2020 CNGC IRP

Commercial Equipment

| Measure | | | | | | | | | Characteristics | | | | | | | | | | | | | | Sources | | | | | | | | | | | | | |

Commercial Equipment

Measure									Characteristics												Sources			Measure Assumptions 2017										
Key	State	Sector	Segment	Vintage	End Use	Fuel	Measure	Option	Efficient Definition in 2018	Measure Number	Replacement Type	Baseline Definition	Efficient Definition / Measure Description	Measure Ramp Rate Name	Ramp Offset	Assigned Utility Load Shape	Impact Unit Ref Measure	Impact Units	Unit Impact Square Feet	Transmission Losses	Lifetime Source	Costs Source	Savings Source	Measure Life (Years)	Incremental Measure Cost ($)	Incremental O&M Cost ($)	Incremental Non-Energy Benefits ($)	IRP Only Benefits	Cost Scalar	Measure Energy Savings (Therm/yr)	Summer Coincident Peak Factor (kW/kWh)	Winter Coincident Peak Factor (kW/kWh)	Incentive (%)	Admin Cost (%)	Base Saturation	Applicability
Commercial	WA	Commercial	Miscellaneous	Existing	Food Preparation	Natural Gas	Oven	A	ENERGY STAR (EF ≥ 40%) Convection Oven utilizing ASTM SET-FIRN	CE 229	Turnover	Standard	E NERGY STAR (EF ≥ 44%) Convection Oven utilizing ASTM SET-FIRN	LOGSmed	2	TBD	1 unit	1.00	0.00	0.14%	COOK_OVN-Food Preparation v1.0 17-3	COOK_OVN-Food Preparation v0.0 17-1	COOK_OVN-Food Preparation v.78 Hrs v1.0-20	10	$ 177.71	$ -	$ -	$ 1.73	$ -	1.00	304.67	-	-	100%	110%	3.0%	10.00%
Commercial	WA	Commercial	Miscellaneous	Existing	Food Preparation	Natural Gas	Conveyor Oven	A	ENERGY STAR (EF ≥ 40%) Convection Oven utilizing ASTM SET-FIRN	CE 230	Turnover	Standard	E NERGY STAR (EF ≥ 44%) Convection Oven utilizing ASTM SET-FIRN	LOGSmed	2	TBD	1 unit	1.00	0.00	0.14%	COOK_OVN-Food Preparation v1.0 2-4	COOK_OVN-Food Preparation v0.0 17-24	COOK_OVN-Food Preparation v.78 Hrs v1.0-24	17	$ 1,741.99	$ -	$ -	$ -	$ -	1.12	731.00	-	-	26%	20%	1.5%	10.00%
Commercial	WA	Commercial	Miscellaneous	Existing	Food Preparation	Natural Gas	Double Rack Oven	A	FTSC Qualified (>50 % Cooking Efficiency)	CE 231	Turnover	Standard	FTSC Qualified (>50 % Cooking Efficiency)	LOGSmed	2	TBD	1 unit	1.00	0.00	0.14%	COOK_OVN-Food Preparation v1.0 8-11	COOK_OVN-Food Preparation v0.0 8-25	COOK_OVN-Food Preparation v.78 Hrs v1.0-25	12	$ 8,557.87	$ -	$ -	$ -	$ -	1.12	2,984.00	-	-	29%	33%	1.5%	10.00%
Commercial	WA	Commercial	Miscellaneous	Existing	Food Preparation	Natural Gas	Fryer	A	ENERGY STAR	CE 232	Turnover	Standard	E NERGY STAR	LOGSmed	6	TBD	1 unit	1.00	0.00	0.14%	COOK_FRY-Food Preparation v1.0 8-11	COOK_FRY-Food Preparation v0.0 8-25	COOK_FRY-Food Preparation v.78 Hrs v4.0-1	15	$ 1,200.00	$ -	$ -	$ -	$ -	1.14	505.23	-	-	66%	69%	4.0%	10.00%
Commercial	WA	Commercial	Miscellaneous	Existing	Food Preparation	Natural Gas	Broiler	A	Infrared Burners	CE 233	Turnover	Standard	Infrared Burners	LOGSmed	6	TBD	1 unit	1.00	0.00	0.14%	COOK_BRL-Food Preparation v.78 Hrs v4.0-1	COOK_BRL-Food Preparation v.78 Hrs v4.0-1	COOK_BRL-Food Preparation v.78 Hrs v4.0-1	12	$ 1,000.00	$ -	$ -	$ -	$ -	1.12	236.00	-	-	66%	70%	3.4%	10.00%
Commercial	WA	Commercial	Miscellaneous	Existing	Food Preparation	Natural Gas	Cold Box	A	ENERGY STAR	CE 234	Turnover	Standard	E NERGY STAR	LOGSmed	6	TBD	1 unit	1.00	0.00	0.14%	COOK_GRD-Food Preparation v1.0 8-11	COOK_GRD-Food Preparation v0.0 8-24 2014 Ref. Case 5	COOK_GRD-Food Preparation v.78 Hrs v1.0-1	12	$ 900.00	$ -	$ -	$ -	$ -	1.09	346.41	-	-	100%	110%	4.2%	10.00%
Commercial	WA	Commercial	Miscellaneous	Existing	Food Preparation	Natural Gas	Range	A	High Efficiency	CE 235	Turnover	Standard	High Efficiency	LOGSmed	6	TBD	1 unit	1.00	0.00	0.14%	COOK_OVN-Food Preparation v1.0 17-1	DOE Commercial RBC 2010 - Table 2-10	DOE Commercial RBC 20 10 - Table 2-10	10	$ 400.00	$ -	$ -	$ -	$ -	1.14	795.00	-	-	100%	110%	6.1%	10.00%
Commercial	WA	Commercial	Miscellaneous	Existing	Food Preparation	Natural Gas	Steamer	A	ENERGY STAR	CE 236	Turnover	Standard	E NERGY STAR	LOGSmed	6	TBD	1 unit	1.00	0.00	0.14%	COOK_STM-Food Preparation v.78 Hrs v4.0-32	COOK_STM-Food Preparation v.78 Hrs v4.0-32	COOK_STM-Food Preparation v.78 Hrs v4.0-32	12	$ 998.00	$ -	$ 2.83	$ -	$ -	1.10	1,087.26	-	-	85%	94%	1.2%	10.00%
Commercial	WA	Commercial	Miscellaneous	Existing	Food Preparation	Natural Gas	Food Prep Other	A	ENERGY STAR	CE 237	Turnover	Standard	E NERGY STAR	LOGSmed	6	TBD	1 unit	1.00	0.00	0.14%	NA	N/A	N/A	10	$ - 1.00	$ -	$ -	$ -	$ -	1.14	5.31	-	-	1%	3%	1.2%	10.00%
Commercial	WA	Commercial	Miscellaneous	Existing	Water Heaters	Natural Gas	Pool Heater	A	Condensing (EF ≥ .92)	CE 238	Turnover	Standard (EF ≥ .82)	Condensing (EF ≥ .92)	LOGSlow	6	TBD	1 unit	1.00	0.00	0.14%	DOE Commercial RBC 2011 - Table 7-4	DOE Commercial RBC 2011 - Table 7-7	DOE Commercial RBC 2011 - Table 7-9	8	$ 11,506.00	$ -	$ -	$ -	$ -	1.07	2,133.50	-	-	54%	59%	7.0%	10.00%
Commercial	WA	Commercial	Miscellaneous	New	Food Preparation	Natural Gas	Oven	A	ENERGY STAR (EF ≥ 40%)	CE 239	Turnover	Standard (EF ≥ 40%)	ENERGY STAR (EF ≥ 44%)	LOGSmed	2	TBD	1 kBtu/yr	1.00	0.00	0.14%	COOK_OVN-Food Preparation v1.0 17-3	COOK_OVN-Food Preparation v0.0 17-1	COOK_OVN-Food Preparation v.78 Hrs v1.0-20	10	$ 177.71	$ -	$ -	$ 1.73	$ -	1.00	304.67	-	-	100%	110%	3.0%	10.00%
Commercial	WA	Commercial	Miscellaneous	New	Space Heating	Natural Gas	Boiler	A	AFUE 90 %	CE240	Turnover	Standard	AFUE 80% (Small and Large)	LOGFalcon	1	TBD	1 kBtu/yr	1.00	0.57	0.14%	GBLR-Heating v4.0 3-3	GBLR-Heating v0.0 2-14 Ref. Case 6	GBLR-Heating v.78 Hrs v1.0-24	25	$ 5.38	$ -	$ -	$ -	$ -	1.09	2.10	-	-	94%	104%	26.2%	1.00.0%
Commercial	WA	Commercial	Miscellaneous	New	Space Heating	Natural Gas	Unit Heater	A	Infrared Radiant	CE 241	Turnover	Standard	Infrared Radiant	LOGSmed	6	TBD	1 kBtu/yr	1.00	0.62	0.14%	UNITHT-Heating v3.0 2-7	DHOC Program Data	UNITHT-Heating v0.0 2-7 2017-18-4	15	$ 5.54	$ -	$ -	$ -	$ -	1.04	3.20	-	-	30%	33%	15.6%	10.00%
Commercial	WA	Commercial	Miscellaneous	New	Water Heating	Natural Gas	Water Heater	A	TE ≥ .96	CE242	Turnover	TE ≥ .86	TE ≥ 0.4	LOGFalcon	6	TBD	1 kBtu/yr	1.00	0.00	0.14%	DHW_WH-Water Heating v4.0 TBD-2	DHW_WH-Water Heating v0.0 TBD-2	DHW_WH-Water Heating v0.0 TBD-2	15	$ 8.82	$ -	$ -	$ -	$ -	1.10	6.37	-	-	43%	47%	35.6%	10.00%
Commercial	WA	Commercial	Miscellaneous	New	Food Preparation	Natural Gas	Oven	A	ENERGY STAR (EF ≥ 40%) Convection Oven utilizing ASTM SET-FIRN	CE 243	Turnover	Standard	E NERGY STAR (EF ≥ 44%) Convection Oven utilizing ASTM SET-FIRN	LOGSmed	2	TBD	1 unit	1.00	0.00	0.14%	COOK_OVN-Food Preparation v1.0 17-3	COOK_OVN-Food Preparation v0.0 17-1	COOK_OVN-Food Preparation v.78 Hrs v1.0-20	10	$ 177.71	$ -	$ -	$ 1.73	$ -	1.00	304.67	-	-	100%	110%	3.0%	10.00%
Commercial	WA	Commercial	Miscellaneous	New	Food Preparation	Natural Gas	Conveyor Oven	A	ENERGY STAR (EF ≥ 40%) Convection Oven utilizing ASTM SET-FIRN	CE 244	Turnover	Standard	E NERGY STAR (EF ≥ 44%) Convection Oven utilizing ASTM SET-FIRN	LOGSmed	2	TBD	1 unit	1.00	0.00	0.14%	COOK_OVN-Food Preparation v1.0 2-4	COOK_OVN-Food Preparation v0.0 17-24	COOK_OVN-Food Preparation v.78 Hrs v1.0-24	17	$ 1,741.99	$ -	$ -	$ -	$ -	1.12	731.00	-	-	26%	20%	1.5%	10.00%
Commercial	WA	Commercial	Miscellaneous	New	Food Preparation	Natural Gas	Double Rack Oven	A	FTSC Qualified (>50 % Cooking Efficiency)	CE 245	Turnover	Standard	FTSC Qualified (>50 % Cooking Efficiency)	LOGSmed	2	TBD	1 unit	1.00	0.00	0.14%	COOK_OVN-Food Preparation v1.0 8-11	COOK_OVN-Food Preparation v0.0 8-25	COOK_OVN-Food Preparation v.78 Hrs v1.0-25	12	$ 8,557.87	$ -	$ -	$ -	$ -	1.12	2,984.00	-	-	29%	33%	1.5%	10.00%
Commercial	WA	Commercial	Miscellaneous	New	Food Preparation	Natural Gas	Fryer	A	ENERGY STAR	CE 246	Turnover	Standard	E NERGY STAR	LOGSmed	2	TBD	1 unit	1.00	0.00	0.14%	COOK_FRY-Food Preparation v.78 Hrs v4.0-1	COOK_FRY-Food Preparation v.78 Hrs v4.0-1	COOK_FRY-Food Preparation v.78 Hrs v4.0-1	15	$ 1,200.00	$ -	$ -	$ -	$ -	1.14	505.23	-	-	66%	69%	4.0%	10.00%
Commercial	WA	Commercial	Miscellaneous	New	Food Preparation	Natural Gas	Broiler	A	Infrared Burners	CE247	Turnover	Standard	Infrared Burners	LOGSmed	6	TBD	1 unit	1.14	0.00	0.14%	COOK_BRL-Food Preparation v.78 Hrs v4.0-1	COOK_BRL-Food Preparation v.78 Hrs v4.0-1	COOK_BRL-Food Preparation v.78 Hrs v4.0-1	12	$ 1,000.00	$ -	$ -	$ -	$ -	1.12	236.00	-	-	66%	70%	3.4%	10.00%
Commercial	WA	Commercial	Miscellaneous	New	Food Preparation	Natural Gas	Cold Box	A	ENERGY STAR	CE 248	Turnover	Standard	E NERGY STAR	LOGSmed	6	TBD	1 unit	1.00	0.00	0.14%	COOK_GRD-Food Preparation v1.0 8-11	COOK_GRD-Food Preparation v0.0 8-24 2014 Ref. Case 5	COOK_GRD-Food Preparation v.78 Hrs v1.0-1	12	$ 900.00	$ -	$ -	$ -	$ -	1.09	346.41	-	-	100%	110%	4.2%	10.00%
Commercial	WA	Commercial	Miscellaneous	New	Food Preparation	Natural Gas	Range	A	High Efficiency	CE 249	Turnover	Standard	High Efficiency	LOGSmed	6	TBD	1 unit	1.00	0.00	0.14%	COOK_OVN-Food Preparation v1.0 17-1	DOE Commercial RBC 2010 - Table 2-10	DOE Commercial RBC 20 10 - Table 2-10	10	$ 400.00	$ -	$ -	$ -	$ -	1.14	795.00	-	-	100%	110%	6.1%	10.00%
Commercial	WA	Commercial	Miscellaneous	New	Food Preparation	Natural Gas	Steamer	A	ENERGY STAR	CE 250	Turnover	Standard	E NERGY STAR	LOGSmed	6	TBD	1 unit	1.00	0.00	0.14%	COOK_STM-Food Preparation v.78 Hrs v4.0-32	COOK_STM-Food Preparation v.78 Hrs v4.0-32	COOK_STM-Food Preparation v.78 Hrs v4.0-32	12	$ 998.00	$ -	$ 2.83	$ -	$ -	1.10	1,087.26	-	-	85%	94%	1.2%	10.00%
Commercial	WA	Commercial	Miscellaneous	New	Food Preparation	Natural Gas	Food Prep Other	A	ENERGY STAR	CE 251	Turnover	Standard	E NERGY STAR	LOGSmed	6	TBD	1 unit	1.00	0.00	0.14%	NA	N/A	N/A	10	$ - 1.00	$ -	$ -	$ -	$ -	1.14	5.31	-	-	1%	3%	1.2%	10.00%
Commercial	WA	Commercial	Miscellaneous	New	Water Heaters	Natural Gas	Pool Heater	A	Condensing (EF ≥ .92)	CE 252	Turnover	Standard (EF ≥ .82)	Condensing (EF ≥ .92)	LOGSlow	6	TBD	1 unit	1.00	0.00	0.14%	DOE Commercial RBC 2011 - Table 7-4	DOE Commercial RBC 2011 - Table 7-7	DOE Commercial RBC 20 10 - Table 7-9	8	$ 11,506.00	$ -	$ -	$ -	$ -	1.07	2,133.50	-	-	54%	59%	7.0%	10.00%

Commercial Non Equipment

Measure					Characteristics									Sources			Measure Assumptions in 2017							
Segment	Vintage	End Use	Measure	Efficient Definition	Replacement Type	Baseline Definition (NEM Only)	Measure Description	Measure Ramp Rate Name	Ramp Offset	Input Unit of Measure	Bldg Sq Ft	UOM Per Facility	Line Loss	Lifetime Source	Costs Source	Savings Source	Measure Lifetime (Years)	Incremental Measure Cost ($)	Incremental O&M Cost ($)	Incremental Non-Energy Benefits ($)	Cost Scalar	Measure Savings @ generator (kWh) (NEM Only)	Base Saturation	Applicability
Office	Existing	Heating	Insulation - Roof/Ceiling	R-38	Discretionary	R-11	R-38	Retro35kw	7	sqft roof	10,000	10,000.00	0.166	INS_CLG-Heating-RTF-v2.1-55	INS_CLG-Heating-RTF-v2.1-55	Building Energy Simulation Tool	45	$ 1.07	$ -	$ 0.02	1.18	0.10	60.0%	85.0%
Office	Existing	Heating	Insulation - Wall Cavity	R-21	Discretionary	R-11 or less	R-21	Retro35kw	7	sqft wall	10,000	5,675.46	0.166	INS_WC-Heating-RTF-v2.1-1	INS_WC-Heating-RTF-v2.1-1	Building Energy Simulation Tool	45	$ 1.63	$ -	$ 0.04	1.18	0.26	60.0%	85.0%
Office	Existing	Heating	Insulation - Ducting	50% reduction in thermal losses	Discretionary	~2°F thermal losses	50% reduction in thermal losses	Retro50kd	0	sqft	10,000	10,000.00	0.166	INS_DCT-All-DEER-1	INS_DCT-All-DEER-1	Building Energy Simulation Tool	20	$ 0.86	$ -	$ -	1.12	-	40.0%	60.0%
Office	Existing	Heating	HVAC - Duct Repair and Sealing	30% reduced duct leaking	Discretionary	Poorly sealed/leaky ducts	30% reduced duct leaking	Retro5cm20	0	sqft	10,000	10,000.00	0.166	DCT_FIPR-All-DEER-1	DCT_FIPR-Cooling-RTF-1	Building Energy Simulation Tool	18	$ 0.59	$ -	$ -	1.18	-	15.0%	50.0%
Office	Existing	Heating	Windows - High Efficiency	U-.22 or better	Discretionary	U-.5 or worse	U-.22 or better	Retro35kw	0	sqft window	10,000	1,223.93	0.166	WIND_HE-Heating-RTF-v2.1-46	WIND_HE-Heating-RTF-v2.1-46	Building Energy Simulation Tool	45	$ 24.21	$ -	$ 0.05	1.18	0.28	45.0%	100.0%
Office	Existing	Heating	Gas Boiler - Maintenance	General cleaning and maintenance	Discretionary	Degrade performance	General cleaning and maintenance	Retro28Fast	0	1000 Btuh Heat	10,000	0.25	0.166	GBLR_MNT-Heating-ILTRM-v4.0-1	GBLR_MNT-Heating-ILTRM-v4.0-1	GBLR_MNT-Heating-ILTRM-v4.0-1	3	$ 0.88	$ -	$ -	1.06	636.10	20.0%	30.0%
Office	Existing	Heating	Gas Furnace - Maintenance	General cleaning and maintenance	Discretionary	Degrade performance	General cleaning and maintenance	Retro28Fast	0	1000 Btuh Heat	10,000	0.25	0.166	GFURN_MNT-Heating-ILTRM-v2.1-1	GFURN_MNT-Heating-MNTRM-v2.1-1	GFURN_MNT-Heating-ILTRM-v2.1-1	2	$ 0.88	$ -	$ -	1.06	660.63	20.0%	30.0%
Office	Existing	Heating	Gas Boiler - Hot Water Reset	Reset control installed	Discretionary	No control	Reset control installed	Retro5Med	0	BoilerCtrl	10,000	0.63	0.166	GBLR_HWRST-Heating-ILTRM-v4.0-1	GBLR_HWRST-Heating-ILTRM-v4.0-1	GBLR_HWRST-Heating-ILTRM-v4.0-1	20	$ 719.34	$ -	$ -	1.18	1,130.84	35.0%	55.0%
Office	Existing	Heating	Steam Trap Maintenance	Cleaning and maintenance	Discretionary	Degrade performance	Cleaning and maintenance	Retro5cm20	0	sqft	10,000	10,000.00	0.166	GBLR_MNT_ST-Heating-RCECLO-2017-1B-2	GBLR_MNT_ST-Heating-RCECLO-2017-1B-2	GBLR_MNT_ST-Heating-RCECLO-2017-1B-2	4	$ 0.01	$ -	$ -	1.03	73.09	100.0%	100.0%
Office	Existing	Heating	Gas Boiler - High Turndown	Turndown control installed	Discretionary	No control	Turndown control installed	Retro12Med	0	btuh heat	10,000	253.97	0.166	GBLR_TRN-Heating-MNTRM-v2.1-1	GBLR_TRN-Heating-MNTRM-v2.1-1	GBLR_TRN-Heating-MNTRM-v2.1-1	15	$ 2.59	$ -	$ -	1.02	1.06	25.0%	50.0%
Office	Existing	Heating	Gas Boiler - Burner Control Optimization	Optimized burner controls	Discretionary	Average performance	Optimized burner controls	Retro35kw	0	btuh heat	10,000	253.97	0.166	GBLR_OZTRM-Heating-ILTRM-v4.0-1	GBLR_OZTRM-Heating-MEMD-2018-1	GBLR_OZTRM-Heating-ILTRM-v4.0-1	18	$ 0.87	$ -	$ -	1.02	0.31	5.0%	85.0%
Office	Existing	Heating	HVAC - Shut Off Damper	Damper installed	Discretionary	No damper	Damper installed	Retro12Med	0	BoilerCtrl	10,000	0.63	0.166	HVAC_DMPROFF-Heating-ILTRM-v4.0-1	HVAC_DMPROFF-Heating-ILTRM-v4.0-1	HVAC_DMPROFF-Heating-ILTRM-v4.0-1	15	$ 1,536.89	$ 96.63	$ -	1.02	104.56	0.0%	75.0%
Office	Existing	Heating	HVAC - Demand Controlled Ventilation	DCV enabled	Discretionary	Constant ventilation	Demand controlled ventilation	Retro20Fast	0	sqft	10,000	10,000.00	0.166	VENT_DCV-Heating-7PLN-v5-8	VENT_DCV-Heating-7PLN-v5-8	VENT_DCV-Heating-7PLN-v5-8	15	$ 0.25	$ -	$ 0.00	1.18	0.02	55.0%	75.0%
Office	Existing	Heating	Gas Boiler - Stack Economizer	Economizer installed	Discretionary	None	Economizer installed	Retro12Med	0	BoilerCtrl	10,000	0.63	0.166	GBLR_ECON-Heating-RCECLO-2017-1B-1	GBLR_ECON-Heating-RCECLO-2017-1B-1	GBLR_ECON-Heating-RCECLO-2017-1B-1	12	$ 587.69	$ -	$ -	1.18	188.47	15.0%	55.0%
Office	Existing	Heating	Gas Furnace Tube Inserts	Tube inserts installed	Discretionary	None	Tube inserts installed	Retro35kw	0	sqft	10,000	10,000.00	0.166	N/A	N/A	N/A	5	$ 3.00	$ -	$ -	1.00	-	0.0%	0.0%
Office	Existing	Heating	Gas Boiler - Insulate Steam Lines/Condensate Tank	Lines and condensate tank insulated	Discretionary	No insulation	Lines and condensate tank insulated	Retro5cm20	0	boiler pipe	10,000	400.00	0.166	GBLR_PIPNS_STM-Heating-PGE-R7-1	GBLR_PIPNS_STM-Heating-PGE-R7-1	GBLR_PIPNS_STM-Heating-PGE-R7-1	15	$ 12.90	$ -	$ -	1.06	5.99	50.0%	40.0%
Office	Existing	Heating	Gas Boiler - Insulate Hot Water Lines	Insulated water lines	Discretionary	No insulation	Insulated water lines	Retro5cm20	0	boiler pipe	10,000	400.00	0.166	GBLR_PIPNS_HW-Heating-PGE-R7-1	GBLR_PIPNS_HW-Heating-PGE-R7-1	GBLR_PIPNS_HW-Heating-PGE-R7-1	15	$ 24.19	$ -	$ -	1.06	4.01	30.0%	40.0%
Office	Existing	Heating	Space Heating - Heat Recovery Ventilator	HRV installed	Discretionary	None	HRV installed	Retro5cm20	0	CFM	10,000	900.00	0.166	HRV-Heating-ILTRM-v5.0-1	HRV-Heating-ILTRM-v5.0-1	HRV-Heating-ILTRM-v5.0-1	15	$ 7.05	$ -	$ -	1.18	0.20	5.0%	25.0%
Office	Existing	Heating	Thermostat - Programmable	Programmable thermostat installed	Discretionary	Manual control	Programmable thermostat installed	Retro5cm20	0	Stat Unit	10,000	10.00	0.166	STAT-Cooling/Heating-ILTRM-v4.0-6	STAT-Cooling/Heating-ILTRM-v4.0-6	BEST	4	$ 188.67	$ -	$ 3.62	1.04	21.35	10.0%	25.0%
Office	Existing	Heating	Thermostat - WiFi Enabled	Wi-Fi/Interactive thermostat installed	Discretionary	Manual control	Wi-Fi/Interactive thermostat installed	Retro5cm20	0	sqft	10,000	10,000.00	0.166	STAT_WIFI-All-7PLN-v2-1	STAT_WIFI-All-7PLN-v2-1	STAT_WIFI-All-7PLN-v2-1	5	$ 0.75	$ -	$ 0.03	1.18	0.07	0.0%	50.0%
Office	Existing	Heating	Water Heating - Water Heater - Ozone Laundry	Ozone laundry system	Discretionary	Standard laundry machine	Ozone laundry system	Retro12Med	0	perBldg	10,000	1.00	0.166	CW_OZON-Water Heating-ILTRM-v4.0-4	CW_OZON-Water Heating-ILTRM-v4.0-4	CW_OZON-Water Heating-ILTRM-v4.0-4	10	$ 8,439.88	$ 205.79	$ -	1.02	148.78	0.0%	0.0%
Office	Existing	Heating	Water Heating - Water Heater - High MEF Commercial Laundry Washers	ESTAR/High MEF unit installed	Discretionary	Standard laundry machine	ESTAR/High MEF unit installed	Retro35kw	2	ClothesWashers	10,000	1.00	0.166	CW-Miscellaneous-RTF-PreQE/v5.0-8	CW-Miscellaneous-RTF-PreQE/v5.0-8	CW-Miscellaneous-RTF-PreQE/v5.0-8	11	$ 489.42	$ -	$ 125.05	1.06	35.51	0.0%	0.0%
Office	Existing	Heating	Water Heating - Water Heater - Motion Control Faucet	Motion activated faucet	Discretionary	Standard faucet	Motion activated faucet	Retro12Med	0	perBldg	10,000	1.00	0.166	n/a	n/a	n/a	5	$ -	$ -	$ -	1.02	n/a	25.0%	65.0%
Office	Existing	Heating	Water Heating - Water Heater - Drainwater Heat Recovery	Drain HR system installed	Discretionary	None	Drain HR system installed	Retro12Med	0	faucet	10,000	12.00	0.166	DHW_DWHR-Water Heating-OPATRM-v1-1	DHW_DWHR-Water Heating-OPATRM-v1-1	DHW_DWHR-Water Heating-MNTRM-v1.8-7	40	$ 880.81	$ -	$ -	1.10	4.13	0.0%	0.0%
Office	Existing	Heating	Water Heating - Water Heater - Efficient Dishwasher	ESTAR unit	Discretionary	Standard unit	ESTAR unit	Retro35kw	1	perBldg	10,000	1.00	0.166	DW-Food Preparation-CMUATRM-2016-3	DW-Food Preparation-CMUATRM-2016-3	DW-Food Preparation-CMUATRM-2016-3	10	$ 122.89	$ -	$ 31.72	1.02	71.00	44.0%	80.0%
Office	Existing	Heating	Water Heating - Water Heater - Pre-Rinse Spray Valve	2 GPM sprayer nozzle	Discretionary	3.5 GPM kitchen sprayer	2 GPM sprayer nozzle	Retro12Med	0	KitchenFaucet	10,000	3.00	0.166	DHW_SPR-Water Heating-RTF-v2.0-3	DHW_SPR-Water Heating-RTF-v2.0-3	DHW_SPR-Water Heating-RTF-v2.0-3	4	$ 127.84	$ -	$ 136.94	1.18	23.08	25.0%	65.0%
Office	Existing	Heating	Water Heating - Water Heater - Central Controls	Central water boiler controls installed	Discretionary	No central controls	Central water boiler controls installed	Retro12Med	0	perBldg	10,000	1.00	0.166	DHWBLR_CNTRL-Water Heating-ILTRM-v4.0-2	DHWBLR_CNTRL-Water Heating-ILTRM-v4.0-2	DHWBLR_CNTRL-Water Heating-ILTRM-v4.0-2	15	$ 1,418.47	$ -	$ -	1.18	240.45	5.0%	5.0%
Office	Existing	Heating	Water Heating - Water Heater - Solar System	Solar system installed	Discretionary	None	Solar system installed	Retro12Med	0	DHW Btuh	10,000	572.33	0.166	DHW_WH-Water Heating-AEO17-6	DHW_WH-Water Heating-DOE-PTool2014-1	DHW_WH-Water Heating-DOE-PTool2014-1	20	$ 326.36	$ 0.81	$ -	1.04	2.11	1.0%	30.0%
Office	Existing	Heating	Destratification Fans (HVLS)	Fans Installed	Discretionary	None/Standard ventilation	Fans Installed	Retro20Fast	0	Stat Fan	10,000	0.86	0.166	HVLS-Heating-AEG-v5.0-121	HVLS-Heating-AEG-v5.0-121	HVLS-Heating-AEG-v5.0-121	10	$ 7,757.57	$ -	$ 129.87	1.18	766.59	15.0%	20.0%
Office	Existing	Heating	Kitchen Hood - DCV/MUA	DCV/MUA vent hood	Discretionary	Standard kitchen hood	DCV/MUA vent hood	Retro5cm20	0	sqft	10,000	10,000.00	0.166	COOK_EXHD-Ventilation-KCECLO-2017-1B-2	COOK_EXHD-Ventilation-KCECLO-2017-1B-2	COOK_EXHD-Ventilation-KCECLO-2017-1B-2	20	$ 0.16	$ -	$ 0.01	1.02	0.05	10.0%	10.0%
Office	Existing	Miscellaneous	Pool Heater - Night Covers	Night cover in place	Discretionary	No cover	Night cover in place	Retro5cm20	0	sqft pool	10,000	1,875.00	0.166	PL_COV-Water Heating-SCG-RB-1	PL_COV-Water Heating-SCG-RB-1	PL_COV-Water Heating-SCG-RB-1	5	$ 2.37	$ -	$ -	1.06	0.00	50.0%	100.0%
Office	Existing	Heating	Building Automation System	Automation system installed and programmed	Discretionary	No control system	Automation system installed and programmed	Retro35kw	0	sqft	10,000	10,000.00	0.166	COM_EMS-All-KCECLO-2017-1B-3	BEHAV_ES-All-CPUC-2018_PG-10	COM_EMS-All-KCECLO-2017-1B-3	15	$ 0.36	$ -	$ 0.02	1.00	0.07	10.0%	25.0%
Office	Existing	Water Heating	Building Automation System	Automation system installed and programmed	Discretionary	No control system	Automation system installed and programmed	Retro35kw	0	sqft	10,000	10,000.00	0.166	COM_EMS-All-KCECLO-2017-1B-3	BEHAV_ES-All-CPUC-2018_PG-10	COM_EMS-All-KCECLO-2017-1B-3	15	$ 0.36	$ -	$ 0.02	1.00	0.02	10.0%	25.0%
Office	Existing	Heating	Steam System Efficiency Improvements	Optimized system	Discretionary	Average system efficiency	Optimized system	Retro35kw	0	sqft	10,000	10,000.00	0.166	COM_EMS-All-KCECLO-2017-1B-3	n/a	n/a	5	$ -	$ -	$ -	1.08	-	50.0%	60.0%
Office	Existing	Heating	Commissioning - HVAC	Optimized HVAC design and controls	Discretionary	New construction code	Optimized HVAC design and controls	Retro12Med	0	sqft	10,000	10,000.00	0.166	COM_CX-All-AEG-5	N/A	COM_CX-All-AEG-5	5	$ 1.11	$ -	$ 0.03	1.11	0.09	0.0%	0.0%
Office	Existing	Heating	Retrocommissioning - HVAC	Optimized HVAC flow and controls	Discretionary	Vintage/existing building	Optimized HVAC flow and controls	Retro20Fast	0	sqft	10,000	10,000.00	0.166	COM_RCX-Heating-7PLN-v5-3	7th Power Plan Calculation	COM_RCX-Heating-7PLN-v5-3	5	$ 0.33	$ -	$ 0.02	1.18	0.05	25.0%	60.0%
Office	Existing	Heating	Strategic Energy Management	Energy management system installed and programmed	Discretionary	No energy management system	Energy management system installed and programmed	Retro5cm20	0	sqft	10,000	10,000.00	0.166	BEHAV_SEM-All-CPUC-2018_PG-2	BEHAV_SEM-All-CPUC-2018_PG-2	BEHAV_SEM-All-CPUC-2018_PG-2	5	$ 0.08	$ -	$ 0.01	1.00	0.02	5.0%	25.0%
Office	New	Heating	Insulation - Roof/Ceiling	R-38	Discretionary	R-11	R-38	Retro35kw	2	sqft roof	10,000	10,000.00	0.166	INS_CLG-Heating-RTF-v2.1-55	N/A	Building Energy Simulation Tool	45	$ 1.18	$ -	$ -	1.18	-	0.0%	0.0%
Office	New	Heating	Insulation - Wall Cavity	R-21	Discretionary	R-11 or less	R-21	Retro35kw	2	sqft wall	10,000	5,675.46	0.166	INS_WC-Heating-RTF-v2.1-1	N/A	Building Energy Simulation Tool	45	$ 1.18	$ -	$ -	1.18	-	0.0%	0.0%
Office	New	Heating	Insulation - Ducting	50% reduction in thermal losses	Discretionary	~2°F thermal losses	50% reduction in thermal losses	Retro5Med	0	sqft	10,000	10,000.00	0.166	INS_DCT-All-DEER-1	N/A	Building Energy Simulation Tool	20	$ 1.12	$ -	$ -	1.12	-	0.0%	0.0%
Office	New	Heating	HVAC - Duct Repair and Sealing	30% reduced duct leaking	Discretionary	Poorly sealed/leaky ducts	30% reduced duct leaking	Retro5cm20	0	sqft	10,000	10,000.00	0.166	DCT_FIPR-All-DEER-1	N/A	n/a	18	$ -	$ -	$ -	1.18	-	0.0%	0.0%
Office	New	Heating	Windows - High Efficiency	U-.22 or better	Discretionary	U-.5 or worse	U-.22 or better	Retro35kw	0	sqft window	10,000	1,223.93	0.166	WIND_HE-Heating-RTF-v2.1.46	n/a	n/a	45	$ -	$ -	$ -	1.18	-	0.0%	0.0%
Office	New	Heating	Gas Boiler - Maintenance	General cleaning and maintenance	Discretionary	Degrade performance	General cleaning and maintenance	Retro28Fast	0	1000 Btuh Heat	10,000	0.25	0.166	GBLR_MNT-Heating-ILTRM-v4.0-1	GBLR_MNT-Heating-ILTRM-v4.0-1	GBLR_MNT-Heating-ILTRM-v4.0-1	3	$ 0.88	$ -	$ -	1.06	604.22	5.0%	30.0%
Office	New	Heating	Gas Furnace - Maintenance	General cleaning and maintenance	Discretionary	Degrade performance	General cleaning and maintenance	Retro28Fast	0	1000 Btuh Heat	10,000	0.25	0.166	GFURN_MNT-Heating-MNTRM-v2.1-1	GFURN_MNT-Heating-MNTRM-v2.1-1	GFURN_MNT-Heating-MNTRM-v2.1-1	2	$ 0.88	$ -	$ -	1.06	410.98	5.0%	30.0%
Office	New	Heating	Gas Boiler - Hot Water Reset	Reset control installed	Discretionary	No control	Reset control installed	Retro5Med	0	BoilerCtrl	10,000	0.63	0.166	GBLR_HWRST-Heating-ILTRM-v4.0-1	GBLR_HWRST-Heating-ILTRM-v4.0-1	GBLR_HWRST-Heating-ILTRM-v4.0-1	20	$ 719.34	$ -	$ -	1.18	1,074.17	100.0%	100.0%
Office	New	Heating	Steam Trap Maintenance	Cleaning and maintenance	Discretionary	Degrade performance	Cleaning and maintenance	Retro5cm20	0	sqft	10,000	10,000.00	0.166	GBLR_MNT_ST-Heating-RCECLO-2017-1B-2	GBLR_MNT_ST-Heating-RCECLO-2017-1B-2	GBLR_MNT_ST-Heating-RCECLO-2017-1B-2	4	$ 0.01	$ -	$ -	1.03	0.03	0.0%	30.0%
Office	New	Heating	Gas Boiler - High Turndown	Turndown control installed	Discretionary	No control	Turndown control installed	Retro12Med	0	btuh heat	10,000	253.97	0.166	GBLR_TRN-Heating-MNTRM-v2.1-1	GBLR_TRN-Heating-MNTRM-v2.1-1	GBLR_TRN-Heating-MNTRM-v2.1-1	15	$ 2.59	$ -	$ -	1.02	1.06	100.0%	100.0%
Office	New	Heating	Gas Boiler - Burner Control Optimization	Optimized burner controls	Discretionary	Average performance	Optimized burner controls	Retro35kw	0	btuh heat	10,000	253.97	0.166	GBLR_OZTRM-Heating-ILTRM-v4.0-1	GBLR_OZTRM-Heating-MEMD-2018-1	GBLR_OZTRM-Heating-ILTRM-v4.0-1	18	$ 0.87	$ -	$ -	1.02	0.29	5.0%	85.0%
Office	New	Heating	HVAC - Shut Off Damper	Damper installed	Discretionary	No damper	Damper installed	Retro12Med	0	BoilerCtrl	10,000	0.63	0.166	HVAC_DMPROFF-Heating-ILTRM-v4.0-1	HVAC_DMPROFF-Heating-ILTRM-v4.0-1	HVAC_DMPROFF-Heating-ILTRM-v4.0-1	15	$ 1,536.89	$ 97.55	$ -	1.02	91.33	0.0%	75.0%
Office	New	Heating	HVAC - Demand Controlled Ventilation	DCV enabled	Discretionary	Constant ventilation	DCV enabled	Retro20Fast	0	sqft	10,000	10,000.00	0.166	VENT_DCV-Heating-7PLN-v5-8	VENT_DCV-Heating-7PLN-v5-8	VENT_DCV-Heating-7PLN-v5-8	15	$ 0.16	$ -	$ 0.00	1.18	0.02	100.0%	100.0%
Office	New	Heating	Gas Boiler - Stack Economizer	Economizer installed	Discretionary	None	Economizer installed	Retro12Med	0	BoilerCtrl	10,000	0.63	0.166	GBLR_ECON-Heating-RCECLO-2017-1B-1	GBLR_ECON-Heating-RCECLO-2017-1B-1	GBLR_ECON-Heating-RCECLO-2017-1B-1	12	$ 587.69	$ -	$ -	1.18	179.03	15.0%	55.0%
Office	New	Heating	Gas Furnace Tube Inserts	Tube inserts installed	Discretionary	None	Tube inserts installed	Retro35kw	0	sqft	10,000	10,000.00	0.166	N/A	N/A	N/A	5	$ 3.00	$ -	$ -	1.00	-	0.0%	0.0%
Office	New	Heating	Gas Boiler - Insulate Steam Lines/Condensate Tank	Lines and condensate tank insulated	Discretionary	No insulation	Lines and condensate tank insulated	Retro5cm20	0	boiler pipe	10,000	400.00	0.166	GBLR_PIPNS_STM-Heating-PGE-R7-1	GBLR_PIPNS_STM-Heating-PGE-R7-1	GBLR_PIPNS_STM-Heating-PGE-R7-1	15	$ 12.90	$ -	$ -	1.06	5.99	100.0%	100.0%
Office	New	Heating	Gas Boiler - Insulate Hot Water Lines	Insulated water lines	Discretionary	No insulation	Insulated water lines	Retro5cm20	0	boiler pipe	10,000	400.00	0.166	GBLR_PIPNS_HW-Heating-PGE-R7-1	GBLR_PIPNS_HW-Heating-PGE-R7-1	GBLR_PIPNS_HW-Heating-PGE-R7-1	15	$ 24.19	$ -	$ -	1.06	4.01	100.0%	100.0%
Office	New	Heating	Space Heating - Heat Recovery Ventilator	HRV installed	Discretionary	None	HRV installed	Retro5cm20	0	CFM	10,000	900.00	0.166	HRV-Heating-ILTRM-v5.0-1	HRV-Heating-ILTRM-v5.0-1	HRV-Heating-ILTRM-v5.0-1	15	$ 7.05	$ -	$ -	1.18	0.20	100.0%	100.0%
Office	New	Heating	Thermostat - Programmable	Programmable thermostat installed	Discretionary	Manual control	Programmable thermostat installed	Retro5cm20	0	Stat Unit	10,000	10.00	0.166	STAT-Cooling/Heating-ILTRM-v4.0-6	STAT-Cooling/Heating-ILTRM-v4.0-6	BEST	4	$ 188.67	$ -	$ 3.81	1.04	24.11	0.0%	0.0%
Office	New	Heating	Thermostat - WiFi Enabled	Wi-Fi/Interactive thermostat installed	Discretionary	Manual control	Wi-Fi/Interactive thermostat installed	Retro5cm20	0	sqft	10,000	10,000.00	0.166	STAT_WIFI-All-7PLN-v2-1	STAT_WIFI-All-7PLN-v2-1	STAT_WIFI-All-7PLN-v2-1	5	$ 0.75	$ -	$ 0.02	1.18	0.07	0.0%	75.0%
Office	New	Heating	Water Heating - Water Heater - Ozone Laundry	Ozone laundry system	Discretionary	Standard laundry machine	Ozone laundry system	Retro12Med	0	perBldg	10,000	1.00	0.166	CW_OZON-Water Heating-ILTRM-v4.0-4	CW_OZON-Water Heating-ILTRM-v4.0-4	CW_OZON-Water Heating-ILTRM-v4.0-4	10	$ 20,798.30	$ 205.79	$ -	1.02	148.86	0.0%	0.0%
Office	New	Heating	Water Heating - Water Heater - High MEF Commercial Laundry Washers	ESTAR/High MEF unit installed	Discretionary	Standard laundry machine	ESTAR/High MEF unit installed	Retro35kw	2	ClothesWashers	10,000	1.00	0.166	CW-Miscellaneous-RTF-PreQE/v5.0-8	CW-Miscellaneous-RTF-PreQE/v5.0-8	CW-Miscellaneous-RTF-PreQE/v5.0-8	11	$ 489.42	$ -	$ 125.05	1.06	35.51	0.0%	0.0%
Office	New	Heating	Water Heating - Water Heater - Motion Control Faucet	Motion activated faucet	Discretionary	Standard faucet	Motion activated faucet	Retro12Med	0	perBldg	10,000	1.00	0.166	n/a	n/a	n/a	5	$ -	$ -	$ -	1.02	n/a	0.0%	0.0%
Office	New	Heating	Water Heating - Water Heater - Drainwater Heat Recovery	Drain HR system installed	Discretionary	None	Drain HR system installed	Retro12Med	0	faucet	10,000	12.00	0.166	DHW_DWHR-Water Heating-OPATRM-v1-1	DHW_DWHR-Water Heating-OPATRM-v1-1	DHW_DWHR-Water Heating-MNTRM-v1.8-7	40	$ 880.81	$ -	$ -	1.10	4.13	0.0%	0.0%
Office	New	Heating	Water Heating - Water Heater - Efficient Dishwasher	ESTAR unit	Discretionary	Standard unit	ESTAR unit	Retro35kw	1	perBldg	10,000	1.00	0.166	DW-Food Preparation-CMUATRM-2016-3	DW-Food Preparation-CMUATRM-2016-3	DW-Food Preparation-CMUATRM-2016-3	10	$ 122.89	$ -	$ 31.72	1.02	71.00	44.0%	80.0%
Office	New	Heating	Water Heating - Water Heater - Pre-Rinse Spray Valve	2 GPM sprayer nozzle	Discretionary	3.5 GPM kitchen sprayer	2 GPM sprayer nozzle	Retro12Med	0	KitchenFaucet	10,000	3.00	0.166	DHW_SPR-Water Heating-RTF-v2.0-3	DHW_SPR-Water Heating-RTF-v2.0-3	DHW_SPR-Water Heating-RTF-v2.0-3	4	$ 127.84	$ -	$ 136.94	1.18	23.08	65.0%	65.0%
Office	New	Heating	Water Heating - Water Heater - Central Controls	Central water boiler controls installed	Discretionary	No central controls	Central water boiler controls installed	Retro12Med	0	perBldg	10,000	1.00	0.166	DHWBLR_CNTRL-Water Heating-ILTRM-v4.0-2	DHWBLR_CNTRL-Water Heating-ILTRM-v4.0-2	DHWBLR_CNTRL-Water Heating-ILTRM-v4.0-2	15	$ 1,418.47	$ -	$ -	1.18	3,443.71	5.0%	5.0%
Office	New	Heating	Water Heating - Water Heater - Solar System	Solar system installed	Discretionary	None	Solar system installed	Retro12Med	0	DHW Btuh	10,000	6,323.55	0.166	DHW_WH-Water Heating-AEO17-6	DHW_WH-Water Heating-DOE-PTool2014-1	DHW_WH-Water Heating-DOE-PTool2014-1	20	$ 326.36	$ 0.81	$ -	1.04	2.11	1.0%	30.0%
Office	New	Heating	Destratification Fans (HVLS)	Fans Installed	Discretionary	None/Standard ventilation	Fans Installed	Retro20Fast	0	Stat Fan	10,000	0.86	0.166	HVLS-Heating-AEG-v5.0-121	HVLS-Heating-AEG-v5.0-121	HVLS-Heating-AEG-v5.0-121	10	$ 7,757.57	$ -	$ 115.13	1.18	738.57	15.0%	20.0%
Office	New	Heating	Kitchen Hood - DCV/MUA	DCV/MUA vent hood	Discretionary	Standard kitchen hood	DCV/MUA vent hood	Retro5cm20	0	sqft	10,000	10,000.00	0.166	COOK_EXHD-Ventilation-KCECLO-2017-1B-2	COOK_EXHD-Ventilation-KCECLO-2017-1B-2	COOK_EXHD-Ventilation-KCECLO-2017-1B-2	20	$ 0.16	$ -	$ 0.01	1.02	0.06	10.0%	10.0%
Office	New	Miscellaneous	Pool Heater - Night Covers	Night cover in place	Discretionary	No cover	Night cover in place	Retro5cm20	0	sqft pool	10,000	1,875.00	0.166	PL_COV-Water Heating-SCG-RB-1	PL_COV-Water Heating-SCG-RB-1	PL_COV-Water Heating-SCG-RB-1	5	$ 2.37	$ -	$ -	1.06	0.00	100.0%	100.0%
Office	New	Heating	Building Automation System	Automation system installed and programmed	Discretionary	No control system	Automation system installed and programmed	Retro35kw	0	sqft	10,000	10,000.00	0.166	COM_EMS-All-KCECLO-2017-1B-3	BEHAV_ES-All-CPUC-2018_PG-10	COM_EMS-All-KCECLO-2017-1B-3	15	$ 0.36	$ -	$ 0.02	1.00	0.08	10.0%	25.0%
Office	New	Water Heating	Building Automation System	Automation system installed and programmed	Discretionary	No control system	Automation system installed and programmed	Retro35kw	0	sqft	10,000	10,000.00	0.166	COM_EMS-All-KCECLO-2017-1B-3	BEHAV_ES-All-CPUC-2018_PG-10	COM_EMS-All-KCECLO-2017-1B-3	15	$ 0.36	$ -	$ 0.02	1.00	0.02	10.0%	25.0%
Office	New	Heating	Steam System Efficiency Improvements	Optimized system	Discretionary	Average system efficiency	Optimized system	Retro35kw	0	sqft	10,000	10,000.00	0.166	n/a	n/a	n/a	5	$ -	$ -	$ -	1.08	-	30.0%	60.0%
Office	New	Heating	Commissioning - HVAC	Optimized HVAC design and controls	Discretionary	New construction code	Optimized HVAC design and controls	Retro12Med	0	sqft	10,000	10,000.00	0.166	COM_CX-All-AEG-5	COM_CX-All-AEG-5	COM_CX-All-AEG-5	5	$ 1.29	$ -	$ 0.03	1.11	0.10	100.0%	100.0%
Office	New	Heating	Retrocommissioning - HVAC	Optimized HVAC flow and controls	Discretionary	Vintage/existing building	Optimized HVAC flow and controls	Retro20Fast	0	sqft	10,000	10,000.00	0.166	n/a	7th Power Plan Calculation	n/a	5	$ 1.18	$ -	$ 0.02	1.18	0.05	0.0%	0.0%
Office	New	Heating	Strategic Energy Management	Energy management system installed and programmed	Discretionary	No energy management system	Energy management system installed and programmed	Retro5cm20	0	sqft	10,000	10,000.00	0.166	BEHAV_SEM-All-CPUC-2018_PG-2	BEHAV_SEM-All-CPUC-2018_PG-2	BEHAV_SEM-All-CPUC-2018_PG-2	5	$ 0.09	$ -	$ 0.01	1.00	0.02	5.0%	25.0%
Retail	Existing	Heating	Insulation - Roof/Ceiling	R-38	Discretionary	R-11	R-38	Retro35kw	2	sqft roof	100,000	33,333.33	0.166	INS_CLG-Heating-RTF-v2.1-55	INS_CLG-Heating-RTF-v2.1-55	Building Energy Simulation Tool	45	$ 1

Commercial Non Equipment

Measure					Characteristics									Sources		Measure Assumptions in 2017							
Segment	Vintage	End Use	Measure	Efficient Definition	Replacement Type	Baseline Definition (NEM Only)	Measure Description	Measure Ramp Rate Name	Ramp Offset	Input Unit of Measure	Bldg Sq Ft	UOM Per Facility	Line Loss	Lifetime Source	Costs Source	Savings Source	Measure Lifetime (Years)	Incremental Measure Cost ($)	Incremental O&M Cost ($)	Incremental Non-Energy Benefits ($)	Cost Scalar	Measure Savings @ generator (kWh) (NEM Only)	Base Saturation	Applicability
Restaurant	Existing	Heating	HVAC - Duct Repair and Sealing	30% reduced duct leaking	Discretionary	Poorly sealed/leaky ducts	30% reduced duct leaking	RetroEver20	0	sqft	5,500	5,500.00	0.166	DCT_FIPB-AII-DCER-1	DCT_FIPB-Cooling-RTF-1	Building Energy Simulation Tool	18	$ 0.59	$ -	$ -	1.18	-	15.0%	50.0%
Restaurant	Existing	Heating	Windows - High Efficiency	U-.22 or better	Discretionary	U-.5 or worse	U-.22 or better	RetroSilver	0	sqft window	5,500	989.24	0.166	WIND_HE-Heating-RTF-v2.1-46	WIND_HE-Heating-RTF-v2.1-46	Building Energy Simulation Tool	45	$ 24.31	$ -	$ 0.03	1.18	0.14	45.0%	100.0%
Restaurant	Existing	Heating	Gas Boiler - Maintenance	General cleaning and maintenance	Discretionary	Degrade performance	General cleaning and maintenance	RetroPast	0	1000 kBtuh Heat	5,500	0.28	0.166	GBLR_MNT-Heating-ILTRM-v4.0-1	GBLR_MNT-Heating-ILTRM-v4.0-1	Building Energy Simulation Tool	3	$ 0.88	$ -	$ -	1.06	359.63	20.0%	30.0%
Restaurant	Existing	Heating	Gas Furnace - Maintenance	General cleaning and maintenance	Discretionary	Degrade performance	General cleaning and maintenance	RetroPast	0	1000 kBtuh Heat	5,500	0.28	0.166	GFURN_MNT-Heating-ILTRM-v4.0-1	GFURN_MNT-Heating-MNTRM-v2.1-1	Building Energy Simulation Tool	2	$ 0.88	$ -	$ -	1.06	167.23	20.0%	30.0%
Restaurant	Existing	Heating	Gas Boiler - Hot Water Reset	Reset control installed	Discretionary	No control	Reset control installed	RetroSMed	0	BoilerCtrl	5,500	0.70	0.166	GBLR_HWRST-Heating-ILTRM-v4.0-1	GBLR_HWRST-Heating-ILTRM-v4.0-1	Building Energy Simulation Tool	10	$ 719.34	$ -	$ -	1.18	639.34	55.0%	55.0%
Restaurant	Existing	Heating	Steam Trap Maintenance	Cleaning and maintenance	Discretionary	Degrade performance	Cleaning and maintenance	RetroEver20	0	sqft	5,500.00	5,500.00	0.166	GBLR_MNT_ST-Heating-RCELCO-2017-18-2	GBLR_MNT_ST-Heating-RCELCO-2017-18-2	Building Energy Simulation Tool	4	$ 0.01	$ -	$ -	1.08	0.04	73.0%	100.0%
Restaurant	Existing	Heating	Gas Boiler - High Turndown	Turndown control installed	Discretionary	No control	Turndown control installed	RetroSMed	0	kBtuh heat	5,500	279.57	0.166	GBLR_TTRN-Heating-MNTRM-v2.1-1	GBLR_TTRN-Heating-MNTRM-v2.1-1	Building Energy Simulation Tool	15	$ 2.59	$ -	$ -	1.02	0.60	25.0%	50.0%
Restaurant	Existing	Heating	Gas Boiler - Burner Control Optimization	Optimized burner controls	Discretionary	Average performance	Optimized burner controls	RetroSHow	0	kBtuh heat	5,500	279.57	0.166	GBLR_OZTRM-Heating-ILTRM-v4.0-1	GBLR_OZTRM-Heating-MEMD-2018-1	GBLR_OZTRM-Heating-ILTRM-v4.0-1	18	$ 0.80	$ -	$ -	1.02	0.17	5.0%	85.0%
Restaurant	Existing	Heating	HVAC - Shut Off Damper	Damper installed	Discretionary	No damper	Damper installed	RetroSMed	0	BoilerCtrl	5,500	0.70	0.166	HVAC_DMPROFF-Heating-ILTRM-v4.0-1	HVAC_DMPROFF-Heating-ILTRM-v4.0-1	HVAC_DMPROFF-Heating-ILTRM-v4.0-1	15	$ 1,536.89	$ 106.71	$ -	1.02	37.16	0.0%	75.0%
Restaurant	Existing	Heating	HVAC - Demand Controlled Ventilation	DCV enabled	Discretionary	Constant ventilation	DCV enabled	RetroEver20	0	sqft	5,500	5,500.00	0.166	VENT_DCV-Heating-7PLN-v5-8	VENT_DCV-Heating-7PLN-v5-8	VENT_DCV-Heating-7PLN-v5-8	15	$ 0.25	$ -	$ 0.02	1.18	0.09	55.0%	75.0%
Restaurant	Existing	Heating	Gas Boiler - Stack Economizer	Economizer installed	Discretionary	None	Economizer installed	RetroSMed	0	BoilerCtrl	5,500	0.70	0.166	GBLR_ECON-Heating-RCELCO-2017-18-1	GBLR_ECON-Heating-RCELCO-2017-18-1	GBLR_ECON-Heating-RCELCO-2017-18-1	12	$ 587.69	$ -	$ -	1.18	106.56	15.0%	55.0%
Restaurant	Existing	Heating	Gas Furnace Tube Inserts	Tube inserts installed	Discretionary	None	Tube inserts installed	RetroSHow	0	sqft	5,500	5,500.00	0.166	N/A	N/A	N/A	5	$ 3.00	$ -	$ -	1.00	-	0.0%	0.0%
Restaurant	Existing	Heating	Gas Boiler - Insulate Steam Lines/Condensate Tank	Lines and condensate tank insulated	Discretionary	No insulation	Lines and condensate tank insulated	RetroEver20	0	boiler pipe	5,500	296.65	0.166	GBLR_PIPN_STM-Heating-PGE-RF-1	GBLR_PIPN_STM-Heating-PGE-RF-1	GBLR_PIPN_STM-Heating-PGE-RF-1	11	$ 12.90	$ -	$ -	1.06	5.99	30.0%	40.0%
Restaurant	Existing	Heating	Gas Boiler - Insulate Hot Water Lines	Insulated water lines	Discretionary	No insulation	Insulated water lines	RetroEver20	0	boiler pipe	5,500	296.65	0.166	GBLR_PIPN_HW-Heating-PGE-RF-1	GBLR_PIPN_HW-Heating-PGE-RF-1	GBLR_PIPN_HW-Heating-PGE-RF-1	11	$ 24.10	$ -	$ -	1.06	4.01	30.0%	40.0%
Restaurant	Existing	Heating	Space Heating - Heat Recovery Ventilator	HRV installed	Discretionary	None	HRV installed	RetroEver20	0	CFM	5,500	3,850.00	0.166	HRV-Heating-ILTRM-v5.0-3	HRV-Heating-ILTRM-v5.0-3	HRV-Heating-ILTRM-v5.0-3	15	$ 7.05	$ -	$ -	1.18	0.36	5.0%	15.0%
Restaurant	Existing	Heating	Thermostat - Programmable	Programmable thermostat installed	Discretionary	Manual control	Programmable thermostat installed	RetroEver20	0	Stat Unit	5,500	5.50	0.166	STAT-Cooling/Heating-ILTRM-v4.0-6	STAT-Cooling/Heating-ILTRM-v4.0-6	STAT-Cooling/Heating-ILTRM-v4.0-6	3	$ 188.67	$ -	$ 3.82	1.04	18.54	20.0%	25.0%
Restaurant	Existing	Heating	Thermostat - WiFi Enabled	Wi-Fi/interactive thermostat installed	Discretionary	Manual control	Wi-Fi/interactive thermostat installed	RetroEver20	0	sqft	5,500	5,500.00	0.166	STAT_WIFI-AII-7PLN-v2-1	STAT_WIFI-AII-7PLN-v2-1	STAT_WIFI-AII-7PLN-v2-1	5	$ 0.75	$ -	$ 0.02	1.18	0.05	0.0%	75.0%
Restaurant	Existing	Heating	Water Heating - Ozone Laundry	Ozone laundry system	Discretionary	Standard laundry machine	Ozone laundry system	RetroSMed	0	perBldg	5,500	1.00	0.166	CW_OZONWater-Heating-ILTRM-v4.8-4	CW_OZONWater-Heating-ILTRM-v4.8-4	CW_OZONWater-Heating-ILTRM-v4.8-4	10	$ 30,812.28	$ 205.79	$ -	1.02	298.93	0.0%	0.0%
Restaurant	Existing	Heating	Water Heating - Water Heater - High MEF Commercial Laundry Washers	ESTAR/High MEF unit installed	Discretionary	Standard laundry machine	ESTAR/High MEF unit installed	RetroSHow	2	ClothesWashers	5,500	1.00	0.166	CW-Miscellaneous-RTF-PreQE/v5.0-8	CW-Miscellaneous-RTF-PreQE/v5.0-8	CW-Miscellaneous-RTF-PreQE/v5.0-8	11	$ 489.42	$ -	$ 125.05	1.06	35.51	0.0%	0.0%
Restaurant	Existing	Heating	Water Heating - Water Heater - Motion Control Faucet	Motion activated faucet	Discretionary	Standard faucet	Motion activated faucet	RetroSMed	0	perBldg	5,500	1.00	0.166	n/a	n/a	n/a	5	$ -	$ -	$ -	1.02	-	25.0%	65.0%
Restaurant	Existing	Heating	Water Heating - Water Heater - Drainwater Heat Recovery	Drain HR system installed	Discretionary	None	Drain HR system installed	RetroSMed	0	faucet	5,500	12.00	0.166	DHW_DWHR-Water Heating-OPATRM-v1-1	DHW_DWHR-Water Heating-OPATRM-v1-1	DHW_DWHR-Water Heating-MNTRM-v1.8-7	40	$ 888.81	$ -	$ -	1.10	8.29	10.0%	40.0%
Restaurant	Existing	Heating	Water Heating - Water Heater - Efficient Dishwasher	ESTAR unit	Discretionary	Standard unit	ESTAR unit	RetroSHow	1	perBldg	5,500	1.00	0.166	DW-Food Preparation-CMUATRM-2016-3	DW-Food Preparation-CMUATRM-2016-3	DW-Food Preparation-CMUATRM-2016-3	10	$ 122.89	$ -	$ 31.72	1.02	71.00	55.0%	100.0%
Restaurant	Existing	Heating	Water Heating - Water Heater - Pre-Rinse Spray Valve	2 GPM sprayer nozzle	Discretionary	3.5 GPM kitchen sprayer	2 GPM sprayer nozzle	RetroSHow	2	KitchenFaucet	5,500	2.00	0.166	DHW_SPR-Water Heating-RTF-v2.0-3	DHW_SPR-Water Heating-RTF-v2.0-3	DHW_SPR-Water Heating-RTF-v2.0-3	4	$ 127.84	$ -	$ 136.94	1.18	23.08	25.0%	65.0%
Restaurant	Existing	Heating	Water Heater - Central Controls	Central water boiler controls installed	Discretionary	No central controls	Central water boiler controls installed	RetroSMed	0	perBldg	5,500	1.00	0.166	DHWBLR_CNTRL-Water Heating-ILTRM-v4.0-2	DHWBLR_CNTRL-Water Heating-ILTRM-v4.0-2	DHWBLR_CNTRL-Water Heating-ILTRM-v4.0-2	15	$ 1,418.47	$ -	$ -	1.18	483.11	5.0%	5.0%
Restaurant	Existing	Heating	Water Heater - Solar System	Solar system installed	Discretionary	None	Solar system installed	RetroSMed	0	DHW kBtuh	5,500	1,149.92	0.166	DHW_WH-Water Heating-AEO17-6	DHW_WH-Water Heating-AEO17-6	DHW_WH-Water Heating-AEO17-6	10	$ 326.36	$ 0.81	$ -	1.04	2.11	1.0%	30.0%
Restaurant	Existing	Heating	Destratification Fans (HVLS)	Fans Installed	Discretionary	None/Standard ventilation	Fans Installed	RetroEver20	0	Strat Fan	5,500	0.47	0.166	HVLS-Heating-AEG-v5.0-121	HVLS-Heating-AEG-v5.0-121	HVLS-Heating-AEG-v5.0-121	10	$ 7,757.57	$ -	$ 135.57	1.38	563.53	15.0%	15.0%
Restaurant	Existing	Heating	Kitchen Hood - DCV/MUA	DCV/MUA vent hood	Discretionary	Standard kitchen hood	DCV/MUA vent hood	RetroEver20	0	sqft	5,500	5,500.00	0.166	CODK_EXHD-Ventilation-RCELCO-2017-18-2	CODK_EXHD-Ventilation-RCELCO-2017-18-2	CODK_EXHD-Ventilation-RCELCO-2017-18-2	20	$ 0.12	$ -	$ 0.01	1.02	0.04	10.0%	50.0%
Restaurant	Existing	Miscellaneous	Pool Heater - Night Covers	Night cover in place	Discretionary	No cover	Night cover in place	RetroEver20	0	sqft pool	5,500	1,875.00	0.166	PL_COV-Water Heating-SCG-RB-1	PL_COV-Water Heating-SCG-RB-1	PL_COV-Water Heating-SCG-RB-1	5	$ 2.37	$ -	$ -	1.06	0.01	100.0%	100.0%
Restaurant	Existing	Heating	Building Automation System	Automation system installed and programmed	Discretionary	No control system	Automation system installed and programmed	RetroSHow	0	sqft	5,500	5,500.00	0.166	COM_EMS-AII-RCELCO-2017-18-1	BEHAV_ES-AII-CPUC-2018_PG-10	COM_EMS-AII-RCELCO-2017-18-1	15	$ 0.50	$ -	$ 0.02	1.00	0.05	0.0%	0.0%
Restaurant	Existing	Water Heating	Building Automation System	Automation system installed and programmed	Discretionary	No control system	Automation system installed and programmed	RetroSHow	0	sqft	5,500	5,500.00	0.166	COM_EMS-AII-RCELCO-2017-18-1	BEHAV_ES-AII-CPUC-2018_PG-10	COM_EMS-AII-RCELCO-2017-18-1	15	$ 0.50	$ -	$ 0.02	1.00	0.07	0.0%	0.0%
Restaurant	Existing	Heating	Steam System Efficiency Improvements	Optimized system	Discretionary	Average system efficiency	Optimized system	RetroSHow	0	sqft	5,500	5,500.00	0.166	n/a	n/a	n/a	5	$ -	$ -	$ -	1.08	-	30.0%	60.0%
Restaurant	Existing	Heating	Commissioning - HVAC	Optimized HVAC design and controls	Discretionary	New construction code	Optimized HVAC design and controls	RetroSMed	0	sqft	5,500	5,500.00	0.166	COM_CX-AII-AEG-5	COM_CX-AII-AEG-5	COM_CX-AII-AEG-5	3	$ 1.29	$ -	$ 0.03	1.11	0.07	0.0%	0.0%
Restaurant	Existing	Heating	Retrocommissioning - HVAC	Optimized HVAC flow and controls	Discretionary	Vintage/existing building	Optimized HVAC flow and controls	RetroEver20	0	sqft	5,500	5,500.00	0.166	N/A	7th Power Plan Calculation	7th Power Plan Calculation	5	$ 1.38	$ -	$ 0.02	1.18	0.04	0.0%	0.0%
Restaurant	Existing	Heating	Strategic Energy Management	Energy management system installed and programmed	Discretionary	No energy management system	Energy management system installed and programmed	RetroEver20	0	sqft	5,500	5,500.00	0.166	BEHAV_SEM-AII-CPUC-2018_PG-2	BEHAV_SEM-AII-CPUC-2018_PG-2	BEHAV_SEM-AII-CPUC-2018_PG-2	5	$ 0.06	$ -	$ 0.01	1.00	0.02	0.0%	0.0%
Restaurant	Existing	Heating	Insulation - Roof/Ceiling	R-38	Discretionary	R-11	R-38	RetroSHow	2	sqft roof	5,500	5,500.00	0.166	INS_CLG-Heating-RTF-v2.1-55	INS_CLG-Heating-RTF-v2.1-55	INS_CLG-Heating-RTF-v2.1-55	45	$ 1.18	$ -	$ -	1.18	-	0.0%	0.0%
Restaurant	Existing	Heating	Insulation - Wall Cavity	R-21	Discretionary	R-11 or less	R-21	RetroSHow	2	sqft wall	5,500	5,297.46	0.166	INS_WC-Heating-RTF-v2.1-1	INS_WC-Heating-RTF-v2.1-1	INS_WC-Heating-RTF-v2.1-1	45	$ 1.18	$ -	$ -	1.18	-	0.0%	0.0%
Restaurant	New	Heating	Insulation - Ducting	50% reduction in thermal losses	Discretionary	"2"F thermal losses	50% reduction in thermal losses	RetroSMed	0	sqft	5,500	5,500.00	0.166	INS_DCT-AII-DCER-1	INS_DCT-AII-DCER-1	Building Energy Simulation Tool	20	$ 1.12	$ -	$ -	1.12	-	0.0%	0.0%
Restaurant	New	Heating	HVAC - Duct Repair and Sealing	30% reduced duct leaking	Discretionary	Poorly sealed/leaky ducts	30% reduced duct leaking	RetroEver20	0	sqft	5,500	5,500.00	0.166	DCT_FIPB-AII-DCER-1	DCT_FIPB-Cooling-RTF-1	Building Energy Simulation Tool	18	$ -	$ -	$ -	1.18	-	0.0%	0.0%
Restaurant	New	Heating	Windows - High Efficiency	U-.22 or better	Discretionary	U-.5 or worse	U-.22 or better	RetroSHow	0	sqft window	5,500	989.24	0.166	WIND_HE-Heating-RTF-v2.1-46	WIND_HE-Heating-RTF-v2.1-46	Building Energy Simulation Tool	45	$ 24.31	$ -	$ -	1.18	-	0.0%	0.0%
Restaurant	New	Heating	Gas Boiler - Maintenance	General cleaning and maintenance	Discretionary	Degrade performance	General cleaning and maintenance	RetroPast	0	1000 kBtuh Heat	5,500	0.28	0.166	GBLR_MNT-Heating-ILTRM-v4.0-1	GBLR_MNT-Heating-ILTRM-v4.0-1	GBLR_MNT-Heating-ILTRM-v4.0-1	3	$ 0.88	$ -	$ -	1.06	128.94	5.0%	30.0%
Restaurant	New	Heating	Gas Furnace - Maintenance	General cleaning and maintenance	Discretionary	Degrade performance	General cleaning and maintenance	RetroPast	0	1000 kBtuh Heat	5,500	0.28	0.166	GFURN_MNT-Heating-ILTRM-v4.0-1	GFURN_MNT-Heating-MNTRM-v2.1-1	GFURN_MNT-Heating-ILTRM-v4.0-1	2	$ 0.88	$ -	$ -	1.06	146.34	5.0%	30.0%
Restaurant	New	Heating	Gas Boiler - Hot Water Reset	Reset control installed	Discretionary	No control	Reset control installed	RetroSMed	0	BoilerCtrl	5,500	0.70	0.166	GBLR_HWRST-Heating-ILTRM-v4.0-1	GBLR_HWRST-Heating-ILTRM-v4.0-1	GBLR_HWRST-Heating-ILTRM-v4.0-1	10	$ 719.34	$ -	$ -	1.18	584.79	100.0%	100.0%
Restaurant	New	Heating	Steam Trap Maintenance	Cleaning and maintenance	Discretionary	Degrade performance	Cleaning and maintenance	RetroEver20	0	sqft	5,500	5,500.00	0.166	GBLR_MNT_ST-Heating-RCELCO-2017-18-2	GBLR_MNT_ST-Heating-RCELCO-2017-18-2	GBLR_MNT_ST-Heating-RCELCO-2017-18-2	4	$ 0.01	$ -	$ -	1.08	0.03	0.0%	30.0%
Restaurant	New	Heating	Gas Boiler - High Turndown	Turndown control installed	Discretionary	No control	Turndown control installed	RetroSMed	0	kBtuh heat	5,500	279.57	0.166	GBLR_TTRN-Heating-MNTRM-v2.1-1	GBLR_TTRN-Heating-MNTRM-v2.1-1	GBLR_TTRN-Heating-MNTRM-v2.1-1	15	$ 2.59	$ -	$ -	1.02	0.55	100.0%	100.0%
Restaurant	New	Heating	Gas Boiler - Burner Control Optimization	Optimized burner controls	Discretionary	Average performance	Optimized burner controls	RetroSHow	0	kBtuh heat	5,500	279.57	0.166	GBLR_OZTRM-Heating-ILTRM-v4.0-1	GBLR_OZTRM-Heating-ILTRM-v4.0-1	GBLR_OZTRM-Heating-ILTRM-v4.0-1	18	$ 0.80	$ -	$ -	1.02	0.16	5.0%	85.0%
Restaurant	New	Heating	HVAC - Shut Off Damper	Damper installed	Discretionary	No damper	Damper installed	RetroSMed	0	BoilerCtrl	5,500	0.70	0.166	HVAC_DMPROFF-Heating-ILTRM-v4.0-1	HVAC_DMPROFF-Heating-ILTRM-v4.0-1	HVAC_DMPROFF-Heating-ILTRM-v4.0-1	15	$ 1,536.89	$ 107.05	$ -	1.02	52.52	0.0%	75.0%
Restaurant	New	Heating	HVAC - Demand Controlled Ventilation	DCV enabled	Discretionary	Constant ventilation	DCV enabled	RetroEver20	0	sqft	5,500	5,500.00	0.166	VENT_DCV-Heating-7PLN-v5-8	VENT_DCV-Heating-7PLN-v5-8	VENT_DCV-Heating-7PLN-v5-8	15	$ 0.25	$ -	$ 0.02	1.18	0.09	100.0%	75.0%
Restaurant	New	Heating	Gas Boiler - Stack Economizer	Economizer installed	Discretionary	None	Economizer installed	RetroSMed	0	BoilerCtrl	5,500	0.70	0.166	GBLR_ECON-Heating-RCELCO-2017-18-1	GBLR_ECON-Heating-RCELCO-2017-18-1	GBLR_ECON-Heating-RCELCO-2017-18-1	12	$ 587.69	$ -	$ -	1.18	106.56	15.0%	55.0%
Restaurant	New	Heating	Gas Furnace Tube Inserts	Tube inserts installed	Discretionary	None	Tube inserts installed	RetroSHow	0	sqft	5,500	5,500.00	0.166	N/A	N/A	N/A	5	$ 3.00	$ -	$ -	1.00	-	0.0%	0.0%
Restaurant	New	Heating	Gas Boiler - Insulate Steam Lines/Condensate Tank	Lines and condensate tank insulated	Discretionary	No insulation	Lines and condensate tank insulated	RetroEver20	0	boiler pipe	5,500	296.65	0.166	GBLR_PIPN_STM-Heating-PGE-RF-1	GBLR_PIPN_STM-Heating-PGE-RF-1	GBLR_PIPN_STM-Heating-PGE-RF-1	11	$ 12.90	$ -	$ -	1.06	5.99	100.0%	100.0%
Restaurant	New	Heating	Gas Boiler - Insulate Hot Water Lines	Insulated water lines	Discretionary	No insulation	Insulated water lines	RetroEver20	0	boiler pipe	5,500	296.65	0.166	GBLR_PIPN_HW-Heating-PGE-RF-1	GBLR_PIPN_HW-Heating-PGE-RF-1	GBLR_PIPN_HW-Heating-PGE-RF-1	11	$ 24.10	$ -	$ -	1.06	4.01	100.0%	100.0%
Restaurant	New	Heating	Space Heating - Heat Recovery Ventilator	HRV installed	Discretionary	None	HRV installed	RetroEver20	0	CFM	5,500	3,850.00	0.166	HRV-Heating-ILTRM-v5.0-3	HRV-Heating-ILTRM-v5.0-3	HRV-Heating-ILTRM-v5.0-3	15	$ 7.05	$ -	$ -	1.18	0.36	100.0%	100.0%
Restaurant	New	Heating	Thermostat - Programmable	Programmable thermostat installed	Discretionary	Manual control	Programmable thermostat installed	RetroEver20	0	Stat Unit	5,500	5.50	0.166	STAT-Cooling/Heating-ILTRM-v4.0-6	STAT-Cooling/Heating-ILTRM-v4.0-6	BEST	4	$ 188.67	$ -	$ 3.63	1.04	19.04	0.0%	0.0%
Restaurant	New	Heating	Thermostat - WiFi Enabled	Wi-Fi/interactive thermostat installed	Discretionary	Manual control	Wi-Fi/interactive thermostat installed	RetroEver20	0	sqft	5,500	5,500.00	0.166	STAT_WIFI-AII-7PLN-v2-1	STAT_WIFI-AII-7PLN-v2-1	STAT_WIFI-AII-7PLN-v2-1	5	$ 0.75	$ -	$ 0.02	1.18	0.06	20.0%	100.0%
Restaurant	New	Heating	Water Heating - Water Heater - Ozone Laundry	Ozone laundry system	Discretionary	Standard laundry machine	Ozone laundry system	RetroSMed	0	perBldg	5,500	1.00	0.166	CW_OZONWater-Heating-ILTRM-v4.8-4	CW_OZONWater-Heating-ILTRM-v4.8-4	CW_OZONWater-Heating-ILTRM-v4.8-4	10	$ 28,798.30	$ 205.79	$ -	1.02	298.84	0.0%	0.0%
Restaurant	New	Heating	Water Heating - Water Heater - High MEF Commercial Laundry Washers	ESTAR/High MEF unit installed	Discretionary	Standard laundry machine	ESTAR/High MEF unit installed	RetroSHow	2	ClothesWashers	5,500	1.00	0.166	CW-Miscellaneous-RTF-PreQE/v5.0-8	CW-Miscellaneous-RTF-PreQE/v5.0-8	CW-Miscellaneous-RTF-PreQE/v5.0-8	11	$ 489.42	$ -	$ 125.05	1.06	35.51	0.0%	0.0%
Restaurant	New	Heating	Water Heating - Water Heater - Motion Control Faucet	Motion activated faucet	Discretionary	Standard faucet	Motion activated faucet	RetroSMed	0	perBldg	5,500	1.00	0.166	n/a	n/a	n/a	5	$ -	$ -	$ -	1.02	-	0.0%	0.0%
Restaurant	New	Heating	Water Heating - Water Heater - Drainwater Heat Recovery	Drain HR system installed	Discretionary	None	Drain HR system installed	RetroSMed	0	faucet	5,500	12.00	0.166	DHW_DWHR-Water Heating-OPATRM-v1-1	DHW_DWHR-Water Heating-OPATRM-v1-1	DHW_DWHR-Water Heating-MNTRM-v1.8-7	40	$ 888.81	$ -	$ -	1.10	6.40	10.0%	40.0%
Restaurant	New	Heating	Water Heating - Water Heater - Efficient Dishwasher	ESTAR unit	Discretionary	Standard unit	ESTAR unit	RetroSHow	1	perBldg	5,500	1.00	0.166	DW-Food Preparation-CMUATRM-2016-3	DW-Food Preparation-CMUATRM-2016-3	DW-Food Preparation-CMUATRM-2016-3	10	$ 122.89	$ -	$ 31.72	1.02	71.00	55.0%	100.0%
Restaurant	New	Heating	Water Heating - Water Heater - Pre-Rinse Spray Valve	2 GPM sprayer nozzle	Discretionary	3.5 GPM kitchen sprayer	2 GPM sprayer nozzle	RetroSMed	2	KitchenFaucet	5,500	2.00	0.166	DHW_SPR-Water Heating-RTF-v2.0-3	DHW_SPR-Water Heating-RTF-v2.0-3	DHW_SPR-Water Heating-RTF-v2.0-3	4	$ 127.84	$ -	$ 136.94	1.18	23.08	25.0%	65.0%
Restaurant	New	Heating	Water Heater - Central Controls	Central water boiler controls installed	Discretionary	No central controls	Central water boiler controls installed	RetroSMed	0	perBldg	5,500	1.00	0.166	DHWBLR_CNTRL-Water Heating-ILTRM-v4.0-2	DHWBLR_CNTRL-Water Heating-ILTRM-v4.0-2	DHWBLR_CNTRL-Water Heating-ILTRM-v4.0-2	15	$ 1,418.47	$ -	$ -	1.18	1,282.28	5.0%	5.0%
Restaurant	New	Heating	Water Heater - Solar System	Solar system installed	Discretionary	None	Solar system installed	RetroSMed	0	DHW kBtuh	5,500	2,354.60	0.166	DHW_WH-Water Heating-AEO17-6	DHW_WH-Water Heating-AEO17-6	DHW_WH-Water Heating-DOE-PTool2014-1	10	$ 326.36	$ 0.81	$ -	1.04	2.11	1.0%	30.0%
Restaurant	New	Heating	Destratification Fans (HVLS)	Fans Installed	Discretionary	None/Standard ventilation	Fans Installed	RetroEver20	0	Strat Fan	5,500	3.02	0.166	HVLS-Heating-AEG-v5.0-121	HVLS-Heating-AEG-v5.0-121	HVLS-Heating-AEG-v5.0-121	10	$ 7,757.57	$ -	$ 117.08	1.38	756.57	15.0%	20.0%
Restaurant	New	Heating	Kitchen Hood - DCV/MUA	DCV/MUA vent hood	Discretionary	Standard kitchen hood	DCV/MUA vent hood	RetroEver20	0	sqft	5,500	5,500.00	0.166	CODK_EXHD-Ventilation-RCELCO-2017-18-2	CODK_EXHD-Ventilation-RCELCO-2017-18-2	CODK_EXHD-Ventilation-RCELCO-2017-18-2	20	$ 0.16	$ -	$ 0.01	1.02	0.06	10.0%	20.0%
Restaurant	New	Miscellaneous	Pool Heater - Night Covers	Night cover in place	Discretionary	No cover	Night cover in place	RetroEver20	0	sqft pool	5,500	1,875.00	0.166	PL_COV-Water Heating-SCG-RB-1	PL_COV-Water Heating-SCG-RB-1	PL_COV-Water Heating-SCG-RB-1	5	$ 2.37	$ -	$ -	1.06	0.01	100.0%	100.0%
Restaurant	New	Heating	Building Automation System	Automation system installed and programmed	Discretionary	No control system	Automation system installed and programmed	RetroSHow	0	sqft	5,500	5,500.00	0.166	COM_EMS-AII-RCELCO-2017-18-1	BEHAV_ES-AII-CPUC-2018_PG-10	COM_EMS-AII-RCELCO-2017-18-1	15	$ 0.44	$ -	$ 0.02	1.00	0.03	10.0%	50.0%
Restaurant	New	Heating	Steam System Efficiency Improvements	Optimized system	Discretionary	Average system efficiency	Optimized system	RetroSHow	0	sqft	5,500	5,500.00	0.166	n/a	n/a	n/a	5	$ -	$ -	$ -	1.08	-	30.0%	60.0%
Restaurant	New	Heating	Commissioning - HVAC	Optimized HVAC design and controls	Discretionary	New construction code	Optimized HVAC design and controls	RetroSMed	0	sqft	5,500	5,500.00	0.166	COM_CX-AII-AEG-5	COM_CX-AII-AEG-5	COM_CX-AII-AEG-5	3	$ 1.29	$ -	$ 0.03	1.11	0.10	100.0%	100.0%
Restaurant	New	Heating	Retrocommissioning - HVAC	Optimized HVAC flow and controls	Discretionary	Vintage/existing building	Optimized HVAC flow and controls	RetroEver20	0	sqft	5,500	5,500.00	0.166	N/A	7th Power Plan Calculation	7th Power Plan Calculation	5	$ 1.38	$ -	$ 0.02	1.18	0.06	0.0%	0.0%
Restaurant	New	Heating	Strategic Energy Management	Energy management system installed and programmed	Discretionary	No energy management system	Energy management system installed and programmed	RetroEver20	0	sqft	5,500	5,500.00	0.166	BEHAV_SEM-AII-CPUC-2018_PG-2	BEHAV_SEM-AII-CPUC-2018_PG-2	BEHAV_SEM-AII-CPUC-2018_PG-2	5	$ 0.09	$ -	$ 0.01	1.00	0.02	0.0%	0.0%
Grocery	Existing	Heating	Insulation - Roof/Ceiling	R-38	Discretionary	R-11	R-38	RetroSHow	2	sqft roof	30,000	30,000.00	0.166	INS_CLG-Heating-RTF-v2.1-55	INS_CLG-Heating-RTF-v2.1-55	Building Energy Simulation Tool	45	$ 1.02	$ -	$ 0.02	1.18	0.02	60.0%	85.0%
Grocery	Existing	Heating	Insulation - Wall Cavity	R-21	Discretionary	R-11 or less	R-21	RetroSHow	2	sqft wall	30,000	31,794.42	0.166	INS_WC-Heating-RTF-v2.1-1	INS_WC-Heating-RTF-v2.1-1	Building Energy Simulation Tool	45	$ 1.61	$ -	$ 0.00	1.18	0.03	60.0%	85.0%
Grocery	Existing	Heating	Insulation - Ducting	50% reduction in thermal losses	Discretionary	"2"F thermal losses	50% reduction in thermal losses	RetroSMed	0	sqft	20,000	20,000.00	0.166	INS_DCT-AII-DCER-1	INS_DCT-AII-DCER-1	Building Energy Simulation Tool	20	$ 0.86	$ -	$ -	1.12	-	40.0%	60.0%
Grocery	Existing	Heating	HVAC - Duct Repair and Sealing	30% reduced duct leaking	Discretionary	Poorly sealed/leaky ducts	30% reduced duct leaking	RetroEver20	0	sqft	20,000	20,000.00	0.166	DCT_FIPB-AII-DCER-1	DCT_FIPB-Cooling-RTF-1	Building Energy Simulation Tool