

Appendix C:
UES (Unit Energy Savings) Values

Unit Energy Savings (UES) Values List

Measure Description	Program	1st Year kWh Savings	1st Year Therm Savings	UOM	Source
Washington Air Guardian	Air Guardian	6,000		Unit	AVA Calc Eval
LT Case: T12 to LP LED Inside Lamp	Energy Smart Grocer	112	-	Unit	RTF
MT Case: T12 to LP LED Inside Lamp	Energy Smart Grocer	81	-	Unit	RTF
MT Case: T8 to LED Inside Lamp	Energy Smart Grocer	48	-	Unit	RTF
LT Case: T8 to LP LED Inside Lamp	Energy Smart Grocer	66	-	Unit	RTF
T12 to LP LED Outside Lamp	Energy Smart Grocer	59	-	Unit	RTF
T8 to LP LED Outside Lamp	Energy Smart Grocer	35	-	Unit	RTF
Anti-Sweat Heater Controls - Low Temp	Energy Smart Grocer	305	-	Unit	RTF
Anti-Sweat Heater Controls - Med Temp	Energy Smart Grocer	217	-	Unit	RTF
Gaskets for Low Temp Reach-in Glass Doors	Energy Smart Grocer	243	-	Unit	RTF
Gaskets for Medium Temp Reach-in Glass Doors	Energy Smart Grocer	248	-	Unit	RTF
Gaskets for Walk-in Freezer - Main Door	Energy Smart Grocer	347	-	Unit	RTF
Gaskets for Walk-in Cooler - Main	Energy Smart Grocer	204	-	Unit	RTF
Evap motors: shaded pole to ECM in Walk-in - Greater than 23 watts	Energy Smart Grocer	1,458	-	Unit	RTF
Evap motors: shaded pole to ECM in Walk-in - less than 23 watts	Energy Smart Grocer	592	-	Unit	RTF
Evap motors: shaded pole to ECM in Display Case	Energy Smart Grocer	592	-	Unit	RTF
Floating Head Pressure for Single Compressor Systems, LT Condensing Unit	Energy Smart Grocer	855	-	Unit	RTF
Floating Head Pressure for Single Compressor Systems, LT Remote Condenser	Energy Smart Grocer	685	-	Unit	RTF
Floating Head Pressure for Single Compressor Systems, MT Condensing Unit	Energy Smart Grocer	757	-	Unit	RTF
Floating Head Pressure for Single Compressor Systems, MT Remote Condenser	Energy Smart Grocer	473	-	Unit	RTF
Evaporated Fan - Walk-In ECM Controller - Low Temp - 1/10-1/20 HP	Energy Smart Grocer	207	-	Unit	RTF
Evaporated Fan - Walk-In ECM Controller - Medium Temp - 1/10-1/20 HP	Energy Smart Grocer	264	-	Unit	RTF
Strip Curtains for Convenience Store Walk-in Freezers	Energy Smart Grocer	31	-	Unit	RTF
Strip Curtains for Restaurant Walk-in Freezers	Energy Smart Grocer	129	-	Unit	RTF
Strip Curtains for Supermarket Walk-in Coolers	Energy Smart Grocer	123	-	Unit	RTF
Strip Curtains for Supermarket Walk-in Freezers	Energy Smart Grocer	535	-	Unit	RTF
Add doors to Open Medium Temp Cases	Energy Smart Grocer	533	-	Unit	RTF
Cases - Low Temp Coffin to High Efficiency Reach-in	Energy Smart Grocer	1,074	-	Unit	RTF
Cases - Low Temp Open to Reach-in	Energy Smart Grocer	1,674	-	Unit	RTF
Cases - Low Temp Reach-in to High Efficiency Reach-in	Energy Smart Grocer	963	-	Unit	RTF
Cases - Medium Temp Open Case to New High Efficiency Open Case	Energy Smart Grocer	222	-	Unit	RTF
Cases - Medium Temp Open Case to New Reach In	Energy Smart Grocer	585	-	Unit	RTF

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Measure Description	Program	1st Year kWh Savings	1st Year Therm Savings	UOM	Source
Special Doors with Low/No ASH for Low Temperature Reach-in	Energy Smart Grocer	1,700	-	Unit	RTF
Advanced Floating Controls: Floating Head and Suction Pressure with Balanced Port Valves	Energy Smart Grocer	238	-	Unit	RTF
Advanced Floating Controls: Floating Head and Suction Pressure with Electronic Expansion Valves (EEXVs)	Energy Smart Grocer	677	-	Unit	RTF
Advanced Floating Controls: Increase Suction Temperature with Electronic Expansion Valves (EEXVs)	Energy Smart Grocer	204	-	Unit	RTF
Efficient Compressors - Low Temperature	Energy Smart Grocer	798	-	Unit	RTF
Floating Head Pressure Control - Air Cooled	Energy Smart Grocer	332	-	Unit	RTF
Floating Head Pressure Control - Evap Cooled	Energy Smart Grocer	708	-	Unit	RTF
Floating Head Pressure Control w/ VFD- Air Cooled	Energy Smart Grocer	915	-	Unit	RTF
Multiplex - Compressors - Air-cooled Condenser	Energy Smart Grocer	1,968	-	Unit	RTF
Multiplex - Compressors - Evaporative Condenser	Energy Smart Grocer	1,968	-	Unit	RTF
Multiplex - Controls - Floating suction pressure - air cooled condenser	Energy Smart Grocer	227	-	Unit	RTF
Multiplex - Controls - Floating suction pressure - evaporative condenser	Energy Smart Grocer	231	-	Unit	RTF
Multiplex - Efficient/oversized Air-cooled Condenser for Multiplex	Energy Smart Grocer	2,061	-	Unit	RTF
Multiplex - Efficient/oversized Water-cooled Condenser for Multiplex	Energy Smart Grocer	1,550	-	Unit	RTF
VFD - Condenser Fan Motors - Air Cooled	Energy Smart Grocer	930	-	Unit	RTF
VFD - Condenser Fan Motors - Evap Cooled	Energy Smart Grocer	930	-	Unit	RTF
70-89 watt HID Fixture =< 25 watt LED Fixture	Exterior Lighting	322	-	Unit	AVA Calc Eval
90 - 100 W HID to 25-30W LED Fixture	Exterior Lighting	416	-	Unit	AVA Calc Eval
150 W HID to 30-50W LED Fixture	Exterior Lighting	643	-	Unit	AVA Calc Eval
175 W HID to 30-79W LED Fixture	Exterior Lighting	665	-	Unit	AVA Calc Eval
250 W HID to 80-140W LED Fixture	Exterior Lighting	712	-	Unit	AVA Calc Eval
320 W HID to 100-160W LED Fixture	Exterior Lighting	896	-	Unit	AVA Calc Eval
400 W HID to 100-175W LED Fixture	Exterior Lighting	1,282	-	Unit	AVA Calc Eval
250 watt HID New Construction Fixture =< 99 watt LED Fixture	Exterior Lighting	712	-	Unit	AVA Calc Eval
175 watt HID New Construction Fixture to =< 79 watt LED Fixture	Exterior Lighting	665	-	Unit	AVA Calc Eval
320 & 400 watt HID New Construction Fixture =< 175 watt LED Fixture	Exterior Lighting	1,282	-	Unit	AVA Calc Eval
1000W HID to 300W-400W LED	Exterior Lighting	3,058	-	Unit	AVA Calc Eval
Sign Lighting LED	Exterior Lighting	125	-	Unit	AVA Calc Eval
Washington Fleet Heat	Fleet Heat	8,000	-	Unit	RTF
0.61 to 0.80 GPM electric pre-rinse sprayer	Food	891	-	Unit	RTF
3 pan electric steamer	Food	21,470	-	Unit	RTF

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4 pan electric steamer	Food	28,564	-	Unit	RTF
5 pan electric steamer	Food	35,659	-	Unit	RTF
6 pan electric steamer	Food	42,754	-	Unit	RTF
10 or larger pan electric steamer	Food	71,333	-	Unit	RTF
Efficient combination oven (>= 16 pan and <= 20 pan) electric	Food	17,877	-	Unit	RTF
Efficient combination oven (>= 6 pan and <= 15 pan) electric	Food	12,990	-	Unit	RTF
Efficient convection oven full size	Food	1,661	-	Unit	RTF
Efficient convection oven half size	Food	1,683	-	Unit	RTF
Efficient hot food holding cabinet, 1/2 size	Food	253	-	Unit	RTF
Efficient hot food holding cabinet, full size	Food	820	-	Unit	RTF
Electric fryer	Food	2,449	-	Unit	RTF
Standard Efficiency Appliance to H.E. electric griddle, 70% effic. or better	Food	1,636	-	Unit	RTF
High temp electric hot water dishwasher	Food	4,110	-	Unit	RTF
Low temp electric hot water dishwasher	Food	3,801	-	Unit	RTF
0.61 to 0.80 GPM gas pre-rinse sprayer	Food	-	17	Unit	RTF
H.E. gas griddle, 40% effic. or better	Food	-	88	Unit	RTF
High temp gas hot water dishwasher	Food	-	103	Unit	RTF
Low temp gas hot water dishwasher	Food	-	140	Unit	RTF
H.E. gas convection oven, 40% effic. or better	Food	-	323	Unit	RTF
Efficient combination oven (>= 6 pan and <= 15 pan) gas	Food	-	403	Unit	RTF
Efficient convection oven full size	Food	-	450	Unit	RTF
Efficient combination oven (>= 16 pan and <= 20 pan) gas	Food	-	500	Unit	RTF
Energy Star 50% effic.gas fryer	Food	-	505	Unit	RTF
3 pan gas steamer	Food	-	586	Unit	RTF
4 pan gas steamer	Food	-	780	Unit	RTF
5 pan gas steamer	Food	-	974	Unit	RTF
Gas rack oven	Food	-	1,034	Unit	RTF
6 pan gas steamer	Food	-	1,167	Unit	RTF
10 or larger pan gas steamer	Food	-	3,043	Unit	RTF
15 HP Industrial	Green Motor	601	-	Unit	RTF
20 HP Ind	Green Motor	804	-	Unit	RTF
25 HP Ind	Green Motor	1,052	-	Unit	RTF
30 HP Ind	Green Motor	1,133	-	Unit	RTF
40 HP Ind	Green Motor	1,319	-	Unit	RTF
50 HP Ind	Green Motor	1,418	-	Unit	RTF
60 HP Ind	Green Motor	1,476	-	Unit	RTF
75 HP Ind	Green Motor	1,519	-	Unit	RTF
100 HP Ind	Green Motor	2,005	-	Unit	RTF
125 HP Ind	Green Motor	2,598	-	Unit	RTF
150 HP Ind	Green Motor	3,089	-	Unit	RTF

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Measure Description	Program	1st Year kWh Savings	1st Year Therm Savings	UOM	Source
200 HP Ind	Green Motor	4,088	-	Unit	RTF
250 HP Ind	Green Motor	4,972	-	Unit	RTF
300 HP Ind	Green Motor	5,935	-	Unit	RTF
350 HP Ind	Green Motor	6,919	-	Unit	RTF
400 HP Ind	Green Motor	7,848	-	Unit	RTF
450 HP Ind	Green Motor	8,811	-	Unit	RTF
4500 HP Ind	Green Motor	104,783	-	Unit	RTF
500 HP Ind	Green Motor	9,804	-	Unit	RTF
600 HP Ind	Green Motor	14,689	-	Unit	RTF
700 HP Ind	Green Motor	17,065	-	Unit	RTF
800 HP Ind	Green Motor	19,461	-	Unit	RTF
900 HP Ind	Green Motor	21,847	-	Unit	RTF
1000 HP Ind	Green Motor	24,172	-	Unit	RTF
1250 HP Ind	Green Motor	29,973	-	Unit	RTF
1500 HP Ind	Green Motor	35,891	-	Unit	RTF
1750 HP Ind	Green Motor	41,697	-	Unit	RTF
2000 HP Ind	Green Motor	47,454	-	Unit	RTF
2250 HP Ind	Green Motor	53,051	-	Unit	RTF
2500 HP Ind	Green Motor	58,823	-	Unit	RTF
3000 HP Ind	Green Motor	70,147	-	Unit	RTF
3500 HP Ind	Green Motor	81,667	-	Unit	RTF
4000 HP Ind	Green Motor	93,334	-	Unit	RTF
5000 HP Ind	Green Motor	116,183	-	Unit	RTF
Gas Boiler <300kBtu .85-.89 AFUE	HVAC	-	2	Unit	AVA Calc Eval
Gas Boiler <300kBtu .90+ AFUE AFUE	HVAC	-	3	Unit	AVA Calc Eval
Singlestage Furnace <225 kBtu .90-.95 AFUE	HVAC	-	3	Unit	AVA Calc Eval
Multistage Furnace <225 kBtu .90-.95 AFUE	HVAC	-	4	Unit	AVA Calc Eval
Singlestage Furnace <225 kBtu .95+ AFUE	HVAC	-	4	Unit	AVA Calc Eval
Multistage Furnace <225 kBtu .95+ AFUE	HVAC	-	4	Unit	AVA Calc Eval
1000 watt HID =< 400 watt LED	Interior Lighting	2,966	(41)	Unit	AVA Calc Eval
250 watt HID to =< 140 LED	Interior Lighting	773	(11)	Unit	AVA Calc Eval
Over 150 watt Incandescent to 50-60W LED	Interior Lighting	326	(4.5)	Unit	AVA Calc Eval
4-Lamp T12/T8 Fixture to 2-Lamp LED	Interior Lighting	217	(3.0)	Unit	AVA Calc Eval
75-100 watt Incandescent to LED* 12-20 watt Fixture	Interior Lighting	210	(2.7)	Unit	AVA Calc Eval
Occupancy sensors built in with relays for room control (not switch sensors)	Interior Lighting	205	(2.6)	Unit	AVA Calc Eval
50 watt MR16 (GU10 Base) to MR16 LED 6-9 watt	Interior Lighting	140	(1.8)	Unit	AVA Calc Eval
75-100 watt Incandescent to 12-20 watt LED lamp	Interior Lighting	118	(1.5)	Unit	AVA Calc Eval
T5HO - T5 TLED	Interior Lighting	86	(1.5)	Unit	AVA Calc Eval
3-Lamp T12/T8 Fixture to LED Qualified 2x4 Fixture	Interior Lighting	188	(1.4)	Unit	AVA Calc Eval
40 watt Incandescent to 6-10 watt LED lamp	Interior Lighting	84	(1.1)	Unit	AVA Calc Eval
60 watt Incandescent to 9-13 watt LED lamp	Interior Lighting	84	(1.1)	Unit	AVA Calc Eval

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Measure Description	Program	1st Year kWh Savings	1st Year Therm Savings	UOM	Source
20 watt MR16 (GU10 Base) to MR16 LED 2-4 watt	Interior Lighting	56	(0.7)	Unit	AVA Calc Eval
T12/T8 to 8-20 W TLED	Interior Lighting	32	(0.5)	Unit	AVA Calc Eval
35 watt MR16 (GU10 Base) to MR16 LED 4-6 watt	Interior Lighting	42	(0.5)	Unit	AVA Calc Eval
400 watt HID =< 75 watt LED	Interior Lighting	1,244	-	Unit	AVA Calc Eval
E ENERGY STAR DOORS	Low-Income	333.00	-	SQFT	AVA Calc Eval
E INS - CEIL/ATTIC	Low-Income	0.44	-	SQFT	2016 Nexant DSM Report
E INS - DUCT	Low-Income	6.50	-	SQFT	2016 Nexant DSM Report
E INS - FLOOR	Low-Income	1.68	-	SQFT	2016 Nexant DSM Report
E INS - WALL	Low-Income	1.49	-	SQFT	2016 Nexant DSM Report
E ENERGY STAR WINDOWS	Low-Income	3.09	-	SQFT	AVA Calc Eval
E HE AIR HPUMP	Low-Income	3,645	-	Unit	AVA Calc Eval
Ductless HP (Average RTF of HZ2 & CZ 1-3)	Low-Income	4,622	-	Unit	RTF
Tier1 0-55Gallon HPWH	Low-Income	1,073	-	Unit	RTF
E ENERGY STAR REFRIGERATOR	Low-Income	39	-	Unit	RTF
E AIR INFILTRATION	Low-Income	431	-	Unit	AVA Calc Eval
Duct sealing	Low-Income	1,374	-	Unit	RTF
9 watt A19 bulbs - 60W replacement - (6 units)	Low-Income	17	-	Unit	RTF
Elec Res --> Heat Pump	Low-Income	3,297	-	Unit	AVA Calc Eval
G INS - CEIL/ATTIC	Low-Income	-	0.02	SQFT	AVA Calc Eval
G INS - WALL	Low-Income	-	0.07	SQFT	AVA Calc Eval
G INS - FLOOR	Low-Income	-	0.08	SQFT	AVA Calc Eval
G ENERGY STAR WINDOWS	Low-Income	-	0.28	SQFT	AVA Calc Eval
G INS - DUCT	Low-Income	-	0.41	SQFT	AVA Calc Eval
G HE WH 50G	Low-Income	-	7	Unit	AVA Calc Eval
G PROG TSTAT NO AC	Low-Income	-	11	Unit	AVA Calc Eval
G PROG TSTAT W/AC	Low-Income	-	11	Unit	AVA Calc Eval
G ENERGY STAR DOORS	Low-Income	-	13	Unit	AVA Calc Eval
G AIR INFILTRATION	Low-Income	-	16	Unit	AVA Calc Eval
G duct sealing	Low-Income	-	47	Unit	AVA Calc Eval
G HE FURNACE	Low-Income	-	80	Unit	AVA Calc Eval
Multifamily NG Market Transformation (per unit)	MFMT	5,874	(258)	Unit	AVA Calc Eval
ELEC WINDOWS SP/MDP --> <0.30 U	Residential	12.60	-	SQFT	RTF
ELEC Storm Windows	Residential	8.50	-	SQFT	RTF
Web Tstat Elec DIY	Residential	749	-	Unit	RTF
Web Tstat Elec Cont	Residential	749	-	Unit	RTF
ELEC RESISTANCE TO ASHP	Residential	5,946	-	Unit	RTF
VARIABLE SPEED MOTOR ASHP	Residential	420	-	Unit	RTF
VARIABLE SPEED MOTOR FURNACE	Residential	414	-	Unit	AVA Calc Eval
E ESTAR HOME - MANUF, ELEC/DF	Residential	3,296	-	Unit	RTF
Tier2 0-55Gallon HPWH	Residential	1,520	-	Unit	RTF
Tier3 0-55Gallon HPWH	Residential	1,610	-	Unit	RTF

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Measure Description	Program	1st Year kWh Savings	1st Year Therm Savings	UOM	Source
Tier1 0-55Gallon HPWH	Residential	1,131	-	Unit	RTF
Ductless Heat Pump	Residential	4,622	-	Unit	RTF
NG Storm Windows	Residential	-	0.34	SQFT	RTF
G Windows Single Pane <0.30 U-value	Residential	-	2	SQFT	AVA Calc Eval
Web Tstat Gas DIY	Residential	-	26	Unit	AVA Calc Eval
Web Tstat Gas Cont	Residential	-	26	Unit	AVA Calc Eval
TANKLESS WH (0.82+)	Residential	-	69	Unit	AVA Calc Eval
NG FURNACE/BOILER 90% AFUE	Residential	-	102	Unit	AVA Calc Eval
E STAR HOME - GAS ONLY	Residential	-	203	Unit	RTF
E --> NG Space and DHW	Residential Conversions	11,280	(556)	Unit	14/15 Nexant Impact Evaluation
E --> NG DIRECT VENT WALL HEAT	Residential Conversions	10,624	(466)	Unit	14/15 Nexant Impact Evaluation
ELEC RES --> CENTRAL NG	Residential Conversions	7,524	(340)	Unit	14/15 Nexant Impact Evaluation
Less than R11 attic insulation (E/G) to R30-R44 Attic Insulation	Shell	1.02	0.09	SQFT	AVA Calc Eval
Less than R11 roof insulation (E/G) to R30+ Roof Insulation	Shell	1.36	0.12	SQFT	AVA Calc Eval
Less than R11 attic insulation (E/G) to R45+ Attic Insulation	Shell	1.39	0.13	SQFT	AVA Calc Eval
Less than R4 wall insulation (E/G) to R11-R18 Wall Insulation	Shell	2.82	0.24	SQFT	AVA Calc Eval
Less than R4 wall insulation (E/G) to R19+ Wall Insulation	Shell	4.11	0.36	SQFT	AVA Calc Eval
LED - Decorative and Mini-Base - 250- 1049 lumens	Simple Steps	13	-	Unit	RTF
LED - General Purpose and Dimmable - 1490 - 2600 lumens	Simple Steps	11	-	Unit	RTF
LED - General Purpose and Dimmable - 250- 1049 lumens	Simple Steps	10	-	Unit	RTF
LED - General Purpose and Dimmable - 1050 - 1489 lumens	Simple Steps	18	-	Unit	RTF
LED - Globe - 250- 1049 lumens	Simple Steps	12	-	Unit	RTF
LED - Reflectors and Outdoor - 1490- 2600 lumens	Simple Steps	72	-	Unit	RTF
LED - Reflectors and Outdoor - 250 - 1049 lumens	Simple Steps	24	-	Unit	RTF
LED - Reflectors and Outdoor - 1050 - 1489 lumens	Simple Steps	21	-	Unit	RTF
LED - Decorative Ceiling Flush Mount Fixture - 500-1999 lumens	Simple Steps	15	-	Unit	RTF
LED - Decorative Ceiling Flush Mount Fixture 2000-7999 lumens	Simple Steps	52	-	Unit	RTF
LED - Track Light Fixture 0-499 Lumens	Simple Steps	8	-	Unit	RTF
LED - Track Light Fixture 2000-7999 Lumens	Simple Steps	104	-	Unit	RTF
LED - Track Light Fixture 500-1999 lumens	Simple Steps	29	-	Unit	RTF
LED - Linear Flush Mount Fixture 0-499 lumens	Simple Steps	1	-	Unit	RTF
LED - Linear Flush Mount Fixture 500-1999 lumens	Simple Steps	3	-	Unit	RTF
LED - Exterior Porch Light Fixture 0 -499 Lumens	Simple Steps	8	-	Unit	RTF
LED - Exterior Porch Light Fixture 500-1999 Lumens	Simple Steps	29	-	Unit	RTF
LED - Exterior Security Fixture 500 -1999 Lumens	Simple Steps	36	-	Unit	RTF
LED Retro-Fit Fixture 2000 -7999 Lumens	Simple Steps	50	-	Unit	RTF
LED Retro-Fit Fixture 500-1999 Lumens	Simple Steps	14	-	Unit	RTF
LED Bathroom Vanity 2000 -7999 Lumens	Simple Steps	42	-	Unit	RTF
LED Bathroom Vanity 500-1999 Lumens	Simple Steps	12	-	Unit	RTF

Unit Energy Savings (UES) Values List

Measure Description	Program	1st Year kWh Savings	1st Year Therm Savings	UOM	Source
Showerhead 2.0 GPM	Simple Steps	20	2	Unit	RTF
Showerhead 1.75 GPM	Simple Steps	55	3	Unit	RTF
Showerhead 1.5 GPM	Simple Steps	84	4	Unit	RTF
Clothing Washer	Simple Steps	109	-	Unit	RTF
Prescriptive VFDs - HVAC Cooling Pump	VFD	1,091	-	Unit	AVA Calc Eval
Prescriptive VFDs - HVAC Fan	VFD	1,022	-	Unit	AVA Calc Eval
Prescriptive VFDS - HVAC Heating Pump or combo	VFD	1,756	-	Unit	AVA Calc Eval
E TO G FURNACE CONVERSION	WA Low-Income Conversions	3,496	(133)	Unit	AVA Calc Eval
E TO G H2O CONVERSION	WA Low-Income Conversions	1,586	(85)	Unit	AVA Calc Eval