

Residential and Business Deemed Savings Table

MEEIA 2019-21



Ameren Missouri Deemed Savings Table Revision Log

Ameren Missouri Deemed Savings Table	Date	Ameren Missouri TRM			Description
		Volume 1: Overview and User Guide	Volume 2: C&I Measures	Volume 3: Residential Measures	
		Revision	Revision	Revision	
1.0	05/30/2018	1.0	1.0	1.0	Initial version filed for Commission approval.
2.0	12/21/2018	1.0	2.0	2.0	Updated "Deemed Tables" with PY2017 Evaluation results per Stipulation and Agreement (File No. EO-2018-0211).

BUSINESS PRESCRIPTIVE MEASURES

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PROGRAMS: All

Lighting

Measure Reference No.	Program/ Channel	Measure	kWh Annual Savings	End Use	kW Factor	kW	EUL	Inc. Cost	Units
	C&I	LED <=11 Watt Lamp Replacing Interior Halogen A 28-52 Watt Lamp	88.6	Lighting BUS	0.0001899635	0.0168	21.0	\$15.64	per measure
	C&I	LED 7-20 Watt Lamp Replacing Interior Halogen 53-70 Watt Lamp	153.1	Lighting BUS	0.0001899635	0.0291	17.0	\$19.64	per measure
	C&I	LED <=14 Watt Lamp Replacing Interior Halogen BR/R 45-65 Watt Lamp	203.8	Lighting BUS	0.0001899635	0.0387	14.0	\$48.27	per measure
	C&I	LED <=13 Watt Lamp Replacing Interior Halogen MR-16 35-50 Watt Lamp	164.6	Lighting BUS	0.0001899635	0.0313	12.0	\$36.64	per measure
	C&I	LED <=20 Watt Lamp Replacing Interior Halogen PAR 48-90 Watt Lamp	255.7	Lighting BUS	0.0001899635	0.0486	12.0	\$74.64	per measure
	C&I	LED <=80 Watt Lamp or Fixture Replacing Interior HID 100-175 Watt Lamp or Fixture	369.5	Lighting BUS	0.0001899635	0.0702	11.0	\$191.39	per measure
	C&I	LED 62 - 130 Watt Lamp or Fixture Replacing Interior HID 176-300 Watt Lamp or Fixture	884.4	Lighting BUS	0.0001899635	0.1680	10.0	\$233.64	per measure
	C&I	LED 85 - 225 Watt Lamp or Fixture Replacing Interior HID 301-500 Watt Lamp or Fixture	1,472.0	Lighting BUS	0.0001899635	0.2796	11.0	\$361.64	per measure
	C&I	LED <=80 Watt Lamp or Fixture Replacing Garage or Exterior <24/7 HID 100-175 Watt Lamp or Fixture	455.1	Ext Lighting BUS	0.0000056160	0.0026	11.0	\$191.39	per measure
	C&I	LED 62 - 130 Watt Lamp or Fixture Replacing Garage or Exterior <24/7 HID 176-300 Watt Lamp or Fixture	763.5	Ext Lighting BUS	0.0000056160	0.0043	12.0	\$233.64	per measure
	C&I	LED 85 - 225 Watt Lamp or Fixture Replacing Garage or Exterior <24/7 HID 301-500 Watt Lamp or Fixture	1,074.2	Ext Lighting BUS	0.0000056160	0.0060	12.0	\$361.64	per measure
	C&I	LED <=80 Watt Lamp or Fixture Replacing Garage or Exterior 24/7 HID 100-175 Watt Lamp or Fixture Misc.	700.7	Miscellaneous BUS	0.0001379439	0.0967	6.0	\$191.39	per measure
	C&I	LED 62 - 130 Watt Lamp or Fixture Replacing Garage or Exterior 24/7 HID 176-300 Watt Lamp or Fixture Misc.	1,556.4	Miscellaneous BUS	0.0001379439	0.2147	6.0	\$233.64	per measure
	C&I	LED 85 - 225 Watt Lamp or Fixture Replacing Garage or Exterior 24/7 HID 301-500 Watt Lamp or Fixture Misc.	2,870.1	Miscellaneous BUS	0.0001379439	0.3959	6.0	\$361.64	per measure
	C&I	LED or Electroluminescent Replacing Interior Incandescent/CFL Exit Sign	253.1	Lighting BUS	0.0001899635	0.0481	16.0	\$45.25	per measure
	C&I	LED Replacing Interior T5 Fluorescent	222.6	Lighting BUS	0.0001899635	0.0423	8.0	\$29.64	per measure
	C&I	LED Replacing Interior T8 Fluorescent	84.8	Lighting BUS	0.0001899635	0.0161	9.0	\$29.64	per measure
	C&I	LED Replacing Interior T12 Fluorescent	92.6	Lighting BUS	0.0001899635	0.0176	14.0	\$29.64	per measure
	C&I	LED Specialty Lamp	102.2	Lighting BUS	0.0001899635	0.0194	11.0	\$11.94	per measure

Measure Reference No.	Program/ Channel	Measure	kWh Annual Savings	End Use	kW Factor	kW	EUL	Inc. Cost	Units
	C&I	Fixture Mounted Occupancy Sensor Controlling >50 and <=200 Watts	107.6	Lighting BUS	0.0001899635	0.020433823	10.0	\$116.33	per measure
	C&I	Fixture Mounted Occupancy Sensor Controlling >=201 and <=500 Watts	309.8	Lighting BUS	0.0001899635	0.05884941	10.0	\$116.33	per measure
	C&I	Single Technology Occupancy Sensor Controlling Lighting Circuit >50 and <=120 Watts	86.1	Lighting BUS	0.0001899635	0.016347058	11.0	\$42.35	per measure
	C&I	Single Technology Occupancy Sensor Controlling Lighting Circuit >120 Watts	444.9	Lighting BUS	0.0001899635	0.084514291	11.0	\$119.56	per measure
	C&I	Dual Technology Occupancy Sensor Controlling Lighting Circuit >150 Watts	444.9	Lighting BUS	0.0001899635	0.084514291	8.0	\$128.00	per measure

ESF = Energy Savings factor (represents the percentage reduction to the operating Hours from the non-controlled baseline lighting system). Determined on a site-specific basis or use 24% as default value

Commercial Solid and Glass Door Refrigerators & Freezers

Measure Reference No.	Program/ Channel	Measure	kWh Annual Savings	End Use	kW Factor	kW	EUL	Inc. Cost	Units
	C&I	0 < V < 15 - Vertical Closed - Solid Door Refrigerator	379.9	Refrigeration BUS	0.0001357383	0.0516	12.0	\$150.00	per measure
	C&I	15 ≤ V < 30 - Vertical Closed - Solid Door Refrigerator	626.4	Refrigeration BUS	0.0001357383	0.0850	12.0	\$400.00	per measure
	C&I	30 ≤ V < 50 - Vertical Closed - Solid Door Refrigerator	982.5	Refrigeration BUS	0.0001357383	0.1334	12.0	\$550.00	per measure
	C&I	V ≥ 50 - Vertical Closed - Solid Door Refrigerator	1,311.2	Refrigeration BUS	0.0001357383	0.1780	12.0	\$700.00	per measure
	C&I	0 < V < 15 - Vertical Closed - Glass Door Refrigerator	354.3	Refrigeration BUS	0.0001357383	0.0481	12.0	\$250.00	per measure
	C&I	15 ≤ V < 30 - Vertical Closed - Glass Door Refrigerator	217.3	Refrigeration BUS	0.0001357383	0.0295	12.0	\$500.00	per measure
	C&I	30 ≤ V < 50 - Vertical Closed - Glass Door Refrigerator	226.5	Refrigeration BUS	0.0001357383	0.0307	12.0	\$1,307.00	per measure
	C&I	V ≥ 50 - Vertical Closed - Glass Door Refrigerator	372.6	Refrigeration BUS	0.0001357383	0.0506	12.0	\$2,300.00	per measure
	C&I	Horizontal Closed - Solid or Glass Door Refrigerator - All Volumes	1,219.9	Refrigeration BUS	0.0001357383	0.1656	12.0	\$525.00	per measure
	C&I	0 < V < 15 - Vertical Closed - Solid Door Freezer	348.8	Refrigeration BUS	0.0001357383	0.0473	12.0	\$150.00	per measure
	C&I	15 ≤ V < 30 - Vertical Closed - Solid Door Freezer	1,307.6	Refrigeration BUS	0.0001357383	0.1775	12.0	\$400.00	per measure
	C&I	30 ≤ V < 50 - Vertical Closed - Solid Door Freezer	2,403.3	Refrigeration BUS	0.0001357383	0.3262	12.0	\$550.00	per measure
	C&I	V ≥ 50 - Vertical Closed - Solid Door Freezer	2,951.2	Refrigeration BUS	0.0001357383	0.4006	12.0	\$700.00	per measure
	C&I	0 < V < 15 - Vertical Closed - Glass Door Freezer	1,430.0	Refrigeration BUS	0.0001357383	0.1941	12.0	\$220.00	per measure
	C&I	15 ≤ V < 30 - Vertical Closed - Glass Door Freezer	3,186.8	Refrigeration BUS	0.0001357383	0.4326	12.0	\$950.00	per measure
	C&I	30 ≤ V < 50 - Vertical Closed - Glass Door Freezer	5,150.0	Refrigeration BUS	0.0001357383	0.6991	12.0	\$1,307.00	per measure
	C&I	V ≥ 50 - Vertical Closed - Glass Door Freezer	5,884.2	Refrigeration BUS	0.0001357383	0.7987	12.0	\$2,300.00	per measure
	C&I	Horizontal Closed - Solid or Glass Door Freezer - All Volumes	5,265.1	Refrigeration BUS	0.0001357383	0.7147	12.0	\$595.00	per measure

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PROGRAMS: All

Refrigerators & Freezers Controls

Measure Reference No.	Program/ Channel	Measure	kWh Annual Savings (per door)	End Use	kW Factor	kW	EUL	Inc. Cost (per door)	Units
	C&I	Anti-Sweat Heater Controls Refrigerator	668.1	Refrigeration BUS	0.0001357383	0.0907	12.0	\$151.00	per door
	C&I	Anti-Sweat Heater Controls Freezer	770.9	Refrigeration BUS	0.0001357383	0.1046	12.0	\$151.00	per door

Heat Pump Water Heaters

Measure Reference No.	Program/ Channel	Measure	kWh Annual Savings	End Use	kW Factor	kW	EUL	Inc. Cost	Units
	C&I	Heat Pump Water Heater w/ 98% Efficiency 2.9-14.6 kW (10 to 50 MBH)	21,156.0	Water Heating BUS	0.0001811545	3.8325	15.0	\$4,000.00	per measure
	C&I	Heat Pump Water Heater w/ 98% Efficiency 14.7-29.3 kW (50 to 100 MBH)	52,890.0	Water Heating BUS	0.0001811545	9.5813	15.0	\$7,000.00	per measure
	C&I	Heat Pump Water Heater w/ 98% Efficiency 29.4-87.9 kW (100 to 300 MBH)	141,041.0	Water Heating BUS	0.0001811545	25.5502	15.0	\$10,000.00	per measure
	C&I	Heat Pump Water Heater w/ 98% Efficiency 88-146.5 kW (300 to 500 MBH)	282,081.0	Water Heating BUS	0.0001811545	51.1002	15.0	\$14,000.00	per measure
	C&I	Heat Pump Water Heater w/ 98% Efficiency >146.6 kW (above 500 MBH)	423,122.0	Water Heating BUS	0.0001811545	76.6505	15.0	\$18,000.00	per measure

Heat Pump Pool Heater

Measure Reference No.	Program/ Channel	Measure	kWh Annual Savings	End Use	kW Factor	kW	EUL	Inc. Cost (per unit)	Units
	C&I	Pool Heater Heat Pump (Uncovered)	35,272.9	Water Heating BUS	0.0001811545	6.3898	15.00	\$1,000.00	per measure
	C&I	Pool Heater Heat Pump (Covered)	6,206.9	Water Heating BUS	0.0001811545	1.1244	15.00	\$1,000.00	per measure

Pool Pump

Measure Reference No.	Program/ Channel	Measure	kWh Annual Savings (per HP)	End Use	kW Factor	kW	EUL	Inc. Cost	Units
	C&I	Pool Pump w/ Variable Frequency Drive	1,747.0	Motors BUS	0.0001379439	0.2410	15.00	\$246.00	per measure
	C&I	Pool Pump Timer	601.3	Motors BUS	0.0001379439	0.0829	10.00	\$100.00	per measure

Steam Cookers

Measure Reference No.	Program/ Channel	Measure	kWh Annual Savings	End Use	kW Factor	kW	EUL	Inc. Cost	Units
	C&I	3 Pan ENERGY STAR Steam Cooker	7,856.3	Cooking BUS	0.0001998949	1.5704	12.0	\$4,150.00	per measure
	C&I	4 Pan ENERGY STAR Steam Cooker	9,213.5	Cooking BUS	0.0001998949	1.8417	12.0	\$4,150.00	per measure
	C&I	5 Pan ENERGY STAR Steam Cooker	10,513.0	Cooking BUS	0.0001998949	2.1015	12.0	\$4,150.00	per measure
	C&I	6 Pan ENERGY STAR Steam Cooker	11,818.6	Cooking BUS	0.0001998949	2.3625	12.0	\$4,150.00	per measure

Holding Cabinet

Measure Reference No.	Program/ Channel	Measure	kWh Annual Savings	End Use	kW Factor	kW	EUL	Inc. Cost	Units
	C&I	ENERGY STAR Hot Holding Cabinet (0 < V <13)	709.5	Cooking BUS	0.0001998949	0.1418	12.00	\$1,783.00	per measure
	C&I	ENERGY STAR Hot Holding Cabinet (13 ≤ V <28)	2,772.2	Cooking BUS	0.0001998949	0.5542	12.00	\$1,783.00	per measure
	C&I	ENERGY STAR Hot Holding Cabinet (28 ≤ V)	4,438.3	Cooking BUS	0.0001998949	0.8872	12.00	\$1,783.00	per measure

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PROGRAMS: All

HVAC

Measure Reference No.	Program/ Channel	Measure	Cooling kWh Annual Savings (per Ton)	Heating kWh Annual Savings (per ton)	Total kWh Annual Savings	End Use	End Use	kW Factor	kW	EUL	Inc. Cost	Units
	C&I	Learning Thermostat	205.3	233.0	438.3	Cooling BUS	Heating BUS	0.0009106840	0.1870	10.00	\$224.00	per measure

Measure Reference No.	Program/ Channel	Measure	kWh Annual Savings (per HP)	End Use	kW Factor	kW	EUL	Inc. Cost (per HP)	Units
	C&I	VFD on Chilled Water Pump 1-75HP	1,289.6	Cooling BUS	0.0009106840	1.1745	15.00	\$179.00	per Hp
	C&I	VFD on Hot Water Pump 1-75HP	1,696.6	HVAC BUS	0.0004439830	0.7533	15.00	\$179.00	per Hp

Measure Reference No.	Program/ Channel	Measure	kWh Annual Savings (per HP)	End Use	kW Factor	kW	EUL	Inc. Cost (per HP)	Units
	C&I	VFD on HVAC Fans 1-100HP	939.7	HVAC BUS	0.0004439830	0.4172	15.00	\$168.00	per Hp

Measure Reference No.	Program/ Channel	Measure	kWh Annual Savings (per ton)	End Use	kW Factor	kW	EUL	Inc. Cost	Units
	C&I	Packaged DX 135 - 240kbtu	154.0	Cooling BUS	0.0009106840	0.1402	15.0	\$100.00	per ton
	C&I	Packaged DX 240 - 760kbtu	66.5	Cooling BUS	0.0009106840	0.0606	15.0	\$100.00	per ton
	C&I	Packaged DX 65 -135kbtu	98.6	Cooling BUS	0.0009106840	0.0898	15.0	\$100.00	per ton
	C&I	Packaged DX >760kbtu	70.8	Cooling BUS	0.0009106840	0.0645	15.0	\$100.00	per ton
	C&I	Packaged DX <65kbtu	69.4	Cooling BUS	0.0009106840	0.0632	15.0	\$100.00	per ton

Measure Reference No.	Program/ Channel	Measure	Cooling kWh Annual Savings (per ton)	Heating kWh Annual Savings (per ton)	Total kWh Annual Savings	End Use	End Use	kW Factor	kW	EUL	Inc. Cost (per ton)	Units
	C&I	GSHP <135kbtu; ≥17EER	36.7	28.0	64.7	Cooling BUS	Heating BUS	0.0009106840	0.0334	15.0	\$180.00	per ton
	C&I	GSHP <135kbtu; ≥19EER	114.9	28.0	142.9	Cooling BUS	Heating BUS	0.0009106840	0.1047	15.0	\$180.00	per ton
	C&I	ASHP 65 - 135kbtu	95.7	64.6	160.3	Cooling BUS	Heating BUS	0.0009106840	0.0872	15.0	\$100.00	per ton
	C&I	ASHP 135 - 240kbtu	43.3	183.9	227.3	Cooling BUS	Heating BUS	0.0009106840	0.0395	15.0	\$100.00	per ton
	C&I	ASHP >240kbtu	138.0	129.4	267.5	Cooling BUS	Heating BUS	0.0009106840	0.1257	15.0	\$100.00	per ton
	C&I	ASHP <65kbtu	69.4	61.9	131.4	Cooling BUS	Heating BUS	0.0009106840	0.0632	15.0	\$100.00	per ton

Measure Reference No.	Program/ Channel	Measure	kWh Annual Savings (per ton)	End Use	kW Factor	kW	EUL	Inc. Cost (per ton)	Units
	C&I	Air Cooled Chiller	411.0	Cooling BUS	0.0009106840	0.3743	20.0	\$106.23	per ton

Appliances

Measure Reference No.	Program/ Channel	Measure	kWh Annual Savings	End Use	kW Factor	kW	EUL	Inc. Cost	Units
	C&I	Clothes Washer (Electric DHW; Electric Dryer)	907.6	Miscellaneous BUS	0.0001379439	0.1252	11.00	\$200.00	per measure
	C&I	Clothes Washer (Gas DHW; Electric Dryer)	308.4	Miscellaneous BUS	0.0001379439	0.0425	11.00	\$200.00	per measure
	C&I	Clothes Washer (Electric DHW; Gas Dryer)	750.8	Miscellaneous BUS	0.0001379439	0.1036	11.00	\$200.00	per measure
	C&I	Clothes Washer (Gas DHW; Gas Dryer)	151.6	Miscellaneous BUS	0.0001379439	0.0209	11.00	\$200.00	per measure

Measure Reference No.	Program/ Channel	Measure	kWh Annual Savings	End Use	kW Factor	kW	EUL	Inc. Cost	Units
	C&I	Clothes Dryer Vented Electric, Standard (≥ 4.4 ft3)	840.7	Miscellaneous BUS	0.0001379439	0.1160	14.00	\$75.00	per measure
	C&I	Clothes Dryer Vented Electric, Compact (120V) (< 4.4 ft3)	307.3	Miscellaneous BUS	0.0001379439	0.0424	14.00	\$105.00	per measure
	C&I	Clothes Dryer Vented Electric, Compact (240V) (<4.4 ft3)	340.1	Miscellaneous BUS	0.0001379439	0.0469	14.00	\$105.00	per measure
	C&I	Clothes Dryer Ventless Electric, Compact (240V) (<4.4 ft3)	428.7	Miscellaneous BUS	0.0001379439	0.0591	14.00	\$105.00	per measure
	C&I	Clothes Dryer Vented Gas	40.6	Miscellaneous BUS	0.0001379439	0.0056	14.00	\$75.00	per measure

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PROGRAMS: All

Compressed Air

Measure Reference No.	Program/ Channel	Measure	kWh Annual Savings	End Use	kW Factor	kW	EUL	Inc. Cost	Units
	C&I	No Loss Condensate Drain (Reciprocating - On/off Control)	3,272.3	Air Comp BUS	0.0001379439	0.4514	13.00	\$700.00	per measure
	C&I	No Loss Condensate Drain (Reciprocating - Load/Unload)	2,418.6	Air Comp BUS	0.0001379439	0.3336	13.00	\$700.00	per measure
	C&I	No Loss Condensate Drain (Screw - Load/Unload)	2,703.2	Air Comp BUS	0.0001379439	0.3729	13.00	\$700.00	per measure
	C&I	No Loss Condensate Drain (Screw - Inlet Modulation)	978.1	Air Comp BUS	0.0001379439	0.1349	13.00	\$700.00	per measure
	C&I	No Loss Condensate Drain (Screw - Inlet Modulation w/ Unloading)	978.1	Air Comp BUS	0.0001379439	0.1349	13.00	\$700.00	per measure
	C&I	No Loss Condensate Drain (Screw - Variable Displacement)	2,721.0	Air Comp BUS	0.0001379439	0.3753	13.00	\$700.00	per measure
	C&I	No Loss Condensate Drain (Screw - VFD)	3,165.6	Air Comp BUS	0.0001379439	0.4367	13.00	\$700.00	per measure

Measure Reference No.	Program/ Channel	Measure	kWh Annual Savings	End Use	kW Factor	kW	EUL	Inc. Cost	Units
	C&I	Compressed Air Nozzle (Reciprocating - On/off Control)	1,547.2	Air Comp BUS	0.0001379439	0.2134	15.00	\$77.00	per measure
	C&I	Compressed Air Nozzle (Reciprocating - Load/Unload)	1,203.4	Air Comp BUS	0.0001379439	0.1660	15.00	\$77.00	per measure
	C&I	Compressed Air Nozzle (Screw - Load/Unload)	1,289.3	Air Comp BUS	0.0001379439	0.1779	15.00	\$77.00	per measure
	C&I	Compressed Air Nozzle (Screw - Inlet Modulation)	515.7	Air Comp BUS	0.0001379439	0.0711	15.00	\$77.00	per measure
	C&I	Compressed Air Nozzle (Screw - Inlet Modulation w/ Unloading)	515.7	Air Comp BUS	0.0001379439	0.0711	15.00	\$77.00	per measure
	C&I	Compressed Air Nozzle (Screw - Variable Displacement)	1,289.3	Air Comp BUS	0.0001379439	0.1779	15.00	\$77.00	per measure
	C&I	Compressed Air Nozzle (Screw - VFD)	1,547.2	Air Comp BUS	0.0001379439	0.2134	15.00	\$77.00	per measure

Measure Reference No.	Program/ Channel	Measure	kWh Annual Savings (per HP)	End Use	kW Factor	kW	EUL	Inc. Cost (per HP)	Units
		VSD Air Compressor s. 40 HP	987.0	Air Comp BUS	0.0001379439	0.1362	10.00	\$1,573.00	per HP

Combination Oven

Measure Reference No.	Program/ Channel	Measure	kWh Annual Savings	End Use	kW Factor	kW	EUL	Inc. Cost	Units
	C&I	Combination Oven (Pan Capacity < 15)	6,372.3	Cooking BUS	0.0001998949	1.2738	12.0	\$4,300.00	per measure
	C&I	Combination Oven (Pan Capacity ≥ 15)	11,743.6	Cooking BUS	0.0001998949	2.3475	12.0	\$4,300.00	per measure

Fryer

Measure Reference No.	Program/ Channel	Measure	kWh Annual Savings	End Use	kW Factor	kW	EUL	Inc. Cost	Units
	C&I	Standard Open Deep-Fat Fryer	952.3	Cooking BUS	0.0001998949	0.1904	12.0	\$210.00	per measure
	C&I	Large Vat Open Deep-Fat Fryer	2,537.8	Cooking BUS	0.0001998949	0.5073	12.0	\$0.00	per measure

Convection Oven

Measure Reference No.	Program/ Channel	Measure	kWh Annual Savings	End Use	kW Factor	kW	EUL	Inc. Cost	Units
	C&I	Convection Oven (Full Size)	1,938.5	Cooking BUS	0.0001998949	0.3875	12.0	\$0.00	per measure
	C&I	Convection Oven (Half Size)	192.1	Cooking BUS	0.0001998949	0.0384	12.0	\$0.00	per measure

Griddle

Measure Reference No.	Program/ Channel	Measure	kWh Annual Savings	End Use	kW Factor	kW	EUL	Inc. Cost	Units
	C&I	Griddle	1,910.4	Cooking BUS	0.0001998949	0.3819	12.0	\$0.00	per measure

Kitchen Demand Ventillation Controls

Measure Reference No.	Program/ Channel	Measure	kWh Annual Savings (per HP)	End Use	kW Factor	kW	EUL	Inc. Cost (per HP)	Units
	C&I	Kitchen Demand Ventillation Controls	3,331.1	Cooking BUS	0.0001998949	0.6659	15.0	\$1,988.00	per HP

Pre-Rinse Spray Valve

Measure Reference No.	Program/ Channel	Measure	kWh Annual Savings	End Use	kW Factor	kW	EUL	Inc. Cost	Units
	C&I	Pre-Rinse Spray Valve	5,786.5	Cooking BUS	0.0001998949	1.1567	5.0	\$92.90	per measure

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PROGRAMS: All

Low Flow Faucet Aerator

Measure Reference No.	Program/ Channel	Measure	kWh Annual Savings	End Use	kW Factor	kW	EUL	Inc. Cost	Units
	C&I	Low Flow Faucet Aerator	86.6	Water Heating BUS	0.0001811545	0.0157	9.0	\$8.00	per measure

Circulator Pump

Measure Reference No.	Program/ Channel	Measure	kWh Annual Savings	End Use	kW Factor	kW	EUL	Inc. Cost	Units
	C&I	Circulator Pump	651.0	Miscellaneous BUS	0.0001379439	0.0898	15.0	\$1,200.00	per measure

Small Commercial Programmable Thermostats

Measure Reference No.	Program/ Channel	Measure	kWh Annual Savings (per sqft)	End Use	kW Factor	kW	EUL	Inc. Cost (per unit)	Units
	C&I	Small Commercial Programmable Thermostats	0.0289	Cooling BUS	0.0009106840	0.0000	8.0	\$181.00	per measure

Demand Controlled Ventilation

Measure Reference No.	Program/ Channel	Measure	kWh Annual Savings (per sqft)	End Use	kW Factor	kW	EUL	Inc. Cost	Units
	C&I	Demand Controlled Ventilation (Gas Heat)	0.7	Cooling BUS	0.0009106840	0.0006	10.00	Actual	per sq. ft.
	C&I	Demand Controlled Ventilation (Electric Heat)	1.9	Cooling BUS	0.0009106840	0.0017	10.00	Actual	per sq. ft.
	C&I	Demand Controlled Ventilation (Heat Pump)	1.1	Cooling BUS	0.0009106840	0.0010	10.00	Actual	per sq. ft.

Advanced RTU Controls

Measure Reference No.	Program/ Channel	Measure	kWh Annual Savings (per HP)	End Use	kW Factor	kW	EUL	Inc. Cost (per unit)	Units
	C&I	Advanced RTU Controls	3,779.3	HVAC BUS	0.0004439830	1.6780	15.0	\$4,038.00	per measure

PTAC & PTHP

Measure Reference No.	Program/ Channel	Measure	kWh Annual Savings (per ton) first 5 years	kWh Annual Savings (per ton) next ten years	End Use	kW Factor	kW first 5 years	kW first 5 years	EUL	Inc. Cost (per ton)	Units
	C&I	PTAC	411.3	10.5	Cooling BUS	0.0009106840	0.3745	0.010	15.0	\$1,047.00	per ton
	C&I	PTHP	715.4	177.1	Cooling BUS	0.0009106840	0.3745	0.019	15.0	\$1,047.00	per ton

Refrigerated Beverage Vending Machine

Measure Reference No.	Program/ Channel	Measure	kWh Annual Savings (per cubicft)	End Use	kW Factor	kW	EUL	Inc. Cost	Units
	C&I	Refrigerated Beverage Vending Machine (Class A)	0.1307	Refrigeration BUS	0.0001357383	0.00002	12.0	\$140.00	per measure
	C&I	Refrigerated Beverage Vending Machine (Class B)	0.3233	Refrigeration BUS	0.0001357383	0.00004	12.0	\$140.00	per measure

ECM for Walk-in & Reach-in Coolers/Freezers

Measure Reference No.	Program/ Channel	Measure	kWh Annual Savings (per motor)	End Use	kW Factor	kW	EUL	Inc. Cost (per motor)	Units
	C&I	ECM for Walk-in & Reach-in Coolers/Freezers	1,409.0	Miscellaneous BUS	0.0001379439	0.1944	15.0	\$177.00	per motor

Custom Measure

Measure Reference No.	Program/ Channel	Measure	kWh Annual Savings (per motor)	End Use	kW Factor	kW	EUL	Inc. Cost (per motor)	Units
	C&I	Custom	Custom	Variable	Variable	Custom	Custom	Custom	Custom

RESIDENTIAL LIGHTING

Lighting Program

** CFL baseline is Post 2020, EISA baseline is pre-2020 **

Measure Reference No.	Program/Channel	Measure	kWh Annual Savings	KW	End Use - RES	kW Factor - RES	End Use - BUS	kW Factor - BUS	kWh RES	kWh BUS	KW RES	KW BUS	EUL - RES	EUL - BUS**	Inc. Cost*	Units
	Lighting	LED - 10.5W Downlight E26 (CFL baseline)	12.0	0.0018	Lighting RES	0.0001492529	Lighting BUS	0.0001899635	11.7	0.3611010	0.0017	0.0001	19.0	6.0	\$ 0.0000010	per bulb
	Lighting	LED - 10.5W Downlight E26 (Halogen baseline)	25.6	0.0039	Lighting RES	0.0001492529	Lighting BUS	0.0001899635	24.8	0.7694230	0.0037	0.0001	19.0	6.0	\$ 0.0000010	per bulb
	Lighting	LED - 10W (CFL baseline)	4.0	0.0006	Lighting RES	0.0001492529	Lighting BUS	0.0001899635	3.9	0.1194411	0.0006	0.0000	19.0	6.0	\$ 0.0000010	per bulb
	Lighting	LED - 10W (Halogen baseline)	29.7	0.0045	Lighting RES	0.0001492529	Lighting BUS	0.0001899635	28.8	0.8916418	0.0043	0.0002	19.0	6.0	\$ 0.0000010	per bulb
	Lighting	LED - 12W Dimmable Light Bulb (Replacing CFL)	7.9	0.0012	Lighting RES	0.0001492529	Lighting BUS	0.0001899635	7.6	0.2361045	0.0011	0.0000	19.0	6.0	\$ 0.0000010	per bulb
	Lighting	LED - 12W Dimmable Light Bulb (Replacing Specialty Incandescent) Li Di	47.3	0.0071	Lighting RES	0.0001492529	Lighting BUS	0.0001899635	45.9	1.4221825	0.0069	0.0003	19.0	6.0	\$ 0.0000010	per bulb
	Lighting	LED - 15W (Halogen baseline)	38.3	0.0058	Lighting RES	0.0001492529	Lighting BUS	0.0001899635	37.1	1.1499679	0.0055	0.0002	19.0	6.0	\$ 0.0000010	per bulb
	Lighting	LED - 15W (CFL baseline)	7.7	0.0012	Lighting RES	0.0001492529	Lighting BUS	0.0001899635	7.4	0.2305491	0.0011	0.0000	19.0	6.0	\$ 0.0000010	per bulb
	Lighting	LED - 15W Flood Light PAR30 Bulb (CFL baseline)	4.4	0.0007	Lighting RES	0.0001492529	Lighting BUS	0.0001899635	4.3	0.1333296	0.0006	0.0000	19.0	6.0	\$ 0.0000010	per bulb
	Lighting	LED - 15W Flood Light PAR30 Bulb (Halogen baseline)	46.5	0.0070	Lighting RES	0.0001492529	Lighting BUS	0.0001899635	45.1	1.3971832	0.0067	0.0003	19.0	6.0	\$ 0.0000010	per bulb
	Lighting	LED - 18W Flood Light PAR30 Bulb (CFL baseline)	4.6	0.0007	Lighting RES	0.0001492529	Lighting BUS	0.0001899635	4.5	0.1388850	0.0007	0.0000	19.0	6.0	\$ 0.0000010	per bulb
	Lighting	LED - 18W Flood Light PAR38 Bulb (Halogen baseline)	75.8	0.0114	Lighting RES	0.0001492529	Lighting BUS	0.0001899635	73.5	2.2777142	0.0110	0.0004	19.0	6.0	\$ 0.0000010	per bulb
	Lighting	LED - 20W (CFL baseline)	9.1	0.0014	Lighting RES	0.0001492529	Lighting BUS	0.0001899635	8.8	0.2722146	0.0013	0.0001	19.0	6.0	\$ 0.0000010	per bulb
	Lighting	LED - 20W (Halogen baseline)	52.5	0.0079	Lighting RES	0.0001492529	Lighting BUS	0.0001899635	50.9	1.5777337	0.0076	0.0003	19.0	6.0	\$ 0.0000010	per bulb
	Lighting	LED - 4W Candelabra (CFL baseline)	4.2	0.0006	Lighting RES	0.0001492529	Lighting BUS	0.0001899635	4.0	0.1249965	0.0006	0.0000	19.0	6.0	\$ 0.0000010	per bulb
	Lighting	LED - 4W Candelabra (Replacing Specialty Incandescent)	33.7	0.0051	Lighting RES	0.0001492529	Lighting BUS	0.0001899635	32.6	1.0110829	0.0049	0.0002	19.0	6.0	\$ 0.0000010	per bulb
	Lighting	LED - 8W Globe Light G25 Bulb (Replacing CFL)	4.7	0.0007	Lighting RES	0.0001492529	Lighting BUS	0.0001899635	4.6	0.1416627	0.0007	0.0000	19.0	6.0	\$ 0.0000010	per bulb
	Lighting	LED - 8W Globe Light G25 Bulb (Replacing Specialty Incandescent)	32.2	0.0048	Lighting RES	0.0001492529	Lighting BUS	0.0001899635	31.2	0.9666397	0.0047	0.0002	19.0	6.0	\$ 0.0000010	per bulb
	Lighting	LED - 10W (Halogen baseline) - Specialty Connected Light	29.7	0.0045	Lighting RES	0.0001492529	Lighting BUS	0.0001899635	28.8	0.8916418	0.0043	0.0002	19.0	6.0	\$ 0.0000010	per bulb
	Lighting	LED - 15W (Halogen baseline) - Specialty Connected Light	38.3	0.0058	Lighting RES	0.0001492529	Lighting BUS	0.0001899635	37.1	1.1499679	0.0055	0.0002	19.0	6.0	\$ 0.0000010	per bulb
	Lighting	LED - 15W Flood Light PAR30 Bulb (Halogen baseline) - Specialty Connected Light	46.5	0.0070	Lighting RES	0.0001492529	Lighting BUS	0.0001899635	45.1	1.3971832	0.0067	0.0003	19.0	6.0	\$ 0.0000010	per bulb

*The present value cost of multiple Halogen or CFL bulbs over the life of the measure is typically at or below \$0. For modeling purposes, use \$0.000001 to model these measures within DSMore.

**EUL-BUS based on MO TRM - 20,000 hours total life; 3,351 annual hours of use for average building type.

RESIDENTIAL EFFICIENT PRODUCTS

Heat Pump Hot Water Heater

Measure Reference No.	Program/Channel	Measure	kWh Annual Savings	End Use	kW Factor	kWh _{cool}	kWh _{heat} - Electric Resistance	kWh _{heat} - Heat Pumps	kW	EUL	Inc. Cost	Units
	Efficient Products	Heat Pump Hot Water Heater	2506.6	Water Heating RES	0.000887318	646.59	156.47	91.71	0.2224	13.0	\$588.00	per measure

Learning Thermostat / Advanced Thermostat

Measure Reference No.	Program/Channel	Measure	kWh Annual Savings	End Use	kW Factor	kW	EUL	Inc. Cost	Units
	Efficient Products	Learning Thermostat - ASHP heating/cooling SF	187.9	Cooling RES	0.0009474181	0.178	10.0	\$175.00	per measure
	Efficient Products	Learning Thermostat - ASHP heating/cooling SF	552.6	Heating RES	0.0000000000	0.000	10.0		per measure
	Efficient Products	Learning Thermostat - electric furnace heating / central AC MF	122.2	Cooling RES	0.0009474181	0.116	10.0	\$175.00	per measure
	Efficient Products	Learning Thermostat - electric furnace heating / central AC MF	617.0	Heating RES	0.0000000000	0.000	10.0		per measure
	Efficient Products	Learning Thermostat - electric furnace heating / central AC SF	187.9	Cooling RES	0.0009474181	0.178	10.0	\$175.00	per measure
	Efficient Products	Learning Thermostat - electric furnace heating / central AC SF	949.3	Heating RES	0.0000000000	0.000	10.0		per measure
	Efficient Products	Learning Thermostat - Gas Heated / central AC **	187.9	Cooling RES	0.0009474181	0.178	10.0	\$175.00	per measure
	Efficient Products	Learning Thermostat - Gas Heated / central AC **	42.0	Heating RES	0.0000000000	0.000	10.0		per measure
	Efficient Products	Learning Thermostat - Unknown **	187.9	Cooling RES	0.0009474181	0.178	10.0	\$175.00	per measure
	Efficient Products	Learning Thermostat - Unknown **	226.3	Heating RES	0.0000000000	0.000	10.0	\$175.00	per measure

ENERGY STAR Pool Pump and motor w auto controls - multi speed

Measure Reference No.	Program/Channel	Measure	kWh Annual Savings	End Use	kW Factor	kW	EUL	Inc. Cost	Units
	Efficient Products	ENERGY STAR Pool Pump and motor w auto controls - multi speed	1,799.7	Pool Spa RES	0.0002354459	0.42	10.0	\$235.00	per measure
	Efficient Products	ENERGY STAR VFDs on Residential Swimming Pool Pumps	2,052.8	Pool Spa RES	0.0002354459	0.48	10.0	\$549.00	per measure

Advanced Power Strips Tier 2 / Advanced Control Strategies

Measure Reference No.	Program/Channel	Measure	kWh Annual Savings	End Use	kW Factor	kW	EUL	Inc. Cost	Units
	Efficient Products	Advanced Tier 2 Power Strips - A	237.6	Miscellaneous RES	0.0001148238	0.0273	10.0	\$30.00	per measure
	Efficient Products	Advanced Tier 2 Power Strips - B	216.0	Miscellaneous RES	0.0001148238	0.0248	10.0	\$30.00	per measure
	Efficient Products	Advanced Tier 2 Power Strips - C	194.4	Miscellaneous RES	0.0001148238	0.0223	10.0	\$30.00	per measure
	Efficient Products	Advanced Tier 2 Power Strips - D	172.8	Miscellaneous RES	0.0001148238	0.0198	10.0	\$30.00	per measure
	Efficient Products	Advanced Tier 2 Power Strips - E	151.2	Miscellaneous RES	0.0001148238	0.0174	10.0	\$30.00	per measure
	Efficient Products	Advanced Tier 2 Power Strips - F	129.6	Miscellaneous RES	0.0001148238	0.0149	10.0	\$30.00	per measure
	Efficient Products	Advanced Tier 2 Power Strips - G	108.0	Miscellaneous RES	0.0001148238	0.0124	10.0	\$30.00	per measure
	Efficient Products	Advanced Tier 2 Power Strips - H	86.4	Miscellaneous RES	0.0001148238	0.0099	10.0	\$30.00	per measure
	Efficient Products	Advanced Tier 2 Power Strips - Average	162.0	Miscellaneous RES	0.0001148238	0.0186	10.0	\$30.00	per measure

ENERGY STAR Air Purifier

Measure Reference No.	Program/Channel	Measure	kWh Annual Savings	End Use	kW Factor	kW	EUL	Inc. Cost	Units
	Efficient Products	ENERGY STAR Air Purifier/Cleaner	588.8	Miscellaneous RES	0.0001148238	0.0676	9.0	\$70.00	per measure

ENERGY STAR Dehumidifier

Measure Reference No.	Program/Channel	Measure	kWh Annual Savings	End Use	kW Factor	kW	EUL	Inc. Cost	Units
	Efficient Products	ENERGY STAR Dehumidifier	204.0	Cooling RES	0.0009474181	0.193	12.0	\$5.00	per measure

Energy Star Room AC

Measure Reference No.	Program/Channel	Measure	kWh Annual Savings	End Use	kW Factor	kW	EUL	Inc. Cost	Units
	Efficient Products	ENERGY STAR Room AC (kWh w inst rate)	48.5	Cooling RES	0.0009474181	0.046	9.0	\$20.00	per measure
	Efficient Products	ENERGY STAR Room AC (kWh w/o inst rate)	49.7	Cooling RES	0.0009474181	0.047	9.0	\$20.00	per measure

RESIDENTIAL ENERGY EFFICIENCY KITS

Dirty Filter Alarm

Measure Reference No.	Program/Channel	Measure	kWh Annual Savings	End Use	kW Factor	Heating kWh	Cooling kWh	kW	EUL	Inc. Cost	Units
	School	Dirty Filter Alarm_SF	64.25	HVAC RES	0.0004660805	38.78	25.48	0.0299	14.0	\$5.00	per measure
	School	Dirty Filter Alarm_MF	171.77	HVAC RES	0.0004660805	106.59	65.18	0.0801	14.0	\$5.00	per measure

LEDs (per bulb)

Measure Reference No.	Program/Channel	Measure	kWh Annual Savings	End Use	kW Factor	kW	EUL	Inc. Cost	Units
	School	LED - 10W (CFL baseline)	3.6	Lighting RES	0.0001492529	0.001	19.0	\$1.95	per measure
	MF	LED - 10W (CFL baseline)	3.6	Lighting RES	0.0001492529	0.001	19.0	\$1.95	per measure
	School	LED - 10W (Halogen baseline)	27.7	Lighting RES	0.0001492529	0.004	19.0	\$1.95	per measure
	MF	LED - 10W (Halogen baseline)	27.7	Lighting RES	0.0001492529	0.004	19.0	\$1.95	per measure
	School	LED - 10.5W Downlight E26 (CFL baseline)	27.7	Lighting RES	0.0001492529	0.004	19.0	\$1.95	per measure
	MF	LED - 10.5W Downlight E26 (CFL baseline)	33.5	Lighting RES	0.0001492529	0.005	19.0	\$1.95	per measure

Kit Faucet Aerators (Kitchen)

Measure Reference No.	Program/Channel	Measure	kWh Annual Savings	End Use	kW Factor	EPG_electric	kW	EUL	Inc. Cost	Units
	School	Kit Faucet Aerator (Kitchen)	40.7	Water Heating RES	0.000887318	0.079	0.0036	10.0	\$3.00	per measure
	MF	Kit Faucet Aerator (Kitchen)	113.2	Water Heating RES	0.000887318	0.079	0.0100	10.0	\$3.00	per measure

Kit Faucet Aerators (Bathroom)

Measure Reference No.	Program/Channel	Measure	kWh Annual Savings	End Use	kW Factor	EPG_electric	kW	EUL	Inc. Cost	Units
	School	Kit Faucet Aerator (Bathroom)	6.95	Water Heating RES	0.000887318	0.06151480	0.0006	10.0	\$3.00	per measure
	MF	Kit Faucet Aerator (Bathroom)	37.58	Water Heating RES	0.000887318	0.06151480	0.0033	10.0	\$3.00	per measure

Low Flow Showerheads

Measure Reference No.	Program/Channel	Measure	kWh Annual Savings	End Use	kW Factor	EPG_electric	kW	EUL	Inc. Cost	Units
	School	Low Flow Showerheads	59.4	Water Heating RES	0.000887318	0.109	0.0053	10.0	\$7.00	per measure
	MF	Low Flow Showerheads	259.1	Water Heating RES	0.000887318	0.109	0.0230	7.0	\$0.00	per measure

Pipe Insulation

Measure Reference No.	Program/Channel	Measure	kWh Annual Savings	End Use	kW Factor	kW	EUL	Inc. Cost	Units
	School	Pipe Insulation	3.4	Water Heating RES	0.000887318	0.0003	12.0	\$2.87	per foot
	MF	Pipe Insulation	16.5	Water Heating RES	0.000887318	0.0015	12.0	\$2.87	per foot

Advanced Power Strips Tier 1 / Load Sensing

Measure Reference No.	Program/Channel	Measure	kWh Annual Savings	End Use	kW Factor	kW	EUL	Inc. Cost	Units
	TOS/NC/DI - Home Office	Advanced Tier 1 Power Strips -TOS/NC/DI - Home Office	31.0	Miscellaneous RES	0.0001148238	0.0036	10.0	\$20.00	per measure
	Kits - Home Office	Advanced Tier 1 Power Strips -Kits - Home Office	24.2	Miscellaneous RES	0.0001148238	0.0028	10.0	\$20.00	per measure
	TOS/NC/DI - Home Entertainment	Advanced Tier 1 Power Strips -TOS/NC/DI - Home Entertainment	75.1	Miscellaneous RES	0.0001148238	0.0086	10.0	\$20.00	per measure
	Kits - Home Entertainment	Advanced Tier 1 Power Strips -Kits - Home Entertainment	58.6	Miscellaneous RES	0.0001148238	0.0067	10.0	\$20.00	per measure
	TOS/NC/DI - Unknown Location	Advanced Tier 1 Power Strips -TOS/NC/DI - Unknown Location	59.2	Miscellaneous RES	0.0001148238	0.0068	10.0	\$20.00	per measure
	Kits - Unknown Location	Advanced Tier 1 Power Strips -Kits - Unknown Location	42.1	Miscellaneous RES	0.0001148238	0.0048	10.0	\$20.00	per measure

RESIDENTIAL HVAC

ECM/ Blower Motor

Measure Reference No.	Program/Channel	Measure	kWh Annual Savings	End Use	kW Factor	Heating kWh	Cooling kWh	Auto kWh	Continuous kWh	kW	EUL	Inc. Cost	Units
	SF / SFLI	ECM Auto Fan ROF-SF	619.8	HVAC RES	0.0004660805	264.3	33.50	321.99	-	0.2889	20.0	\$0.00	per measure
	MFMR / MFLI	ECM Auto Fan ROF-MF	619.8	HVAC RES	0.0004660805	264.3	33.50	321.99	-	0.2889	20.0	\$0.00	per measure
	SF / SFLI	ECM Auto Fan ER 1 - SF	619.8	HVAC RES	0.0004660805	264.3	33.50	321.99	-	0.2889	6.0	\$96.83	per measure
	SF / SFLI	ECM Auto Fan ER2 - SF	619.8	HVAC RES ER2	0.0004660805	264.3	33.50	321.99	-	0.2889	12.0	\$0.00	per measure
	MFMR / MFLI	ECM Auto Fan ER 1 - MF	619.8	HVAC RES	0.0004660805	264.3	33.50	321.99	-	0.2889	6.0	\$96.83	per measure
	MFMR / MFLI	ECM Auto Fan ER2 - MF	619.8	HVAC RES ER2	0.0004660805	264.3	33.50	321.99	-	0.2889	12.0	\$0.00	per measure
	SF / SFLI	ECM Continuous Fan ROF- SF	3,283.8	HVAC RES	0.0004660805	264.3	33.50	-	2,985.99	1.5305	20.0	\$0.00	per measure
	MFMR / MFLI	ECM Continuous Fan ROF- MF	3,283.8	HVAC RES	0.0004660805	264.3	33.50	-	2,985.99	1.5305	20.0	\$0.00	per measure
	SF / SFLI	ECM Continuous Fan ER 1 - SF	3,283.8	HVAC RES	0.0004660805	264.3	33.50	-	2,985.99	1.5305	6.0	\$96.83	per measure
	SF / SFLI	ECM Continuous Fan ER2 - SF	3,283.8	HVAC RES ER2	0.0004660805	264.3	33.50	-	2,985.99	1.5305	12.0	\$0.00	per measure
	MFMR / MFLI	ECM Continuous Fan ER 1 - MF	3,283.8	HVAC RES	0.0004660805	264.3	33.50	-	2,985.99	1.5305	6.0	\$96.83	per measure
	MF	ECM Continuous Fan ER2 - MF	3,283.8	HVAC RES ER2	0.0004660805	264.3	33.50	-	2,985.99	1.5305	12.0	\$0.00	per measure

Central Air Conditioners

Measure Reference No.	Program/Channel	Measure	kWh Annual Savings	End Use	kW Factor	kW	EUL	Inc. Cost	Units (tons/measure)
	SF / SFLI	CAC - SEER 14 ER1: SF	1,572.0	Cooling RES	0.0009474181	1.4894	6	\$592	3.00
	SF / SFLI	CAC - SEER 14 ER2: SF	200.4	Cooling RES ER2	0.0009474181	0.1899	12	\$0	3.00
	SF / SFLI	CAC - SEER 14 ROF: SF	200.4	Cooling RES	0.0009474181	0.1899	18	\$0	3.00
	MFMR / MFLI	CAC - SEER 14 ER1: MF	1,489.6	Cooling RES	0.0009474181	1.4112	6	\$388	3.00
	MFMR / MFLI	CAC - SEER 14 ER2: MF	232.0	Cooling RES ER2	0.0009474181	0.2198	12	\$0	3.00
	MFMR / MFLI	CAC - SEER 14 ROF: MF	232.0	Cooling RES	0.0009474181	0.2198	16	\$0	3.00
	SF / SFLI	CAC - SEER 15 ER1: SF	1,720.2	Cooling RES	0.0009474181	1.6297	6	\$922	3.30
	SF / SFLI	CAC - SEER 15 ER2: SF	348.6	Cooling RES ER2	0.0009474181	0.3303	12	\$0	3.30
	SF / SFLI	CAC - SEER 15 ROF: SF	348.6	Cooling RES	0.0009474181	0.3303	18	\$216	3.00
	MFMR / MFLI	CAC - SEER 15 ER1: MF	1,592.3	Cooling RES	0.0009474181	1.5085	6	\$610	3.30
	MFMR / MFLI	CAC - SEER 15 ER2: MF	322.7	Cooling RES ER2	0.0009474181	0.3057	12	\$0	3.30
	MFMR / MFLI	CAC - SEER 15 ROF: MF	322.7	Cooling RES	0.0009474181	0.3057	18	\$218	3.00
	SF / SFLI	CAC - SEER 16 ER1: SF	1,872.9	Cooling RES	0.0009474181	1.7744	6	\$1,266	3.10
	SF / SFLI	CAC - SEER 16 ER2: SF	501.3	Cooling RES ER2	0.0009474181	0.4749	12	\$0	3.10
	SF / SFLI	CAC - SEER 16 ROF: SF	501.3	Cooling RES	0.0009474181	0.4749	18	\$674	2.90
	MFMR / MFLI	CAC - SEER 16 ER1: MF	1,710.3	Cooling RES	0.0009474181	1.6204	6	\$846	3.10
	MFMR / MFLI	CAC - SEER 16 ER2: MF	428.7	Cooling RES ER2	0.0009474181	0.4061	12	\$0	3.10
	MFMR / MFLI	CAC - SEER 16 ROF: MF	428.7	Cooling RES	0.0009474181	0.4061	18	\$450	2.90
	SF / SFLI	CAC - SEER 17+ ER1: SF	1,979.2	Cooling RES	0.0009474181	1.8751	6	\$1,854	3.10
	SF / SFLI	CAC - SEER 17+ ER2: SF	585.1	Cooling RES ER2	0.0009474181	0.5543	12	\$0	3.10
	SF / SFLI	CAC - SEER 17+ ROF: SF	547.4	Cooling RES	0.0009474181	0.5186	18	\$1,172	2.90
	MFMR / MFLI	CAC - SEER 17+ ER1: MF	1,979.2	Cooling RES	0.0009474181	1.8751	6	\$1,854	3.10
	MFMR / MFLI	CAC - SEER 17+ ER2: MF	585.1	Cooling RES ER2	0.0009474181	0.5543	12	\$0	3.10
	MFMR / MFLI	CAC - SEER 17+ ROF: MF	547.4	Cooling RES	0.0009474181	0.5186	18	\$1,172	2.90

*Incremental cost to be adjusted based on cost testing used

RESIDENTIAL HVAC

Ductless Heat Pumps and A/C

Measure Reference No.	Program/Channel	Measure	kWh Annual Savings	End Use	kW Factor	kW	EUL	Inc. Cost	Units (tons/measure)
	SF / SFLI	Ductless AC - ER1 SF	1,807.8	Cooling RES	0.0009474181	1.713	6.0	\$2,108.00	1.5
	SF / SFLI	Ductless AC - ER2 SF	528.1	Cooling RES ER2	0.0009474181	0.500	12.0	\$0.00	
	SF / SFLI	Ductless AC - ROF SF	1,807.8	Cooling RES	0.0009474181	1.713	18.0	\$1,545.00	1.5
	SF / SFLI	Ductless ASHP - ROF SF NC	528.1	Cooling RES	0.0009474181	0.500	18.0	\$888.00	1.5
	SF / SFLI	Ductless ASHP - ROF SF NC	905.1	Heating RES	0.0000000000	0.000	18.0	\$0.00	
	SF / SFLI	Ductless ASHP - ROF SF	528.1	Cooling RES	0.0009474181	0.500	18.0	\$888.00	1.5
	SF / SFLI	Ductless ASHP - ROF SF	905.1	Heating RES	0.0000000000	0.000	18.0	\$0.00	
	SF / SFLI	Ductless ASHP Replace Electric Resistance ER1 SF	1,625.2	Cooling RES	0.0009474181	1.540	6.0	\$2,108.00	1.5
	SF / SFLI	Ductless ASHP Replace Electric Resistance ER1 SF	5,513.3	Heating RES	0.0000000000	0.000	6.0	\$0.00	
	SF / SFLI	Ductless ASHP Replace Electric Resistance ER2 SF	528.1	Cooling RES ER2	0.0009474181	0.500	12.0	\$0.00	
	SF / SFLI	Ductless ASHP Replace Electric Resistance ER2 SF	5,518.0	Heating RES ER2	0.0000000000	0.000	12.0	\$0.00	
	SF / SFLI	Ductless ASHP Replace Electric Resistance ROF	528.1	Cooling RES	0.0009474181	0.500	18.0	\$1,051.00	1.5
	SF / SFLI	Ductless ASHP Replace Electric Resistance ROF	5,518.0	Heating RES	0.0000000000	0.000	18.0	\$0.00	
	SF / SFLI	Ductless ASHP ER1 SF	1,497.4	Cooling RES	0.0009474181	1.419	6.0	\$1,982.00	1.5
	SF / SFLI	Ductless ASHP ER1 SF	2,571.2	Heating RES	0.0000000000	0.000	6.0	\$0.00	
	SF / SFLI	Ductless ASHP ER2 SF	528.1	Cooling RES ER2	0.0009474181	0.500	12.0	\$0.00	
	SF / SFLI	Ductless ASHP ER2 SF	1,713.6	Heating RES ER2	0.0000000000	0.000	12.0	\$0.00	
	MFMR / MFLI	Ductless AC - ER1 MF	1,175.0	Cooling RES	0.0009474181	1.113	6.0	\$918.45	1.5
	MFMR / MFLI	Ductless AC - ER2 MF	343.3	Cooling RES ER2	0.0009474181	0.325	12.0	\$0.00	
	MFMR / MFLI	Ductless AC - ROF MF	1,175.0	Cooling RES	0.0009474181	1.113	18.0	\$636.03	1.5
	MFMR / MFLI	Ductless ASHP - ROF MF NC	343.3	Cooling RES	0.0009474181	0.325	18.0	\$458.25	1.5
	MFMR / MFLI	Ductless ASHP - ROF MF NC	588.3	Heating RES	0.0000000000	0.000	18.0	\$0.00	
	MFMR / MFLI	Ductless ASHP - ROF MF	343.3	Cooling RES	0.0009474181	0.325	18.0	\$458.25	1.5
	MFMR / MFLI	Ductless ASHP - ROF MF	588.3	Heating RES	0.0000000000	0.000	18.0	\$0.00	
	MFMR / MFLI	Ductless ASHP Replace Electric Resistance ER1 MF	1,056.4	Cooling RES	0.0009474181	1.001	6.0	\$1,033.50	1.5
	MFMR / MFLI	Ductless ASHP Replace Electric Resistance ER1 MF	3,583.7	Heating RES	0.0000000000	0.000	6.0	\$0.00	
	MFMR / MFLI	Ductless ASHP Replace Electric Resistance ER2 MF	343.3	Cooling RES ER2	0.0009474181	0.325	12.0	\$0.00	
	MFMR / MFLI	Ductless ASHP Replace Electric Resistance ER2 MF	3,586.7	Heating RES ER2	0.0000000000	0.000	12.0	\$0.00	
	MFMR / MFLI	Ductless ASHP Replace Electric Resistance ROF MF	343.3	Cooling RES	0.0009474181	0.325	18.0	\$458.25	1.5
	MFMR / MFLI	Ductless ASHP Replace Electric Resistance ROF MF	3,586.7	Heating RES	0.0000000000	0.000	18.0	\$0.00	
	MFMR / MFLI	Ductless ASHP ER1 MF	973.3	Cooling RES	0.0009474181	0.922	6.0	\$936.00	1.5
	MFMR / MFLI	Ductless ASHP ER1 MF	1,671.3	Heating RES	0.0000000000	0.000	6.0	\$0.00	
	MFMR / MFLI	Ductless ASHP ER2 MF	343.3	Cooling RES ER2	0.0009474181	0.325	12.0	\$0.00	
	MFMR / MFLI	Ductless ASHP ER2 MF	1,113.8	Heating RES ER2	0.0000000000	0.000	12.0	\$0.00	

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Dual Fuel Heat Pumps

Measure Reference No.	Program/Channel	Measure	kWh Annual Savings	End Use	kW Factor	kW	EUL	Inc. Cost	Units (tons/measurement)
	MFMR / MFLI	DFHP - SEER 19 MF heat pump base	433.2	Cooling Res	0.0009474181	0.410	18.0	\$2,936.60	3.4
	MFMR / MFLI	DFHP - SEER 19 MF heat pump base	651.4	Heating Res	0.0000000000	0.000	18.0	\$0.00	
	MFMR / MFLI	DFHP - SEER 20 MF heat pump base	639.1	Cooling Res	0.0009474181	0.605	18.0	\$3,176.60	4.4
	MFMR / MFLI	DFHP - SEER 20 MF heat pump base	990.7	Heating Res	0.0000000000	0.000	18.0	\$0.00	
	MFMR / MFLI	DFHP - SEER 21 MF heat pump base	871.5	Cooling Res	0.0009474181	0.826	18.0	\$3,626.60	5.4
	MFMR / MFLI	DFHP - SEER 21 MF heat pump base	1,383.7	Heating Res	0.0000000000	0.000	18.0	\$0.00	

Ground Source Heat Pumps

Measure Reference No.	Program/Channel	Measure	kWh Annual Savings	End Use	kW Factor	kW	EUL	Inc. Cost	Units (tons/measurement)
	SF	GSHP - EER 23 - replace electric furnace / CAC - Cooling	1,413.9	Cooling Res	0.0009474181	1.340	18.0	\$4,717.00	3.99
	SF	GSHP - EER 23 - replace electric furnace / CAC - Heating	21,786.9	Heating RES	0.0000000000	0.000	18.0		
	SF	GSHP - EER 23 - replace electric furnace / CAC ER1 - Cooling	4,825.0	Cooling Res	0.0009474181	4.571	6.0	\$5,250.00	3.99
	SF	GSHP - EER 23 - replace electric furnace / CAC ER1 - Heating	21,786.9	Heating RES	0.0000000000	0.000	6.0		
	SF	GSHP - EER 23 - replace electric furnace / CAC ER2 - Cooling	1,413.9	Cooling Res ER2	0.0009474181	1.340	12.0		
	SF	GSHP - EER 23 - replace electric furnace / CAC ER2 - Heating	21,786.9	Heating RES ER2	0.0000000000	0.000	12.0		
	SF	GSHP EER 23 ER1 - Cooling	1,930.3	Cooling Res	0.0009474181	1.829	6.0	\$4,859.00	3.99
	SF	GSHP EER 23 ER1 - Heating	3,650.8	Heating RES	0.0000000000	0.000	6.0		
	SF	GSHP EER 23 ER2 - Cooling	1,413.9	Cooling Res ER2	0.0009474181	1.340	12.0		
	SF	GSHP EER 23 ER2 - Heating	2,670.2	Heating RES ER2	0.0000000000	0.000	12.0		
	SF	GSHP EER 23 Replace at Fail GSHP	1,413.9	Cooling Res	0.0009474181	1.340	18.0	\$3,200.00	3.99
	SF	GSHP EER 23 Replace at Fail GSHP	2,670.2	Heating RES	0.0000000000	0.000	18.0		

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Air Source Heat Pumps

Measure Reference No.	Program/Channel	Measure	kWh Annual Savings	End Use	kW Factor	kW	EUL	Inc. Cost	Units (tons/measure)
	SF / SFLI	ASHP - SEER 15 ER Elec Resist Furnace: HVAC ER1	1,720.3	Cooling Res	0.0009474181	1.630	6.0	\$1,788.62	3.1
	SF / SFLI	ASHP - SEER 15 ER Elec Resist Furnace: HVAC ER1	9,788.0	Heating Res	0.0000000000	0.000	6.0	\$0.00	
	SF / SFLI	ASHP - SEER 15 ER Elec Resist Furnace: HVAC ER2	344.2	Cooling Res ER2	0.0009474181	0.326	12.0	\$0.00	
	SF / SFLI	ASHP - SEER 15 ER Elec Resist Furnace: HVAC ER2	9,788.0	Heating Res ER2	0.0000000000	0.000	12.0	\$0.00	
	SF / SFLI	ASHP - SEER 15 ER with ASHP: HVAC ER1	1,720.3	Cooling Res	0.0009474181	1.630	6.0	\$1,788.62	3.1
	SF / SFLI	ASHP - SEER 15 ER with ASHP: HVAC ER1	2,027.1	Heating Res	0.0000000000	0.000	6.0	\$0.00	
	SF / SFLI	ASHP - SEER 15 ER with ASHP: HVAC ER2	168.8	Cooling Res ER2	0.0009474181	0.160	12.0	\$0.00	
	SF / SFLI	ASHP - SEER 15 ER with ASHP: HVAC ER2	377.7	Heating Res ER2	0.0000000000	0.000	12.0	\$0.00	
	SF / SFLI	ASHP - SEER 15 Replace at Fail Elec Resist Furnace: HVAC	344.2	Cooling Res	0.0009474181	0.326	18.0	\$927.18	3.3
	SF / SFLI	ASHP - SEER 15 Replace at Fail Elec Resist Furnace: HVAC	9,788.0	Heating Res	0.0000000000	0.000	18.0	\$0.00	
	SF / SFLI	ASHP - SEER 15 Replace at Fail with ASHP: HVAC	168.8	Cooling Res	0.0009474181	0.160	18.0	\$927.18	3.1
	SF / SFLI	ASHP - SEER 15 Replace at Fail with ASHP: HVAC	377.7	Heating Res	0.0000000000	0.000	18.0	\$0.00	
	SF / SFLI	ASHP - SEER 16 - replace electric furnace / CAC - early replacement SF ER1	1,836.3	Cooling Res	0.0009474181	1.740	6.0	\$2,063.10	3.1
	SF / SFLI	ASHP - SEER 16 - replace electric furnace / CAC - early replacement SF ER1	9,788.0	Heating Res	0.0000000000	0.000	6.0	\$0.00	
	SF / SFLI	ASHP - SEER 16 - replace electric furnace / CAC - early replacement SF ER2	460.2	Cooling Res ER2	0.0009474181	0.436	12.0	\$0.00	
	SF / SFLI	ASHP - SEER 16 - replace electric furnace / CAC - early replacement SF ER2	9,788.0	Heating Res ER2	0.0000000000	0.000	12.0	\$0.00	
	SF / SFLI	ASHP SEER 16 replace ASHP - early replacement SF ER1	1,836.3	Cooling Res	0.0009474181	1.740	6.0	\$2,063.10	3.1
	SF / SFLI	ASHP SEER 16 replace ASHP - early replacement SF ER1	2,027.1	Heating Res	0.0000000000	0.000	6.0	\$0.00	
	SF / SFLI	ASHP SEER 16 replace ASHP - early replacement SF ER2	284.9	Cooling Res ER2	0.0009474181	0.270	12.0	\$0.00	
	SF / SFLI	ASHP SEER 16 replace ASHP - early replacement SF ER2	377.7	Heating Res ER2	0.0000000000	0.000	12.0	\$0.00	
	SF / SFLI	ASHP - SEER 16 - replace electric furnace / CAC SF	460.2	Cooling Res	0.0009474181	0.436	18.0	\$1,201.66	3.1
	SF / SFLI	ASHP - SEER 16 - replace electric furnace / CAC SF	9,788.0	Heating Res	0.0000000000	0.000	18.0	\$0.00	
	SF / SFLI	ASHP SEER 16 replace ASHP - replace on fail SF	284.9	Cooling Res	0.0009474181	0.270	18.0	\$927.18	3.1
	SF / SFLI	ASHP SEER 16 replace ASHP - replace on fail SF	377.7	Heating Res	0.0000000000	0.000	18.0	\$0.00	
	MFMR / MFLI	ASHP SEER 15 MF ER Replace ASHP: HVAC ER1	1,130.9	Cooling Res	0.0009474181	1.071	6.0	\$1,177.80	3.1
	MFMR / MFLI	ASHP SEER 15 MF ER Replace ASHP: HVAC ER1	2,491.7	Heating Res	0.0000000000	0.000	6.0	\$0.00	
	MFMR / MFLI	ASHP SEER 15 MF ER Replace ASHP: HVAC ER2	109.3	Cooling Res ER2	0.0009474181	0.104	12.0	\$0.00	
	MFMR / MFLI	ASHP SEER 15 MF ER Replace ASHP: HVAC ER2	253.5	Heating Res ER2	0.0000000000	0.000	12.0	\$0.00	
	MFMR / MFLI	ASHP SEER 15 MF ER Replace Elec Resist Furnace: HVAC ER1	1,021.5	Cooling Res	0.0009474181	0.968	6.0	\$1,063.82	2.8
	MFMR / MFLI	ASHP SEER 15 MF ER Replace Elec Resist Furnace: HVAC ER1	5,825.9	Heating Res	0.0000000000	0.000	6.0	\$0.00	

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Measure Reference No.	Program/Channel	Measure	kWh Annual Savings	End Use	kW Factor	kW	EUL	Inc. Cost	Units (tons/measure)
	MFMR / MFLI	ASHP SEER 15 MF ER Replace Elec Resist Furnace: HVAC ER2	203.0	Cooling Res ER2	0.0009474181	0.192	12.0	\$0.00	
	MFMR / MFLI	ASHP SEER 15 MF ER Replace Elec Resist Furnace: HVAC ER2	5,825.9	Heating Res ER2	0.0000000000	0.000	12.0	\$0.00	
	MFMR / MFLI	ASHP SEER 15 MF Replace at Fail Elec Resist Furnace: HVAC	196.2	Cooling Res	0.0009474181	0.186	18.0	\$512.07	2.6
	MFMR / MFLI	ASHP SEER 15 MF Replace at Fail Elec Resist Furnace: HVAC	5,369.3	Heating Res	0.0000000000	0.000	18.0	\$0.00	
	MFMR / MFLI	ASHP SEER 16 MF ER Replace ASHP: HVAC ER1	1,287.2	Cooling Res	0.0009474181	1.220	6.0	\$1,446.19	3.3
	MFMR / MFLI	ASHP SEER 16 MF ER Replace ASHP: HVAC ER1	1,798.8	Heating Res	0.0000000000	0.000	6.0	\$0.00	
	MFMR / MFLI	ASHP SEER 16 MF ER Replace ASHP: HVAC ER2	199.7	Cooling Res ER2	0.0009474181	0.189	12.0	\$0.00	
	MFMR / MFLI	ASHP SEER 16 MF ER Replace ASHP: HVAC ER2	642.6	Heating Res ER2	0.0000000000	0.000	12.0	\$0.00	
	MFMR / MFLI	ASHP - SEER 16 - replace on fail MF	199.7	Cooling Res	0.0009474181	0.189	18.0	\$842.34	3.3
	MFMR / MFLI	ASHP - SEER 16 - replace on fail MF	766.7	Heating Res	0.0000000000	0.000	18.0	\$0.00	
	MFMR / MFLI	ASHP - SEER 16 - replace electric furnace / CAC MF	312.8	Cooling Res	0.0009474181	0.296	18.0	\$816.82	3.2
	MFMR / MFLI	ASHP - SEER 16 - replace electric furnace / CAC MF	7,100.7	Heating Res	0.0000000000	0.000	18.0	\$0.00	
	MFMR / MFLI	ASHP - SEER 16 - replace electric furnace / CAC - early replacement MF ER1	1,209.2	Cooling Res	0.0009474181	1.146	6.0	\$1,358.55	3.1
	MFMR / MFLI	ASHP - SEER 16 - replace electric furnace / CAC - early replacement MF ER1	6,759.8	Heating Res	0.0000000000	0.000	6.0	\$0.00	
	MFMR / MFLI	ASHP - SEER 16 - replace electric furnace / CAC - early replacement MF ER2	303.1	Cooling Res ER2	0.0009474181	0.287	12.0	\$0.00	
	MFMR / MFLI	ASHP - SEER 16 - replace electric furnace / CAC - early replacement MF ER2	6,759.8	Heating Res ER2	0.0000000000	0.000	12.0	\$0.00	
	MFMR / MFLI	ASHP SEER 15 MF Replace at Fail ASHP: HVAC	109.3	Cooling Res	0.0009474181	0.104	18.0	\$610.55	3.1
	MFMR / MFLI	ASHP SEER 15 MF Replace at Fail ASHP: HVAC	253.5	Heating Res	0.0000000000	0.000	18.0	\$0.00	
	SF / SFLI	ASHP - SEER 17 - replace electric furnace / CAC SF	1,787.7	Cooling Res	0.0009474181	1.694	18.0	\$1,624.00	2.8
	SF / SFLI	ASHP - SEER 17 - replace electric furnace / CAC SF	9,558.6	Heating Res	0.0000000000	0.000	18.0	\$0.00	
	MFMR / MFLI	ASHP - SEER 17 - replace electric furnace / CAC MF	1,162.0	Cooling Res	0.0009474181	1.101	18.0	\$1,055.60	2.8
	MFMR / MFLI	ASHP - SEER 17 - replace electric furnace / CAC MF	6,213.1	Heating Res	0.0000000000	0.000	18.0	\$0.00	
	SF / SFLI	ASHP - SEER 18 - replace electric furnace / CAC SF	1,883.1	Cooling Res	0.0009474181	1.784	18.0	\$1,997.33	2.8
	SF / SFLI	ASHP - SEER 18 - replace electric furnace / CAC SF	9,558.6	Heating Res	0.0000000000	0.000	18.0	\$0.00	
	MFMR / MFLI	ASHP - SEER 18 - replace electric furnace / CAC MF	1,224.0	Cooling Res	0.0009474181	1.160	18.0	\$1,298.27	2.8
	MFMR / MFLI	ASHP - SEER 18 - replace electric furnace / CAC MF	6,213.1	Heating Res	0.0000000000	0.000	18.0	\$0.00	
	SF / SFLI	ASHP - SEER 19 - replace electric furnace / CAC SF	1,968.5	Cooling Res	0.0009474181	1.865	18.0	\$2,277.33	2.8
	SF / SFLI	ASHP - SEER 19 - replace electric furnace / CAC SF	9,558.6	Heating Res	0.0000000000	0.000	18.0	\$0.00	
	MFMR / MFLI	ASHP - SEER 19 - replace electric furnace / CAC MF	1,279.5	Cooling Res	0.0009474181	1.212	18.0	\$1,480.27	2.8
	MFMR / MFLI	ASHP - SEER 19 - replace electric furnace / CAC MF	6,213.1	Heating Res	0.0000000000	0.000	18.0	\$0.00	
	SF / SFLI	ASHP - SEER 20 - replace electric furnace / CAC - early replacement SF ER1	2,264.4	Cooling Res	0.0009474181	2.145	6.0	\$4,468.70	3.1
	SF / SFLI	ASHP - SEER 20 - replace electric furnace / CAC - early replacement SF ER1	10,399.7	Heating Res	0.0000000000	0.000	6.0	\$0.00	
	SF / SFLI	ASHP - SEER 20 - replace electric furnace / CAC - early replacement SF ER2	870.3	Cooling Res ER2	0.0009474181	0.825	12.0	\$0.00	
	SF / SFLI	ASHP - SEER 20 - replace electric furnace / CAC - early replacement SF ER2	10,399.7	Heating Res ER2	0.0000000000	0.000	12.0	\$0.00	
	SF / SFLI	ASHP - SEER 20 - replace electric furnace / CAC SF	898.4	Cooling Res	0.0009474181	0.851	18.0	\$3,712.00	3.2
	SF / SFLI	ASHP - SEER 20 - replace electric furnace / CAC SF	10,924.1	Heating Res	0.0000000000	0.000	18.0	\$0.00	
	MFMR / MFLI	ASHP - SEER 20 - replace electric furnace / CAC MF	584.0	Cooling Res	0.0009474181	0.553	18.0	\$2,412.80	3.2
	MFMR / MFLI	ASHP - SEER 20 - replace electric furnace / CAC MF	7,100.7	Heating Res	0.0000000000	0.000	18.0	\$0.00	
	SF / SFLI	ASHP - SEER 21 - replace electric furnace / CAC - early replacement SF ER1	2,341.4	Cooling Res	0.0009474181	2.218	6.0	\$4,468.70	3.1

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Measure Reference No.	Program/Channel	Measure	kWh Annual Savings	End Use	kW Factor	kW	EUL	Inc. Cost	Units (tons/measurement)
	SF / SFLI	ASHP - SEER 21 - replace electric furnace / CAC - early replacement SF ER1	10,399.7	Heating Res	0.0000000000	0.000	6.0	\$0.00	
	SF / SFLI	ASHP - SEER 21 - replace electric furnace / CAC - early replacement SF ER2	947.3	Cooling Res ER2	0.0009474181	0.897	12.0	\$0.00	
	SF / SFLI	ASHP - SEER 21 - replace electric furnace / CAC - early replacement SF ER2	10,399.7	Heating Res ER2	0.0000000000	0.000	12.0	\$0.00	
	MFMR / MFLI	ASHP - SEER 21 - replace electric furnace / CAC - early replacement MF ER1	1,521.9	Cooling Res	0.0009474181	1.442	6.0	\$2,904.65	3.1
	MFMR / MFLI	ASHP - SEER 21 - replace electric furnace / CAC - early replacement MF ER1	6,759.8	Heating Res	0.0000000000	0.000	6.0	\$0.00	
	MFMR / MFLI	ASHP - SEER 21 - replace electric furnace / CAC - early replacement MF ER2	615.7	Cooling Res ER2	0.0009474181	0.583	12.0	\$0.00	
	MFMR / MFLI	ASHP - SEER 21 - replace electric furnace / CAC - early replacement MF ER2	6,759.8	Heating Res ER2	0.0000000000	0.000	12.0	\$0.00	
	SF / SFLI	ASHP - SEER 21 - replace electric furnace / CAC SF	977.9	Cooling Res	0.0009474181	0.926	18.0	\$3,712.00	3.2
	SF / SFLI	ASHP - SEER 21 - replace electric furnace / CAC SF	10,924.1	Heating Res	0.0000000000	0.000	18.0	\$0.00	
	SF / SFLI	ASHP - SEER 21+ Replace at Fail Elec Resist Furnace: HVAC	635.6	Cooling Res	0.0009474181	0.602	18.0	\$2,412.80	3.2
	SF / SFLI	ASHP - SEER 21+ Replace at Fail Elec Resist Furnace: HVAC	7,100.7	Heating Res	0.0000000000	0.000	18.0	\$0.00	
	SF / SFLI	ASHP SEER 17 replace ASHP - early replacement SF ER1	2,106.9	Cooling Res	0.0009474181	1.996	6.0	\$2,843.00	3.3
	SF / SFLI	ASHP SEER 17 replace ASHP - early replacement SF ER1	2,767.3	Heating Res	0.0000000000	0.000	6.0	\$0.00	
	SF / SFLI	ASHP SEER 17 replace ASHP - early replacement SF ER2	433.8	Cooling Res ER2	0.0009474181	0.411	12.0	\$0.00	
	SF / SFLI	ASHP SEER 17 replace ASHP - early replacement SF ER2	988.6	Heating Res ER2	0.0000000000	0.000	12.0	\$0.00	
	SF / SFLI	ASHP SEER 17 replace ASHP - replace on fail SF	433.8	Cooling Res	0.0009474181	0.411	18.0	\$1,914.00	3.3
	SF / SFLI	ASHP SEER 17 replace ASHP - replace on fail SF	1,179.5	Heating Res	0.0000000000	0.000	18.0	\$0.00	
	SF / SFLI	ASHP SEER 18 replace ASHP - early replacement SF ER1	2,219.3	Cooling Res	0.0009474181	2.103	6.0	\$3,283.00	3.3
	SF / SFLI	ASHP SEER 18 replace ASHP - early replacement SF ER1	2,767.3	Heating Res	0.0000000000	0.000	6.0	\$0.00	
	SF / SFLI	ASHP SEER 18 replace ASHP - early replacement SF ER2	546.2	Cooling Res ER2	0.0009474181	0.518	12.0	\$0.00	
	SF / SFLI	ASHP SEER 18 replace ASHP - early replacement SF ER2	988.6	Heating Res ER2	0.0000000000	0.000	12.0	\$0.00	
	SF / SFLI	ASHP SEER 18 replace ASHP - replace on fail SF	546.2	Cooling Res	0.0009474181	0.518	18.0	\$2,354.00	3.3
	SF / SFLI	ASHP SEER 18 replace ASHP - replace on fail SF	1,179.5	Heating Res	0.0000000000	0.000	18.0	\$0.00	
	SF / SFLI	ASHP - SEER 18 - replace on fail SF	546.2	Cooling Res	0.0009474181	0.518	18.0	\$2,354.00	3.3
	SF / SFLI	ASHP - SEER 18 - replace on fail SF	1,179.5	Heating Res	0.0000000000	0.000	18.0	\$0.00	
	SF / SFLI	ASHP SEER 19 replace ASHP - early replacement SF ER1	2,320.0	Cooling Res	0.0009474181	2.198	6.0	\$3,613.00	3.3
	SF / SFLI	ASHP SEER 19 replace ASHP - early replacement SF ER1	2,767.3	Heating Res	0.0000000000	0.000	6.0	\$0.00	
	SF / SFLI	ASHP SEER 19 replace ASHP - early replacement SF ER2	646.8	Cooling Res ER2	0.0009474181	0.613	12.0	\$0.00	
	SF / SFLI	ASHP SEER 19 replace ASHP - early replacement SF ER2	988.6	Heating Res ER2	0.0000000000	0.000	12.0	\$0.00	
	SF / SFLI	ASHP SEER 19 replace ASHP - replace on fail SF	646.8	Cooling Res	0.0009474181	0.613	18.0	\$2,684.00	3.3
	SF / SFLI	ASHP SEER 19 replace ASHP - replace on fail SF	1,179.5	Heating Res	0.0000000000	0.000	18.0	\$0.00	
	SF / SFLI	ASHP - SEER 17 - replace electric furnace / CAC - early replacement SF ER1	1,979.2	Cooling Res	0.0009474181	1.875	6.0	\$2,670.70	3.1

RESIDENTIAL HVAC

Measure Reference No.	Program/Channel	Measure	kWh Annual Savings	End Use	kW Factor	kW	EUL	Inc. Cost	Units (tons/measurement)
	SF / SFLI	ASHP - SEER 17 - replace electric furnace / CAC - early replacement SF ER1	10,399.7	Heating Res	0.0000000000	0.000	6.0	\$0.00	
	SF / SFLI	ASHP - SEER 17 - replace electric furnace / CAC - early replacement SF ER2	585.1	Cooling Res ER2	0.0009474181	0.554	12.0	\$0.00	
	SF / SFLI	ASHP - SEER 17 - replace electric furnace / CAC - early replacement SF ER2	10,399.7	Heating Res ER2	0.0000000000	0.000	12.0	\$0.00	
	MFMR / MFLI	ASHP - SEER 17 - replace electric furnace / CAC - early replacement MF ER1	1,286.5	Cooling Res	0.0009474181	1.219	6.0	\$1,735.95	3.1
	MFMR / MFLI	ASHP - SEER 17 - replace electric furnace / CAC - early replacement MF ER1	6,759.8	Heating Res	0.0000000000	0.000	6.0	\$0.00	
	MFMR / MFLI	ASHP - SEER 17 - replace electric furnace / CAC - early replacement MF ER2	380.3	Cooling Res ER2	0.0009474181	0.360	12.0	\$0.00	
	MFMR / MFLI	ASHP - SEER 17 - replace electric furnace / CAC - early replacement MF ER2	6,759.8	Heating Res ER2	0.0000000000	0.000	12.0	\$0.00	
	MFMR / MFLI	ASHP SEER 17 replace ASHP - early replacement MF ER1	1,369.5	Cooling Res	0.0009474181	1.297	6.0	\$1,847.95	3.3
	MFMR / MFLI	ASHP SEER 17 replace ASHP - early replacement MF ER1	1,798.8	Heating Res	0.0000000000	0.000	6.0	\$0.00	
	MFMR / MFLI	ASHP SEER 17 replace ASHP - early replacement MF ER2	282.0	Cooling Res ER2	0.0009474181	0.267	12.0	\$0.00	
	MFMR / MFLI	ASHP SEER 17 replace ASHP - early replacement MF ER2	642.6	Heating Res ER2	0.0000000000	0.000	12.0	\$0.00	
	SF / SFLI	ASHP - SEER 18 - replace electric furnace / CAC - early replacement SF ER1	2,084.8	Cooling Res	0.0009474181	1.975	6.0	\$3,084.03	3.1
	SF / SFLI	ASHP - SEER 18 - replace electric furnace / CAC - early replacement SF ER1	10,399.7	Heating Res	0.0000000000	0.000	6.0	\$0.00	
	SF / SFLI	ASHP - SEER 18 - replace electric furnace / CAC - early replacement SF ER2	690.7	Cooling Res ER2	0.0009474181	0.654	12.0	\$0.00	
	SF / SFLI	ASHP - SEER 18 - replace electric furnace / CAC - early replacement SF ER2	10,399.7	Heating Res ER2	0.0000000000	0.000	12.0	\$0.00	
	MFMR / MFLI	ASHP - SEER 18 - replace electric furnace / CAC - early replacement MF ER1	1,355.1	Cooling Res	0.0009474181	1.284	6.0	\$2,004.62	3.1
	MFMR / MFLI	ASHP - SEER 18 - replace electric furnace / CAC - early replacement MF ER1	6,759.8	Heating Res	0.0000000000	0.000	6.0	\$0.00	
	MFMR / MFLI	ASHP - SEER 18 - replace electric furnace / CAC - early replacement MF ER2	449.0	Cooling Res ER2	0.0009474181	0.425	12.0	\$0.00	
	MFMR / MFLI	ASHP - SEER 18 - replace electric furnace / CAC - early replacement MF ER2	6,759.8	Heating Res ER2	0.0000000000	0.000	12.0	\$0.00	
	MFMR / MFLI	ASHP SEER 18 replace ASHP - early replacement MF ER1	1,442.6	Cooling Res	0.0009474181	1.367	6.0	\$2,133.95	3.3
	MFMR / MFLI	ASHP SEER 18 replace ASHP - early replacement MF ER1	1,798.8	Heating Res	0.0000000000	0.000	6.0	\$0.00	
	MFMR / MFLI	ASHP SEER 18 replace ASHP - early replacement MF ER2	355.0	Cooling Res ER2	0.0009474181	0.336	12.0	\$0.00	
	MFMR / MFLI	ASHP SEER 18 replace ASHP - early replacement MF ER2	642.6	Heating Res ER2	0.0000000000	0.000	12.0	\$0.00	

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Measure Reference No.	Program/Channel	Measure	kWh Annual Savings	End Use	kW Factor	kW	EUL	Inc. Cost	Units (tons/measurement)
	SF / SFLI	ASHP - SEER 19 - replace electric furnace / CAC - early replacement SF ER1	2,179.4	Cooling Res	0.0009474181	2.065	6.0	\$3,394.03	3.1
	SF / SFLI	ASHP - SEER 19 - replace electric furnace / CAC - early replacement SF ER1	10,399.7	Heating Res	0.0000000000	0.000	6.0	\$0.00	
	SF / SFLI	ASHP - SEER 19 - replace electric furnace / CAC - early replacement SF ER2	785.3	Cooling Res ER2	0.0009474181	0.744	12.0	\$0.00	
	SF / SFLI	ASHP - SEER 19 - replace electric furnace / CAC - early replacement SF ER2	10,399.7	Heating Res ER2	0.0000000000	0.000	12.0	\$0.00	
	MFMR / MFLI	ASHP - SEER 19 - replace electric furnace / CAC - early replacement MF ER1	1,416.6	Cooling Res	0.0009474181	1.342	6.0	\$2,206.12	3.1
	MFMR / MFLI	ASHP - SEER 19 - replace electric furnace / CAC - early replacement MF ER1	6,759.8	Heating Res	0.0000000000	0.000	6.0	\$0.00	
	MFMR / MFLI	ASHP - SEER 19 - replace electric furnace / CAC - early replacement MF ER2	510.4	Cooling Res ER2	0.0009474181	0.484	12.0	\$0.00	
	MFMR / MFLI	ASHP - SEER 19 - replace electric furnace / CAC - early replacement MF ER2	6,759.8	Heating Res ER2	0.0000000000	0.000	12.0	\$0.00	
	MFMR / MFLI	ASHP SEER 19 replace ASHP - early replacement MF ER1	1,508.0	Cooling Res	0.0009474181	1.429	6.0	\$2,348.45	3.3
	MFMR / MFLI	ASHP SEER 19 replace ASHP - early replacement MF ER1	1,798.8	Heating Res	0.0000000000	0.000	6.0	\$0.00	
	MFMR / MFLI	ASHP SEER 19 replace ASHP - early replacement MF ER2	420.5	Cooling Res ER2	0.0009474181	0.398	12.0	\$0.00	
	MFMR / MFLI	ASHP SEER 19 replace ASHP - early replacement MF ER2	642.6	Heating Res ER2	0.0000000000	0.000	12.0	\$0.00	
	SF / SFLI	ASHP SEER 20 replace ASHP - early replacement SF ER1	2,410.5	Cooling Res	0.0009474181	2.284	6.0	\$4,757.00	3.3
	SF / SFLI	ASHP SEER 20 replace ASHP - early replacement SF ER1	2,767.3	Heating Res	0.0000000000	0.000	6.0	\$0.00	
	SF / SFLI	ASHP SEER 20 replace ASHP - early replacement SF ER2	737.4	Cooling Res ER2	0.0009474181	0.699	12.0	\$0.00	
	SF / SFLI	ASHP SEER 20 replace ASHP - early replacement SF ER2	988.6	Heating Res ER2	0.0000000000	0.000	12.0	\$0.00	
	SF / SFLI	ASHP SEER 20 replace ASHP - replace on fail SF	737.4	Cooling Res	0.0009474181	0.699	18.0	\$3,828.00	3.3
	SF / SFLI	ASHP SEER 20 replace ASHP - replace on fail SF	1,179.5	Heating Res	0.0000000000	0.000	18.0	\$0.00	
	MFMR / MFLI	ASHP - SEER 20 - replace electric furnace / CAC - early replacement MF ER1	1,471.9	Cooling Res	0.0009474181	1.394	6.0	\$2,904.65	3.1
	MFMR / MFLI	ASHP - SEER 20 - replace electric furnace / CAC - early replacement MF ER1	6,759.8	Heating Res	0.0000000000	0.000	6.0	\$0.00	
	MFMR / MFLI	ASHP - SEER 20 - replace electric furnace / CAC - early replacement MF ER2	565.7	Cooling Res ER2	0.0009474181	0.536	12.0	\$0.00	
	MFMR / MFLI	ASHP - SEER 20 - replace electric furnace / CAC - early replacement MF ER2	6,759.8	Heating Res ER2	0.0000000000	0.000	12.0	\$0.00	
	MFMR / MFLI	ASHP SEER 20 replace ASHP - early replacement MF ER1	1,566.8	Cooling Res	0.0009474181	1.484	6.0	\$3,092.05	3.3
	MFMR / MFLI	ASHP SEER 20 replace ASHP - early replacement MF ER1	1,798.8	Heating Res	0.0000000000	0.000	6.0	\$0.00	
	MFMR / MFLI	ASHP SEER 20 replace ASHP - early replacement MF ER2	479.3	Cooling Res ER2	0.0009474181	0.454	12.0	\$0.00	
	MFMR / MFLI	ASHP SEER 20 replace ASHP - early replacement MF ER2	642.6	Heating Res ER2	0.0000000000	0.000	12.0	\$0.00	

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Measure Reference No.	Program/Channel	Measure	kWh Annual Savings	End Use	kW Factor	kW	EUL	Inc. Cost	Units (tons/measurement)
	SF / SFLJ	ASHP SEER 21 replace ASHP - early replacement SF ER1	2,492.5	Cooling Res	0.0009474181	2.361	6.0	\$4,757.00	3.3
	SF / SFLI	ASHP SEER 21 replace ASHP - early replacement SF ER1	2,767.3	Heating Res	0.0000000000	0.000	6.0	\$0.00	
	SF / SFLI	ASHP SEER 21 replace ASHP - early replacement SF ER2	819.3	Cooling Res ER2	0.0009474181	0.776	12.0	\$0.00	
	SF / SFLI	ASHP SEER 21 replace ASHP - early replacement SF ER2	988.6	Heating Res ER2	0.0000000000	0.000	12.0	\$0.00	
	SF / SFLJ	ASHP SEER 21 replace ASHP - replace on fail SF	819.3	Cooling Res	0.0009474181	0.776	18.0	\$3,828.00	3.3
	SF / SFLJ	ASHP SEER 21 replace ASHP - replace on fail SF	1,179.5	Heating Res	0.0000000000	0.000	18.0	\$0.00	
	MFMR / MFLI	ASHP - SEER 21 - replace electric furnace / CAC MF	556.2	Cooling Res	0.0009474181	0.527	18.0	\$2,111.20	2.8
	MFMR / MFLI	ASHP - SEER 21 - replace electric furnace / CAC MF	6,213.1	Heating Res	0.0000000000	0.000	18.0	\$0.00	
	MFMR / MFLI	ASHP SEER 21 replace ASHP - early replacement MF ER1	1,620.1	Cooling Res	0.0009474181	1.535	6.0	\$3,092.05	3.3
	MFMR / MFLI	ASHP SEER 21 replace ASHP - early replacement MF ER1	1,798.8	Heating Res	0.0000000000	0.000	6.0	\$0.00	
	MFMR / MFLI	ASHP SEER 21 replace ASHP - early replacement MF ER2	532.6	Cooling Res ER2	0.0009474181	0.505	12.0	\$0.00	
	MFMR / MFLI	ASHP SEER 21 replace ASHP - early replacement MF ER2	642.6	Heating Res ER2	0.0000000000	0.000	12.0	\$0.00	
	MFMR / MFLI	ASHP - SEER 17 - replace on fail MF	282.0	Cooling Res	0.0009474181	0.267	18.0	\$1,244.10	3.3
	MFMR / MFLI	ASHP - SEER 17 - replace on fail MF	766.7	Heating Res	0.0000000000	0.000	18.0	\$0.00	
	MFMR / MFLI	ASHP - SEER 18 - replace on fail MF	355.0	Cooling Res	0.0009474181	0.336	18.0	\$1,530.10	3.3
	MFMR / MFLI	ASHP - SEER 18 - replace on fail MF	766.7	Heating Res	0.0000000000	0.000	18.0	\$0.00	
	MFMR / MFLI	ASHP - SEER 19 - replace on fail MF	420.5	Cooling Res	0.0009474181	0.398	18.0	\$1,744.60	3.3
	MFMR / MFLI	ASHP - SEER 19 - replace on fail MF	766.7	Heating Res	0.0000000000	0.000	18.0	\$0.00	
	MFMR / MFLI	ASHP - SEER 20 - replace on fail MF	479.3	Cooling Res	0.0009474181	0.454	18.0	\$2,488.20	3.3
	MFMR / MFLI	ASHP - SEER 20 - replace on fail MF	766.7	Heating Res	0.0000000000	0.000	18.0	\$0.00	
	MFMR / MFLI	ASHP - SEER 21 - replace on fail MF	532.6	Cooling Res	0.0009474181	0.505	18.0	\$2,488.20	3.3
	MFMR / MFLI	ASHP - SEER 21 - replace on fail MF	766.7	Heating Res	0.0000000000	0.000	18.0	\$0.00	

RESIDENTIAL INCOME ELIGIBLE

AC Tune-up

Measure Reference No.	Program/Channel	Measure	kWh Annual Savings	End Use	kW Factor	kW	EUL	Inc. Cost	Units
SFLI		AC General Tune-Up (no charge or coil clean) SF	142.5	Cooling RES	0.0009474181	0.1350	2.0	\$70.00	per measure
MFLI		AC General Tune-Up (no charge or coil clean) MF	92.6	Cooling RES	0.0009474181	0.0878	2.0	\$70.00	per measure
SFLI		AC Tune-up / Refrigerant charge SF	594.4	Cooling RES	0.0009474181	0.5631	2.0	\$81.00	per measure
MFLI		AC Tune-up / Refrigerant charge MF	386.4	Cooling RES	0.0009474181	0.3660	2.0	\$81.00	per measure
SFLI		AC Tune-up / Indoor Coil (Evaporator) Cleaning SF	98.4	Cooling RES	0.0009474181	0.0932	2.0	\$63.00	per measure
MFLI		AC Tune-up / Indoor Coil (Evaporator) Cleaning MF	63.9	Cooling RES	0.0009474181	0.0606	2.0	\$63.00	per measure
SFLI		AC Tune-up / Outdoor Coil (Condenser) Cleaning SF	196.8	Cooling RES	0.0009474181	0.1864	2.0	\$31.00	per measure
MFLI		AC Tune-up / Outdoor Coil (Condenser) Cleaning MF	127.9	Cooling RES	0.0009474181	0.1212	2.0	\$31.00	per measure

Air Sealing

Measure Reference No.	Program/Channel	Measure	kWh Annual Savings	End Use	kW Factor	Heating kWh	Cooling kWh	kW	EUL	Inc. Cost	Units (sq. ft)
MFLI		Air Sealing (Infiltration reduction) - 30% MF LI DI electric furnace base	295.7	Building Shell RES	0.0004660805	256.9	38.8	0.1378	15.0	\$108.19	902
MFLI		Air Sealing (Infiltration reduction) - 30% MF LI DI heat pump base	226.3	Building Shell RES	0.0004660805	187.5	38.8	0.1055	15.0	\$108.19	902
SFLI		Air Sealing (Infiltration reduction) - 30% SF LI DI electric furnace base	496.5	Building Shell RES	0.0004660805	427.2	69.4	0.2314	15.0	\$166.44	1387
SFLI		Air Sealing (Infiltration reduction) - 30% SF LI DI heat pump base	425.8	Building Shell RES	0.0004660805	356.5	69.4	0.1985	15.0	\$166.44	1387
SFLI		MH Adjusted Air Sealing (Infiltration reduction) - 30% SF LI DI electric furnace base	513.0	Building Shell RES	0.0004660805	446.0	67.0	0.2391	15.0	\$129.60	1080

Ceiling Insulation

Measure Reference No.	Program/Channel	Measure	kWh Annual Savings	End Use	kW Factor	Heating kWh	Cooling kWh	kW	EUL	Inc. Cost	Units - area of ceiling/attic (ft2)
MFLI		Ceiling Insulation R11-R49 MF LI DI electric furnace base	924.0	Building Shell RES	0.0004660805	836.2	87.78	0.430663	25.0	\$1,860.46	876
MFLI		Ceiling Insulation R11-R49 MF LI DI heat pump base	576.0	Building Shell RES	0.0004660805	479.5	96.46	0.268459	25.0	\$1,860.46	876
MFLI		Ceiling Insulation R11-R49 MF LI DI gas heat electric cool base	124.7	Building Shell RES	0.0004660805	37.0	87.78	0.058144	25.0	\$1,860.46	876
SFLI		Ceiling Insulation R11-R49 SF LI DI electric furnace base	1,421.6	Building Shell RES	0.0004660805	1286.5	135.04	0.662559	25.0	\$2,862.25	1347
SFLI		Ceiling Insulation R11-R49 SF LI DI heat pump base	886.1	Building Shell RES	0.0004660805	737.7	148.40	0.413014	25.0	\$2,862.25	1347
SFLI		Ceiling Insulation R11-R49 SF LI DI gas heat electric cool base	191.9	Building Shell RES	0.0004660805	56.9	135.04	0.089452	25.0	\$2,862.25	1347
MFLI		Ceiling Insulation R5-R30 MF LI DI electric furnace base	1,232.2	Building Shell RES	0.0004660805	1115.1	117.05	0.574285	25.0	\$836.16	719
MFLI		Ceiling Insulation R5-R30 MF LI DI heat pump base	768.1	Building Shell RES	0.0004660805	639.5	128.63	0.357987	25.0	\$836.16	719
MFLI		Ceiling Insulation R5-R30 MF LI DI gas heat electric cool base	166.4	Building Shell RES	0.0004660805	49.3	117.05	0.077534	25.0	\$836.16	719
SFLI		Ceiling Insulation R5-R30 SF LI DI electric furnace base	1,895.6	Building Shell RES	0.0004660805	1715.5	180.08	0.883515	25.0	\$1,286.39	1106
SFLI		Ceiling Insulation R5-R30 SF LI DI heat pump base	1,181.7	Building Shell RES	0.0004660805	983.8	197.89	0.550750	25.0	\$1,286.39	1106
SFLI		Ceiling Insulation R5-R30 SF LI DI gas heat electric cool base	255.9	Building Shell RES	0.0004660805	75.8	180.08	0.119283	25.0	\$1,286.39	1106
MFLI		Ceiling Insulation R5-R38 MF LI DI electric furnace base	1,323.9	Building Shell RES	0.0004660805	1198.1	125.76	0.617022	25.0	\$1,208.50	719
MFLI		Ceiling Insulation R5-R38 MF LI DI heat pump base	825.2	Building Shell RES	0.0004660805	687.0	138.20	0.384628	25.0	\$1,208.50	719
MFLI		Ceiling Insulation R5-R38 MF LI DI gas heat electric cool base	178.7	Building Shell RES	0.0004660805	53.0	125.76	0.083304	25.0	\$1,208.50	719
SFLI		Ceiling Insulation R5-R38 SF LI DI electric furnace base	2,036.7	Building Shell RES	0.0004660805	1843.2	193.48	0.949265	25.0	\$1,859.23	1106
SFLI		Ceiling Insulation R5-R38 SF LI DI heat pump base	1,269.6	Building Shell RES	0.0004660805	1057.0	212.61	0.591736	25.0	\$1,859.23	1106
SFLI		Ceiling Insulation R5-R38 SF LI DI gas heat electric cool base	275.0	Building Shell RES	0.0004660805	81.5	193.48	0.128160	25.0	\$1,859.23	1106
MFLI		Ceiling Insulation R5-R49 MF LI DI electric furnace base	1,405.6	Building Shell RES	0.0004660805	1272.0	133.52	0.655110	25.0	\$1,846.68	719
MFLI		Ceiling Insulation R5-R49 MF LI DI heat pump base	876.2	Building Shell RES	0.0004660805	729.5	146.73	0.408371	25.0	\$1,846.68	719
MFLI		Ceiling Insulation R5-R49 MF LI DI gas heat electric cool base	189.8	Building Shell RES	0.0004660805	56.2	133.52	0.088446	25.0	\$1,846.68	719
SFLI		Ceiling Insulation R5-R49 SF LI DI electric furnace base	2,162.4	Building Shell RES	0.0004660805	1957.0	205.42	1.007862	25.0	\$2,841.04	1106
SFLI		Ceiling Insulation R5-R49 SF LI DI heat pump base	1,348.0	Building Shell RES	0.0004660805	1122.2	225.74	0.628263	25.0	\$2,841.04	1106
SFLI		Ceiling Insulation R5-R49 SF LI DI gas heat electric cool base	291.9	Building Shell RES	0.0004660805	86.5	205.42	0.136071	25.0	\$2,841.04	1106
MFLI		Ceiling Insulation R5-R60 MF LI DI electric furnace base	1,459.6	Building Shell RES	0.0004660805	1321.0	138.66	0.680307	25.0	\$2,461.73	719
MFLI		Ceiling Insulation R5-R60 MF LI DI heat pump base	909.9	Building Shell RES	0.0004660805	757.5	152.37	0.424077	25.0	\$2,461.73	719
MFLI		Ceiling Insulation R5-R60 MF LI DI gas heat electric cool base	197.1	Building Shell RES	0.0004660805	58.4	138.66	0.091848	25.0	\$2,461.73	719
SFLI		Ceiling Insulation R5-R60 SF LI DI electric furnace base	2,245.6	Building Shell RES	0.0004660805	2032.3	213.32	1.046626	25.0	\$3,787.28	1106
SFLI		Ceiling Insulation R5-R60 SF LI DI heat pump base	1,399.8	Building Shell RES	0.0004660805	1165.4	234.42	0.652426	25.0	\$3,787.28	1106
SFLI		Ceiling Insulation R5-R60 SF LI DI gas heat electric cool base	303.2	Building Shell RES	0.0004660805	89.9	213.32	0.141304	25.0	\$3,787.28	1106

Floor Insulation

Measure Reference No.	Program/Channel	Measure	kWh Annual Savings	End Use	kW Factor	Heating kWh	Cooling kWh	kW	EUL	Inc. Cost	Units - area of floor (ft2)
MFLI		Floor Insulation R25 Mobile Home electric furnace/baseboard and electric cooling	2,641.1	Building Shell RES	0.0004660805	2389.3	251.9	1.2310	25.0	\$734.04	1080

RESIDENTIAL INCOME ELIGIBLE

Dirty Filter Alarm

Measure Reference No.	Program/Channel	Measure	kWh Annual Savings	End Use	kW Factor	Heating kWh	Cooling kWh	kW	EUL	Inc. Cost	Units
	MFLI	Dirty Filter Alarm_MFLI	141.1	HVAC RES	0.0004660805	87.9	53.2	0.0657	14.0	\$5.00	per measure

Duct Insulation

Measure Reference No.	Program/Channel	Measure	kWh Annual Savings	End Use	kW Factor	ΔkWhCooling	ΔkWhHeating	Δtherms	kW	EUL	Inc. Cost*	Units
SFLI		Duct Insulation - Electric Heating	1436.6	HVAC RES	0.0004660805	58.9	1377.7	0.00	0.6696	20.0	\$138.70	
SFLI		Mobile Home Adjusted Duct Insulation - Electric Heating	1267.6	HVAC RES	0.0004660805	52.0	1215.7		0.5908	20.0	\$138.70	
SFLI		Duct Insulation - Gas Heating	114.3	HVAC RES	0.0004660805	58.9	55.4	60.26	0.0533	20.0	\$138.70	

Duct Repair (Duct Sealing and Repair - Methodology 3)

Measure Reference No.	Program/Channel	Measure	kWh Annual Savings	End Use	kW Factor	ΔkWhCooling	ΔkWhHeating	kW	EUL	Inc. Cost*	Units - DuctLength (ft.)
SFLI		Duct Repair (Sealing) - Electric Heating	183.233	HVAC RES	0.0004660805	30.2	153.1	0.0854	20.0	\$299.34	37
SFLI		Duct Repair (Sealing) - Electric Heating - MH Adjusted	218.613	HVAC RES	0.0004660805	30.2	188.4	0.1019	20.0	\$299.34	37

ECM/ Blower Motor

Measure Reference No.	Program/Channel	Measure	kWh Annual Savings	End Use	kW Factor	Heating kWh	Cooling kWh	Auto kWh	Continuous kWh	kW	EUL	Inc. Cost	Units
SFLI		ECM Auto Fan EUL Replacement -SF	591.9	HVAC RES	0.0004660805	265.2	4.7	322.0	0.0	0.2759	20	\$97.00	per measure
SFLI		ECM Auto Fan Early Replacement ER 1 (Full Cost) - SF	794.5	HVAC RES	0.0004660805	315.7	156.8	322.0	0.0	0.3703	6	\$475.00	per measure
SFLI		ECM Auto Fan Early Replacement ER2 (Remaining Life) - SF	591.9	HVAC RES ER2	0.0004660805	265.2	4.7	322.0	0.0	0.2759	12	\$0.00	per measure
SFLI		ECM Continuous Fan EUL Replacement - SF	3255.9	HVAC RES	0.0004660805	265.2	4.7	0.0	2986.0	1.5175	20	\$97.00	per measure
SFLI		ECM Continuous Fan Early Replacement ER 1 (Full Cost) - SF	3458.5	HVAC RES	0.0004660805	315.7	156.8	0.0	2986.0	1.6119	6	\$475.00	per measure
SFLI		ECM Continuous Fan Early Replacement ER2 (Remaining Life) - SF	3255.9	HVAC RES ER2	0.0004660805	265.2	4.7	0.0	2986.0	1.5175	12	\$0.00	per measure
MFLI		ECM Auto Fan EUL Replacement - MF	591.9	HVAC RES	0.0004660805	265.2	4.7	322.0	0.0	0.2759	20	\$97.00	per measure
MFLI		ECM Auto Fan Early Replacement ER 1 (Full Cost) - MF	794.5	HVAC RES	0.0004660805	315.7	156.8	322.0	0.0	0.3703	6	\$475.00	per measure
MFLI		ECM Auto Fan Early Replacement ER2 (Remaining Life) - MF	591.9	HVAC RES ER2	0.0004660805	265.2	4.7	322.0	0.0	0.2759	12	\$0.00	per measure
MFLI		ECM Continuous Fan EUL Replacement - MF	3255.9	HVAC RES	0.0004660805	265.2	4.7	0.0	2986.0	1.5175	20	\$97.00	per measure
MFLI		ECM Continuous Fan Early Replacement ER 1 (Full Cost) - MF	3458.5	HVAC RES	0.0004660805	315.7	156.8	0.0	2986.0	1.6119	6	\$475.00	per measure
MFLI		ECM Continuous Fan Early Replacement ER2 (Remaining Life) - MF	3255.9	HVAC RES ER2	0.0004660805	265.2	4.7	0.0	2986.0	1.5175	12	\$0.00	per measure

Heat Pump (HP) Tune-up

Measure Reference No.	Program/Channel	Measure	kWh Annual Savings	End Use	kW Factor	kW	EUL	Inc. Cost	Units
SFLI		General HP tune-up (no charge or coil clean)	146.1	Cooling RES	0.0009474181	0.1384	2.0	\$70.00	per measure
SFLI		General HP tune-up (no charge or coil clean)	157.9	Heating RES	0.0000000000	0.0000	2.0	\$0.00	per measure
MFLI		General HP tune-up (no charge or coil clean)	94.9	Cooling RES	0.0009474181	0.0899	2.0	\$70.00	per measure
MFLI		General HP tune-up (no charge or coil clean)	102.6	Heating RES	0.0000000000	0.0000	2.0	\$0.00	per measure
SFLI		HP tune-up / Refrigerant charge SF	609.2	Cooling RES	0.0009474181	0.5772	2.0	\$81.00	per measure
SFLI		HP tune-up / Refrigerant charge SF	760.0	Heating RES	0.0000000000	0.0000	2.0	\$0.00	per measure
MFLI		HP tune-up / Refrigerant charge MF	396.0	Cooling RES	0.0009474181	0.3752	2.0	\$81.00	per measure
MFLI		HP tune-up / Refrigerant charge MF	494.0	Heating RES	0.0000000000	0.0000	2.0	\$0.00	per measure
SFLI		HP tune-up / Indoor Coil (Evaporator) Cleaning SF	100.8	Cooling RES	0.0009474181	0.0955	2.0	\$63.00	per measure
SFLI		HP tune-up / Indoor Coil (Evaporator) Cleaning SF	107.6	Heating RES	0.0000000000	0.0000	2.0	\$0.00	per measure
MFLI		HP tune-up / Indoor Coil (Evaporator) Cleaning MF	65.5	Cooling RES	0.0009474181	0.0621	2.0	\$63.00	per measure
MFLI		HP tune-up / Indoor Coil (Evaporator) Cleaning MF	69.9	Heating RES	0.0000000000	0.0000	2.0	\$0.00	per measure
SFLI		HP tune-up / Outdoor Coil (Condenser) Cleaning SF	201.7	Cooling RES	0.0009474181	0.1911	2.0	\$31.00	per measure
SFLI		HP tune-up / Outdoor Coil (Condenser) Cleaning SF	221.5	Heating RES	0.0000000000	0.0000	2.0	\$0.00	per measure
MFLI		HP tune-up / Outdoor Coil (Condenser) Cleaning MF	131.1	Cooling RES	0.0009474181	0.1242	2.0	\$31.00	per measure
MFLI		HP tune-up / Outdoor Coil (Condenser) Cleaning MF	144.0	Heating RES	0.0000000000	0.0000	2.0	\$0.00	per measure

Low Flow Faucet Aerators

Measure Reference No.	Program/Channel	Measure	kWh Annual Savings	End Use	kW Factor	EPG_electric	kW	EUL	Inc. Cost	Units
	MFLI	Low Flow Faucet Aerator MFLI	40.8	Water heating RES	0.0000887318	0.047	0.0036	10.0	\$3.00	per measure
	MFLI DI	Low Flow Faucet Aerator MFLI DI	40.8	Water heating RES	0.0000887318	0.047	0.0036	10.0	\$11.33	per measure
	SFLI DI	Low Flow Faucet Aerator SFLI DI	40.8	Water heating RES	0.0000887318	0.047	0.0036	10.0	\$11.33	per measure

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Low Flow Showerheads

Measure Reference No.	Program/Channel	Measure	kWh Annual Savings	End Use	kW Factor	EPG_electric	kW	EUL	Inc. Cost	Units
	MFLI	Low Flow Showerhead MFLI	386.59	Water heating RES	0.0000887318	0.109	0.0343	10.0	\$7.00	per measure
	MFLI DI	Low Flow Showerhead MFLI DI	396.77	Water heating RES	0.0000887318	0.109	0.0352	10.0	\$7.00	per measure
	SFLI DI	Low Flow Showerhead SFLI DI	277.23	Water heating RES	0.0000887318	1.856	0.0246	10.0	\$7.00	per measure

Pipe Insulation

Measure Reference No.	Program/Channel	Measure	kWh Annual Savings	End Use	kW Factor	kW	EUL	Inc. Cost	Units
	MFLI	Pipe Insulation MFLI	4.48	Water heating RES	0.0000887318	0.0004	12.0	\$7.10	per foot
	MFLI DI	Pipe Insulation MFLI DI	4.48	Water heating RES	0.0000887318	0.0004	12.0	\$7.10	per foot
	SFLI DI	Pipe Insulation SFLI DI	4.48	Water heating RES	0.0000887318	0.0004	12.0	\$7.10	per foot

Programmable Thermostat

Measure Reference No.	Program/Channel	Measure	kWh Annual Savings	End Use	kW Factor	kW	EUL	Inc. Cost	Units
	MFLI	Setback thermostat - full setback - ASHP heating/cooling MF	439.9	Cooling RES	0.0009474181	0.42	10.0	\$70.00	per measure
	MFLI	Setback thermostat - full setback - ASHP heating/cooling MF	48.9	Heating RES	0.0000000000	0.00	10.0	\$0.00	per measure
	SFLI	Setback thermostat - full setback - ASHP heating/cooling SF	750.6	Cooling RES	0.0009474181	0.71	10.0	\$70.00	per measure
	SFLI	Setback thermostat - full setback - ASHP heating/cooling SF	135.6	Heating RES	0.0000000000	0.00	10.0	\$0.00	per measure
	MFLI	Setback thermostat - full setback - elec furnace heating / central AC MF	439.9	Cooling RES	0.0009474181	0.42	10.0	\$70.00	per measure
	MFLI	Setback thermostat - full setback - elec furnace heating / central AC MF	100.4	Heating RES	0.0000000000	0.00	10.0	\$0.00	per measure
	SFLI	Setback thermostat - full setback - elec furnace heating / central AC SF	750.6	Cooling RES	0.0009474181	0.71	10.0	\$70.00	per measure
	SFLI	Setback thermostat - full setback - elec furnace heating / central AC SF	230.6	Heating RES	0.0000000000	0.00	10.0	\$0.00	per measure
	MFLI	Setback thermostat - full setback - gas heating / central AC MF	439.9	Cooling RES	0.0009474181	0.42	10.0	\$70.00	per measure
	MFLI	Setback thermostat - full setback - gas heating / central AC MF	0.0	Heating RES	0.0000000000	0.00	10.0	\$0.00	per measure
	SFLI	Setback thermostat for SF - full setback - gas heating / central AC	750.6	Cooling RES	0.0009474181	0.71	10.0	\$70.00	per measure
	SFLI	Setback thermostat for SF - full setback - gas heating / central AC	0.0	Heating RES	0.0000000000	0.00	10.0	\$0.00	per measure
	MFLI	Setback thermostat - full setback - Unknown MF	439.9	Cooling RES	0.0009474181	0.42	10.0	\$70.00	per measure
	MFLI	Setback thermostat - full setback - Unknown MF	24.9	Heating RES	0.0000000000	0.00	10.0	\$0.00	per measure
	SFLI	Setback thermostat for SF - full setback - Unknown	750.6	Cooling RES	0.0009474181	0.71	10.0	\$70.00	per measure
	SFLI	Setback thermostat for SF - full setback - Unknown	50.2	Heating RES	0.0000000000	0.00	10.0	\$0.00	per measure

Thermostatic Restrictor Shower Valve

Measure Reference No.	Program/Channel	Measure	kWh Annual Savings	End Use	kW Factor	EPG_electric	kW	EUL	Inc. Cost	Units
	SFLI DI	Shower Start 1.5 gpm electric water heater SFLI DI	41.7	Water heating RES	0.0000887318	0.109	0.0037	10.0	\$50.00	per measure
	MFLI DI	Shower Start 1.5 gpm electric water heater MFLI DI	47.3	Water heating RES	0.0000887318	1.856	0.0042	10.0	\$50.00	per measure

Water Heater Wrap

Measure Reference No.	Program/Channel	Measure	kWh Annual Savings	End Use	kW Factor	kW	EUL	Inc. Cost	Units
	SFLI	Water Heater Wrap SFLI	100.5	Water heating RES	0.0000887318	0.0089	12.0	\$58.00	per measure

Common Area Faucet Aerators

Measure Reference No.	Program/Channel	Measure	kWh Annual Savings	End Use	kW Factor	EPG_electric	kW	EUL	Inc. Cost	Units
	MFLI	Common Area Low Flow Bathroom Faucet Aerator	28.4	Water heating RES	0.0000887318	0.071	0.0025	10.0	\$11.33	per measure

Common Area Low Flow Showerheads

Measure Reference No.	Program/Channel	Measure	kWh Annual Savings	End Use	kW Factor	EPG_electric	kW	EUL	Inc. Cost	Units
	MFLI DI	Common Area Low Flow Showerhead	213.3	Water heating RES	0.0000887318	0.109	0.0189	10.0	\$7.00	per measure

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** CFL baseline is Post 2020, EISA baseline is pre-2020 **

Measure Reference	Program/Channel	Measure	kWh Annual Savings	End Use - RES	kW Factor - RES	End Use - BUS	kW Factor -	kWh RES	kWh BUS	kW	EUL - RES	EUL - BUS**	Inc. Cost*		Units
													SF	MF	
SFL / MFL		LED - 10.5W Downlight E26 (EISA baseline) LI DI	23.8	Lighting RES	0.0001492529	Lighting BUS	#####	23.8	0.00000000	0.0035	19.0	6.0	\$6.00	\$3.30	per measure
SFL / MFL		LED - 10W (Halogen baseline) LDI	22.5	Lighting RES	0.0001492529	Lighting BUS	#####	22.5	0.00000000	0.0034	19.0	6.0	\$6.00	\$3.68	per measure
SFL / MFL		LED - 12W (Halogen baseline) LI DI	24.5	Lighting RES	0.0001492529	Lighting BUS	#####	24.5	0.00000000	0.0037	19.0	6.0	\$6.00	\$4.72	per measure
SFL / MFL		LED - 12W Dimmable Light Bulb (Replacing Specialty Incandescent) LI DI	30.6	Lighting RES	0.0001492529	Lighting BUS	#####	30.6	0.00000000	0.0046	19.0	6.0	\$6.00	\$3.53	per measure
SFL / MFL		LED - 15W (Halogen baseline) LDI	29.6	Lighting RES	0.0001492529	Lighting BUS	#####	29.6	0.00000000	0.0044	19.0	6.0	\$8.00	\$6.27	per measure
SFL / MFL		LED - 15W Flood Light PAR30 Bulb (Halogen baseline) LI DI	28.7	Lighting RES	0.0001492529	Lighting BUS	#####	28.7	0.00000000	0.0043	19.0	6.0	\$10.00	\$4.92	per measure
SFL / MFL		LED - 18W Flood Light PAR38 Bulb (Halogen baseline) LI DI	37.1	Lighting RES	0.0001492529	Lighting BUS	#####	37.1	0.00000000	0.0055	19.0	6.0	\$15.00	\$4.92	per measure
SFL / MFL		LED - 20W (Halogen baseline) LDI	39.8	Lighting RES	0.0001492529	Lighting BUS	#####	39.8	0.00000000	0.0059	19.0	6.0	\$8.00	\$7.83	per measure
SFL / MFL		LED - 4W Candelabra (Replacing Specialty Incandescent) LI DI	25.1	Lighting RES	0.0001492529	Lighting BUS	#####	25.1	0.00000000	0.0037	19.0	6.0	\$7.00	\$3.27	per measure
SFL / MFL		LED - 4W Candelabra (CFL baseline) LDI	3.1	Lighting RES	0.0001492529	Lighting BUS	#####	3.1	0.00000000	0.0005	19.0	6.0	\$7.00	\$3.27	per measure
SFL / MFL		LED - 8W Globe Light G25 Bulb (Replacing Specialty Incandescent) LI DI	14.7	Lighting RES	0.0001492529	Lighting BUS	#####	14.7	0.00000000	0.0022	19.0	6.0	\$7.00	\$3.27	per measure
SFL / MFL		LED - 8W Globe Light G25 Bulb (Replacing CFL) LDI	2.1	Lighting RES	0.0001492529	Lighting BUS	#####	2.1	0.00000000	0.0003	19.0	6.0	\$7.00	\$3.27	per measure
SFL / MFL		LED - 10W (CFL baseline) LDI	3.0	Lighting RES	0.0001492529	Lighting BUS	#####	3.0	0.00000000	0.0004	19.0	6.0	\$6.00	\$3.68	per measure
SFL / MFL		LED - 10.5W Downlight E26 (CFL baseline) LDI	9.1	Lighting RES	0.0001492529	Lighting BUS	#####	9.1	0.00000000	0.0014	19.0	6.0	\$6.00	\$3.30	per measure
SFL / MFL		LED - 12W Dimmable Light Bulb (Replacing CFL) LDI	5.9	Lighting RES	0.0001492529	Lighting BUS	#####	5.9	0.00000000	0.0009	19.0	6.0	\$6.00	\$3.53	per measure
SFL / MFL		LED - 12W (Replacing CFL) LDI	5.9	Lighting RES	0.0001492529	Lighting BUS	#####	5.9	0.00000000	0.0009	19.0	6.0	\$6.00	\$4.72	per measure
SFL / MFL		LED - 15W (CFL baseline) LDI	5.8	Lighting RES	0.0001492529	Lighting BUS	#####	5.8	0.00000000	0.0009	19.0	6.0	\$8.00	\$6.27	per measure
SFL / MFL		LED - 15W Flood Light PAR30 Bulb (CFL baseline) LDI	3.4	Lighting RES	0.0001492529	Lighting BUS	#####	3.4	0.00000000	0.0005	19.0	6.0	\$10.00	\$4.92	per measure
SFL / MFL		LED - 18W Flood Light PAR30 Bulb (CFL baseline) LDI	3.5	Lighting RES	0.0001492529	Lighting BUS	#####	3.5	0.00000000	0.0005	19.0	6.0	\$15.00	\$4.92	per measure
SFL / MFL		LED - 20W (CFL baseline) LDI	6.9	Lighting RES	0.0001492529	Lighting BUS	#####	6.9	0.00000000	0.0010	19.0	6.0	\$8.00	\$7.83	per measure

Advanced Power Strips Tier 1 / Load Sensing

Measure Reference No.	Program/Channel	Measure	kWh Annual Savings	End Use	kW Factor	kW	EUL	Inc. Cost	Units
SFL / MFL		Advanced Tier 1 Power Strips / TOS/NC/DI - Home Office	31.0	Miscellaneous RES	0.0001148238	0.0036	10.0	\$20.00	per measure
SFL / MFL		Advanced Tier 1 Power Strips / Kits - Home Office	24.2	Miscellaneous RES	0.0001148238	0.0028	10.0	\$20.00	per measure
SFL / MFL		Advanced Tier 1 Power Strips / TOS/NC/DI - Home Entertainment	75.1	Miscellaneous RES	0.0001148238	0.0086	10.0	\$20.00	per measure
SFL / MFL		Advanced Tier 1 Power Strips / Kits - Home Entertainment	58.6	Miscellaneous RES	0.0001148238	0.0067	10.0	\$20.00	per measure
SFL / MFL		Advanced Tier 1 Power Strips / TOS/NC/DI - Unknown Location	59.2	Miscellaneous RES	0.0001148238	0.0068	10.0	\$20.00	per measure
SFL / MFL		Advanced Tier 1 Power / Kits - Unknown Location	42.1	Miscellaneous RES	0.0001148238	0.0048	10.0	\$20.00	per measure
Average		Advanced Tier 2 Power Strips / Average	162.0	Miscellaneous RES	0.0001148238	0.0186	10.0	\$30.00	per measure

Class B and G are the 2 classes of power strip currently in the market, therefore the savings of class B and G were averaged for savings estimate (See efficient products deemed table)

Refrigerator

Measure Reference No.	Program/Channel	Measure	kWh Annual Savings	End Use	kW Factor	kW	EUL	Inc. Cost	Units
SFL / MFL		Refrigerator - early replacement ER1	564.7	Refrigeration RES	0.0001286107	0.0726	6.0	\$753.00	per measure
SFL / MFL		Refrigerator - early replacement ER2	46.7	Refrigeration RES ER2	0.0001286107	0.0060	11.0	\$0.00	per measure

Energy Star Room AC

Measure Reference No.	Program/Channel	Measure	kWh Annual Savings	End Use	kW Factor	kW	EUL	Inc. Cost	Units
MFL		AC - Energy Star Room - Thru-Wall_MF: Low Income	898.8	Cooling RES	0.0009474181	0.85151	1.7	\$0.71	per measure
SFL		AC - Energy Star Room - Thru-Wall_SF: Low Income	49.7	Cooling RES	0.0009474181	0.04711	1.7	\$0.71	per measure
MFL		AC - Energy Star Room_MF: Low Income	898.8	Cooling RES	0.0009474181	0.85151	1.7	\$0.71	per measure
SFL		AC - Energy Star Room_SF: Low Income	49.7	Cooling RES	0.0009474181	0.04711	1.7	\$0.71	per measure

RESIDENTIAL HOME ENERGY REPORT

Home Energy Report

Measure Reference No.	Program/Channel	Measure	kWh Annual Savings	End Use	kW Factor	kW	EUL	Inc. Cost	Units
	SF	Home Energy Report	39.1	Building Shell RES	0.0004660805	0.0182	1.0	\$0.00	per report

RESIDENTIAL MULTI-FAMILY MARKET RATE

AC Tune-up

Measure Reference No.	Program/Channel	Measure	kWh Annual Savings	End Use	kW Factor	kW	EUL	Inc. Cost	Units
	MFMR	General Tune-Up (no charge or coil clean) / MFMR	80.3	Cooling RES	0.0009474181	0.0761	2.0	\$70.00	per measure
	MFMR	AC Tune-up / refrigerant charge / MFMR	335.0	Cooling RES	0.0009474181	0.3174	2.0	\$81.00	per measure
	MFMR	Indoor Coil (Evaporator) Cleaning / MFMR	55.5	Cooling RES	0.0009474181	0.0525	2.0	\$63.00	per measure
	MFMR	Outdoor Coil (Condenser) Cleaning / MFMR	110.9	Cooling RES	0.0009474181	0.1051	2.0	\$31.00	per measure

Evaluation Formula:

$$\Delta kWh_{cool} AC = \frac{EFLH_{cool} * Capacity_{cool} * \left(\frac{1}{SEER_{TestIn}} - \frac{1}{SEER_{TestOut}} \right)}{1000}$$

Factor	Term	Parameter	Value	Source	Notes
EFLH _{cool}	Equivalent full load hours of air conditioning		869	Based on Full Load Hour assumptions (for St. Louis and Kansas City) taken from the ENERGY	MO TRM
Capacity _{cool}	Cooling Capacity of Air Source Heat Pump (Btu/hr)		20742	SF capacity for same measure *0.65, per Ameren guidance.	
SEER _{test in}	Seasonal Energy Efficiency Ratio of existing cooling system before tuning (kBtu/kWh)		11.9	Assuming: EER = (-0.02 * SEER2) + (1.12 * SEER), this SEER value is based on test-in efficiency of 10.5 EER, as listed in "Ameren Missouri Heating and Cooling Program Impact and Process Evaluation: Program Year 2015."	Matches MO TRM. Measure not found in Cadmus Heating and Cooling EM&V
SEER _{test out}	Seasonal Energy Efficiency Ratio of existing cooling system after tuning (kBtu/kWh)	General Tune-Up	12.6	MO TRM	Matches 2015 Heating and Cooling evaluation
		Refrigerant Charge Adjustment	15.3	MO TRM	Matches 2015 Heating and Cooling evaluation
		Indoor Coil (Evaporator) Cleaning	12.4	MO TRM	Matches 2015 Heating and Cooling evaluation
		Outdoor Coil (Condenser) Cleaning	12.8	MO TRM	Matches 2015 Heating and Cooling evaluation
1000	Convert from Btu to kBtu		1000	Conversion Factor (Btu/kBtu)	
EUL	End Useful Life		2.0		
Inc. Cost	Incremental Cost (\$)	General Tune-Up (no charge or coil clean) / MFMR	\$70.00		
		AC Tune-up / refrigerant charge / MFMR	\$81.00		
		Indoor Coil (Evaporator) Cleaning / MFMR	\$63.00		
		Outdoor Coil (Condenser) Cleaning / MFMR	\$31.00		

Ceiling Insulation

Measure Reference No.	Program/Channel	Measure	kWh Annual Savings	End Use	kW Factor	Heating kWh	Cooling kWh	kW	EUL	Inc. Cost	Units - area of ceiling/attic (ft2)
	MFMR	Ceiling Insulation R11-R49 MFMR electric furnace base	924.0	Building Shell RES	0.0004660805	836.2	87.78	0.4307	25.0	\$1,860.46	876
	MFMR	Ceiling Insulation R11-R49 MFMR gas heat and electric cool base	466.2	Building Shell RES	0.0004660805	369.7	96.46	0.2173	25.0	\$1,860.46	876
	MFMR	Ceiling Insulation R5-R30 MFMR electric furnace base	1,232.2	Building Shell RES	0.0004660805	1115.1	117.05	0.5743	25.0	\$836.16	719
	MFMR	Ceiling Insulation R5-R30 MFMR gas heat and electric cool base	621.6	Building Shell RES	0.0004660805	493.0	128.63	0.2897	25.0	\$836.16	719
	MFMR	Ceiling Insulation R5-R38 MFMR electric furnace base	1,323.9	Building Shell RES	0.0004660805	1198.1	125.76	0.6170	25.0	\$1,208.50	719
	MFMR	Ceiling Insulation R5-R38 MFMR gas heat and electric cool base	667.9	Building Shell RES	0.0004660805	529.7	138.20	0.3113	25.0	\$1,208.50	719
	MFMR	Ceiling Insulation R5-R49 MFMR electric furnace base	1,405.6	Building Shell RES	0.0004660805	1272.0	133.52	0.6551	25.0	\$1,846.68	719
	MFMR	Ceiling Insulation R5-R49 MFMR gas heat and electric cool base	709.1	Building Shell RES	0.0004660805	562.4	146.73	0.3305	25.0	\$1,846.68	719
	MFMR	Ceiling Insulation R5-R60 MFMR electric furnace base	1,459.6	Building Shell RES	0.0004660805	1321.0	138.66	0.6803	25.0	\$2,461.73	719
	MFMR	Ceiling Insulation R5-R60 MFMR gas heat and electric cool base	736.4	Building Shell RES	0.0004660805	584.0	152.37	0.3432	25.0	\$2,461.73	719

Dirty Filter Alarm

Measure Reference No.	Program/Channel	Measure	kWh Annual Savings	End Use	kW Factor	Heating kWh	Cooling kWh	kW	EUL	Inc. Cost	Units
	MFMR	Dirty Filter Alarm_MFMR	79.2	HVAC RES	0.0004660805	50.1	29.1	0.0369	14.0	\$5.00	per measure

ECM/ Blower Motor

Measure Reference No.	Program/Channel	Measure	kWh Annual Savings	End Use	kW Factor	Heating kWh	Cooling kWh	Auto kWh	Continous kWh	kW	EUL*	Inc. Cost	Units
	MFMR	ECM Auto Fan Early Replacement ER1 (Full Cost) - MFMR	513.9	HVAC RES	0.0004660805	252.6	3.8	257.6	0.0	0.2395	6.0	\$96.83	per measure
	MFMR	ECM Auto Fan Early Replacement ER2 (Remaining Life) - MFMR	513.9	HVAC RES ER2	0.0004660805	252.6	3.8	257.6	0.0	0.2395	12.0		per measure

RESIDENTIAL MULTI-FAMILY MARKET RATE

Lighting

Measure Reference No.	Program/Channel	Measure	kWh Annual Savings	End Use - RES	kW Factor - RES	End Use - BUS	kW Factor - BUS	kWh RES	kWh BUS	kW	EUL - RES	EUL - BUS**	Inc. Cost*	Units
MFMR		LED - 10W (CFL baseline)	4.1	Lighting RES	0.0001492529	Lighting BUS	0.0001899635	4.1	0.0	0.0006	19.0	6.0	\$2.03	per measure
MFMR		LED - 10W (Halogen baseline)	22.0	Lighting RES	0.0001492529	Lighting BUS	0.0001899635	22.0	0.0	0.0033	19.0	6.0	\$2.03	per measure
MFMR		LED - 12W Dimmable Light Bulb (Replacing CFL)	5.5	Lighting RES	0.0001492529	Lighting BUS	0.0001899635	5.5	0.0	0.0008	19.0	6.0	\$4.14	per measure
MFMR		LED - 12W Dimmable Light Bulb (Replacing Specialty Incandescent)	42.9	Lighting RES	0.0001492529	Lighting BUS	0.0001899635	42.9	0.0	0.0064	19.0	6.0	\$4.14	per measure
MFMR		LED - 12W (Halogen baseline)	22.5	Lighting RES	0.0001492529	Lighting BUS	0.0001899635	22.5	0.0	0.0034	19.0	6.0	\$4.72	per measure
MFMR		LED - 12W (Replacing CFL)	5.5	Lighting RES	0.0001492529	Lighting BUS	0.0001899635	5.5	0.0	0.0008	19.0	6.0	\$4.72	per measure
MFMR		LED - 15W (Halogen baseline)	27.2	Lighting RES	0.0001492529	Lighting BUS	0.0001899635	27.2	0.0	0.0041	19.0	6.0	\$6.27	per measure
MFMR		LED - 15W (CFL baseline)	5.3	Lighting RES	0.0001492529	Lighting BUS	0.0001899635	5.3	0.0	0.0008	19.0	6.0	\$6.27	per measure
MFMR		LED - 20W (Halogen baseline)	36.6	Lighting RES	0.0001492529	Lighting BUS	0.0001899635	36.6	0.0	0.0055	19.0	6.0	\$7.83	per measure
MFMR		LED - 20W (CFL baseline)	6.3	Lighting RES	0.0001492529	Lighting BUS	0.0001899635	6.3	0.0	0.0009	19.0	6.0	\$7.83	per measure
MFMR		LED - 15W Flood Light PAR30 Bulb (Halogen baseline)	32.3	Lighting RES	0.0001492529	Lighting BUS	0.0001899635	32.3	0.0	0.0048	19.0	6.0	\$3.05	per measure
MFMR		LED - 15W Flood Light PAR30 Bulb (CFL baseline)	3.1	Lighting RES	0.0001492529	Lighting BUS	0.0001899635	3.1	0.0	0.0005	19.0	6.0	\$3.05	per measure
MFMR		LED Nightlights	22.0	Lighting RES	0.0001492529	Lighting BUS	0.0001899635	22.0	0.0	0.0033	19.0	6.0	\$0.35	per measure

Faucet Aerators (Kitchen)

Measure Reference No.	Program/Channel	Measure	kWh Annual Savings	End Use	kW Factor	EPG_electric	kW	EUL	Inc. Cost	Units
MFMR		Faucet Aerators (Kitchen) MFMR	115.9	Water Heating RES	0.0000887318	0.079	0.0103	10.0	\$8.00	per measure

Faucet Aerators (Bathroom)

Measure Reference No.	Program/Channel	Measure	kWh Annual Savings	End Use	kW Factor	EPG_electric	kW	EUL	Inc. Cost	Units
MFMR		Faucet Aerators (Bathroom) MFMR	33.5	Water Heating RES	0.0000887318	0.062	0.0030	10.0	\$8.00	per measure

Low Flow Showerhead

Measure Reference No.	Program/Channel	Measure	kWh Annual Savings	End Use	kW Factor	EPG_electric	kW	EUL	Inc. Cost	Units
MFMR		Low Flow Showerhead MFMR	204.7	Water Heating RES	0.0000887318	0.109	0.0182	10.0	\$7.00	per measure

Advanced Power Strips Tier 1 / Load Sensing

Measure Reference No.	Program/Channel	Measure	kWh Annual Savings	End Use	kW Factor	kW	EUL	Inc. Cost	Units
MFMR		Advanced Tier 1 Power Strips / TOS/NC/DI - Home Office	31.0	Miscellaneous RES	0.0001148238	0.0036	10.0	\$20.00	per measure
MFMR		Advanced Tier 1 Power Strips / Kits - Home Office	24.2	Miscellaneous RES	0.0001148238	0.0028	10.0	\$20.00	per measure
MFMR		Advanced Tier 1 Power Strips / TOS/NC/DI - Home Entertainment	75.1	Miscellaneous RES	0.0001148238	0.0086	10.0	\$20.00	per measure
MFMR		Advanced Tier 1 Power Strips / Kits - Home Entertainment	58.6	Miscellaneous RES	0.0001148238	0.0067	10.0	\$20.00	per measure
MFMR		Advanced Tier 1 Power Strips / TOS/NC/DI - Unknown Location	59.2	Miscellaneous RES	0.0001148238	0.0068	10.0	\$20.00	per measure
MFMR		Advanced Tier 1 Power / Kits - Unknown Location	42.1	Miscellaneous RES	0.0001148238	0.0048	10.0	\$20.00	per measure

Advanced Power Strips Tier 2 / Advanced Control Strategies

Measure Reference No.	Program/Channel	Measure	kWh Annual Savings	End Use	kW Factor	kW	EUL	Inc. Cost	Units
MFMR		Advanced Tier 2 Power Strips - A	237.6	Miscellaneous RES	0.0001148238	0.0273	10.0	\$30.00	per measure
MFMR		Advanced Tier 2 Power Strips - B	216.0	Miscellaneous RES	0.0001148238	0.0248	10.0	\$30.00	per measure
MFMR		Advanced Tier 2 Power Strips - C	194.4	Miscellaneous RES	0.0001148238	0.0223	10.0	\$30.00	per measure
MFMR		Advanced Tier 2 Power Strips - D	172.8	Miscellaneous RES	0.0001148238	0.0198	10.0	\$30.00	per measure
MFMR		Advanced Tier 2 Power Strips - E	151.2	Miscellaneous RES	0.0001148238	0.0174	10.0	\$30.00	per measure
MFMR		Advanced Tier 2 Power Strips - F	129.6	Miscellaneous RES	0.0001148238	0.0149	10.0	\$30.00	per measure
MFMR		Advanced Tier 2 Power Strips - G	108.0	Miscellaneous RES	0.0001148238	0.0124	10.0	\$30.00	per measure
MFMR		Advanced Tier 2 Power Strips - H	86.4	Miscellaneous RES	0.0001148238	0.0099	10.0	\$30.00	per measure
MFMR		Advanced Tier 2 Power Strips - Average	162.0	Miscellaneous RES	0.0001148238	0.0186	10.0	\$30.00	per measure

High Efficiency Pool Pump

Measure Reference No.	Program/Channel	Measure	kWh Annual Savings	End Use	kW Factor	kWh _h /Day	kWh _h /Day	kWh _h /Day	kW	EUL	Inc. Cost	Units
MFMR		Variable Speed Pool Pump	2052.8	Pool Spa RES	0.0002354459	20.9760	1.58	2.52	0.4833	10.0	\$549.00	per measure

Refrigerator

Measure Reference No.	Program/Channel	Measure	kWh Annual Savings	End Use	kW Factor	kW	EUL	Inc. Cost	Units
MFMR		Refrigerator - early replacement ER1 (full cost) - MFMR	564.7	Refrigeration RES	0.0001286107	0.0726	6.0	\$753.00	per measure
MFMR		Refrigerator - early replacement ER2 (remaining life) - MFMR	46.7	Refrigeration RES ER2	0.0001286107	0.0060	11.0	\$0.00	per measure

RESIDENTIAL APPLIANCE RECYCLING

Refrigerator Recycling

Measure Reference No.	Program/Channel	Measure	kWh Annual Savings	End Use	kW Factor	kW	EUL	Inc. Cost	Units
	Appliance Recycling	Refrigerator recycling (pre-1990)	1027.5	Refrigeration RES	0.0001286107	0.132	8.0	\$140.00	per measure
	Appliance Recycling	Refrigerator recycling (post-1990)	520.0	Refrigeration RES	0.0001286107	0.067	8.0	\$141.00	per measure

Freezer

Measure Reference No.	Program/Channel	Measure	kWh Annual Savings	End Use	kW Factor	kW	EUL	Inc. Cost	Units
	Appliance Recycling	Freezer recycling	891.2	Freezer RES	0.0001685722	0.150	8.0	\$140.00	per measure

Room AC

Measure Reference No.	Program/Channel	Measure	kWh Annual Savings	End Use	kW Factor	kW	EUL	Inc. Cost	Units
	Appliance Recycling	Room AC recycling - Primary	302.5	Cooling RES	0.0009474181	0.2866	4.0	\$64.89	per measure
	Appliance Recycling	Room AC recycling - Secondary	195.6	Cooling RES	0.0009474181	0.1853	4.0	\$64.89	per measure

Dehumidifier Recycling

Measure Reference No.	Program/Channel	Measure	kWh Annual Savings	End Use	kW Factor	kW	EUL	Inc. Cost	Units
	Appliance Recycling	Dehumidifier Recycling	139.0	HVAC RES	0.0004660805	0.0648	5.0	\$42.76	per measure

*EUL assumed to be 33% higher than Room AC EUL, based on TRM values for full equipment life (12 for dehumidifier and 9 for Room AC)

**Cost assumed based on full cost of Dehumidifier equipment (\$230) and ratio of refrigerator recycling cost (\$140) to full refrigerator cost (\$742 + \$11) . Full cost of Dehumidifier is based on an internet search.

RESIDENTIAL DEMAND RESPONSE

Demand Response

Measure Reference No.	Program/Channel	Measure	Gross kWh Annual Savings	End Use	kW Factor	kW (Annual)*	EUL	Inc. Cost	Units
	DR	Demand Response Advanced Thermostat	177.0	HVAC RES	-	-	11.0	\$0.00	per thermostat

* Demand savings are calculated for demand response events, therefore no demand savings are calculated based on the energy savings for this measure.