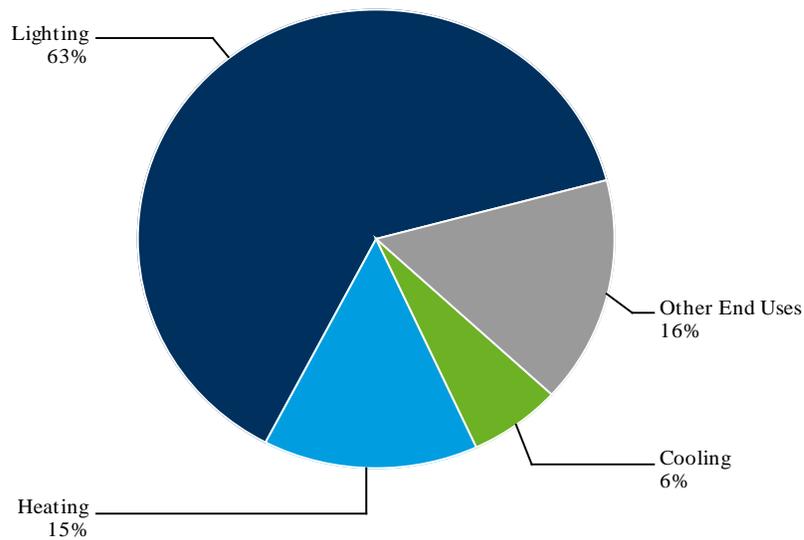
Total: 0 aMW



Note: 'Other End Uses' includes:
 HVAC Aux: 5%, Cooling: 3%, Heat Pump: 2%, Other Office Equipment: <1%, Refrigeration: <1%, Cooking: <1%

Figure C.4.68 Achievable Technical Potential - Idaho: Commercial Warehouse by End Use

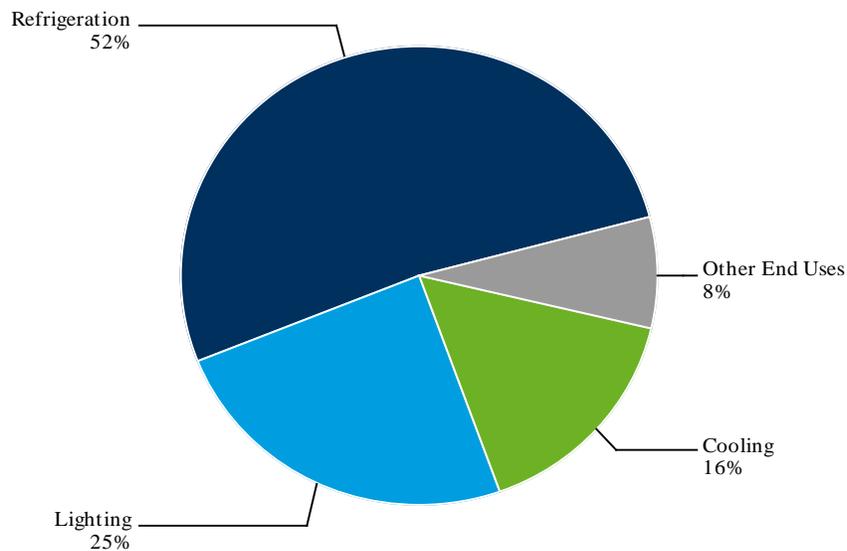
Total: 2 aMW



Note: 'Other End Uses' includes:
 Water Heating: 5%, Heat Pump: 4%, Plug Load: 4%, Refrigeration: 2%, HVAC Aux: <1%, Other Office Equipment: <1%

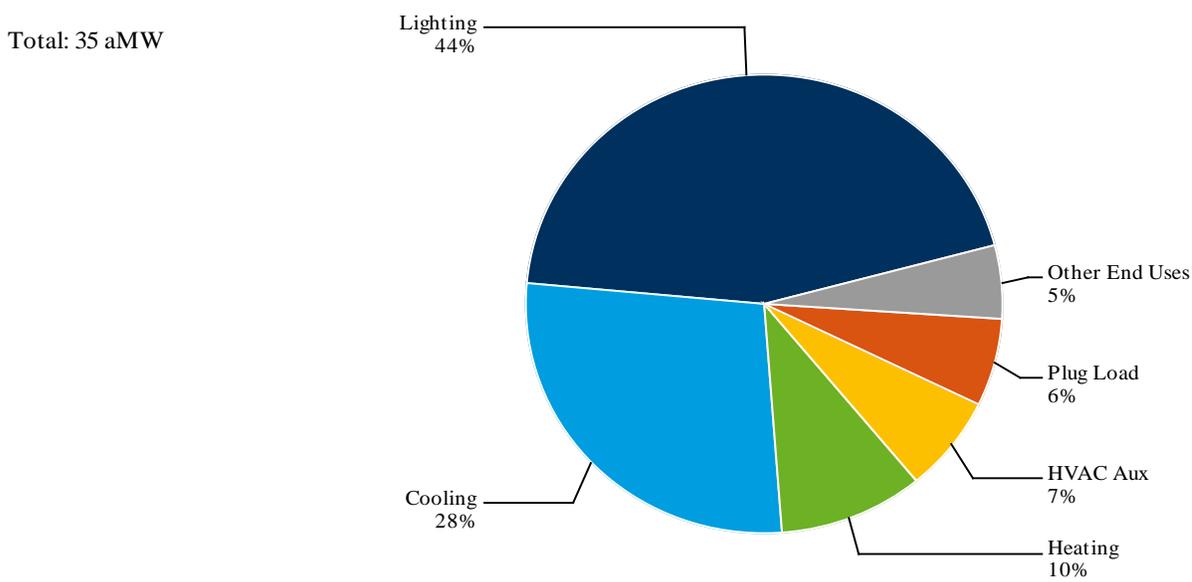
Figure C.4.69 Achievable Technical Potential - Utah: Commercial Grocery by End Use

Total: 24 aMW



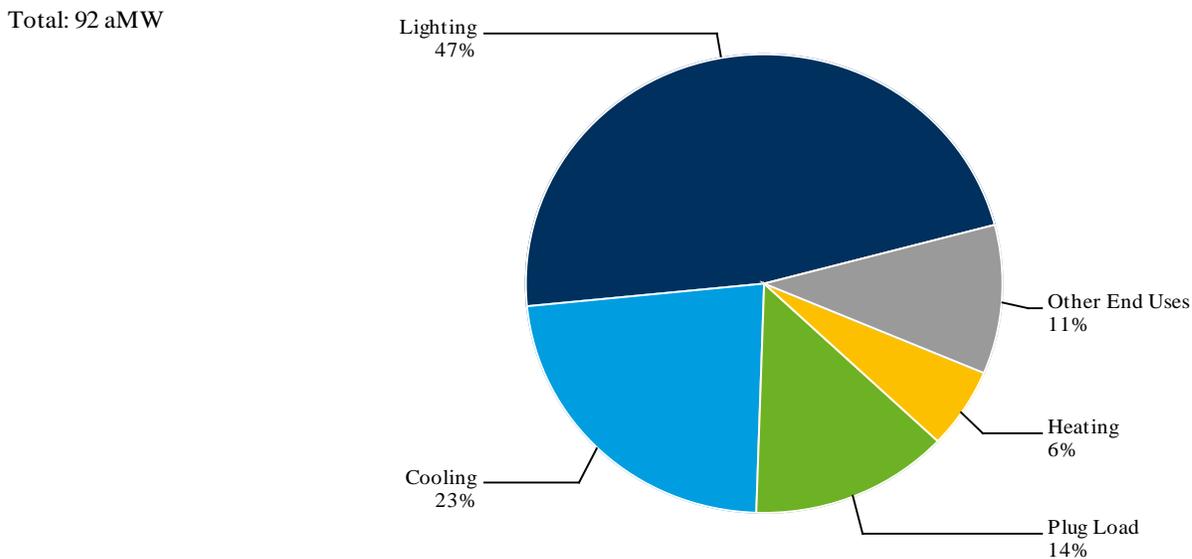
Note: 'Other End Uses' includes:
 Heating: 3%, Heat Pump: 2%, HVAC Aux: 2%, Plug Load: 1%, Water Heating: <1%, Other Office Equipment: <1%, Cooking: <1%

Figure C.4.70 Achievable Technical Potential - Utah: Commercial Health by End Use



Note: 'Other End Uses' includes:
 Heat Pump: 2%, Water Heating: 2%, Other Office Equipment: <1%, Refrigeration: <1%, Cooking: <1%

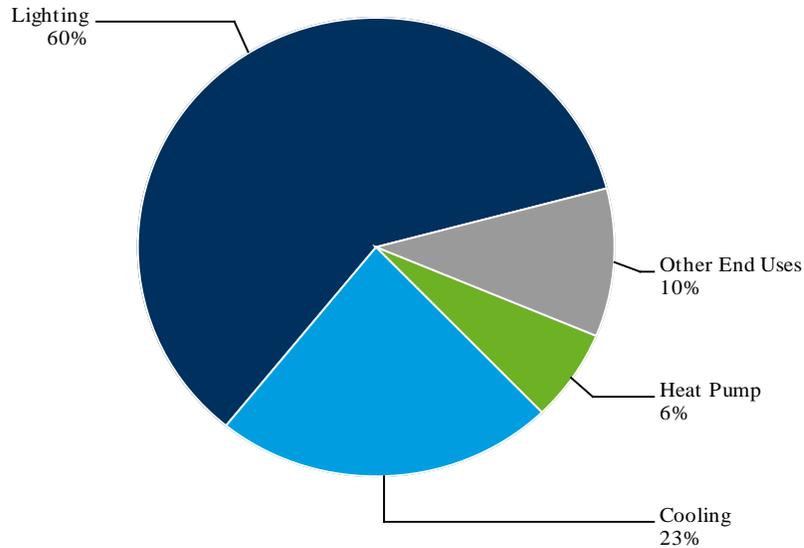
Figure C.4.71 Achievable Technical Potential - Utah: Commercial Office by End Use



Note: 'Other End Uses' includes:
 Heat Pump: 5%, HVAC Aux: 4%, Water Heating: 2%, Other Office Equipment: <1%

Figure C.4.72 Achievable Technical Potential - Utah: Commercial Retail by End Use

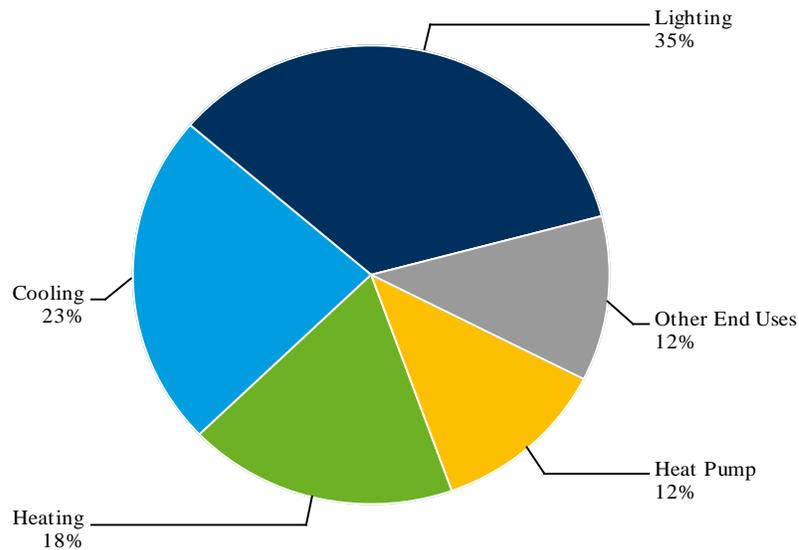
Total: 31 aMW



Note: 'Other End Uses' includes:
 Heating: 4%, HVAC Aux: 3%, Plug Load: 2%, Water Heating: 1%, Other Office Equipment: <1%

Figure C.4.73 Achievable Technical Potential - Utah: Commercial Lodging by End Use

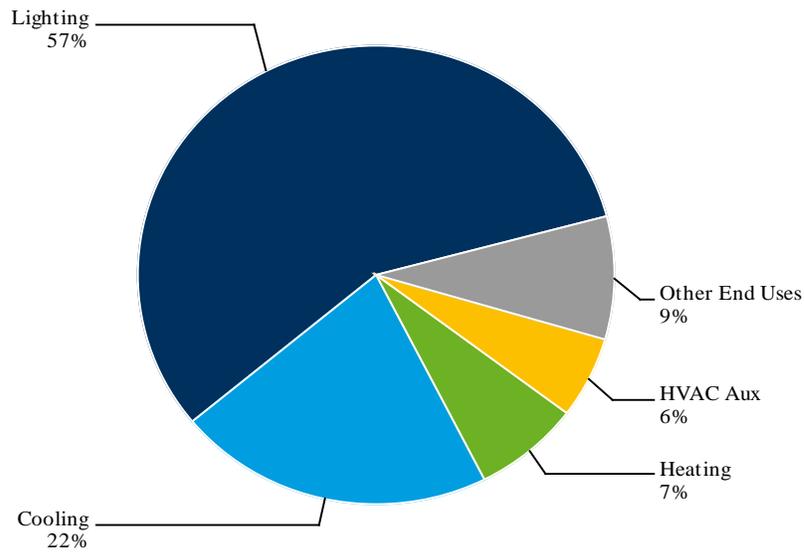
Total: 21 aMW



Note: 'Other End Uses' includes:
 Water Heating: 4%, Plug Load: 4%, HVAC Aux: 3%, Other Office Equipment: <1%, Cooking: <1%

Figure C.4.74 Achievable Technical Potential - Utah: Commercial Miscellaneous by End Use

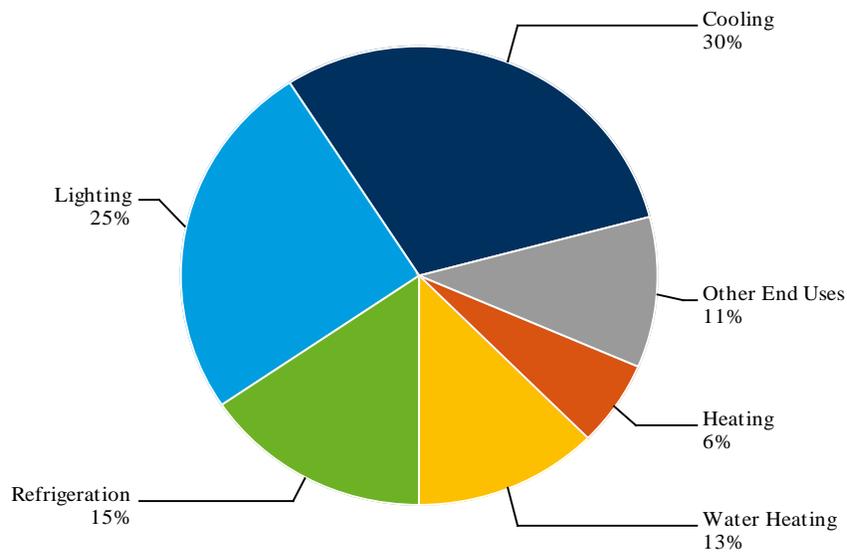
Total: 20 aMW



Note: 'Other End Uses' includes:
 Plug Load: 5%, Heat Pump: 2%, Water Heating: 1%, Other Office Equipment: <1%, Refrigeration: <1%

Figure C.4.75 Achievable Technical Potential - Utah: Commercial Restaurant by End Use

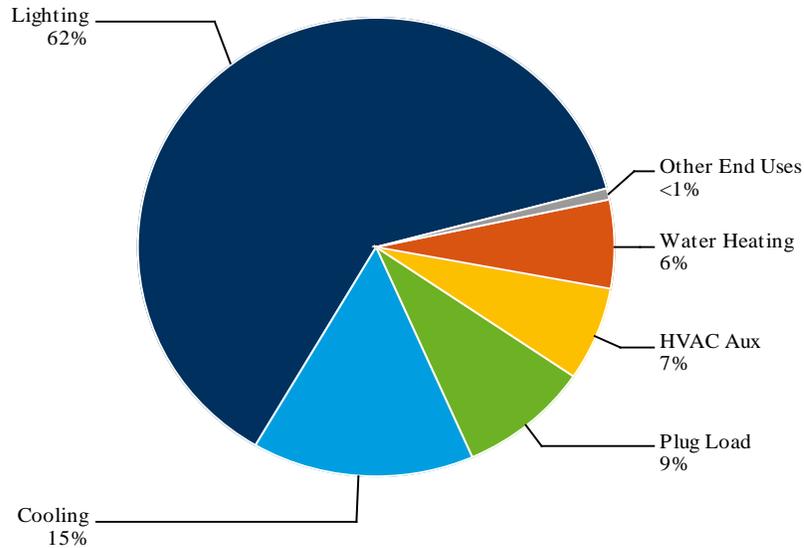
Total: 6 aMW



Note: 'Other End Uses' includes:
 Plug Load: 5%, HVAC Aux: 4%, Cooking: 2%, Other Office Equipment: <1%

Figure C.4.76 Achievable Technical Potential - Utah: Commercial School by End Use

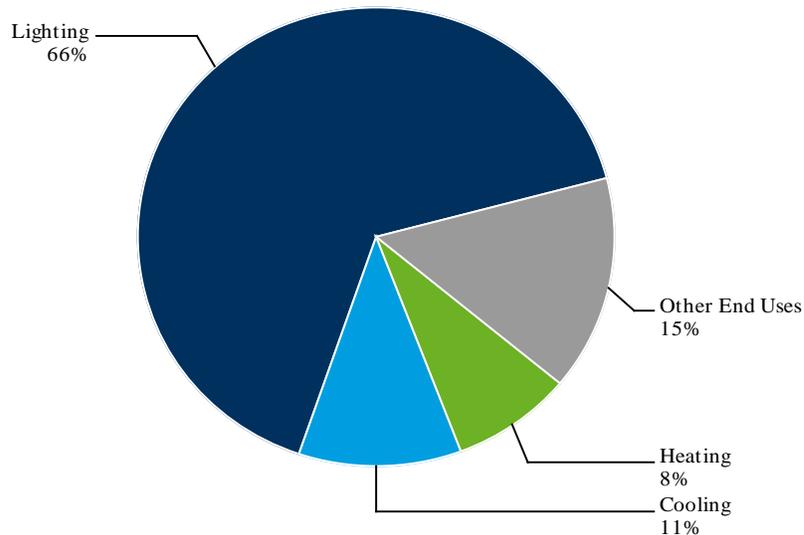
Total: 25 aMW



Note: 'Other End Uses' includes:
Refrigeration: <1%, Other Office Equipment: <1%, Cooking: <1%

Figure C.4.77 Achievable Technical Potential - Utah: Commercial Warehouse by End Use

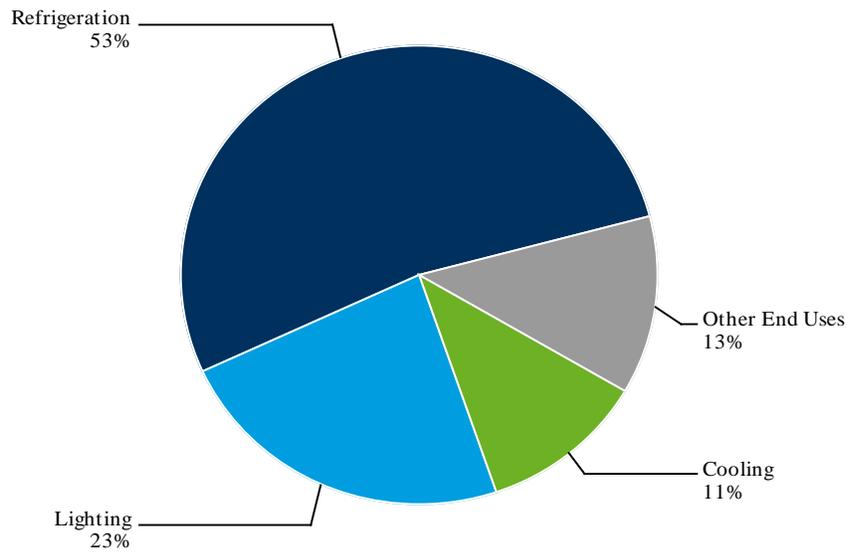
Total: 6 aMW



Note: 'Other End Uses' includes:
Water Heating: 4%, Plug Load: 4%, Heat Pump: 4%, Refrigeration: 2%, HVAC Aux: <1%, Other Office Equipment: <1%

Figure C.4.78 Achievable Technical Potential - Washington: Commercial Grocery by End Use

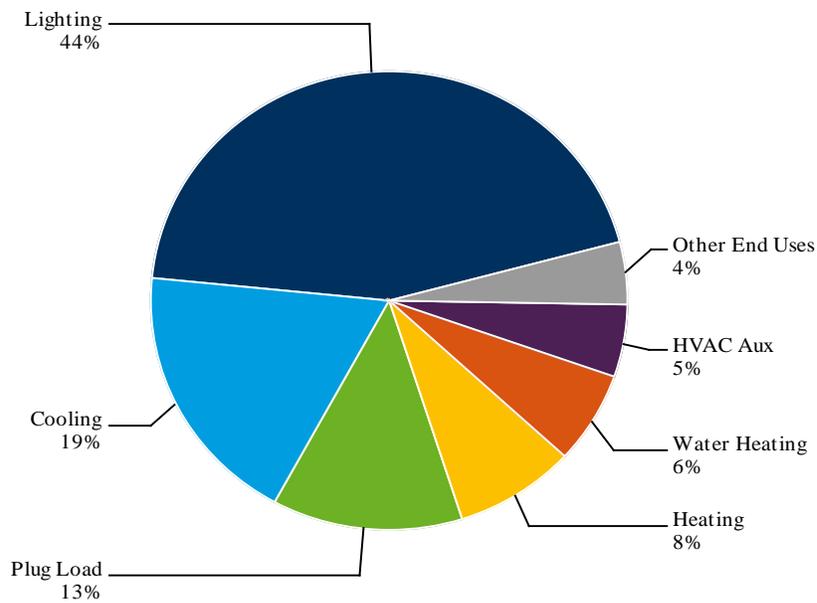
Total: 5 aMW



Note: 'Other End Uses' includes: Heating: 4%, HVAC Aux: 3%, Plug Load: 2%, Heat Pump: 2%, Water Heating: <1%, Other Office Equipment: <1%, Cooking: <1%

Figure C.4.79 Achievable Technical Potential - Washington: Commercial Health by End Use

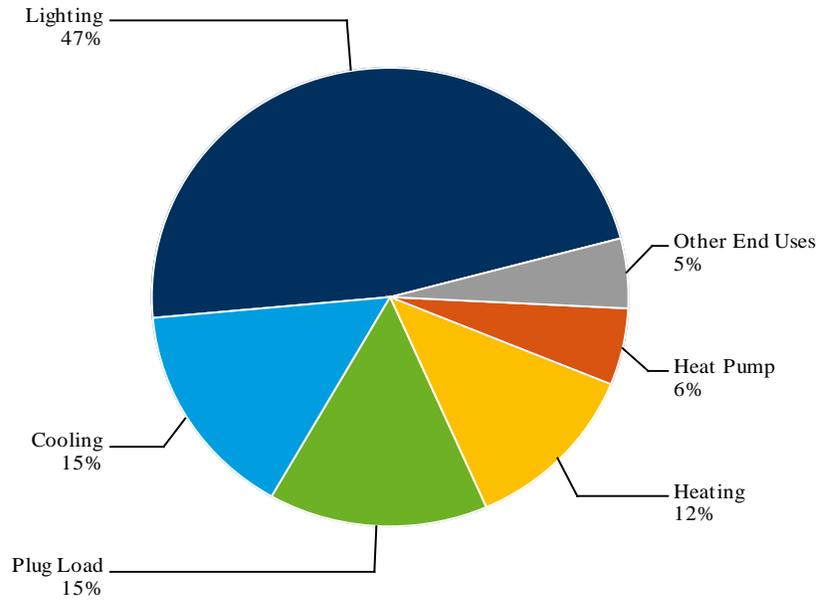
Total: 5 aMW



Note: 'Other End Uses' includes: Heat Pump: 3%, Other Office Equipment: 1%, Refrigeration: <1%, Cooking: <1%

Figure C.4.80 Achievable Technical Potential - Washington: Commercial Office by End Use

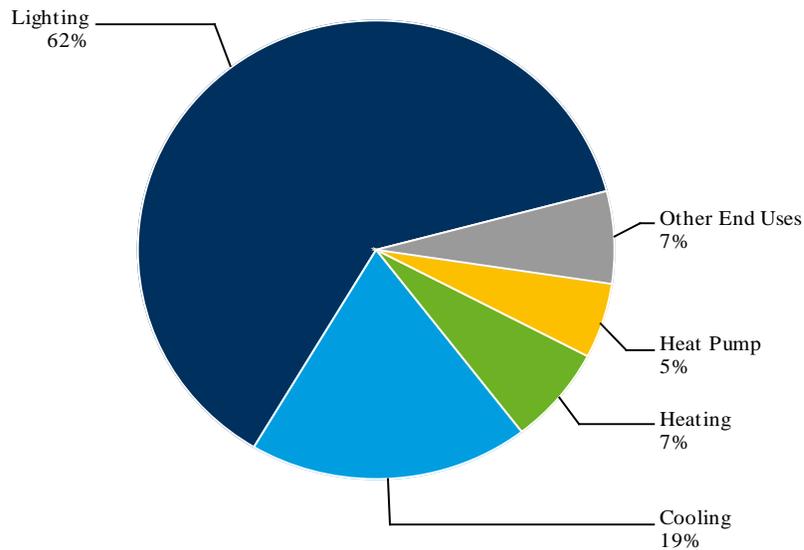
Total: 6 aMW



Note: 'Other End Uses' includes:
Water Heating: 2%, HVAC Aux: 2%, Other Office Equipment: 1%

Figure C.4.81 Achievable Technical Potential - Washington: Commercial Retail by End Use

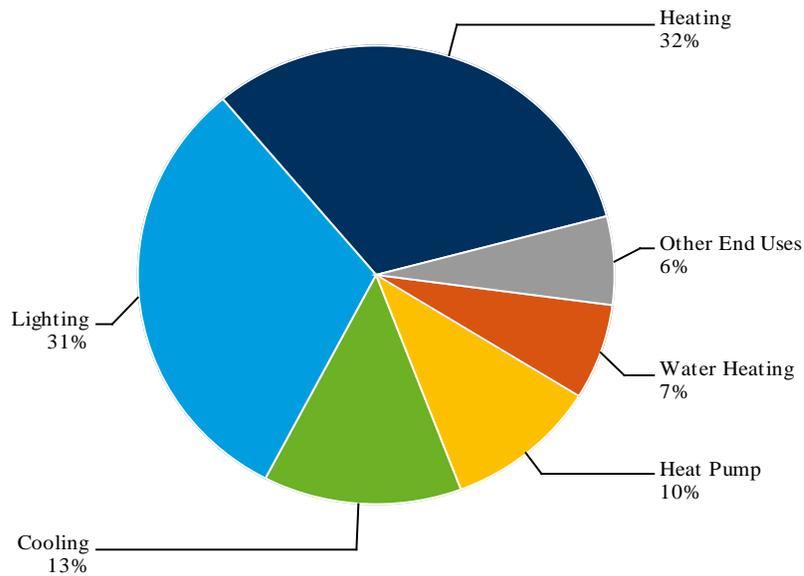
Total: 6 aMW



Note: 'Other End Uses' includes:
HVAC Aux: 3%, Plug Load: 2%, Water Heating: 2%, Other Office Equipment: <1%

Figure C.4.82 Achievable Technical Potential - Washington: Commercial Lodging by End Use

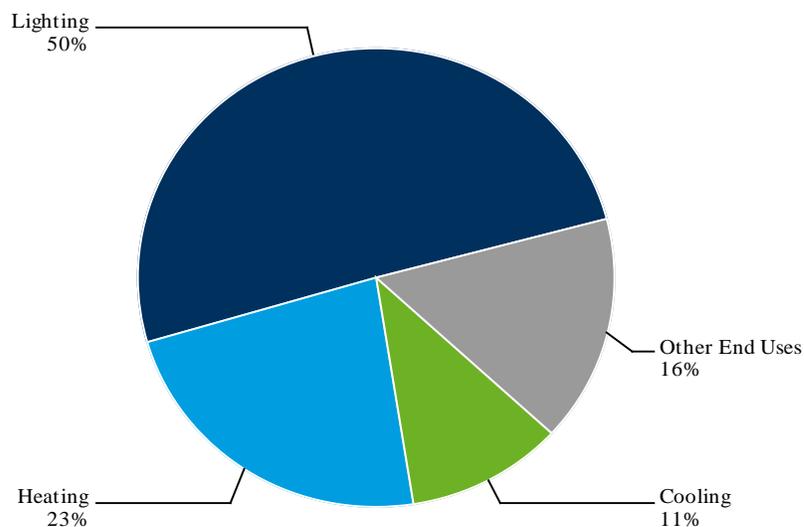
Total: 5 aMW



Note: 'Other End Uses' includes: Plug Load: 3%, HVAC Aux: 2%, Other Office Equipment: <1%, Cooking: <1%

Figure C.4.83 Achievable Technical Potential - Washington: Commercial Miscellaneous by End Use

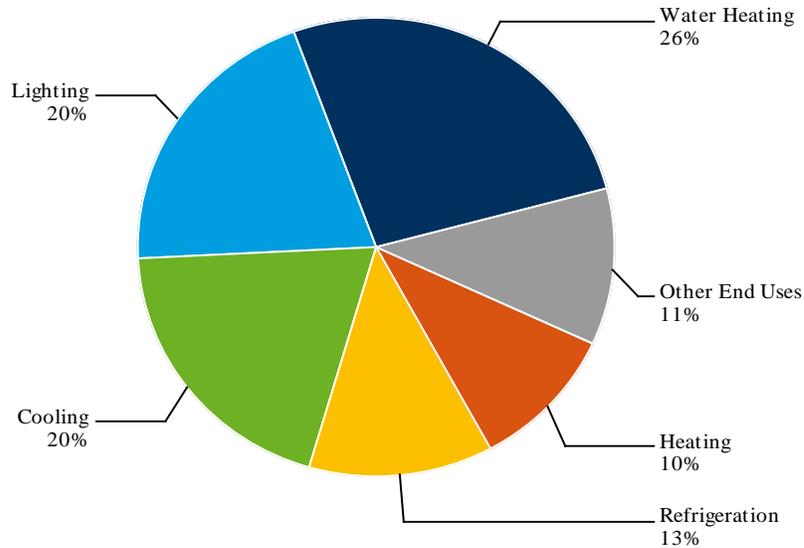
Total: 2 aMW



Note: 'Other End Uses' includes: Plug Load: 5%, Water Heating: 4%, Heat Pump: 3%, HVAC Aux: 3%, Other Office Equipment: <1%, Refrigeration: <1%

Figure C.4.84 Achievable Technical Potential - Washington: Commercial Restaurant by End Use

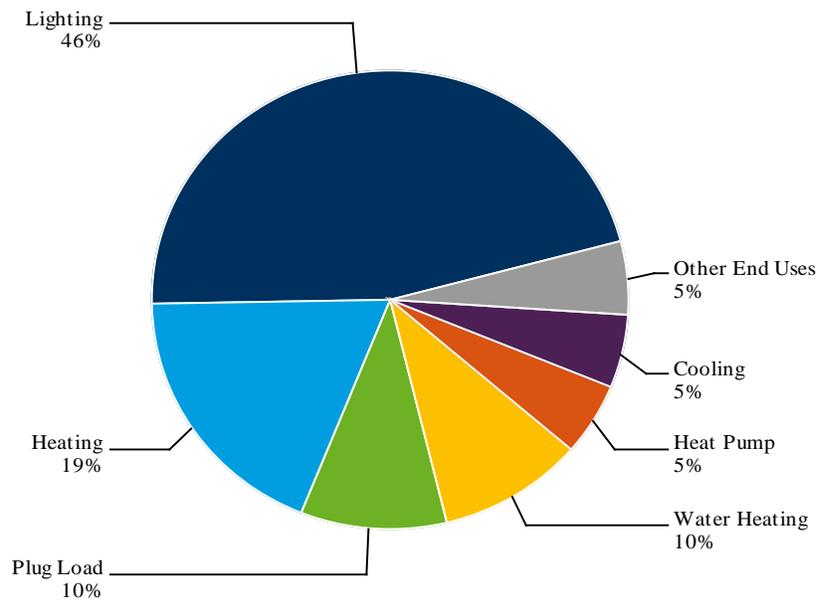
Total: 1 aMW



Note: 'Other End Uses' includes:
 Plug Load: 4%, HVAC Aux: 3%, Cooking: 3%, Heat Pump: 1%, Other Office Equipment: <1%

Figure C.4.85 Achievable Technical Potential - Washington: Commercial School by End Use

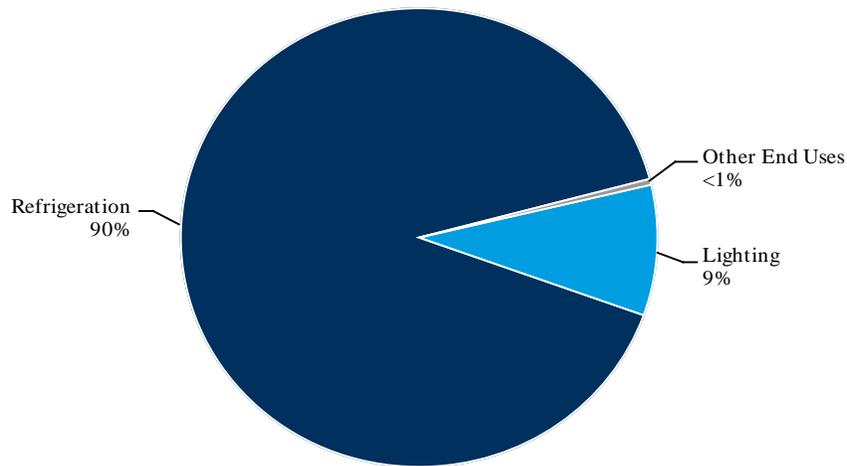
Total: 1 aMW



Note: 'Other End Uses' includes:
 HVAC Aux: 4%, Refrigeration: <1%, Other Office Equipment: <1%, Cooking: <1%

Figure C.4.86 Achievable Technical Potential - Washington: Commercial Warehouse by End Use

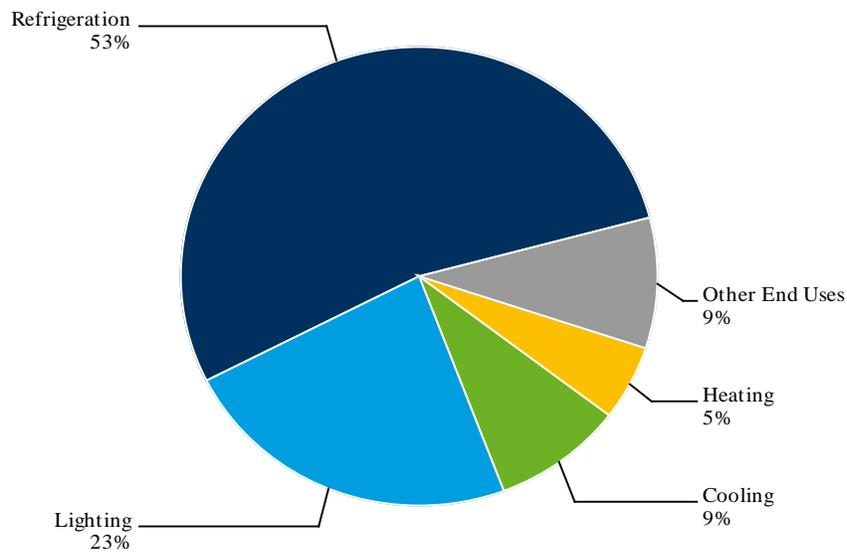
Total: 5 aMW



Note: 'Other End Uses' includes:
 Heating: <1%, Cooling: <1%, Plug Load: <1%, Water Heating: <1%, Heat Pump: <1%, Other Office Equipment: <1%, HVAC Aux: <1%

Figure C.4.87 Achievable Technical Potential - Wyoming: Commercial Grocery by End Use

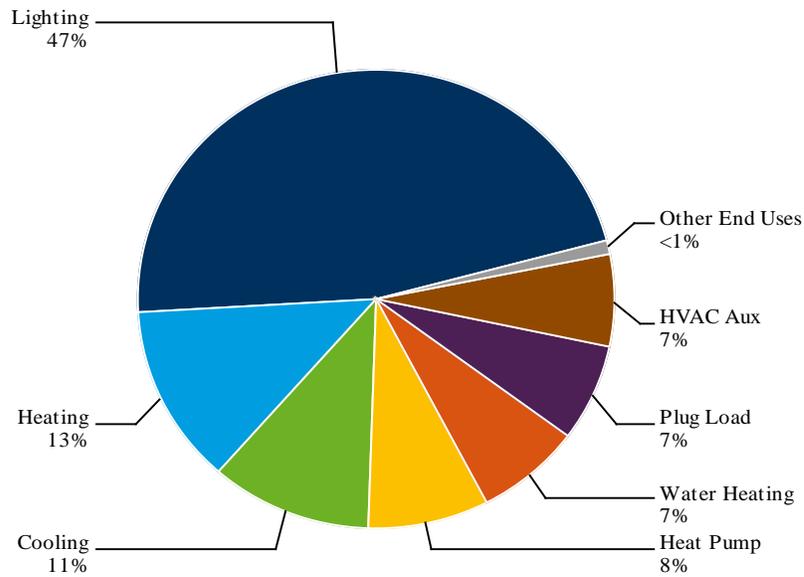
Total: 7 aMW



Note: 'Other End Uses' includes:
 HVAC Aux: 3%, Plug Load: 2%, Heat Pump: 2%, Water Heating: 1%, Other Office Equipment: <1%, Cooking: <1%

Figure C.4.88 Achievable Technical Potential - Wyoming: Commercial Health by End Use

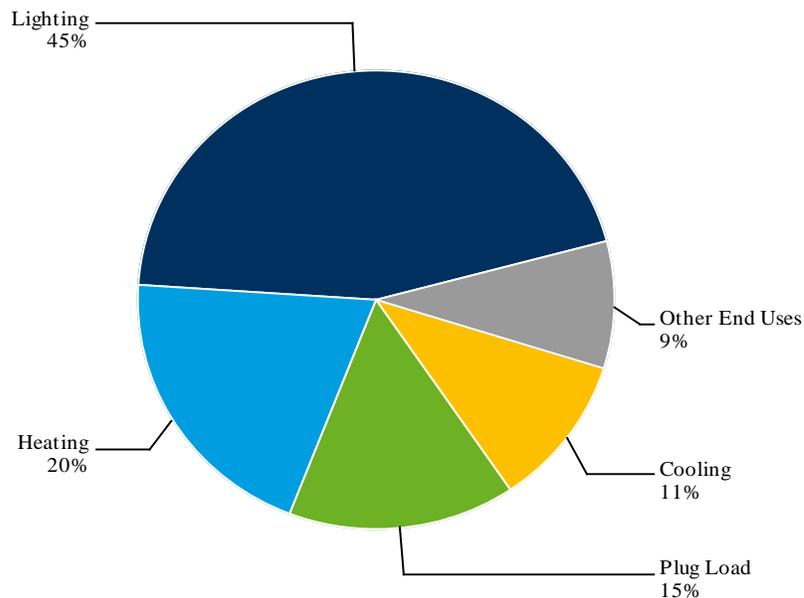
Total: 7 aMW



Note: 'Other End Uses' includes:
 Other Office Equipment: <1%, Refrigeration: <1%, Cooking: <1%

Figure C.4.89 Achievable Technical Potential - Wyoming: Commercial Office by End Use

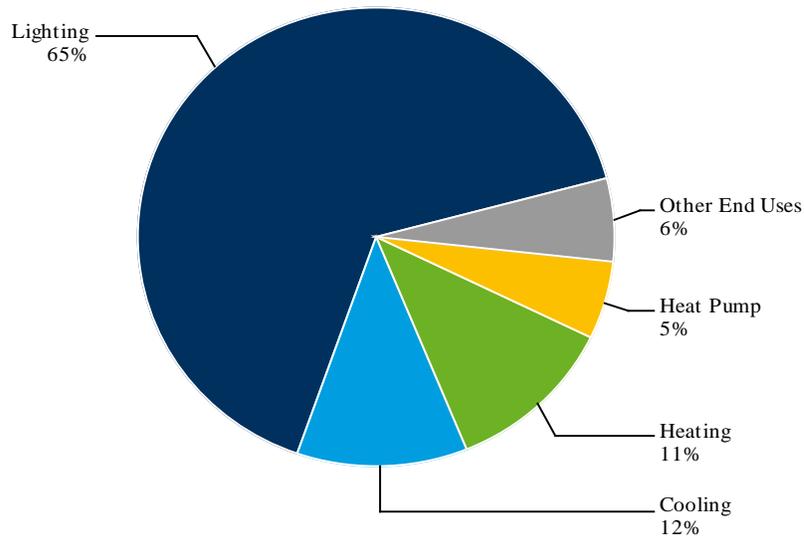
Total: 8 aMW



Note: 'Other End Uses' includes:
 Heat Pump: 4%, Other Office Equipment: 2%, Water Heating: 2%, HVAC Aux: 2%

Figure C.4.90 Achievable Technical Potential - Wyoming: Commercial Retail by End Use

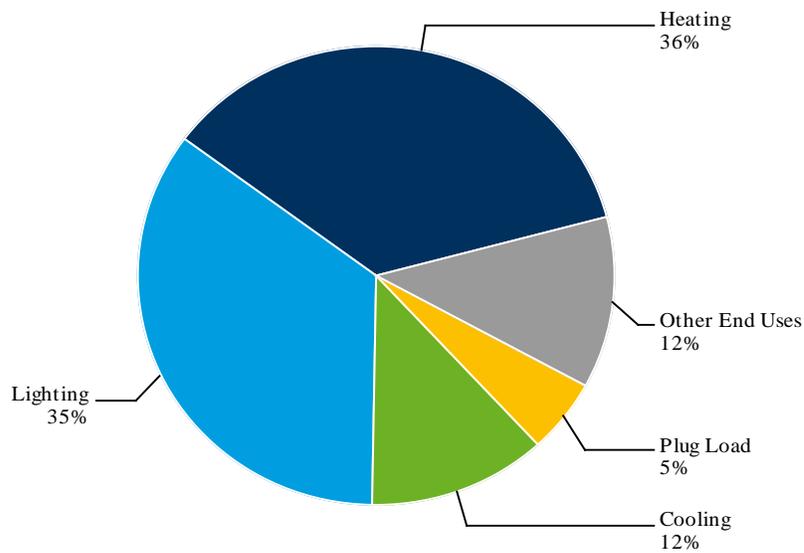
Total: 6 aMW



Note: 'Other End Uses' includes:
 HVAC Aux: 2%, Plug Load: 2%, Water Heating: 1%, Other Office Equipment: <1%

Figure C.4.91 Achievable Technical Potential - Wyoming: Commercial Lodging by End Use

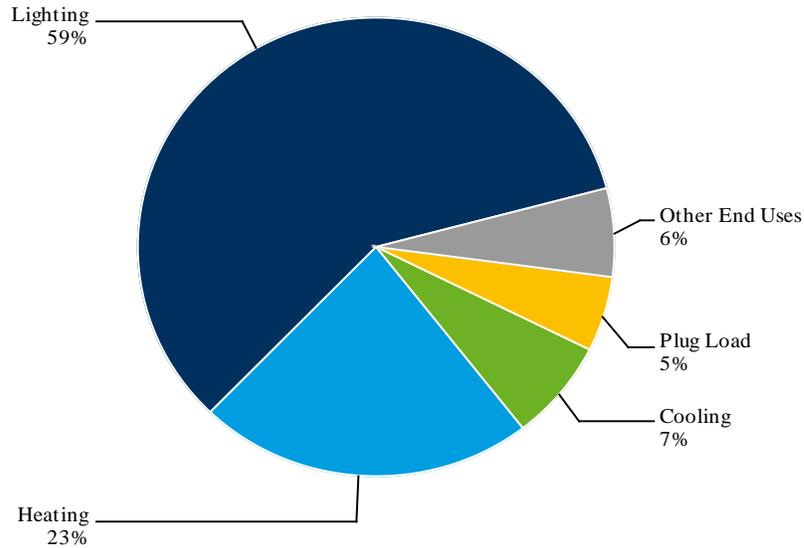
Total: 2 aMW



Note: 'Other End Uses' includes:
 Water Heating: 5%, HVAC Aux: 3%, Heat Pump: 3%, Other Office Equipment: <1%

Figure C.4.92 Achievable Technical Potential - Wyoming: Commercial Miscellaneous by End Use

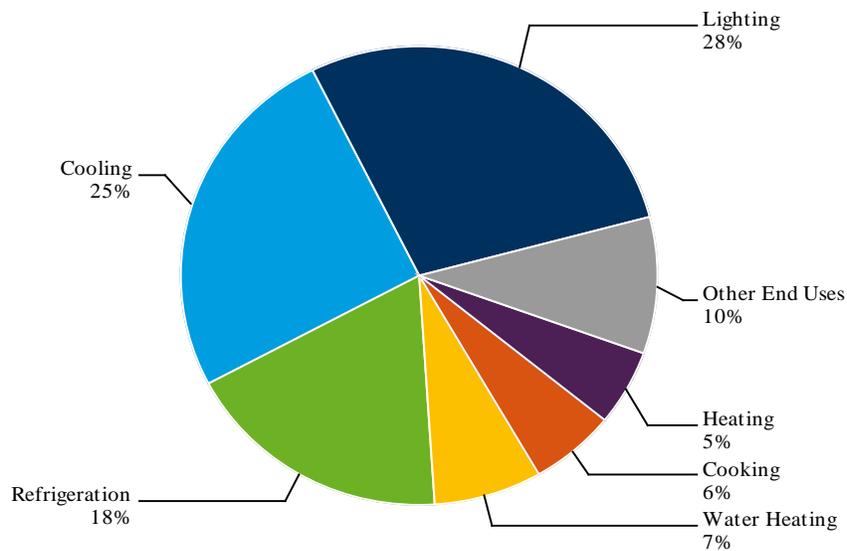
Total: 2 aMW



Note: 'Other End Uses' includes:
 HVAC Aux: 4%, Water Heating: 1%, Other Office Equipment: <1%, Refrigeration: <1%

Figure C.4.93 Achievable Technical Potential - Wyoming: Commercial Restaurant by End Use

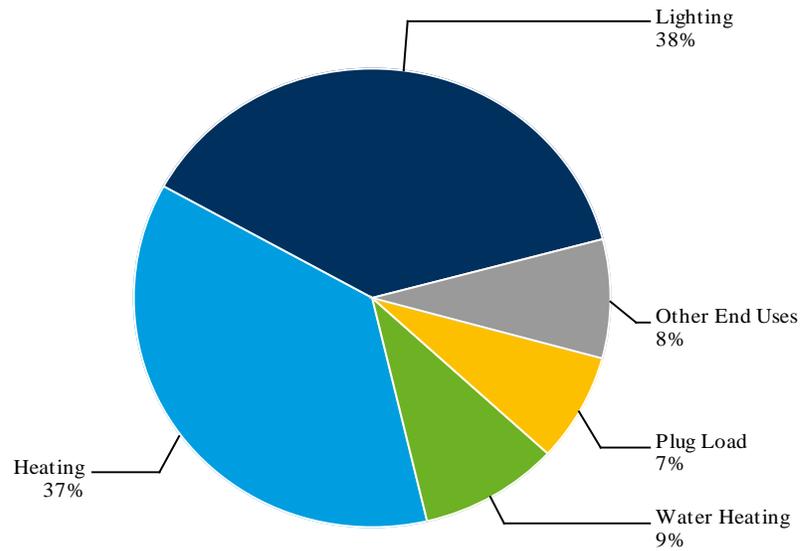
Total: 3 aMW



Note: 'Other End Uses' includes:
 Plug Load: 5%, HVAC Aux: 5%, Other Office Equipment: <1%

Figure C.4.94 Achievable Technical Potential - Wyoming: Commercial School by End Use

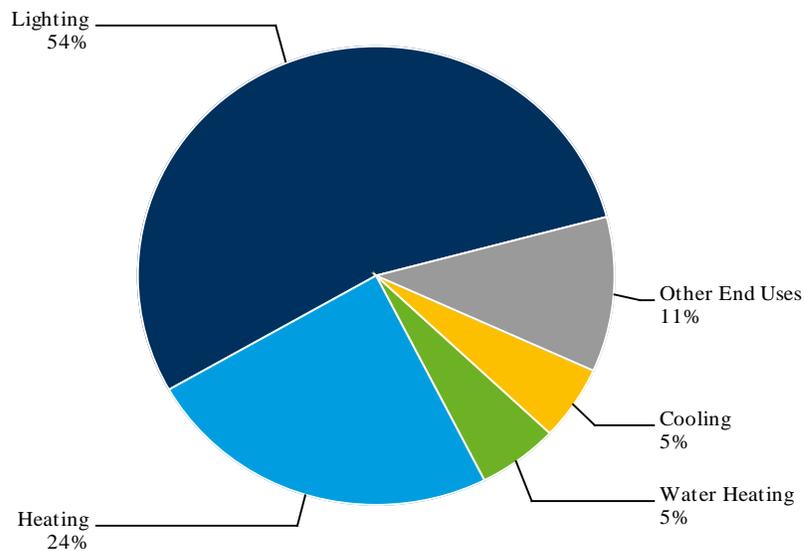
Total: 9 aMW



Note: 'Other End Uses' includes:
 HVAC Aux: 5%, Cooling: 2%, Heat Pump: 1%, Other Office Equipment: <1%, Refrigeration: <1%, Cooking: <1%

Figure C.4.95 Achievable Technical Potential - Wyoming: Commercial Warehouse by End Use

Total: 1 aMW



Note: 'Other End Uses' includes:
 Heat Pump: 5%, Plug Load: 3%, Refrigeration: 1%, HVAC Aux: <1%, Other Office Equipment: <1%

Figure C.4.100 Achievable Technical Potential - California: Industrial Lumber by End Use

Total: 1 aMW

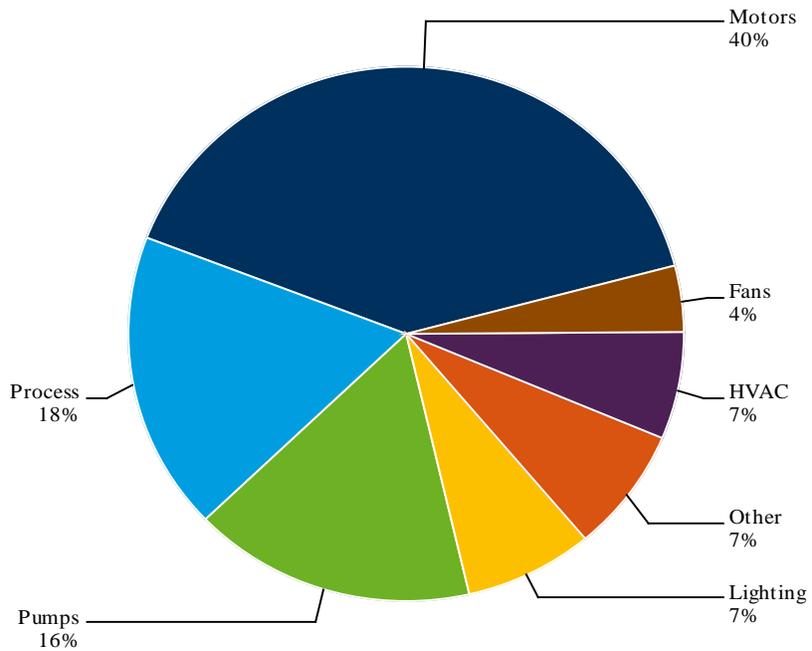
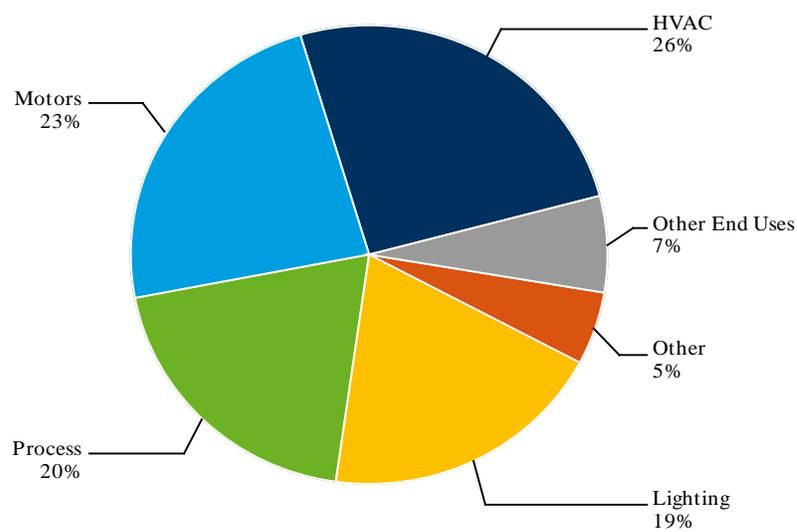


Figure C.4.102 Achievable Technical Potential - California: Industrial Miscellaneous Mfg by End Use

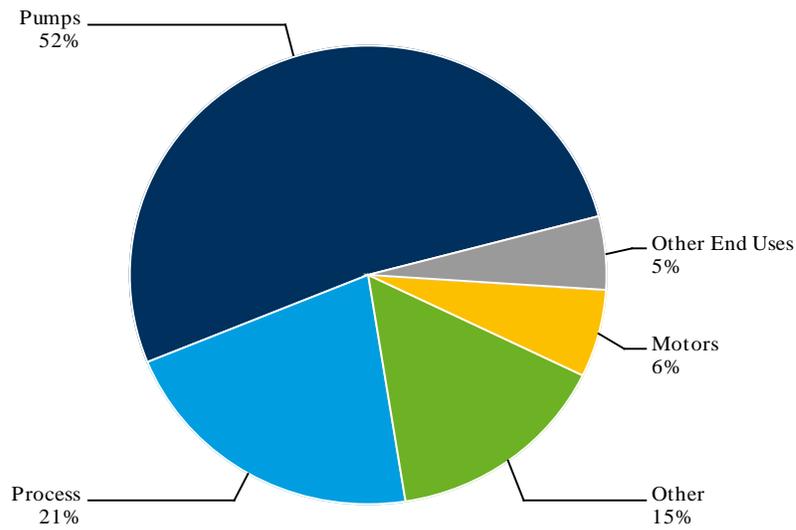
Total: 0 aMW



Note: 'Other End Uses' includes:
Pumps: 4%, Fans: 3%

Figure C.4.108 Achievable Technical Potential - California: Industrial Water/Wastewater by End Use

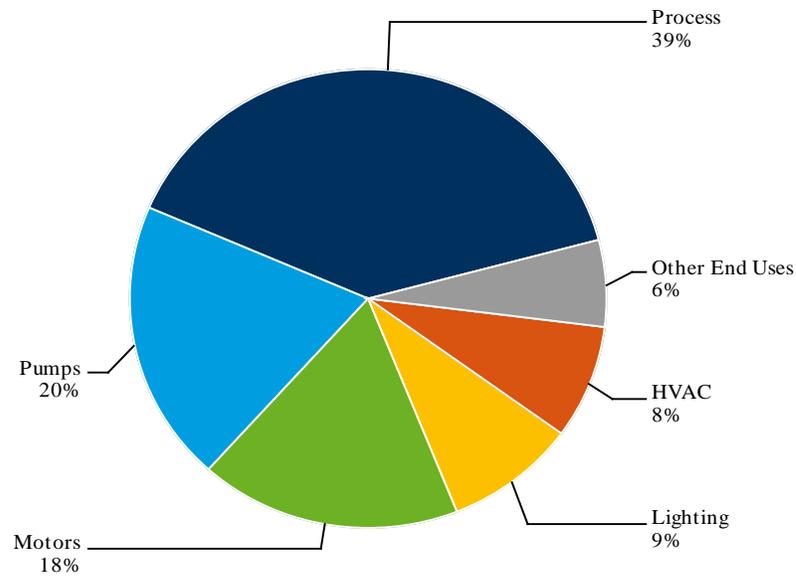
Total: 0 aMW



Note: 'Other End Uses' includes:
Fans: 3%, Lighting: 2%

Figure C.4.109 Achievable Technical Potential - Idaho: Industrial Chemicals by End Use

Total: 3 aMW



Note: 'Other End Uses' includes:
Fans: 4%, Other: 2%

Figure C.4.111 Achievable Technical Potential - Idaho: Industrial Food by End Use

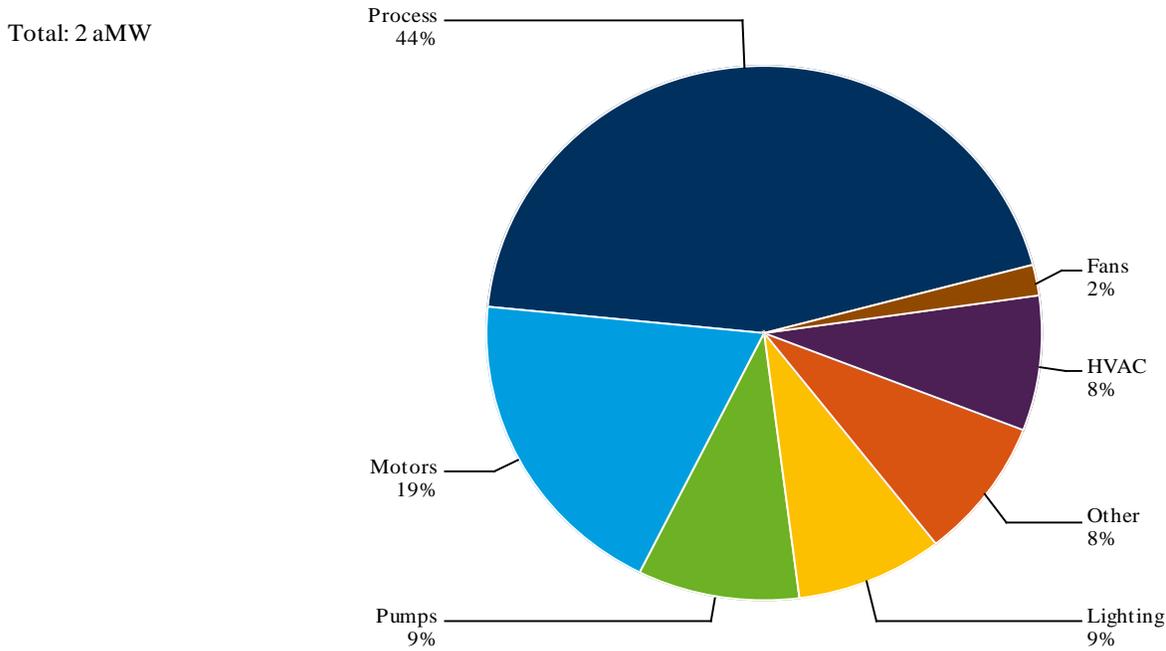
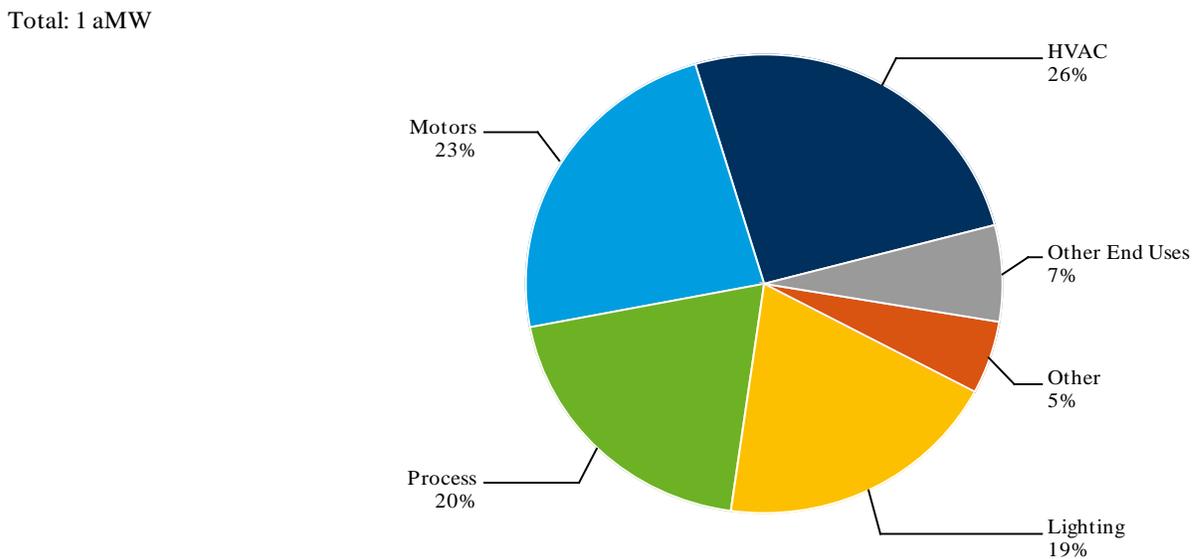


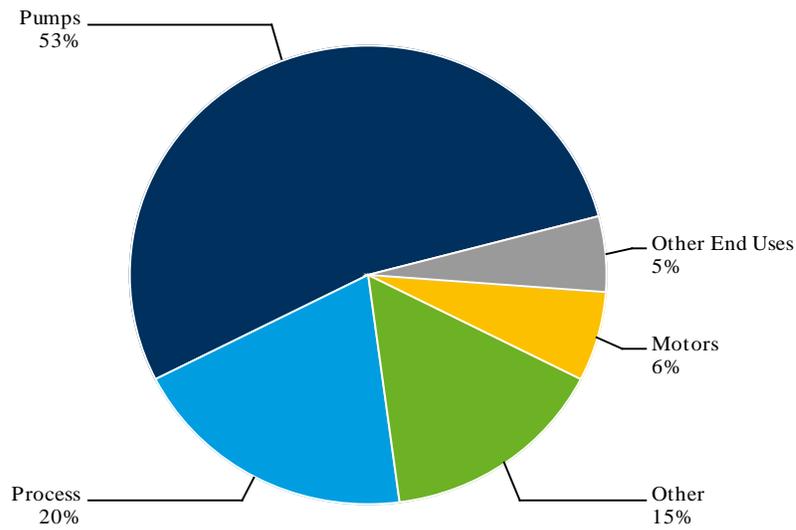
Figure C.4.115 Achievable Technical Potential - Idaho: Industrial Miscellaneous Mfg by End Use



Note: 'Other End Uses' includes:
Pumps: 4%, Fans: 3%

Figure C.4.121 Achievable Technical Potential - Idaho: Industrial Water/Wastewater by End Use

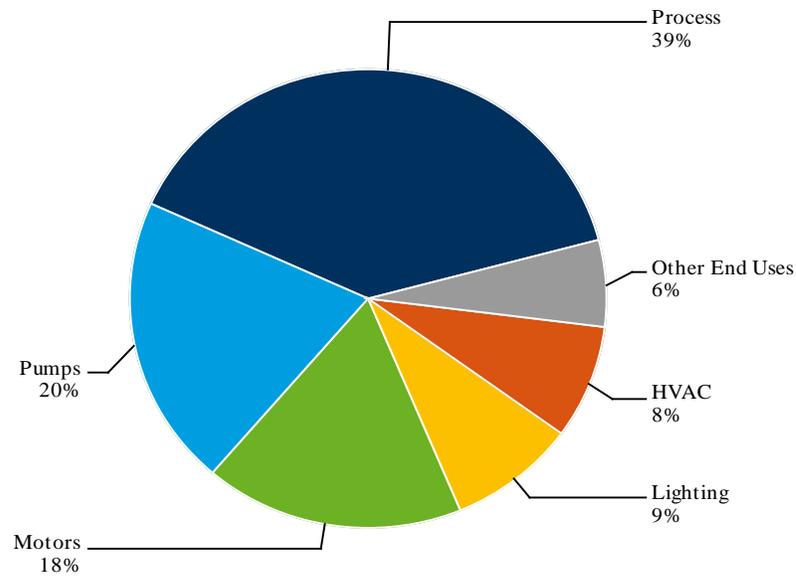
Total: 0 aMW



Note: 'Other End Uses' includes:
Fans: 3%, Lighting: 2%

Figure C.4.122 Achievable Technical Potential - Utah: Industrial Chemicals by End Use

Total: 17 aMW



Note: 'Other End Uses' includes:
Fans: 4%, Other: 2%

Figure C.4.123 Achievable Technical Potential - Utah: Industrial Mach./Equip by End Use

Total: 16 aMW

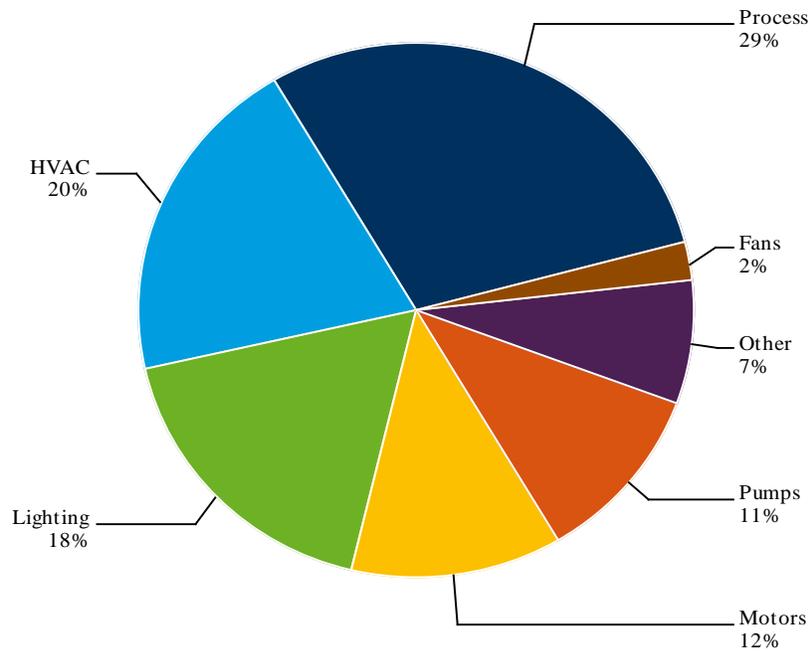


Figure C.4.124 Achievable Technical Potential - Utah: Industrial Food by End Use

Total: 11 aMW

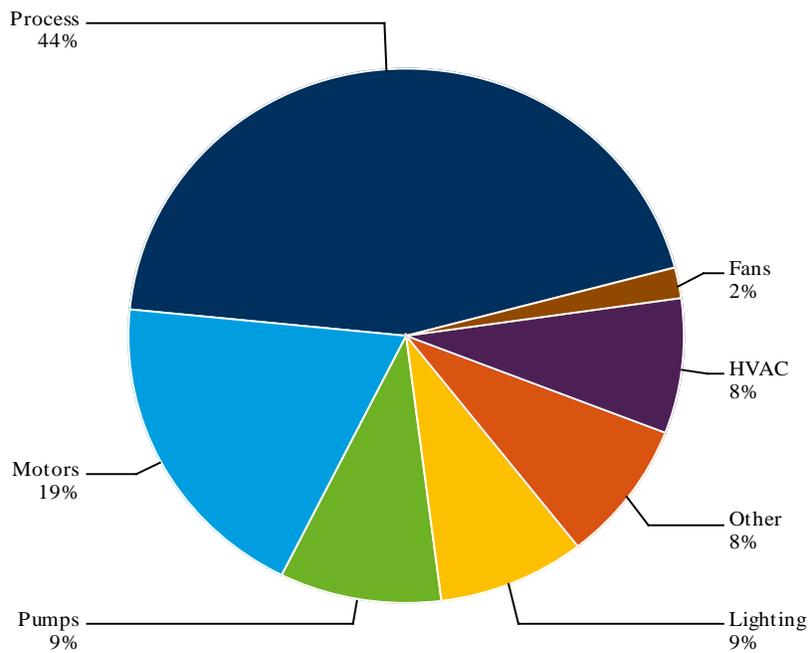


Figure C.4.125 Achievable Technical Potential - Utah: Industrial Mach./Equip by End Use

Total: 16 aMW

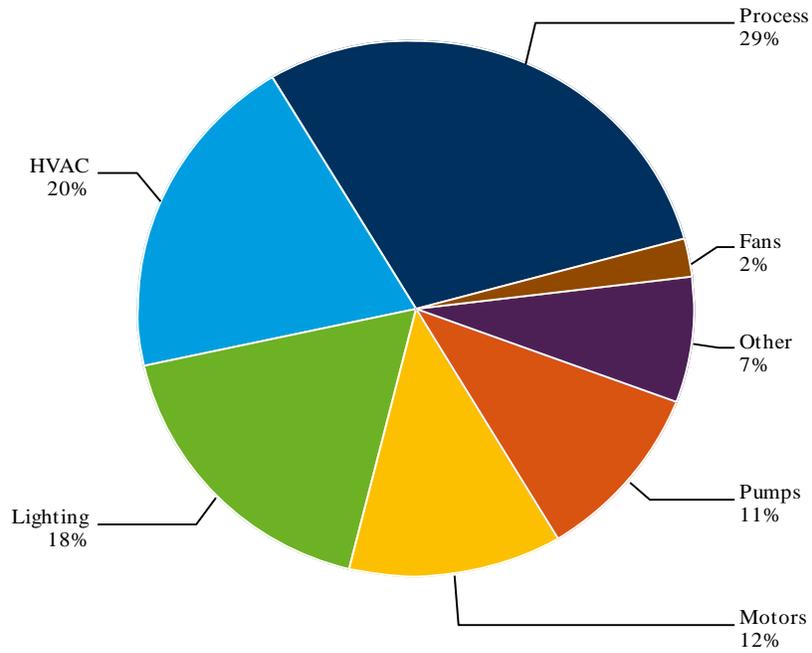


Figure C.4.127 Achievable Technical Potential - Utah: Industrial Mining by End Use

Total: 3 aMW

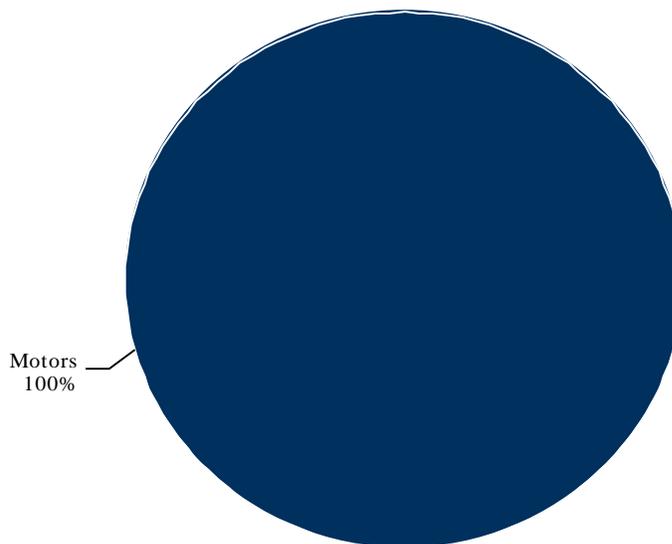
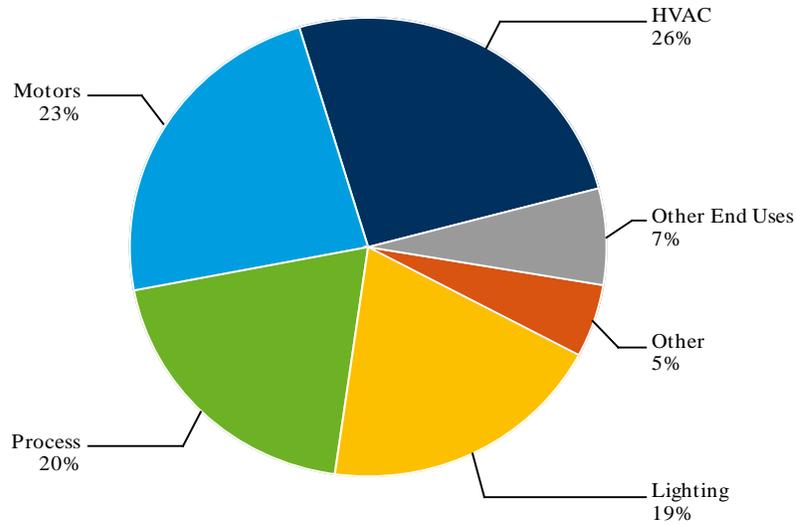


Figure C.4.128 Achievable Technical Potential - Utah: Industrial Miscellaneous Mfg by End Use

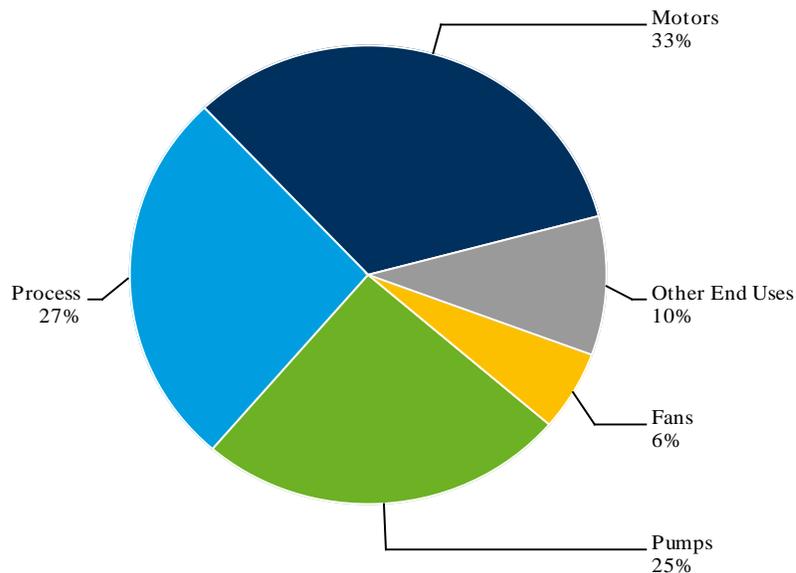
Total: 18 aMW



Note: 'Other End Uses' includes:
Pumps: 4%, Fans: 3%

Figure C.4.130 Achievable Technical Potential - Utah: Industrial Petroleum by End Use

Total: 14 aMW



Note: 'Other End Uses' includes:
Lighting: 4%, HVAC: 4%, Other: 1%

Figure C.4.132 Achievable Technical Potential - Utah: Industrial Stone Clay Glass Products by End Use

Total: 16 aMW

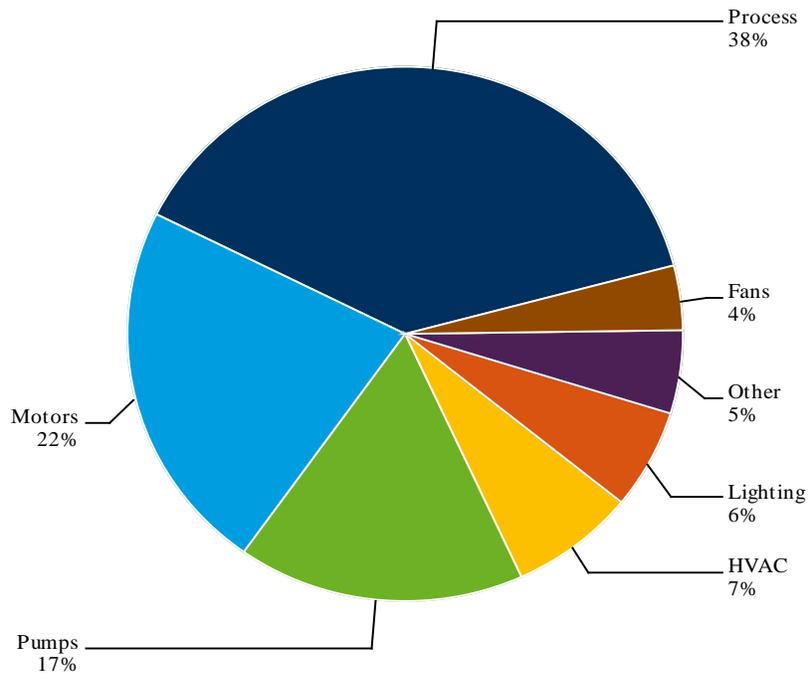
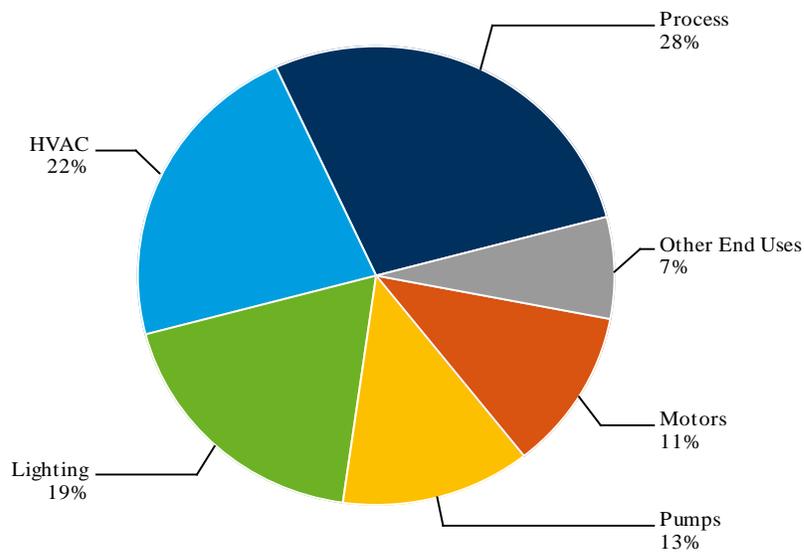


Figure C.4.133 Achievable Technical Potential - Utah: Industrial Transportation by End Use

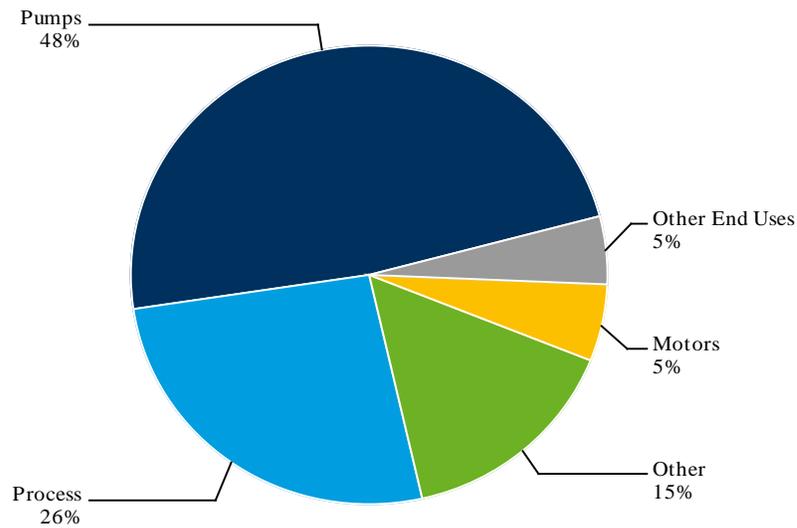
Total: 11 aMW



Note: 'Other End Uses' includes:
Other: 5%, Fans: 3%

Figure C.4.134 Achievable Technical Potential - Utah: Industrial Water/Wastewater by End Use

Total: 3 aMW



Note: 'Other End Uses' includes:
Fans: 3%, Lighting: 2%

Figure C.4.137 Achievable Technical Potential - Washington: Industrial Food by End Use

Total: 3 aMW

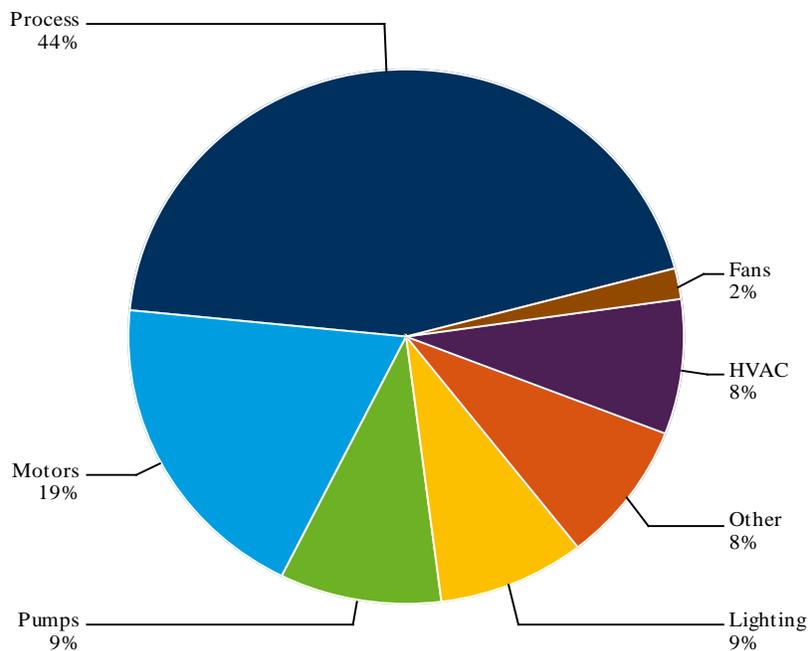


Figure C.4.139 Achievable Technical Potential - Washington: Industrial Lumber by End Use

Total: 2 aMW

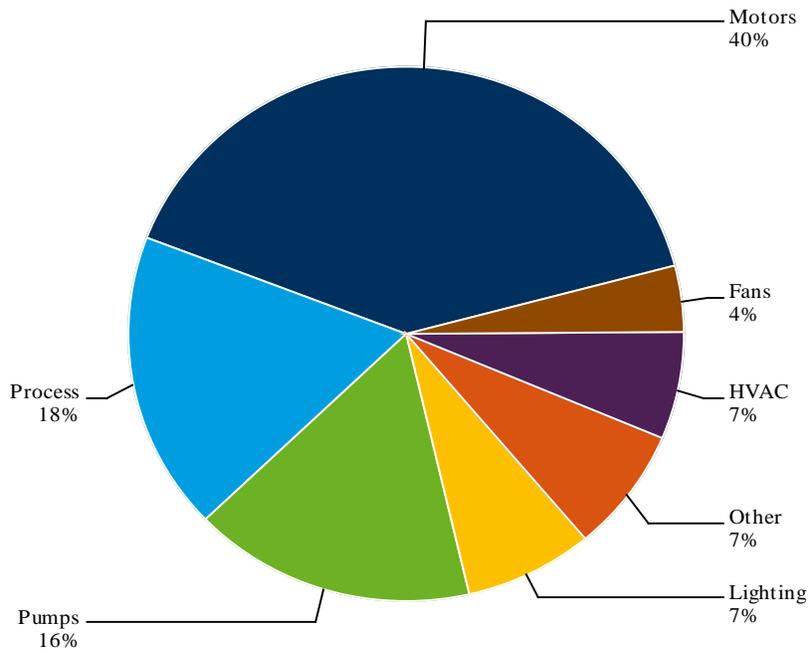
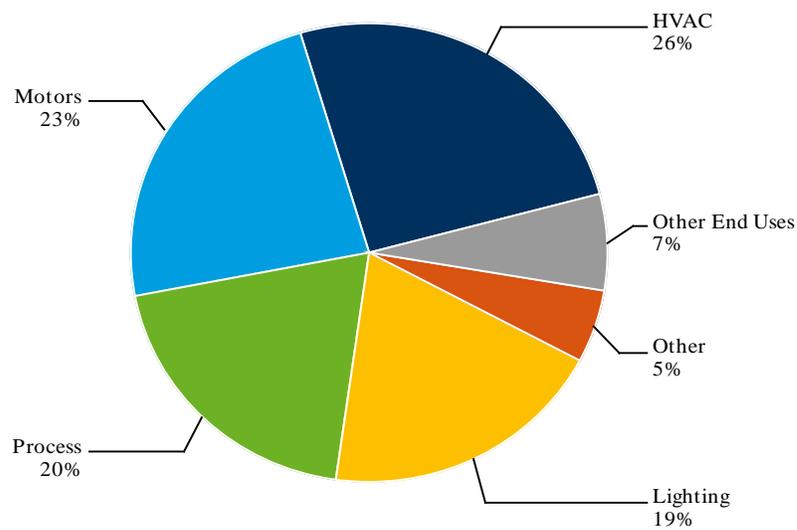


Figure C.4.141 Achievable Technical Potential - Washington: Industrial Miscellaneous Mfg by End Use

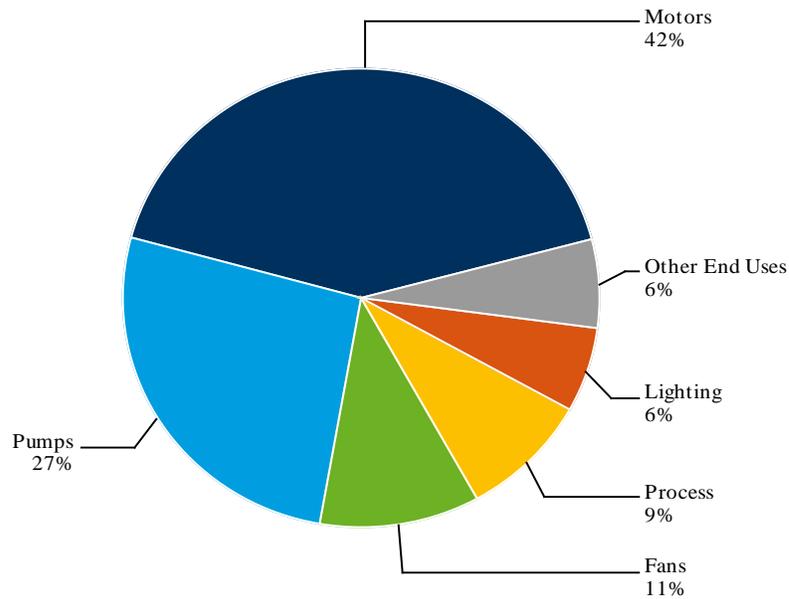
Total: 4 aMW



Note: 'Other End Uses' includes:
Pumps: 4%, Fans: 3%

Figure C.4.142 Achievable Technical Potential - Washington: Industrial Paper by End Use

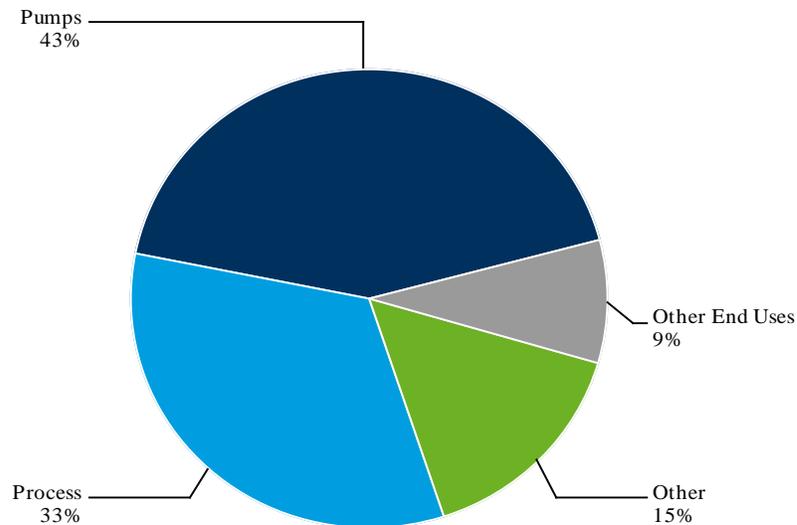
Total: 7 aMW



Note: 'Other End Uses' includes:
HVAC: 4%, Other: 2%

Figure C.4.147 Achievable Technical Potential - Washington: Industrial Water/Wastewater by End Use

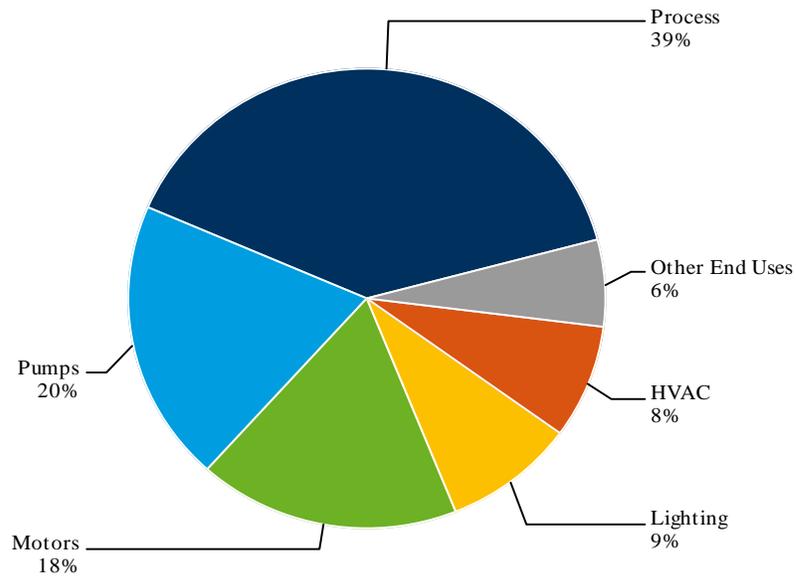
Total: 1 aMW



Note: 'Other End Uses' includes:
Motors: 4%, Lighting: 2%, Fans: 2%

Figure C.4.148 Achievable Technical Potential - Wyoming: Industrial Chemicals by End Use

Total: 50 aMW



Note: 'Other End Uses' includes:
Fans: 4%, Other: 2%

Figure C.4.153 Achievable Technical Potential - Wyoming: Industrial Mining by End Use

Total: 11 aMW

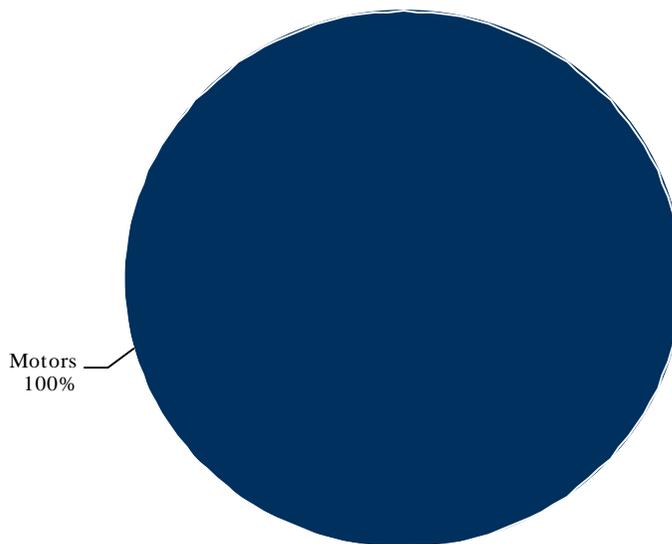
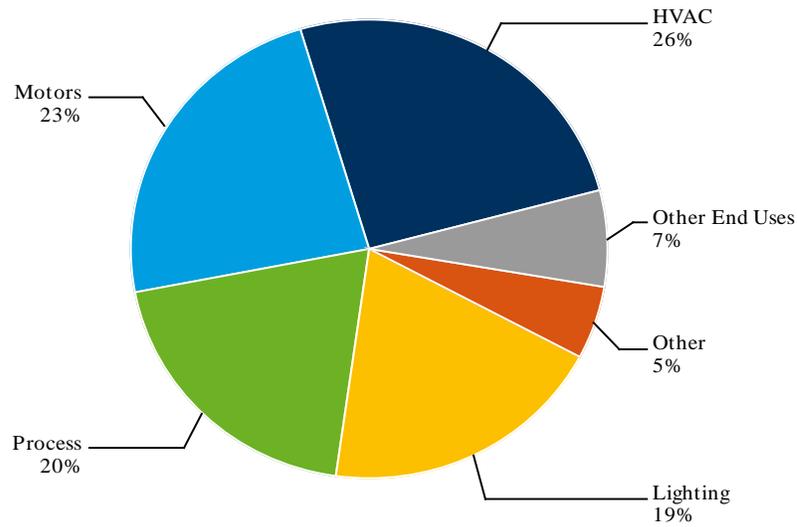


Figure C.4.154 Achievable Technical Potential - Wyoming: Industrial Miscellaneous Mfg by End Use

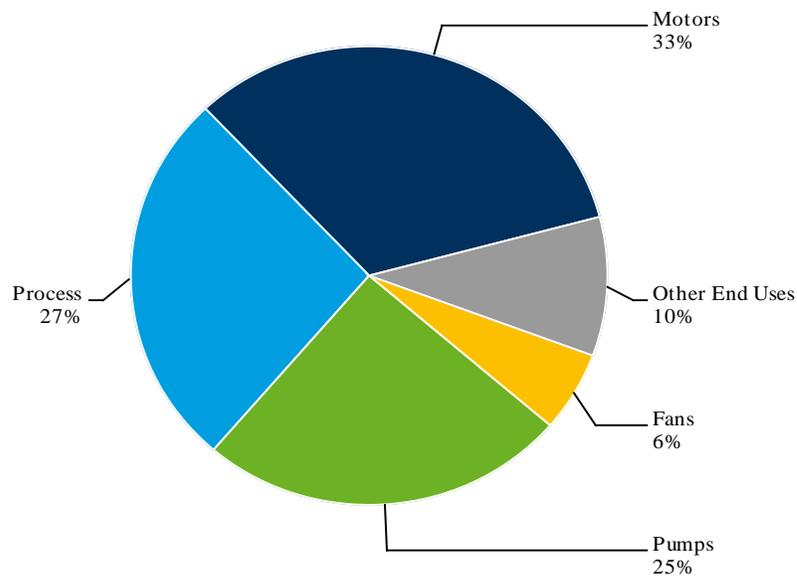
Total: 52 aMW



Note: 'Other End Uses' includes:
Pumps: 4%, Fans: 3%

Figure C.4.156 Achievable Technical Potential - Wyoming: Industrial Petroleum by End Use

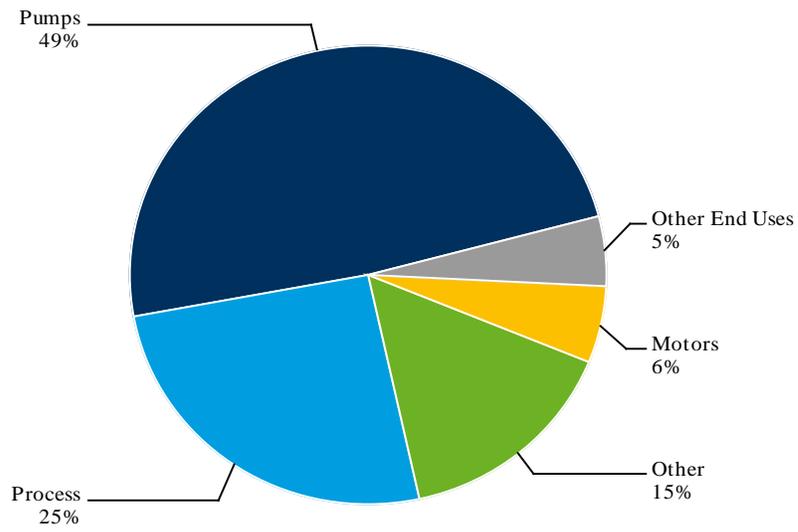
Total: 8 aMW



Note: 'Other End Uses' includes:
Lighting: 4%, HVAC: 4%, Other: 1%

Figure C.4.160 Achievable Technical Potential - Wyoming: Industrial Water/Wastewater by End Use

Total: 2 aMW



Note: 'Other End Uses' includes:
Fans: 3%, Lighting: 2%

Appendix D-1. Technical Supplements: Supplemental Resources CHP

Combined Heat & Power: Non-Renewable CA

Non-Renewable	% Penetration (by MW)			2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
	Com	Ind												
Recip Engine	65%	35%												
			MW	0.04	0.06	0.09	0.11	0.13	0.15	0.17	0.19	0.22	0.24	0.24
line loss:	8.6%		aMW	0.04	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.00
			Inst costs (\$/kW)	\$ 1,932	\$ 1,949	\$ 1,967	\$ 1,984	\$ 2,002	\$ 2,020	\$ 2,038	\$ 2,057	\$ 2,075	\$ 2,094	\$ 2,113
			O&M (\$/MW)	\$ 56,940	\$ 58,022	\$ 59,124	\$ 60,248	\$ 61,392	\$ 62,559	\$ 63,747	\$ 64,959	\$ 66,193	\$ 67,450	\$ 68,732
			Fuel (\$/kW)	\$ 181	\$ 193	\$ 199	\$ 207	\$ 216	\$ 234	\$ 258	\$ 270	\$ 278	\$ 296	\$ 321
Microturbine	65%	35%												
			MW	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.03	0.03	0.03	0.03
line loss:	8.6%		aMW	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
			Inst costs (\$/kW)	\$ 2,667	\$ 2,651	\$ 2,635	\$ 2,619	\$ 2,603	\$ 2,588	\$ 2,572	\$ 2,557	\$ 2,541	\$ 2,526	\$ 2,511
			O&M (\$/MW)	\$ 54,020	\$ 55,046	\$ 56,092	\$ 57,158	\$ 58,244	\$ 59,351	\$ 60,478	\$ 61,627	\$ 62,798	\$ 63,991	\$ 65,207
			Fuel (\$/kW)	\$ 181	\$ 193	\$ 199	\$ 207	\$ 216	\$ 234	\$ 258	\$ 270	\$ 278	\$ 296	\$ 321
Fuel Cell	65%	35%												
			MW	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.02
line loss:	8.6%		aMW	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
			Inst costs (\$/kW)	\$ 6,054	\$ 5,866	\$ 5,684	\$ 5,508	\$ 5,337	\$ 5,172	\$ 5,012	\$ 4,856	\$ 4,706	\$ 4,560	\$ 4,418
			O&M (\$/MW)	\$ 35,040	\$ 35,706	\$ 36,384	\$ 37,075	\$ 37,780	\$ 38,498	\$ 39,229	\$ 39,975	\$ 40,734	\$ 41,508	\$ 42,297
			Fuel (\$/kW)	\$ 220	\$ 236	\$ 243	\$ 252	\$ 264	\$ 285	\$ 315	\$ 330	\$ 340	\$ 361	\$ 392
Gas Turbine	65%	35%												
			MW	0.00	0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.02	0.02
line loss:	8.6%		aMW	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
			Inst costs (\$/kW)	\$ 1,803	\$ 1,820	\$ 1,836	\$ 1,853	\$ 1,869	\$ 1,886	\$ 1,903	\$ 1,920	\$ 1,937	\$ 1,955	\$ 1,972
			O&M (\$/MW)	\$ 56,940	\$ 58,022	\$ 59,124	\$ 60,248	\$ 61,392	\$ 62,559	\$ 63,747	\$ 64,959	\$ 66,193	\$ 67,450	\$ 68,732
			Fuel (\$/kW)	\$ 228	\$ 243	\$ 251	\$ 260	\$ 272	\$ 295	\$ 325	\$ 340	\$ 351	\$ 373	\$ 405

Non-Renewable	% Penetration (by MW)			2022	2023	2024	2025	2026	2027	2028	2029	2030	Levelized Cost
	Com	Ind											
Recip Engine	65%	35%											
			MW	0.24	0.25	0.25	0.25	0.26	0.26	0.26	0.27	0.27	
line loss:	8.6%		aMW	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Capacity Factor 50%
			Inst costs (\$/kW)	\$ 2,132	\$ 2,151	\$ 2,170	\$ 2,190	\$ 2,209	\$ 2,229	\$ 2,249	\$ 2,270	\$ 2,290	
			O&M (\$/MW)	\$ 70,038	\$ 71,369	\$ 72,725	\$ 74,106	\$ 75,514	\$ 76,949	\$ 78,411	\$ 79,901	\$ 81,419	
			Fuel (\$/kW)	\$ 347	\$ 348	\$ 311	\$ 324	\$ 337	\$ 342	\$ 357	\$ 373	\$ 398	Levelized Cost \$0.12 \$/kWh
Microturbine	65%	35%											
			MW	0.03	0.03	0.03	0.03	0.03	0.03	0.04	0.04	0.04	
line loss:	8.6%		aMW	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	Capacity Factor 50%
			Inst costs (\$/kW)	\$ 2,496	\$ 2,481	\$ 2,466	\$ 2,451	\$ 2,436	\$ 2,422	\$ 2,407	\$ 2,393	\$ 2,379	
			O&M (\$/MW)	\$ 66,446	\$ 67,709	\$ 68,995	\$ 70,306	\$ 71,642	\$ 73,003	\$ 74,390	\$ 75,804	\$ 77,244	
			Fuel (\$/kW)	\$ 347	\$ 348	\$ 311	\$ 324	\$ 337	\$ 342	\$ 357	\$ 373	\$ 398	Levelized Cost \$0.14 \$/kWh
Fuel Cell	65%	35%											
			MW	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	
line loss:	8.6%		aMW	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	Capacity Factor 80%
			Inst costs (\$/kW)	\$ 4,281	\$ 4,149	\$ 4,020	\$ 3,896	\$ 3,775	\$ 3,658	\$ 3,544	\$ 3,434	\$ 3,328	
			O&M (\$/MW)	\$ 43,100	\$ 43,919	\$ 44,754	\$ 45,604	\$ 46,470	\$ 47,353	\$ 48,253	\$ 49,170	\$ 50,104	
			Fuel (\$/kW)	\$ 423	\$ 425	\$ 380	\$ 396	\$ 412	\$ 417	\$ 436	\$ 455	\$ 485	Levelized Cost \$0.15 \$/kWh
Gas Turbine	65%	35%											
			MW	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	
line loss:	8.6%		aMW	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	Capacity Factor 80%
			Inst costs (\$/kW)	\$ 1,990	\$ 2,008	\$ 2,026	\$ 2,044	\$ 2,063	\$ 2,081	\$ 2,100	\$ 2,119	\$ 2,138	
			O&M (\$/MW)	\$ 70,038	\$ 71,369	\$ 72,725	\$ 74,106	\$ 75,514	\$ 76,949	\$ 78,411	\$ 79,901	\$ 81,419	
			Fuel (\$/kW)	\$ 437	\$ 439	\$ 392	\$ 409	\$ 425	\$ 431	\$ 450	\$ 470	\$ 501	Levelized Cost \$0.08 \$/kWh

Combined Heat & Power: Renewable CA

Biomass	% Penetration (by MW)			2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
	Com	Ind													
Industrial	0%	100%													
			MW	0.31	0.46	0.61	0.74	0.88	1.01	1.14	1.26	1.38	1.49	1.47	1.439214741
line loss:	8.1%		aMW	0.38	0.57	0.76	0.94	1.13	1.32	1.51	1.70	1.89	2.08	2.10	2.116824946
			Inst costs (\$/kW)	\$ 0	\$ 0	\$ 1	\$ 1	\$ 1	\$ 1	\$ 1	\$ 1	\$ 1	\$ 2	\$ 2	1.556381213
			O&M (\$/MW)	\$ 1,800	\$ 1,825	\$ 1,851	\$ 1,877	\$ 1,903	\$ 1,930	\$ 1,957	\$ 1,984	\$ 2,012	\$ 2,040	\$ 2,068	2097.442241
				\$ 39,420	\$ 40,169	\$ 40,932	\$ 41,710	\$ 42,502	\$ 43,310	\$ 44,133	\$ 44,971	\$ 45,826	\$ 46,696	\$ 47,584	48487.81835
Anaerobic Digester	100%	0%													
			MW	0.01	0.02	0.02	0.03	0.03	0.04	0.05	0.05	0.06	0.06	0.06	0.063343179
line loss:	9%		aMW	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.02	0.02	0.03	0.03	0.025873691
			Inst costs (\$/kW)	3,383.22	3,362.92	3,342.75	3,322.69	3,302.75	3,282.94	3,263.24	3,243.66	3,224.20	3,204.85	3,185.62	3166.510867
			O&M (\$/MW)	\$ 52,967	\$ 53,974	\$ 54,999	\$ 56,044	\$ 57,109	\$ 58,194	\$ 59,300	\$ 60,427	\$ 61,575	\$ 62,745	\$ 63,937	65151.59055

Biomass	% Penetration (by MW)			2023	2024	2025	2026	2027	2028	2029	2030	Levelized Cost
	Com	Ind										
Industrial	0%	100%										
			MW	2.14	2.17	2.20	2.22	2.25	2.29	2.32	2.34	
line loss:	8.1%		aMW	1.53	1.52	1.49	1.47	1.45	1.44	1.42	1.40	Capacity Factor 90%
			Inst costs (\$/kW)	\$ 2,127	\$ 2,157	\$ 2,187	\$ 2,217	\$ 2,248	\$ 2,280	\$ 2,312	\$ 2,344	
			O&M (\$/MW)	\$ 49,409	\$ 50,348	\$ 51,304	\$ 52,279	\$ 53,273	\$ 54,285	\$ 55,316	\$ 56,367	Levelized Cost \$0.03 \$/kWh
Anaerobic Digester	100%	0%										
			MW	0.06	0.07	0.07	0.07	0.07	0.07	0.07	0.07	
line loss:	9%		aMW	0.03	0.03	0.02	0.02	0.02	0.02	0.02	0.02	Capacity Factor 50%
			Inst costs (\$/kW)	3,147.51	3,128.63	3,109.85	3,091.20	3,072.65	3,054.21	3,035.89	3,017.67	
			O&M (\$/MW)	\$ 66,389	\$ 67,651	\$ 68,936	\$ 70,246	\$ 71,581	\$ 72,941	\$ 74,327	\$ 75,739	Levelized Cost \$0.10 \$/kWh

Combined Heat & Power Achievable Potential and Cost

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
MW	0.4	0.6	0.7	0.9	1.1	1.2	1.4	1.6	1.7	1.9
aMW	0.4	0.6	0.8	1.0	1.2	1.4	1.6	1.8	2.0	2.2
Total Cost	\$ 15,839	\$ 15,649	\$ 15,465	\$ 15,287	\$ 15,116	\$ 14,950	\$ 14,789	\$ 14,635	\$ 14,485	\$ 14,341
Fuel (\$/MMBTU)	\$ 257,707	\$ 262,595	\$ 267,575	\$ 272,650	\$ 277,821	\$ 283,090	\$ 288,459	\$ 293,930	\$ 299,505	\$ 305,185

	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
MW	1.8	1.8	2.5	2.6	2.6	2.6	2.7	2.7	2.7	2.8
aMW	2.2	2.2	1.6	1.6	1.6	1.5	1.5	1.5	1.5	1.5
Total Cost	\$ 14,202	\$ 14,067	\$ 16,063	\$ 15,968	\$ 15,878	\$ 15,792	\$ 15,711	\$ 15,635	\$ 15,564	\$ 15,497
Fuel (\$/MMBTU)	\$ 310,973	\$ 316,872	\$ 370,164	\$ 377,197	\$ 384,364	\$ 391,667	\$ 399,108	\$ 406,691	\$ 414,418	\$ 422,292

Combined Heat & Power:Non-Renewable ID

Non-Renewable	% Penetration (by MW)			2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
	Com	Ind												
Recip Engine	65%	35%												
			MW	0.46	0.70	0.93	1.16	1.39	1.63	1.86	2.09	2.32	2.56	2.58
line loss:	9.2%		aMW	0.23	0.34	0.45	0.55	0.65	0.75	0.84	0.93	1.02	1.11	1.08
			Inst costs (\$/kW)	\$ 1,932	\$ 1,949	\$ 1,967	\$ 1,984	\$ 2,002	\$ 2,020	\$ 2,038	\$ 2,057	\$ 2,075	\$ 2,094	\$ 2,113
			O&M (\$/MW)	\$ 56,940	\$ 58,022	\$ 59,124	\$ 60,248	\$ 61,392	\$ 62,559	\$ 63,747	\$ 64,959	\$ 66,193	\$ 67,450	\$ 68,732
			Fuel (\$/kW)	\$ 189	\$ 201	\$ 208	\$ 216	\$ 225	\$ 240	\$ 255	\$ 262	\$ 275	\$ 292	\$ 314
Microturbine	65%	35%												
			MW	0.06	0.09	0.13	0.16	0.19	0.22	0.25	0.28	0.31	0.34	0.35
line loss:	9.2%		aMW	0.03	0.05	0.06	0.07	0.09	0.10	0.11	0.13	0.14	0.15	0.15
			Inst costs (\$/kW)	\$ 2,667	\$ 2,651	\$ 2,635	\$ 2,619	\$ 2,603	\$ 2,588	\$ 2,572	\$ 2,557	\$ 2,541	\$ 2,526	\$ 2,511
			O&M (\$/MW)	\$ 54,020	\$ 55,046	\$ 56,092	\$ 57,158	\$ 58,244	\$ 59,351	\$ 60,478	\$ 61,627	\$ 62,798	\$ 63,991	\$ 65,207
			Fuel (\$/kW)	\$ 189	\$ 201	\$ 208	\$ 216	\$ 225	\$ 240	\$ 255	\$ 262	\$ 275	\$ 292	\$ 314
Fuel Cell	65%	35%												
			MW	0.03	0.04	0.05	0.06	0.08	0.09	0.10	0.11	0.12	0.13	0.13
line loss:	9.2%		aMW	0.03	0.05	0.07	0.09	0.10	0.12	0.14	0.16	0.17	0.19	0.19
			Inst costs (\$/kW)	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0
			O&M (\$/MW)	\$ 6,054	\$ 5,866	\$ 5,684	\$ 5,508	\$ 5,337	\$ 5,172	\$ 5,012	\$ 4,856	\$ 4,706	\$ 4,560	\$ 4,418
			Fuel (\$/kW)	\$ 35,040	\$ 35,706	\$ 36,384	\$ 37,075	\$ 37,780	\$ 38,498	\$ 39,229	\$ 39,975	\$ 40,734	\$ 41,508	\$ 42,297
				\$ 230	\$ 245	\$ 254	\$ 263	\$ 275	\$ 293	\$ 311	\$ 319	\$ 336	\$ 357	\$ 384
Gas Turbine	65%	35%												
			MW	0.04	0.06	0.08	0.10	0.12	0.14	0.17	0.19	0.21	0.23	0.23
line loss:	9.2%		aMW	0.03	0.05	0.07	0.08	0.10	0.11	0.13	0.14	0.16	0.17	0.17
			Inst costs (\$/kW)	\$ 1,803	\$ 1,820	\$ 1,836	\$ 1,853	\$ 1,869	\$ 1,886	\$ 1,903	\$ 1,920	\$ 1,937	\$ 1,955	\$ 1,972
			O&M (\$/MW)	\$ 56,940	\$ 58,022	\$ 59,124	\$ 60,248	\$ 61,392	\$ 62,559	\$ 63,747	\$ 64,959	\$ 66,193	\$ 67,450	\$ 68,732
			Fuel (\$/kW)	\$ 238	\$ 253	\$ 262	\$ 272	\$ 284	\$ 302	\$ 321	\$ 330	\$ 347	\$ 368	\$ 396

Non-Renewable	% Penetration (by MW)			2022	2023	2024	2025	2026	2027	2028	2029	2030	Levelized Cost	
	Com	Ind												
Recip Engine	65%	35%												
			MW	2.61	2.64	2.68	2.70	2.74	2.77	2.82	2.85	2.88		
line loss:	9.2%		aMW	1.06	1.05	1.04	1.02	1.01	0.99	0.99	0.97	0.96	Capacity Factor	50%
			Inst costs (\$/kW)	\$ 2,132	\$ 2,151	\$ 2,170	\$ 2,190	\$ 2,209	\$ 2,229	\$ 2,249	\$ 2,270	\$ 2,290		
			O&M (\$/MW)	\$ 70,038	\$ 71,369	\$ 72,725	\$ 74,106	\$ 75,514	\$ 76,949	\$ 78,411	\$ 79,901	\$ 81,419		
			Fuel (\$/kW)	\$ 338	\$ 337	\$ 301	\$ 312	\$ 331	\$ 340	\$ 352	\$ 364	\$ 386	Levelized Cost	\$0.12 \$/kWh
Microturbine	65%	35%												
			MW	0.35	0.36	0.36	0.36	0.37	0.37	0.38	0.38	0.39		
line loss:	9.2%		aMW	0.14	0.14	0.14	0.14	0.14	0.13	0.13	0.13	0.13	Capacity Factor	50%
			Inst costs (\$/kW)	\$ 2,496	\$ 2,481	\$ 2,466	\$ 2,451	\$ 2,436	\$ 2,422	\$ 2,407	\$ 2,393	\$ 2,379		
			O&M (\$/MW)	\$ 66,446	\$ 67,709	\$ 68,995	\$ 70,306	\$ 71,642	\$ 73,003	\$ 74,390	\$ 75,804	\$ 77,244		
			Fuel (\$/kW)	\$ 338	\$ 337	\$ 301	\$ 312	\$ 331	\$ 340	\$ 352	\$ 364	\$ 386	Levelized Cost	\$0.14 \$/kWh
Fuel Cell	65%	35%												
			MW	0.20	0.20	0.20	0.20	0.21	0.21	0.21	0.21	0.22		
line loss:	9.2%		aMW	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	Capacity Factor	80%
			Inst costs (\$/kW)	\$ 4,281	\$ 4,149	\$ 4,020	\$ 3,896	\$ 3,775	\$ 3,658	\$ 3,544	\$ 3,434	\$ 3,328		
			O&M (\$/MW)	\$ 43,100	\$ 43,919	\$ 44,754	\$ 45,604	\$ 46,470	\$ 47,353	\$ 48,253	\$ 49,170	\$ 50,104		
			Fuel (\$/kW)	\$ 412	\$ 411	\$ 368	\$ 381	\$ 404	\$ 415	\$ 430	\$ 444	\$ 471	Levelized Cost	\$0.15 \$/kWh
Gas Turbine	65%	35%												
			MW	0.23	0.23	0.24	0.24	0.24	0.25	0.25	0.25	0.26		
line loss:	9.2%		aMW	0.17	0.17	0.18	0.18	0.18	0.18	0.18	0.18	0.18	Capacity Factor	80%
			Inst costs (\$/kW)	\$ 1,990	\$ 2,008	\$ 2,026	\$ 2,044	\$ 2,063	\$ 2,081	\$ 2,100	\$ 2,119	\$ 2,138		
			O&M (\$/MW)	\$ 70,038	\$ 71,369	\$ 72,725	\$ 74,106	\$ 75,514	\$ 76,949	\$ 78,411	\$ 79,901	\$ 81,419		
			Fuel (\$/kW)	\$ 426	\$ 424	\$ 380	\$ 393	\$ 418	\$ 428	\$ 444	\$ 458	\$ 486	Levelized Cost	\$0.08 \$/kWh

Combined Heat & Power: Renewable ID

Biomass	% Penetration (by MW)			2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
	Com	Ind													
Industrial	0%	100%													
			MW	9.39	14.09	18.79	23.49	28.18	32.88	37.58	42.27	46.97	51.67	52.16	52.66705522
line loss:	9.1%		aMW	8.45	12.43	16.28	20.02	23.65	27.17	30.58	33.89	37.10	40.21	39.45	38.72309585
			Inst costs (\$/kW)	\$ 1,800	\$ 1,825	\$ 1,851	\$ 1,877	\$ 1,903	\$ 1,930	\$ 1,957	\$ 1,984	\$ 2,012	\$ 2,040	\$ 2,068	2097.442241
			O&M (\$/MW)	\$ 39,420	\$ 40,169	\$ 40,932	\$ 41,710	\$ 42,502	\$ 43,310	\$ 44,133	\$ 44,971	\$ 45,826	\$ 46,696	\$ 47,584	48487.81835
Anaerobic Digester	0%	100%													
			MW	0.10	0.15	0.20	0.25	0.30	0.35	0.40	0.45	0.50	0.55	0.56	0.562815845
line loss:	9%		aMW	0.05	0.07	0.10	0.12	0.14	0.16	0.18	0.20	0.22	0.24	0.23	0.229892523
			Inst costs (\$/kW)	3,383.22	3,362.92	3,342.75	3,322.69	3,302.75	3,282.94	3,263.24	3,243.66	3,224.20	3,204.85	3,185.62	3166.510867
			O&M (\$/MW)	\$ 52,967	\$ 53,974	\$ 54,999	\$ 56,044	\$ 57,109	\$ 58,194	\$ 59,300	\$ 60,427	\$ 61,575	\$ 62,745	\$ 63,937	65151.59055

Biomass	% Penetration (by MW)			2023	2024	2025	2026	2027	2028	2029	2030	Levelized Cost
	Com	Ind										
Industrial												
			MW	53.30	54.11	54.66	55.35	56.06	57.06	57.64	58.24	
line loss:			aMW	38.13	37.72	37.08	36.59	36.13	35.95	35.39	34.87	Capacity Factor 90%
			Inst costs (\$/kW)	\$ 2,127	\$ 2,157	\$ 2,187	\$ 2,217	\$ 2,248	\$ 2,280	\$ 2,312	\$ 2,344	
			O&M (\$/MW)	\$ 49,409	\$ 50,348	\$ 51,304	\$ 52,279	\$ 53,273	\$ 54,285	\$ 55,316	\$ 56,367	Levelized Cost \$0.03 \$/kWh
Anaerobic Digester												
			MW	0.57	0.58	0.58	0.59	0.60	0.61	0.62	0.62	
line loss:			aMW	0.23	0.22	0.22	0.22	0.21	0.21	0.21	0.21	Capacity Factor 50%
			Inst costs (\$/kW)	3,147.51	3,128.63	3,109.85	3,091.20	3,072.65	3,054.21	3,035.89	3,017.67	
			O&M (\$/MW)	\$ 66,389	\$ 67,651	\$ 68,936	\$ 70,246	\$ 71,581	\$ 72,941	\$ 74,327	\$ 75,739	Levelized Cost \$0.10 \$/kWh

Combined Heat & Power Achievable Potential and Cost

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
MW	10.1	15.1	20.2	25.2	30.3	35.3	40.4	45.4	50.4	55.5
aMW	8.8	13.0	17.0	20.9	24.7	28.4	32.0	35.4	38.8	42.1
Total Cost	\$ 11,585	\$ 11,607	\$ 11,631	\$ 11,655	\$ 11,680	\$ 11,706	\$ 11,733	\$ 11,761	\$ 11,790	\$ 11,820
Fuel (\$/MMBTU)	\$ 266,341	\$ 271,099	\$ 275,957	\$ 280,916	\$ 285,978	\$ 291,144	\$ 296,417	\$ 301,799	\$ 307,290	\$ 312,893

	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
MW	56.0	56.6	57.3	58.2	58.8	59.5	60.3	61.3	62.0	62.6
aMW	41.3	40.5	39.9	39.4	38.8	38.3	37.8	37.6	37.0	36.5
Total Cost	\$ 11,850	\$ 16,163	\$ 16,063	\$ 15,968	\$ 15,878	\$ 15,792	\$ 15,711	\$ 15,635	\$ 15,564	\$ 15,497
Fuel (\$/MMBTU)	\$ 318,610	\$ 363,262	\$ 370,164	\$ 377,197	\$ 384,364	\$ 391,667	\$ 399,108	\$ 406,691	\$ 414,418	\$ 422,292

Combined Heat & Power:Non-Renewable OR

Non-Renewable	% Penetration (by MW)			2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
	Com	Ind												
Recip Engine	65%	35%												
line loss:	8.1%		MW	1.11	1.66	2.22	2.77	3.32	3.88	4.43	4.99	5.54	6.10	6.15
			aMW	0.55	0.81	1.07	1.31	1.55	1.78	2.00	2.22	2.43	2.64	2.59
			Inst costs (\$/kW)	\$ 1,932	\$ 1,949	\$ 1,967	\$ 1,984	\$ 2,002	\$ 2,020	\$ 2,038	\$ 2,057	\$ 2,075	\$ 2,094	\$ 2,113
			O&M (\$/MW)	\$ 56,940	\$ 58,022	\$ 59,124	\$ 60,248	\$ 61,392	\$ 62,559	\$ 63,747	\$ 64,959	\$ 66,193	\$ 67,450	\$ 68,732
			Fuel (\$/kW)	\$ 193	\$ 206	\$ 212	\$ 220	\$ 230	\$ 248	\$ 271	\$ 283	\$ 292	\$ 309	\$ 335
Microturbine	65%	35%												
line loss:	8.1%		MW	0.15	0.22	0.30	0.37	0.45	0.52	0.60	0.67	0.75	0.82	0.83
			aMW	0.07	0.11	0.14	0.18	0.21	0.24	0.27	0.30	0.33	0.36	0.35
			Inst costs (\$/kW)	\$ 2,667	\$ 2,651	\$ 2,635	\$ 2,619	\$ 2,603	\$ 2,588	\$ 2,572	\$ 2,557	\$ 2,541	\$ 2,526	\$ 2,511
			O&M (\$/MW)	\$ 54,020	\$ 55,046	\$ 56,092	\$ 57,158	\$ 58,244	\$ 59,351	\$ 60,478	\$ 61,627	\$ 62,798	\$ 63,991	\$ 65,207
			Fuel (\$/kW)	\$ 193	\$ 206	\$ 212	\$ 220	\$ 230	\$ 248	\$ 271	\$ 283	\$ 292	\$ 309	\$ 335
Fuel Cell	65%	35%												
line loss:	8.1%		MW	0.08	0.12	0.17	0.21	0.25	0.29	0.33	0.37	0.42	0.46	0.46
			aMW	0.07	0.10	0.13	0.16	0.20	0.23	0.26	0.29	0.32	0.35	0.35
			Inst costs (\$/kW)	\$ 6,054	\$ 5,866	\$ 5,684	\$ 5,508	\$ 5,337	\$ 5,172	\$ 5,012	\$ 4,856	\$ 4,706	\$ 4,560	\$ 4,418
			O&M (\$/MW)	\$ 35,040	\$ 35,706	\$ 36,384	\$ 37,075	\$ 37,780	\$ 38,498	\$ 39,229	\$ 39,975	\$ 40,734	\$ 41,508	\$ 42,297
			Fuel (\$/kW)	\$ 235	\$ 251	\$ 259	\$ 269	\$ 281	\$ 302	\$ 331	\$ 346	\$ 356	\$ 378	\$ 409
Gas Turbine	65%	35%												
line loss:	8.1%		MW	0.10	0.15	0.20	0.25	0.30	0.35	0.39	0.44	0.49	0.54	0.55
			aMW	0.08	0.12	0.16	0.19	0.23	0.27	0.31	0.34	0.38	0.41	0.41
			Inst costs (\$/kW)	\$ 1,803	\$ 1,820	\$ 1,836	\$ 1,853	\$ 1,869	\$ 1,886	\$ 1,903	\$ 1,920	\$ 1,937	\$ 1,955	\$ 1,972
			O&M (\$/MW)	\$ 56,940	\$ 58,022	\$ 59,124	\$ 60,248	\$ 61,392	\$ 62,559	\$ 63,747	\$ 64,959	\$ 66,193	\$ 67,450	\$ 68,732
			Fuel (\$/kW)	\$ 243	\$ 260	\$ 267	\$ 277	\$ 290	\$ 312	\$ 342	\$ 357	\$ 368	\$ 390	\$ 422

Non-Renewable	% Penetration (by MW)			2022	2023	2024	2025	2026	2027	2028	2029	2030	Levelized Cost
	Com	Ind											
Recip Engine	65%	35%											
line loss:	8.1%		MW	6.21	6.29	6.38	6.45	6.53	6.61	6.73	6.80	6.87	
			aMW	2.54	2.50	2.47	2.43	2.40	2.37	2.36	2.32	2.29	Capacity Factor 50%
			Inst costs (\$/kW)	\$ 2,132	\$ 2,151	\$ 2,170	\$ 2,190	\$ 2,209	\$ 2,229	\$ 2,249	\$ 2,270	\$ 2,290	
			O&M (\$/MW)	\$ 70,038	\$ 71,369	\$ 72,725	\$ 74,106	\$ 75,514	\$ 76,949	\$ 78,411	\$ 79,901	\$ 81,419	
			Fuel (\$/kW)	\$ 361	\$ 362	\$ 323	\$ 337	\$ 350	\$ 355	\$ 370	\$ 386	\$ 411	Levelized Cost \$0.12 \$/kWh
Microturbine	65%	35%											
line loss:	8.1%		MW	0.84	0.85	0.86	0.87	0.88	0.89	0.91	0.92	0.93	
			aMW	0.34	0.34	0.33	0.33	0.32	0.32	0.32	0.31	0.31	Capacity Factor 50%
			Inst costs (\$/kW)	\$ 2,496	\$ 2,481	\$ 2,466	\$ 2,451	\$ 2,436	\$ 2,422	\$ 2,407	\$ 2,393	\$ 2,379	
			O&M (\$/MW)	\$ 66,446	\$ 67,709	\$ 68,995	\$ 70,306	\$ 71,642	\$ 73,003	\$ 74,390	\$ 75,804	\$ 77,244	
			Fuel (\$/kW)	\$ 361	\$ 362	\$ 323	\$ 337	\$ 350	\$ 355	\$ 370	\$ 386	\$ 411	Levelized Cost \$0.14 \$/kWh
Fuel Cell	65%	35%											
line loss:	8.1%		MW	0.47	0.47	0.48	0.48	0.49	0.50	0.51	0.51	0.52	
			aMW	0.35	0.35	0.35	0.35	0.35	0.36	0.36	0.36	0.36	Capacity Factor 80%
			Inst costs (\$/kW)	\$ 4,281	\$ 4,149	\$ 4,020	\$ 3,896	\$ 3,775	\$ 3,658	\$ 3,544	\$ 3,434	\$ 3,328	
			O&M (\$/MW)	\$ 43,100	\$ 43,919	\$ 44,754	\$ 45,604	\$ 46,470	\$ 47,353	\$ 48,253	\$ 49,170	\$ 50,104	
			Fuel (\$/kW)	\$ 440	\$ 441	\$ 395	\$ 411	\$ 427	\$ 433	\$ 452	\$ 471	\$ 502	Levelized Cost \$0.15 \$/kWh
Gas Turbine	65%	35%											
line loss:	8.1%		MW	0.55	0.56	0.57	0.57	0.58	0.59	0.60	0.61	0.61	
			aMW	0.41	0.41	0.42	0.42	0.42	0.42	0.43	0.43	0.43	Capacity Factor 80%
			Inst costs (\$/kW)	\$ 1,990	\$ 2,008	\$ 2,026	\$ 2,044	\$ 2,063	\$ 2,081	\$ 2,100	\$ 2,119	\$ 2,138	
			O&M (\$/MW)	\$ 70,038	\$ 71,369	\$ 72,725	\$ 74,106	\$ 75,514	\$ 76,949	\$ 78,411	\$ 79,901	\$ 81,419	
			Fuel (\$/kW)	\$ 455	\$ 456	\$ 408	\$ 424	\$ 441	\$ 447	\$ 467	\$ 487	\$ 518	Levelized Cost \$0.08 \$/kWh

Combined Heat & Power: Renewable OR

Biomass	% Penetration (by MW)			2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
	Com	Ind													
Industrial	0%	100%													
			MW	10.79	16.18	21.57	26.97	32.36	37.75	43.15	48.54	53.93	59.33	59.89	60.4739661
line loss:	6.5%		aMW	9.71	14.27	18.70	22.99	27.15	31.19	35.11	38.91	42.60	46.18	45.30	44.46307423
			Inst costs (\$/kW)	\$ 1,800	\$ 1,825	\$ 1,851	\$ 1,877	\$ 1,903	\$ 1,930	\$ 1,957	\$ 1,984	\$ 2,012	\$ 2,040	\$ 2,068	2097.442241
			O&M (\$/MW)	\$ 39,420	\$ 40,169	\$ 40,932	\$ 41,710	\$ 42,502	\$ 43,310	\$ 44,133	\$ 44,971	\$ 45,826	\$ 46,696	\$ 47,584	48487.81835
Anaerobic Digester	100%	0%													
			MW	0.12	0.18	0.23	0.29	0.35	0.41	0.47	0.53	0.59	0.64	0.65	0.656528098
line loss:	9%		aMW	0.06	0.09	0.11	0.14	0.16	0.19	0.21	0.23	0.26	0.28	0.27	0.268171022
			Inst costs (\$/kW)	3,383.22	3,362.92	3,342.75	3,322.69	3,302.75	3,282.94	3,263.24	3,243.66	3,224.20	3,204.85	3,185.62	3166.510867
			O&M (\$/MW)	\$ 52,967	\$ 53,974	\$ 54,999	\$ 56,044	\$ 57,109	\$ 58,194	\$ 59,300	\$ 60,427	\$ 61,575	\$ 62,745	\$ 63,937	65151.59055

Biomass	% Penetration (by MW)			2023	2024	2025	2026	2027	2028	2029	2030	Levelized Cost
	Com	Ind										
Industrial	0%	100%										
			MW	61.20	62.13	62.76	63.55	64.37	65.52	66.19	66.88	
line loss:	6.5%		aMW	43.79	43.31	42.57	42.01	41.48	41.27	40.64	40.04	Capacity Factor 90%
			Inst costs (\$/kW)	\$ 2,127	\$ 2,157	\$ 2,187	\$ 2,217	\$ 2,248	\$ 2,280	\$ 2,312	\$ 2,344	
			O&M (\$/MW)	\$ 49,409	\$ 50,348	\$ 51,304	\$ 52,279	\$ 53,273	\$ 54,285	\$ 55,316	\$ 56,367	Levelized Cost \$0.03 \$/kWh
Anaerobic Digester	100%	0%										
			MW	0.66	0.67	0.68	0.69	0.70	0.71	0.72	0.73	
line loss:	9%		aMW	0.26	0.26	0.26	0.25	0.25	0.25	0.25	0.24	Capacity Factor 50%
			Inst costs (\$/kW)	3,147.51	3,128.63	3,109.85	3,091.20	3,072.65	3,054.21	3,035.89	3,017.67	
			O&M (\$/MW)	\$ 66,389	\$ 67,651	\$ 68,936	\$ 70,246	\$ 71,581	\$ 72,941	\$ 74,327	\$ 75,739	Levelized Cost \$0.10 \$/kWh

Combined Heat & Power Achievable Potential and Cost

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
MW	12.3	18.5	24.7	30.9	37.0	43.2	49.4	55.5	61.7	67.9
aMW	10.5	15.5	20.3	25.0	29.5	33.9	38.2	42.3	46.3	50.2
Total Cost	\$ 17,639	\$ 17,474	\$ 17,315	\$ 17,163	\$ 17,018	\$ 16,878	\$ 16,745	\$ 16,617	\$ 16,496	\$ 16,379
Fuel (\$/MMBTU)	\$ 295,327	\$ 300,939	\$ 306,656	\$ 312,483	\$ 318,420	\$ 324,470	\$ 330,635	\$ 336,917	\$ 343,319	\$ 349,842

	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
MW	68.5	69.2	70.0	71.1	71.8	72.7	73.7	75.0	75.7	76.5
aMW	49.3	48.4	47.7	47.1	46.4	45.8	45.2	45.0	44.3	43.7
Total Cost	\$ 16,269	\$ 16,163	\$ 16,063	\$ 15,968	\$ 15,878	\$ 15,792	\$ 15,711	\$ 15,635	\$ 15,564	\$ 15,497
Fuel (\$/MMBTU)	\$ 356,489	\$ 363,262	\$ 370,164	\$ 377,197	\$ 384,364	\$ 391,667	\$ 399,108	\$ 406,691	\$ 414,418	\$ 422,292

Combined Heat & Power:Non-Renewable UT

Non-Renewable	% Penetration (by MW)			2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
	Com	Ind												
Recip Engine	65%	35%												
line loss:	8.1%		MW	2.22	3.33	4.44	5.55	6.66	7.77	8.88	9.99	11.10	12.21	12.32
			aMW	1.11	1.63	2.14	2.63	3.10	3.57	4.01	4.45	4.87	5.28	5.18
			Inst costs (\$/kW)	\$ 1,932	\$ 1,949	\$ 1,967	\$ 1,984	\$ 2,002	\$ 2,020	\$ 2,038	\$ 2,057	\$ 2,075	\$ 2,094	\$ 2,113
			O&M (\$/MW)	\$ 56,940	\$ 58,022	\$ 59,124	\$ 60,248	\$ 61,392	\$ 62,559	\$ 63,747	\$ 64,959	\$ 66,193	\$ 67,450	\$ 68,732
			Fuel (\$/kW)	\$ 181	\$ 193	\$ 199	\$ 207	\$ 216	\$ 231	\$ 245	\$ 252	\$ 265	\$ 281	\$ 302
Microturbine	65%	35%												
line loss:	8.1%		MW	0.30	0.45	0.60	0.75	0.90	1.05	1.20	1.35	1.50	1.64	1.66
			aMW	0.15	0.22	0.29	0.35	0.42	0.48	0.54	0.60	0.66	0.71	0.70
			Inst costs (\$/kW)	\$ 2,667	\$ 2,651	\$ 2,635	\$ 2,619	\$ 2,603	\$ 2,588	\$ 2,572	\$ 2,557	\$ 2,541	\$ 2,526	\$ 2,511
			O&M (\$/MW)	\$ 54,020	\$ 55,046	\$ 56,092	\$ 57,158	\$ 58,244	\$ 59,351	\$ 60,478	\$ 61,627	\$ 62,798	\$ 63,991	\$ 65,207
			Fuel (\$/kW)	\$ 181	\$ 193	\$ 199	\$ 207	\$ 216	\$ 231	\$ 245	\$ 252	\$ 265	\$ 281	\$ 302
Fuel Cell	65%	35%												
line loss:	8.1%		MW	0.17	0.25	0.33	0.42	0.50	0.58	0.67	0.75	0.83	0.92	0.93
			aMW	0.13	0.20	0.26	0.33	0.39	0.45	0.52	0.58	0.64	0.70	0.70
			Inst costs (\$/kW)	\$ 6,054	\$ 5,866	\$ 5,684	\$ 5,508	\$ 5,337	\$ 5,172	\$ 5,012	\$ 4,856	\$ 4,706	\$ 4,560	\$ 4,418
			O&M (\$/MW)	\$ 35,040	\$ 35,706	\$ 36,384	\$ 37,075	\$ 37,780	\$ 38,498	\$ 39,229	\$ 39,975	\$ 40,734	\$ 41,508	\$ 42,297
			Fuel (\$/kW)	\$ 220	\$ 235	\$ 243	\$ 252	\$ 264	\$ 282	\$ 299	\$ 307	\$ 323	\$ 343	\$ 369
Gas Turbine	65%	35%												
line loss:	8.1%		MW	0.20	0.30	0.40	0.49	0.59	0.69	0.79	0.89	0.99	1.09	1.10
			aMW	0.16	0.24	0.31	0.39	0.46	0.54	0.61	0.68	0.76	0.83	0.83
			Inst costs (\$/kW)	\$ 1,803	\$ 1,820	\$ 1,836	\$ 1,853	\$ 1,869	\$ 1,886	\$ 1,903	\$ 1,920	\$ 1,937	\$ 1,955	\$ 1,972
			O&M (\$/MW)	\$ 56,940	\$ 58,022	\$ 59,124	\$ 60,248	\$ 61,392	\$ 62,559	\$ 63,747	\$ 64,959	\$ 66,193	\$ 67,450	\$ 68,732
			Fuel (\$/kW)	\$ 228	\$ 243	\$ 251	\$ 260	\$ 273	\$ 291	\$ 309	\$ 317	\$ 333	\$ 354	\$ 381

Non-Renewable	% Penetration (by MW)			2022	2023	2024	2025	2026	2027	2028	2029	2030	Levelized Cost
	Com	Ind											
Recip Engine	65%	35%											
line loss:	8.1%		MW	12.44	12.59	12.78	12.91	13.08	13.24	13.48	13.62	13.76	
			aMW	5.08	5.00	4.95	4.87	4.80	4.74	4.72	4.64	4.58	Capacity Factor 50%
			Inst costs (\$/kW)	\$ 2,132	\$ 2,151	\$ 2,170	\$ 2,190	\$ 2,209	\$ 2,229	\$ 2,249	\$ 2,270	\$ 2,290	
			O&M (\$/MW)	\$ 70,038	\$ 71,369	\$ 72,725	\$ 74,106	\$ 75,514	\$ 76,949	\$ 78,411	\$ 79,901	\$ 81,419	
			Fuel (\$/kW)	\$ 325	\$ 324	\$ 289	\$ 299	\$ 318	\$ 326	\$ 337	\$ 349	\$ 370	Levelized Cost \$0.12 \$/kWh
Microturbine	65%	35%											
line loss:	8.1%		MW	1.68	1.70	1.72	1.74	1.76	1.78	1.82	1.83	1.85	
			aMW	0.68	0.67	0.67	0.66	0.65	0.64	0.64	0.63	0.62	Capacity Factor 50%
			Inst costs (\$/kW)	\$ 2,496	\$ 2,481	\$ 2,466	\$ 2,451	\$ 2,436	\$ 2,422	\$ 2,407	\$ 2,393	\$ 2,379	
			O&M (\$/MW)	\$ 66,446	\$ 67,709	\$ 68,995	\$ 70,306	\$ 71,642	\$ 73,003	\$ 74,390	\$ 75,804	\$ 77,244	
			Fuel (\$/kW)	\$ 325	\$ 324	\$ 289	\$ 299	\$ 318	\$ 326	\$ 337	\$ 349	\$ 370	Levelized Cost \$0.14 \$/kWh
Fuel Cell	65%	35%											
line loss:	8.1%		MW	0.94	0.95	0.96	0.97	0.98	1.00	1.01	1.02	1.03	
			aMW	0.70	0.70	0.71	0.71	0.71	0.71	0.72	0.72	0.72	Capacity Factor 80%
			Inst costs (\$/kW)	\$ 4,281	\$ 4,149	\$ 4,020	\$ 3,896	\$ 3,775	\$ 3,658	\$ 3,544	\$ 3,434	\$ 3,328	
			O&M (\$/MW)	\$ 43,100	\$ 43,919	\$ 44,754	\$ 45,604	\$ 46,470	\$ 47,353	\$ 48,253	\$ 49,170	\$ 50,104	
			Fuel (\$/kW)	\$ 397	\$ 395	\$ 352	\$ 365	\$ 388	\$ 397	\$ 412	\$ 425	\$ 452	Levelized Cost \$0.15 \$/kWh
Gas Turbine	65%	35%											
line loss:	8.1%		MW	1.11	1.12	1.14	1.15	1.16	1.18	1.20	1.21	1.22	
			aMW	0.83	0.83	0.84	0.84	0.84	0.85	0.85	0.85	0.85	Capacity Factor 80%
			Inst costs (\$/kW)	\$ 1,990	\$ 2,008	\$ 2,026	\$ 2,044	\$ 2,063	\$ 2,081	\$ 2,100	\$ 2,119	\$ 2,138	
			O&M (\$/MW)	\$ 70,038	\$ 71,369	\$ 72,725	\$ 74,106	\$ 75,514	\$ 76,949	\$ 78,411	\$ 79,901	\$ 81,419	
			Fuel (\$/kW)	\$ 410	\$ 408	\$ 364	\$ 377	\$ 400	\$ 410	\$ 425	\$ 439	\$ 466	Levelized Cost \$0.08 \$/kWh

Combined Heat & Power: Renewable UT

Biomass	% Penetration (by MW)			2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
	Com	Ind													
Industrial	0%	100%													
			MW	5.70	8.55	11.39	14.24	17.09	19.94	22.79	25.64	28.49	31.33	31.63	31.94001642
line loss:			aMW	5.13	7.54	9.88	12.14	14.34	16.48	18.54	20.55	22.50	24.39	23.93	23.48368088
			Inst costs (\$/kW)	\$ 1,800	\$ 1,825	\$ 1,851	\$ 1,877	\$ 1,903	\$ 1,930	\$ 1,957	\$ 1,984	\$ 2,012	\$ 2,040	\$ 2,068	2097.442241
			O&M (\$/MW)	\$ 39,420	\$ 40,169	\$ 40,932	\$ 41,710	\$ 42,502	\$ 43,310	\$ 44,133	\$ 44,971	\$ 45,826	\$ 46,696	\$ 47,584	48487.81835
Anaerobic Digester	100%	0%													
			MW	0.16	0.24	0.32	0.41	0.49	0.57	0.65	0.73	0.81	0.89	0.90	0.909045321
line loss:			aMW	0.08	0.12	0.16	0.19	0.23	0.26	0.29	0.32	0.36	0.39	0.38	0.371316344
			Inst costs (\$/kW)	\$ 3,383.22	\$ 3,362.92	\$ 3,342.75	\$ 3,322.69	\$ 3,302.75	\$ 3,282.94	\$ 3,263.24	\$ 3,243.66	\$ 3,224.20	\$ 3,204.85	\$ 3,185.62	3166.510867
			O&M (\$/MW)	\$ 52,967	\$ 53,974	\$ 54,999	\$ 56,044	\$ 57,109	\$ 58,194	\$ 59,300	\$ 60,427	\$ 61,575	\$ 62,745	\$ 63,937	65151.59055

Biomass	% Penetration (by MW)			2023	2024	2025	2026	2027	2028	2029	2030	Levelized Cost
	Com	Ind										
Industrial	0%	100%										
			MW	32.33	32.82	33.15	33.57	34.00	34.60	34.96	35.32	
line loss:	5.7%		aMW	23.13	22.87	22.49	22.19	21.91	21.80	21.46	21.15	Capacity Factor 90%
			Inst costs (\$/kW)	\$ 2,127	\$ 2,157	\$ 2,187	\$ 2,217	\$ 2,248	\$ 2,280	\$ 2,312	\$ 2,344	
			O&M (\$/MW)	\$ 49,409	\$ 50,348	\$ 51,304	\$ 52,279	\$ 53,273	\$ 54,285	\$ 55,316	\$ 56,367	Levelized Cost \$0.03 \$/kWh
Anaerobic Digester	100%	0%										
			MW	0.92	0.93	0.94	0.96	0.97	0.98	0.99	1.01	
line loss:	9%		aMW	0.37	0.36	0.36	0.35	0.35	0.34	0.34	0.33	Capacity Factor 50%
			Inst costs (\$/kW)	\$ 3,147.51	\$ 3,128.63	\$ 3,109.85	\$ 3,091.20	\$ 3,072.65	\$ 3,054.21	\$ 3,035.89	\$ 3,017.67	
			O&M (\$/MW)	\$ 66,389	\$ 67,651	\$ 68,936	\$ 70,246	\$ 71,581	\$ 72,941	\$ 74,327	\$ 75,739	Levelized Cost \$0.10 \$/kWh

Combined Heat & Power Achievable Potential and Cost

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
MW	8.7	13.1	17.5	21.9	26.2	30.6	35.0	39.3	43.7	48.1
aMW	6.8	9.9	13.0	16.0	18.9	21.8	24.5	27.2	29.8	32.3
Total Cost	\$ 17,639	\$ 17,474	\$ 17,315	\$ 17,163	\$ 17,018	\$ 16,878	\$ 16,745	\$ 16,617	\$ 16,496	\$ 16,379
Fuel (\$/MMBTU)	\$ 295,327	\$ 300,939	\$ 306,656	\$ 312,483	\$ 318,420	\$ 324,470	\$ 330,635	\$ 336,917	\$ 343,319	\$ 349,842

	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
MW	48.5	49.0	49.6	50.4	50.9	51.5	52.2	53.1	53.6	54.2
aMW	31.7	31.1	30.7	30.4	29.9	29.5	29.2	29.1	28.6	28.3
Total Cost	\$ 16,269	\$ 16,163	\$ 16,063	\$ 15,968	\$ 15,878	\$ 15,792	\$ 15,711	\$ 15,635	\$ 15,564	\$ 15,497
Fuel (\$/MMBTU)	\$ 356,489	\$ 363,262	\$ 370,164	\$ 377,197	\$ 384,364	\$ 391,667	\$ 399,108	\$ 406,691	\$ 414,418	\$ 422,292

Combined Heat & Power:Non-Renewable WA

Non-Renewable	% Penetration (by MW)			2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
	Com	Ind												
Recip Engine	65%	35%												
line loss:	8.3%		MW	0.36	0.53	0.71	0.89	1.07	1.25	1.43	1.60	1.78	1.96	1.98
			aMW	0.18	0.26	0.34	0.42	0.50	0.57	0.64	0.71	0.78	0.85	0.83
			Inst costs (\$/kW)	\$ 1,932	\$ 1,949	\$ 1,967	\$ 1,984	\$ 2,002	\$ 2,020	\$ 2,038	\$ 2,057	\$ 2,075	\$ 2,094	\$ 2,113
			O&M (\$/MW)	\$ 56,940	\$ 58,022	\$ 59,124	\$ 60,248	\$ 61,392	\$ 62,559	\$ 63,747	\$ 64,959	\$ 66,193	\$ 67,450	\$ 68,732
			Fuel (\$/kW)	\$ 193	\$ 206	\$ 212	\$ 220	\$ 230	\$ 248	\$ 271	\$ 283	\$ 292	\$ 309	\$ 335
Microturbine	65%	35%												
line loss:	8.3%		MW	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09	0.10	0.11	0.10
			aMW	0.05	0.07	0.10	0.12	0.14	0.17	0.19	0.22	0.24	0.26	0.27
			Inst costs (\$/kW)	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0
			O&M (\$/MW)	\$ 2,667	\$ 2,651	\$ 2,635	\$ 2,619	\$ 2,603	\$ 2,588	\$ 2,572	\$ 2,557	\$ 2,541	\$ 2,526	\$ 2,511
			Fuel (\$/kW)	\$ 54,020	\$ 55,046	\$ 56,092	\$ 57,158	\$ 58,244	\$ 59,351	\$ 60,478	\$ 61,627	\$ 62,798	\$ 63,991	\$ 65,207
				\$ 193	\$ 206	\$ 212	\$ 220	\$ 230	\$ 248	\$ 271	\$ 283	\$ 292	\$ 309	\$ 335
Fuel Cell	65%	35%												
line loss:	8.3%		MW	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09	0.09	0.10	0.10
			aMW	0.03	0.04	0.05	0.07	0.08	0.09	0.11	0.12	0.13	0.15	0.15
			Inst costs (\$/kW)	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0
			O&M (\$/MW)	\$ 6,054	\$ 5,866	\$ 5,684	\$ 5,508	\$ 5,337	\$ 5,172	\$ 5,012	\$ 4,856	\$ 4,706	\$ 4,560	\$ 4,418
			Fuel (\$/kW)	\$ 35,040	\$ 35,706	\$ 36,384	\$ 37,075	\$ 37,780	\$ 38,498	\$ 39,229	\$ 39,975	\$ 40,734	\$ 41,508	\$ 42,297
				\$ 235	\$ 251	\$ 259	\$ 269	\$ 281	\$ 302	\$ 331	\$ 346	\$ 356	\$ 378	\$ 409
Gas Turbine	65%	35%												
line loss:	8.3%		MW	0.03	0.05	0.06	0.08	0.10	0.11	0.13	0.14	0.16	0.17	0.18
			aMW	0.03	0.04	0.05	0.06	0.07	0.09	0.10	0.11	0.12	0.13	0.13
			Inst costs (\$/kW)	\$ 1,803	\$ 1,820	\$ 1,836	\$ 1,853	\$ 1,869	\$ 1,886	\$ 1,903	\$ 1,920	\$ 1,937	\$ 1,955	\$ 1,972
			O&M (\$/MW)	\$ 56,940	\$ 58,022	\$ 59,124	\$ 60,248	\$ 61,392	\$ 62,559	\$ 63,747	\$ 64,959	\$ 66,193	\$ 67,450	\$ 68,732
			Fuel (\$/kW)	\$ 243	\$ 260	\$ 267	\$ 277	\$ 290	\$ 312	\$ 342	\$ 357	\$ 368	\$ 390	\$ 422

Non-Renewable	% Penetration (by MW)			2022	2023	2024	2025	2026	2027	2028	2029	2030	Levelized Cost
	Com	Ind											
Recip Engine	65%	35%											
line loss:	8.3%		MW	2.00	2.02	2.05	2.07	2.10	2.13	2.17	2.19	2.21	
			aMW	0.82	0.80	0.80	0.78	0.77	0.76	0.76	0.75	0.74	Capacity Factor 50%
			Inst costs (\$/kW)	\$ 2,132	\$ 2,151	\$ 2,170	\$ 2,190	\$ 2,209	\$ 2,229	\$ 2,249	\$ 2,270	\$ 2,290	
			O&M (\$/MW)	\$ 70,038	\$ 71,369	\$ 72,725	\$ 74,106	\$ 75,514	\$ 76,949	\$ 78,411	\$ 79,901	\$ 81,419	
			Fuel (\$/kW)	\$ 361	\$ 362	\$ 323	\$ 337	\$ 350	\$ 355	\$ 370	\$ 386	\$ 411	Levelized Cost \$0.12 \$/kWh
Microturbine	65%	35%											
line loss:	8.3%		MW	0.27	0.27	0.28	0.28	0.28	0.29	0.29	0.29	0.30	
			aMW	0.11	0.11	0.11	0.11	0.10	0.10	0.10	0.10	0.10	Capacity Factor 50%
			Inst costs (\$/kW)	\$ 2,496	\$ 2,481	\$ 2,466	\$ 2,451	\$ 2,436	\$ 2,422	\$ 2,407	\$ 2,393	\$ 2,379	
			O&M (\$/MW)	\$ 66,446	\$ 67,709	\$ 68,995	\$ 70,306	\$ 71,642	\$ 73,003	\$ 74,390	\$ 75,804	\$ 77,244	
			Fuel (\$/kW)	\$ 361	\$ 362	\$ 323	\$ 337	\$ 350	\$ 355	\$ 370	\$ 386	\$ 411	Levelized Cost \$0.14 \$/kWh
Fuel Cell	65%	35%											
line loss:	8.3%		MW	0.15	0.15	0.15	0.16	0.16	0.16	0.16	0.16	0.17	
			aMW	0.11	0.11	0.11	0.11	0.11	0.11	0.12	0.12	0.12	Capacity Factor 80%
			Inst costs (\$/kW)	\$ 4,281	\$ 4,149	\$ 4,020	\$ 3,896	\$ 3,775	\$ 3,658	\$ 3,544	\$ 3,434	\$ 3,328	
			O&M (\$/MW)	\$ 43,100	\$ 43,919	\$ 44,754	\$ 45,604	\$ 46,470	\$ 47,353	\$ 48,253	\$ 49,170	\$ 50,104	
			Fuel (\$/kW)	\$ 440	\$ 441	\$ 395	\$ 411	\$ 427	\$ 433	\$ 452	\$ 471	\$ 502	Levelized Cost \$0.15 \$/kWh
Gas Turbine	65%	35%											
line loss:	8.3%		MW	0.18	0.18	0.18	0.18	0.19	0.19	0.19	0.19	0.20	
			aMW	0.13	0.13	0.13	0.13	0.13	0.14	0.14	0.14	0.14	Capacity Factor 80%
			Inst costs (\$/kW)	\$ 1,990	\$ 2,008	\$ 2,026	\$ 2,044	\$ 2,063	\$ 2,081	\$ 2,100	\$ 2,119	\$ 2,138	
			O&M (\$/MW)	\$ 70,038	\$ 71,369	\$ 72,725	\$ 74,106	\$ 75,514	\$ 76,949	\$ 78,411	\$ 79,901	\$ 81,419	
			Fuel (\$/kW)	\$ 455	\$ 456	\$ 408	\$ 424	\$ 441	\$ 447	\$ 467	\$ 487	\$ 518	Levelized Cost \$0.08 \$/kWh

Combined Heat & Power: Renewable WA

Biomass	% Penetration (by MW)			2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
	Com	Ind													
Industrial	0%	100%													
			MW	2.73	4.09	5.45	6.82	8.18	9.54	10.91	12.27	13.63	15.00	15.14	15.28624202
line loss:	7.5%		aMW	2.45	3.61	4.73	5.81	6.86	7.89	8.88	9.84	10.77	11.67	11.45	11.23910597
			Inst costs (\$/kW)	\$ 1,800	\$ 1,825	\$ 1,851	\$ 1,877	\$ 1,903	\$ 1,930	\$ 1,957	\$ 1,984	\$ 2,012	\$ 2,040	\$ 2,068	2097.442241
			O&M (\$/MW)	\$ 39,420	\$ 40,169	\$ 40,932	\$ 41,710	\$ 42,502	\$ 43,310	\$ 44,133	\$ 44,971	\$ 45,826	\$ 46,696	\$ 47,584	48487.81835
Anaerobic Digester	100%	0%													
			MW	0.02	0.04	0.05	0.06	0.07	0.08	0.09	0.10	0.10	0.11	0.11	0.109403073
line loss:	9%		aMW	0.05	0.08	0.10	0.13	0.16	0.18	0.21	0.23	0.26	0.29	0.29	0.291216774
			Inst costs (\$/kW)	0.03	0.04	0.05	0.06	0.07	0.08	0.09	0.10	0.10	0.12	0.12	0.118952868
			O&M (\$/MW)	\$ 3,383	\$ 3,363	\$ 3,343	\$ 3,323	\$ 3,303	\$ 3,283	\$ 3,263	\$ 3,244	\$ 3,224	\$ 3,205	\$ 3,186	3166.510867
				\$ 52,967	\$ 53,974	\$ 54,999	\$ 56,044	\$ 57,109	\$ 58,194	\$ 59,300	\$ 60,427	\$ 61,575	\$ 62,745	\$ 63,937	65.152

Biomass	% Penetration (by MW)			2023	2024	2025	2026	2027	2028	2029	2030	Levelized Cost
	Com	Ind										
Industrial	0%	100%										
			MW	15.47	15.71	15.86	16.06	16.27	16.56	16.73	16.90	
line loss:	7.5%		aMW	11.07	10.95	10.76	10.62	10.49	10.43	10.27	10.12	Capacity Factor 90%
			Inst costs (\$/kW)	\$ 2,127	\$ 2,157	\$ 2,187	\$ 2,217	\$ 2,248	\$ 2,280	\$ 2,312	\$ 2,344	
			O&M (\$/MW)	\$ 49,409	\$ 50,348	\$ 51,304	\$ 52,279	\$ 53,273	\$ 54,285	\$ 55,316	\$ 56,367	Levelized Cost \$0.03 \$/kWh
Anaerobic Digester	100%	0%										
			MW	0.29	0.30	0.30	0.31	0.31	0.32	0.32	0.32	
line loss:	9%		aMW	0.12	0.12	0.11	0.11	0.11	0.11	0.11	0.11	Capacity Factor 50%
			Inst costs (\$/kW)	3,147.51	3,128.63	3,109.85	3,091.20	3,072.65	3,054.21	3,035.89	3,017.67	
			O&M (\$/MW)	\$ 66,389	\$ 67,651	\$ 68,936	\$ 70,246	\$ 71,581	\$ 72,941	\$ 74,327	\$ 75,739	Levelized Cost \$0.10 \$/kWh

Combined Heat & Power Achievable Potential and Cost

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
MW	3.2	4.8	6.4	7.9	9.5	11.1	12.7	14.3	15.9	17.5
aMW	2.8	4.1	5.4	6.6	7.8	9.0	10.1	11.2	12.3	13.4
Total Cost	\$ 5,535	\$ 5,594	\$ 5,653	\$ 5,714	\$ 5,774	\$ 5,836	\$ 5,898	\$ 5,961	\$ 6,025	\$ 6,089
Fuel (\$/MMBTU)	\$ 165,404	\$ 168,092	\$ 170,843	\$ 173,655	\$ 176,530	\$ 179,470	\$ 182,475	\$ 185,545	\$ 188,683	\$ 191,888

	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
MW	17.6	18.0	18.4	18.7	18.9	19.1	19.3	19.7	19.9	20.1
aMW	13.1	12.7	12.3	12.2	12.0	11.9	11.7	11.7	11.5	11.3
Total Cost	\$ 6,154	\$ 12,997	\$ 16,063	\$ 15,968	\$ 15,878	\$ 15,792	\$ 15,711	\$ 15,635	\$ 15,564	\$ 15,497
Fuel (\$/MMBTU)	\$ 195,163	\$ 301,277	\$ 370,164	\$ 377,197	\$ 384,364	\$ 391,667	\$ 399,108	\$ 406,691	\$ 414,418	\$ 422,292

Combined Heat & Power:Non-Renewable WY

Non-Renewable	% Penetration (by MW)			2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
	Com	Ind												
Recip Engine	65%	35%												
line loss:	6.6%		MW	1.16	1.75	2.33	2.91	3.49	4.08	4.66	5.24	5.82	6.41	6.47
			aMW	0.58	0.86	1.12	1.38	1.63	1.87	2.11	2.33	2.56	2.77	2.72
			Inst costs (\$/kW)	\$ 1,932	\$ 1,949	\$ 1,967	\$ 1,984	\$ 2,002	\$ 2,020	\$ 2,038	\$ 2,057	\$ 2,075	\$ 2,094	\$ 2,113
			O&M (\$/MW)	\$ 56,940	\$ 58,022	\$ 59,124	\$ 60,248	\$ 61,392	\$ 62,559	\$ 63,747	\$ 64,959	\$ 66,193	\$ 67,450	\$ 68,732
			Fuel (\$/kW)	\$ 185	\$ 197	\$ 204	\$ 212	\$ 221	\$ 236	\$ 250	\$ 257	\$ 271	\$ 288	\$ 310
Microturbine	65%	35%												
line loss:	6.6%		MW	0.16	0.24	0.31	0.39	0.47	0.55	0.63	0.71	0.78	0.86	0.87
			aMW	0.08	0.12	0.15	0.19	0.22	0.25	0.28	0.31	0.34	0.37	0.37
			Inst costs (\$/kW)	\$ 2,667	\$ 2,651	\$ 2,635	\$ 2,619	\$ 2,603	\$ 2,588	\$ 2,572	\$ 2,557	\$ 2,541	\$ 2,526	\$ 2,511
			O&M (\$/MW)	\$ 54,020	\$ 55,046	\$ 56,092	\$ 57,158	\$ 58,244	\$ 59,351	\$ 60,478	\$ 61,627	\$ 62,798	\$ 63,991	\$ 65,207
			Fuel (\$/kW)	\$ 185	\$ 197	\$ 204	\$ 212	\$ 221	\$ 236	\$ 250	\$ 257	\$ 271	\$ 288	\$ 310
Fuel Cell	65%	35%												
line loss:	6.6%		MW	0.09	0.13	0.18	0.22	0.26	0.31	0.35	0.39	0.44	0.48	0.49
			aMW	0.07	0.10	0.14	0.17	0.21	0.24	0.27	0.30	0.34	0.37	0.37
			Inst costs (\$/kW)	\$ 6,054	\$ 5,866	\$ 5,684	\$ 5,508	\$ 5,337	\$ 5,172	\$ 5,012	\$ 4,856	\$ 4,706	\$ 4,560	\$ 4,418
			O&M (\$/MW)	\$ 35,040	\$ 35,706	\$ 36,384	\$ 37,075	\$ 37,780	\$ 38,498	\$ 39,229	\$ 39,975	\$ 40,734	\$ 41,508	\$ 42,297
			Fuel (\$/kW)	\$ 226	\$ 240	\$ 249	\$ 258	\$ 270	\$ 288	\$ 305	\$ 314	\$ 330	\$ 351	\$ 378
Gas Turbine	65%	35%												
line loss:	6.6%		MW	0.10	0.16	0.21	0.26	0.31	0.36	0.41	0.47	0.52	0.57	0.58
			aMW	0.08	0.12	0.16	0.20	0.24	0.28	0.32	0.36	0.40	0.43	0.43
			Inst costs (\$/kW)	\$ 1,803	\$ 1,820	\$ 1,836	\$ 1,853	\$ 1,869	\$ 1,886	\$ 1,903	\$ 1,920	\$ 1,937	\$ 1,955	\$ 1,972
			O&M (\$/MW)	\$ 56,940	\$ 58,022	\$ 59,124	\$ 60,248	\$ 61,392	\$ 62,559	\$ 63,747	\$ 64,959	\$ 66,193	\$ 67,450	\$ 68,732
			Fuel (\$/kW)	\$ 233	\$ 248	\$ 257	\$ 267	\$ 279	\$ 297	\$ 316	\$ 324	\$ 341	\$ 363	\$ 390

Non-Renewable	% Penetration (by MW)			2022	2023	2024	2025	2026	2027	2028	2029	2030	Levelized Cost
	Com	Ind											
Recip Engine	65%	35%											
line loss:	6.6%		MW	6.53	6.61	6.71	6.78	6.86	6.95	7.07	7.15	7.22	
			aMW	2.67	2.63	2.60	2.55	2.52	2.49	2.48	2.44	2.40	Capacity Factor 50%
			Inst costs (\$/kW)	\$ 2,132	\$ 2,151	\$ 2,170	\$ 2,190	\$ 2,209	\$ 2,229	\$ 2,249	\$ 2,270	\$ 2,290	
			O&M (\$/MW)	\$ 70,038	\$ 71,369	\$ 72,725	\$ 74,106	\$ 75,514	\$ 76,949	\$ 78,411	\$ 79,901	\$ 81,419	
			Fuel (\$/kW)	\$ 333	\$ 332	\$ 297	\$ 307	\$ 326	\$ 335	\$ 347	\$ 358	\$ 380	Levelized Cost \$0.12 \$/kWh
Microturbine	65%	35%											
line loss:	6.6%		MW	0.88	0.89	0.90	0.91	0.92	0.94	0.95	0.96	0.97	
			aMW	0.36	0.35	0.35	0.34	0.34	0.34	0.33	0.33	0.32	Capacity Factor 50%
			Inst costs (\$/kW)	\$ 2,496	\$ 2,481	\$ 2,466	\$ 2,451	\$ 2,436	\$ 2,422	\$ 2,407	\$ 2,393	\$ 2,379	
			O&M (\$/MW)	\$ 66,446	\$ 67,709	\$ 68,995	\$ 70,306	\$ 71,642	\$ 73,003	\$ 74,390	\$ 75,804	\$ 77,244	
			Fuel (\$/kW)	\$ 333	\$ 332	\$ 297	\$ 307	\$ 326	\$ 335	\$ 347	\$ 358	\$ 380	Levelized Cost \$0.14 \$/kWh
Fuel Cell	65%	35%											
line loss:	6.6%		MW	0.49	0.50	0.50	0.51	0.52	0.52	0.53	0.54	0.54	
			aMW	0.37	0.37	0.37	0.37	0.37	0.37	0.38	0.38	0.38	Capacity Factor 80%
			Inst costs (\$/kW)	\$ 4,281	\$ 4,149	\$ 4,020	\$ 3,896	\$ 3,775	\$ 3,658	\$ 3,544	\$ 3,434	\$ 3,328	
			O&M (\$/MW)	\$ 43,100	\$ 43,919	\$ 44,754	\$ 45,604	\$ 46,470	\$ 47,353	\$ 48,253	\$ 49,170	\$ 50,104	
			Fuel (\$/kW)	\$ 406	\$ 404	\$ 362	\$ 374	\$ 398	\$ 408	\$ 423	\$ 437	\$ 464	Levelized Cost \$0.15 \$/kWh
Gas Turbine	65%	35%											
line loss:	6.6%		MW	0.58	0.59	0.60	0.60	0.61	0.62	0.63	0.64	0.64	
			aMW	0.43	0.44	0.44	0.44	0.44	0.44	0.45	0.45	0.45	Capacity Factor 80%
			Inst costs (\$/kW)	\$ 1,990	\$ 2,008	\$ 2,026	\$ 2,044	\$ 2,063	\$ 2,081	\$ 2,100	\$ 2,119	\$ 2,138	
			O&M (\$/MW)	\$ 70,038	\$ 71,369	\$ 72,725	\$ 74,106	\$ 75,514	\$ 76,949	\$ 78,411	\$ 79,901	\$ 81,419	
			Fuel (\$/kW)	\$ 420	\$ 418	\$ 374	\$ 387	\$ 411	\$ 422	\$ 437	\$ 451	\$ 479	Levelized Cost \$0.08 \$/kWh

Combined Heat & Power: Renewable WY

Biomass	% Penetration (by MW)			2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
	Com	Ind													
Industrial	0%	100%													
			MW	5.84	8.76	11.68	14.59	17.51	20.43	23.35	26.27	29.19	32.11	32.42	32.72850836
line loss:	4.8%		aMW	5.25	7.72	10.12	12.44	14.70	16.88	19.00	21.06	23.05	24.99	24.52	24.06341424
			Inst costs (\$/kW)	\$ 1,800	\$ 1,825	\$ 1,851	\$ 1,877	\$ 1,903	\$ 1,930	\$ 1,957	\$ 1,984	\$ 2,012	\$ 2,040	\$ 2,068	2097.442241
			O&M (\$/MW)	\$ 39,420	\$ 40,169	\$ 40,932	\$ 41,710	\$ 42,502	\$ 43,310	\$ 44,133	\$ 44,971	\$ 45,826	\$ 46,696	\$ 47,584	48487.81835
Anaerobic Digester	100%	0%													
			MW	0.02	0.03	0.04	0.05	0.06	0.06	0.07	0.08	0.09	0.10	0.10	0.10330569
line loss:	8%		aMW	0.01	0.01	0.02	0.02	0.03	0.03	0.03	0.04	0.04	0.04	0.04	0.042197116
			Inst costs (\$/kW)	3,383.22	3,362.92	3,342.75	3,322.69	3,302.75	3,282.94	3,263.24	3,243.66	3,224.20	3,204.85	3,185.62	3166.510867
			O&M (\$/MW)	\$ 52,967	\$ 53,974	\$ 54,999	\$ 56,044	\$ 57,109	\$ 58,194	\$ 59,300	\$ 60,427	\$ 61,575	\$ 62,745	\$ 63,937	65151.59055

Biomass	% Penetration (by MW)			2023	2024	2025	2026	2027	2028	2029	2030	Levelized Cost
	Com	Ind										
Industrial	0%	100%										
			MW	33.12	33.63	33.96	34.39	34.84	35.46	35.82	36.19	
line loss:	4.8%		aMW	23.70	23.44	23.04	22.74	22.45	22.34	21.99	21.67	Capacity Factor 90%
			Inst costs (\$/kW)	\$ 2,127	\$ 2,157	\$ 2,187	\$ 2,217	\$ 2,248	\$ 2,280	\$ 2,312	\$ 2,344	
			O&M (\$/MW)	\$ 49,409	\$ 50,348	\$ 51,304	\$ 52,279	\$ 53,273	\$ 54,285	\$ 55,316	\$ 56,367	Levelized Cost \$0.03 \$/kWh
Anaerobic Digester	100%	0%										
			MW	0.10	0.11	0.11	0.11	0.11	0.11	0.11	0.11	
line loss:	8%		aMW	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	Capacity Factor 50%
			Inst costs (\$/kW)	3,147.51	3,128.63	3,109.85	3,091.20	3,072.65	3,054.21	3,035.89	3,017.67	
			O&M (\$/MW)	\$ 66,389	\$ 67,651	\$ 68,936	\$ 70,246	\$ 71,581	\$ 72,941	\$ 74,327	\$ 75,739	Levelized Cost \$0.10 \$/kWh

Combined Heat & Power Achievable Potential and Cost

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
MW	7.4	11.1	14.7	18.4	22.1	25.8	29.5	33.2	36.8	40.5
aMW	6.1	8.9	11.7	14.4	17.0	19.6	22.0	24.4	26.7	29.0
Total Cost	\$ 17,639	\$ 17,474	\$ 17,315	\$ 17,163	\$ 17,018	\$ 16,878	\$ 16,745	\$ 16,617	\$ 16,496	\$ 16,379
Fuel (\$/MMBTU)	\$ 295,327	\$ 300,939	\$ 306,656	\$ 312,483	\$ 318,420	\$ 324,470	\$ 330,635	\$ 336,917	\$ 343,319	\$ 349,842

	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
MW	40.9	41.3	41.8	42.4	42.9	43.4	44.0	44.8	45.2	45.7
aMW	28.4	27.9	27.5	27.2	26.8	26.4	26.1	26.0	25.6	25.3
Total Cost	\$ 16,269	\$ 16,163	\$ 16,063	\$ 15,968	\$ 15,878	\$ 15,792	\$ 15,711	\$ 15,635	\$ 15,564	\$ 15,497
Fuel (\$/MMBTU)	\$ 356,489	\$ 363,262	\$ 370,164	\$ 377,197	\$ 384,364	\$ 391,667	\$ 399,108	\$ 406,691	\$ 414,418	\$ 422,292

Glossary of Abbreviations Given in Existing CHP Generator Tables

Prime Mover

Code	Prime Mover Description
B/ST	Boiler/Steam Turbine
CA	Combined Cycle Steam Part
CC	Combined Cycle - Total Unit
CE	Compressed Air Energy Storage
CS	Combined Cycle Single Shaft (combustion turbine and steam turbine share a single generator)
CT	Combined Cycle Combustion Turbine Part
FC	Fuel Cell
GT	Combustion (Gas) Turbine (includes jet engine design)
HY	Hydraulic Turbine (includes turbines associated with delivery of water by pipeline)
IC	Internal Combustion Engine (diesel, piston)
MT	Microturbine
OTR	Other
PS	Hydraulic Turbine – Reversible (pumped storage)
PV	Photovoltaic
RENG	Reciprocating Engine
ST	Steam Turbine, including nuclear, geothermal and solar steam (does not include combined cycle)
WT	Wind Turbine
OT	Other
NA	Unknown at this time (use only for plants/generators in planning stage)

Energy Source

Code	Energy Source Description
AB	Agriculture Crop Byproducts/Straw/Energy Crops
BFG	Blast Furnace Gas
BIOMASS	Biomass
BIT	(Anthracite Coal, Bituminous Coal)
BLO	Black Liquor
BMTH	Bio-Methane
COAL	Coal
DFO	Distillate Fuel Oil (includes all Diesel and No. 1, No. 2, and No. 4 Fuel Oils)
GEO	Geothermal
JF	Jet Fuel
KER	Kerosene
LFG	Landfill Gas
LIG	Lignite Coal
MSW	Municipal Solid Waste
NG	Natural Gas
NUC	Nuclear (Uranium, Plutonium, Thorium)
OBG	Other Biomass Gases (Digester Gas, Methane, and other biomass gases)
OBL	Other Biomass Liquid (Ethanol, Fish Oil, Liquid Acetonitrile Waste, Medical Waste, Tall Oil, Waste Alcohol, and other Biomass not specified)
OBS	Other Biomass Solid (Animal Manure and Waste, Solid Byproducts, and other solid biomass not specified)
O-ES, OG	Other
OG	Other Gas (Butane, Coal Processes, Coke-Oven, Refinery, and other processes)
OIL	Oil
PC	Petroleum Coke
PG	Propane
PUR	Purchased Steam
RFO	Residual Fuel Oil (includes No. 5 and No. 6 Fuel Oils and Bunker C Fuel Oil)
SC	Coal-based Synfuel and include briquettes, pellets, or extrusions, which are formed by binding materials and processes that recycle material
SLW	Sludge Waste
SUB	Subbituminous Coal
SUN	Solar (Photovoltaic, Thermal)
TDF	Tires
WAT	Water (Conventional, Pumped Storage)
WC	Waste/Other Coal (Anthracite Culm, Bituminous Gob, Fine Coal, Lignite Waste, Waste Coal)
WDL	Wood Waste Liquids (Red Liquor, Sludge Wood, Spent Sulfite Liquor, and other wood related liquids not
WDS	Wood/Wood Waste Solids (Paper Pellets, Railroad Ties, Utility Poles, Wood Chips, and other wood solids)
W-FL	Waste Fuel
WND	Wind
WO	Oil-Other and Waste Oil (Butane (Liquid), Crude Oil, Liquid Byproducts, Oil Waste, Propane (Liquid), Re-refined

WOOD	Wood
OTH	Other (Batteries, Chemicals, Coke Breeze, Hydrogen, Pitch, Sulfur, Tar Coal, and miscellaneous technologies)
NA	Not Available

Source: EEA, Inc., NWCHP Application Center, Intermountain CHP Application Center, NWPCC

ID Existing

State	City	Organization Name	Facility Name	Application	SIC	NAICS	Op Year	Prime Mover	Capacity (kw)	Prim. Fuel
ID	Conda	Nu-West Industries	Sulfuric Acid Plant	Chemicals	2891	325520	1992	CT	2,800	OTR

Oregon Existing

State	City	Organization Name	Facility Name	Application	SIC	NAICS	Op Year	Prime Mover	Capacity (kw)	Prim. Fuel
OR	Klamath Falls	Curtis Livestock Ranch	Curtis Livestock Ranch	Agriculture	200	112111	.	ERENG	500	NG
OR	Eugene	University Of Oregon	University Of Oregon	Colleges/Univ.	8221	61131	1950	B/ST	4000	NG
OR	Albany	Wah Chang	Wah Chang	Primary Metals	3341	331314	2001	ERENG	14000	NG
OR	Albany	Willamette Industries, Inc./ Weyerhaeuser	Albany Paper Mill	Pulp and Paper	2621	322121	1995	CC	96000	NG
OR	Clatskanie	Georgia-Pacific Corp.	Wauna Paper Mill	Pulp and Paper	2621	322121	1996	B/ST	36000	WOOD
OR	Klamath Falls	Weyerhaeuser Co.	Weyerhaeuser Co.	Pulp and Paper	2661	322215	1990	B/ST	7500	OTR
OR	Medford	SierraPine Medite	Sierra Pine Medite	Pulp and Paper	2631	32213	2001	CT	6000	NG
OR	West Linn	West Linn Paper Co.	West Linn Paper Co.	Pulp and Paper	2600	322	.	B/ST	0	NG
OR	Salem	Covanta Marion Inc	Marion	Solid Waste Facilities	4953	562212	1986	B/ST	13100	WAST
OR	Medford	Medford Wastewater Plant	City of Medford WWTP	Wastewater Treatment	4952	22132	.	ERENG	700	BIOMASS
OR		Crater Lake Lumber Co.	Crater Lake Lumber Co.	Wood Products	2421	321113	1989	B/ST	2500	WOOD
OR	Eugene	Lane Plywood, Inc.	Lane Plywood, Inc.	Wood Products	2436	321212	1983	B/ST	460	WOOD
OR	Medford	Boise Cascade Corp.	Boise Cascade Medford Operations	Wood Products	2421	321113	1961	B/ST	8500	WOOD
OR	Prineville	Pine Products Corp.	Corporation	Wood Products	2421	321113	1988	B/ST	5000	WOOD
OR	Riddle	Johnson Lumber Co.	Co-Gen II	Wood Products	2421	321113	1987	B/ST	7500	WOOD
OR	Roseburg	Roseburg Forest Products Co.	Dillard Complex	Wood Products	2421	321113	1955	B/ST	40000	WOOD
OR	Warm Springs	Warm Springs Forest Products	Warm Springs Forest Products	Wood Products	2436	321212	1990	B/ST	6000	WOOD
OR	White City	D R Johnson Lumber Co.	Burrill Resources	Wood Products	2421	321113	1990	B/ST	1500	NG
OR	Corvallis	Coffin Butte LF	Pacific Northwest Generating Cooperative	LFG	4953	562212	1995	ERENG	2400	WAST
OR	Eugene	Short Mountain LF	Emerald People's Utility District	LFG	4953	562212	1992	ERENG	1600	WAST
OR	Eugene	Short Mountain LF	Emerald People's Utility District	LFG	4953	562212	1993	ERENG	1600	WAST

OR	Boardman	Waste Connections Inc. / Finley BioEnergy	Finley Buttes Regional Landfill	Solid Waste Facilities	4953	562212	2007	ERENG	3200	BIOMASS
OR	Cave Junction	Rough & Ready Lumber	Rough & Ready Lumber	Wood Products	2421	321113	2007	B/ST	1280	WOOD
OR	Hermiston	Finley Buttes Regional Landfill	Finley Butte Landfill	Solid Waste Facilities	4953	562212	2007	B/ST	3000	WAST

Utah Existing

State	City	Organization Name	Facility Name	SIC	NAICS	OpYear	Prime Mover	Capacity (kW)	Prim. Fuel
UT	Layton	Inkley's Photo Lab	Inkley's Photo Lab			1987	RENG	120	NG
UT	West Weber	Wadeland Dairy				2004	RENG	150	BIOMASS
UT	Tremonton	La-Z-Boy Chair Company	La-Z-Boy Chair Company	2512		1986	B/ST	290	WOOD
UT	Salt Lake City	Holy Cross Hospital	Holy Cross Hospital			1988	RENG	460	NG
UT	Salt Lake City	Salt Lake City Water Reclamation Plant	Salt Lake City Water Reclamation Plant			1985	RENG	460	OBG
UT	Salt Lake City	Mountain Fuel Supply	Mountain Fuel Supply			1993	RENG	1150	NG
UT	Ogden	Central Weber Wastewater Treatment Plant	Central Weber Wastewater Treatment Plant			2000	RENG	1246	OBG
UT	Syracuse	North Davis County Sewer Improvement District	North Davis County Sewer Improvement District			1998	RENG	1400	OBG
UT	Layton	Wasatch Energy Systems	Davis County Landfill	4939	22	1986	B/ST	1600	MSW
UT	Salt Lake City	Primary Childrens Medical Center	Primary Childrens Medical Center	8069	622	1988	IC	1800	NG
UT	Snowbird	Snowbird, Ltd./ Lone Peak Partners	Snowbird Ski Resort	7011		1986	RENG	1950	NG
UT	Logan	Utah State University	Utah State University Cogen and Chiller Plant			2003	CT	5000	NG
UT	Salt Lake City	Central Valley Water Reclamation Facility	Central Valley Water Reclamation Facility			1988	RENG	5970	OBG
UT	Salt Lake City	Tesoro Refining and Marketing Corp.	Tesoro Salt Lake Refinery			2002	GT	30000	NG/OG
UT	Bingham Canyon	Kennecott Utah Copper	Kennecott Utah Copper Smelter	3366	331411	2009	B/ST	7500	WAST
UT	Salt Lake City	University of Utah	University of Utah	8221	62231	2008	CT	4600	NG

Washington Existing

State	City	Organization Name	Facility Name	Application	SIC	NAICS	Op Year	Prime Mover	Capacity (kw)	Prim. Fuel
WA	Outlook	George DeRuyter & Sons Dairy	George DeRuyter & Sons Dairy	Agriculture	241	11212	2006	ERENG	1,060	BIOMASS

Wyoming Existing

State	City	Organization Name	Facility Name	Op Year	SIC	NAICS	Capacity (kW)	Prime Mover	Prim. Fuel
WY	Green River	General Chemical Corporation	General Chemical	1968	2810	325188	30000	ST	SUB
WY		Howell Petroleum Corp sub. of Anadarko	Elk Basin Gasoline Plant/Winkleman Dome	1948	211		4300	B/ST	NG
WY	Rock Springs	Simplot	Simplot	1986	1475	325311	11500	ST	NG
WY	Sinclair	Sinclair Oil Corp	Sinclair Oil Refinery	1925, 1954	2911	32411	3200	ST	DFO
WY	Riverton	Amoco Oil Co.	Amoco Oil Co.	2008	8731	54171	350	B/ST	NG

Energy Insights Data

Percent of Establishments that are CHP Eligible (30 kW-99kW)

Segment	CA	ID	OR	UT	WA	WY
Offices	0%	0%	0%	0%	0%	0%
Restaurants	0%	0%	0%	0%	0%	0%
Retail	8%	12%	0%	16%	0%	12%
Grocery	0%	0%	0%	0%	0%	0%
Warehouse	43%	43%	0%	42%	0%	42%
Schools	0%	48%	41%	44%	46%	41%
Health	13%	20%	8%	18%	8%	24%
Lodging	0%	0%	47%	0%	49%	0%
Other Commercial	21%	21%	16%	21%	16%	23%
Mining	22%	51%	0%	49%	0%	45%
Chemicals	22%	0%	46%	0%	46%	0%
Petroleum Refining	9%	17%	50%	42%	9%	39%
Food	49%	46%	48%	47%	47%	40%
Stone, Clay, Glass	51%	47%	44%	47%	47%	50%
Primary Metals	100%	49%	0%	47%	0%	49%
Industrial Machinery	0%	0%	0%	0%	0%	0%
Electronic Equipment	0%	0%	0%	0%	0%	0%
Transportation Equipmer	0%	0%	0%	0%	0%	0%
Lumber	44%	39%	46%	45%	45%	42%
Paper	100%	56%	48%	51%	43%	100%
Other Industrial	0%	0%	0%	0%	0%	0%
Total	12%	15%	10%	14%	11%	17%

Percent of Establishments that are CHP Eligible (100 kW-199 kW)

Segment	CA	ID	OR	UT	WA	WY
Offices	100%	100%	100%	100%	100%	100%
Restaurants	0%	100%	0%	100%	0%	100%
Retail	88%	94%	94%	99%	91%	98%
Grocery	100%	100%	100%	100%	100%	100%
Warehouse	100%	100%	94%	91%	55%	99%
Schools	100%	100%	100%	100%	100%	100%
Health	100%	100%	100%	100%	100%	100%
Lodging	100%	100%	100%	100%	100%	100%
Other Commercial	100%	100%	100%	100%	100%	100%
Mining	100%	100%	0%	100%	0%	100%
Chemicals	100%	100%	100%	100%	100%	100%
Petroleum Refining	100%	100%	100%	100%	100%	100%
Food	100%	100%	100%	100%	100%	100%
Stone, Clay, Glass	100%	100%	100%	100%	100%	100%
Primary Metals	100%	100%	0%	100%	0%	100%
Industrial Machinery	100%	0%	100%	0%	100%	0%
Electronic Equipment	100%	0%	0%	0%	0%	0%
Transportation Equipmer	100%	100%	100%	100%	100%	100%
Lumber	100%	100%	100%	100%	100%	100%
Paper	100%	100%	100%	100%	100%	100%
Other Industrial	71%	45%	41%	21%	72%	17%
Total	91%	93%	86%	92%	89%	94%

Percent of Establishments that are CHP Eligible (200 kW-499 kW)

Segment	CA	ID	OR	UT	WA	WY
Offices	100%	100%	100%	100%	100%	100%
Restaurants	100%	100%	100%	100%	100%	100%
Retail	95%	96%	98%	99%	95%	99%
Grocery	100%	100%	100%	100%	100%	100%
Warehouse	100%	100%	92%	93%	57%	99%
Schools	100%	100%	100%	100%	100%	100%
Health	100%	100%	100%	100%	100%	100%
Lodging	100%	100%	100%	100%	100%	100%
Other Commercial	100%	100%	100%	100%	100%	100%
Mining	100%	100%	0%	100%	0%	100%
Chemicals	100%	100%	100%	100%	100%	100%
Petroleum Refining	100%	100%	100%	100%	100%	100%
Food	100%	100%	100%	100%	100%	100%
Stone, Clay, Glass	100%	100%	100%	100%	100%	100%
Primary Metals	100%	100%	0%	100%	0%	100%
Industrial Machinery	100%	100%	100%	100%	100%	100%
Electronic Equipment	100%	100%	100%	100%	100%	100%
Transportation Equipmer	100%	100%	100%	100%	100%	100%
Lumber	100%	100%	100%	100%	100%	100%
Paper	100%	100%	100%	100%	100%	100%
Other Industrial	95%	82%	87%	83%	97%	75%
Total	99%	99%	99%	99%	99%	100%

Percent of Establishments that are CHP Eligible (> 500 kW)

Segment	CA	ID	OR	UT	WA	WY
Offices	100%	100%	100%	100%	100%	100%
Restaurants	100%	100%	100%	100%	100%	100%
Retail	100%	100%	100%	100%	100%	100%
Grocery	100%	100%	100%	100%	100%	100%
Warehouse	100%	100%	100%	100%	100%	100%
Schools	100%	100%	100%	100%	100%	100%
Health	100%	100%	100%	100%	100%	100%
Lodging	100%	100%	100%	100%	100%	100%
Other Commercial	100%	100%	100%	100%	100%	100%
Mining	100%	100%	100%	100%	100%	100%
Chemicals	100%	100%	100%	100%	100%	100%
Petroleum Refining	100%	100%	100%	100%	100%	100%
Food	100%	100%	100%	100%	100%	100%
Stone, Clay, Glass	100%	100%	100%	100%	100%	100%
Primary Metals	100%	100%	100%	100%	100%	100%
Industrial Machinery	100%	100%	100%	100%	100%	100%
Electronic Equipment	100%	100%	100%	100%	100%	100%
Transportation Equipmer	100%	100%	100%	100%	100%	100%
Lumber	100%	100%	100%	100%	100%	100%
Paper	100%	100%	100%	100%	100%	100%
Other Industrial	100%	100%	100%	100%	100%	100%
Total	100%	100%	100%	100%	100%	100%

Landfill Methane Outreach Program (LMOP) Database

California LMOP

Project ID #	Landfill ID #	Expansion ID #	LMOP Territory	Landfill Name	Landfill City	Landfill County	State	Waste In Place (tons)	Year Landfill Opened	Landfill Closure Year	Landfill Owner Organization	Project Status	Project Start Date	Project Shutdown Date	Project Developer Organization	LFG Utilization Type (Direct-Use vs Electricity)	LFG Project Type	MM Capacity	LFG Flow to Project (mmscfd)
96	40	0	3	Alturas SLF	Alturas	Modoc	CA	33872		2028	Modoc County, CA	Potential							
129	73	0	3	Black Butte Solid Waste Disposal Site	Mount Shasta	Siskiyou	CA	150000	2003		United States Department of Agriculture, United States Forest Service	Potential							
152	96	0	3	Cecilville Disposal Site	Cecilville	Siskiyou	CA	10000	1994		United States Department of Agriculture, United States Forest Service	Potential							
153	97	0	3	Cedarville LF - East	Cedarville	Modoc	CA	10000	1993		United States Bureau of Land Management	Potential							
186	130	0	3	Crescent City SLF	Crescent City	Del Norte	CA	806400	2005		Del Norte County	Potential							
196	140	0	3	Eagleville Disposal Site	Eagleville	Modoc	CA	10000	1993		United States Bureau of Land Management	Potential							
211	154	0	3	Fort Bidwell LF	Fort Bidwell	Modoc	CA	10000	1993		Modoc County, CA	Potential							
223	166	0	3	Happy Camp Solid Waste Disposal site	Happy Camp	Siskiyou	CA	10000	1996		Landfill Owner	Potential							
235	178	0	3	Hotelling Gulch Disposal Site	Forks of Salmon	Siskiyou	CA	10000	1995		United States Department of Agriculture, United States Forest Service	Potential							
242	185	0	3	Kelly Gulch Solid Waste Disposal Site	Sawyers Bar	Siskiyou	CA	10000	1994		United States Department of Agriculture, United States Forest Service	Potential							
247	190	0	3	Lake City LF	Lake City	Modoc	CA	10000	1993		United States Bureau of Land Management	Potential							
252	195	0	3	Lava Beds Disposal Site	Tulelake	Siskiyou	CA	10000	1995		United States Department of the Interior - National Park Service	Potential							
264	207	0	3	McCloud Community Services District LF	McCloud	Siskiyou	CA	50000	1995		McCloud Community Services District	Potential							
322	263	0	3	Rogers Creek	Somes Bar	Siskiyou	CA	10000	1995		United States Department of Agriculture, United States Forest Service	Potential							
280	223	0	3	Tennant Solid Waste Disposal Site	Tennant	Siskiyou	CA				United States Department of Agriculture, United States Forest Service	Potential							
357	297	0	3	Tulelake SLF	Tulelake	Siskiyou	CA	75000	2001		City of Tulelake	Potential							
378	318	0	3	Weed Solid Waste Disposal Site	Weed	Siskiyou	CA	25000	1995		Santa Fe Pac. Prop, Inc., Catellis Corp	Potential							
388	328	0	3	Yreka Solid Waste LF	Yreka	Siskiyou	CA	200000	2109		Siskiyou County, CA	Potential							

Source: <http://www.epa.gov/lmop/proj/index.htm>

Key:

US BLM: United States Bureau of Land Management
 US DOA: United States Department of Agriculture

Modoc Co. DPW: Modoc County Department of Public Works
 NPS: United States Department of the Interior - National Park Service

Idaho LMOP

Project ID #	Landfill ID #	Expansion ID #	LMOP Territory	Landfill Name	Landfill City	Landfill County	State	Waste In Place (tons)	Year Landfill Opened	Landfill Closure Year	Landfill Owner Organization	Project Status	Project Start Date	Project Shutdown Date	Project Developer Organization	LFGE Utilization Type (Direct-Use vs	LFGE Project Type	MW Capacity	LFGE Flow to Project (mmscf/d)
167073	1988	0	3	Fort Hall Mine Landfill	Pocatello	Bannock	ID	2,000,000	1945	2008	Bannock County, ID	Candidate							
180255	2178	0	3	Franklin County Sanitary Landfill	Preston	Franklin	ID		1968	2007	Franklin County, ID	Candidate							
180245	2168	0	3	Bingham County / Fielding / Goshen Landfill	Shelley	Bingham	ID			2000	Bingham County, ID	Potential							
180246	2169	0	3	Bingham County Landfill-Ridge Road	Blackfoot	Bingham	ID		1987	2002	Bingham County, ID	Potential							
180248	2171	0	3	Bonneville County Landfill	Idaho Falls	Bonneville	ID		1993		Bonneville County, ID	Potential							
180250	2173	0	3	Butte County Arco Sanitary Landfill	Arco	Butte	ID			2022	Butte County, ID	Potential							
180251	2174	0	3	Butte County Howe Landfill	Howe	Butte	ID				Butte County, ID	Potential							
180260	2183	0	3	Circular Butte Sanitary LF	Terreton	Jefferson	ID		1995		Jefferson County, ID	Potential							
180259	2182	0	3	Island Park Sanitary Landfill	Island Park	Fremont	ID	50,000	1980		Fremont County, ID	Potential							
180264	2187	0	3	Montpelier Canyon Landfill	Montpelier	Bear Lake	ID		1973	2042	Bear Lake County, ID	Potential							
180266	2189	0	3	Oneida County Sanitary Landfill	Malad City	Oneida	ID		1981	2002		Potential							
180269	2192	0	3	St. Anthony Landfill	St Anthony	Fremont	ID	75,000	1965		Fremont County, ID	Potential							

Source: <http://www.epa.gov/lmop/proj/index.htm>

Utah LMOP

Project ID #	Landfill ID #	Expansion ID #	LMOP Territory	Landfill Name	Landfill City	Landfill County	State	Waste In Place (tons)	Year Landfill Opened	Landfill Closure Year	Landfill Owner Organization	Project Status	Project Start Date	Project Shutdown Date	Project Developer Organization	LFGE Utilization Type (Direct-Use vs Electricity)	LFGE Project Type
1618	1541	0	3	Davis County Landfill	Layton	Davis	UT	4,309,000	1952	2026	Wasatch Integrated Waste Management District	Operational	38365		Ameresco, Inc.	Electricity	Reciprocating Engine
1618	1541	1	3	Davis County Landfill	Layton	Davis	UT	4,309,000	1952	2026	Wasatch Integrated Waste Management District	Operational	39630		Ameresco, Inc.	Electricity	Reciprocating Engine
1619	1542	0	3	Salt Lake Valley LF	Salt Lake	Salt Lake	UT	11,000,000	1982	2020	Salt Lake Valley Solid Waste Management Council	Operational	38898		Landfill Energy Systems, DTE Biomass Energy	Electricity	Reciprocating Engine
1620	1543	0	3	Trans-Jordan LF	South Jordan	Salt Lake	UT	7,272,671	1958	2023	Trans-Jordan Cities, UT	Operational	39904		Granger Energy	Electricity	Reciprocating Engine
1644	1567	0	3	Weber County LF	Ogden	Weber	UT	3,500,000	1966	1996	Weber County, UT	Operational	38353		Cooler Skies Company	Electricity	Reciprocating Engine
1617	1540	0	3	Bountiful City Sanitary LF	Woods Cross	Davis	UT	2,171,531	1962	2049	Bountiful City Corporation	Candidate					
1604	1527	0	3	City of Logan Sanitary Landfill	Logan	Cache	UT	1,400,000	1961	2016	City of Logan, UT	Candidate					
1616	1539	0	3	South Utah County SSD/Bayview LF	Elberta	Utah	UT	1,100,000	1991	2094	South Utah Valley Solid Waste District	Candidate					
1643	1566	0	3	Uintah County/Vernal City LF	Vernal	Uintah	UT	2,773,000	1950	2008	Uintah County, Vernal City	Candidate					
1636	1559	0	3	Washington County Landfill	Washington	Washington	UT	1,292,000	1978	2064	Washington County Special Services District	Candidate					
1630	1553	0	3	Beaver County LF	Beaver	Beaver	UT	107,648	1968	2026	Beaver County SSD #5	Potential					
1625	1548	0	3	Blanding LF	Blanding	San Juan	UT	50,780	1956	1995	Blanding City	Potential					
1598	1521	0	3	Brigham City LF	Brigham	Box Elder	UT	693,000	1960	1995	Box Elder County	Potential					
1606	1529	0	3	Callao LF		Juab	UT		1970			Potential					
1621	1544	0	3	Carbon County LF	Price	Carbon	UT	280,000	1956	1995	Carbon County	Potential					
1626	1549	0	3	City of Monticello LF	Monticello	San Juan	UT	36,000	1960	1995	Max Dalton	Potential					
###	2074	0	3	ECDC	East Carbon	Carbon	UT		1992	2059	Republic Services, Inc.	Potential					
1622	1545	0	3	Emery County LF	Castle Dale	Emery	UT	212,184	1983	2024	Emery County, UT	Potential					
1609	1532	0	3	Eskdale LF		Millard	UT					Potential					
1610	1533	0	3	Garrison LF	Garrison	Millard	UT	660	1986	1997	Millard County, UT	Potential					
1624	1547	0	3	Grand County LF	Moab	Grand	UT	76,300	1960	2004	Grand County, UT	Potential					
1623	1546	0	3	Green River LF	Green River	Emery	UT	79,205	1965	1995	Green River City	Potential					
1633	1556	0	3	Iron County/ Armstrong Pit LF	Cedar City	Iron	UT	44,962	1993	2014	Iron County, UT	Potential					
1611	1534	0	3	Millard County LF	Delta	Millard	UT	67,650	1986	2034	Millard County, UT	Potential					
1607	1530	0	3	Nephi LF	Nephi	Juab	UT	18,300	1987	2044	Nephi City, UT	Potential					
1600	1523	0	3	Park Valley LF	Park Valley	Box Elder	UT	2,400	1980	1995	Box Elder County	Potential					
1608	1531	0	3	Partown LF		Juab	UT					Potential					
1614	1537	0	3	Payson City LF	Payson	Utah	UT	616,029	1950	2014	Payson City Corporation	Potential					
1646	1569	0	3	Provo LF	Provo	Utah	UT	1,131,000	1963	1991	City of Provo, UT	Potential					
1605	1528	0	3	Rich County LF	Laketown	Rich	UT	40,688	1981	2030	Rich County, UT	Potential					
1627	1550	0	3	San Juan County/Bluff LF	Bluff	San Juan	UT	1,600	1980	1995	San Juan County	Potential					
1615	1538	0	3	Santaquin County LF	Santaquin	Utah	UT	262,080	1900	1995	Santaquin City	Potential					
1613	1536	0	3	Sevier County/Sage Flat LF	Glenwood	Sevier	UT	70,200	1993	2024	Sevier County, UT	Potential					
1601	1524	0	3	Snowville LF		Snowville	Box Elder	UT	8,100	1970	1997	Snowville Town	Potential				
1637	1560	0	3	Summit County/Three Mile Canyon LF	Coalville	Summit	UT	358,896	1986	2026	Summit County, UT	Potential					
1638	1561	0	3	Tooele Army Depot LF #1	Tooele	Tooele	UT			1995	Tooele Army Depot (TEAD)	Potential					
1639	1562	0	3	Tooele Army Depot LF #2	Tooele	Tooele	UT			1995	Deseret Chemical Depot	Potential					
1602	1525	0	3	Tremonton LF	Tremonton	Box Elder	UT	184,600	1970	1995	Box Elder County	Potential					

Oregon LMOP

Project ID #	Landfill ID #	Expansion ID #	LMOP Territory	Landfill Name	Landfill City	Landfill County	State	Waste In Place (tons)	Year Landfill Opened	Landfill Closure Year	Landfill Owner Organization	Project Status	Project Start Date	Project Shutdown Date	Project Developer Organization	LFGE Utilization Type (Direct Use vs Electricity)	LFGE Project Type	MW Capacity	LFGE Flow to Project (mmsafd)
1316	1241	0	3	Columbia Ridge LF	Arlington	Gilliam	OR	20,000,000	1990	2060	Waste Management, Inc.	Operational	40162		WM Renewable Energy, LLC	Electricity	Reciprocating Engine	6.4	
180125	2073	0	3	Dry Creek Landfill	Eagle Point	Jackson	OR	2,000,000	1997	2090	Rogue Disposal & Recycling	Operational	39217		Oregon Environmental Industries (OEI)	Electricity	Reciprocating Engine	3.2	1.5
1317	1242	0	3	Finley Buttes Regional Landfill	Boardman	Morrow	OR	4,000,000	1990	2060	Waste Connections, Inc.	Operational	39431		Finley BioEnergy LLC	Electricity	Cogeneration	3.2	1.872
1313	1238	0	3	Knott LF	Bend	Deschutes	OR	2,372,845	1972	2025	Deschutes County, OR	Candidate							
1315	1240	0	3	Northern Wasco County LF	The Dalles	Wasco	OR	1,600,000	1972	2075	Waste Connections, Inc.	Candidate							
1320	1245	0	3	Roseburg LF	Roseburg	Douglas	OR	1,500,000	1935	2025	Douglas County, OR	Candidate							
1314	1239	0	3	Klamath Falls LF	Klamath Falls	Klamath	OR	1,000,000	1911	2001	Klamath County, OR	Potential							
1318	1243	0	3	Milton-Freewater LF	Milton-Freewater	Umatilla	OR	125,000	1972	2030	City of Milton-Freewater	Potential							
1319	1244	0	3	Pendleton LF		Umatilla	OR	500,000	1972	1997	Sanitary Service Company	Potential							

Source: <http://www.epa.gov/lmop/proj/index.htm>

Washington LMOP

Project ID #	Landfill ID #	Expansion ID #	LMOP Territory	Landfill Name	Landfill City	Landfill County	State	Waste In Place (tons)	Year Landfill Opened	Landfill Closure Year	Landfill Owner Organization	Project Status	Project Start Date	Project Shutdown Date	Project Developer Organization	LFG Utilization Type (Direct-Use vs)	LFG Project Type	MW Capacity	LFG Flow to Project (mmscfd)	Emission Reductions (MMTCO2E/yr)
1687	1608	0	3	Cheyne Road LF	Zillah	Yakima	WA	1,198,976	1968		Yakima County	Candidate								
1707	1628	0	3	Sudbury Road LF	Walla Walla	Walla Walla	WA	1,102,317	1972	2007	City of Walla Walla	Candidate								
1708	1629	0	3	Terrace Heights LF	Yakima	Yakima	WA	3,727,219	1974	2012	Yakima County	Candidate								
1698	1619	0	3	New Waste Inc. LF	Pasco	Franklin	WA				Landfill Owner	Potential								
1728	1649	0	3	Pasco SLF	Pasco	Franklin	WA			1993	Landfill Owner	Potential								
1703	1624	0	3	Richland LF	Prosser	Benton	WA				Landfill Owner	Potential								
1732	1653	0	3	Snipes Mount LF	Yakima	Yakima	WA				Landfill Owner	Potential								
1710	1631	0	3	Yakima Firing Center	Yakima	Yakima	WA				United States Army	Potential								

Source: <http://www.epa.gov/lmop/proj/index.htm>

California Dairy/Swine Number of Farms

Zip Code	Place Name	Total Farms		No. Cows		No. Swine	
		Milk cow	Hogs and pigs	500-999	1000+	2000-4999	5000+
95531	Crescent City	8	7	0.96	5.76	1.33	4.62
95538	Fort Dick	*		0	0	0	0
95543	Gasquet			0	0	0	0
95548	Klamath			0	0	0	0
95567	Smith River	6		0.72	4.32	0	0
96014	Callahan		*	0	0	0	0
96015	Canby	*		0	0	0	0
96017	Castella			0	0	0	0
96023	Dorris	5	*	0.6	3.6	0	0
96025	Dunsmuir			0	0	0	0
96027	Etna	*	*	0	0	0	0
96032	Fort Jones	*	5	0	0	0.95	3.3
96034	Gazelle			0	0	0	0
96037	Greenview		*	0	0	0	0
96038	Grenada	*		0	0	0	0
96039	Happy Camp			0	0	0	0
96044	Hornbrook			0	0	0	0
96050	Klamath River	*		0	0	0	0
96051	Lakehead			0	0	0	0
96057	Mccloud			0	0	0	0
96058	Macdoel		*	0	0	0	0
96064	Montague	*	*	0	0	0	0
96067	Mount Shasta	*		0	0	0	0
96085	Scott Bar			0	0	0	0
96086	Seiad Valley			0	0	0	0
96094	Weed		*	0	0	0	0
96097	Yreka	*	5	0	0	0.95	3.3
96101	Alturas	*	*	0	0	0	0
96104	Cedarville	*		0	0	0	0
96134	Tulelake		*	0	0	0	0
Total:				2.28	13.68	3.23	11.22

Idaho Dairy/Swine Number of Farms

Zip Code	Place Name	Total Farms		No. Cows		No. Swine	
		Milk cow	Hogs and pigs	500-999	1000+	2000-4999	5000+
83213	Arco 1			0	0	0	0
83214	Arimo 1	*	10	0	0	1.9	6.6
83217	Bancroft 1	6	6	0.84	3.42	1.14	3.96
83218	Basalt 1			0	0	0	0
83220	Bern 1			0	0	0	0
83221	Blackfoot 1	36	14	5.04	20.52	2.66	9.24
83223	Bloomington 1	*		0	0	0	0
83228	Clifton 1	13		1.82	7.41	0	0
83232	Dayton 1	*	*	0	0	0	0
83233	Dingle 1			0	0	0	0
83234	Downey 1	*	7	0	0	1.33	4.62
83236	Firth 1	10	20	1.4	5.7	3.8	13.2
83237	Franklin 1	*		0	0	0	0
83238	Geneva 1	*		0	0	0	0
83239	Georgetown 1	5	6	0.7	2.85	1.14	3.96
83241	Grace 1	5	5	0.7	2.85	0.95	3.3
83243	Holbrook 1		*	0	0	0	0
83244	Howe 1	8	6	1.12	4.56	1.14	3.96
83246	Lava Hot Springs 1		*	0	0	0	0
83250	Mccammon 1	*	13	0	0	2.47	8.58
83252	Malad City 1	12	17	1.68	6.84	3.23	11.22
83254	Montpelier 1	11	*	1.54	6.27	0	0
83261	Paris 1	*	*	0	0	0	0
83263	Preston 1	42	28	5.88	23.94	5.32	18.48
83272	Saint Charles 1			0	0	0	0
83274	Shelley 1	9	*	1.26	5.13	0	0
83276	Soda Springs 1		*	0	0	0	0
83281	Swanlake 1	*		0	0	0	0
83283	Thatcher 1			0	0	0	0
83286	Weston 1	20	*	2.8	11.4	0	0
83287	Fish Haven 1			0	0	0	0
83401	Idaho Falls 1	9	16	1.26	5.13	3.04	10.56
83402	Idaho Falls 2	*	10	0	0	1.9	6.6
83403	Idaho Falls 3			0	0	0	0
83404	Idaho Falls 4		7	0	0	1.33	4.62
83405	Idaho Falls 5			0	0	0	0
83406	Idaho Falls 6			0	0	0	0

Zip Code	Place Name	Total Farms		No. Cows		No. Swine	
		Milk cow	Hogs and pigs	500-999	1000+	2000-4999	5000+
83420	Ashton 1	*		0	0	0	0
83421	Chester 1	*		0	0	0	0
83423	Dubois 1			0	0	0	0
83424	Felt 1			0	0	0	0
83425	Hamer 1	*		0	0	0	0
83427	Iona 1			0	0	0	0
83431	Lewisville 1	*		0	0	0	0
83434	Menan 1	6		0.84	3.42	0	0
83435	Monteview 1	*	6	0	0	1.14	3.96
83436	Newdale 1		*	0	0	0	0
83438	Parker 1		6	0	0	1.14	3.96
83440	Rexburg 1	10	6	1.4	5.7	1.14	3.96
83442	Rigby 1	20	*	2.8	11.4	0	0
83443	Ririe 1			0	0	0	0
83444	Roberts 1	*	*	0	0	0	0
83445	Saint Anthony 1	9	20	1.26	5.13	3.8	13.2
83448	Sugar City 1	*		0	0	0	0
83450	Terreton 1	*	*	0	0	0	0
83451	Teton 1			0	0	0	0
83452	Tetonia 1	5		0.7	2.85	0	0
83454	Ucon 1			0	0	0	0
83464	Leadore 1		*	0	0	0	0
83610	Cambridge 1	*	*	0	0	0	0
Total:				33.04	134.52	38.57	133.98

* Data withheld for categories with one to four farms. Farm counts for these zip codes are included in the 'State Total' category.

Source: http://www.nass.usda.gov/Census_of_Agriculture/index.asp

Oregon Dairy/Swine Number of Farms

Zip Code	Place Name	Total Farms		
		Hogs and pigs	2000-4999	5000+
97016	Clatskanie	9	1.71	5.94
97029	Grass Valley		0	0
97031	Hood River	8	1.52	5.28
97033	Kent	*	0	0
97039	Moro	*	0	0
97040	Mosier	*	0	0
97050	Rufus		0	0
97058	The Dalles	10	1.9	6.6
97060	Troutdale		0	0
97065	Wasco	*	0	0
97102	Arch Cape	*	0	0
97103	Astoria	11	2.09	7.26
97138	Seaside		0	0
97146	Warrenton	*	0	0
97201	Portland 1		0	0
97202	Portland 2		0	0
97203	Portland 3		0	0
97204	Portland 4		0	0
97205	Portland 5		0	0
97206	Portland 6		0	0
97208	Portland 8		0	0
97209	Portland 9		0	0
97210	Portland 10		0	0
97211	Portland 11		0	0
97212	Portland 12		0	0
97213	Portland 13		0	0
97214	Portland 14		0	0
97215	Portland 15		0	0
97216	Portland 16		0	0
97217	Portland 17		0	0
97218	Portland 18		0	0
97219	Portland 19		0	0
97220	Portland 20		0	0
97221	Portland 21		0	0
97230	Portland 29		0	0
97231	Portland 30	*	0	0
97232	Portland 31		0	0

Zip Code	Place Name	Total Farms		
		Hogs and pigs	2000-4999	5000+
97233	Portland 32		0	0
97236	Portland 33		0	0
97239	Portland 35		0	0
97242	Portland 37		0	0
97266	Portland 45		0	0
97283	Portland 54		0	0
97286	Portland 55		0	0
97293	Portland 59		0	0
97294	Portland 60		0	0
97301	Salem 1	11	2.09	7.26
97302	Salem 2	*	0	0
97303	Salem 3	*	0	0
97304	Salem 4	5	0.95	3.3
97305	Salem 5	7	1.33	4.62
97306	Salem 6	6	1.14	3.96
97307	Keizer		0	0
97308	Salem 7		0	0
97309	Salem 8		0	0
97321	Albany 1	*	0	0
97322	Albany 2	6	1.14	3.96
97325	Aumsville	*	0	0
97327	Brownsville	*	0	0
97329	Cascadia		0	0
97330	Corvallis 1	8	1.52	5.28
97331	Corvallis 2		0	0
97333	Corvallis 3	7	1.33	4.62
97335	Crabtree		0	0
97336	Crawfordsville		0	0
97338	Dallas	14	2.66	9.24
97339	Corvallis 4		0	0
97344	Falls City		0	0
97345	Foster		0	0
97346	Gates		0	0
97347	Grand Ronde	*	0	0
97348	Halsey	5	0.95	3.3
97351	Independence	*	0	0
97352	Jefferson	*	0	0
97355	Lebanon	21	3.99	13.86

Zip Code	Place Name	Total Farms		
		Hogs and pigs	2000-4999	5000+
97358	Lyons	*	0	0
97360	Mill City		0	0
97361	Monmouth	*	0	0
97367	Lincoln City	*	0	0
97368	Otis	*	0	0
97370	Philomath	15	2.85	9.9
97371	Rickreall		0	0
97372	Rose Lodge		0	0
97374	Scio	14	2.66	9.24
97377	Shedd	*	0	0
97383	Stayton	6	1.14	3.96
97384	Mehama		0	0
97385	Sublimity	*	0	0
97386	Sweet Home	*	0	0
97388	Gleneden Beach		0	0
97389	Tangent	*	0	0
97392	Turner	7	1.33	4.62
97401	Eugene 1		0	0
97402	Eugene 2	8	1.52	5.28
97403	Eugene 3		0	0
97404	Eugene 4		0	0
97405	Eugene 5	*	0	0
97408	Eugene 6	*	0	0
97410	Azalea		0	0
97411	Bandon	*	0	0
97414	Broadbent	*	0	0
97417	Canyonville		0	0
97420	Coos Bay	5	0.95	3.3
97423	Coquille	*	0	0
97424	Cottage Grove	9	1.71	5.94
97426	Creswell	9	1.71	5.94
97428	Curtin		0	0
97429	Days Creek	*	0	0
97432	Dillard	*	0	0
97442	Glendale	*	0	0
97443	Glide	5	0.95	3.3
97446	Harrisburg	*	0	0
97447	Idleyld Park		0	0

Zip Code	Place Name	Total Farms		
		Hogs and pigs	2000-4999	5000+
97448	Junction City	10	1.9	6.6
97456	Monroe	6	1.14	3.96
97457	Myrtle Creek	*	0	0
97458	Myrtle Point	6	1.14	3.96
97459	North Bend		0	0
97462	Oakland	6	1.14	3.96
97466	Powers		0	0
97469	Riddle	*	0	0
97470	Roseburg	31	5.89	20.46
97479	Sutherlin	*	0	0
97484	Tiller		0	0
97486	Umpqua	*	0	0
97495	Winchester		0	0
97496	Winston	*	0	0
97497	Wolf Creek		0	0
97501	Medford 1	14	2.66	9.24
97502	Central Point	13	2.47	8.58
97503	White City	6	1.14	3.96
97504	Medford 2	5	0.95	3.3
97520	Ashland	14	2.66	9.24
97522	Butte Falls		0	0
97523	Cave Junction	6	1.14	3.96
97524	Eagle Point	25	4.75	16.5
97525	Gold Hill	*	0	0
97526	Grants Pass 1	*	0	0
97527	Grants Pass 2	14	2.66	9.24
97528	Grants Pass 3		0	0
97530	Jacksonville	*	0	0
97531	Kerby		0	0
97532	Merlin	*	0	0
97533	Murphy		0	0
97534	O Brien		0	0
97535	Phoenix		0	0
97536	Prospect	*	0	0
97537	Rogue River	6	1.14	3.96
97538	Selma		0	0
97539	Shady Cove	*	0	0
97540	Talent	*	0	0

Zip Code	Place Name	Total Farms		
		Hogs and pigs	2000-4999	5000+
97541	Trail		0	0
97543	Wilderville	*	0	0
97544	Williams	*	0	0
97601	Klamath Falls 1	*	0	0
97602	Klamath Falls 2		0	0
97603	Klamath Falls 3	10	1.9	6.6
97621	Beatty		0	0
97622	Bly	*	0	0
97623	Bonanza	9	1.71	5.94
97624	Chiloquin	5	0.95	3.3
97625	Dairy	*	0	0
97626	Fort Klamath	*	0	0
97627	Keno		0	0
97630	Lakeview	*	0	0
97632	Malin	*	0	0
97633	Merrill	9	1.71	5.94
97634	Midland	*	0	0
97635	New Pine Creek		0	0
97639	Sprague River		0	0
97701	Bend 1	25	4.75	16.5
97702	Bend 2	*	0	0
97707	Bend 3		0	0
97708	Bend 4	*	0	0
97709	Bend 5		0	0
97734	Culver	*	0	0
97741	Madras	6	1.14	3.96
97754	Prineville	23	4.37	15.18
97756	Redmond	27	5.13	17.82
97760	Terrebonne	*	0	0
97761	Warm Springs		0	0
97801	Pendleton	6	1.14	3.96
97810	Adams	*	0	0
97812	Arlington	*	0	0
97813	Athena	*	0	0
97818	Boardman	*	0	0
97826	Echo	*	0	0
97828	Enterprise	6	1.14	3.96
97835	Helix		0	0

Zip Code	Place Name	Total Farms		
		Hogs and pigs	2000-4999	5000+
97838	Hermiston	16	3.04	10.56
97842	Imnaha		0	0
97846	Joseph	*	0	0
97857	Lostine	*	0	0
97862	Milton Freewater	12	2.28	7.92
97868	Pilot Rock	*	0	0
97875	Stanfield	6	1.14	3.96
97882	Umatilla		0	0
97885	Wallowa	5	0.95	3.3
97886	Weston		0	0
Total			101.27	351.78

* Data withheld for categories with one to four farms. Farm counts for these zip codes are included in the "state total" category.

Source: http://www.nass.usda.gov/Census_of_Agriculture/index.asp

% of farms of with herd size in range from: Farms, Land in Farms, and Livestock 2/07 USDA

Number of Oregon Dairy Farms

Farm	City	County	# Animals
TMCF (Six Mile Dairy)	Boardman	Morrow	21,819
TMCF	Colombia	Morrow	17,499
Williams Dairy	Milton-Freewater	Umatilla	6,250
Rickreall Dairy	Rickreall	Polk	3,221
Platt's	Oak Hill	Independence	2,888
Bonanza View	Bonanza	Klamath	1,900
Holland's Dairy	Klamath Falls	Klamath	1,660
Mallorie's Dairy	Silverton	Jefferson	1,600
Dejong, Tom or Nellie	Klamath Falls	Klamath	1,560
Volbeda Dairy	Albany	Linn	1,531
Danish Dairy	Coquille	Coos	1,208
Langell Valley	Bonanza	Klamath	1,193
Konyn Dairy	Eugene	Lane	1,190
Lochmead Farms	Junction City	Lane	1,109
Dejager Dairy	Jefferson	Marion	1,050
Noble Dairy	Grants Pass	Josephine	1,016

Source: "Sizing and Characterizing the Market for Oregon Biopower Projects" for Energy Trust, by CH2MHill, 2005

Utah Dairy/Swine Number of Farms

Zip Code	Place Name	Total Farms		No. Cows		No. Swine	
		Milk cow	Hogs and pigs	500-999	1000+	2000-4999	5000+
84003	American Fork 1	5	*	1.2	1.25	0	0
84004	Alpine 1	6		1.44	1.5	0	0
84010	Bountiful 1			0	0	0	0
84013	Cedar Valley 1			0	0	0	0
84014	Centerville 1			0	0	0	0
84015	Clearfield 1		*	0	0	0	0
84016	Clearfield 2			0	0	0	0
84017	Coalville 1	15	*	3.6	3.75	0	0
84018	Croydon 1			0	0	0	0
84020	Draper 1	*		0	0	0	0
84024	Echo 1			0	0	0	0
84025	Farmington 1		*	0	0	0	0
84028	Garden City 1			0	0	0	0
84029	Grantsville 1	*	11	0	0	2.09	7.26
84032	Heber City 1	6	8	1.44	1.5	1.52	5.28
84033	Henefer 1		*	0	0	0	0
84034	Ibapah 1	*	*	0	0	0	0
84036	Kamas 1	*	*	0	0	0	0
84037	Kaysville 1	*	*	0	0	0	0
84038	Laketown 1	*	*	0	0	0	0
84040	Layton 1			0	0	0	0
84041	Layton 2	*	*	0	0	0	0
84042	Lindon 1	*	*	0	0	0	0
84043	Lehi 1		15	0	0	2.85	9.9
84044	Magna 1	6	*	1.44	1.5	0	0
84047	Midvale 1			0	0	0	0
84049	Midway 1	*		0	0	0	0
84050	Morgan 1	9	11	2.16	2.25	2.09	7.26
84054	North Salt Lake 1			0	0	0	0
84055	Oakley 1	*		0	0	0	0
84057	Orem 1			0	0	0	0
84058	Orem 2	*		0	0	0	0
84059	Orem 3			0	0	0	0
84060	Park City 1			0	0	0	0
84061	Peoa 1	*		0	0	0	0
84062	Pleasant Grove 1	5	*	1.2	1.25	0	0
84064	Randolph 1		*	0	0	0	0
84065	Riverton 1	5	7	1.2	1.25	1.33	4.62
84067	Roy 1		6	0	0	1.14	3.96
84069	Rush Valley 1	*	*	0	0	0	0
84070	Sandy 1			0	0	0	0
84071	Stockton 1			0	0	0	0
84074	Tooele 1	*	8	0	0	1.52	5.28
84075	Syracuse 1	*		0	0	0	0
84078	Vernal 1	19	26	4.56	4.75	4.94	17.16
84079	Vernal 2			0	0	0	0
84080	Vernon 1			0	0	0	0
84082	Wallsburg 1	7	*	1.68	1.75	0	0

Zip Code	Place Name	Total Farms		No. Cows		No. Swine	
		Milk cow	Hogs and pigs	500-999	1000+	2000-4999	5000+
84084	West Jordan 1			0	0	0	0
84086	Woodruff 1			0	0	0	0
84087	Woods Cross 1	*		0	0	0	0
84088	West Jordan 2		*	0	0	0	0
84089	Clearfield 3			0	0	0	0
84092	Sandy 4			0	0	0	0
84093	Sandy 5		*	0	0	0	0
84094	Sandy 6			0	0	0	0
84095	South Jordan 1	7	*	1.68	1.75	0	0
84097	Orem 4	*		0	0	0	0
84098	Park City 3	*	*	0	0	0	0
84101	Salt Lake City 1			0	0	0	0
84102	Salt Lake City 2			0	0	0	0
84103	Salt Lake City 3			0	0	0	0
84104	Salt Lake City 4			0	0	0	0
84105	Salt Lake City 5			0	0	0	0
84106	Salt Lake City 6			0	0	0	0
84107	Salt Lake City 7	*		0	0	0	0
84108	Salt Lake City 8			0	0	0	0
84109	Salt Lake City 9			0	0	0	0
84110	Salt Lake City 10			0	0	0	0
84111	Salt Lake City 11			0	0	0	0
84115	Salt Lake City 15			0	0	0	0
84116	Salt Lake City 16			0	0	0	0
84117	Salt Lake City 17			0	0	0	0
84118	Salt Lake City 18			0	0	0	0
84119	Salt Lake City 19		*	0	0	0	0
84120	Salt Lake City 20		*	0	0	0	0
84121	Salt Lake City 21			0	0	0	0
84123	Salt Lake City 23	*		0	0	0	0
84124	Salt Lake City 24			0	0	0	0
84127	Salt Lake City 27			0	0	0	0
84128	Salt Lake City 28			0	0	0	0
84133	Salt Lake City 32			0	0	0	0
84147	Salt Lake City 41			0	0	0	0
84158	Salt Lake City 48			0	0	0	0
84165	Salt Lake City 49			0	0	0	0
84302	Brigham City 1	6	6	1.44	1.5	1.14	3.96
84304	Cache Junction 1			0	0	0	0
84305	Clarkston 1	*	*	0	0	0	0
84306	Collinston 1			0	0	0	0
84307	Corinne 1	5	*	1.2	1.25	0	0
84308	Cornish 1	8		1.92	2	0	0
84309	Deweyville 1	6		1.44	1.5	0	0
84310	Eden 1	*	*	0	0	0	0
84311	Fielding 1	7		1.68	1.75	0	0
84312	Garland 1	9	*	2.16	2.25	0	0
84314	Honeyville 1	*	*	0	0	0	0
84315	Hooper 1	*	*	0	0	0	0

Zip Code	Place Name	Total Farms		No. Cows		No. Swine	
		Milk cow	Hogs and pigs	500-999	1000+	2000-4999	5000+
84316	Howell 1	*	*	0	0	0	0
84317	Huntsville 1		*	0	0	0	0
84318	Hyde Park 1	*		0	0	0	0
84319	Hyrum 1	16		3.84	4	0	0
84320	Lewiston 1	24	*	5.76	6	0	0
84321	Logan 1	14	10	3.36	3.5	1.9	6.6
84322	Logan 2	*	*	0	0	0	0
84323	Logan 3			0	0	0	0
84324	Mantua 1		*	0	0	0	0
84325	Mendon 1	*	*	0	0	0	0
84326	Millville 1	*		0	0	0	0
84327	Newton 1	6		1.44	1.5	0	0
84328	Paradise 1	5		1.2	1.25	0	0
84330	Plymouth 1			0	0	0	0
84331	Portage 1			0	0	0	0
84332	Providence 1	*		0	0	0	0
84333	Richmond 1	5		1.2	1.25	0	0
84334	Riverside 1	*	*	0	0	0	0
84335	Smithfield 1	34	*	8.16	8.5	0	0
84336	Snowville 1	*	*	0	0	0	0
84337	Tremonton 1	16	21	3.84	4	3.99	13.86
84338	Trenton 1	7	*	1.68	1.75	0	0
84339	Wellsville 1	20	*	4.8	5	0	0
84340	Willard 1	*		0	0	0	0
84341	Logan 4	*	*	0	0	0	0
84401	Ogden 3	10	8	2.4	2.5	1.52	5.28
84402	Ogden 4			0	0	0	0
84403	Ogden 5			0	0	0	0
84404	Ogden 6	21	5	5.04	5.25	0.95	3.3
84405	Ogden 7		*	0	0	0	0
84409	Ogden 10			0	0	0	0
84412	Ogden 11			0	0	0	0
84414	Ogden 12	*		0	0	0	0
84501	Price 1	*	5	0	0	0.95	3.3
84511	Blanding 1	*	*	0	0	0	0
84512	Bluff 1			0	0	0	0
84513	Castle Dale 1	*	*	0	0	0	0
84516	Clawson 1			0	0	0	0
84518	Cleveland 1	*	*	0	0	0	0
84520	East Carbon 1			0	0	0	0
84521	Elmo 1	*	*	0	0	0	0
84522	Emery 1	*		0	0	0	0
84523	Ferron 1	7	*	1.68	1.75	0	0
84525	Green River 1	*	*	0	0	0	0
84526	Helper 1		*	0	0	0	0
84528	Huntington 1		7	0	0	1.33	4.62
84529	Kenilworth 1			0	0	0	0
84530	La Sal 1			0	0	0	0
84531	Mexican Hat 1			0	0	0	0

Zip Code	Place Name	Total Farms		No. Cows		No. Swine	
		Milk cow	Hogs and pigs	500-999	1000+	2000-4999	5000+
84532	Moab 1		*	0	0	0	0
84533	Lake Powell 1			0	0	0	0
84534	Montezuma Creek 1			0	0	0	0
84535	Monticello 1	7	*	1.68	1.75	0	0
84537	Orangeville 1			0	0	0	0
84539	Sunnyside 1			0	0	0	0
84542	Wellington 1			0	0	0	0
84601	Provo 1	*	*	0	0	0	0
84602	Provo 2			0	0	0	0
84603	Provo 3			0	0	0	0
84604	Provo 4			0	0	0	0
84605	Provo 5			0	0	0	0
84606	Provo 6			0	0	0	0
84620	Aurora 1		*	0	0	0	0
84621	Axtell 1			0	0	0	0
84622	Centerfield 1	*	*	0	0	0	0
84623	Chester 1	*		0	0	0	0
84624	Delta 1	22	15	5.28	5.5	2.85	9.9
84626	Elberta 1	*		0	0	0	0
84627	Ephraim 1		*	0	0	0	0
84628	Eureka 1			0	0	0	0
84629	Fairview 1	5	6	1.2	1.25	1.14	3.96
84630	Fayette 1	*	*	0	0	0	0
84632	Fountain Green 1			0	0	0	0
84633	Goshen 1	*		0	0	0	0
84634	Gunnison 1	8	5	1.92	2	0.95	3.3
84635	Hinckley 1	12	*	2.88	3	0	0
84636	Holden 1	*	*	0	0	0	0
84638	Leamington 1			0	0	0	0
84639	Levan 1	*	*	0	0	0	0
84640	Lynndyl 1			0	0	0	0
84642	Manti 1	5	*	1.2	1.25	0	0
84643	Mayfield 1	*	7	0	0	1.33	4.62
84645	Mona 1			0	0	0	0
84646	Moroni 1			0	0	0	0
84647	Mount Pleasant 1	*	5	0	0	0.95	3.3
84648	Nephi 1	*	*	0	0	0	0
84649	Oak City 1	*	*	0	0	0	0
84651	Payson 1	9	11	2.16	2.25	2.09	7.26
84652	Redmond 1	*	6	0	0	1.14	3.96
84653	Salem 1	*	*	0	0	0	0
84654	Salina 1	*	*	0	0	0	0
84655	Santaquin 1	11	10	2.64	2.75	1.9	6.6
84656	Scipio 1	*		0	0	0	0
84657	Sigurd 1	10		2.4	2.5	0	0
84660	Spanish Fork 1	7	18	1.68	1.75	3.42	11.88
84662	Spring City 1		*	0	0	0	0
84663	Springville 1	*	*	0	0	0	0
84664	Mapleton 1	7	6	1.68	1.75	1.14	3.96

Zip Code	Place Name	Total Farms		No. Cows		No. Swine	
		Milk cow	Hogs and pigs	500-999	1000+	2000-4999	5000+
84665	Sterling 1	*		0	0	0	0
84667	Wales 1		*	0	0	0	0
84701	Richfield 1	7	20	1.68	1.75	3.8	13.2
84711	Annabella 1		*	0	0	0	0
84713	Beaver 1	10	*	2.4	2.5	0	0
84720	Cedar City 1	*	5	0	0	0.95	3.3
84721	Cedar City 2		6	0	0	1.14	3.96
84722	Central 1			0	0	0	0
84723	Circleville 1	6		1.44	1.5	0	0
84724	Elsinore 1		*	0	0	0	0
84725	Enterprise 1	*		0	0	0	0
84730	Glenwood 1		*	0	0	0	0
84731	Greenville 1	*		0	0	0	0
84733	Gunlock 1			0	0	0	0
84737	Hurricane 1	9	10	2.16	2.25	1.9	6.6
84738	Ivins 1		*	0	0	0	0
84739	Joseph 1	*		0	0	0	0
84740	Junction 1			0	0	0	0
84742	Kanarrville 1			0	0	0	0
84743	Kingston 1			0	0	0	0
84745	La Verkin 1			0	0	0	0
84746	Leeds 1			0	0	0	0
84750	Marysvale 1	*		0	0	0	0
84751	Milford 1		5	0	0	0.95	3.3
84752	Minersville 1	6	6	1.44	1.5	1.14	3.96
84754	Monroe 1	5	6	1.2	1.25	1.14	3.96
84757	New Harmony 1			0	0	0	0
84759	Panguitch 1	*		0	0	0	0
84760	Paragonah 1		*	0	0	0	0
84761	Parowan 1	*	18	0	0	3.42	11.88
84763	Rockville 1	*		0	0	0	0
84765	Santa Clara 1	*		0	0	0	0
84766	Sevier 1	*		0	0	0	0
84767	Springdale 1			0	0	0	0
84770	Saint George 1	*	*	0	0	0	0
84772	Summit 1			0	0	0	0
84774	Toquerville 1			0	0	0	0
84779	Virgin 1			0	0	0	0
84780	Washington 1		*	0	0	0	0
84782	Veyo 1			0	0	0	0
84783	Dammeron Valley 1			0	0	0	0
Total:				110.9	115.5	60.6	210.5

* Data withheld for categories with one to four farms. Farm counts for these zip codes are included in the 'State Total' category.

Source: http://www.nass.usda.gov/Census_of_Agriculture/index.asp

Washington Dairy/Swine Number of Farms

Zip Code	Place Name	Total Farms		No. Cows		No. Swine	
		Milk cow	Hogs and pigs	500-999	1000+	2000-4999	5000+
98362	Port Angeles	*	6	0	0	1.14	3.96
98603	Ariel			0	0	0	0
98672	White Salmon			0	0	0	0
98901	Yakima 1			0	0	0	0
98902	Yakima 2	*	*	0	0	0	0
98903	Yakima 3	*	6	0	0	1.14	3.96
98904	Yakima 4			0	0	0	0
98907	Yakima 5	*		0	0	0	0
98908	Yakima 6	*	7	0	0	1.33	4.62
98909	Yakima 7	*		0	0	0	0
98920	Brownstown			0	0	0	0
98921	Buena			0	0	0	0
98923	Cowiche	*		0	0	0	0
98930	Grandview	10	9	1.6	4.4	1.71	5.94
98932	Granger	6		0.96	2.64	0	0
98933	Harrah			0	0	0	0
98935	Mabton	7	8	1.12	3.08	1.52	5.28
98936	Moxee	7		1.12	3.08	0	0
98937	Naches	*	*	0	0	0	0
98938	Outlook	5	*	0.8	2.2	0	0
98939	Parker			0	0	0	0
98942	Selah	7	*	1.12	3.08	0	0
98944	Sunnyside	30	6	4.8	13.2	1.14	3.96
98947	Tieton		*	0	0	0	0
98948	Toppenish	5	7	0.8	2.2	1.33	4.62
98951	Wapato	6	6	0.96	2.64	1.14	3.96
98952	White Swan	*		0	0	0	0
98953	Zillah	6	*	0.96	2.64	0	0
99301	Pasco	7	14	1.12	3.08	2.66	9.24
99323	Burbank	*	*	0	0	0	0
99324	College Place			0	0	0	0
99328	Dayton	*	6	0	0	1.14	3.96
99329	Dixie			0	0	0	0
99347	Pomeroy		*	0	0	0	0
99348	Prescott		*	0	0	0	0
99350	Prosser	12	5	1.92	5.28	0.95	3.3
99361	Waitsburg		*	0	0	0	0

Zip Code	Place Name	Total Farms		No. Cows		No. Swine	
		Milk cow	Hogs and pigs	500-999	1000+	2000-4999	5000+
99362	Walla Walla	9	*	1.44	3.96	0	0
99363	Walla Walla			0	0	0	0
Total:				18.72	51.48	15.2	52.8

* Data withheld for categories with one to four farms. Farm counts for these zip codes are included in the 'State Total' category.

Source: http://www.nass.usda.gov/Census_of_Agriculture/index.asp

Wyoming Dairy/Swine Number of Farms

Zip Code	Place Name	Total Farms		No. Cows		No. Swine	
		Milk cow	Hogs and pigs	500-999	1000+	2000-4999	5000+
82070	Laramie 1	7	6	1.61	2.87	1.14	3.96
82071	Laramie 2			0	0	0	0
82072	Laramie 3	*	*	0	0	0	0
82073	Laramie 4		*	0	0	0	0
82213	Glendo 1	*		0	0	0	0
82301	Rawlins 1	*		0	0	0	0
82310	Jeffrey City 1			0	0	0	0
82322	Bairoil 1			0	0	0	0
82334	Sinclair 1			0	0	0	0
82336	Wamsutter 1			0	0	0	0
82401	Worland 1	*	*	0	0	0	0
82412	Byron 1			0	0	0	0
82414	Cody 1	5	*	1.15	2.05	0	0
82420	Cowley 1		6	0	0	1.14	3.96
82421	Deaver 1			0	0	0	0
82423	Frannie 1		*	0	0	0	0
82426	Greybull 1		*	0	0	0	0
82430	Kirby 1			0	0	0	0
82431	Lovell 1	5	*	1.15	2.05	0	0
82432	Manderson 1			0	0	0	0
82433	Meeteetse 1		*	0	0	0	0
82435	Powell 1	6	9	1.38	2.46	1.71	5.94
82440	Ralston 1			0	0	0	0
82443	Thermopolis 1	*	*	0	0	0	0
82450	Wapiti 1			0	0	0	0
82501	Riverton 1	12	14	2.76	4.92	2.66	9.24
82515	Hudson 1			0	0	0	0
82520	Lander 1	6	*	1.38	2.46	0	0
82601	Casper 1		*	0	0	0	0
82602	Casper 2			0	0	0	0
82604	Casper 3	*	14	0	0	2.66	9.24
82605	Casper 4			0	0	0	0
82609	Casper 5			0	0	0	0
82620	Alcova 1	*		0	0	0	0
82633	Douglas 1	5	*	1.15	2.05	0	0
82635	Edgerton 1			0	0	0	0
82636	Evansville 1			0	0	0	0

Zip Code	Place Name	Total Farms		No. Cows		No. Swine	
		Milk cow	Hogs and pigs	500-999	1000+	2000-4999	5000+
82637	Glenrock 1	5	6	1.15	2.05	1.14	3.96
82640	Linch 1			0	0	0	0
82643	Midwest 1			0	0	0	0
82644	Mills 1	*	5	0	0	0.95	3.3
82649	Shoshoni 1	*	*	0	0	0	0
82834	Buffalo 1	*	7	0	0	1.33	4.62
82901	Rock Springs 1		*	0	0	0	0
82902	Rock Springs 2			0	0	0	0
82930	Evanston 1	*	*	0	0	0	0
82931	Evanston 2			0	0	0	0
82935	Green River 1	*		0	0	0	0
82943	Reliance 1			0	0	0	0
Total:				11.7	20.9	12.7	44.2

* Data withheld for categories with one to four farms. Farm counts for these zip codes are included in the 'State Total' category.

Source: http://www.nass.usda.gov/Census_of_Agriculture/index.asp

Gas Price from 6/30/2010 Price Forecast

Year	ID	WY	WA/OR	CA	UT
2010	\$4.19	\$4.19	\$4.31	\$4.40	\$4.47
2011	\$4.86	\$4.86	\$4.97	\$5.05	\$5.16
2012	\$5.19	\$5.19	\$5.33	\$5.41	\$5.50
2013	\$5.37	\$5.37	\$5.49	\$5.57	\$5.68
2014	\$5.58	\$5.58	\$5.71	\$5.79	\$5.90
2015	\$5.85	\$5.85	\$5.98	\$6.06	\$6.17
2016	\$6.25	\$6.25	\$6.46	\$6.56	\$6.59
2017	\$6.65	\$6.65	\$7.11	\$7.25	\$6.99
2018	\$6.84	\$6.84	\$7.44	\$7.60	\$7.18
2019	\$7.21	\$7.21	\$7.68	\$7.83	\$7.55
2020	\$7.68	\$7.68	\$8.16	\$8.33	\$8.02
2021	\$8.29	\$8.29	\$8.87	\$9.05	\$8.63
2022	\$8.94	\$8.94	\$9.58	\$9.78	\$9.28
2023	\$8.89	\$8.89	\$9.60	\$9.82	\$9.23
2024	\$7.90	\$7.90	\$8.52	\$8.76	\$8.25
2025	\$8.19	\$8.19	\$8.88	\$9.13	\$8.53
2026	\$8.73	\$8.73	\$9.25	\$9.50	\$9.07
2027	\$8.95	\$8.95	\$9.37	\$9.62	\$9.29
2028	\$9.29	\$9.29	\$9.80	\$10.06	\$9.63
2029	\$9.61	\$9.61	\$10.23	\$10.51	\$9.95
2030	\$10.22	\$10.22	\$10.93	\$11.22	\$10.56

Gas Price with Adders

Year	ID	WY	WA/OR	CA	UT	AVG
2010	\$4.71	\$4.60	\$4.83	\$4.50	\$4.47	\$4.62
2011	\$5.39	\$5.28	\$5.51	\$5.15	\$5.16	\$5.30
2012	\$5.74	\$5.62	\$5.88	\$5.51	\$5.50	\$5.65
2013	\$5.93	\$5.82	\$6.05	\$5.68	\$5.68	\$5.83
2014	\$6.15	\$6.04	\$6.28	\$5.90	\$5.90	\$6.05
2015	\$6.43	\$6.31	\$6.57	\$6.17	\$6.17	\$6.33
2016	\$6.85	\$6.73	\$7.07	\$6.67	\$6.59	\$6.78
2017	\$7.27	\$7.15	\$7.74	\$7.36	\$6.99	\$7.30
2018	\$7.47	\$7.34	\$8.08	\$7.71	\$7.18	\$7.56
2019	\$7.85	\$7.72	\$8.34	\$7.94	\$7.55	\$7.88
2020	\$8.35	\$8.21	\$8.83	\$8.44	\$8.02	\$8.37
2021	\$8.97	\$8.84	\$9.57	\$9.17	\$8.63	\$9.04
2022	\$9.65	\$9.51	\$10.30	\$9.90	\$9.28	\$9.73
2023	\$9.60	\$9.46	\$10.33	\$9.94	\$9.23	\$9.71
2024	\$8.60	\$8.46	\$9.23	\$8.89	\$8.25	\$8.69
2025	\$8.90	\$8.76	\$9.60	\$9.25	\$8.53	\$9.01
2026	\$9.46	\$9.31	\$9.99	\$9.63	\$9.07	\$9.49
2027	\$9.70	\$9.55	\$10.12	\$9.76	\$9.29	\$9.68
2028	\$10.05	\$9.90	\$10.57	\$10.20	\$9.63	\$10.07
2029	\$10.38	\$10.23	\$11.02	\$10.64	\$9.95	\$10.44
2030	\$11.02	\$10.86	\$11.74	\$11.35	\$10.56	\$11.11

Adders

State	Gas Commodity	Losses/taxes % of Commod	Variable \$/MMBtu	Reservation \$/MMBtu
CA	Malin	0.00%	0	0.1
WA/OR	Stanfield	2.01%	0.0316	0.39547
ID	Opal	2.01%	0.0316	0.39547
WY	Opal	1.72%	0.017	0.31718
UT	Gadsby	0.00%	0	0

Source: David Engberg of PacifiCorp

Appendix D-2. Technical Supplements: Supplemental Resources On-Site Solar

**Building Photovoltaic Achievable Technical Potential:
Apply ramping, percent market potential, capacity factors, and degradation loss**

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Apply Ramping Curve and % Market MW																				
WA	0.02	0.08	0.18	0.32	0.51	0.71	0.91	1.10	1.29	1.47	1.64	1.80	1.93	2.04	2.13	2.20	2.26	2.30	2.35	2.40
CA	0.00	0.02	0.04	0.08	0.12	0.17	0.22	0.27	0.31	0.35	0.40	0.44	0.47	0.50	0.52	0.53	0.55	0.56	0.57	0.58
ID	0.01	0.08	0.18	0.32	0.51	0.71	0.91	1.10	1.29	1.47	1.64	1.80	1.93	2.04	2.13	2.20	2.26	2.30	2.35	2.40
UT	0.32	0.83	1.73	3.07	4.89	6.80	8.80	10.67	12.62	14.41	16.26	17.92	19.35	20.54	21.46	22.26	22.92	23.25	23.60	24.15
WY	0.02	0.08	0.18	0.33	0.53	0.73	0.95	1.15	1.35	1.54	1.73	1.90	2.05	2.17	2.27	2.35	2.41	2.47	2.52	2.57
OR	0.37	0.95	1.94	3.38	5.29	7.27	9.31	11.18	13.10	14.84	16.62	18.19	19.53	20.63	21.48	22.20	22.79	23.10	23.41	23.88
Accumulative Total	0.74	2.02	4.24	7.49	11.85	16.39	21.11	25.47	29.98	34.07	38.30	42.05	45.27	47.93	49.98	51.74	53.19	53.99	54.80	55.98
Apply CF and 1% degradation aMW																				
WA	0.00	0.01	0.03	0.05	0.08	0.11	0.14	0.17	0.20	0.22	0.25	0.27	0.29	0.30	0.31	0.32	0.33	0.33	0.33	0.34
CA	0.00	0.00	0.01	0.01	0.02	0.03	0.03	0.04	0.05	0.05	0.06	0.07	0.07	0.07	0.08	0.08	0.08	0.08	0.08	0.08
ID	0.00	0.01	0.01	0.02	0.04	0.05	0.07	0.08	0.10	0.11	0.12	0.14	0.15	0.15	0.16	0.17	0.17	0.17	0.17	0.18
UT	0.06	0.15	0.31	0.54	0.86	1.19	1.54	1.85	2.18	2.48	2.78	3.05	3.27	3.45	3.57	3.68	3.75	3.77	3.80	3.85
WY	0.00	0.01	0.03	0.06	0.10	0.14	0.18	0.21	0.25	0.28	0.31	0.34	0.37	0.39	0.40	0.41	0.42	0.42	0.43	0.43
OR	0.06	0.15	0.30	0.53	0.83	1.13	1.44	1.72	2.01	2.26	2.52	2.74	2.92	3.06	3.17	3.25	3.30	3.32	3.33	3.37
Accumulative Total	0.12	0.33	0.69	1.22	1.92	2.64	3.39	4.07	4.78	5.40	6.04	6.60	7.06	7.43	7.69	7.90	8.05	8.09	8.14	8.24

Solar Attic Fan Achievable Technical Potential in MW and aMW

(Apply ramping, % market, and capacity factors)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030		
Achievable Technical MW																					aMW	
WA	0.00	0.01	0.01	0.03	0.04	0.05	0.07	0.10	0.12	0.15	0.18	0.22	0.25	0.29	0.32	0.36	0.40	0.44	0.48	0.52	WA	0.067
CA	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.03	0.03	0.04	0.04	0.05	0.05	0.06	0.06	0.07	CA	0.009
ID	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.02	0.02	0.03	0.03	0.04	0.05	0.06	0.06	0.07	0.08	0.09	0.10	0.11	ID	0.015
UT	0.03	0.08	0.16	0.28	0.43	0.63	0.86	1.13	1.45	1.83	2.25	2.71	3.19	3.69	4.18	4.70	5.24	5.82	6.39	7.00	UT	0.911
WY	0.00	0.00	0.00	0.01	0.01	0.02	0.02	0.03	0.04	0.05	0.06	0.08	0.09	0.10	0.11	0.13	0.14	0.16	0.17	0.19	WY	0.025
OR	0.01	0.03	0.07	0.11	0.18	0.25	0.34	0.44	0.56	0.70	0.84	1.00	1.16	1.32	1.48	1.65	1.82	2.00	2.17	2.36	OR	0.371
Total	0.04	0.12	0.25	0.44	0.67	0.97	1.31	1.73	2.21	2.78	3.39	4.07	4.77	5.50	6.20	6.96	7.73	8.57	9.38	10.25	Total	1.40

Solar Water Heater Achievable Technical Potential in MW and aMW

(Apply ramping, % market, and capacity factors)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030		
Achievable Technical MW																					aMW	
WA	0.13	0.39	0.79	1.33	2.03	2.88	3.86	5.02	6.35	7.90	9.49	11.20	12.92	14.71	16.43	18.22	20.06	22.03	23.85	25.79	WA	3.148
CA	0.05	0.15	0.30	0.51	0.77	1.10	1.48	1.93	2.45	3.06	3.70	4.39	5.08	5.81	6.50	7.23	7.98	8.78	9.53	10.32	CA	1.136
ID	0.04	0.14	0.28	0.48	0.75	1.09	1.50	1.99	2.56	3.25	3.99	4.81	5.67	6.58	7.48	8.44	9.45	10.53	11.54	12.65	ID	1.714
UT	0.15	0.46	0.94	1.63	2.50	3.61	4.91	6.45	8.24	10.38	12.64	15.14	17.70	20.38	23.01	25.79	28.68	31.78	34.79	38.05	UT	5.665
WY	0.05	0.15	0.31	0.53	0.81	1.16	1.56	2.04	2.59	3.25	3.92	4.67	5.42	6.21	6.97	7.77	8.60	9.49	10.39	11.37	WY	1.639
OR	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	60.35	OR	8.700
Total	0.42	1.29	2.61	4.48	6.87	9.84	13.32	17.43	22.19	27.84	33.75	40.21	46.79	53.69	60.38	67.46	74.77	82.61	90.10	158.54	Total	22.00

Solar Attic Fan and Solar Water Heater Accumulative Technical Potential in MWh and aMW

	Total		WA		CA		ID		UT		WY		OR	
	2011	2030	2011	2030	2011	2030	2011	2030	2011	2030	2011	2030	2011	2030
Solar Water Heater MWh	5,061	226,746	162	32,445	54	11,703	61	17,660	227	58,380	75	16,896	4,483	89,661
Solar Water Heater aMW	0.58	25.88	0.02	3.70	0.01	1.34	0.01	2.02	0.03	6.66	0.01	1.93	0.51	10.24
Solar Attic Fan MWh	58	14,399	3	693	0	94	0	150	35	9,385	1	253	18	3,825
Solar Attic Fan aMW	0.01	1.64	0.00	0.08	0.00	0.01	0.00	0.02	0.00	1.07	0.00	0.03	0.00	0.44

*****Levelized Costs*****

PV Residential

	CF	Year Cost	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
			\$17,777	\$72	\$73	\$74	\$76	\$77	\$79	\$80	\$82	\$83	\$85	\$86	\$88	\$90	\$91	
UT	0.178	Generation (kWh)	4,686	4,639	4,593	4,546	4,499	4,452	4,405	4,358	4,311	4,264	4,218	4,171	4,124	4,077	4,030	
WA	0.158	Generation (kWh)	4,141	4,100	4,059	4,017	3,976	3,934	3,893	3,851	3,810	3,769	3,727	3,686	3,644	3,603	3,562	
CA	0.157	Generation (kWh)	4,136	4,095	4,053	4,012	3,971	3,929	3,888	3,846	3,805	3,764	3,722	3,681	3,640	3,598	3,557	
ID	0.167	Generation (kWh)	4,400	4,356	4,312	4,268	4,224	4,180	4,136	4,092	4,048	4,004	3,960	3,916	3,872	3,828	3,784	
WY	0.189	Generation (kWh)	4,980	4,930	4,880	4,831	4,781	4,731	4,681	4,631	4,582	4,532	4,482	4,432	4,382	4,333	4,283	
OR	0.157	Generation (kWh)	4,136	4,095	4,053	4,012	3,971	3,929	3,888	3,846	3,805	3,764	3,722	3,681	3,640	3,598	3,557	
			16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	Total
			\$93	\$95	\$97	\$98	\$100	\$102	\$104	\$106	\$108	\$110	\$112	\$114	\$117	\$119	\$121	\$18,911
			3,983	3,936	3,890	3,843	3,796	3,749	3,702	3,655	3,608	3,562	3,515	3,468	3,421	3,374	3,327	65,373
			3,520	3,479	3,437	3,396	3,354	3,313	3,272	3,230	3,189	3,147	3,106	3,065	3,023	2,982	2,940	57,772
			3,516	3,474	3,433	3,391	3,350	3,309	3,267	3,226	3,185	3,143	3,102	3,061	3,019	2,978	2,937	57,697
			3,740	3,696	3,652	3,608	3,564	3,520	3,476	3,432	3,388	3,344	3,300	3,256	3,212	3,168	3,124	61,382
			4,233	4,183	4,133	4,084	4,034	3,984	3,934	3,884	3,835	3,785	3,735	3,685	3,635	3,586	3,536	69,471
			3,516	3,474	3,433	3,391	3,350	3,309	3,267	3,226	3,185	3,143	3,102	3,061	3,019	2,978	2,937	57,697

		TRC Values	UCT Values
	Cost NPV	\$17,182.48	\$6,976.74
UT	Generation NPV	39,255	39,255
WA	Generation NPV	34,690	34,690
CA	Generation NPV	34,645	34,645
ID	Generation NPV	36,858	36,858
WY	Generation NPV	41,715	41,715
OR	Generation NPV	34,645	34,645

LCOE	TRC Levelized Costs	UCT Levelized Cost
UT	\$0.44	\$0.18
WA	\$0.50	\$0.20
CA	\$0.50	\$0.20
ID	\$0.47	\$0.19
WY	\$0.41	\$0.17
OR	\$0.50	\$0.20

ASSUMPTIONS	
Installed cost	8000 \$/kW
Installed capacity	3 kW
Admin Costs	14% of total program cost
Admin Costs	\$ 325.58 \$/kW
O&M costs	715 \$/kW over 30 years
PV System Life	30 years
Utility Rebate Amount	2000 \$/kW rebate
Federal Rebate Amount	30% of installed cost
Equipment + Admin costs	\$ 17,776.74 \$
Performance Degradation	1% per year
Inflation	1.9% per year
Discount Rate	7.40%

PV Commercial

	CF	Year	Cost															Total
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
			\$111,512	\$477	\$486	\$495	\$504	\$514	\$524	\$534	\$544	\$554	\$565	\$575	\$586	\$597	\$609	
UT	0.178	Generation (kWh)	31,145	30,834	30,522	30,211	29,900	29,588	29,277	28,965	28,654	28,342	28,031	27,719	27,408	27,096	26,785	
WA	0.157	Generation (kWh)	27,446	27,171	26,897	26,623	26,348	26,074	25,799	25,525	25,250	24,976	24,701	24,427	24,152	23,878	23,603	
CA	0.158	Generation (kWh)	27,677	27,400	27,123	26,846	26,569	26,293	26,016	25,739	25,462	25,186	24,909	24,632	24,355	24,079	23,802	
ID	0.167	Generation (kWh)	29,215	28,923	28,630	28,338	28,046	27,754	27,462	27,170	26,877	26,585	26,293	26,001	25,709	25,417	25,125	
WY	0.188	Generation (kWh)	32,880	32,551	32,222	31,894	31,565	31,236	30,907	30,578	30,250	29,921	29,592	29,263	28,934	28,606	28,277	
OR	0.158	Generation (kWh)	27,677	27,400	27,123	26,846	26,569	26,293	26,016	25,739	25,462	25,186	24,909	24,632	24,355	24,079	23,802	
			16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
			\$620	\$632	\$644	\$656	\$669	\$682	\$695	\$708	\$721	\$735	\$749	\$763	\$778	\$792	\$807	\$119,075
			26,474	26,162	25,851	25,539	25,228	24,916	24,605	24,293	23,982	23,670	23,359	23,048	22,736	22,425	22,113	434,478
			23,329	23,055	22,780	22,506	22,231	21,957	21,682	21,408	21,133	20,859	20,584	20,310	20,036	19,761	19,487	382,870
			23,525	23,248	22,972	22,695	22,418	22,141	21,864	21,588	21,311	21,034	20,757	20,481	20,204	19,927	19,650	386,088
			24,832	24,540	24,248	23,956	23,664	23,372	23,080	22,787	22,495	22,203	21,911	21,619	21,327	21,035	20,742	407,545
			27,948	27,619	27,290	26,962	26,633	26,304	25,975	25,646	25,318	24,989	24,660	24,331	24,002	23,674	23,345	458,676
			23,525	23,248	22,972	22,695	22,418	22,141	21,864	21,588	21,311	21,034	20,757	20,481	20,204	19,927	19,650	386,088

		TRC Values	UCT Values
	Cost NPV	\$108,032.17	\$46,511.63
UT	Generation NPV	260,892	260,892
WA	Generation NPV	229,903	229,903
CA	Generation NPV	231,835	231,835
ID	Generation NPV	244,720	244,720
WY	Generation NPV	275,423	275,423
OR	Generation NPV	231,835	231,835

ASSUMPTIONS	
Installed cost	7500 \$/kW
Installed capacity	20 kW
Admin Costs	14% of total program cost
Admin Costs	\$ 325.58 \$/kW
O&M costs	715 \$/kW over 30 years
PV System Life	30 years
Utility Rebate Amount	2000 \$/kW rebate
Federal Rebate Amount	30% of installed cost
Equipment + Admin costs	\$ 111,511.63 \$
Performance Degradation	1% per year
Inflation	1.9% per year
Discount Rate	7.40%

LCOE	TRC Levelized Costs	UCT Levelized Cost
UT	\$0.41	\$0.18
WA	\$0.47	\$0.20
CA	\$0.47	\$0.20
ID	\$0.44	\$0.19
WY	\$0.39	\$0.17
OR	\$0.47	\$0.20

Weighted Average By Sector

	% of total MW (avg of 2009 and 2030 values)		TRC (Wtd)	UCT (Wtd)
	res	comm		
UT	40%	60%	\$0.42	\$0.18
WA	35%	65%	\$0.47	\$0.20
CA	45%	55%	\$0.47	\$0.20
ID	48%	52%	\$0.44	\$0.19
WY	34%	66%	\$0.39	\$0.17
OR	20%	80%	\$0.47	\$0.20
All	33%	67%		
Rocky	41%	59%		
Pacific	24%	76%		

*******Levelized Costs*******

Solar Attic Fan Residential

	CF	Year	1	2	3	4	5	6	7	8	9	10
		Cost	\$339	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
UT	0.178	Generation (kWh)	31	31	31	30	30	30	29	29	29	28
WA	0.158	Generation (kWh)	28	27	27	27	27	26	26	26	25	25
CA	0.157	Generation (kWh)	28	27	27	27	26	26	26	26	25	25
ID	0.167	Generation (kWh)	29	29	29	28	28	28	28	27	27	27
WY	0.189	Generation (kWh)	33	33	33	32	32	32	31	31	31	30
OR	0.157	Generation (kWh)	28	27	27	27	26	26	26	26	25	25

	Cost NPV	TRC Values	UCT Values
		\$315.43	\$46.51
UT	Generation NPV	207	207
WA	Generation NPV	183	183
CA	Generation NPV	183	183
ID	Generation NPV	194	194
WY	Generation NPV	220	220
OR	Generation NPV	183	183

LCOE	TRC Levelized Costs	UCT Levelized Cost
UT	\$1.52	\$0.22
WA	\$1.72	\$0.25
CA	\$1.73	\$0.25
ID	\$1.62	\$0.24
WY	\$1.43	\$0.21
OR	\$1.73	\$0.25

ASSUMPTIONS	
Installed cost	23733 \$/kW
Installed capacity	0.02 kW
Admin Costs	14% of total program cost
Admin Costs	\$ 325.58 \$/kW
O&M costs	0 \$/kW over 30 years
PV System Life	15 years
Utility Rebate Amount	2000 \$/kW rebate
Federal Rebate Amount	30% of installed cost
Equipment + Admin costs	\$ 338.77 \$
Performance Degradation	1% per year
Inflation	1.9% per year
Discount Rate	7.40%

California SWH

		% of customers	Installed cost	Baseline equip cost	Incremental cost	Generation (kWh)	Admin Costs	Admin Costs	O&M costs	System Life	Utility Rebate Amount	Federal Rebate Amount	Equipment + Admin costs	Performance Degradation	Inflation	Discount Rate
SF	retrofit	68.26%	\$ 7,500	\$ 646	\$ 4,604	1831	14%	\$ 374.73	\$ 40	20	\$ 2,301.89	30%	\$ 4,979	1%	1.9%	7.40%
SF	new	1.24%	\$ 6,000	\$ 646	\$ 3,554	1843	14%	\$ 289.26	\$ 40	20	\$ 1,776.89	30%	\$ 3,843	1%	1.9%	7.40%
manuf	retrofit	15.80%	\$ 7,500	\$ 646	\$ 4,604	1460	14%	\$ 374.73	\$ 40	20	\$ 2,301.89	30%	\$ 4,979	1%	1.9%	7.40%
manuf	new	0.23%	\$ 6,000	\$ 646	\$ 3,554	1471	14%	\$ 289.26	\$ 40	20	\$ 1,776.89	30%	\$ 3,843	1%	1.9%	7.40%
MF	retrofit	10.17%	\$ 3,661	\$ 646	\$ 1,916	980	14%	\$ 155.98	\$ 40	20	\$ 958.18	30%	\$ 2,072	1%	1.9%	7.40%
MF	new	0.00%	\$ 2,929	\$ 646	\$ 1,404	985	14%	\$ 114.27	\$ 40	20	\$ 701.92	30%	\$ 1,518	1%	1.9%	7.40%
lodging	retrofit	1.18%	\$ 22,300	\$ 2,813	\$ 12,798	8,956	14%	\$ 1,041.66	\$ 112	20	\$ 6,398.75	30%	\$ 13,839	1%	1.9%	7.40%
lodging	new	0.02%	\$ 17,640.0	\$ 2,813	\$ 9,676	8,626	14%	\$ 787.54	\$ 89	20	\$ 4,837.75	30%	\$ 10,463	1%	1.9%	7.40%
lg office	retrofit	0.00%	\$ -	\$ -	\$ -	-	14%	\$ -	\$ -	20	\$ -	30%	\$ -	1%	1.9%	7.40%
lg office	new	0.00%	\$ -	\$ -	\$ -	-	14%	\$ -	\$ -	20	\$ -	30%	\$ -	1%	1.9%	7.40%
school	retrofit	1.00%	\$ 60,600	\$ 1,575	\$ 40,845	22,651	14%	\$ 3,324.59	\$ 303	20	\$ 20,422.50	30%	\$ 44,170	1%	1.9%	7.40%
school	new	0.02%	\$ 48,480.0	\$ 1,575	\$ 32,361	22,518	14%	\$ 2,634.03	\$ 242	20	\$ 16,180.50	30%	\$ 34,995	1%	1.9%	7.40%
retail	retrofit	0.00%	\$ -	\$ -	\$ -	-	14%	\$ -	\$ -	20	\$ -	30%	\$ -	1%	1.9%	7.40%
retail	new	0.00%	\$ -	\$ -	\$ -	-	14%	\$ -	\$ -	20	\$ -	30%	\$ -	1%	1.9%	7.40%
restaurant	retrofit	1.49%	\$ 25,500	\$ 563	\$ 17,288	9,975	14%	\$ 1,407.12	\$ 128	20	\$ 8,643.75	30%	\$ 18,695	1%	1.9%	7.40%
restaurant	new	0.02%	\$ 20,400.0	\$ 563	\$ 13,718	9,609	14%	\$ 1,116.54	\$ 102	20	\$ 6,858.75	30%	\$ 14,834	1%	1.9%	7.40%
health	retrofit	0.58%	\$ 44,600	\$ 5,625	\$ 25,595	16,514	14%	\$ 2,083.31	\$ 223	20	\$ 12,797.50	30%	\$ 27,678	1%	1.9%	7.40%
health	new	0.01%	\$ 35,680.0	\$ 5,625	\$ 19,351	16,416	14%	\$ 1,575.08	\$ 178	20	\$ 9,675.50	30%	\$ 20,926	1%	1.9%	7.40%

100.03%

Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Cost	\$ 5,511.31	\$ 45.93	\$ 47	\$ 48	\$ 49	\$ 50	\$ 50	\$ 51	\$ 52	\$ 53	\$ 54	\$ 55	\$ 56	\$ 58	\$ 59	\$ 60	\$ 61	\$ 62	\$ 63	\$ 64
Generation	\$ 2,193.05	2,171	2,149	2,127	2,105	2,083	2,061	2,040	2,018	1,996	1,974	1,952	1,930	1,908	1,886	1,864	1,842	1,820	1,798	1,776

	TRC Values	UCT Values
Cost NPV	\$5,622.74	\$ 2,963.07
Generation NPV	20,905.27	20,905.27

TRC Levelized Costs	UCT Levelized Cost
\$0.27	\$ 0.14

Number of Installs	Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
health		0.03	0.11	0.22	0.38	0.59	0.84	1.14	1.50	1.91	2.39	2.88	3.39	3.92	4.47	5.02	5.61	6.21	6.86	7.49	8.16
lg office																					
lg retail																					
lodging		0.04	0.11	0.24	0.41	0.63	0.90	1.22	1.60	2.03	2.54	3.05	3.59	4.14	4.72	5.29	5.90	6.53	7.21	7.86	8.56
manuf		2.33	7.14	14.40	24.54	37.44	53.43	71.99	93.86	119.08	148.61	179.00	211.64	244.66	279.13	312.12	346.72	382.10	419.64	454.21	490.81
MF		1.55	4.78	9.64	16.44	25.09	35.79	48.20	62.80	79.61	99.41	119.94	142.18	164.66	188.15	210.73	234.54	259.07	285.27	309.67	335.68
restaurant		0.13	0.42	0.87	1.49	2.30	3.29	4.45	5.83	7.41	9.27	11.14	13.10	15.11	17.22	19.31	21.54	23.83	26.28	28.88	31.22
school		0.00	0.01	0.02	0.04	0.07	0.09	0.13	0.17	0.21	0.27	0.32	0.38	0.44	0.50	0.56	0.63	0.70	0.77	0.84	0.92
SF		11.06	34.00	68.70	117.40	179.23	255.65	344.11	448.12	567.80	709.80	858.04	1,019.49	1,181.76	1,350.45	1,511.91	1,681.62	1,855.85	2,041.57	2,213.95	2,397.55

ft2 of installs

Number of Installs	ft2/system	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
health	446	15	48	99	171	262	376	511	669	853	1068	1286	1514	1748	1995	2241	2501	2770	3058	3341	3640
lg office		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
lg retail		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
lodging	223	8	26	53	91	140	201	272	356	453	566	681	801	923	1052	1181	1316	1457	1607	1754	1909
manuf	50	116	357	720	1227	1872	2672	3599	4693	5954	7431	8950	10582	12233	13957	15606	17336	19105	20982	22710	24540
MF	32	49	152	307	523	799	1139	1534	1999	2534	3164	3818	4526	5242	5989	6708	7466	8247	9081	9858	10666
restaurant	255	34	106	221	381	586	839	1136	1486	1891	2363	2841	3341	3852	4391	4925	5491	6076	6701	7314	7960
school	606	2	7	15	26	40	57	77	102	130	163	196	231	267	304	342	382	423	467	510	556
SF	50	553	1700	3435	5870	8962	12783	17206	22406	28390	35490	42902	50974	59088	67522	75595	84081	92793	102078	110697	119877
TOTAL FT2		778	2395	4850	8289	12660	18066	24335	31710	40205	50245	60673	71969	83353	95211	106598	118574	130871	143975	156185	169168
TOTAL MW		0.05	0.15	0.30	0.51	0.77	1.10	1.48	1.93	2.45	3.06	3.70	4.39	5.08	5.81	6.50	7.23	7.98	8.78	9.53	10.32

Idaho SWH

		% of customers	Installed cost	Baseline equip cost	Incremental cost	generation (kWh)	Admin Costs	Admin Costs	O&M costs	System Life	Utility Rebate Amount	Federal Rebate	Equipment + Admin costs	Performance Degradation	Inflation	Discount Rate
SF	retrofit	69.73%	\$ 7,500	\$ 646	\$ 4,604	1831	14%	\$ 374.73	\$ 40	20	\$ 2,301.89	30%	\$ 4,979	1%	1.9%	7.40%
SF	new	0.95%	\$ 6,000	\$ 646	\$ 3,554	1843	14%	\$ 289.26	\$ 40	20	\$ 1,776.89	30%	\$ 3,843	1%	1.9%	7.40%
manuf	retrofit	13.72%	\$ 7,500	\$ 646	\$ 4,604	1460	14%	\$ 374.73	\$ 40	20	\$ 2,301.89	30%	\$ 4,979	1%	1.9%	7.40%
manuf	new	0.19%	\$ 6,000	\$ 646	\$ 3,554	1471	14%	\$ 289.26	\$ 40	20	\$ 1,776.89	30%	\$ 3,843	1%	1.9%	7.40%
MF	retrofit	7.84%	\$ 3,661	\$ 646	\$ 1,916	980	14%	\$ 155.98	\$ 40	20	\$ 958.18	30%	\$ 2,072	1%	1.9%	7.40%
MF	new	0.11%	\$ 2,929	\$ 646	\$ 1,404	985	14%	\$ 114.27	\$ 40	20	\$ 701.92	30%	\$ 1,518	1%	1.9%	7.40%
lodging	retrofit	1.29%	\$ 22,300	\$ 2,813	\$ 12,798	9,763	14%	\$ 1,041.66	\$ 112	20	\$ 6,398.75	30%	\$ 13,839	1%	1.9%	7.40%
lodging	new	0.03%	\$ 17,840.0	\$ 2,813	\$ 9,676	9,402	14%	\$ 787.54	\$ 89	20	\$ 4,837.75	30%	\$ 10,463	1%	1.9%	7.40%
Ig office	retrofit	2.16%	\$ 22,300	\$ 2,138	\$ 13,473	9,803	14%	\$ 1,096.60	\$ 112	20	\$ 6,736.25	30%	\$ 14,569	1%	1.9%	7.40%
Ig office	new	0.05%	\$ 17,840.0	\$ 2,138	\$ 10,351	9,991	14%	\$ 842.48	\$ 89	20	\$ 5,175.25	30%	\$ 11,193	1%	1.9%	7.40%
school	retrofit	0.33%	\$ 51,000	\$ 1,575	\$ 34,125	21,052	14%	\$ 2,777.62	\$ 255	20	\$ 17,062.50	30%	\$ 36,903	1%	1.9%	7.40%
school	new	0.01%	\$ 40,800.0	\$ 1,575	\$ 26,985	21,052	14%	\$ 2,196.45	\$ 204	20	\$ 13,492.50	30%	\$ 29,181	1%	1.9%	7.40%
retail	retrofit	2.61%	\$ 15,900	\$ 2,025	\$ 9,105	6,639	14%	\$ 741.10	\$ 80	20	\$ 4,552.50	30%	\$ 9,846	1%	1.9%	7.40%
retail	new	0.06%	\$ 12,720.0	\$ 2,025	\$ 6,879	6,410	14%	\$ 559.92	\$ 64	20	\$ 3,439.50	30%	\$ 7,439	1%	1.9%	7.40%
restaurant	retrofit	0.92%	\$ 31,900	\$ 788	\$ 21,543	14,444	14%	\$ 1,753.46	\$ 160	20	\$ 10,771.25	30%	\$ 23,296	1%	1.9%	7.40%
restaurant	new	0.02%	\$ 25,520.0	\$ 788	\$ 17,077	13,910	14%	\$ 1,389.95	\$ 128	20	\$ 8,538.25	30%	\$ 18,466	1%	1.9%	7.40%
health	retrofit	0.00%	\$ -	\$ -	\$ -	-	14%	\$ -	\$ -	20	\$ -	30%	\$ -	1%	1.9%	7.40%
health	new	0.00%	\$ -	\$ -	\$ -	-	14%	\$ -	\$ -	20	\$ -	30%	\$ -	1%	1.9%	7.40%
100.00%																

Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Cost	\$ 5,465.05	\$ 45.38	\$ 46	\$ 47	\$ 48	\$ 49	\$ 50	\$ 51	\$ 52	\$ 53	\$ 54	\$ 55	\$ 56	\$ 57	\$ 58	\$ 59	\$ 60	\$ 61	\$ 62	\$ 64
Generation	\$ 2,302.58	2,280	2,257	2,233	2,210	2,187	2,164	2,141	2,118	2,095	2,072	2,049	2,026	2,003	1,980	1,957	1,934	1,911	1,888	1,865

	TRC Values	UCT Values
Cost NPV	\$5,573.73	\$ 2,938.20
Generation NPV	21,949.34	21,949.34

	TRC Levelized Costs	UCT Levelized Cost
	\$0.25	\$ 0.13

Number of Installs	Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
health																						
Ig office		0.01	0.02	0.03	0.06	0.09	0.14	0.19	0.25	0.32	0.41	0.49	0.59	0.68	0.79	0.89	1.01	1.13	1.25	1.38	1.52	
Ig retail		0.03	0.10	0.20	0.35	0.55	0.80	1.10	1.46	1.88	2.37	2.87	3.41	3.97	4.57	5.18	5.82	6.50	7.22	7.95	8.74	
lodging		0.02	0.08	0.16	0.27	0.43	0.62	0.84	1.12	1.44	1.81	2.20	2.60	3.03	3.49	3.95	4.44	4.95	5.50	6.05	6.64	
manuf		1.13	3.49	7.14	12.36	19.15	27.77	38.02	50.37	64.89	82.17	100.34	120.34	141.26	163.77	186.00	210.04	235.10	262.02	287.34	314.98	
MF		0.88	2.73	5.64	9.85	15.36	22.39	30.80	40.98	53.00	67.45	82.84	99.96	117.90	137.19	156.29	177.00	198.65	221.92	243.87	267.86	
restaurant		0.01	0.03	0.05	0.09	0.15	0.21	0.29	0.38	0.49	0.62	0.74	0.88	1.03	1.18	1.33	1.50	1.67	1.85	2.04	2.24	
school		0.00	0.01	0.02	0.04	0.07	0.10	0.13	0.18	0.23	0.29	0.35	0.42	0.49	0.56	0.64	0.72	0.80	0.89	0.98	1.08	
SF		12.29	38.13	78.45	136.60	212.26	308.23	422.32	559.64	720.99	916.32	1,125.61	1,359.67	1,601.99	1,860.06	2,113.25	2,386.23	2,670.28	2,975.08	3,261.14	3,573.29	

ft2 of installs	Number of Installs	ft2/system	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
health			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ig office	223		1	4	8	13	21	30	42	55	72	90	110	131	152	176	199	225	251	280	308	339
Ig retail	159		5	15	32	56	87	127	175	231	298	377	456	541	631	727	823	926	1,033	1,148	1,264	1,389
lodging	223		5	17	35	61	95	137	188	249	321	405	490	581	676	778	880	990	1,104	1,226	1,349	1,482
manuf	50		56	174	357	618	958	1,388	1,901	2,519	3,244	4,108	5,017	6,017	7,063	8,188	9,300	10,502	11,755	13,101	14,367	15,749
MF	32		28	87	180	314	489	713	980	1,304	1,687	2,147	2,637	3,182	3,753	4,367	4,975	5,635	6,324	7,064	7,763	8,527
restaurant	319		3	8	17	30	46	67	92	121	156	196	237	281	327	376	426	478	533	591	651	714
school	510		2	6	12	22	34	49	68	90	116	147	179	213	248	286	325	366	409	455	501	551
SF	615		1,907	3,923	6,830	10,613	15,411	21,116	27,982	36,049	45,816	56,281	67,984	80,100	93,003	105,663	119,312	133,514	148,754	163,057	178,665	
TOTAL FT2			715	2,218	4,564	7,943	12,343	17,924	24,561	32,552	41,943	53,287	65,407	78,299	92,950	107,902	122,591	138,432	154,922	172,619	189,260	207,416
TOTAL MW			0.04	0.14	0.28	0.48	0.75	1.09	1.50	1.99	2.56	3.25	3.99	4.81	5.67	6.58	7.48	8.44	9.45	10.53	11.54	12.65

Utah SWH

		% of customers	Installed cost	Baseline equip cost	Incremental cost	generation (kWh)	Admin Costs	Admin Costs	O&M costs	System Life	Utility Rebate Amount	Federal Rebate Amount	Equipment + Admin costs	Performance Degradation	Inflation	Discount Rate
SF	retrofit	76.75%	\$ 7,500	\$ 646	\$ 4,604	1945	14%	\$ 374.73	\$ 40	20	\$ 2,301.89	30%	\$ 4,979	1%	1.9%	7.40%
SF	new	1.98%	\$ 6,000	\$ 646	\$ 3,554	1945	14%	\$ 289.26	\$ 40	20	\$ 1,776.89	30%	\$ 3,843	1%	1.9%	7.40%
manuf	retrofit	3.65%	\$ 7,500	\$ 646	\$ 4,604	1551	14%	\$ 374.73	\$ 40	20	\$ 2,301.89	30%	\$ 4,979	1%	1.9%	7.40%
manuf	new	0.09%	\$ 6,000	\$ 646	\$ 3,554	1566	14%	\$ 289.26	\$ 40	20	\$ 1,776.89	30%	\$ 3,843	1%	1.9%	7.40%
MF	retrofit	10.96%	\$ 3,661	\$ 646	\$ 1,916	827	14%	\$ 155.98	\$ 40	20	\$ 958.18	30%	\$ 2,072	1%	1.9%	7.40%
MF	new	0.28%	\$ 2,929	\$ 646	\$ 1,404	834	14%	\$ 114.27	\$ 40	20	\$ 701.92	30%	\$ 1,518	1%	1.9%	7.40%
lodging	retrofit	0.20%	\$ 15,900	\$ 2,925	\$ 8,205	8,553	14%	\$ 667.85	\$ 80	20	\$ 4,102.50	30%	\$ 8,873	1%	1.9%	7.40%
lodging	new	0.01%	\$ 12,720.0	\$ 2,925	\$ 5,979	8,553	14%	\$ 486.66	\$ 64	20	\$ 2,989.50	30%	\$ 6,466	1%	1.9%	7.40%
lg office	retrofit	2.83%	\$ 15,900	\$ 2,138	\$ 8,993	8,432	14%	\$ 731.95	\$ 80	20	\$ 4,496.25	30%	\$ 9,724	1%	1.9%	7.40%
lg office	new	0.09%	\$ 12,720.0	\$ 2,138	\$ 6,767	8,432	14%	\$ 550.76	\$ 64	20	\$ 3,383.25	30%	\$ 7,317	1%	1.9%	7.40%
school	retrofit	0.31%	\$ 60,600	\$ 2,363	\$ 40,058	28,772	14%	\$ 3,260.49	\$ 303	20	\$ 20,028.75	30%	\$ 43,318	1%	1.9%	7.40%
school	new	0.01%	\$ 48,480.0	\$ 2,363	\$ 31,574	28,772	14%	\$ 2,569.94	\$ 242	20	\$ 15,786.75	30%	\$ 34,143	1%	1.9%	7.40%
retail	retrofit	1.65%	\$ 12,800	\$ 2,025	\$ 6,935	5,682	14%	\$ 564.48	\$ 64	20	\$ 3,467.50	30%	\$ 7,499	1%	1.9%	7.40%
retail	new	0.05%	\$ 10,240.0	\$ 2,025	\$ 5,143	5,682	14%	\$ 418.62	\$ 51	20	\$ 2,571.50	30%	\$ 5,562	1%	1.9%	7.40%
restaurant	retrofit	0.68%	\$ 31,900	\$ 788	\$ 21,543	15,820	14%	\$ 1,753.46	\$ 160	20	\$ 10,771.25	30%	\$ 23,296	1%	1.9%	7.40%
restaurant	new	0.02%	\$ 25,520.0	\$ 788	\$ 17,077	15,820	14%	\$ 1,389.95	\$ 128	20	\$ 8,538.25	30%	\$ 18,466	1%	1.9%	7.40%
health	retrofit	0.41%	\$ 12,800	\$ 2,588	\$ 6,373	6,006	14%	\$ 518.69	\$ 64	20	\$ 3,186.25	30%	\$ 6,891	1%	1.9%	7.40%
health	new	0.01%	\$ 10,240.0	\$ 2,588	\$ 4,581	6,006	14%	\$ 372.83	\$ 51	20	\$ 2,290.25	30%	\$ 4,953	1%	1.9%	7.40%

100.00%

Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Cost	\$ 5,068.88	\$ 43.38	\$ 44	\$ 45	\$ 46	\$ 47	\$ 48	\$ 49	\$ 49	\$ 50	\$ 51	\$ 52	\$ 53	\$ 54	\$ 55	\$ 56	\$ 58	\$ 59	\$ 60	\$ 61
Generation	\$ 2,271.12	2,248	2,226	2,203	2,180	2,158	2,135	2,112	2,089	2,067	2,044	2,021	1,999	1,976	1,953	1,930	1,908	1,885	1,862	1,840

	TRC Values	UCT Values
Cost NPV	\$5,183.55	\$ 2,725.20
Generation NPV	21,649.49	21,649.49

	TRC Levelized Costs	UCT Levelized Cost
	\$0.24	\$ 0.13

Number of Installs	Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
SF		32.73	100.52	204.22	352.01	541.38	777.30	1,053.95	1,381.70	1,762.13	2,218.30	2,707.84	3,253.13	3,806.04	4,382.59	4,943.93	5,538.36	6,151.69	6,811.53	7,452.01	8,144.18
manuf		2.41	7.41	15.06	25.96	39.92	57.30	77.67	101.79	129.78	163.38	199.49	239.76	280.54	322.97	364.22	407.88	452.90	501.32	548.29	599.03
MF		7.92	24.32	49.37	84.92	130.57	187.64	254.78	334.60	427.52	537.52	654.11	782.66	914.48	1,053.21	1,189.26	1,333.93	1,483.66	1,645.17	1,802.47	1,972.65
lodging		0.40	1.29	2.69	4.66	7.20	10.54	14.43	19.08	24.52	30.89	37.40	44.30	51.52	59.22	66.98	75.22	83.81	92.99	102.02	111.66
lg office		0.55	1.76	3.71	6.44	10.02	14.74	20.29	26.90	34.65	43.76	53.09	63.04	73.48	84.65	95.94	107.97	120.53	134.00	147.29	161.51
school		0.22	0.72	1.51	2.62	4.07	5.96	8.19	10.86	14.00	17.69	21.45	25.45	29.64	34.11	38.62	43.42	48.43	53.79	59.07	64.71
retail		0.31	1.02	2.14	3.74	5.84	8.62	11.82	15.65	20.14	25.42	30.82	36.56	42.57	49.00	55.48	62.37	69.56	77.25	84.83	92.92
restaurant		0.16	0.50	1.06	1.83	2.83	4.14	5.65	7.47	9.59	12.08	14.61	17.29	20.10	23.09	26.11	29.30	32.63	36.19	39.68	43.41
health		0.42	1.34	2.81	4.87	7.56	11.08	15.19	20.14	25.93	32.74	39.71	47.13	54.91	63.22	71.61	80.54	89.85	99.82	109.64	120.14

ft2 of installs

Number of Installs	ft2/system	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
SF	50	1,636	5,026	10,211	17,601	27,069	38,865	52,697	69,085	88,106	110,915	135,392	162,657	190,302	219,129	247,196	276,918	307,584	340,576	372,601	407,209
manuf	50	121	370	753	1,298	1,996	2,865	3,883	5,090	6,489	8,169	9,975	11,988	14,027	16,149	18,211	20,394	22,645	25,066	27,414	29,951
MF	32	252	774	1,572	2,703	4,157	5,973	8,110	10,651	13,609	17,111	20,823	24,915	29,111	33,527	37,858	42,463	47,230	52,371	57,379	62,796
lodging	159	64	205	428	741	1,145	1,676	2,295	3,034	3,899	4,912	5,946	7,043	8,192	9,416	10,650	11,960	13,325	14,785	16,221	17,754
lg office	87	280	589	1,024	1,593	2,343	3,227	4,277	5,509	6,958	8,442	10,023	11,684	13,459	15,254	17,166	19,164	21,306	23,420	25,681	
school	606	136	437	917	1,589	2,464	3,615	4,962	6,582	8,484	10,723	12,999	15,421	17,960	20,670	23,405	26,314	29,348	32,596	35,795	
retail	128	40	130	275	479	747	1,103	1,513	2,003	2,579	3,254	3,945	4,679	5,450	6,271	7,101	7,983	8,903	9,888	10,858	
restaurant	319	50	161	337	583	903	1,319	1,804	2,383	3,060	3,852	4,660	5,517	6,413	7,367	8,328	9,347	10,409	11,544	12,659	
health	128	53	172	360	624	967	1,418	1,945	2,578	3,319	4,191	5,083	6,033	7,029	8,092	9,166	10,309	11,501	12,777	14,034	
TOTAL FT2		2,439	7,555	15,441	26,641	41,040	59,178	80,437	105,684	135,054	170,086	207,264	248,275	290,167	334,082	377,169	422,855	470,109	520,911	570,380	623,725
TOTAL MW		0.15	0.46	0.94	1.63	2.50	3.61	4.91	6.45	8.24	10.38	12.64	15.14	17.70	20.38	23.01	25.79	28.68	31.78	34.79	38.05

Washington SWH

		% of customers	Installed cost	Baseline equip cost	Incremental cost	generation (kWh)	Admin Costs	Admin Costs	O&M costs	System Life	Utility Rebate Amount	Federal Rebate Amount	Equipment + Admin costs	Performance Degradation	Inflation	Discount Rate
SF	retrofit	69.17%	\$ 7,500	\$ 646	\$ 4,604	1653	14%	\$ 374.73	\$ 40	20	\$ 2,301.89	30%	\$ 4,979	1%	1.9%	7.40%
SF	new	0.59%	\$ 6,000	\$ 646	\$ 3,554	1653	14%	\$ 289.26	\$ 40	20	\$ 1,776.89	30%	\$ 3,843	1%	1.9%	7.40%
manuf	retrofit	9.43%	\$ 7,500	\$ 646	\$ 4,604	1598	14%	\$ 374.73	\$ 40	20	\$ 2,301.89	30%	\$ 4,979	1%	1.9%	7.40%
manuf	new	0.08%	\$ 6,000	\$ 646	\$ 3,554	1597	14%	\$ 289.26	\$ 40	20	\$ 1,776.89	30%	\$ 3,843	1%	1.9%	7.40%
MF	retrofit	11.95%	\$ 3,661	\$ 646	\$ 1,916	750	14%	\$ 155.98	\$ 40	20	\$ 958.18	30%	\$ 2,072	1%	1.9%	7.40%
MF	new	0.10%	\$ 2,929	\$ 646	\$ 1,404	750	14%	\$ 114.27	\$ 40	20	\$ 701.92	30%	\$ 1,518	1%	1.9%	7.40%
lodging	retrofit	0.69%	\$ 25,500	\$ 2,813	\$ 15,038	9,617	14%	\$ 1,223.98	\$ 128	20	\$ 7,518.75	30%	\$ 16,261	1%	1.9%	7.40%
lodging	new	0.01%	\$ 20,400.0	\$ 2,813	\$ 11,468	9,245	14%	\$ 933.40	\$ 102	20	\$ 5,733.75	30%	\$ 12,401	1%	1.9%	7.40%
lg office	retrofit	2.73%	\$ 28,700	\$ 2,138	\$ 17,953	9,782	14%	\$ 1,461.25	\$ 144	20	\$ 8,976.25	30%	\$ 19,414	1%	1.9%	7.40%
lg office	new	0.04%	\$ 22,960.0	\$ 2,138	\$ 13,935	9,358	14%	\$ 1,134.20	\$ 115	20	\$ 6,967.25	30%	\$ 15,069	1%	1.9%	7.40%
school	retrofit	0.67%	\$ 54,200	\$ 1,575	\$ 36,365	19,320	14%	\$ 2,959.94	\$ 271	20	\$ 18,182.50	30%	\$ 39,325	1%	1.9%	7.40%
school	new	0.01%	\$ 43,360.0	\$ 1,575	\$ 28,777	19,320	14%	\$ 2,342.31	\$ 217	20	\$ 14,388.50	30%	\$ 31,119	1%	1.9%	7.40%
retail	retrofit	2.93%	\$ 19,100	\$ 2,025	\$ 11,345	6,840	14%	\$ 923.43	\$ 96	20	\$ 5,672.50	30%	\$ 12,268	1%	1.9%	7.40%
retail	new	0.04%	\$ 15,280.0	\$ 2,025	\$ 8,671	6,804	14%	\$ 705.78	\$ 76	20	\$ 4,335.50	30%	\$ 9,377	1%	1.9%	7.40%
restaurant	retrofit	1.55%	\$ 31,900	\$ 675	\$ 21,655	12,907	14%	\$ 1,762.62	\$ 160	20	\$ 10,827.50	30%	\$ 23,418	1%	1.9%	7.40%
restaurant	new	0.02%	\$ 25,520.0	\$ 675	\$ 17,189	12,430	14%	\$ 1,399.10	\$ 128	20	\$ 8,594.50	30%	\$ 18,588	1%	1.9%	7.40%
health	retrofit	0.00%					14%			20		30%		1%	1.9%	7.40%
health	new	0.00%					14%			20		30%		1%	1.9%	7.40%
100.00%																

Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Total
Cost	\$ 5,833.39	\$ 48.54	\$ 49	\$ 50	\$ 51	\$ 52	\$ 53	\$ 54	\$ 55	\$ 56	\$ 57	\$ 59	\$ 60	\$ 61	\$ 62	\$ 63	\$ 64	\$ 66	\$ 67	\$ 68	\$ 68
Generation	\$ 2,270.09	2,247	2,225	2,202	2,179	2,157	2,134	2,111	2,088	2,066	2,043	2,020	1,998	1,975	1,952	1,930	1,907	1,884	1,861	1,839	1,839

TRC Values		UCT Values	
Cost NPV	\$5,950.52	UCT	\$ 3,136.23
Generation NPV	21,639.70	UCT	21,639.70

TRC Levelized Costs	UCT Levelized Cost
\$0.27	\$ 0.14

Number of Installs	Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
SF		31.81	97.13	194.64	330.17	501.64	713.43	958.62	1,247.18	1,578.02	1,966.63	2,367.02	2,799.99	3,235.83	3,690.91	4,125.48	4,582.61	5,051.06	5,552.33	6,016.84	6,514.46
manuf		4.38	13.33	26.59	44.86	67.90	96.27	129.04	167.47	211.35	261.87	312.76	366.74	421.21	478.13	532.14	588.67	646.18	707.34	763.23	822.72
MF		5.06	15.43	30.86	52.27	79.33	112.76	151.49	197.07	249.36	310.37	372.81	439.97	507.88	579.04	647.15	718.91	792.54	871.40	944.57	1,023.01
lodging		0.27	0.80	1.62	2.71	4.08	5.74	7.66	9.87	12.36	15.17	17.91	20.69	23.47	26.33	29.05	31.84	34.63	37.51	40.24	43.08
lg office		0.03	0.11	0.21	0.36	0.54	0.77	1.03	1.32	1.66	2.03	2.40	2.78	3.15	3.53	3.90	4.28	4.65	5.04	5.41	5.79
school		0.03	0.10	0.19	0.32	0.49	0.69	0.92	1.19	1.49	1.84	2.17	2.51	2.85	3.20	3.53	3.88	4.22	4.57	4.91	5.26
retail		0.09	0.29	0.58	0.98	1.49	2.12	2.83	3.65	4.58	5.62	6.65	7.69	8.73	9.80	10.82	11.86	12.91	13.99	15.02	16.09
restaurant		0.09	0.28	0.57	0.95	1.44	2.03	2.70	3.48	4.36	5.35	6.32	7.31	8.29	9.30	10.27	11.25	12.24	13.26	14.23	15.24
health																					

ft2 of installs	Number of Installs	ft2/system	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
SF		50	1,590	4,856	9,730	16,508	25,082	35,671	47,931	62,359	78,901	98,332	118,351	139,999	161,791	184,546	206,274	229,131	252,553	277,617	300,842	325,723
manuf		50	219	667	1,329	2,243	3,395	4,814	6,452	8,373	10,567	13,093	15,638	18,337	21,061	23,906	26,607	29,434	32,309	35,367	38,161	41,136
MF		32	161	491	982	1,664	2,525	3,590	4,822	6,274	7,938	9,880	11,868	14,006	16,167	18,433	20,601	22,885	25,229	27,739	30,069	32,566
lodging		255	68	205	412	691	1,040	1,464	1,953	2,517	3,152	3,868	4,567	5,276	5,986	6,714	7,407	8,118	8,830	9,566	10,262	10,986
lg office		287	10	30	61	103	156	220	295	380	476	584	690	797	904	1,014	1,119	1,227	1,335	1,447	1,552	1,662
school		542	17	52	104	175	264	373	498	644	808	995	1,176	1,360	1,545	1,734	1,915	2,101	2,287	2,479	2,662	2,851
retail		191	18	55	111	188	285	405	541	697	874	1,074	1,269	1,468	1,667	1,871	2,066	2,266	2,466	2,623	2,869	3,073
restaurant		319	30	90	181	304	459	646	862	1,110	1,391	1,708	2,017	2,331	2,645	2,967	3,275	3,590	3,905	4,231	4,540	4,861
health			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL FT2			2,113	6,446	12,911	21,876	33,206	47,183	63,354	82,354	104,108	129,535	155,575	183,573	211,766	241,186	269,264	298,752	328,913	361,119	390,957	422,858
TOTAL MW			0.13	0.39	0.79	1.33	2.03	2.88	3.86	5.02	6.35	7.90	9.49	11.20	12.92	14.71	16.43	18.22	20.06	22.03	23.85	25.79

Wyoming SWH

		% of customers	Installed cost	Baseline equip cost	Incremental cost	generation (kWh)	Admin Costs	Admin Costs	O&M costs	System Life	Utility Rebate Amount	Federal Rebate Amount	Equipment + Admin costs	Performance Degradation	Inflation	Discount Rate
SF	retrofit	71.42%	\$ 7,500	\$ 646	\$ 4,604	1917	14%	\$ 374.73	\$ 40	20	\$ 2,301.89	30%	\$ 4,979	1%	1.9%	7.40%
SF	new	1.20%	\$ 6,000	\$ 646	\$ 3,554	1947	14%	\$ 289.26	\$ 40	20	\$ 1,776.89	30%	\$ 3,843	1%	1.9%	7.40%
manuf	retrofit	6.58%	\$ 7,500	\$ 646	\$ 4,604	1529	14%	\$ 374.73	\$ 40	20	\$ 2,301.89	30%	\$ 4,979	1%	1.9%	7.40%
manuf	new	0.00%	\$ 6,000	\$ 646	\$ 3,554	1551	14%	\$ 289.26	\$ 40	20	\$ 1,776.89	30%	\$ 3,843	1%	1.9%	7.40%
MF	retrofit	12.44%	\$ 3,661	\$ 646	\$ 1,916	842	14%	\$ 155.98	\$ 40	20	\$ 958.18	30%	\$ 2,072	1%	1.9%	7.40%
MF	new	0.00%	\$ 2,929	\$ 646	\$ 1,404	855	14%	\$ 114.27	\$ 40	20	\$ 701.92	30%	\$ 1,518	1%	1.9%	7.40%
lodging	retrofit	1.84%	\$ 15,900	\$ 2,363	\$ 8,768	8,107	14%	\$ 713.63	\$ 80	20	\$ 4,383.75	30%	\$ 9,481	1%	1.9%	7.40%
lodging	new	0.02%	\$ 12,720.0	\$ 2,363	\$ 6,542	7,815	14%	\$ 532.45	\$ 64	20	\$ 3,270.75	30%	\$ 7,074	1%	1.9%	7.40%
lg office	retrofit	3.10%	\$ 22,300	\$ 2,138	\$ 13,473	10,526	14%	\$ 1,096.60	\$ 112	20	\$ 6,736.25	30%	\$ 14,569	1%	1.9%	7.40%
lg office	new	0.03%	\$ 17,840.0	\$ 2,138	\$ 10,351	10,042	14%	\$ 842.48	\$ 89	20	\$ 5,175.25	30%	\$ 11,193	1%	1.9%	7.40%
school	retrofit	0.47%	\$ 44,600	\$ 1,575	\$ 29,645	20,830	14%	\$ 2,412.97	\$ 223	20	\$ 14,822.50	30%	\$ 32,058	1%	1.9%	7.40%
school	new	0.00%	\$ 35,680.0	\$ 1,575	\$ 23,401	20,830	14%	\$ 1,904.73	\$ 178	20	\$ 11,700.50	30%	\$ 25,306	1%	1.9%	7.40%
retail	retrofit	0.00%	\$ -	\$ -	\$ -	-	14%	\$ -	\$ -	20	\$ -	30%	\$ -	1%	1.9%	7.40%
retail	new	0.00%	\$ -	\$ -	\$ -	-	14%	\$ -	\$ -	20	\$ -	30%	\$ -	1%	1.9%	7.40%
restaurant	retrofit	1.31%	\$ 31,900	\$ 788	\$ 21,543	15,654	14%	\$ 1,753.46	\$ 160	20	\$ 10,771.25	30%	\$ 23,296	1%	1.9%	7.40%
restaurant	new	0.01%	\$ 25,520.0	\$ 788	\$ 17,077	15,073	14%	\$ 1,389.95	\$ 128	20	\$ 8,538.25	30%	\$ 18,466	1%	1.9%	7.40%
health	retrofit	1.57%	\$ 12,800	\$ 1,913	\$ 7,048	6,348	14%	\$ 573.63	\$ 64	20	\$ 3,523.75	30%	\$ 7,621	1%	1.9%	7.40%
health	new	0.02%	\$ 10,240.0	\$ 1,913	\$ 5,256	6,287	14%	\$ 427.77	\$ 51	20	\$ 2,627.75	30%	\$ 5,683	1%	1.9%	7.40%

100.01%

Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Cost	\$ 5,398.09	\$ 45.79	\$ 47	\$ 48	\$ 48	\$ 49	\$ 50	\$ 51	\$ 52	\$ 53	\$ 54	\$ 55	\$ 56	\$ 57	\$ 58	\$ 60	\$ 61	\$ 62	\$ 63	\$ 64
Generation	\$ 2,484.26	2,459	2,435	2,410	2,385	2,360	2,335	2,310	2,286	2,261	2,236	2,211	2,186	2,161	2,136	2,112	2,087	2,062	2,037	2,012

	TRC Values	UCT Values
Cost NPV	\$5,515.81	\$ 2,902.20
Generation NPV	23,681.22	23,681.22

TRC Levelized Costs	UCT Levelized Cost
\$0.23	\$ 0.12

Number of Installs	Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
SF		10.01	30.25	60.85	103.96	158.74	226.43	304.77	396.80	503.32	630.37	764.38	913.01	1,062.14	1,217.45	1,364.32	1,519.67	1,680.06	1,853.24	2,027.90	2,219.27
manuf		1.01	3.05	6.11	10.39	15.83	22.57	30.36	39.54	50.16	62.61	75.51	89.60	103.90	118.96	133.30	148.52	164.29	181.34	198.56	217.46
MF		3.32	10.03	20.08	34.12	52.01	74.17	99.87	130.12	165.20	206.12	248.31	294.22	341.02	390.41	437.54	487.64	539.56	595.75	652.56	714.88
lodging		0.07	0.22	0.45	0.78	1.19	1.71	2.31	3.03	3.86	4.82	5.79	6.82	7.88	9.00	10.12	11.30	12.54	13.86	15.18	16.59
lg office		0.03	0.09	0.18	0.31	0.48	0.69	0.94	1.23	1.57	1.97	2.37	2.79	3.23	3.70	4.17	4.66	5.18	5.73	6.29	6.88
school		0.20	0.63	1.30	2.23	3.42	4.92	6.68	8.78	11.23	14.08	16.96	19.99	23.15	26.51	29.85	33.40	37.11	41.09	45.06	49.34
retail																					
restaurant		0.07	0.21	0.44	0.75	1.16	1.66	2.24	2.94	3.74	4.68	5.61	6.60	7.63	8.72	9.80	10.94	12.14	13.41	14.68	16.05
health		0.34	1.06	2.19	3.76	5.78	8.29	11.25	14.76	18.84	23.60	28.41	33.49	38.76	44.37	49.96	55.89	62.08	68.72	75.33	82.47

ft2 of installs		Number of Installs	ft2/system	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
SF		50	501	1512	3042	5198	7937	11321	15238	19840	25166	31518	38219	45650	53107	60873	68216	75984	84003	92662	101395	110963	
manuf		50	51	152	305	520	792	1128	1518	1977	2508	3130	3775	4480	5195	5948	6665	7426	8214	9067	9928	10873	
MF		32	106	319	639	1086	1656	2361	3179	4142	5259	6562	7905	9366	10856	12428	13928	15523	17176	18965	20773	22757	
lodging		159	11	35	72	124	189	271	368	482	613	767	921	1084	1252	1431	1609	1797	1994	2204	2413	2638	
lg office		223	6	20	40	69	107	154	210	275	351	439	529	623	721	826	929	1040	1155	1279	1402	1535	
school		446	90	281	579	993	1527	2194	2981	3917	5008	6282	7562	8917	10325	11822	13313	14898	16552	18327	20098	22007	
retail		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
restaurant		319	22	68	140	241	370	529	716	937	1193	1491	1791	2107	2434	2781	3126	3491	3871	4279	4684	5120	
health		128	44	136	281	481	739	1061	1440	1889	2412	3021	3636	4286	4962	5680	6394	7154	7946	8796	9643	10556	
TOTAL FT2		830	2524	5100	8712	13316	19019	25650	33459	42511	53210	64338	76513	88852	101789	114181	127314	140910	155577	170336	186450		
TOTAL MW		0.05	0.15	0.31	0.53	0.81	1.16	1.56	2.04	2.59	3.25	3.92	4.67	5.42	6.21	6.97	7.77	8.60	9.49	10.39	11.37		

SWH Costs per kW

		kWh savings in sector in year 20	% of total	\$/ft2	\$/kW	O&M\$/ft2	O&M \$/kW
California	Res Retrofit	6,938,740	5.95%	\$ 92.08	\$ 1,509.44	0.8	\$ 13.11
California	Res New	1,388,878	1.19%	\$ 71.08	\$ 1,165.17	0.8	\$ 13.11
California	MF Retrofit	426,817	0.37%	\$ 60.20	\$ 986.88		\$ 4.93
California	MF New	83,953	0.07%	\$ 44.10	\$ 722.95		\$ 3.61
California	Comm Retrofi	936,069	0.80%	\$ 63.09	\$ 1,034.23		\$ 5.17
California	Comm New	173,112	0.15%	\$ 49.09	\$ 804.73		\$ 4.02
Idaho	Res Retrofit	8,603,729	7.38%	\$ 92.08	\$ 1,509.44	0.8	\$ 13.11
Idaho	Res New	5,505,067	4.72%	\$ 71.08	\$ 1,165.17	0.8	\$ 13.11
Idaho	MF Retrofit	279,039	0.24%	\$ 60.20	\$ 986.88		\$ 4.93
Idaho	MF New	246,809	0.21%	\$ 44.10	\$ 722.95		\$ 3.61
Idaho	Comm Retrofi	242,195	0.21%	\$ 63.49	\$ 1,040.79		\$ 5.20
Idaho	Comm New	134,291	0.12%	\$ 49.49	\$ 811.29		\$ 4.06
Utah	Res Retrofit	23,548,032	20.21%	\$ 92.08	\$ 1,509.44	0.8	\$ 13.11
Utah	Res New	10,292,091	8.83%	\$ 71.08	\$ 1,165.17	0.8	\$ 13.11
Utah	MF Retrofit	2,024,318	1.74%	\$ 60.20	\$ 986.88		\$ 4.93
Utah	MF New	1,239,620	1.06%	\$ 44.10	\$ 722.95		\$ 3.61
Utah	Comm Retrofi	7,661,885	6.58%	\$ 61.44	\$ 1,007.28		\$ 5.04
Utah	Comm New	4,857,363	4.17%	\$ 47.44	\$ 777.78		\$ 3.89
Washington	Res Retrofit	21,751,484	18.67%	\$ 92.08	\$ 1,509.44	0.8	\$ 13.11
Washington	Res New	2,508,389	2.15%	\$ 71.08	\$ 1,165.17	0.8	\$ 13.11
Washington	MF Retrofit	1,372,795	1.18%	\$ 60.20	\$ 986.88		\$ 4.93
Washington	MF New	167,575	0.14%	\$ 44.10	\$ 722.95		\$ 3.61
Washington	Comm Retrofi	1,565,415	1.34%	\$ 64.21	\$ 1,052.67		\$ 5.26
Washington	Comm New	212,969	0.18%	\$ 50.21	\$ 823.16		\$ 4.12
Wyoming	Res Retrofit	7,038,453	6.04%	\$ 92.08	\$ 1,509.44	0.8	\$ 13.11
Wyoming	Res New	2,177,156	1.87%	\$ 71.08	\$ 1,165.17	0.8	\$ 13.11
Wyoming	MF Retrofit	868,593	0.75%	\$ 60.20	\$ 986.88		\$ 4.93
Wyoming	MF New	336,061	0.29%	\$ 44.10	\$ 722.95		\$ 3.61
Wyoming	Comm Retrofi	2,994,296	2.57%	\$ 63.12	\$ 1,034.72		\$ 5.17
Wyoming	Comm New	947,086	0.81%	\$ 49.12	\$ 805.21		\$ 4.03

116,522,283

0.061 kW/ft2

\$ 1,313.05 \$/kW weighted by kWh savings in each sector/construction type

\$ 11.18 O&M \$/kW weighted by kWh savings in each sector/construction type

17% % comm

6% % MF

77% % Res

26% % New

74% % Retrofit

Photovoltaic Market Acceptance Factors (2010)

	WA	CA	ID	UT	WY	OR
Program Factor	95%	95%	95%	95%	95%	95%
Cultural Factor	95%	95%	95%	95%	95%	95%
Acceptance Climate Factor	95%	95%	95%	95%	95%	95%
Urban Factor	95%	95%	95%	95%	95%	95%
Estimated Base Achievable %	0.016%	0.016%	0.016%	0.016%	0.016%	0.016%

	Yes	No	
Program Factor	95%	85%	Existing Program?
Cultural Factor	95%	85%	Greening Cultural?
Acceptance Climate Factor	95%	85%	Belief in PV based on their climate?
Urban Factor	95%	85%	More expendable income (urban high is based on 30% or more)?

Photovoltaic Technical Potential in MW and AverageMW (aMW) Summary

	Total		WA		CA		ID		UT		WY		OR	
	2011	2030	2011	2030	2011	2030	2011	2030	2011	2030	2011	2030	2011	2030
Commercial MW	10,796	22,316	579	1,025	115	211	204	501	3,477	8,952	652	1,343	5,769	10,283
Commercial aMW	1,795	3,745	91	161	18	33	34	84	618	1,591	122	252	911	1,624
Residential MW	5,209	10,664	347	599	103	191	198	502	2,630	5,849	368	745	1,561	2,777
Residential aMW	889	1,830	55	94	16	30	33	84	469	1,043	70	141	246	437
PV MW	16,004	32,979	926	1,624	218	403	402	1,003	6,107	14,801	1,021	2,088	7,330	13,060
PV aMW	2,683	5,575	145	255	34	63	67	168	1,087	2,634	192	393	1,157	2,062

**Photovoltaic Technical Potential by State and Sector:
Weighted Average between Urban and Rural. All Sectors in kW and all totals in MW**

		WA		CA		ID		UT		WY		OR	
		2010	2030	2010	2030	2010	2030	2010	2030	2010	2030	2010	2030
Large Office	kW	59,417	105,220	-	-	9,050	22,244	913,638	2,352,372	48,460	99,794	2,726,137	4,859,305
Small Office	kW	59,014	104,508	26,707	49,152	60,684	149,155	260,898	671,741	66,706	137,371	125,167	223,109
Grocery	kW	32,608	57,745	2,062	3,794	1,537	3,778	100,951	259,921	32,675	67,288	163,611	291,635
Large Retail	kW	127,551	225,877	-	-	40,789	100,256	412,353	1,061,698	81,650	168,145	383,792	684,105
Small Retail	kW	34,160	60,494	33,217	61,131	9,988	24,549	63,269	162,901	33,684	69,367	94,481	168,410
Restaurant	kW	6,327	11,204	6,121	11,264	1,100	2,703	36,039	92,791	30,415	62,634	49,846	88,849
Warehouse	kW	31,565	55,897	377	694	60,879	149,635	206,359	531,319	44,379	91,392	35,293	62,910
Lodging	kW	90,927	161,021	12,948	23,829	8,289	20,373	275,367	708,997	37,798	77,839	563,634	1,004,670
Schools	kW	22,965	40,669	2,834	5,216	2,707	6,654	570,892	1,469,894	149,727	308,338	1,077,865	1,921,281
Health	kW	76,843	136,080	22,710	41,796	6,790	16,689	358,561	923,198	86,001	177,104	118,051	210,424
Misc	kW	37,355	66,151	7,905	14,549	2,067	5,079	278,589	717,291	40,793	84,005	430,956	768,174
Total Commercial	MW	579	1,025	115	211	204	501	3,477	8,952	652	1,343	5,769	10,283
<i>Commercial All States</i>	<i>MW</i>	<i>10,796</i>	<i>22,316</i>										
Single Family	kW	295,810	510,736	81,942	151,614	168,913	427,775	2,442,709	5,431,327	323,699	654,827	1,285,975	2,287,741
Multi-Family	kW	18,117	31,280	5,477	10,133	6,605	16,727	108,134	240,434	22,454	45,424	98,835	175,819
Manufactured Housing	kW	33,211	57,342	15,866	29,356	22,743	57,598	79,522	176,816	22,227	44,965	176,421	313,874
Total Residential	MW	347	599	103	191	198	502	2,630	5,849	368	745	1,561	2,777
<i>Residential All States</i>	<i>MW</i>	<i>5,209</i>	<i>10,664</i>										

Available Roof Area Calculation in SQ.FT.

	Washington						California						Idaho					
	Roof sq.ft. per unit	% Roof Area Available	2010 # of Customers	2010 Available Roof Sq.Ft.	2030 # of Customers	2030 Available Roof Sq. Ft.	Roof sq.ft. per unit	% Roof Area Available	2010 # of Customers	2010 Available Roof Sq.Ft.	2030 # of Customers	2030 Available Roof Sq. Ft.	Roof sq.ft. per unit	% Roof Area Available	2010 # of Customers	2010 Available Roof Sq.Ft.	2030 # of Customers	2030 Available Roof Sq. Ft.
Large Office	30,413	67%	281	5,753,002	322	6,601,193	N/A	70%	-	-	-	-	30,413	69%	42	876,264	67	1,395,522
Small Office	2,225	67%	3,815	5,714,029	4,378	6,556,474	2,569	70%	1,438	2,585,901	1,715	3,083,613	1,500	69%	5,700	5,875,674	9,078	9,357,495
Grocery	3,000	67%	1,564	3,157,223	1,794	3,622,706	3,000	70%	95	199,606	113	238,024	3,000	69%	72	148,836	115	237,034
Large Retail	35,000	67%	524	12,350,004	602	14,170,819	N/A	70%	-	-	-	-	35,000	69%	164	3,949,396	262	6,289,739
Small Retail	3,000	67%	1,638	3,307,550	1,880	3,795,197	2,800	70%	1,641	3,216,165	1,957	3,835,185	3,000	69%	469	967,076	747	1,540,148
Restaurant	2,250	67%	405	612,586	464	702,902	1,750	70%	484	592,629	577	706,693	2,518	69%	62	106,478	98	169,576
Warehouse	38,162	67%	119	3,056,232	137	3,506,826	10,000	70%	5	36,529	6	43,560	10,000	69%	858	5,894,587	1,366	9,387,615
Lodging	8,000	67%	1,635	8,803,933	1,876	10,101,936	8,000	70%	224	1,253,662	267	1,494,957	8,000	69%	146	802,557	232	1,278,139
Schools	19,486	67%	170	2,223,598	195	2,551,433	19,486	70%	20	274,421	24	327,240	19,486	69%	20	262,130	31	417,464
Health	3,050	67%	3,624	7,440,265	4,159	8,537,216	14,500	70%	217	2,198,900	258	2,622,125	4,000	69%	239	657,433	381	1,047,016
Misc	4,500	67%	1,194	3,616,841	1,370	4,150,087	2,500	70%	437	765,430	522	912,753	2,700	69%	108	200,096	172	318,670
<i>Total Commercial</i>	<i>149,085</i>		<i>14,969</i>	<i>56,035,263</i>	<i>17,176</i>	<i>64,296,790</i>	<i>64,604</i>		<i>4,561</i>	<i>11,123,243</i>	<i>5,439</i>	<i>13,264,150</i>	<i>119,616</i>		<i>7,880</i>	<i>19,740,529</i>	<i>12,549</i>	<i>31,438,416</i>
Single Family	2,169	17%	78,632	28,641,523	87,968	32,041,937	1,950	16%	25,533	7,933,934	30,611	9,511,757	2,322	16%	43,093	16,354,861	70,713	26,837,250
Multi-Family	768	17%	13,581	1,754,137	15,194	1,962,393	768	18%	3,948	530,270	4,733	635,725	768	17%	4,850	639,508	7,958	1,049,390
Manufactured Housing	1,785	17%	10,725	3,215,658	11,999	3,597,431	1,624	16%	9,937	1,536,219	7,117	1,841,727	1,587	16%	8,487	2,202,098	13,927	3,613,498
<i>Total Residential</i>	<i>4,721</i>		<i>102,939</i>	<i>56,035,263</i>	<i>115,160</i>	<i>64,296,790</i>	<i>4,347</i>		<i>35,418</i>	<i>10,000,423</i>	<i>42,462</i>	<i>11,989,209</i>	<i>4,677</i>		<i>56,430</i>	<i>19,196,466</i>	<i>92,598</i>	<i>31,500,138</i>
	Utah						Wyoming						Oregon					
	Roof sq.ft. per unit	% Roof Area Available	2010 # of Customers	2010 Available Roof Sq.Ft.	2030 # of Customers	2030 Available Roof Sq. Ft.	Roof sq.ft. per unit	% Roof Area Available	2010 # of Customers	2010 Available Roof Sq.Ft.	2030 # of Customers	2030 Available Roof Sq. Ft.	Roof sq.ft. per unit	% Roof Area Available	2010 # of Customers	2010 Available Roof Sq.Ft.	2030 # of Customers	2030 Available Roof Sq. Ft.
Large Office	30,413	65%	4,452	88,462,276	7,427	147,580,263	30,413	69%	224	4,692,053	298	6,260,772	30,413	67%	13,038	263,955,922	15,058	304,857,111
Small Office	2,000	65%	19,333	25,261,192	32,252	42,142,861	1,518	69%	6,168	6,458,801	8,230	8,618,208	2,225	67%	8,182	12,119,189	9,450	13,997,113
Grocery	7,000	65%	2,137	9,774,477	3,566	16,306,610	3,000	69%	1,529	3,163,706	2,040	4,221,445	3,000	67%	7,932	15,841,530	9,162	18,296,249
Large Retail	35,000	65%	1,746	39,925,746	2,913	66,607,512	35,000	69%	327	7,905,714	437	10,548,875	35,000	67%	1,595	37,160,385	1,842	42,918,558
Small Retail	2,700	65%	3,473	6,126,002	5,794	10,219,915	4,850	69%	975	3,261,425	1,301	4,351,835	3,000	67%	4,581	9,147,997	5,291	10,565,521
Restaurant	2,750	65%	1,942	3,489,442	3,240	5,821,383	2,600	69%	1,642	2,944,895	2,191	3,929,478	2,250	67%	3,222	4,826,274	3,722	5,574,128
Warehouse	10,000	65%	3,058	19,980,555	5,102	33,333,255	10,000	69%	623	4,296,990	831	5,733,626	38,162	67%	135	3,417,239	155	3,946,756
Lodging	8,100	65%	5,038	26,662,214	8,405	44,480,164	6,770	69%	784	3,659,761	1,046	4,883,349	8,000	67%	10,248	54,573,382	11,836	63,029,780
Schools	29,842	65%	2,835	55,276,172	4,730	92,216,393	19,486	69%	1,078	14,497,189	1,439	19,344,114	19,486	67%	8,046	104,363,405	9,293	120,534,997
Health	6,700	65%	7,931	34,717,369	13,231	57,918,456	5,000	69%	2,414	8,326,961	3,221	11,110,959	3,050	67%	5,630	11,430,145	6,502	13,201,299
Misc	4,288	65%	9,630	26,974,138	16,065	45,000,542	5,000	69%	1,145	3,949,701	1,528	5,270,227	4,500	67%	13,930	41,726,982	16,088	48,192,770
<i>Total Commercial</i>	<i>138,792</i>		<i>61,575</i>	<i>336,649,583</i>	<i>102,725</i>	<i>561,627,355</i>	<i>123,636</i>		<i>16,908</i>	<i>63,157,196</i>	<i>22,561</i>	<i>84,272,887</i>	<i>149,085</i>		<i>76,538</i>	<i>558,562,450</i>	<i>88,398</i>	<i>645,114,282</i>
Single Family	2,322	17%	584,600	236,513,313	842,231	340,743,949	2,322	16%	83,015	31,341,860	108,813	41,081,720	2,169	17%	337,108	124,513,456	388,581	143,525,527
Multi-Family	768	16%	83,514	10,469,993	120,319	15,084,084	768	17%	16,424	2,174,119	21,528	2,849,752	768	17%	74,916	9,569,626	86,351	11,030,308
Manufactured Housing	1,587	17%	27,838	7,699,644	40,106	11,092,852	1,587	16%	8,338	2,152,144	10,929	2,820,948	1,785	17%	56,185	17,081,799	64,768	19,691,430
<i>Total Residential</i>	<i>4,677</i>		<i>695,952</i>	<i>254,682,950</i>	<i>1,002,656</i>	<i>366,920,885</i>	<i>4,677</i>		<i>107,777</i>	<i>35,668,123</i>	<i>141,270</i>	<i>46,752,421</i>	<i>4,721</i>		<i>468,209</i>	<i>151,164,881</i>	<i>539,701</i>	<i>174,247,266</i>

Photovoltaic Assumptions: Commercial

(1% cell degradation loss per year is taken into account in achievable technical potential)

Area unavailable	Factors- placement and shading by obstructions	Total un-available	Available % of roof
20%	1.5	30%	70%

* all commercial buildings have flat roofs
 * the 20% assumes that obstructions and equipment shade of an additional 50% of the roof to total 30%
 * assume 10% more shading in urban setting by other buildings
 * assume sectors are split evenly throughout rural and urban

Rural and Urban Split	WA	CA	ID	UT	WY	OR
% Rural	73%	100%	87%	53%	90%	66%
% Urban	27%	0%	13%	47%	10%	34%
Weighted Average %	67%	70%	69%	65%	69%	67%

Photovoltaic Assumptions: Residential

	Pitch
Single Family	18.4 degrees
Multi-Family	0 degrees
Manufactured Home	18.4 degrees

* all multi family units have flat roof and use similar commercial assumptions but also include an increase in the number of obstructions. 25% of usable area multiplied by commercial assumptions.

	Orientation	Half of pitched roof	Roof obstructions	Total without shading
Available Roof Area Factors (% Useable) - without shading	75%	50%	85%	32%

	Urban/Rural split	Shading - % useable	Roof area factors	Total % roof available
Area Factors (% Useable)	Urban	60%	32%	19%
	Rural	50%	32%	16%

		WA	CA	ID	UT	WY	OR
Shading split	Rural	73%	100%	87%	53%	90%	66%
	Urban	27%	0%	13%	47%	10%	34%
SF	Rural	16%	16%	16%	16%	16%	16%
	Urban	19%	19%	19%	19%	19%	19%
MF	Rural	18%	18%	18%	18%	18%	18%
	Urban	15%	15%	15%	15%	15%	15%
MH	Rural	16%	16%	16%	16%	16%	16%
	Urban	19%	19%	19%	19%	19%	19%
SF Weighted Average %		17%	16%	16%	17%	16%	17%
MF Weighted Average %		17%	18%	17%	16%	17%	17%
MH Weighted Average %		17%	16%	16%	17%	16%	17%

Power Density

Year	Module pd	System pd
2010	12.9	10.33
2011	13.18	10.54
2012	13.45	10.76
2013	13.74	10.99
2014	14.02	11.22
2015	14.32	11.45
2016	14.61	11.69
2017	14.92	11.94
2018	15.23	12.18
2019	15.55	12.44
2020	15.87	12.70
2021	16.20	12.96
2022	16.54	13.23
2023	16.89	13.51
2024	17.24	13.79
2025	17.60	14.08
2026	17.97	14.37
2027	18.34	14.68
2028	18.73	14.98
2029	19.12	15.29
2030	19.52	15.61
2031	19.92	15.94

Technology	Production by shipment projected for 2005	Module power density (Wp/sq. ft).
Mono crystalline	41%	13.5
Poly-crystalline	59%	13
a-silicon	0%	6
Weighted average		12.9

2.09% Increase in module efficiency per year

Sources:
 Energy Information Administration (EIA): "Annual Photovoltaic Module/Cell Manufacturers Survey."
 DOE: Photovoltaics - Energy for the New Millennium: The National Photovoltaics Program Plan 2000-2004
 NREL: The Role of Polycrystalline Thin-Film PV Technologies for Achieving Mid-Term Market-Competitive PV Modules
 International Energy Agency (IEA): Photovoltaic Power Systems Programme

PV Incentives for a Sample of State Programs (2010)

State/Program Name	Sector	State Rebate Program (\$/Watt)	
Nevada SolarGenerations PV Rebate Program	Residential	\$2.30/W AC	1000 kW
	Business	\$2.30/W AC	1000 kW
	Other: Public/School	\$5.00/W AC	1000 kW
Pennsylvania Pennsylvania Sunshine Solar Rebate Program	Residential	\$0.75/W DC	Unlimited > 1 kW
	Business	\$0.50 - \$0.75/W DC	Unlimited > 3 kW
Connecticut CCEF - Solar PV Rebate Program	Residential	\$1.25 - \$1.75/W PTC rating	10 kW
Massachusetts MassCEC – Commonwealth Solar II Rebates	Residential*	\$0.75 - \$1.70/W DC	10 kW
	Business*	\$0.75 - \$1.70/W DC	10 kW
	Other: Public/School	\$0.75 - \$1.70/W DC	10 kW
Florida Solar Energy System Incentives Program	Residential	\$4.00/W DC	Unlimited > 2 kW
	Business*	\$4.00/W DC	Unlimited > 2 kW
	Other: Public/School	\$4.00/W DC	Unlimited > 2 kW
California California Solar Initiative Incentives	Residential/Sm. Commercial	\$0.35/W PTC AC rating	30 kW
	Business	\$0.35/W PTC AC rating	30 kW**
	Other: Public/School	\$1.10/W PTC AC rating	30 kW**
Oregon Energy Trust - Solar Electric Buy-Down Program	Residential*	\$1.50 - \$1.75/W DC	11 to 13 kW
	Business*	\$0.75 - \$1.00/W DC	200 kW
	Other: Public/School	\$0.75- \$1.50/W DC	200 kW
Utah¹ Rocky Mountain Power - Solar Incentive Program	Residential*	\$2.00/W AC	25 kW
	Business*	\$2.00/W AC	2000 kW
	Other: Public/School	\$2.00/W AC	2000 kW

* State tax credits also available

**CSI projects larger than 30 kW can apply for a performance based-incentive.

¹ Utah's Solar Incentive Program began in 2007 as a pilot project and provides a comparison to the other programs.

Appendix E. Comparison of Measure Savings Assumptions to the Sixth Power Plan

Appendix E. Washington Potential in Comparison to the Council's 6th Plan

In compliance with Chapter 19.285 of the Revised Code of Washington (RCW), Chapter 480-109 of the Washington Administrative Code (WAC), and as described in Volume I of this report, this study employs methodologies consistent with the Northwest Power and Conservation Council's (Council's) 6th Regional Power Plan to estimate available energy-efficiency potential. Additionally, Cadmus conducted a thorough review of baseline and measure assumptions used by the Council, including costs, savings, applicability, and current saturation. Although this study relies on data specific to PacifiCorp's service territory whenever possible, Council assumptions were incorporated where appropriate.

By applying PacifiCorp's Washington share of regional sales, by sector, to the Council's regional potential, one can estimate the 6th Plan's share of potential in PacifiCorp's Washington service territory. However, there are a number of factors that must be considered in comparing that allocated potential to the results of this study:

- The Council, by necessity, relies on average regional data; whereas this study utilizes primary data from PacifiCorp's Washington service territory. Therefore, an allocation of regional potential based on sales may not account for PacifiCorp's unique service territory characteristics, such as customer mix, use per customer, end use saturations, fuel shares, and current measure saturation. Similarly, some industries included in the 6th Plan may not exist in PacifiCorp's Washington service territory.
- PacifiCorp and the Council rely on unique baseline energy forecasts, each of which is a major driver in the respective estimates of potential.
- Both studies assess potential over a 20-year period; however, the 6th Plan begins in 2010, while estimation of potential in this study begins in 2011.
- Due to the timing of the release of the 6th Plan, not all upcoming codes and standards were removed from the potential (most notably, new standards relating to commercial lighting and residential water heating, as described in Volume I, Section 1 of this report).

These caveats aside, Table 1 provides a comparison of the 2-, 10-, and 20-year achievable technical potentials estimated in this study, as compared to the 6th Plan. The 6th Plan numbers are derived by applying PacifiCorp's share of regional sales, by sector, to the 6th Plan estimates of regional potential.¹ As shown, 2-year potentials from the two studies are nearly identical in all sectors. However, by the 20th year, the 6th Plan's estimates are substantially higher than those calculated in this study for all sectors. Details on sector-level differences are provided below, with further details on measure-savings assumptions for the residential and commercial sectors following.

¹ Report 6th Plan potentials by sector and end use are based on summarization of measure-specific Council workbooks available here: <http://www.nwcouncil.org/energy/powerplan/6/supplycurves/default.htm>

Table 1. Comparison of 2011 CPA and 6th Plan Achievable Technical Potential (aMW)

Sector	2-Year Achievable Technical Potential		10-Year Achievable Technical Potential		20-Year Achievable Technical Potential	
	2011 CPA	PacifiCorp Share of Regional Potential	2011 CPA	PacifiCorp Share of Regional Potential		PacifiCorp Share of Regional Potential
Residential*	7	7	32	43	68	96
Commercial	3	2	19	19	35	38
Industrial**	1	2	8	13	19	28
Total	11	11	59	76	122	162
* Solar photovoltaic potential has been removed from 6 th Plan potential to allow for direct comparison between studies						
** Includes irrigation						

Residential Sector

As shown in Table 1, the residential sector accounts for over half of the total differences in estimates of long-term achievable technical potential from the two studies. Because of differences in end-use definitions, it is difficult to compare the two studies at a detailed end-use level; however, differences in key assumptions by end use are described below:

- **Appliances and water heating** are combined for this comparison because a large portion of appliance potential is water heating savings from clothes washers and dishwashers. A key difference in the modeling approaches is the incorporation of new residential water heating standards in the 2011 CPA, as described in Volume 1, Section 1 of this report. It is assumed that new equipment installed after 2014 would need to meet the new minimum efficiency requirements, reducing the potential for high-efficiency water heating equipment. Additionally, PacifiCorp-specific saturations for high-efficiency appliances resulted in a savings potential lower than the regional average. Finally, differences in water heating end-use consumption estimates between building types in PacifiCorp territory as compared to the regional assumptions drive some of the difference.
- The category of **consumer electronics and other plug loads** contains a variety of end uses, including televisions, computers, and other household electronics. While the base-year saturations of the various types of equipment are similar between the two studies, the assumptions differ regarding how saturations may change over time, leading to a difference in long-term potential.² Additionally, the 6th Plan includes commercial computers and monitors as part of the residential potential, while the study performed by Cadmus includes only units in residences.
- **HVAC** encompasses heating, cooling, and ventilation savings, which are combined due to differences in model structures. Potentials for this category are very similar with the main difference being the assumed building square footage in the 6th Plan as compared to PacifiCorp territory. Savings from shell measures are closely related to building size.

² The 2011 CPA assumes annual increases in saturations by technology ranging from 0.3% to 1.0% based on the EIA's 2010 Annual Energy Outlook. Council escalation assumptions vary by technology with an average annual increase of around two percent.

- **Lighting** savings are nearly identical between the two studies, as both assumed that potential from standard CFLs would disappear after the Energy Independence and Security Act of 2007 (EISA) took full effect.

Table 2. Comparison of 20-Year Residential Achievable Technical Potential by End Use

End Use Group	20-Year Achievable Technical Potential	
	2011 CPA	PacifiCorp Share of Regional Forecast
Appliances and Water Heating	14	35
Consumer Electronics and Other Plug Loads	8	21
HVAC	39	33
Lighting	7	7
Total	68	96

Commercial Sector

In the commercial sector, the 2- and 10-year potentials estimated by the two studies are roughly equal; the 6th Plan's 20-year potential is slightly higher. As savings as a percent of baseline consumption are similar between the two studies, this difference is primarily a function of differing load forecasts.

Industrial Sector

Because the two assessments rely on the primarily the same measure assumptions, differences in potential are largely driven by the mix of industries present, as savings can vary greatly between industries.

Segment	End Use	Measure Type	Construction Type	Discretionary / Lost Opportunity	Cadmus Measure Name	Cadmus Measure Description	6th Power Plan Measure Name	Cadmus Per Unit Site Savings (kWh)	6th Power Plan Per Unit Site Savings (kWh)	Notes On Differences
Manufactured	Computer	Equipment	Existing	Lost Opportunity	Computer, ENERGY STAR	ENERGY STAR Computer		51.33		
Manufactured	Computer	Equipment	New	Lost Opportunity	Computer, ENERGY STAR	ENERGY STAR Computer		51.33		
Multi Family	Computer	Equipment	Existing	Lost Opportunity	Computer, ENERGY STAR	ENERGY STAR Computer		51.07		
Multi Family	Computer	Equipment	New	Lost Opportunity	Computer, ENERGY STAR	ENERGY STAR Computer		51.07		
Single Family	Computer	Equipment	Existing	Lost Opportunity	Computer, ENERGY STAR	ENERGY STAR Computer		48.54		
Single Family	Computer	Equipment	New	Lost Opportunity	Computer, ENERGY STAR	ENERGY STAR Computer		48.54		
						ENERGY STAR - Weighted Average Residential Desktop			169.72	
Comparison					All Iterations for Computers			48.84	169.72	Cadmus used the new ENERGY STAR Calculator to determine the per unit energy savings for this measure. This source was not available when the estimates for 6th PP were released.
Manufactured	Monitor	Equipment	Existing	Lost Opportunity	Monitor, ENERGY STAR	ENERGY STAR Monitor		36.63		
Manufactured	Monitor	Equipment	New	Lost Opportunity	Monitor, ENERGY STAR	ENERGY STAR Monitor		36.63		
Multi Family	Monitor	Equipment	Existing	Lost Opportunity	Monitor, ENERGY STAR	ENERGY STAR Monitor		36.63		
Multi Family	Monitor	Equipment	New	Lost Opportunity	Monitor, ENERGY STAR	ENERGY STAR Monitor		36.63		
Single Family	Monitor	Equipment	Existing	Lost Opportunity	Monitor, ENERGY STAR	ENERGY STAR Monitor		36.63		
Single Family	Monitor	Equipment	New	Lost Opportunity	Monitor, ENERGY STAR	ENERGY STAR Monitor		36.63		
						ENERGY STAR - Weighted Average Residential Monitor			36.63	
Comparison					All Iterations for Monitors			36.63	36.63	No significant difference
Manufactured	Set Top Box	Equipment	Existing	Lost Opportunity	Set Top Box, ENERGY STAR	ENERGY STAR Set Top Box		164.69		
Manufactured	Set Top Box	Equipment	New	Lost Opportunity	Set Top Box, ENERGY STAR	ENERGY STAR Set Top Box		164.69		
Multi Family	Set Top Box	Equipment	Existing	Lost Opportunity	Set Top Box, ENERGY STAR	ENERGY STAR Set Top Box		164.69		
Multi Family	Set Top Box	Equipment	New	Lost Opportunity	Set Top Box, ENERGY STAR	ENERGY STAR Set Top Box		164.69		
Single Family	Set Top Box	Equipment	Existing	Lost Opportunity	Set Top Box, ENERGY STAR	ENERGY STAR Set Top Box		164.69		
Single Family	Set Top Box	Equipment	New	Lost Opportunity	Set Top Box, ENERGY STAR	ENERGY STAR Set Top Box		164.69		
						ENERGY STAR - Weighted Average Set Top Boxes			164.69	
Comparison					All Iterations for Set Top Boxes			164.69	164.69	No significant difference
Manufactured	Tv	Equipment	Existing	Lost Opportunity	TV CRT, ENERGY STAR	ENERGY STAR CRT TV		112.59		
Manufactured	Tv	Equipment	New	Lost Opportunity	TV CRT, ENERGY STAR	ENERGY STAR CRT TV		112.59		
Multi Family	Tv	Equipment	Existing	Lost Opportunity	TV CRT, ENERGY STAR	ENERGY STAR CRT TV		112.59		
Multi Family	Tv	Equipment	New	Lost Opportunity	TV CRT, ENERGY STAR	ENERGY STAR CRT TV		112.59		
Single Family	Tv	Equipment	Existing	Lost Opportunity	TV CRT, ENERGY STAR	ENERGY STAR CRT TV		112.59		
Single Family	Tv	Equipment	New	Lost Opportunity	TV CRT, ENERGY STAR	ENERGY STAR CRT TV		112.59		
Manufactured	Tv Bigscreen	Equipment	Existing	Lost Opportunity	TV LCD, ENERGY STAR	ENERGY STAR LCD TV		223.26		
Manufactured	Tv Bigscreen	Equipment	New	Lost Opportunity	TV LCD, ENERGY STAR	ENERGY STAR LCD TV		223.26		
Multi Family	Tv Bigscreen	Equipment	Existing	Lost Opportunity	TV LCD, ENERGY STAR	ENERGY STAR LCD TV		223.26		
Multi Family	Tv Bigscreen	Equipment	New	Lost Opportunity	TV LCD, ENERGY STAR	ENERGY STAR LCD TV		223.26		
Single Family	Tv Bigscreen	Equipment	Existing	Lost Opportunity	TV LCD, ENERGY STAR	ENERGY STAR LCD TV		223.26		
Single Family	Tv Bigscreen	Equipment	New	Lost Opportunity	TV LCD, ENERGY STAR	ENERGY STAR LCD TV		223.26		
						ENERGY STAR - Weighted Average TV			207.74	
Comparison					All Iterations for TVs			129.84	207.74	Cadmus used the specific energy savings for small TVs from the 6th PP. The 6th PP included a medium and large sized TV also. Cadmus used the average for these two TV sizes.

Segment	End Use	Measure Type	Construction Type	Discretionary / Lost Opportunity	Cadmus Measure Name	Cadmus Measure Description	6th Power Plan Measure Name	Cadmus Per Unit Site Savings (kWh)	6th Power Plan Per Unit Savings (kWh)	Cadmus per Home Savings (kWh)	6th Power Plan per Home Saving (kWh)	Notes On Differences
Manufacture	Lighting Interior Special	Equipment	Existing	Lost Opportunity	CFL (13 W, 20 W, 25 W)	CFL (13-Way)		43.48		61.46		
Manufacture	Lighting Interior Special	Equipment	New	Lost Opportunity	CFL (13 W, 20 W, 25 W)	CFL (13-Way)		43.48		61.46		
Multi Family	Lighting Interior Special	Equipment	Existing	Lost Opportunity	CFL (13 W, 20 W, 25 W)	CFL (13-Way)		43.48		50.89		
Multi Family	Lighting Interior Special	Equipment	New	Lost Opportunity	CFL (13 W, 20 W, 25 W)	CFL (13-Way)		43.48		50.89		
Single Family	Lighting Interior Special	Equipment	Existing	Lost Opportunity	CFL (13 W, 20 W, 25 W)	CFL (13-Way)		43.48		75.16		
Single Family	Lighting Interior Special	Equipment	New	Lost Opportunity	CFL (13 W, 20 W, 25 W)	CFL (13-Way)		43.48		75.16		
Manufacture	Lighting Exterior	Equipment	Existing	Lost Opportunity	CFL Flood (17 W)	CFL Flood		53.64		232.33		
Manufacture	Lighting Exterior	Equipment	New	Lost Opportunity	CFL Flood (17 W)	CFL Flood		53.64		232.33		
Multi Family	Lighting Exterior	Equipment	Existing	Lost Opportunity	CFL Flood (17 W)	CFL Flood		53.64		192.37		
Multi Family	Lighting Exterior	Equipment	New	Lost Opportunity	CFL Flood (17 W)	CFL Flood		53.64		192.37		
Single Family	Lighting Exterior	Equipment	Existing	Lost Opportunity	CFL Flood (17 W)	CFL Flood		53.64		284.32		
Single Family	Lighting Exterior	Equipment	New	Lost Opportunity	CFL Flood (17 W)	CFL Flood		53.64		284.32		
Manufacture	Lighting Interior Standard	Equipment	Existing	Lost Opportunity	Lighting CFL 15 W	15 W CFL		40.32		949.92		
Manufacture	Lighting Interior Standard	Equipment	New	Lost Opportunity	Lighting CFL 15 W	15 W CFL		40.32		949.92		
Multi Family	Lighting Interior Standard	Equipment	Existing	Lost Opportunity	Lighting CFL 15 W	15 W CFL		40.32		786.56		
Multi Family	Lighting Interior Standard	Equipment	New	Lost Opportunity	Lighting CFL 15 W	15 W CFL		40.32		786.56		
Single Family	Lighting Interior Standard	Equipment	Existing	Lost Opportunity	Lighting CFL 15 W	15 W CFL		40.32		1161.69		
Single Family	Lighting Interior Standard	Equipment	New	Lost Opportunity	Lighting CFL 15 W	15 W CFL		40.32		1161.69		
						ENERGY STAR Lighting - Existing Dwelling Unit LPD = 0.6 W/Sq.ft.					943.04	
						ENERGY STAR Lighting - New Dwelling Unit LPD = 0.6 W/Sq.ft.					185.33	
Comparison		Comparison			All Iterations for Lighting					644	999	Assumed higher saturation of CFLs for PacifiCorp the 6th PP
Manufacture	Water Heat	Retrofit	Existing	Discretionary	Clothes Washer	ENERGY STAR - Tier 1 (IMEF 2.0 - 2.19) - Electric DHW & Dryer		112.61		112.61		
Manufacture	Water Heat	Retrofit	Existing	Discretionary	Clothes Washer	ENERGY STAR - Tier 2 (IMEF 2.2 - 2.45) - Electric DHW & Dryer		150.04		150.04		
Manufacture	Water Heat	Retrofit	Existing	Discretionary	Clothes Washer	ENERGY STAR - Tier 3 (IMEF 2.46 or higher) Top 10% of ENERGY STAR Model - Electric DHW & Dryer		170.97		170.97		
Manufacture	Water Heat	Retrofit	New	Lost Opportunity	Clothes Washer	ENERGY STAR - Tier 1 (IMEF 2.0 - 2.19) - Electric DHW & Dryer		112.13		112.13		
Manufacture	Water Heat	Retrofit	New	Lost Opportunity	Clothes Washer	ENERGY STAR - Tier 2 (IMEF 2.2 - 2.45) - Electric DHW & Dryer		149.40		149.40		
Manufacture	Water Heat	Retrofit	New	Lost Opportunity	Clothes Washer	ENERGY STAR - Tier 3 (IMEF 2.46 or higher) Top 10% of ENERGY STAR Model - Electric DHW & Dryer		170.23		170.23		
Multi Family	Water Heat	Retrofit	Existing	Discretionary	Clothes Washer	ENERGY STAR - Tier 1 (IMEF 2.0 - 2.19) - Electric DHW & Dryer		112.72		112.72		
Multi Family	Water Heat	Retrofit	Existing	Discretionary	Clothes Washer	ENERGY STAR - Tier 2 (IMEF 2.2 - 2.45) - Electric DHW & Dryer		150.18		150.18		
Multi Family	Water Heat	Retrofit	Existing	Discretionary	Clothes Washer	ENERGY STAR - Tier 3 (IMEF 2.46 or higher) Top 10% of ENERGY STAR Model - Electric DHW & Dryer		171.13		171.13		
Multi Family	Water Heat	Retrofit	New	Lost Opportunity	Clothes Washer	ENERGY STAR - Tier 1 (IMEF 2.0 - 2.19) - Electric DHW & Dryer		112.10		112.10		
Multi Family	Water Heat	Retrofit	New	Lost Opportunity	Clothes Washer	ENERGY STAR - Tier 2 (IMEF 2.2 - 2.45) - Electric DHW & Dryer		149.49		149.49		
Multi Family	Water Heat	Retrofit	New	Lost Opportunity	Clothes Washer	ENERGY STAR - Tier 3 (IMEF 2.46 or higher) Top 10% of ENERGY STAR Model - Electric DHW & Dryer		170.23		170.23		
Single Family	Water Heat	Retrofit	Existing	Discretionary	Clothes Washer	ENERGY STAR - Tier 1 (IMEF 2.0 - 2.19) - Electric DHW & Dryer		112.83		112.83		
Single Family	Water Heat	Retrofit	Existing	Discretionary	Clothes Washer	ENERGY STAR - Tier 2 (IMEF 2.2 - 2.45) - Electric DHW & Dryer		150.32		150.32		
Single Family	Water Heat	Retrofit	Existing	Discretionary	Clothes Washer	ENERGY STAR - Tier 3 (IMEF 2.46 or higher) Top 10% of ENERGY STAR Model - Electric DHW & Dryer		171.29		171.29		
Single Family	Water Heat	Retrofit	New	Lost Opportunity	Clothes Washer	ENERGY STAR - Tier 1 (IMEF 2.0 - 2.19) - Electric DHW & Dryer		112.27		112.27		
Single Family	Water Heat	Retrofit	New	Lost Opportunity	Clothes Washer	ENERGY STAR - Tier 2 (IMEF 2.2 - 2.45) - Electric DHW & Dryer		149.60		149.60		
Single Family	Water Heat	Retrofit	New	Lost Opportunity	Clothes Washer	ENERGY STAR - Tier 3 (IMEF 2.46 or higher) Top 10% of ENERGY STAR Model - Electric DHW & Dryer		170.46		170.46		
						ENERGY STAR - Tier 1 (IMEF 2.0 - 2.19) - Weighted Average DHW & Dryer			104.4			
						ENERGY STAR - Tier 2 (IMEF 2.2 - 2.45) - Weighted Average DHW & Dryer			139.33			
						ENERGY STAR - Tier 3 (IMEF 2.46 or higher) Top 10% of ENERGY STAR Model - Weighted Average DHW & Dryer			158.38			
Comparison		Comparison			All Iterations for Clothes Washers			145.57	134.03			No significant difference
Manufacture	Cooking Oven	Equipment	Existing	Lost Opportunity	Cooking Oven, High Efficiency	High Efficiency Oven		58.03		58.03		
Manufacture	Cooking Oven	Equipment	New	Lost Opportunity	Cooking Oven, High Efficiency	High Efficiency Oven		58.03		58.03		
Multi Family	Cooking Oven	Equipment	Existing	Lost Opportunity	Cooking Oven, High Efficiency	High Efficiency Oven		58.03		58.03		
Multi Family	Cooking Oven	Equipment	New	Lost Opportunity	Cooking Oven, High Efficiency	High Efficiency Oven		58.03		58.03		
Single Family	Cooking Oven	Equipment	Existing	Lost Opportunity	Cooking Oven, High Efficiency	High Efficiency Oven		58.03		58.03		
Single Family	Cooking Oven	Equipment	New	Lost Opportunity	Cooking Oven, High Efficiency	High Efficiency Oven		58.03		58.03		
						Non Self-Cleaning Oven			63.6			
						Self-Cleaning Oven			51.2			
Comparison		Comparison			All Iterations for Cooking Ovens			58.03	58.03			No significant difference
Manufacture	Water Heat	Retrofit	Existing	Discretionary	Dishwasher	ENERGY STAR, July 1st 2011, <= 307 kWh/year <= 5.0 gallons/cycle		33.15		33.15		
Manufacture	Water Heat	Retrofit	New	Lost Opportunity	Dishwasher	ENERGY STAR, July 1st 2011, <= 307 kWh/year <= 5.0 gallons/cycle		33.01		33.01		
Multi Family	Water Heat	Retrofit	Existing	Discretionary	Dishwasher	ENERGY STAR, July 1st 2011, <= 307 kWh/year <= 5.0 gallons/cycle		33.18		33.18		
Multi Family	Water Heat	Retrofit	New	Lost Opportunity	Dishwasher	ENERGY STAR, July 1st 2011, <= 307 kWh/year <= 5.0 gallons/cycle		33.03		33.03		
Single Family	Water Heat	Retrofit	Existing	Discretionary	Dishwasher	ENERGY STAR, July 1st 2011, <= 307 kWh/year <= 5.0 gallons/cycle		33.21		33.21		
Single Family	Water Heat	Retrofit	New	Lost Opportunity	Dishwasher	ENERGY STAR, July 1st 2011, <= 307 kWh/year <= 5.0 gallons/cycle		33.05		33.05		
						ENERGY STAR Dishwasher (EF68) - Any Water Heater			13			
						ENERGY STAR Dishwasher (EF72) - Any Water Heater			16			
						ENERGY STAR Dishwasher (EF83 or higher) - Any Water Heater			57			
Comparison		Comparison			All Iterations for Dishwashers			33.19	85.56			Cadmus based the savings on the new ENERGY STAR requirements that were not public during the time the 6th PP was released.
Manufacture	Water Heat	Retrofit	Existing	Discretionary	Drain Water Heat Recovery (GFX)	Gravity Film Heat Exchanger		374.98		374.98		
Manufacture	Water Heat	Retrofit	New	Lost Opportunity	Drain Water Heat Recovery (GFX)	Gravity Film Heat Exchanger		373.36		373.36		
Multi Family	Water Heat	Retrofit	Existing	Discretionary	Drain Water Heat Recovery (GFX)	Gravity Film Heat Exchanger		375.13		375.13		
Multi Family	Water Heat	Retrofit	New	Lost Opportunity	Drain Water Heat Recovery (GFX)	Gravity Film Heat Exchanger		373.58		373.58		
Single Family	Water Heat	Retrofit	Existing	Discretionary	Drain Water Heat Recovery (GFX)	Gravity Film Heat Exchanger		375.67		375.67		
Single Family	Water Heat	Retrofit	New	Lost Opportunity	Drain Water Heat Recovery (GFX)	Gravity Film Heat Exchanger		373.86		373.86		
						Gravity Film Heat Exchanger in New Single Family Construction, DHW & Shower Preheat, Electric Resistance			373.1			
						Gravity Film Heat Exchanger in New Single Family Construction, DHW & Shower Preheat, Heat Pump			136.5			
						Gravity Film Heat Exchanger in New Single Family Construction, DHW Preheat, Electric Resistance			373.3			
						Gravity Film Heat Exchanger in New Single Family Construction, DHW Preheat, Heat Pump			136.5			
						Gravity Film Heat Exchanger in New Multifamily Construction, DHW & Shower Preheat, Electric Resistance			373.3			
						Gravity Film Heat Exchanger in New Multifamily Construction, DHW & Shower Preheat, Heat Pump			136.5			
						Gravity Film Heat Exchanger in New Multifamily Construction, DHW Preheat, Electric Resistance			373.3			
						Gravity Film Heat Exchanger in New Multifamily Construction, DHW Preheat, Heat Pump			136.5			
						Gravity Film Heat Exchanger in Existing Single Family Residence, DHW & Shower Preheat, Electric Resistance			373.3			
						Gravity Film Heat Exchanger in Existing Single Family Residence, DHW & Shower Preheat, Heat Pump			136.5			
						Gravity Film Heat Exchanger in Existing Single Family Residence, DHW Preheat, Electric Resistance			373.3			
						Gravity Film Heat Exchanger in Existing Single Family Residence, DHW Preheat, Heat Pump			136.5			
Comparison		Comparison			All Iterations for GFX			375.22	373.26			No significant difference
Manufacture	Dryer	Equipment	Existing	Lost Opportunity	Dryer, Advanced Efficiency EF 3.30	Advanced Efficiency Dryer 3.30		38.24		38.24		
Multi Family	Dryer	Equipment	Existing	Lost Opportunity	Dryer, Advanced Efficiency EF 3.30	Advanced Efficiency Dryer 3.30		38.24		38.24		
Single Family	Dryer	Equipment	Existing	Lost Opportunity	Dryer, Advanced Efficiency EF 3.30	Advanced Efficiency Dryer 3.30		50.76		50.76		
Manufacture	Dryer	Equipment	New	Lost Opportunity	Dryer, Advanced Efficiency EF 3.30	Advanced Efficiency Dryer 3.30		38.24		38.24		
Multi Family	Dryer	Equipment	New	Lost Opportunity	Dryer, Advanced Efficiency EF 3.30	Advanced Efficiency Dryer 3.30		38.24		38.24		
Single Family	Dryer	Equipment	New	Lost Opportunity	Dryer, Advanced Efficiency EF 3.30	Advanced Efficiency Dryer 3.30		50.76		50.76		
Manufacture	Dryer	Equipment	Existing	Lost Opportunity	Dryer, High Efficiency EF 3.08	High Efficiency Dryer EF 3.08		9.89		9.89		
Manufacture	Dryer	Equipment	New	Lost Opportunity	Dryer, High Efficiency EF 3.08	High Efficiency Dryer EF 3.08		9.89		9.89		
Multi Family	Dryer	Equipment	Existing	Lost Opportunity	Dryer, High Efficiency EF 3.08	High Efficiency Dryer EF 3.08		9.89		9.89		
Multi Family	Dryer	Equipment	New	Lost Opportunity	Dryer, High Efficiency EF 3.08	High Efficiency Dryer EF 3.08		9.89		9.89		
Single Family	Dryer	Equipment	Existing	Lost Opportunity	Dryer, High Efficiency EF 3.08	High Efficiency Dryer EF 3.08		13.13		13.13		
Single Family	Dryer	Equipment	New	Lost Opportunity	Dryer, High Efficiency EF 3.08	High Efficiency Dryer EF 3.08		12.13		12.13		
Manufacture	Dryer	Equipment	Existing	Lost Opportunity	Dryer, Premium Efficiency EF 3.19	Premium Efficiency Dryer 3.19		24.55		24.55		
Manufacture	Dryer	Equipment	New	Lost Opportunity	Dryer, Premium Efficiency EF 3.19	Premium Efficiency Dryer 3.19		24.55		24.55		
Multi Family	Dryer	Equipment	Existing	Lost Opportunity	Dryer, Premium Efficiency EF 3.19	Premium Efficiency Dryer 3.19		24.55		24.55		
Multi Family	Dryer	Equipment	New	Lost Opportunity	Dryer, Premium Efficiency EF 3.19	Premium Efficiency Dryer 3.19		24.55		24.55		
Single Family	Dryer	Equipment	Existing	Lost Opportunity	Dryer, Premium Efficiency EF 3.19	Premium Efficiency Dryer 3.19		32.59		32.59		
Single Family	Dryer	Equipment	New	Lost Opportunity	Dryer, Premium Efficiency EF 3.19	Premium Efficiency Dryer 3.19		32.59		32.59		
						High Efficiency Dryer EF - 3.08			6.0			
						High Efficiency Dryer EF - 3.15			11.7			
						High Efficiency Dryer (EF - 3.19)			14.9			
						High Efficiency Dryer (EF - 3.26)			20.2			
						High Efficiency Dryer (EF - 3.3)			23.1			
Comparison		Comparison			All Iterations for Dryer			46.40	15.17			Cadmus used an engineering percent savings calculation to calculate the energy savings for this measure.
Manufacture	Freezer	Equipment	Existing	Lost Opportunity	Freezer, ENERGY STAR	ENERGY STAR Freezer						

Manufacture	Water Heat	Retrofits	Existing	Discretionary	Low-Flow Showerheads	2.0 GPM		112.52		112.52	
Manufacture	Water Heat	Retrofits	New	Lost Opportunity	Low-Flow Showerheads	2.0 GPM		112.03		112.03	
Multi Family	Water Heat	Retrofits	Existing	Discretionary	Low-Flow Showerheads	2.0 GPM		112.62		112.62	
Multi Family	Water Heat	Retrofits	New	Lost Opportunity	Low-Flow Showerheads	2.0 GPM		112.10		112.10	
Single Family	Water Heat	Retrofits	Existing	Discretionary	Low-Flow Showerheads	2.0 GPM		112.72		235.45	
Single Family	Water Heat	Retrofits	New	Lost Opportunity	Low-Flow Showerheads	2.0 GPM		112.18		224.96	
Comparison		Comparison			All Iterations for Showerheads			112.65		112.0	
Manufacture	Microwave	Equipment	Existing	Lost Opportunity	Microwave, High Efficiency			9.79		9.79	
Manufacture	Microwave	Equipment	New	Lost Opportunity	Microwave, High Efficiency			9.79		9.79	
Multi Family	Microwave	Equipment	Existing	Lost Opportunity	Microwave, High Efficiency			9.79		9.79	
Multi Family	Microwave	Equipment	New	Lost Opportunity	Microwave, High Efficiency			9.79		9.79	
Single Family	Microwave	Equipment	Existing	Lost Opportunity	Microwave, High Efficiency			9.79		9.79	
Single Family	Microwave	Equipment	New	Lost Opportunity	Microwave, High Efficiency			9.79		9.79	
Comparison		Comparison			All Iterations for Microwaves			9.79		6.5	
Manufacture	Refrigerator	Equipment	Existing	Lost Opportunity	Refrigerator, ENERGY STAR			122.93		122.93	
Manufacture	Refrigerator	Equipment	New	Lost Opportunity	Refrigerator, ENERGY STAR			122.93		122.93	
Multi Family	Refrigerator	Equipment	Existing	Lost Opportunity	Refrigerator, ENERGY STAR			122.93		122.93	
Multi Family	Refrigerator	Equipment	New	Lost Opportunity	Refrigerator, ENERGY STAR			122.93		122.93	
Single Family	Refrigerator	Equipment	Existing	Lost Opportunity	Refrigerator, ENERGY STAR			122.93		122.93	
Single Family	Refrigerator	Equipment	New	Lost Opportunity	Refrigerator, ENERGY STAR			122.93		122.93	
										36.7	
										13.8	
										64.3	
										57.0	
										57.7	
										51.4	
Comparison		Comparison			All Iterations for Refrigerators			122.93		51.21	
Manufacture	Water Heat	Equipment	Existing	Lost Opportunity	Water Heater, Heat Pump EF 2.2			1488.94		1488.94	
Manufacture	Water Heat	Equipment	New	Lost Opportunity	Water Heater, Heat Pump EF 2.2			1488.94		1488.94	
Single Family	Water Heat	Equipment	Existing	Lost Opportunity	Water Heater, Heat Pump EF 2.2			1540.53		1540.53	
Single Family	Water Heat	Equipment	New	Lost Opportunity	Water Heater, Heat Pump EF 2.2			1540.53		1540.53	
										2001.0	
Comparison		Comparison			All Iterations for HP Water Heaters			1534.62		2001.0	
Manufacture	Water Heat	Equipment	Existing	Lost Opportunity	Water Heater, Storage EF 0.95			83.71		83.71	
Manufacture	Water Heat	Equipment	New	Lost Opportunity	Water Heater, Storage EF 0.95			83.71		83.71	
Multi Family	Water Heat	Equipment	Existing	Lost Opportunity	Water Heater, Storage EF 0.95			49.75		49.75	
Multi Family	Water Heat	Equipment	New	Lost Opportunity	Water Heater, Storage EF 0.95			49.75		49.75	
Single Family	Water Heat	Equipment	Existing	Lost Opportunity	Water Heater, Storage EF 0.95			86.61		86.61	
Single Family	Water Heat	Equipment	New	Lost Opportunity	Water Heater, Storage EF 0.95			86.61		86.61	
Comparison		Comparison			All Iterations for Storage Water Heaters			49.75		125.0	
										125.0	

Segment	End Use	Measure Type	Construction Type	Discretionary / Lost Opportunity	Cadmus Measure Name	Cadmus Measure Description	Cadmus Baseline Description	6th Power Plan Measure Name	Cadmus per Home Savings (kWh)	6th Power Plan per Home Saving (kWh)	Notes On Differences	
Manufactured	Cool. Central	Retrolf	Existing	Discretionary	Ceiling Insulation (WA) zero to code	R-49	R-0			477		
Manufactured	Cool. Room	Retrolf	Existing	Discretionary	Ceiling Insulation (WA) zero to code	R-49	R-0			250		
Manufactured	Cool. Central	Retrolf	Existing	Discretionary	Ceiling Insulation (WA) ave to code	R-49	R-10			238		
Manufactured	Cool. Room	Retrolf	Existing	Discretionary	Ceiling Insulation (WA) ave to code	R-49	R-10			130		
Manufactured	Heat. Central	Retrolf	Existing	Discretionary	Ceiling Insulation (WA) zero to code	R-49	R-0			6,589		
Manufactured	Heat. Pump	Retrolf	Existing	Discretionary	Ceiling Insulation (WA) zero to code	R-49	R-0			2,275		
Manufactured	Heat. Room	Retrolf	Existing	Discretionary	Ceiling Insulation (WA) zero to code	R-49	R-0			5,193		
Manufactured	Heat. Central	Retrolf	Existing	Discretionary	Ceiling Insulation (WA) ave to code	R-49	R-10			2,283		
Manufactured	Heat. Pump	Retrolf	Existing	Discretionary	Ceiling Insulation (WA) ave to code	R-49	R-10			1,318		
Manufactured	Heat. Room	Retrolf	Existing	Discretionary	Ceiling Insulation (WA) ave to code	R-49	R-10			2,592		
								Manufactured Home Weatherization - ATTIC R0 - ATTIC R22 Blown (Cost and Savings per square foot of component) - Heating Zone 1			2,147	
								Manufactured Home Weatherization - ATTIC R22 Blown (Cost and Savings per square foot of component) - Heating Zone 1			2,120	
Comparison					Manufactured Ceiling Insulation to Code				2,853	3,357	Cadmus used the same levels and percent savings for manufactured, multifamily and single family based on the results from the 6th PP for single family. The 6th PP used specific levels and percent savings for each building type. Building square footage assumptions also differed.	
Manufactured	Cool. Central	Retrolf	Existing	Discretionary	Ceiling Insulation (WA) above code	R-60	R-49			16		
Manufactured	Cool. Central	Retrolf	New	Lost Opportunity	Ceiling Insulation (WA) above code	R-60	R-49			20		
Manufactured	Cool. Room	Retrolf	Existing	Discretionary	Ceiling Insulation (WA) above code	R-60	R-49			9		
Manufactured	Cool. Room	Retrolf	New	Lost Opportunity	Ceiling Insulation (WA) above code	R-60	R-49			10		
Manufactured	Heat. Central	Retrolf	Existing	Discretionary	Ceiling Insulation (WA) above code	R-60	R-49			217		
Manufactured	Heat. Central	Retrolf	New	Lost Opportunity	Ceiling Insulation (WA) above code	R-60	R-49			211		
Manufactured	Heat. Pump	Retrolf	Existing	Discretionary	Ceiling Insulation (WA) above code	R-60	R-49			74		
Manufactured	Heat. Pump	Retrolf	New	Lost Opportunity	Ceiling Insulation (WA) above code	R-60	R-49			80		
Manufactured	Heat. Room	Retrolf	Existing	Discretionary	Ceiling Insulation (WA) above code	R-60	R-49			172		
Manufactured	Heat. Room	Retrolf	New	Lost Opportunity	Ceiling Insulation (WA) above code	R-60	R-49			168		
								New Manufactured Home Thermal Shell - ATTIC R25 - ATTIC R49 - Heating Zone 1			450	
								New Manufactured Home Thermal Shell - ATTIC R36 - ATTIC R38 - Heating Zone 1			450	
								New Manufactured Home Thermal Shell - ATTIC R38 - ATTIC R49 - Heating Zone 1			360	
								New Manufactured Home Thermal Shell - VAULT R20 - VAULT R30 - Heating Zone 1			270	
								New Manufactured Home Thermal Shell - VAULT R30 - VAULT R38 - Heating Zone 1			270	
Comparison					Manufactured Ceiling Insulation above Code					180	991	Cadmus used the same levels and percent savings for manufactured, multifamily and single family based on the results from the 6th PP for single family. The 6th PP used specific levels and percent savings for each building type. Building square footage assumptions also differed.
Multi Family	Cool. Central	Retrolf	Existing	Discretionary	Ceiling Insulation (WA) zero to code	R-49	R-0			410		
Multi Family	Cool. Room	Retrolf	Existing	Discretionary	Ceiling Insulation (WA) zero to code	R-49	R-0			202		
Multi Family	Cool. Central	Retrolf	Existing	Discretionary	Ceiling Insulation (WA) ave to code	R-49	R-10			209		
Multi Family	Cool. Room	Retrolf	Existing	Discretionary	Ceiling Insulation (WA) ave to code	R-49	R-10			101		
Multi Family	Heat. Central	Retrolf	Existing	Discretionary	Ceiling Insulation (WA) zero to code	R-49	R-0			5,335		
Multi Family	Heat. Pump	Retrolf	Existing	Discretionary	Ceiling Insulation (WA) zero to code	R-49	R-0			1,861		
Multi Family	Heat. Room	Retrolf	Existing	Discretionary	Ceiling Insulation (WA) zero to code	R-49	R-0			4,204		
Multi Family	Heat. Central	Retrolf	Existing	Discretionary	Ceiling Insulation (WA) ave to code	R-49	R-10			2,660		
Multi Family	Heat. Pump	Retrolf	Existing	Discretionary	Ceiling Insulation (WA) ave to code	R-49	R-10			172		
Multi Family	Heat. Room	Retrolf	Existing	Discretionary	Ceiling Insulation (WA) ave to code	R-49	R-10			2,099		
								Multifamily Weatherization - ATTIC R0 - R19 (Cost and Savings per square foot of component) - Heating Zone 1			688	
								Multifamily Weatherization - ATTIC R19 - R30 (Cost and Savings per square foot of component) - Heating Zone 1			177	
								Multifamily Weatherization - ATTIC R30 - R38 (Cost and Savings per square foot of component) - Heating Zone 1			42	
								Multifamily Weatherization - ATTIC R38 - R49 (Cost and Savings per square foot of component) - Heating Zone 1			53	
Comparison					MultiFamily Ceiling Insulation above Code					180	978	Cadmus used the same levels and percent savings for manufactured, multifamily and single family based on the results from the 6th PP for single family. The 6th PP used specific levels and percent savings for each building type. Building square footage assumptions also differed.
Multi Family	Cool. Central	Retrolf	Existing	Discretionary	Ceiling Insulation (WA) above code	R-60	R-49			14		
Multi Family	Cool. Central	Retrolf	New	Lost Opportunity	Ceiling Insulation (WA) above code	R-60	R-49			16		
Multi Family	Cool. Room	Retrolf	Existing	Discretionary	Ceiling Insulation (WA) above code	R-60	R-49			7		
Multi Family	Cool. Room	Retrolf	New	Lost Opportunity	Ceiling Insulation (WA) above code	R-60	R-49			8		
Multi Family	Heat. Central	Retrolf	Existing	Discretionary	Ceiling Insulation (WA) above code	R-60	R-49			176		
Multi Family	Heat. Central	Retrolf	New	Lost Opportunity	Ceiling Insulation (WA) above code	R-60	R-49			151		
Multi Family	Heat. Pump	Retrolf	Existing	Discretionary	Ceiling Insulation (WA) above code	R-60	R-49			65		
Multi Family	Heat. Pump	Retrolf	New	Lost Opportunity	Ceiling Insulation (WA) above code	R-60	R-49			38		
Multi Family	Heat. Room	Retrolf	Existing	Discretionary	Ceiling Insulation (WA) above code	R-60	R-49			130		
Multi Family	Heat. Room	Retrolf	New	Lost Opportunity	Ceiling Insulation (WA) above code	R-60	R-49			120		
								New Multifamily Thermal Shell - ATTIC R38 STD - ATTIC R49 ADVH - Heating Zone 1			136	
								New Multifamily Thermal Shell - ATTIC R49 ADVH - ATTIC R60 ADVH - Heating Zone 1			37	
								New Multifamily Thermal Shell - VAULT R30 HD - VAULT R38 HD - Heating Zone 1			86	
								New Multifamily Thermal Shell - VAULT R38 HD - VAULT 10" SS Panel - Heating Zone 1			12	
Comparison					MultiFamily Ceiling Insulation above Code					130	136	No significant difference
Single Family	Cool. Central	Retrolf	Existing	Discretionary	Ceiling Insulation (WA) zero to code	R-49	R-0			643		
Single Family	Cool. Room	Retrolf	Existing	Discretionary	Ceiling Insulation (WA) zero to code	R-49	R-0			293		
Single Family	Cool. Central	Retrolf	Existing	Discretionary	Ceiling Insulation (WA) ave to code	R-49	R-10			321		
Single Family	Cool. Room	Retrolf	Existing	Discretionary	Ceiling Insulation (WA) ave to code	R-49	R-10			146		
Single Family	Heat. Central	Retrolf	Existing	Discretionary	Ceiling Insulation (WA) zero to code	R-49	R-0			7,363		
Single Family	Heat. Pump	Retrolf	Existing	Discretionary	Ceiling Insulation (WA) zero to code	R-49	R-0			2,590		
Single Family	Heat. Room	Retrolf	Existing	Discretionary	Ceiling Insulation (WA) zero to code	R-49	R-0			5,802		
Single Family	Heat. Central	Retrolf	Existing	Discretionary	Ceiling Insulation (WA) ave to code	R-49	R-10			3,676		
Single Family	Heat. Pump	Retrolf	Existing	Discretionary	Ceiling Insulation (WA) ave to code	R-49	R-10			1,297		
Single Family	Heat. Room	Retrolf	Existing	Discretionary	Ceiling Insulation (WA) ave to code	R-49	R-10			2,897		
								Single Family Weatherization - ATTIC R0 - ATTIC R19 (Cost and Savings per square foot of component) - Heating Zone 1			2,931	
								Single Family Weatherization - ATTIC R19 - ATTIC R30 (Cost and Savings per square foot of component) - Heating Zone 1			855	
								Single Family Weatherization - ATTIC R30 - ATTIC R38 (Cost and Savings per square foot of component) - Heating Zone 1			201	
								Single Family Weatherization - ATTIC R38 - ATTIC R49 (Cost and Savings per square foot of component) - Heating Zone 1			251	
Comparison					Single Family Ceiling Insulation to Code				2,705	4,241	Potential primarily based on starting at "average" insulation level (R-10) for PacifiCorp, as compared to baseline of R-0 for 6th PP.	
Single Family	Cool. Central	Retrolf	Existing	Discretionary	Ceiling Insulation (WA) above code	R-60	R-49			21		
Single Family	Cool. Central	Retrolf	New	Lost Opportunity	Ceiling Insulation (WA) above code	R-60	R-49			27		
Single Family	Cool. Room	Retrolf	Existing	Discretionary	Ceiling Insulation (WA) above code	R-60	R-49			10		
Single Family	Cool. Room	Retrolf	New	Lost Opportunity	Ceiling Insulation (WA) above code	R-60	R-49			12		
Single Family	Heat. Central	Retrolf	Existing	Discretionary	Ceiling Insulation (WA) above code	R-60	R-49			243		
Single Family	Heat. Central	Retrolf	New	Lost Opportunity	Ceiling Insulation (WA) above code	R-60	R-49			242		
Single Family	Heat. Pump	Retrolf	Existing	Discretionary	Ceiling Insulation (WA) above code	R-60	R-49			82		
Single Family	Heat. Pump	Retrolf	New	Lost Opportunity	Ceiling Insulation (WA) above code	R-60	R-49			87		
Single Family	Heat. Room	Retrolf	Existing	Discretionary	Ceiling Insulation (WA) above code	R-60	R-49			192		
Single Family	Heat. Room	Retrolf	New	Lost Opportunity	Ceiling Insulation (WA) above code	R-60	R-49			191		
								New Single Family Thermal Shell - ATTIC R38 STD - ATTIC R49 ADVH - Heating Zone 1			598	
								New Single Family Thermal Shell - ATTIC R49 ADVH - ATTIC R60 ADVH - Heating Zone 1			163	
								New Single Family Thermal Shell - VAULT R30 HD - VAULT R38 HD - Heating Zone 1			380	
								New Single Family Thermal Shell - VAULT R38 HD - VAULT 10" SS Panel - Heating Zone 1			54	
Comparison					Single Family Ceiling Insulation above Code					260	528	Cadmus assumed a baseline of R-49 (based on WA code). 6th PP assumed baseline of R-38 across region.
Manufactured	Cool. Central	Retrolf	Existing	Discretionary	Doors	R-11 (Steel Doors with foam core)	Standard non-thermal wood door (R-2.5)			16		
Manufactured	Cool. Central	Retrolf	Existing	Discretionary	Doors	R-5 (Composite Doors with foam core)	Standard non-thermal wood door (R-2.5)			17		
Manufactured	Cool. Central	Retrolf	Existing	Discretionary	Doors	R-11 (Steel Doors with foam core)	Standard non-thermal wood door (R-2.5)			13		
Manufactured	Cool. Central	Retrolf	New	Lost Opportunity	Doors	R-5 (Composite Doors with foam core)	Standard non-thermal wood door (R-2.5)			15		
Manufactured	Cool. Room	Retrolf	Existing	Discretionary	Doors	R-11 (Steel Doors with foam core)	Standard non-thermal wood door (R-2.5)			13		
Manufactured	Cool. Room	Retrolf	Existing	Discretionary	Doors	R-5 (Composite Doors with foam core)	Standard non-thermal wood door (R-2.5)			8		
Manufactured	Cool. Room	Retrolf	New	Lost Opportunity	Doors	R-11 (Steel Doors with foam core)	Standard non-thermal wood door (R-2.5)			11		
Manufactured	Cool. Room	Retrolf	New	Lost Opportunity	Doors	R-5 (Composite Doors with foam core)	Standard non-thermal wood door (R-2.5)			7		
Manufactured	Heat. Central	Retrolf	Existing	Discretionary	Doors	R-11 (Steel Doors with foam core)	Standard non-thermal wood door (R-2.5)			247		
Manufactured	Heat. Central	Retrolf	Existing	Discretionary	Doors	R-5 (Composite Doors with foam core)	Standard non-thermal wood door (R-2.5)			232		
Manufactured	Heat. Pump	Retrolf	Existing	Discretionary	Doors	R-11 (Steel Doors with foam core)	Standard non-thermal wood door (R-2.5)			244		
Manufactured	Heat. Pump	Retrolf	New	Lost Opportunity	Doors	R-5 (Composite Doors with foam core)	Standard non-thermal wood door (R-2.5)			162		
Manufactured	Heat. Pump	Retrolf	Existing	Discretionary	Doors	R-11 (Steel Doors with foam core)	Standard non-thermal wood door (R-2.5)			278		
Manufactured	Heat. Pump	Retrolf	Existing	Discretionary	Doors	R-5 (Composite Doors with foam core)	Standard non-thermal wood door (R-2.5)			186		
Manufactured	Heat. Pump	Retrolf	New	Lost Opportunity	Doors	R-11 (Steel Doors with foam core)	Standard non-thermal wood door (R-2.5)			237		
Manufactured	Heat. Pump	Retrolf	New	Lost Opportunity	Doors	R-5 (Composite Doors with foam core)	Standard non-thermal wood door (R-2.5)			158		
Manufactured	Heat. Room	Retrolf	Existing	Discretionary	Doors	R-11 (Steel Doors with foam core)	Standard non-thermal wood door (R-2.5)			268		
Manufactured	Heat. Room	Retrolf	Existing	Discretionary	Doors	R-5 (Composite Doors with foam core)	Standard non-thermal wood door (R-2.5)			178		
Manufactured	Heat. Room	Retrolf	New	Lost Opportunity	Doors	R-11 (Steel Doors with foam core)	Standard non-thermal wood door (R-2.5)			188		
Manufactured	Heat. Room	Retrolf	New	Lost Opportunity	Doors	R-5 (Composite Doors with foam core)	Standard non-thermal wood door (R-2.5)			125		
								Manufactured Home Weatherization - DOOR R2.5 to R5 (Cost and Savings per square foot of component) - Heating Zone 1			401	
								New Manufactured Home Thermal Shell - DOOR R2.5 - DOOR R5 - Heating Zone 1			21	
Comparison					All Iterations of Manufactured Doors					271	410	Cadmus used the same levels and percent savings for manufactured, multifamily and single family based on the results from the 6th PP for single family. The 6th PP used specific levels and percent savings for each building type. Building square footage assumptions also differed.
Multi Family	Cool. Central	Retrolf	Existing	Discretionary	Doors	R-11 (Steel Doors with foam core)	Standard non-thermal wood door (R-2.5)			22		

Multi Family	Cool	Central	Retrofits	Existing	Discretionary	Doors	R-5 (Composite Doors with foam core)	Standard non-thermal wood door (R-2.5)	14		
Multi Family	Cool	Central	Retrofits	New	Lost Opportunity	Doors	R-11 (Steel Doors with foam core)	Standard non-thermal wood door (R-2.5)	18		
Multi Family	Cool	Central	Retrofits	Existing	Discretionary	Doors	R-5 (Composite Doors with foam core)	Standard non-thermal wood door (R-2.5)	12		
Multi Family	Cool	Room	Retrofits	Existing	Discretionary	Doors	R-11 (Steel Doors with foam core)	Standard non-thermal wood door (R-2.5)	10		
Multi Family	Cool	Room	Retrofits	Existing	Discretionary	Doors	R-5 (Composite Doors with foam core)	Standard non-thermal wood door (R-2.5)	7		
Multi Family	Cool	Room	Retrofits	New	Lost Opportunity	Doors	R-11 (Steel Doors with foam core)	Standard non-thermal wood door (R-2.5)	8		
Multi Family	Cool	Room	Retrofits	New	Lost Opportunity	Doors	R-5 (Composite Doors with foam core)	Standard non-thermal wood door (R-2.5)	6		
Multi Family	Heat	Central	Retrofits	Existing	Discretionary	Doors	R-11 (Steel Doors with foam core)	Standard non-thermal wood door (R-2.5)	281		
Multi Family	Heat	Central	Retrofits	Existing	Discretionary	Doors	R-5 (Composite Doors with foam core)	Standard non-thermal wood door (R-2.5)	185		
Multi Family	Heat	Central	Retrofits	New	Lost Opportunity	Doors	R-11 (Steel Doors with foam core)	Standard non-thermal wood door (R-2.5)	174		
Multi Family	Heat	Central	Retrofits	New	Lost Opportunity	Doors	R-5 (Composite Doors with foam core)	Standard non-thermal wood door (R-2.5)	117		
Multi Family	Heat	Pump	Retrofits	Existing	Discretionary	Doors	R-11 (Steel Doors with foam core)	Standard non-thermal wood door (R-2.5)	175		
Multi Family	Heat	Pump	Retrofits	Existing	Discretionary	Doors	R-5 (Composite Doors with foam core)	Standard non-thermal wood door (R-2.5)	115		
Multi Family	Heat	Pump	Retrofits	New	Lost Opportunity	Doors	R-11 (Steel Doors with foam core)	Standard non-thermal wood door (R-2.5)	111		
Multi Family	Heat	Pump	Retrofits	New	Lost Opportunity	Doors	R-5 (Composite Doors with foam core)	Standard non-thermal wood door (R-2.5)	74		
Multi Family	Heat	Room	Retrofits	Existing	Discretionary	Doors	R-11 (Steel Doors with foam core)	Standard non-thermal wood door (R-2.5)	217		
Multi Family	Heat	Room	Retrofits	Existing	Discretionary	Doors	R-5 (Composite Doors with foam core)	Standard non-thermal wood door (R-2.5)	144		
Multi Family	Heat	Room	Retrofits	New	Lost Opportunity	Doors	R-11 (Steel Doors with foam core)	Standard non-thermal wood door (R-2.5)	134		
Multi Family	Heat	Room	Retrofits	New	Lost Opportunity	Doors	R-5 (Composite Doors with foam core)	Standard non-thermal wood door (R-2.5)	80		
Comparison						All Iterations of Multifamily Doors		Multifamily Weatherization - DOOR R2.5 to R5 (Cost and Savings per square foot of component) - Heating Zone 1	183	183	No significant difference
Single Family	Cool	Central	Retrofits	Existing	Discretionary	Doors	R-11 (Steel Doors with foam core)	Standard non-thermal wood door (R-2.5)	34		
Single Family	Cool	Central	Retrofits	Existing	Discretionary	Doors	R-5 (Composite Doors with foam core)	Standard non-thermal wood door (R-2.5)	23		
Single Family	Cool	Central	Retrofits	New	Lost Opportunity	Doors	R-11 (Steel Doors with foam core)	Standard non-thermal wood door (R-2.5)	31		
Single Family	Cool	Central	Retrofits	New	Lost Opportunity	Doors	R-5 (Composite Doors with foam core)	Standard non-thermal wood door (R-2.5)	20		
Single Family	Cool	Room	Retrofits	Existing	Discretionary	Doors	R-11 (Steel Doors with foam core)	Standard non-thermal wood door (R-2.5)	14		
Single Family	Cool	Room	Retrofits	Existing	Discretionary	Doors	R-5 (Composite Doors with foam core)	Standard non-thermal wood door (R-2.5)	10		
Single Family	Cool	Room	Retrofits	New	Lost Opportunity	Doors	R-11 (Steel Doors with foam core)	Standard non-thermal wood door (R-2.5)	14		
Single Family	Cool	Room	Retrofits	New	Lost Opportunity	Doors	R-5 (Composite Doors with foam core)	Standard non-thermal wood door (R-2.5)	7		
Single Family	Heat	Central	Retrofits	Existing	Discretionary	Doors	R-11 (Steel Doors with foam core)	Standard non-thermal wood door (R-2.5)	247		
Single Family	Heat	Central	Retrofits	Existing	Discretionary	Doors	R-5 (Composite Doors with foam core)	Standard non-thermal wood door (R-2.5)	158		
Single Family	Heat	Central	Retrofits	New	Lost Opportunity	Doors	R-11 (Steel Doors with foam core)	Standard non-thermal wood door (R-2.5)	250		
Single Family	Heat	Central	Retrofits	New	Lost Opportunity	Doors	R-5 (Composite Doors with foam core)	Standard non-thermal wood door (R-2.5)	178		
Single Family	Heat	Pump	Retrofits	Existing	Discretionary	Doors	R-11 (Steel Doors with foam core)	Standard non-thermal wood door (R-2.5)	315		
Single Family	Heat	Pump	Retrofits	Existing	Discretionary	Doors	R-5 (Composite Doors with foam core)	Standard non-thermal wood door (R-2.5)	211		
Single Family	Heat	Pump	Retrofits	New	Lost Opportunity	Doors	R-11 (Steel Doors with foam core)	Standard non-thermal wood door (R-2.5)	261		
Single Family	Heat	Pump	Retrofits	New	Lost Opportunity	Doors	R-5 (Composite Doors with foam core)	Standard non-thermal wood door (R-2.5)	145		
Single Family	Heat	Room	Retrofits	Existing	Discretionary	Doors	R-11 (Steel Doors with foam core)	Standard non-thermal wood door (R-2.5)	298		
Single Family	Heat	Room	Retrofits	Existing	Discretionary	Doors	R-5 (Composite Doors with foam core)	Standard non-thermal wood door (R-2.5)	199		
Single Family	Heat	Room	Retrofits	New	Lost Opportunity	Doors	R-11 (Steel Doors with foam core)	Standard non-thermal wood door (R-2.5)	214		
Single Family	Heat	Room	Retrofits	New	Lost Opportunity	Doors	R-5 (Composite Doors with foam core)	Standard non-thermal wood door (R-2.5)	143		
Comparison						All Iterations of Single Family Doors		Single Family Weatherization - DOOR R2.5 to R5(Cost and Savings per square foot of component) - Heating Zone 1	397	397	Cadmus used the same levels and percent savings for manufactured, multifamily and single family based on the results from the 6th PP for single family. The 6th PP used specific levels and percent savings for each building type. Building square footage assumptions also differed.
Manufactured	Cool	Central	Retrofits	Existing	Discretionary	Floors	R-30	R-0	279		
Manufactured	Cool	Room	Retrofits	Existing	Discretionary	Floors	R-30	R-0	455		
Manufactured	Heat	Central	Retrofits	Existing	Discretionary	Floors	R-30	R-0	244		
Manufactured	Heat	Pump	Retrofits	Existing	Discretionary	Floors	R-30	R-0	6,277		
Manufactured	Heat	Room	Retrofits	Existing	Discretionary	Floors	R-30	R-0	5,182		
Manufactured	Heat	Room	Retrofits	Existing	Discretionary	Floors	R-30	R-0	4,878		
Comparison								Manufactured Home Weatherization - FLOOR R0 - FLOOR R22 Blow (Cost and Savings per square foot of component) - Heating Zone 1	2,452	2,452	
Comparison								Manufactured Home Weatherization - FLOOR R22 Blow - FLOOR R30 Blow (Cost and Savings per square foot of component) - Heating Zone 1	156	156	
Comparison						Manufactured Floor Insulation to code			5,956	5,956	Cadmus used the same levels and percent savings for manufactured, multifamily and single family based on the results from the 6th PP for single family. The 6th PP used specific levels and percent savings for each building type. Building square footage assumptions also differed.
Manufactured	Cool	Central	Retrofits	Existing	Discretionary	Floors	R-38	R-30	23		
Manufactured	Cool	Central	Retrofits	New	Lost Opportunity	Floors	R-38	R-30	21		
Manufactured	Cool	Room	Retrofits	Existing	Discretionary	Floors	R-38	R-30	12		
Manufactured	Cool	Room	Retrofits	Existing	Discretionary	Floors	R-38	R-30	10		
Manufactured	Cool	Room	Retrofits	New	Lost Opportunity	Floors	R-38	R-30	10		
Manufactured	Heat	Central	Retrofits	Existing	Discretionary	Floors	R-38	R-30	319		
Manufactured	Heat	Central	Retrofits	New	Lost Opportunity	Floors	R-38	R-30	224		
Manufactured	Heat	Pump	Retrofits	Existing	Discretionary	Floors	R-38	R-30	268		
Manufactured	Heat	Pump	Retrofits	New	Lost Opportunity	Floors	R-38	R-30	251		
Manufactured	Heat	Room	Retrofits	Existing	Discretionary	Floors	R-38	R-30	248		
Manufactured	Heat	Room	Retrofits	New	Lost Opportunity	Floors	R-38	R-30	174		
Comparison								New Manufactured Home Thermal Shell - FLOOR R22 - FLOOR R33 - Heating Zone 1	1,081	1,081	
Comparison								New Manufactured Home Thermal Shell - FLOOR R33 - FLOOR R44 - Heating Zone 1	180	180	
Comparison						Manufactured Floor Insulation above code			276	276	Cadmus used the same levels and percent savings for manufactured, multifamily and single family based on the results from the 6th PP for single family. The 6th PP used specific levels and percent savings for each building type. Building square footage assumptions also differed.
Multi Family	Cool	Central	Retrofits	Existing	Discretionary	Floors	R-30	R-0	391		
Multi Family	Cool	Room	Retrofits	Existing	Discretionary	Floors	R-30	R-0	190		
Multi Family	Heat	Central	Retrofits	Existing	Discretionary	Floors	R-30	R-0	5,083		
Multi Family	Heat	Pump	Retrofits	Existing	Discretionary	Floors	R-30	R-0	2,428		
Multi Family	Heat	Room	Retrofits	Existing	Discretionary	Floors	R-30	R-0	3,940		
Comparison								Multifamily Weatherization - FLOOR R0 - R19 (Cost and Savings per square foot of component) - Heating Zone 1	570	570	
Comparison								Multifamily Weatherization - FLOOR R19 - R30 (Cost and Savings per square foot of component) - Heating Zone 1	105	105	
Comparison								Multifamily Weatherization - FLOOR R30 - R38 (Cost and Savings per square foot of component) - Heating Zone 1	35	35	
Comparison						Multifamily Floor Insulation to code			4,083	4,083	Cadmus used the same levels and percent savings for manufactured, multifamily and single family based on the results from the 6th PP for single family. The 6th PP used specific levels and percent savings for each building type. Building square footage assumptions also differed.
Multi Family	Cool	Central	Retrofits	Existing	Discretionary	Floors	R-38	R-30	20		
Multi Family	Cool	Central	Retrofits	New	Lost Opportunity	Floors	R-38	R-30	17		
Multi Family	Cool	Room	Retrofits	Existing	Discretionary	Floors	R-38	R-30	6		
Multi Family	Cool	Room	Retrofits	New	Lost Opportunity	Floors	R-38	R-30	6		
Multi Family	Heat	Central	Retrofits	Existing	Discretionary	Floors	R-38	R-30	259		
Multi Family	Heat	Central	Retrofits	New	Lost Opportunity	Floors	R-38	R-30	160		
Multi Family	Heat	Pump	Retrofits	Existing	Discretionary	Floors	R-38	R-30	166		
Multi Family	Heat	Pump	Retrofits	New	Lost Opportunity	Floors	R-38	R-30	107		
Multi Family	Heat	Room	Retrofits	Existing	Discretionary	Floors	R-38	R-30	118		
Multi Family	Heat	Room	Retrofits	New	Lost Opportunity	Floors	R-38	R-30	73		
Comparison								New Multifamily Thermal Shell - FLOOR R38 STD w/12" Truss - Heating Zone 1	82	82	
Comparison								New Multifamily Thermal Shell - SLAB R10-2FT - SLAB R10-4FT - Heating Zone 1	95	95	
Comparison								New Multifamily Thermal Shell - SLAB R10-4FT - SLAB R10-FULL - Heating Zone 1	190	190	
Comparison						Multifamily Floor Insulation above code			128	128	Cadmus used the same levels and percent savings for manufactured, multifamily and single family based on the results from the 6th PP for single family. The 6th PP used specific levels and percent savings for each building type. Building square footage assumptions also differed.
Single Family	Cool	Central	Retrofits	Existing	Discretionary	Floors	R-30	R-0	613		
Single Family	Cool	Room	Retrofits	Existing	Discretionary	Floors	R-30	R-0	275		
Single Family	Heat	Central	Retrofits	Existing	Discretionary	Floors	R-30	R-0	7,015		
Single Family	Heat	Pump	Retrofits	Existing	Discretionary	Floors	R-30	R-0	4,918		
Single Family	Heat	Room	Retrofits	Existing	Discretionary	Floors	R-30	R-0	6,450		
Comparison								Single Family Weatherization - FLOOR R0 - FLOOR R38(Cost and Savings per square foot of component) - Heating Zone 1	3,310	3,310	
Comparison								Single Family Weatherization - FLOOR R38 - FLOOR R38(Cost and Savings per square foot of component) - Heating Zone 1	691	691	
Comparison								Single Family Weatherization - FLOOR R38 - FLOOR R38(Cost and Savings per square foot of component) - Heating Zone 1	204	204	
Comparison						Single Family Floor Insulation to code			6,143	6,143	Cadmus used the same levels and percent savings for manufactured, multifamily and single family based on the results from the 6th PP for single family. The 6th PP used specific levels and percent savings for each building type. Building square footage assumptions also differed.
Single Family	Cool	Central	Retrofits	Existing	Discretionary	Floors	R-38	R-30	31		
Single Family	Cool	Central	Retrofits	New	Lost Opportunity	Floors	R-38	R-30	28		
Single Family	Cool	Room	Retrofits	Existing	Discretionary	Floors	R-38	R-30	14		
Single Family	Cool	Room	Retrofits	New	Lost Opportunity	Floors	R-38	R-30	13		
Single Family	Heat	Central	Retrofits	Existing	Discretionary	Floors	R-38	R-30	251		
Single Family	Heat	Central	Retrofits	New	Lost Opportunity	Floors	R-38	R-30	256		
Single Family	Heat	Pump	Retrofits	Existing	Discretionary	Floors	R-38	R-30	301		
Single Family	Heat	Pump	Retrofits	New	Lost Opportunity	Floors	R-38	R-30	230		
Single Family	Heat	Room	Retrofits	Existing	Discretionary	Floors	R-38	R-30	230		
Single Family	Heat	Room	Retrofits	New	Lost Opportunity	Floors	R-38	R-30	190		
Comparison								New Single Family Thermal Shell - FLOOR R38 STD w/12" Truss - Heating Zone 1	402	402	
Comparison								New Single Family Thermal Shell - SLAB R10-2FT - SLAB R10-4FT - Heating Zone 1	291	291	
Comparison								New Single Family Thermal Shell - SLAB R10-4FT - SLAB R10-FULL - Heating Zone 1	581	581	
Comparison						Single Family Floor Insulation above code			280	280	Cadmus used the same levels and percent savings for manufactured, multifamily and single family based on the results from the 6th PP for single family. The 6th PP used specific levels and percent savings for each building type. Building square footage assumptions also differed.
Manufactured	Cool	Central	Retrofits	Existing	Discretionary	Walls	R-13	R-0	271		
Manufactured	Cool	Room	Retrofits	Existing	Discretionary	Walls	R-13	R-0	147		
Manufactured	Heat	Central	Retrofits	Existing	Discretionary	Walls	R-13	R-0	3,745		

Manufactured	Heat Pump	Retrofits	Existing	Discretionary	Wall Insulation 2x4 (WAI) zero to max feasible	R-13	R-0			1,288	
Manufactured	Heat Room	Retrofits	Existing	Discretionary	Wall Insulation 2x4 (WAI) zero to max feasible	R-13	R-0			2,940	
									Manufactured Home Weatherization - WALL R0 - WALL R11 (Cost and Savings per square foot of component) - Heating Zone 1		2,290
<p>Cadmus used the same levels and percent savings for manufactured, multifamily and single family based on the results from the 6th PP for single family. The 6th PP used specific levels and percent savings for each building type. Building square footage assumptions also differed.</p>										3,162	2,290
Comparison					Manufactured wall insulation to above code						
Manufactured	Heat Central	Retrofits	New	Lost Opportunity	Wall Insulation 2x6 (WAI) above code	R-21+R-5 sheathing	R-21			579	
Manufactured	Heat Pump	Retrofits	New	Lost Opportunity	Wall Insulation 2x6 (WAI) above code	R-21+R-5 sheathing	R-21			220	
Manufactured	Heat Room	Retrofits	New	Lost Opportunity	Wall Insulation 2x6 (WAI) above code	R-21+R-5 sheathing	R-21			456	
									New Manufactured Home Thermal Shell - WALL R19 - WALL R21 ADV - Heating Zone 1		352
<p>Cadmus used the same levels and percent savings for manufactured, multifamily and single family based on the results from the 6th PP for single family. The 6th PP used specific levels and percent savings for each building type. Building square footage assumptions also differed.</p>										490	352
Comparison					Manufactured wall insulation to above code						
Multi Family	Cool Central	Retrofits	Existing	Discretionary	Wall Insulation 2x4 (WAI) zero to max feasible	R-13	R-0			213	
Multi Family	Cool Room	Retrofits	Existing	Discretionary	Wall Insulation 2x4 (WAI) zero to max feasible	R-13	R-0			115	
Multi Family	Heat Central	Retrofits	Existing	Discretionary	Wall Insulation 2x4 (WAI) zero to max feasible	R-13	R-0			1,013	
Multi Family	Heat Pump	Retrofits	Existing	Discretionary	Wall Insulation 2x4 (WAI) zero to max feasible	R-13	R-0			809	
Multi Family	Heat Room	Retrofits	Existing	Discretionary	Wall Insulation 2x4 (WAI) zero to max feasible	R-13	R-0			2,786	
									Multifamily Weatherization - WALL R0 - R13 (Cost and Savings per square foot of component) - Heating Zone 1		747
<p>Cadmus used the same levels and percent savings for manufactured, multifamily and single family based on the results from the 6th PP for single family. The 6th PP used specific levels and percent savings for each building type. Building square footage assumptions also differed.</p>										2,380	747
Comparison					Multifamily wall insulation to max feasible						
Multi Family	Cool Central	Retrofits	New	Lost Opportunity	Wall Insulation 2x6 (WAI) above code	R-21+R-5 sheathing	R-21			43	
Multi Family	Cool Room	Retrofits	New	Lost Opportunity	Wall Insulation 2x6 (WAI) above code	R-21+R-5 sheathing	R-21			231	
Multi Family	Heat Central	Retrofits	New	Lost Opportunity	Wall Insulation 2x6 (WAI) above code	R-21+R-5 sheathing	R-21			414	
Multi Family	Heat Pump	Retrofits	New	Lost Opportunity	Wall Insulation 2x6 (WAI) above code	R-21+R-5 sheathing	R-21			104	
Multi Family	Heat Room	Retrofits	New	Lost Opportunity	Wall Insulation 2x6 (WAI) above code	R-21+R-5 sheathing	R-21			326	
									New Multifamily Thermal Shell - WALL 8" SSPANEL - WALL R33 DBL - Heating Zone 1		11
									New Multifamily Thermal Shell - WALL R15 STD - WALL R21 INT - Heating Zone 1		107
									New Multifamily Thermal Shell - WALL R21 INT - WALL R21 INT+R5 - Heating Zone 1		148
									New Multifamily Thermal Shell - WALL R21 INT+R5 - WALL 8" SSPANEL - Heating Zone 1		121
<p>Cadmus used the same levels and percent savings for manufactured, multifamily and single family based on the results from the 6th PP for single family. The 6th PP used specific levels and percent savings for each building type. Building square footage assumptions also differed.</p>										324	389
Comparison					Multifamily wall insulation to above code						
Single Family	Cool Central	Retrofits	Existing	Discretionary	Wall Insulation 2x4 (WAI) zero to max feasible	R-13	R-0			366	
Single Family	Cool Room	Retrofits	Existing	Discretionary	Wall Insulation 2x4 (WAI) zero to max feasible	R-13	R-0			164	
Single Family	Heat Central	Retrofits	Existing	Discretionary	Wall Insulation 2x4 (WAI) zero to max feasible	R-13	R-0			4,185	
Single Family	Heat Pump	Retrofits	Existing	Discretionary	Wall Insulation 2x4 (WAI) zero to max feasible	R-13	R-0			1,469	
Single Family	Heat Room	Retrofits	Existing	Discretionary	Wall Insulation 2x4 (WAI) zero to max feasible	R-13	R-0			2,923	
									Single Family Weatherization - WALL R0 - WALL R13(Cost and Savings per square foot of component) - Heating Zone 1		2,553
<p>Cadmus used the same levels and percent savings for manufactured, multifamily and single family based on the results from the 6th PP for single family. The 6th PP used specific levels and percent savings for each building type. Building square footage assumptions also differed.</p>										2,974	2,553
Comparison					Single family wall insulation to max feasible						
Single Family	Cool Central	Retrofits	New	Lost Opportunity	Wall Insulation 2x6 (WAI) above code	R-21+R-5 sheathing	R-21			73	
Single Family	Cool Room	Retrofits	New	Lost Opportunity	Wall Insulation 2x6 (WAI) above code	R-21+R-5 sheathing	R-21			303	
Single Family	Heat Central	Retrofits	New	Lost Opportunity	Wall Insulation 2x6 (WAI) above code	R-21+R-5 sheathing	R-21			652	
Single Family	Heat Pump	Retrofits	New	Lost Opportunity	Wall Insulation 2x6 (WAI) above code	R-21+R-5 sheathing	R-21			226	
Single Family	Heat Room	Retrofits	New	Lost Opportunity	Wall Insulation 2x6 (WAI) above code	R-21+R-5 sheathing	R-21			520	
									New Single Family Thermal Shell - BGWALL R19 - BGWALL R21 - Heating Zone 1		91
									New Single Family Thermal Shell - WALL 8" SSPANEL - WALL R33 DBL - Heating Zone 1		52
									New Single Family Thermal Shell - WALL R19 STD - WALL R21 INT - Heating Zone 1		413
									New Single Family Thermal Shell - WALL R21 INT - WALL R21 INT+R5 - Heating Zone 1		565
									New Single Family Thermal Shell - WALL R21 INT+R5 - WALL 8" SSPANEL - Heating Zone 1		465
<p>Cadmus used the same levels and percent savings for manufactured, multifamily and single family based on the results from the 6th PP for single family. The 6th PP used specific levels and percent savings for each building type.</p>										452	1,593
Comparison					Single family wall insulation to above code						
Manufactured	Cool Central	Retrofits	Existing	Discretionary	Windows (Same for all Building Types)	CL25	CL30			2	
Manufactured	Cool Central	Retrofits	Existing	Discretionary	Windows (Same for all Building Types)	CL30	Double Pane			21	
Manufactured	Cool Central	Retrofits	Existing	Discretionary	Windows (Same for all Building Types)	CL30	Single Pane			31	
Manufactured	Cool Central	Retrofits	New	Lost Opportunity	Windows (Same for all Building Types)	CL22	CL30			4	
Manufactured	Cool Central	Retrofits	New	Lost Opportunity	Windows (Same for all Building Types)	CL25	CL30			2	
Manufactured	Cool Room	Retrofits	Existing	Discretionary	Windows (Same for all Building Types)	CL25	CL30			2	
Manufactured	Cool Room	Retrofits	Existing	Discretionary	Windows (Same for all Building Types)	CL30	Double Pane			11	
Manufactured	Cool Room	Retrofits	Existing	Discretionary	Windows (Same for all Building Types)	CL30	Single Pane			18	
Manufactured	Cool Room	Retrofits	New	Lost Opportunity	Windows (Same for all Building Types)	CL22	CL30			10	
Manufactured	Cool Room	Retrofits	New	Lost Opportunity	Windows (Same for all Building Types)	CL25	CL30			1	
Manufactured	Heat Central	Retrofits	Existing	Discretionary	Windows (Same for all Building Types)	CL25	CL30			217	
Manufactured	Heat Central	Retrofits	Existing	Discretionary	Windows (Same for all Building Types)	CL30	Double Pane			289	
Manufactured	Heat Central	Retrofits	Existing	Discretionary	Windows (Same for all Building Types)	CL30	Single Pane			452	
Manufactured	Heat Central	Retrofits	New	Lost Opportunity	Windows (Same for all Building Types)	CL22	CL30			39	
Manufactured	Heat Central	Retrofits	New	Lost Opportunity	Windows (Same for all Building Types)	CL25	CL30			26	
Manufactured	Heat Pump	Retrofits	Existing	Discretionary	Windows (Same for all Building Types)	CL25	CL30			0	
Manufactured	Heat Pump	Retrofits	Existing	Discretionary	Windows (Same for all Building Types)	CL30	Double Pane			99	
Manufactured	Heat Pump	Retrofits	Existing	Discretionary	Windows (Same for all Building Types)	CL30	Single Pane			155	
Manufactured	Heat Pump	Retrofits	New	Lost Opportunity	Windows (Same for all Building Types)	CL22	CL30			15	
Manufactured	Heat Pump	Retrofits	New	Lost Opportunity	Windows (Same for all Building Types)	CL25	CL30			100	
Manufactured	Heat Room	Retrofits	Existing	Discretionary	Windows (Same for all Building Types)	CL25	CL30			21	
Manufactured	Heat Room	Retrofits	Existing	Discretionary	Windows (Same for all Building Types)	CL30	Double Pane			229	
Manufactured	Heat Room	Retrofits	Existing	Discretionary	Windows (Same for all Building Types)	CL30	Single Pane			368	
Manufactured	Heat Room	Retrofits	New	Lost Opportunity	Windows (Same for all Building Types)	CL22	CL30			31	
Manufactured	Heat Room	Retrofits	New	Lost Opportunity	Windows (Same for all Building Types)	CL25	CL30			23	
									Manufactured Home Weatherization - WINDOW CL30 Prime Window Replacement of Double Pane Base (Cost and Savings per square foot of component)		2,496
									Manufactured Home Weatherization - WINDOW CL30 Prime Window Replacement of Single Pane Base (Cost and Savings per square foot of component)		1,913
									Manufactured Home Weatherization - WINDOW CL30 to CL25 Upgrade (Cost and Savings per square foot of component) - Heating Zone 1		234
									New Manufactured Home Thermal Shell - WINDOW CL30 - WINDOW CL25 - Heating Zone 1		526
									New Manufactured Home Thermal Shell - WINDOW CL35 - WINDOW CL30 - Heating Zone 1		535
									New Manufactured Home Thermal Shell - WINDOW CL50 - WINDOW CL35 - Heating Zone 1		1,580
<p>Cadmus used the same levels and percent savings for manufactured, multifamily and single family based on the results from the 6th PP for single family. The 6th PP used specific levels and percent savings for each building type.</p>										117	1,123
Comparison					All Iterations of Manufactured Windows						
Multi Family	Cool Central	Retrofits	Existing	Discretionary	Windows (Same for all Building Types)	CL25	CL30			2	
Multi Family	Cool Central	Retrofits	Existing	Discretionary	Windows (Same for all Building Types)	CL30	Double Pane			18	
Multi Family	Cool Central	Retrofits	Existing	Discretionary	Windows (Same for all Building Types)	CL30	Single Pane			28	
Multi Family	Cool Central	Retrofits	New	Lost Opportunity	Windows (Same for all Building Types)	CL22	CL30			3	
Multi Family	Cool Central	Retrofits	New	Lost Opportunity	Windows (Same for all Building Types)	CL25	CL30			2	
Multi Family	Cool Room	Retrofits	Existing	Discretionary	Windows (Same for all Building Types)	CL25	CL30			3	
Multi Family	Cool Room	Retrofits	Existing	Discretionary	Windows (Same for all Building Types)	CL30	Double Pane			0	
Multi Family	Cool Room	Retrofits	Existing	Discretionary	Windows (Same for all Building Types)	CL30	Single Pane			144	
Multi Family	Cool Room	Retrofits	New	Lost Opportunity	Windows (Same for all Building Types)	CL22	CL30			1	
Multi Family	Cool Room	Retrofits	New	Lost Opportunity	Windows (Same for all Building Types)	CL25	CL30			1	
Multi Family	Heat Central	Retrofits	Existing	Discretionary	Windows (Same for all Building Types)	CL25	CL30			15	
Multi Family	Heat Central	Retrofits	Existing	Discretionary	Windows (Same for all Building Types)	CL30	Double Pane			234	
Multi Family	Heat Central	Retrofits	Existing	Discretionary	Windows (Same for all Building Types)	CL30	Single Pane			366	
Multi Family	Heat Central	Retrofits	New	Lost Opportunity	Windows (Same for all Building Types)	CL22	CL30			18	
Multi Family	Heat Central	Retrofits	New	Lost Opportunity	Windows (Same for all Building Types)	CL25	CL30			6	
Multi Family	Heat Pump	Retrofits	Existing	Discretionary	Windows (Same for all Building Types)	CL25	CL30			6	
Multi Family	Heat Pump	Retrofits	Existing	Discretionary	Windows (Same for all Building Types)	CL30	Double Pane			97	
Multi Family	Heat Pump	Retrofits	Existing	Discretionary	Windows (Same for all Building Types)	CL30	Single Pane			63	
Multi Family	Heat Pump	Retrofits	New	Lost Opportunity	Windows (Same for all Building Types)	CL22	CL30			7	
Multi Family	Heat Pump	Retrofits	New	Lost Opportunity	Windows (Same for all Building Types)	CL25	CL30			5	
Multi Family	Heat Room	Retrofits	Existing	Discretionary	Windows (Same for all Building Types)	CL25	CL30			17	
Multi Family	Heat Room	Retrofits	Existing	Discretionary	Windows (Same for all Building Types)	CL30	Double Pane			186	
Multi Family	Heat Room	Retrofits	Existing	Discretionary	Windows (Same for all Building Types)	CL30	Single Pane			291	
Multi Family	Heat Room	Retrofits	New	Lost Opportunity	Windows (Same for all Building Types)	CL22	CL30			22	
Multi Family	Heat Room	Retrofits	New	Lost Opportunity	Windows (Same for all Building Types)	CL25	CL30			15	
									Multifamily Weatherization - WINDOW CL30 Prime Window Replacement of Double Pane Base (Cost and Savings per square foot of component) - Heat		2,539
									Multifamily Weatherization - WINDOW CL30 Prime Window Replacement of Single Pane Base (Cost and Savings per square foot of component) - Heat		3,611
									Multifamily Weatherization - WINDOW CL30 to CL25 Upgrade (Cost and Savings per square foot of component) - Heating Zone 1		216
									New Multifamily Thermal Shell - WINDOW CL30 - WINDOW CL25 - Heating Zone 1		255
									New Multifamily Thermal Shell - WINDOW CL35 - WINDOW CL30 - Heating Zone 1		253
<p>Cadmus used the same levels and percent savings for manufactured, multifamily and single family based on the results from the 6th PP for single family. The 6th PP used specific levels and percent savings for each building type.</p>										88	612
Comparison					All Iterations of Multifamily Windows						
Single Family	Cool Central	Retrofits	Existing	Discretionary	Windows (Same for all Building Types)	CL25	CL30			3	
Single Family	Cool Central	Retrofits	Existing	Discretionary	Windows (Same for all Building Types)	CL30	Double Pane			28	
Single Family	Cool Central	Retrofits	Existing	Discretionary	Windows (Same for all Building Types)	CL30	Single Pane			44	
Single Family	Cool Central	Retrofits	New	Lost Opportunity	Windows (Same for all Building Types)	CL22	CL30			1	
Single Family	Cool Central	Retrofits	New	Lost Opportunity	Windows (Same for all Building Types)	CL25	CL30			3	

Segment	End Use	Measure Type	Construction Type	Discretionary / Lost Opportunity	Measure Name	Measure Description	Baseline Description	6th PP Building Type	6th PP Category	Unit Definition	6th PP Per Unit Site Savings (kWh)	Notes On Differences
Grocery	Lighting Interior	Retrofit	Existing	Discretionary	Lighting Package, High Efficiency	15% Reduction in W/sqft	Baseline Lighting Power density			per building sqft		
Grocery	Lighting Interior	Retrofit	Existing	Discretionary	Lighting Package, High Efficiency	Code Required LPD And Control Strategies	Existing Lighting Design LPD			per building sqft		
Grocery	Lighting Interior	Retrofit	Existing	Discretionary	Lighting Package, Premium Efficiency	25% Reduction in W/sqft	Baseline Lighting Power density			per building sqft		
Grocery	Lighting Interior	Retrofit	Existing	Discretionary	Lighting Package, Premium High Bay	35% Reduction in W/sqft	Baseline Lighting Power density			per building sqft		
Grocery	Lighting Interior	Retrofit	New	Lost Opportunity	Lighting Package, High Efficiency	15% Reduction in W/sqft	Baseline Lighting Power density			per building sqft		
Grocery	Lighting Interior	Retrofit	New	Lost Opportunity	Lighting Package, Premium Efficiency	25% Reduction in W/sqft	Baseline Lighting Power density			per building sqft		
Grocery	Lighting Interior	Retrofit	New	Lost Opportunity	Lighting Package, Premium High Bay	35% Reduction in W/sqft	Baseline Lighting Power density			per building sqft		
								Supermarket	LPD Package-Retro-Supermarket		2.41	
								MiniMart	LPD Package-Retro-MiniMart		1.75	
					Retro-Total						2.17	
								Supermarket	LPD Package-NR-Supermarket		2.26	
								MiniMart	LPD Package-NR-MiniMart		1.89	
					NR-Total						2.15	
								Supermarket	LPD Package-New-Supermarket		2.50	
								MiniMart	LPD Package-New-MiniMart		2.16	
					New-Total						2.32	
Comparison					LPD Reduction Grocery						2.16	Cadmus used a similar method to determine savings as to the 6th Plan. Cadmus used regional CBSA data to inform LPD amounts and PacifiCorp territory to inform building type saturations.
Health	Lighting Interior	Retrofit	Existing	Discretionary	Lighting Package, High Efficiency	15% Reduction in W/sqft	Baseline Lighting Power density			per building sqft		
Health	Lighting Interior	Retrofit	Existing	Discretionary	Lighting Package, High Efficiency	Code Required LPD And Control Strategies	Existing Lighting Design LPD			per building sqft		
Health	Lighting Interior	Retrofit	Existing	Discretionary	Lighting Package, Premium Efficiency	25% Reduction in W/sqft	Baseline Lighting Power density			per building sqft		
Health	Lighting Interior	Retrofit	Existing	Discretionary	Lighting Package, Premium High Bay	35% Reduction in W/sqft	Baseline Lighting Power density			per building sqft		
Health	Lighting Interior	Retrofit	New	Lost Opportunity	Lighting Package, High Efficiency	15% Reduction in W/sqft	Baseline Lighting Power density			per building sqft		
Health	Lighting Interior	Retrofit	New	Lost Opportunity	Lighting Package, Premium Efficiency	25% Reduction in W/sqft	Baseline Lighting Power density			per building sqft		
Health	Lighting Interior	Retrofit	New	Lost Opportunity	Lighting Package, Premium High Bay	35% Reduction in W/sqft	Baseline Lighting Power density			per building sqft		
								Hospital	LPD Package-Retro-Hospital		1.79	
								OtherHealth	LPD Package-Retro-OtherHealth		1.25	
					Retro-Total						1.48	
								Hospital	LPD Package-NR-Hospital		2.28	
								OtherHealth	LPD Package-NR-OtherHealth		1.08	
					NR-Total						1.41	
								Hospital	LPD Package-New-Hospital		2.21	
								OtherHealth	LPD Package-New-OtherHealth		1.16	
					New-Total						1.26	
Comparison					LPD Reduction Health						1.40	Cadmus used a similar method to determine savings as to the 6th Plan. Cadmus used regional CBSA data to inform LPD amounts and PacifiCorp territory to inform building type saturations.
Large Office	Lighting Interior	Retrofit	Existing	Discretionary	Lighting Package, High Efficiency	15% Reduction in W/sqft	Baseline Lighting Power density			per building sqft		
Large Office	Lighting Interior	Retrofit	Existing	Discretionary	Lighting Package, High Efficiency	Code Required LPD And Control Strategies	Existing Lighting Design LPD			per building sqft		
Large Office	Lighting Interior	Retrofit	Existing	Discretionary	Lighting Package, Premium Efficiency	25% Reduction in W/sqft	Baseline Lighting Power density			per building sqft		
Large Office	Lighting Interior	Retrofit	Existing	Discretionary	Lighting Package, Premium High Bay	35% Reduction in W/sqft	Baseline Lighting Power density			per building sqft		
Large Office	Lighting Interior	Retrofit	New	Lost Opportunity	Lighting Package, High Efficiency	15% Reduction in W/sqft	Baseline Lighting Power density			per building sqft		
Large Office	Lighting Interior	Retrofit	New	Lost Opportunity	Lighting Package, Premium Efficiency	25% Reduction in W/sqft	Baseline Lighting Power density			per building sqft		
Large Office	Lighting Interior	Retrofit	New	Lost Opportunity	Lighting Package, Premium High Bay	35% Reduction in W/sqft	Baseline Lighting Power density			per building sqft		
Small Office	Lighting Interior	Retrofit	Existing	Discretionary	Lighting Package, High Efficiency	15% Reduction in W/sqft	Baseline Lighting Power density			per building sqft		
Small Office	Lighting Interior	Retrofit	Existing	Discretionary	Lighting Package, High Efficiency	Code Required LPD And Control Strategies	Existing Lighting Design LPD			per building sqft		
Small Office	Lighting Interior	Retrofit	Existing	Discretionary	Lighting Package, Premium Efficiency	25% Reduction in W/sqft	Baseline Lighting Power density			per building sqft		
Small Office	Lighting Interior	Retrofit	Existing	Discretionary	Lighting Package, Premium High Bay	35% Reduction in W/sqft	Baseline Lighting Power density			per building sqft		
Small Office	Lighting Interior	Retrofit	New	Lost Opportunity	Lighting Package, High Efficiency	15% Reduction in W/sqft	Baseline Lighting Power density			per building sqft		
Small Office	Lighting Interior	Retrofit	New	Lost Opportunity	Lighting Package, Premium Efficiency	25% Reduction in W/sqft	Baseline Lighting Power density			per building sqft		
Small Office	Lighting Interior	Retrofit	New	Lost Opportunity	Lighting Package, Premium High Bay	35% Reduction in W/sqft	Baseline Lighting Power density			per building sqft		
								Large Off	LPD Package-Retro-Large Off		1.01	
								Medium Off	LPD Package-Retro-Medium Off		1.56	
								Small Off	LPD Package-Retro-Small Off		1.72	
					Retro-Total						1.30	
								Large Off	LPD Package-NR-Large Off		1.03	
								Medium Off	LPD Package-NR-Medium Off		0.86	
								Small Off	LPD Package-NR-Small Off		0.77	
					NR-Total						0.92	
								Large Off	LPD Package-New-Large Off		1.15	
								Medium Off	LPD Package-New-Medium Off		1.03	
								Small Off	LPD Package-New-Small Off		1.02	
					New-Total						1.07	
Comparison					LPD Office						0.95	Cadmus used a similar method to determine savings as to the 6th Plan. Cadmus used regional CBSA data to inform LPD amounts and PacifiCorp territory to inform building type saturations.
Large Retail	Lighting Interior	Retrofit	Existing	Discretionary	Lighting Package, High Efficiency	15% Reduction in W/sqft	Baseline Lighting Power density			per building sqft		
Large Retail	Lighting Interior	Retrofit	Existing	Discretionary	Lighting Package, High Efficiency	Code Required LPD And Control Strategies	Existing Lighting Design LPD			per building sqft		
Large Retail	Lighting Interior	Retrofit	Existing	Discretionary	Lighting Package, Premium Efficiency	25% Reduction in W/sqft	Baseline Lighting Power density			per building sqft		
Large Retail	Lighting Interior	Retrofit	Existing	Discretionary	Lighting Package, Premium High Bay	35% Reduction in W/sqft	Baseline Lighting Power density			per building sqft		
Large Retail	Lighting Interior	Retrofit	New	Lost Opportunity	Lighting Package, High Efficiency	15% Reduction in W/sqft	Baseline Lighting Power density			per building sqft		
Large Retail	Lighting Interior	Retrofit	New	Lost Opportunity	Lighting Package, Premium Efficiency	25% Reduction in W/sqft	Baseline Lighting Power density			per building sqft		
Large Retail	Lighting Interior	Retrofit	New	Lost Opportunity	Lighting Package, Premium High Bay	35% Reduction in W/sqft	Baseline Lighting Power density			per building sqft		
Small Retail	Lighting Interior	Retrofit	Existing	Discretionary	Lighting Package, High Efficiency	15% Reduction in W/sqft	Baseline Lighting Power density			per building sqft		
Small Retail	Lighting Interior	Retrofit	Existing	Discretionary	Lighting Package, High Efficiency	Code Required LPD And Control Strategies	Existing Lighting Design LPD			per building sqft		
Small Retail	Lighting Interior	Retrofit	Existing	Discretionary	Lighting Package, Premium Efficiency	25% Reduction in W/sqft	Baseline Lighting Power density			per building sqft		
Small Retail	Lighting Interior	Retrofit	Existing	Discretionary	Lighting Package, Premium High Bay	35% Reduction in W/sqft	Baseline Lighting Power density			per building sqft		
Small Retail	Lighting Interior	Retrofit	New	Lost Opportunity	Lighting Package, High Efficiency	15% Reduction in W/sqft	Baseline Lighting Power density			per building sqft		

Small Retail	Lighting Interior	Retrofit	New	Lost Opportunity	Lighting Package, Premium Efficiency	25% Reduction in W/sqft	Baseline Lighting Power density			per building sqft	
Small Retail	Lighting Interior	Retrofit	New	Lost Opportunity	Lighting Package, Premium High Bay	35% Reduction in W/sqft	Baseline Lighting Power density			per building sqft	
								Big Box	LPD Package-Retro-Big Box		1.95
								Small Box	LPD Package-Retro-Small Box		1.04
								High End	LPD Package-Retro-High End		1.57
								Anchor	LPD Package-Retro-Anchor		0.97
					Retro - Total						1.24
								Big Box	LPD Package-NR-Big Box		2.13
								Small Box	LPD Package-NR-Small Box		1.19
								High End	LPD Package-NR-High End		1.82
								Anchor	LPD Package-NR-Anchor		1.35
					NR-Total						1.52
								Big Box	LPD Package-New-Big Box		2.15
								Small Box	LPD Package-New-Small Box		1.30
								High End	LPD Package-New-High End		1.93
								Anchor	LPD Package-New-Anchor		1.35
					New-Total						1.54
Comparison					LPD Retail						1.51
Lodging	Lighting Interior	Retrofit	Existing	Discretionary	Lighting Package, High Efficiency	15% Reduction in W/sqft	Baseline Lighting Power density			per building sqft	
Lodging	Lighting Interior	Retrofit	Existing	Discretionary	Lighting Package, High Efficiency	Code Required LPD And Control Strategies	Existing Lighting Design LPD			per building sqft	
Lodging	Lighting Interior	Retrofit	Existing	Discretionary	Lighting Package, Premium Efficiency	25% Reduction in W/sqft	Baseline Lighting Power density			per building sqft	
Lodging	Lighting Interior	Retrofit	Existing	Discretionary	Lighting Package, Premium High Bay	35% Reduction in W/sqft	Baseline Lighting Power density			per building sqft	
Lodging	Lighting Interior	Retrofit	New	Lost Opportunity	Lighting Package, Premium Efficiency	25% Reduction in W/sqft	Baseline Lighting Power density			per building sqft	
Lodging	Lighting Interior	Retrofit	New	Lost Opportunity	Lighting Package, Premium High Bay	35% Reduction in W/sqft	Baseline Lighting Power density			per building sqft	
								Lodging	LPD Package-Retro-Lodging		1.67
					Retro - Total						1.67
								Lodging	LPD Package-NR-Lodging		2.24
					NR-Total						2.24
								Lodging	LPD Package-New-Lodging		2.35
					New-Total						2.35
Comparison					LPD Lodging						2.19
Miscellaneous	Lighting Interior	Retrofit	Existing	Discretionary	Lighting Package, High Efficiency	15% Reduction in W/sqft	Baseline Lighting Power density			per building sqft	
Miscellaneous	Lighting Interior	Retrofit	Existing	Discretionary	Lighting Package, High Efficiency	Code Required LPD And Control Strategies	Existing Lighting Design LPD			per building sqft	
Miscellaneous	Lighting Interior	Retrofit	Existing	Discretionary	Lighting Package, Premium Efficiency	25% Reduction in W/sqft	Baseline Lighting Power density			per building sqft	
Miscellaneous	Lighting Interior	Retrofit	Existing	Discretionary	Lighting Package, Premium High Bay	35% Reduction in W/sqft	Baseline Lighting Power density			per building sqft	
Miscellaneous	Lighting Interior	Retrofit	New	Lost Opportunity	Lighting Package, High Efficiency	15% Reduction in W/sqft	Baseline Lighting Power density			per building sqft	
Miscellaneous	Lighting Interior	Retrofit	New	Lost Opportunity	Lighting Package, Premium Efficiency	25% Reduction in W/sqft	Baseline Lighting Power density			per building sqft	
Miscellaneous	Lighting Interior	Retrofit	New	Lost Opportunity	Lighting Package, Premium High Bay	35% Reduction in W/sqft	Baseline Lighting Power density			per building sqft	
								Assembly	LPD Package-Retro-Assembly		0.63
								Other	LPD Package-Retro-Other		0.73
					Retro - Total						0.70
								Assembly	LPD Package-NR-Assembly		0.65
								Other	LPD Package-NR-Other		0.91
					NR-Total						0.82
								Assembly	LPD Package-New-Assembly		0.79
								Other	LPD Package-New-Other		0.98
					New-Total						0.86
Comparison					LPD Misc						0.82
Restaurant	Lighting Interior	Retrofit	Existing	Discretionary	Lighting Package, High Efficiency	15% Reduction in W/sqft	Baseline Lighting Power density			per building sqft	
Restaurant	Lighting Interior	Retrofit	Existing	Discretionary	Lighting Package, High Efficiency	Code Required LPD And Control Strategies	Existing Lighting Design LPD			per building sqft	
Restaurant	Lighting Interior	Retrofit	Existing	Discretionary	Lighting Package, Premium Efficiency	25% Reduction in W/sqft	Baseline Lighting Power density			per building sqft	
Restaurant	Lighting Interior	Retrofit	Existing	Discretionary	Lighting Package, Premium High Bay	35% Reduction in W/sqft	Baseline Lighting Power density			per building sqft	
Restaurant	Lighting Interior	Retrofit	New	Lost Opportunity	Lighting Package, High Efficiency	15% Reduction in W/sqft	Baseline Lighting Power density			per building sqft	
Restaurant	Lighting Interior	Retrofit	New	Lost Opportunity	Lighting Package, Premium Efficiency	25% Reduction in W/sqft	Baseline Lighting Power density			per building sqft	
Restaurant	Lighting Interior	Retrofit	New	Lost Opportunity	Lighting Package, Premium High Bay	35% Reduction in W/sqft	Baseline Lighting Power density			per building sqft	
								Restaurant	LPD Package-Retro-Restaurant		2.15
					Retro - Total						2.15
								Restaurant	LPD Package-NR-Restaurant		2.50
					NR-Total						2.50
								Restaurant	LPD Package-New-Restaurant		2.66
					New-Total						2.66
Comparison					LPD Restaurant						2.52
School	Lighting Interior	Retrofit	Existing	Discretionary	Lighting Package, High Efficiency	15% Reduction in W/sqft	Baseline Lighting Power density			per building sqft	
School	Lighting Interior	Retrofit	Existing	Discretionary	Lighting Package, High Efficiency	Code Required LPD And Control Strategies	Existing Lighting Design LPD			per building sqft	
School	Lighting Interior	Retrofit	Existing	Discretionary	Lighting Package, Premium Efficiency	25% Reduction in W/sqft	Baseline Lighting Power density			per building sqft	
School	Lighting Interior	Retrofit	Existing	Discretionary	Lighting Package, Premium High Bay	35% Reduction in W/sqft	Baseline Lighting Power density			per building sqft	
School	Lighting Interior	Retrofit	New	Lost Opportunity	Lighting Package, High Efficiency	15% Reduction in W/sqft	Baseline Lighting Power density			per building sqft	
School	Lighting Interior	Retrofit	New	Lost Opportunity	Lighting Package, Premium Efficiency	25% Reduction in W/sqft	Baseline Lighting Power density			per building sqft	
School	Lighting Interior	Retrofit	New	Lost Opportunity	Lighting Package, Premium High Bay	35% Reduction in W/sqft	Baseline Lighting Power density			per building sqft	
								K-12	LPD Package-Retro-K-12		0.65
								University	LPD Package-Retro-University		1.00
					Retro - Total						0.67

Segment	End Use	Measure Type	Construction Type	Discretionary / Lost Opportunity	Measure Name	Measure Description	Baseline Description	6th PP Measure Name	Unit Definition	Cadmus Per Square Foot Site Savings (kWh/sqft)	6th PP Per Square Foot Site Savings (kWh/sqft)	Notes On Differences
Grocery	Refrigeration	Retrofit	Existing	Discretionary	Case Replacement Low Temp	Case Replacement Low Temp	No replacement		per square foot	0.98		
Health	Refrigeration	Retrofit	Existing	Discretionary	Case Replacement Low Temp	Case Replacement Low Temp	No replacement		per square foot	0.02		
Miscellaneous	Refrigeration	Retrofit	Existing	Discretionary	Case Replacement Low Temp	Case Replacement Low Temp	No replacement		per square foot	0.02		
Restaurant	Refrigeration	Retrofit	Existing	Discretionary	Case Replacement Low Temp	Case Replacement Low Temp	No replacement		per square foot	0.05		
School	Refrigeration	Retrofit	Existing	Discretionary	Case Replacement Low Temp	Case Replacement Low Temp	No replacement		per square foot	0.05		
								Case Replacement Low Temp			0.98	
Comparison					Case Replacement Low Temp					0.89	0.98	Cadmus applied 6th Plan inputs (per unit savings) for grocery. The main differences relate to estimated saturation grocery display cases and technical measure feasibility for PacifiCorp territory. All other inputs were inferred from the 6th Plan.
Grocery	Refrigeration	Retrofit	Existing	Discretionary	Floating Condenser Head Pressure Controls	Floating Condenser Head Pressure Controls	No Floating Condenser Head Pressure Controls		1 unit per 1,000 sqft	1.80		
Grocery	Refrigeration	Retrofit	New	Lost Opportunity	Floating Condenser Head Pressure Controls	Floating Condenser Head Pressure Controls	No Floating Condenser Head Pressure Controls		1 unit per 1,000 sqft	1.80		
								Floating Head & Suction Controls			1.79	
Comparison					Floating Condenser Head Pressure Controls					1.80	1.79	No significant difference
Grocery	Refrigeration	Retrofit	Existing	Discretionary	Anti-Sweat (Humidistat) Controls	Anti-Sweat (Humidistat) Controls	No Anti-Sweat (Humidistat) Controls		1 unit per 1,000 sqft	0.98		
Grocery	Refrigeration	Retrofit	New	Lost Opportunity	Anti-Sweat (Humidistat) Controls	Anti-Sweat (Humidistat) Controls	No Anti-Sweat (Humidistat) Controls		1 unit per 1,000 sqft	0.98		
Health	Refrigeration	Retrofit	Existing	Discretionary	Anti-Sweat (Humidistat) Controls	Anti-Sweat (Humidistat) Controls	No Anti-Sweat (Humidistat) Controls		1 unit per 1,000 sqft	0.03		
Health	Refrigeration	Retrofit	New	Lost Opportunity	Anti-Sweat (Humidistat) Controls	Anti-Sweat (Humidistat) Controls	No Anti-Sweat (Humidistat) Controls		1 unit per 1,000 sqft	0.03		
Restaurant	Refrigeration	Retrofit	Existing	Discretionary	Anti-Sweat (Humidistat) Controls	Anti-Sweat (Humidistat) Controls	No Anti-Sweat (Humidistat) Controls		1 unit per 1,000 sqft	0.48		
Restaurant	Refrigeration	Retrofit	New	Lost Opportunity	Anti-Sweat (Humidistat) Controls	Anti-Sweat (Humidistat) Controls	No Anti-Sweat (Humidistat) Controls		1 unit per 1,000 sqft	0.48		
School	Refrigeration	Retrofit	Existing	Discretionary	Anti-Sweat (Humidistat) Controls	Anti-Sweat (Humidistat) Controls	No Anti-Sweat (Humidistat) Controls		1 unit per 1,000 sqft	0.02		
School	Refrigeration	Retrofit	New	Lost Opportunity	Anti-Sweat (Humidistat) Controls	Anti-Sweat (Humidistat) Controls	No Anti-Sweat (Humidistat) Controls		1 unit per 1,000 sqft	0.02		
								Low Temp Anti-Sweat Heat Control			0.98	
								Med Temp Anti-Sweat Heat Control			0.67	
Comparison					Anti-Sweat (Humidistat) Controls					0.74	0.82	Cadmus applied 6th Plan inputs (per unit savings) for grocery. The main differences relate to estimated measure saturation and technical measure feasibility for PacifiCorp territory.
Grocery	Refrigeration	Retrofit	Existing	Discretionary	Standalone to Multiplex Compressor	Standalone to Multiplex Compressor	Standalone compressor		per building sqft	0.63		
Health	Refrigeration	Retrofit	Existing	Discretionary	Standalone to Multiplex Compressor	Standalone to Multiplex Compressor	Standalone compressor		per building sqft	0.02		
Miscellaneous	Refrigeration	Retrofit	Existing	Discretionary	Standalone to Multiplex Compressor	Standalone to Multiplex Compressor	Standalone compressor		per building sqft	0.03		
Restaurant	Refrigeration	Retrofit	Existing	Discretionary	Standalone to Multiplex Compressor	Standalone to Multiplex Compressor	Standalone compressor		per building sqft	0.30		
School	Refrigeration	Retrofit	Existing	Discretionary	Standalone to Multiplex Compressor	Standalone to Multiplex Compressor	Standalone compressor		per building sqft	0.01		
Warehouse	Refrigeration	Retrofit	Existing	Discretionary	Standalone to Multiplex Compressor	Standalone to Multiplex Compressor	Standalone compressor		per building sqft	0.37		
								Standalone to Multiplex Compressor			0.61	
Comparison					Standalone to Multiplex Compressor					0.49	0.61	Cadmus based measure life on GDS measure life report of 13 years, while the 6th Plan noted 15 years. Cadmus applied 6th Plan inputs (per unit savings) for grocery. The overall aMW are similar, but total savings contributing from other building types (besides grocery) are different.
Grocery	Refrigeration	Retrofit	Existing	Discretionary	Walk-In Electronically Commutated Motor	ECM Evaporator Fans	Standard Efficiency Motor		per installation	0.87		
Grocery	Refrigeration	Retrofit	New	Lost Opportunity	Walk-In Electronically Commutated Motor	ECM Evaporator Fans	Standard Efficiency Motor		per installation	0.87		
Health	Refrigeration	Retrofit	Existing	Discretionary	Walk-In Electronically Commutated Motor	ECM Evaporator Fans	Standard Efficiency Motor		per installation	0.03		
Health	Refrigeration	Retrofit	New	Lost Opportunity	Walk-In Electronically Commutated Motor	ECM Evaporator Fans	Standard Efficiency Motor		per installation	0.03		
Miscellaneous	Refrigeration	Retrofit	Existing	Discretionary	Walk-In Electronically Commutated Motor	ECM Evaporator Fans	Standard Efficiency Motor		per installation	0.04		
Miscellaneous	Refrigeration	Retrofit	New	Lost Opportunity	Walk-In Electronically Commutated Motor	ECM Evaporator Fans	Standard Efficiency Motor		per installation	0.04		
Restaurant	Refrigeration	Retrofit	Existing	Discretionary	Walk-In Electronically Commutated Motor	ECM Evaporator Fans	Standard Efficiency Motor		per installation	0.42		
Restaurant	Refrigeration	Retrofit	New	Lost Opportunity	Walk-In Electronically Commutated Motor	ECM Evaporator Fans	Standard Efficiency Motor		per installation	0.42		
School	Refrigeration	Retrofit	Existing	Discretionary	Walk-In Electronically Commutated Motor	ECM Evaporator Fans	Standard Efficiency Motor		per installation	0.02		
School	Refrigeration	Retrofit	New	Lost Opportunity	Walk-In Electronically Commutated Motor	ECM Evaporator Fans	Standard Efficiency Motor		per installation	0.02		
Warehouse	Refrigeration	Retrofit	Existing	Discretionary	Walk-In Electronically Commutated Motor	ECM Evaporator Fans	Standard Efficiency Motor		per installation	0.52		
Warehouse	Refrigeration	Retrofit	New	Lost Opportunity	Walk-In Electronically Commutated Motor	ECM Evaporator Fans	Standard Efficiency Motor		per installation	0.52		
								Walk-In Electronically Commutated Motor			0.85	
Comparison					Walk-In Electronically Commutated Motor					0.73	0.86	Cadmus applied 6th Plan inputs (per unit savings) for grocery. The main differences relate to estimated measure saturation and technical measure feasibility for PacifiCorp territory. All other inputs were inferred from the 6th Plan.
Grocery	Refrigeration	Retrofit	Existing	Discretionary	Case Electronically Commutated Motor	ECM Case Fans	Standard Efficiency Motor		1 unit per 1,000 sqft	1.02		
Grocery	Refrigeration	Retrofit	New	Lost Opportunity	Case Electronically Commutated Motor	ECM Case Fans	Standard Efficiency Motor		1 unit per 1,000 sqft	1.02		
Health	Refrigeration	Retrofit	Existing	Discretionary	Case Electronically Commutated Motor	ECM Case Fans	Standard Efficiency Motor		1 unit per 10,000 sqft	0.10		
Health	Refrigeration	Retrofit	New	Lost Opportunity	Case Electronically Commutated Motor	ECM Case Fans	Standard Efficiency Motor		1 unit per 10,000 sqft	0.10		
Miscellaneous	Refrigeration	Retrofit	Existing	Discretionary	Case Electronically Commutated Motor	ECM Case Fans	Standard Efficiency Motor		1 unit per 10,000 sqft	0.10		
Miscellaneous	Refrigeration	Retrofit	New	Lost Opportunity	Case Electronically Commutated Motor	ECM Case Fans	Standard Efficiency Motor		1 unit per 10,000 sqft	0.10		
Restaurant	Refrigeration	Retrofit	Existing	Discretionary	Case Electronically Commutated Motor	ECM Case Fans	Standard Efficiency Motor		1 unit per 5,000 sqft	0.23		
Restaurant	Refrigeration	Retrofit	New	Lost Opportunity	Case Electronically Commutated Motor	ECM Case Fans	Standard Efficiency Motor		1 unit per 5,000 sqft	0.23		
School	Refrigeration	Retrofit	Existing	Discretionary	Case Electronically Commutated Motor	ECM Case Fans	Standard Efficiency Motor		1 unit per 10,000 sqft	0.10		
School	Refrigeration	Retrofit	New	Lost Opportunity	Case Electronically Commutated Motor	ECM Case Fans	Standard Efficiency Motor		1 unit per 10,000 sqft	0.10		
								Case Electronically Commutated Motor			1.02	
Comparison					Case Electronically Commutated Motor					0.94	1.02	Cadmus applied 6th Plan inputs (per unit savings) for grocery. The main differences relate to estimated measure saturation and technical measure feasibility for PacifiCorp territory. All other inputs were inferred from the 6th Plan.
Grocery	Refrigeration	Retrofit	Existing	Discretionary	Refrigeration Commissioning or Re-commissioning	Commissioning / Re-commissioning	No Commissioning / Re-commissioning		per refrigeration ton	1.36		
Grocery	Refrigeration	Retrofit	New	Lost Opportunity	Refrigeration Commissioning or Re-commissioning	Commissioning / Re-commissioning	No Commissioning / Re-commissioning		per refrigeration ton	0.84		
Health	Refrigeration	Retrofit	Existing	Discretionary	Refrigeration Commissioning or Re-commissioning	Commissioning / Re-commissioning	No Commissioning / Re-commissioning		per refrigeration ton	0.04		
Health	Refrigeration	Retrofit	New	Lost Opportunity	Refrigeration Commissioning or Re-commissioning	Commissioning / Re-commissioning	No Commissioning / Re-commissioning		per refrigeration ton	0.03		
Restaurant	Refrigeration	Retrofit	Existing	Discretionary	Refrigeration Commissioning or Re-commissioning	Commissioning / Re-commissioning	No Commissioning / Re-commissioning		per refrigeration ton	0.67		
Restaurant	Refrigeration	Retrofit	New	Lost Opportunity	Refrigeration Commissioning or Re-commissioning	Commissioning / Re-commissioning	No Commissioning / Re-commissioning		per refrigeration ton	0.41		
School	Refrigeration	Retrofit	Existing	Discretionary	Refrigeration Commissioning or Re-commissioning	Commissioning / Re-commissioning	No Commissioning / Re-commissioning		per refrigeration ton	0.03		
School	Refrigeration	Retrofit	New	Lost Opportunity	Refrigeration Commissioning or Re-commissioning	Commissioning / Re-commissioning	No Commissioning / Re-commissioning		per refrigeration ton	0.02		
Warehouse	Refrigeration	Retrofit	Existing	Discretionary	Refrigeration Commissioning or Re-commissioning	Commissioning / Re-commissioning	No Commissioning / Re-commissioning		per refrigeration ton	0.82		
Warehouse	Refrigeration	Retrofit	New	Lost Opportunity	Refrigeration Commissioning or Re-commissioning	Commissioning / Re-commissioning	No Commissioning / Re-commissioning		per refrigeration ton	0.51		
								Recommissioning			1.63	

Comparison					Refrigeration Commissioning or Re-commissioning					1.11	1.63	Cadmus inferred from 6th Plan data (PECI grocery program data) and reduced the per unit savings to account for competing refrigeration's measures (in addition to the 6th Plan measures). There were also differences relating to estimated measure saturation and technical measure feasibility for PacifiCorp territory. All other inputs were inferred from the 6th Plan.
Grocery	Refrigeration	Retrofit	Existing	Discretionary	Night Covers for Display Cases	Night Covers for Display Cases	No Night Covers		per installation	0.65		
Grocery	Refrigeration	Retrofit	New	Lost Opportunity	Night Covers for Display Cases	Night Covers for Display Cases	No Night Covers		per installation	0.62		
Miscellaneous	Refrigeration	Retrofit	Existing	Discretionary	Night Covers for Display Cases	Night Covers for Display Cases	No Night Covers		per installation	0.03		
Miscellaneous	Refrigeration	Retrofit	New	Lost Opportunity	Night Covers for Display Cases	Night Covers for Display Cases	No Night Covers		per installation	0.03		
Restaurant	Refrigeration	Retrofit	Existing	Discretionary	Night Covers for Display Cases	Night Covers for Display Cases	No Night Covers		per installation	0.32		
Restaurant	Refrigeration	Retrofit	New	Lost Opportunity	Night Covers for Display Cases	Night Covers for Display Cases	No Night Covers		per installation	0.39		
							Night Covers				0.403	
Comparison					Night Covers for Display Cases					0.62	0.40	Cadmus applied 6th Plan inputs (per unit savings) for grocery. The main differences relate to estimated measure saturation and technical measure feasibility for PacifiCorp territory. All other inputs were inferred from the 6th Plan.
Grocery	Refrigeration	Retrofit	Existing	Discretionary	Case Replacement Med Temp	Case Replacement Med Temp	No replacement		per square foot	0.08		
Health	Refrigeration	Retrofit	Existing	Discretionary	Case Replacement Med Temp	Case Replacement Med Temp	No replacement		per square foot	0.00		
Miscellaneous	Refrigeration	Retrofit	Existing	Discretionary	Case Replacement Med Temp	Case Replacement Med Temp	No replacement		per square foot	0.00		
Restaurant	Refrigeration	Retrofit	Existing	Discretionary	Case Replacement Med Temp	Case Replacement Med Temp	No replacement		per square foot	0.00		
School	Refrigeration	Retrofit	Existing	Discretionary	Case Replacement Med Temp	Case Replacement Med Temp	No replacement		per square foot	0.00		
							Case Replacement Med Temp				0.08	
Comparison					Case Replacement Med Temp					0.08	0.08	No significant difference
Grocery	Lighting Interior	Retrofit	Existing	Discretionary	LED Refrigeration Case Lights	LED Refrigeration Case Lights	Fluorescent Refrigeration Case		per installation	0.92		
Grocery	Lighting Interior	Retrofit	New	Lost Opportunity	LED Refrigeration Case Lights	LED Refrigeration Case Lights	Fluorescent Refrigeration Case		per installation	0.92		
Health	Lighting Interior	Retrofit	Existing	Discretionary	LED Refrigeration Case Lights	LED Refrigeration Case Lights	Fluorescent Refrigeration Case		per installation	0.05		
Health	Lighting Interior	Retrofit	New	Lost Opportunity	LED Refrigeration Case Lights	LED Refrigeration Case Lights	Fluorescent Refrigeration Case		per installation	0.05		
Miscellaneous	Lighting Interior	Retrofit	Existing	Discretionary	LED Refrigeration Case Lights	LED Refrigeration Case Lights	Fluorescent Refrigeration Case		per installation	0.04		
Miscellaneous	Lighting Interior	Retrofit	New	Lost Opportunity	LED Refrigeration Case Lights	LED Refrigeration Case Lights	Fluorescent Refrigeration Case		per installation	0.04		
Restaurant	Lighting Interior	Retrofit	Existing	Discretionary	LED Refrigeration Case Lights	LED Refrigeration Case Lights	Fluorescent Refrigeration Case		per installation	0.16		
Restaurant	Lighting Interior	Retrofit	New	Lost Opportunity	LED Refrigeration Case Lights	LED Refrigeration Case Lights	Fluorescent Refrigeration Case		per installation	0.16		
School	Lighting Interior	Retrofit	Existing	Discretionary	LED Refrigeration Case Lights	LED Refrigeration Case Lights	Fluorescent Refrigeration Case		per installation	0.01		
School	Lighting Interior	Retrofit	New	Lost Opportunity	LED Refrigeration Case Lights	LED Refrigeration Case Lights	Fluorescent Refrigeration Case		per installation	0.01		
							LED Case Lighting				0.98	
Comparison					LED Refrigeration Case Lights					0.56	0.98	Cadmus LED refrigeration case lighting analysis based on product literature (lamp wattages) and an estimated saturation of cases for across building types.
												Total for Com Refrigeration