

Residential and Business Deemed Savings Table

MEEIA 2019-21¹



1. MEEIA 2019-21 Demand-Side Management Plan – refers to the Company's "2019-21 MEEIA Energy Efficiency Plan" as approved in File No. EO-2018-0211 and as subsequently amended and extended by order of the Missouri Public Service Commission.

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
800050_2019_12	C&I	LED <=11 Watt Lamp Replacing Interior Halogen A 28-52 Watt Lamp	127.44	Lighting BUS	0.0001899635	0.024209	10.0	\$15.64	per measure
800100_2019_12	C&I	LED 7-20 Watt Lamp Replacing Interior Halogen 53-70 Watt Lamp	122.31	Lighting BUS	0.0001899635	0.023234	10.0	\$19.64	per measure
800150_2019_12	C&I	LED <=14 Watt Lamp Replacing Interior Halogen BR/R 45-65 Watt Lamp	149.32	Lighting BUS	0.0001899635	0.028365	10.0	\$48.27	per measure
800200_2019_12	C&I	LED <=13 Watt Lamp Replacing Interior Halogen MR 18 35-50 Watt Lamp	102.74	Lighting BUS	0.0001899635	0.019517	10.0	\$36.64	per measure
800250_2019_12	C&I	LED <=20 Watt Lamp Replacing Interior Halogen PAR 48-90 Watt Lamp	194.02	Lighting BUS	0.0001899635	0.036857	10.0	\$74.64	per measure
800300_2019_12	C&I	LED <=80 Watt Lamp or Fixture Replacing Interior HID 100-175 Watt Lamp or Fixture	674.70	Lighting BUS	0.0001899635	0.128168	15.0	\$191.39	per measure
800350_2019_12	C&I	LED 62 - 130 Watt Lamp or Fixture Replacing Interior HID 176-300 Watt Lamp or Fixture	836.44	Lighting BUS	0.0001899635	0.158893	15.0	\$233.64	per measure
800400_2019_12	C&I	LED 85 - 225 Watt Lamp or Fixture Replacing Interior HID 301-500 Watt Lamp or Fixture	1,030.80	Lighting BUS	0.0001899635	0.195814	15.0	\$361.64	per measure
800450_2019_12	C&I	LED <=80 Watt Lamp or Fixture Replacing Garage or Exterior <24/7 HID 100-175 Watt Lamp	432.55	Ext Lighting BUS	0.0000056160	0.002429	15.0	\$191.39	per measure
800500_2019_12	C&I	LED 62 - 130 Watt Lamp or Fixture Replacing Garage or Exterior <24/7 HID 176-300 Watt La	823.73	Ext Lighting BUS	0.0000056160	0.004626	15.0	\$233.64	per measure
800550_2019_12	C&I	LED 85 - 225 Watt Lamp or Fixture Replacing Garage or Exterior <24/7 HID 301-500 Watt Lam	1,507.33	Ext Lighting BUS	0.0000056160	0.008465	15.0	\$361.64	per measure
800600_2019_12	C&I	LED <=80 Watt Lamp or Fixture Replacing Garage or Exterior 24/7 HID 100-175 Watt Lamp	679.28	Miscellaneous BUS	0.0001379439	0.093703	15.0	\$191.39	per measure
800650_2019_12	C&I	LED 62 - 130 Watt Lamp or Fixture Replacing Garage or Exterior 24/7 HID 176-300 Watt Lam	1,436.89	Miscellaneous BUS	0.0001379439	0.198210	15.0	\$233.64	per measure
800700_2019_12	C&I	LED 85 - 225 Watt Lamp or Fixture Replacing Garage or Exterior 24/7 HID 301-500 Watt Lam	2,576.13	Miscellaneous BUS	0.0001379439	0.355361	15.0	\$361.64	per measure
800750_2019_12	C&I	LED or Electroluminescent Replacing Interior Incandescent/CFL Exit Sign	231.38	Lighting BUS	0.0001899635	0.043954	7.0	\$45.25	per measure
800800_2020_12	C&I	LED Replacing Interior T5 Fluorescent (Type A / Hybrid)	350.14	Lighting BUS	0.0001899635	0.066514	10.0	\$29.64	per measure
800801_2020_12	C&I	LED Replacing Interior T5 Fluorescent (Type B, Kits, and Fixtures)	476.95	Lighting BUS	0.0001899635	0.090603	15.0	\$29.64	per measure
800802_2021_12	C&I	LED Replacing Interior T5 Fluorescent (Type C)	370.51	Lighting BUS	0.0001899635	14.766936	11.0	\$29.64	per measure
800850_2020_12	C&I	LED Replacing Interior T8 Fluorescent (Type A / Hybrid)	208.33	Lighting BUS	0.0001899635	0.039575	15.0	\$29.64	per measure
800851_2020_12	C&I	LED Replacing Interior T8 Fluorescent (Type B, Kits, and Fixtures)	209.00	Lighting BUS	0.0001899635	0.039702	10.0	\$29.64	per measure
800852_2021_12	C&I	LED Replacing Interior T8 Fluorescent (Type C)	263.39	Lighting BUS	0.0001899635	14.766936	11.0	\$29.64	per measure
800900_2020_12	C&I	LED Replacing Interior T12 Fluorescent (Type A / Hybrid)	224.23	Lighting BUS	0.0001899635	0.042596	10.0	\$29.64	per measure
800901_2020_12	C&I	LED Replacing Interior T12 Fluorescent (Type B, Kits, and Fixtures)	273.82	Lighting BUS	0.0001899635	0.052016	15.0	\$29.64	per measure
800902_2021_12	C&I	LED Replacing Interior T12 Fluorescent (Type C)	174.97	Lighting BUS	0.0001899635	14.766936	11.0	\$29.64	per measure
800950_2019_12	C&I	LED Specialty Lamp	99.04	Lighting BUS	0.0001899635	0.018814	10.0	\$11.94	per measure
800980_2021_12	C&I	LED Lighting Redesign	77,736.87	Lighting BUS	0.0001899635	14.766936	15.0	\$10,000.00	per project

Lighting - Lighting Power Density (LPD)

Measure Reference No.	Program/ Channel	Measure	kWh Annual Savings	End Use	kW Factor	kW	EUL	Inc. Cost	Units
800990_2021_12	C&I	Lighting Power Density	0.72	Lighting BUS	0.0001899635	0.000136	15.0	\$0.22	per sqft

Lighting - Occupancy Sensor Lighting Controls

Measure Reference No.	Program/ Channel	Measure	kWh Annual Savings	End Use	kW Factor	kW	EUL	Inc. Cost	Units
801010_2020_07	C&I	Fixture Mounted Occupancy Sensor Controlling > 60 Watts	118.87	Lighting BUS	0.0001899635	0.022581	10.0	\$45.00	per measure
801020_2020_07	C&I	Remote Mounted Occupancy Sensor Controlling > 150 Watts	291.13	Lighting BUS	0.0001899635	0.055304	10.0	\$105.00	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

Lighting - LED with Network Controls

Measure Reference No.	Program/ Channel	Measure	kWh Annual Savings	End Use	kW Factor	kW	EUL	Inc. Cost	Units
801225_2020_12	C&I	LED Retrofit Kit with Network Controls Replacing Interior T5 Fluorescent	177.60	Lighting BUS	0.0001899635	0.033737	15.0	\$55.76	per measure
801227_2020_12	C&I	LED Fixture with Network Controls Replacing Interior T5 Fluorescent	177.60	Lighting BUS	0.0001899635	0.033737	15.0	\$55.76	per measure
801229_2020_12	C&I	LED Retrofit Kit with Network Controls Replacing Interior T8 Fluorescent	69.21	Lighting BUS	0.0001899635	0.013147	15.0	\$55.76	per measure
801231_2020_12	C&I	LED Fixture with Network Controls Replacing Interior T8 Fluorescent	69.21	Lighting BUS	0.0001899635	0.013147	15.0	\$55.76	per measure
801233_2020_12	C&I	LED Retrofit Kit with Network Controls Replacing Interior T12 Fluorescent	79.82	Lighting BUS	0.0001899635	0.015162	15.0	\$55.76	per measure
801235_2020_12	C&I	LED Fixture with Network Controls Replacing Interior T12 Fluorescent	79.82	Lighting BUS	0.0001899635	0.015162	15.0	\$55.76	per measure
801237_2020_12	C&I	LED Retrofit Kit with Network Controls Replacing Interior HID	1,069.53	Lighting BUS	0.0001899635	0.203172	15.0	\$366.72	per measure
801239_2020_12	C&I	LED Fixture with Network Controls Replacing Interior HID	1,069.53	Lighting BUS	0.0001899635	0.203172	15.0	\$366.72	per measure

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PROGRAMS: All

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
801250_2019_12	C&I	0 < V < 15 - Vertical Closed - Solid Door Refrigerator	379.86	Refrigeration BUS	0.0001357383	0.051562	12.0	\$150.00	per measure
801300_2019_12	C&I	15 ≤ V < 30 - Vertical Closed - Solid Door Refrigerator	626.40	Refrigeration BUS	0.0001357383	0.085026	12.0	\$400.00	per measure
801350_2019_12	C&I	30 ≤ V < 50 - Vertical Closed - Solid Door Refrigerator	982.52	Refrigeration BUS	0.0001357383	0.133366	12.0	\$550.00	per measure
801400_2019_12	C&I	V ≥ 50 - Vertical Closed - Solid Door Refrigerator	1,311.25	Refrigeration BUS	0.0001357383	0.177987	12.0	\$700.00	per measure
801450_2019_12	C&I	0 < V < 15 - Vertical Closed - Glass Door Refrigerator	354.29	Refrigeration BUS	0.0001357383	0.048091	12.0	\$250.00	per measure
801500_2019_12	C&I	15 ≤ V < 30 - Vertical Closed - Glass Door Refrigerator	217.32	Refrigeration BUS	0.0001357383	0.029499	12.0	\$500.00	per measure
801550_2019_12	C&I	30 ≤ V < 50 - Vertical Closed - Glass Door Refrigerator	226.46	Refrigeration BUS	0.0001357383	0.030739	12.0	\$1,307.00	per measure
801600_2019_12	C&I	V ≥ 50 - Vertical Closed - Glass Door Refrigerator	372.56	Refrigeration BUS	0.0001357383	0.050571	12.0	\$2,300.00	per measure
801650_2019_12	C&I	Horizontal Closed - Solid or Glass Door Refrigerator - All Volumes	1,219.94	Refrigeration BUS	0.0001357383	0.165593	12.0	\$525.00	per measure
801700_2019_12	C&I	0 < V < 15 - Vertical Closed - Solid Door Freezer	348.81	Refrigeration BUS	0.0001357383	0.047347	12.0	\$150.00	per measure
801750_2019_12	C&I	15 ≤ V < 30 - Vertical Closed - Solid Door Freezer	1,307.60	Refrigeration BUS	0.0001357383	0.177491	12.0	\$400.00	per measure
801800_2019_12	C&I	30 ≤ V < 50 - Vertical Closed - Solid Door Freezer	2,403.35	Refrigeration BUS	0.0001357383	0.326227	12.0	\$550.00	per measure
801850_2019_12	C&I	V ≥ 50 - Vertical Closed - Solid Door Freezer	2,951.22	Refrigeration BUS	0.0001357383	0.400594	12.0	\$700.00	per measure
801900_2019_12	C&I	0 < V < 15 - Vertical Closed - Glass Door Freezer	1,429.95	Refrigeration BUS	0.0001357383	0.194099	12.0	\$220.00	per measure
801950_2019_12	C&I	15 ≤ V < 30 - Vertical Closed - Glass Door Freezer	3,186.81	Refrigeration BUS	0.0001357383	0.432572	12.0	\$950.00	per measure
802000_2019_12	C&I	30 ≤ V < 50 - Vertical Closed - Glass Door Freezer	5,150.03	Refrigeration BUS	0.0001357383	0.699056	12.0	\$1,307.00	per measure
802050_2019_12	C&I	V ≥ 50 - Vertical Closed - Glass Door Freezer	5,884.18	Refrigeration BUS	0.0001357383	0.798709	12.0	\$2,300.00	per measure
802100_2019_12	C&I	Horizontal Closed - Solid or Glass Door Freezer - All Volumes	5,265.08	Refrigeration BUS	0.0001357383	0.714673	12.0	\$595.00	per measure

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
802150_2019_12	C&I	Anti-Sweat Heater Controls Refrigerator	668.14	Refrigeration BUS	0.0001357383	0.090692	12.0	\$151.00	per door
802200_2019_12	C&I	Anti-Sweat Heater Controls Freezer	770.93	Refrigeration BUS	0.0001357383	0.104645	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
802250_2019_12	C&I	Heat Pump Water Heater w/ 98% Efficiency 2.9-14.6 kW (10 to 50 MBH)	21,156.00	Water Heating BUS	0.0001811545	3.832505	15.0	\$4,000.00	per measure
802300_2019_12	C&I	Heat Pump Water Heater w/ 98% Efficiency 14.7-29.3 kW (50 to 100 MBH)	52,890.00	Water Heating BUS	0.0001811545	9.581262	15.0	\$7,000.00	per measure
802350_2019_12	C&I	Heat Pump Water Heater w/ 98% Efficiency 29.4-87.9 kW (100 to 300 MBH)	141,041.00	Water Heating BUS	0.0001811545	25.550212	15.0	\$10,000.00	per measure
802400_2019_12	C&I	Heat Pump Water Heater w/ 98% Efficiency 88-146.5 kW (300 to 500 MBH)	282,081.00	Water Heating BUS	0.0001811545	51.100243	15.0	\$14,000.00	per measure
802450_2019_12	C&I	Heat Pump Water Heater w/ 98% Efficiency >146.6 kW (above 500 MBH)	423,122.00	Water Heating BUS	0.0001811545	76.650454	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
802500_2019_12	C&I	Pool Heater Heat Pump (Uncovered)	35,272.88	Water Heating BUS	0.0001811545	6.389841	15.00	\$1,000.00	per measure
802550_2019_12	C&I	Pool Heater Heat Pump (Covered)	6,206.88	Water Heating BUS	0.0001811545	1.124404	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
802600_2019_12	C&I	Pool Pump w/ Variable Frequency Drive	1,747.00	Motors BUS	0.0001379439	0.240988	10.00	\$246.00	per measure
802650_2019_12	C&I	Pool Pump Timer	601.28	Motors BUS	0.0001379439	0.082943	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
802700_2019_12	C&I	3 Pan ENERGY STAR Steam Cooker	7,856.31	Cooking BUS	0.0001998949	1.570436	12.0	\$4,150.00	per measure
802750_2019_12	C&I	4 Pan ENERGY STAR Steam Cooker	9,213.50	Cooking BUS	0.0001998949	1.841732	12.0	\$4,150.00	per measure
802800_2019_12	C&I	5 Pan ENERGY STAR Steam Cooker	10,512.97	Cooking BUS	0.0001998949	2.101489	12.0	\$4,150.00	per measure
802850_2019_12	C&I	6 Pan ENERGY STAR Steam Cooker	11,818.65	Cooking BUS	0.0001998949	2.362488	12.0	\$4,150.00	per measure

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PROGRAMS: All

Holding Cabinet

Measure Reference No.	Program/ Channel	Measure	kWh Annual Savings	End Use	kW Factor	kW	EUL	Inc. Cost	Units
802900_2019_12	C&I	ENERGY STAR Hot Holding Cabinet (0 < V <13)	709.50	Cooking BUS	0.0001998949	0.141825	12.00	\$1,783.00	per measure
802950_2019_12	C&I	ENERGY STAR Hot Holding Cabinet (13 ≤ V <28)	2,772.25	Cooking BUS	0.0001998949	0.554159	12.00	\$1,783.00	per measure
803000_2019_12	C&I	ENERGY STAR Hot Holding Cabinet (28 ≤ V)	4,438.34	Cooking BUS	0.0001998949	0.887202	12.00	\$1,783.00	per measure

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
803050_2019_12	C&I	Learning Thermostat	205.34	233.0	438.3	Cooling BUS	Heating BUS	0.0009106840	0.187000	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
803100_2020_07	C&I	VFD on Chilled Water Pump >= 1HP	1,289.6	Cooling BUS	0.0009106840	1.174455	15.00	\$179.00	per Hp
803150_2020_07	C&I	VFD on Hot Water Pump >= 1HP	1,696.6	HVAC BUS	0.0004439830	0.753248	15.00	\$179.00	per Hp
803155_2020_07	C&I	VFD on Condenser Water Pump >= 1HP	1,289.6	Cooling BUS	0.0009106840	1.174455	15.00	\$179.00	per Hp
803160_2020_07	C&I	VFD on Cooling Tower Fan >= 1HP	479.5	HVAC BUS	0.0004439830	0.212881	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
803200_2020_07	C&I	VFD on HVAC Fans >= 1HP	939.75	HVAC BUS	0.0004439830	0.417233	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
803250_2020_07	C&I	Single Packag or Split Sytem Unitary AC_DX 135 - 240kbtu	153.77	Cooling BUS	0.0009106840	0.140036	15.0	\$100.00	per ton
803300_2020_07	C&I	Single Packag or Split Sytem Unitary AC_DX 240 - 760kbtu	167.94	Cooling BUS	0.0009106840	0.15294	15.0	\$100.00	per ton
803350_2020_07	C&I	Single Packag or Split Sytem Unitary AC_DX 65 -135kbtu	148.68	Cooling BUS	0.0009106840	0.1354	15.0	\$100.00	per ton
803400_2020_07	C&I	Single Packag or Split Sytem Unitary AC_DX >760kbtu	167.52	Cooling BUS	0.0009106840	0.152558	15.0	\$100.00	per ton
803450_2020_07	C&I	Single Packag or Split Sytem Unitary AC_DX <65kbtu	129.60	Cooling BUS	0.0009106840	0.118025	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
803500_2019_12	C&I	GSHP <135kbtu; ≥17EER	36.71	27.99	64.70	Cooling BUS	Heating BUS	0.0009106840	0.033431	15.0	\$180.00	per ton
803550_2019_12	C&I	GSHP <135kbtu; ≥19EER	114.95	27.99	142.94	Cooling BUS	Heating BUS	0.0009106840	0.104683	15.0	\$180.00	per ton
803600_2020_07	C&I	ASHP 65 - 135kbtu	117.33	223.04	340.37	Cooling BUS	Heating BUS	0.0009106840	0.106851	15.0	\$100.00	per ton
803650_2020_07	C&I	ASHP 135 - 240kbtu	127.93	265.20	393.13	Cooling BUS	Heating BUS	0.0009106840	0.116504	15.0	\$100.00	per ton
803700_2020_07	C&I	ASHP >240kbtu	146.25	265.20	411.45	Cooling BUS	Heating BUS	0.0009106840	0.133188	15.0	\$100.00	per ton
803750_2020_07	C&I	ASHP <65kbtu	106.52	222.73	329.25	Cooling BUS	Heating BUS	0.0009106840	0.097006	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
803800_2019_12	C&I	Air Cooled Chiller	411.00	Cooling BUS	0.0009106840	0.374291	20.0	\$106.23	per ton
803810_2021_12	C&I	Water Cooled Chiller	122.15	Cooling BUS	0.0009106840	0.11124	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
803850_2019_12	C&I	Clothes Washer (Electric DHW; Electric Dryer)	907.62	Miscellaneous BUS	0.0001379439	0.125201	11.00	\$200.00	per measure
803900_2019_12	C&I	Clothes Washer (Gas DHW; Electric Dryer)	308.41	Miscellaneous BUS	0.0001379439	0.042543	11.00	\$200.00	per measure
803950_2019_12	C&I	Clothes Washer (Electric DHW; Gas Dryer)	750.78	Miscellaneous BUS	0.0001379439	0.103556	11.00	\$200.00	per measure
804000_2019_12	C&I	Clothes Washer (Gas DHW; Gas Dryer)	151.57	Miscellaneous BUS	0.0001379439	0.020908	11.00	\$200.00	per measure

Measure Reference No.	Program/ Channel	Measure	kWh Annual Savings	End Use	kW Factor	kW	EUL	Inc. Cost	Units
804050_2019_12	C&I	Clothes Dryer Vented Electric, Standard (≥ 4.4 ft3)	840.73	Miscellaneous BUS	0.0001379439	0.115974	14.00	\$75.00	per measure
804100_2019_12	C&I	Clothes Dryer Vented Electric, Compact (120V) (< 4.4 ft3)	307.28	Miscellaneous BUS	0.0001379439	0.042387	14.00	\$105.00	per measure
804150_2019_12	C&I	Clothes Dryer Vented Electric, Compact (240V) (<4.4 ft3)	340.11	Miscellaneous BUS	0.0001379439	0.046916	14.00	\$105.00	per measure
804200_2019_12	C&I	Clothes Dryer Ventless Electric, Compact (240V) (<4.4 ft3)	428.66	Miscellaneous BUS	0.0001379439	0.059131	14.00	\$105.00	per measure
804250_2019_12	C&I	Clothes Dryer Vented Gas	40.57	Miscellaneous BUS	0.0001379439	0.005596	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
804300_2019_12	C&I	No Loss Condensate Drain (Reciprocating - On/off Control)	3,272.3	Air Comp BUS	0.0001379439	0.451388	13.00	\$700.00	per measure
804350_2019_12	C&I	No Loss Condensate Drain (Reciprocating - Load/Unload)	2,418.6	Air Comp BUS	0.0001379439	0.333634	13.00	\$700.00	per measure
804400_2019_12	C&I	No Loss Condensate Drain (Screw - Load/Unload)	2,703.2	Air Comp BUS	0.0001379439	0.372886	13.00	\$700.00	per measure
804450_2019_12	C&I	No Loss Condensate Drain (Screw - Inlet Modulation)	978.1	Air Comp BUS	0.0001379439	0.134926	13.00	\$700.00	per measure
804500_2019_12	C&I	No Loss Condensate Drain (Screw - Inlet Modulation w/ Unloading)	978.1	Air Comp BUS	0.0001379439	0.134926	13.00	\$700.00	per measure
804550_2019_12	C&I	No Loss Condensate Drain (Screw - Variable Displacement)	2,721.0	Air Comp BUS	0.0001379439	0.375338	13.00	\$700.00	per measure
804600_2019_12	C&I	No Loss Condensate Drain (Screw - VFD)	3,165.6	Air Comp BUS	0.0001379439	0.436668	13.00	\$700.00	per measure

Measure Reference No.	Program/ Channel	Measure	kWh Annual Savings	End Use	kW Factor	kW	EUL	Inc. Cost	Units
804650_2019_12	C&I	Compressed Air Nozzle (Reciprocating - On/off Control)	1,547.21	Air Comp BUS	0.0001379439	0.213428	15.00	\$77.00	per measure
804700_2019_12	C&I	Compressed Air Nozzle (Reciprocating - Load/Unload)	1,203.38	Air Comp BUS	0.0001379439	0.165999	15.00	\$77.00	per measure
804750_2019_12	C&I	Compressed Air Nozzle (Screw - Load/Unload)	1,289.34	Air Comp BUS	0.0001379439	0.177857	15.00	\$77.00	per measure
804800_2019_12	C&I	Compressed Air Nozzle (Screw - Inlet Modulation)	515.74	Air Comp BUS	0.0001379439	0.071143	15.00	\$77.00	per measure
804850_2019_12	C&I	Compressed Air Nozzle (Screw - Inlet Modulation w/ Unloading)	515.74	Air Comp BUS	0.0001379439	0.071143	15.00	\$77.00	per measure
804900_2019_12	C&I	Compressed Air Nozzle (Screw - Variable Displacement)	1,289.34	Air Comp BUS	0.0001379439	0.177857	15.00	\$77.00	per measure
804950_2019_12	C&I	Compressed Air Nozzle (Screw - VFD)	1,547.21	Air Comp BUS	0.0001379439	0.213428	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	Units
805000_2020_07	C&I	VSD Air Compressor 5-40 HP	987.0	Air Comp BUS	0.0001379439	0.136152	10.00	"=(127*HPcomp)+1446"	per HP

Combination Oven

Measure Reference No.	Program/ Channel	Measure	kWh Annual Savings	End Use	kW Factor	kW	EUL	Inc. Cost	Units
805050_2019_12	C&I	Combination Oven (Pan Capacity < 15)	6,372.30	Cooking BUS	0.0001998949	1.27379	12.0	\$4,300.00	per measure
805100_2019_12	C&I	Combination Oven (Pan Capacity ≥ 15)	11,743.62	Cooking BUS	0.0001998949	2.34749	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
805150_2019_12	C&I	Standard Open Deep-Fat Fryer	952.31	Cooking BUS	0.0001998949	0.190362	12.0	\$210.00	per measure
805200_2019_12	C&I	Large Vat Open Deep-Fat Fryer	2,537.84	Cooking BUS	0.0001998949	0.507301	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
805250_2019_12	C&I	Convection Oven (Full Size)	1,938.47	Cooking BUS	0.0001998949	0.38749	12.0	\$0.00	per measure
805300_2019_12	C&I	Convection Oven (Half Size)	192.11	Cooking BUS	0.0001998949	0.038402	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
805350_2019_12	C&I	Griddle	1,910.38	Cooking BUS	0.0001998949	0.381875	12.0	\$0.00	per measure

Kitchen Demand Ventilation Controls

Measure Reference No.	Program/ Channel	Measure	kWh Annual Savings (per HP)	End Use	kW Factor	kW	EUL	Inc. Cost (per Hp)	Units
805405_2020_07	C&I	Kitchen Demand Ventilation Controls, Retrofit	4,197.00	Cooking BUS	0.0001998949	0.838959	15.0	\$1,991.00	per HP
805410_2020_07	C&I	Kitchen Demand Ventilation Controls, New	4,197.00	Cooking BUS	0.0001998949	0.838959	15.0	\$1,991.00	per HP

Pre-Rinse Spray Valve

Measure Reference No.	Program/ Channel	Measure	kWh Annual Savings	End Use	kW Factor	kW	EUL	Inc. Cost	Units
805450_2019_12	C&I	Pre-Rinse Spray Valve	5,786.53	Cooking BUS	0.0001998949	1.156698	5.0	\$92.90	per measure

BUSINESS PRESCRIPTIVE MEASURES

The values in the cells highlighted in this color are values used in the planning process of the portfolio. TRM allows delivery program design to use actual values for these cells, or a default value if actuals are not available.

Cells highlighted in this color are calculated variables

PROGRAMS: All

Low Flow Faucet Aerator

Measure Reference No.	Program/ Channel	Measure	kWh Annual Savings	End Use	kW Factor	kW	EUL	Inc. Cost	Units
805500_2019_12	C&I	Low Flow Faucet Aerator	86.63	Water Heating BUS	0.0001811545	0.015693	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
805550_2019_12	C&I	Circulator Pump	651.00	Miscellaneous BUS	0.0001379439	0.089801	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
805600_2019_12	C&I	Small Commercial Programmable Thermostats	0.03	Cooling BUS	0.0009106840	0.000027	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
805650_2019_12	C&I	Demand Controlled Ventilation (Gas Heat)	0.67	Cooling BUS	0.0009106840	0.00061	10.00	Actual	per sq. ft.
805700_2019_12	C&I	Demand Controlled Ventilation (Electric Heat)	1.90	Cooling BUS	0.0009106840	0.00173	10.00	Actual	per sq. ft.
805750_2019_12	C&I	Demand Controlled Ventilation (Heat Pump)	1.08	Cooling BUS	0.0009106840	0.000984	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
805800_2019_12	C&I	Advanced RTU Controls	3,779.33	HVAC BUS	0.0004439830	1.677958	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 (per ton) first 5 years	kW (per ton) next ten years	EUL	Inc. Cost (per ton)	Units
805850_2019_12	C&I	PTAC	411.27	10.5	Cooling BUS	0.0009106840	0.3745	0.010	15.0	\$1,047.00	per ton
805900_2019_12	C&I	PTHP	715.42	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
805950_2019_12	C&I	Refrigerated Beverage Vending Machine (Class A)	0.13	Refrigeration BUS	0.0001357383	0.000018	12.0	\$140.00	per measure
806000_2019_12	C&I	Refrigerated Beverage Vending Machine (Class B)	0.32	Refrigeration BUS	0.0001357383	0.000043	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
806050_2019_12	C&I	ECM for Walk-in & Reach-in Coolers/Freezers	1,409.00	Miscellaneous BUS	0.0001379439	0.194363	15.0	\$177.00	per motor

High Volume Low Speed Fans

Measure Reference No.	Program/ Channel	Measure	kWh Annual Savings (per measure)	End Use	kW Factor	kW	EUL	Inc. Cost	Units
806100_2020_07	C&I	High Volume Low Speed Fan, 20	6,577.0	HVAC BUS	0.0004439830	2.9201	10.0	\$4,150.00	per measure
806110_2020_07	C&I	High Volume Low Speed Fan, 22	8,543.0	HVAC BUS	0.0004439830	3.7929	10.0	\$4,180.00	per measure
806120_2020_07	C&I	High Volume Low Speed Fan, 24	10,018.0	HVAC BUS	0.0004439830	4.4478	10.0	\$4,225.00	per measure

Custom Measure

Measure Reference No.	Program/ Channel	Measure	kWh Annual Savings (per motor)	End Use	kW Factor	kW	EUL	Inc. Cost (per motor)	Units
999999_2019_12	C&I	Custom	Custom	Variable	Variable	Custom	Custom	Custom	Custom

RESIDENTIAL LIGHTING

Lighting Program

** CFL baseline is Post 2021, EISA baseline is pre-2021 **

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
200050_2019_12	Lighting	LED - 10.5W Downlight E26 (CFL baseline)	9.68	0.001501	Lighting RES	0.0001492529	Lighting BUS	0.0001899635	8.29	1.39	0.0012	0.0003	19.0	6.0	\$ 0.0000010	per bulb
200100_2019_12	Lighting	LED - 10.5W Downlight E26 (Halogen baseline)	39.74	0.006164	Lighting RES	0.0001492529	Lighting BUS	0.0001899635	34.05	5.70	0.0051	0.0011	19.0	6.0	\$ 0.0000010	per bulb
200150_2019_12	Lighting	LED - 10W (CFL baseline) (750-1049 lumens)	4.70	0.000729	Lighting RES	0.0001492529	Lighting BUS	0.0001899635	4.02	0.67	0.0006	0.0001	19.0	6.0	\$ 0.0000010	per bulb
200200_2019_12	Lighting	LED - 10W (Halogen baseline) (750-1049 lumens)	32.51	0.005042	Lighting RES	0.0001492529	Lighting BUS	0.0001899635	27.85	4.66	0.0042	0.0009	19.0	6.0	\$ 0.0000010	per bulb
200250_2019_12	Lighting	LED - 12W Dimmable Light Bulb (Replacing CFL)	2.44	0.000379	Lighting RES	0.0001492529	Lighting BUS	0.0001899635	2.09	0.35	0.0003	0.0001	19.0	6.0	\$ 0.0000010	per bulb
200300_2019_12	Lighting	LED - 12W Dimmable Light Bulb (Replacing Specialty Incandescent)	72.16	0.011191	Lighting RES	0.0001492529	Lighting BUS	0.0001899635	61.81	10.34	0.0092	0.0020	19.0	6.0	\$ 0.0000010	per bulb
200350_2019_12	Lighting	LED - 15W (Halogen baseline) (1050-1489 lumens)	38.43	0.005960	Lighting RES	0.0001492529	Lighting BUS	0.0001899635	32.92	5.51	0.0049	0.0010	19.0	6.0	\$ 0.0000010	per bulb
200400_2019_12	Lighting	LED - 15W (CFL baseline) (1050-1489 lumens)	6.39	0.000991	Lighting RES	0.0001492529	Lighting BUS	0.0001899635	5.47	0.92	0.0008	0.0002	19.0	6.0	\$ 0.0000010	per bulb
200401_2020_12	Lighting	LED - 11W Flood Light BR30 Bulb (CFL baseline)	7.41	0.001150	Lighting RES	0.0001492529	Lighting BUS	0.0001899635	6.35	1.06	0.0009	0.0002	19.0	6.0	\$ 0.0000010	per bulb
200402_2020_12	Lighting	LED - 11W Flood Light BR30 Bulb (Halogen baseline)	50.74	0.007869	Lighting RES	0.0001492529	Lighting BUS	0.0001899635	43.46	7.27	0.0065	0.0014	19.0	6.0	\$ 0.0000010	per bulb
200450_2019_12	Lighting	LED - 15W Flood Light PAR30 Bulb (CFL baseline)	5.64	0.000874	Lighting RES	0.0001492529	Lighting BUS	0.0001899635	4.83	0.81	0.0007	0.0002	19.0	6.0	\$ 0.0000010	per bulb
200500_2019_12	Lighting	LED - 15W Flood Light PAR30 Bulb (Halogen baseline)	48.20	0.007475	Lighting RES	0.0001492529	Lighting BUS	0.0001899635	41.29	6.91	0.0062	0.0013	19.0	6.0	\$ 0.0000010	per bulb
200550_2019_12	Lighting	LED - 18W Flood Light PAR30 Bulb (CFL baseline)	4.70	0.000729	Lighting RES	0.0001492529	Lighting BUS	0.0001899635	4.02	0.67	0.0006	0.0001	19.0	6.0	\$ 0.0000010	per bulb
200600_2019_12	Lighting	LED - 18W Flood Light PAR38 Bulb (Halogen baseline)	77.04	0.011949	Lighting RES	0.0001492529	Lighting BUS	0.0001899635	66.00	11.04	0.0099	0.0021	19.0	6.0	\$ 0.0000010	per bulb
200650_2019_12	Lighting	LED - 20W (CFL baseline) (1490-2600 lumens)	9.02	0.001399	Lighting RES	0.0001492529	Lighting BUS	0.0001899635	7.73	1.29	0.0012	0.0002	19.0	6.0	\$ 0.0000010	per bulb
200700_2019_12	Lighting	LED - 20W (Halogen baseline) (1490-2600 lumens)	53.37	0.008277	Lighting RES	0.0001492529	Lighting BUS	0.0001899635	45.72	7.65	0.0068	0.0015	19.0	6.0	\$ 0.0000010	per bulb
200750_2019_12	Lighting	LED - 4W Candelabra (CFL baseline)	4.70	0.000729	Lighting RES	0.0001492529	Lighting BUS	0.0001899635	4.02	0.67	0.0006	0.0001	19.0	6.0	\$ 0.0000010	per bulb
200800_2019_12	Lighting	LED - 4W Candelabra (Replacing Specialty Incandescent)	32.88	0.005100	Lighting RES	0.0001492529	Lighting BUS	0.0001899635	28.17	4.71	0.0042	0.0009	19.0	6.0	\$ 0.0000010	per bulb
200850_2019_12	Lighting	LED - 8W Globe Light G25 Bulb (Replacing CFL)	5.45	0.000845	Lighting RES	0.0001492529	Lighting BUS	0.0001899635	4.67	0.78	0.0007	0.0001	19.0	6.0	\$ 0.0000010	per bulb
200900_2019_12	Lighting	LED - 8W Globe Light G25 Bulb (Replacing Specialty Incandescent)	34.01	0.005275	Lighting RES	0.0001492529	Lighting BUS	0.0001899635	29.14	4.88	0.0043	0.0009	19.0	6.0	\$ 0.0000010	per bulb
200950_2019_12	Lighting	LED - 10W (Halogen baseline) (750-1049 lumens) - Specialty Connected Light	29.22	0.004532	Lighting RES	0.0001492529	Lighting BUS	0.0001899635	25.03	4.19	0.0037	0.0008	19.0	6.0	\$ 0.0000010	per bulb
201000_2019_12	Lighting	LED - 15W (Halogen baseline) (1050-1489 lumens) - Specialty Connected Light	38.43	0.005960	Lighting RES	0.0001492529	Lighting BUS	0.0001899635	32.92	5.51	0.0049	0.0010	19.0	6.0	\$ 0.0000010	per bulb
201050_2019_12	Lighting	LED - 15W Flood Light PAR30 Bulb (Halogen baseline) - Specialty Connected Light	46.23	0.007169	Lighting RES	0.0001492529	Lighting BUS	0.0001899635	39.60	6.63	0.0059	0.0013	19.0	6.0	\$ 0.0000010	per bulb
201099_2021_12	Lighting	LED - 6W (CFL baseline) (310-749 lumens)	5.42	0.000840	Lighting RES	0.0001492529	Lighting BUS	0.0001899635	4.64	0.78	0.0007	0.0001	19.0	6.0	\$ 0.0000010	per bulb
201100_2019_12	Lighting	LED - 6W (Halogen baseline) (310-749 lumens)	21.61	0.003351	Lighting RES	0.0001492529	Lighting BUS	0.0001899635	18.51	3.10	0.0028	0.0006	19.0	6.0	\$ 0.0000010	per bulb
201130_2021_12	Lighting	LED Nightlights	24.83	0.003750	Lighting RES	0.0001492529	Lighting BUS	0.0001899635	23.73	1.09	0.0035	0.0002	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 \$0.00001 to model these measures within DSMare.

**EUL-BUS based on MD 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
250050_2019_12_	Efficient Products	Heat Pump Hot Water Heater	2,276.14	Water Heating RES	0.0000887318	383.38	153.81	96.43	0.201966	13.0	\$588.00	per measure

Learning Thermostat / Advanced Thermostat

*CompE = Comprehensive Envelope

Measure Reference No.	Program/Channel	Measure	kWh Annual Savings	End Use	kW Factor	kW	EUL	Inc. Cost	Units
250100_2021_12_	Efficient Products	Learning Thermostat - ASHP heating/cooling SF	190.21	Cooling RES	0.0009474181	0.180208	10.0	\$125.00	per measure
250100_2021_12_	Efficient Products	Learning Thermostat - ASHP heating/cooling SF	550.48	Heating RES	0.0000000000	0.000000	10.0		per measure
250101_2021_12_	Efficient Products	Learning Thermostat - ASHP heating/cooling MF	190.21	Cooling RES	0.0009474181	0.180208	10.0	\$125.00	per measure
250101_2021_12_	Efficient Products	Learning Thermostat - ASHP heating/cooling MF	357.82	Heating RES	0.0000000000	0.000000	10.0		per measure
250102_2021_12_	Efficient Products_CompE	Learning Thermostat - ASHP heating/cooling MF_CompE	138.33	Cooling RES	0.0009474181	0.131056	10.0	\$125.00	per measure
250102_2021_12_	Efficient Products_CompE	Learning Thermostat - ASHP heating/cooling MF_CompE	121.74	Heating RES	0.0000000000	0.000000	10.0		per measure
250150_2021_12_	Efficient Products	Learning Thermostat - electric furnace heating / central AC MF	190.21	Cooling RES	0.0009474181	0.180208	10.0	\$125.00	per measure
250150_2021_12_	Efficient Products	Learning Thermostat - electric furnace heating / central AC MF	608.22	Heating RES	0.0000000000	0.000000	10.0		per measure
250151_2021_12_	Efficient Products_CompE	Learning Thermostat - electric furnace heating / central AC MF_CompE	138.33	Cooling RES	0.0009474181	0.131056	10.0	\$125.00	per measure
250151_2021_12_	Efficient Products_CompE	Learning Thermostat - electric furnace heating / central AC MF_CompE	206.94	Heating RES	0.0000000000	0.000000	10.0		per measure
250250_2021_12_	Efficient Products	Learning Thermostat - electric furnace heating / central AC SF	190.21	Cooling RES	0.0009474181	0.180208	10.0	\$125.00	per measure
250250_2021_12_	Efficient Products	Learning Thermostat - electric furnace heating / central AC SF	935.72	Heating RES	0.0000000000	0.000000	10.0		per measure
250350_2021_12_	Efficient Products	Learning Thermostat - Gas Heated / central AC SF**	190.21	Cooling RES	0.0009474181	0.180208	10.0	\$125.00	per measure
250350_2021_12_	Efficient Products	Learning Thermostat - Gas Heated / central AC SF**	41.35	Heating RES	0.0000000000	0.000000	10.0		per measure
250351_2021_12_	Efficient Products	Learning Thermostat - Gas Heated / central AC MF**	190.21	Cooling RES	0.0009474181	0.180208	10.0	\$125.00	per measure
250351_2021_12_	Efficient Products	Learning Thermostat - Gas Heated / central AC MF**	26.88	Heating RES	0.0000000000	0.000000	10.0		per measure
250352_2021_12_	Efficient Products_CompE	Learning Thermostat - Gas Heated / central AC MF_CompE**	138.33	Cooling RES	0.0009474181	0.131056	10.0	\$125.00	per measure
250352_2021_12_	Efficient Products_CompE	Learning Thermostat - Gas Heated / central AC MF_CompE**	26.88	Heating RES	0.0000000000	0.000000	10.0		per measure
250450_2021_12_	Efficient Products	Learning Thermostat - Unknown SF**	190.21	Cooling RES	0.0009474181	0.180208	10.0	\$125.00	per measure
250450_2021_12_	Efficient Products	Learning Thermostat - Unknown SF**	276.79	Heating RES	0.0000000000	0.000000	10.0		per measure
250451_2021_12_	Efficient Products	Learning Thermostat - Unknown MF**	190.21	Cooling RES	0.0009474181	0.180208	10.0	\$125.00	per measure
250451_2021_12_	Efficient Products	Learning Thermostat - Unknown MF**	179.91	Heating RES	0.0000000000	0.000000	10.0		per measure
250452_2021_12_	Efficient Products_CompE	Learning Thermostat - Unknown MF_CompE**	138.33	Cooling RES	0.0009474181	0.131056	10.0	\$125.00	per measure
250452_2021_12_	Efficient Products_CompE	Learning Thermostat - Unknown MF_CompE**	73.09	Heating RES	0.0000000000	0.000000	10.0		per measure

High Efficiency Pool Pumps

Measure Reference No.	Program/Channel	Measure	kWh Annual Savings	End Use	kW Factor	kW	EUL	Inc. Cost	Units
250500_2021_12_	Efficient Products	ENERGY STAR Pool Pump and motor w auto controls - multi speed	0.00	Pool Spa RES	0.0002354459	0.000000	10.0	\$0.00	per measure
250550_2021_12_	Efficient Products	ENERGY STAR VFDs on Residential Swimming Pool Pumps - ROF	315.21	Pool Spa RES	0.0002354459	0.074215	10.0	\$314.00	per measure
250551_2021_12_	Efficient Products	ENERGY STAR VFDs on Residential Swimming Pool Pumps - ER	1,478.34	Pool Spa RES	0.0002354459	0.348069	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
250600_2019_12_	Efficient Products	Advanced Tier 2 Power Strips - A	237.60	Miscellaneous RES	0.0001148238	0.027282	10.0	\$30.00	per measure
250650_2019_12_	Efficient Products	Advanced Tier 2 Power Strips - B	216.00	Miscellaneous RES	0.0001148238	0.034802	10.0	\$30.00	per measure
250700_2019_12_	Efficient Products	Advanced Tier 2 Power Strips - C	194.40	Miscellaneous RES	0.0001148238	0.022322	10.0	\$30.00	per measure
250750_2019_12_	Efficient Products	Advanced Tier 2 Power Strips - D	172.80	Miscellaneous RES	0.0001148238	0.019842	10.0	\$30.00	per measure
250800_2019_12_	Efficient Products	Advanced Tier 2 Power Strips - E	151.20	Miscellaneous RES	0.0001148238	0.017363	10.0	\$30.00	per measure
250850_2019_12_	Efficient Products	Advanced Tier 2 Power Strips - F	129.60	Miscellaneous RES	0.0001148238	0.014883	10.0	\$30.00	per measure
250900_2019_12_	Efficient Products	Advanced Tier 2 Power Strips - G	108.00	Miscellaneous RES	0.0001148238	0.012401	10.0	\$30.00	per measure
250950_2019_12_	Efficient Products	Advanced Tier 2 Power Strips - H	86.40	Miscellaneous RES	0.0001148238	0.009921	10.0	\$30.00	per measure
251000_2019_12_	Efficient Products	Advanced Tier 2 Power Strips / TOS/NC / Average	151.96	Miscellaneous RES	0.0001148238	0.017449	10.0	\$30.00	per measure
251001_2020_12_	Efficient Products	Advanced Tier 2 Power Strips / DI / Average	153.90	Miscellaneous RES	0.0001148238	0.017671	10.0	\$60.00	per measure

ENERGY STAR Air Purifier

Measure Reference No.	Program/Channel	Measure	kWh Annual Savings	End Use	kW Factor	kW	EUL	Inc. Cost	Units
251050_2019_12_	Efficient Products	ENERGY STAR Air Purifier/Cleaner	578.86	HVAC RES	0.0004660805	0.269795	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
251100_2019_12_	Efficient Products	ENERGY STAR Dehumidifier	204.00	Cooling RES	0.0009474181	0.193273	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
251150_2019_12_	Efficient Products	ENERGY STAR Room AC (kWh w ISR)	49.5	Cooling RES	0.0009474181	0.046859	9.0	\$20.00	per measure
251200_2019_12_	Efficient Products	ENERGY STAR Room AC (kWh w/o ISR)	50.7	Cooling RES	0.0009474181	0.048072	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
300050_2019_12_	School	Dirty Filter Alarm_SF	53.75	HVAC RES	0.0004660805	34.00	19.75	0.025052	14.0	\$5.00	per measure
300051_2020_12_	IE	Dirty Filter Alarm_SF -IE Kits	88.22	HVAC RES	0.0004660805	62.13	36.09	0.045778	14.0	\$5.00	per measure
300060_2021_12_	ARP	Dirty Filter Alarm_SF -ARP Kits	15.27	HVAC RES	0.0004660805	9.66	5.61	0.007117	14.0	\$5.00	per measure
300100_2019_12_	School	Dirty Filter Alarm_MF	177.38	HVAC RES	0.0004660805	112.20	65.18	0.082673	14.0	\$5.00	per measure
300101_2019_12_	School	Dirty Filter Alarm_MF_CompE	85.65	HVAC RES	0.0004660805	38.25	47.40	0.039920	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
300150_2019_12_	School	LED - 10W (CFL baseline) (750-1049 lumens)	2.87	Lighting RES	0.0001492529	0.000428	19.0	\$1.95	per measure
300200_2019_12_	MF	LED - 10W (CFL baseline) (750-1049 lumens)	4.34	Lighting RES	0.0001492529	0.000648	19.0	\$1.95	per measure
300250_2019_12_	School	LED - 10W (Halogen baseline) (750-1049 lumens)	22.19	Lighting RES	0.0001492529	0.003312	19.0	\$1.95	per measure
300251_2020_12_	IE	LED - 10W (Halogen baseline) (750-1049 lumens) - IE Kit	30.15	Lighting RES	0.0001492529	0.004500	19.0	\$1.95	per measure
300260_2020_12_	ARP	LED - 10W (Halogen baseline) (750-1049 lumens) - ARP Kit	29.48	Lighting RES	0.0001492529	0.004400	19.0	\$1.95	per measure
300300_2019_12_	MF	LED - 10W (Halogen baseline) (750-1049 lumens)	33.50	Lighting RES	0.0001492529	0.005000	19.0	\$1.95	per measure
300350_2019_12_	School	LED - 10.5W Downlight E26 (CFL baseline)	7.83	Lighting RES	0.0001492529	0.001169	19.0	\$1.95	per measure
300400_2019_12_	MF	LED - 10.5W Downlight E26 (CFL baseline)	11.82	Lighting RES	0.0001492529	0.001764	19.0	\$1.95	per measure
300401_2020_12_	IE	LED 8W Globe Light G25 Bulb (Halogen Baseline) - IE Kit	32.10	Lighting RES	0.0001492529	0.004791	19.0	\$1.95	per measure
300402_2020_12_	IE	LED 20W (Halogen baseline) (1490-2600 lumens) - IE Kit	50.36	Lighting RES	0.0001492529	0.007516	19.0	\$1.95	per measure
300403_2020_12_	IE	LED 15W Flood Light PAR30 Bulb (Halogen Baseline) - IE Kit	45.49	Lighting RES	0.0001492529	0.006790	19.0	\$1.95	per measure
300430_2021_12_	IE	LED Nightlights	26.15	Lighting RES	0.0001492529	0.003903	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
300450_2019_12_	School	Kit Faucet Aerator (Kitchen)	29.75	Water Heating RES	0.0000887318	0.079	0.002640	\$10.00	\$3.00	per measure
300460_2020_12_	ARP	Kit Faucet Aerator (Kitchen) - ARP Kits	12.77	Water Heating RES	0.0000887318	0.079	0.001133	\$10.00	\$3.00	per measure
300500_2019_12_	MF	Kit Faucet Aerator (Kitchen)	99.55	Water Heating RES	0.0000887318	0.079	0.008833	\$10.00	\$3.00	per measure
300501_2020_12_	IE	Kit Faucet Aerator (Kitchen) - SFIE Kits	43.69	Water Heating RES	0.0000887318	0.079	0.003877	\$10.00	\$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
300550_2019_12_	School	Kit Faucet Aerator (Bathroom)	6.17	Water Heating RES	0.0000887318	0.06153283	0.000547	10.0	\$3.00	per measure
300560_2020_12_	ARP	Kit Faucet Aerator (Bathroom) - ARP Kits	2.65	Water Heating RES	0.0000887318	0.06153283	0.000235	10.0	\$3.00	per measure
300600_2019_12_	MF	Kit Faucet Aerator (Bathroom)	30.10	Water Heating RES	0.0000887318	0.06153283	0.002671	10.0	\$3.00	per measure
300601_2020_12_	IE	Kit Faucet Aerator (Bathroom) - SFUI Kits	13.84	Water Heating RES	0.0000887318	0.04658558	0.001228	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
300650_2019_12_	School	Low Flow Showerheads	71.66	Water Heating RES	0.0000887318	0.109	0.006359	10.0	\$7.00	per measure
300660_2020_12_	ARP	Low Flow Showerheads - ARP Kits	27.35	Water Heating RES	0.0000887318	0.109	0.002427	10.0	\$7.00	per measure
300700_2019_12_	MF	Low Flow Showerheads	291.45	Water Heating RES	0.0000887318	0.109	0.025861	10.0	\$7.00	per measure
300701_2021_12_	IE	Low Flow Showerheads - SFIE Kits	79.49	Water Heating RES	0.0000887318	0.109	0.007053	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
300750_2019_12_	School	Pipe Insulation	3.24	Water Heating RES	0.0000887318	0.000287	12.0	\$2.87	per foot
300760_2020_12_	ARP	Pipe Insulation - ARP Kits	2.59	Water Heating RES	0.0000887318	0.000230	12.0	\$2.87	per foot
300800_2019_12_	MF	Pipe Insulation	15.01	Water Heating RES	0.0000887318	0.001332	12.0	\$2.87	per foot
300801_2020_12_	IE	Pipe Insulation - SFIE Kits	3.40	Water Heating RES	0.0000887318	0.000302	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
300850_2019_12_	Unknown	Advanced Tier 1 Power Strips -TOS/NC - Home Office	29.45	Miscellaneous RES	0.0001148238	0.003382	10.0	\$20.00	per measure
300851_2020_12_	Unknown	Advanced Tier 1 Power Strips -DI - Home Office	29.45	Miscellaneous RES	0.0001148238	0.003382	10.0	\$30.00	per measure
300900_2019_12_	Unknown	Advanced Tier 1 Power Strips -Kits - Home Office	29.08	Miscellaneous RES	0.0001148238	0.003339	10.0	\$20.00	per measure
300950_2019_12_	Unknown	Advanced Tier 1 Power Strips -TOS/NC - Home Entertainment	71.35	Miscellaneous RES	0.0001148238	0.008193	10.0	\$20.00	per measure
300951_2020_12_	Unknown	Advanced Tier 1 Power Strips -DI - Home Entertainment	71.35	Miscellaneous RES	0.0001148238	0.008193	10.0	\$30.00	per measure
301000_2019_12_	Unknown	Advanced Tier 1 Power Strips -Kits - Home Entertainment	70.44	Miscellaneous RES	0.0001148238	0.008088	10.0	\$20.00	per measure
301050_2019_12_	Unknown	Advanced Tier 1 Power Strips -TOS/NC - Unknown Location	56.26	Miscellaneous RES	0.0001148238	0.006460	10.0	\$20.00	per measure
301051_2020_12_	Unknown	Advanced Tier 1 Power Strips -DI - Unknown Location	56.26	Miscellaneous RES	0.0001148238	0.006460	10.0	\$30.00	per measure
301100_2019_12_	Unknown	Advanced Tier 1 Power Strips -Kits - Unknown Location	50.59	Miscellaneous RES	0.0001148238	0.005809	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
301149_2021_12_	Unknown	Advanced Tier 2 Power Strips -TOS/NC/DI - Unknown Location	153.90	Miscellaneous RES	0.0001148238	0.017671	10.0	\$10.00	per measure
301150_2021_12_	IE	Advanced Tier 2 Power Strips - SFIE Kits - Unknown Location	21.96	Miscellaneous RES	0.0001148238	0.017449	10.0	\$30.00	per measure

*The actual full installation cost of the Tier 2 AV APS (including equipment and labor) should be used.

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
350050 2021 12	SF	ECM Auto Fan ROF-SF	0.00	HVAC RES	0.0004660805	0.0	0.0	0.0	0.0	0.0000000000	20.0	\$0.00	per measure
350100 2021 12	MF	ECM Auto Fan ROF-MF	0.00	HVAC RES	0.0004660805	0.0	0.0	0.0	0.0	0.0000000000	20.0	\$0.00	per measure
350150 2021 12	SF	ECM Auto Fan ER1 - SF	582.00	HVAC RES	0.0004660805	264.1	31.1	286.7	0.0	0.2712590000	6.0	\$74.33	per measure
350150 2021 12	SF	ECM Auto Fan ER2 - SF	582.00	HVAC RES ER2	0.0004660805	0.0	0.0	0.0	0.0	0.0000000000	0.0	\$0.00	per measure
350175 2021 12	MF	ECM Auto Fan ER1 - MF	582.00	HVAC RES	0.0004660805	264.1	31.1	286.7	0.0	0.2712590000	6.0	\$74.33	per measure
350175 2021 12	MF	ECM Auto Fan ER2 - MF	0.00	HVAC RES ER2	0.0004660805	0.0	0.0	0.0	0.0	0.0000000000	0.0	\$0.00	per measure
350200 2021 12	SF	ECM Continuous Fan ROF - SF	0.00	HVAC RES	0.0004660805	0.0	0.0	0.0	0.0	0.0000000000	20.0	\$0.00	per measure
350250 2021 12	MF	ECM Continuous Fan ROF - MF	0.00	HVAC RES	0.0004660805	0.0	0.0	0.0	0.0	0.0000000000	20.0	\$0.00	per measure
350300 2021 12	SF	ECM Continuous Fan ER1 - SF	582.00	HVAC RES	0.0004660805	264.1	31.1	286.7	0.0	0.2712590000	6.0	\$74.33	per measure
350300 2021 12	SF	ECM Continuous Fan ER2 - SF	0.00	HVAC RES ER2	0.0004660805	0.0	0.0	0.0	0.0	0.0000000000	0.0	\$0.00	per measure
350350 2021 12	MF	ECM Continuous Fan ER1 - MF	582.00	HVAC RES	0.0004660805	264.1	31.1	286.7	0.0	0.2712590000	6.0	\$74.33	per measure
350350 2021 12	MF	ECM Continuous Fan ER2 - MF	0.00	HVAC RES ER2	0.0004660805	0.0	0.0	0.0	0.0	0.0000000000	0.0	\$0.00	per measure

Note: As part of the Code of Federal Regulations, energy conservation standards for covered residential furnace fans became effective on July 3, 2019 (10 CFR 430.32)(v)). This code requirement effectively makes ECMs part of the baseline for New Construction (NC), Replace-on-Fail (ROF), Time-of-Replacement (TOS), and Early Replacement (ERP) scenarios. Savings are only allowable for ERP measures, for the remaining useful life of the existing equipment (ERL, 5 years). Therefore, the EUL of the measure is assumed to be 5 years. (ERL = 6, ER2 = 0).

Central Air Conditioners

*MFC = Multifamily Comprehensive Envelope, CompE = Comprehensive Envelope

Measure Reference No.	Program/Channel	Measure	kWh Annual Savings	End Use	kW Factor	kW	EUL	Inc. Cost	Units (tons/measure)
350400 2021 12	SF	CAC-SEER14 ER1 SF	1,529.78	Cooling RES	0.0009474181	1.449341	6	\$444.08	2.98
350400 2021 12	SF	CAC-SEER14 ER2 SF	192.34	Cooling RES ER2	0.0009474181	0.182226	12	\$0.00	2.98
350450 2021 12	SF	CAC-SEER14 ROF SF	191.69	Cooling RES	0.0009474181	0.181611	18	\$0.00	2.97
350500 2021 12	MF	CAC-SEER14 ER1 MF	1,011.98	Cooling RES	0.0009474181	0.958768	6	\$388.27	2.00
350500 2021 12	MF	CAC-SEER14 ER2 MF	114.36	Cooling RES ER2	0.0009474181	0.108347	12	\$0.00	2.00
350500 2021 12	MFC	CAC-SEER14 ER1 MF CompE	735.98	Cooling RES	0.0009474181	0.697281	6	\$298.04	2.00
350501 2021 12	MFC	CAC-SEER14 ER2 MF CompE	83.17	Cooling RES ER2	0.0009474181	0.078797	12	\$0.00	2.00
350550 2021 12	MF	CAC-SEER14 ROF MF	114.36	Cooling RES	0.0009474181	0.108347	18	\$0.00	2.00
350551 2021 12	MFC	CAC-SEER14 ROF MF CompE	83.17	Cooling RES	0.0009474181	0.078797	18	\$0.00	2.00
350600 2021 12	SF	CAC-SEER15 ER1 SF	1,789.74	Cooling RES	0.0009474181	1.695632	6	\$574.35	3.13
350600 2021 12	SF	CAC-SEER15 ER2 SF	348.11	Cooling RES ER2	0.0009474181	0.328806	12	\$0.00	3.13
350650 2021 12	SF	CAC-SEER15 ROF SF	347.48	Cooling RES	0.0009474181	0.329209	18	\$108.00	3.11
350700 2021 12	MF	CAC-SEER15 ER1 MF	1,478.57	Cooling RES	0.0009474181	1.460924	6	\$478.77	2.49
350700 2021 12	MF	CAC-SEER15 ER2 MF	208.56	Cooling RES ER2	0.0009474181	0.273387	12	\$0.00	2.49
350701 2021 12	MFC	CAC-SEER15 ER1 MF CompE	1,058.61	Cooling RES	0.0009474181	1.002946	6	\$478.77	2.49
350701 2021 12	MFC	CAC-SEER15 ER2 MF CompE	193.15	Cooling RES ER2	0.0009474181	0.182994	12	\$8.00	2.49
350750 2021 12	MF	CAC-SEER15 ROF MF	309.30	Cooling RES	0.0009474181	0.293056	18	\$108.00	2.75
350751 2021 12	MFC	CAC-SEER15 ROF MF CompE	213.48	Cooling RES	0.0009474181	0.202255	18	\$108.00	2.75
350800 2021 12	SF	CAC-SEER16 ER1 SF	1,809.80	Cooling RES	0.0009474181	1.714637	6	\$661.30	2.95
350800 2021 12	SF	CAC-SEER16 ER2 SF	446.81	Cooling RES ER2	0.0009474181	0.423316	12	\$0.00	2.95
350800 2021 12	SF	CAC-SEER16 ROF SF	459.15	Cooling RES	0.0009474181	0.435007	18	\$221.00	3.03
350900 2021 12	MF	CAC-SEER16 ER1 MF	1,518.60	Cooling RES	0.0009474181	1.438749	6	\$596.24	2.52
350900 2021 12	MF	CAC-SEER16 ER2 MF	378.59	Cooling RES ER2	0.0009474181	0.358683	12	\$0.00	2.52
350901 2021 12	MFC	CAC-SEER16 ER1 MF CompE	1,103.99	Cooling RES	0.0009474181	1.045940	6	\$596.24	2.52
350901 2021 12	MFC	CAC-SEER16 ER2 MF CompE	274.89	Cooling RES ER2	0.0009474181	0.260436	12	\$0.00	2.52
350950 2021 12	MF	CAC-SEER16 ROF MF	315.22	Cooling RES	0.0009474181	0.298645	18	\$221.00	2.10
350951 2021 12	MFC	CAC-SEER16 ROF MF CompE	229.25	Cooling RES	0.0009474181	0.217196	18	\$221.00	2.10
351000 2021 12	SF	CAC-SEER17 ER1 SF	1,896.58	Cooling RES	0.0009474181	1.796954	6	\$1,095.01	2.92
351000 2021 12	SF	CAC-SEER17 ER2 SF	576.43	Cooling RES ER2	0.0009474181	0.546120	12	\$0.00	2.92
351050 2021 12	SF	CAC-SEER17 ROF SF	595.17	Cooling RES	0.0009474181	0.563875	18	\$620.00	3.03
351100 2021 12	MF	CAC-SEER17 ER1 MF	1,604.29	Cooling RES	0.0009474181	1.519933	6	\$1,001.86	2.56
351100 2021 12	MF	CAC-SEER17 ER2 MF	496.97	Cooling RES ER2	0.0009474181	0.470838	12	\$0.00	2.56
351101 2021 12	MFC	CAC-SEER17 ER1 MF CompE	1,187.46	Cooling RES	0.0009474181	1.125021	6	\$1,001.86	2.56
351101 2021 12	MFC	CAC-SEER17 ER2 MF CompE	351.04	Cooling RES ER2	0.0009474181	0.332582	12	\$0.00	2.56
351150 2021 12	MF	CAC-SEER17 ROF MF	518.00	Cooling RES	0.0009474181	0.490763	18	\$620.00	2.75
351151 2021 12	MFC	CAC-SEER17 ROF MF CompE	376.73	Cooling RES	0.0009474181	0.356921	18	\$620.00	2.75
351160 2021 12	SF	CAC-SEER18 ER1 SF	2,213.29	Cooling RES	0.0009474181	2.096911	6	\$1,309.72	3.24
351160 2021 12	SF	CAC-SEER18 ER2 SF	720.84	Cooling RES ER2	0.0009474181	0.682937	12	\$0.00	3.24
351161 2021 12	SF	CAC-SEER18 ROF SF	706.92	Cooling RES	0.0009474181	0.669749	18	\$826.67	3.17
351162 2021 12	MF	CAC-SEER18 ER1 MF	2,910.14	Cooling RES	0.0009474181	2.757119	6	\$1,409.06	3.00
351162 2021 12	MF	CAC-SEER18 ER2 MF	667.12	Cooling RES ER2	0.0009474181	0.632042	12	\$0.00	3.00
351163 2021 12	MFC	CAC-SEER18 ER1 MF CompE	1,464.40	Cooling RES	0.0009474181	1.387399	6	\$1,273.73	3.00
351163 2021 12	MFC	CAC-SEER18 ER2 MF CompE	485.18	Cooling RES ER2	0.0009474181	0.459668	12	\$0.00	3.00
351164 2021 12	MF	CAC-SEER18 ROF MF	444.75	Cooling RES	0.0009474181	0.421364	18	\$826.67	2.00
351165 2021 12	MFC	CAC-SEER18 ROF MF CompE	323.45	Cooling RES	0.0009474181	0.306442	18	\$826.67	2.00
351170 2021 12	SF	CAC-SEER19 ER1 SF	3,099.52	Cooling RES	0.0009474181	2.936541	6	\$1,664.48	4.24
351170 2021 12	SF	CAC-SEER19 ER2 SF	1,090.64	Cooling RES ER2	0.0009474181	1.032922	12	\$0.00	4.24
351171 2021 12	SF	CAC-SEER19 ROF SF	1,119.32	Cooling RES	0.0009474181	1.062664	18	\$1,003.33	4.36
351172 2021 12	MF	CAC-SEER19 ER1 MF	1,403.23	Cooling RES	0.0009474181	1.329446	6	\$1,331.37	2.00
351172 2021 12	MF	CAC-SEER19 ER2 MF	505.61	Cooling RES ER2	0.0009474181	0.479024	12	\$0.00	2.00
351173 2021 12	MFC	CAC-SEER19 ER1 MF CompE	1,020.53	Cooling RES	0.0009474181	0.966869	6	\$1,331.37	2.00
351173 2021 12	MFC	CAC-SEER19 ER2 MF CompE	367.72	Cooling RES ER2	0.0009474181	0.348385	12	\$0.00	2.00
351174 2021 12	MF	CAC-SEER19 ROF MF	505.61	Cooling RES	0.0009474181	0.479024	18	\$1,003.33	2.00
351175 2021 12	MFC	CAC-SEER19 ROF MF CompE	367.72	Cooling RES	0.0009474181	0.348385	18	\$1,003.33	2.00
351180 2021 12	SF	CAC-SEER20 ER1 SF	2,498.15	Cooling RES	0.0009474181	2.366793	6	\$1,749.80	3.42
351180 2021 12	SF	CAC-SEER20 ER2 SF	975.66	Cooling RES ER2	0.0009474181	0.924358	12	\$0.00	3.42
351181 2021 12	SF	CAC-SEER20 ROF SF	917.64	Cooling RES	0.0009474181	0.869389	18	\$1,240.00	3.25
351182 2021 12	MF	CAC-SEER20 ER1 MF	1,436.44	Cooling RES	0.0009474181	1.350998	6	\$1,538.04	2.00
351182 2021 12	MF	CAC-SEER20 ER2 MF	560.38	Cooling RES ER2	0.0009474181	0.530914	12	\$0.00	2.00
351183 2021 12	MFC	CAC-SEER20 ER1 MF CompE	1,060.36	Cooling RES	0.0009474181	1.004604	6	\$1,538.04	2.00
351183 2021 12	MFC	CAC-SEER20 ER2 MF CompE	407.55	Cooling RES ER2	0.0009474181	0.386120	12	\$0.00	2.00
351184 2021 12	MF	CAC-SEER20 ROF MF	560.38	Cooling RES	0.0009474181	0.530914	18	\$1,240.00	2.00
351185 2021 12	MFC	CAC-SEER20 ROF MF CompE	407.55	Cooling RES	0.0009474181	0.386120	18	\$1,240.00	2.00
351190 2021 12	SF	CAC-SEER21+ ER1 SF	2,515.91	Cooling RES	0.0009474181	2.383619	6	\$1,943.08	3.33

RESIDENTIAL HVAC

Central Air Conditioners

*Mfc = Multifamily Comprehensive Envelope, CompE = Comprehensive Envelope

Measure Reference No.	Program/Channel	Measure	kWh Annual Savings	End Use	kW Factor	kW	EUL	Inc. Cost	Units (tons/measure)
351190 2021 12	SF	CAC-SEER21- ER2 SF	1,081.83	Cooling RES ER2	0.0009474181	1.024945	12	\$0.00	3.33
351191 2021 12	SF	CAC-SEER21- ROF SF	1,009.72	Cooling RES ER2	0.0009474181	0.956527	18	\$1,446.67	3.14
351192 2021 12	MF	CAC-SEER21- ER1 MF	1,507.56	Cooling RES	0.0009474181	1.428290	6	\$1,744.71	2.00
351192 2021 12	MF	CAC-SEER21- ER2 MF	609.94	Cooling RES ER2	0.0009474181	0.577868	12	\$0.00	2.00
351193 2021 12	Mfc	CAC-SEER21- ER1 MF CompE	1,096.41	Cooling RES	0.0009474181	1.038759	6	\$1,744.71	2.00
351193 2021 12	Mfc	CAC-SEER21- ER2 MF CompE	443.59	Cooling RES ER2	0.0009474181	0.420265	12	\$0.00	2.00
351194 2021 12	MF	CAC-SEER21- ROF MF	609.94	Cooling RES	0.0009474181	0.577868	18	\$1,446.67	2.00
351195 2021 12	Mfc	CAC-SEER21- ROF MF CompE	443.59	Cooling RES	0.0009474181	0.420265	18	\$1,446.67	2.00

*Incremental cost to be adjusted based on cost testing used

Mini/Multi-Split Heat Pumps and Air Conditioners

*Mfc = Multifamily Comprehensive Envelope, CompE = Comprehensive Envelope

Measure Reference No.	Program/Channel	Measure	kWh Annual Savings	End Use	kW Factor	kW	EUL	Inc. Cost	Units (tons/measure)
351200 2021 12	SF	Mini/MultiSplitAC_ER1_SF	696.90	Cooling RES	0.0009474181	0.660256	6.0	\$1,133.60	1.4
351200 2021 12	SF	Mini/MultiSplitAC_ER2_SF	269.27	Cooling RES ER2	0.0009474181	0.255111	12.0	\$0.00	
351250 2021 12	SF	Mini/MultiSplitAC_ROF_SF	329.12	Cooling RES	0.0009474181	0.311814	18.0	\$337.90	1.4
351300 2021 12	SF	Mini/MultiSplitASHP_ROF_SF_NC	305.98	Cooling RES	0.0009474181	0.289891	18.0	\$337.90	1.5
351300 2021 12	SF	Mini/MultiSplitASHP_ROF_SF_NC	632.35	Heating RES	0.0000000000	0.000000	18.0	\$0.00	
351350 2021 12	SF	Mini/MultiSplitASHP_ROF_SF	296.29	Cooling RES	0.0009474181	0.280711	18.0	\$337.90	1.3
351350 2021 12	SF	Mini/MultiSplitASHP_ROF_SF	639.13	Heating RES	0.0000000000	0.000000	18.0	\$0.00	
351400 2021 12	SF	Mini/MultiSplitASHP-Replace_CAC_ElectricHeat_ER1_SF	884.18	Cooling RES	0.0009474181	0.837688	6.0	\$2,505.75	1.6
351400 2021 12	SF	Mini/MultiSplitASHP-Replace_CAC_ElectricHeat_ER1_SF	3,895.33	Heating RES	0.0000000000	0.000000	6.0	\$0.00	
351400 2021 12	SF	Mini/MultiSplitASHP-Replace_CAC_ElectricHeat_ER2_SF	362.75	Cooling RES ER2	0.0009474181	0.343676	12.0	\$0.00	
351400 2021 12	SF	Mini/MultiSplitASHP-Replace_CAC_ElectricHeat_ER2_SF	3,895.33	Heating RES ER2	0.0000000000	0.000000	12.0	\$0.00	
351450 2021 12	SF	Mini/MultiSplitASHP-Replace_CAC_ElectricHeat_ROF_SF	346.51	Cooling RES	0.0009474181	0.328290	18.0	\$337.90	1.7
351450 2021 12	SF	Mini/MultiSplitASHP-Replace_CAC_ElectricHeat_ROF_SF	4,359.36	Heating RES	0.0000000000	0.000000	18.0	\$0.00	
351500 2021 12	SF	Mini/MultiSplitASHP_ER1_SF	843.09	Cooling RES	0.0009474181	0.798759	6.0	\$698.33	1.5
351500 2021 12	SF	Mini/MultiSplitASHP_ER1_SF	1,692.45	Heating RES	0.0000000000	0.000000	6.0	\$0.00	
351500 2021 12	SF	Mini/MultiSplitASHP_ER2_SF	352.11	Cooling RES ER2	0.0009474181	0.333955	12.0	\$0.00	
351500 2021 12	SF	Mini/MultiSplitASHP_ER2_SF	1,108.68	Heating RES ER2	0.0000000000	0.000000	12.0	\$0.00	
351550 2021 12	MF	Mini/MultiSplitAC_ER1_MF	696.90	Cooling RES	0.0009474181	0.660256	6.0	\$1,133.60	1.3
351550 2021 12	MF	Mini/MultiSplitAC_ER2_MF	269.27	Cooling RES ER2	0.0009474181	0.255111	12.0	\$0.00	
351551 2021 12	Mfc	Mini/MultiSplitAC_ER1_MF_CompE	457.65	Cooling RES	0.0009474181	0.433586	6.0	\$1,133.60	1.3
351551 2021 12	Mfc	Mini/MultiSplitAC_ER2_MF_CompE	176.83	Cooling RES ER2	0.0009474181	0.167932	12.0	\$0.00	
351600 2021 12	MF	Mini/MultiSplitAC_ROF_MF	329.12	Cooling RES	0.0009474181	0.311814	18.0	\$337.90	1.4
351601 2021 12	Mfc	Mini/MultiSplitAC_ROF_MF_CompE	789.24	Cooling RES	0.0009474181	0.747740	18.0	\$337.90	1.4
351650 2021 12	MF	Mini/MultiSplitASHP_ROF_MF_NC	305.98	Cooling RES	0.0009474181	0.289891	18.0	\$337.90	1.5
351650 2021 12	MF	Mini/MultiSplitASHP_ROF_MF_NC	632.35	Heating RES	0.0000000000	0.000000	18.0	\$0.00	
351651 2021 12	Mfc	Mini/MultiSplitASHP_ROF_MF_NC_CompE	200.94	Cooling RES	0.0009474181	0.190174	18.0	\$337.90	1.5
351651 2021 12	Mfc	Mini/MultiSplitASHP_ROF_MF_NC_CompE	240.34	Heating RES	0.0000000000	0.000000	18.0	\$0.00	
351700 2021 12	MF	Mini/MultiSplitASHP_ROF_MF	296.29	Cooling RES	0.0009474181	0.280711	18.0	\$337.90	1.4
351700 2021 12	MF	Mini/MultiSplitASHP_ROF_MF	639.13	Heating RES	0.0000000000	0.000000	18.0	\$0.00	
351701 2021 12	Mfc	Mini/MultiSplitASHP_ROF_MF_CompE	194.57	Cooling RES	0.0009474181	0.184439	18.0	\$337.90	1.4
351701 2021 12	Mfc	Mini/MultiSplitASHP_ROF_MF_CompE	232.92	Heating RES	0.0000000000	0.000000	18.0	\$0.00	
351750 2021 12	MF	Mini/MultiSplitASHP-Replace_CAC_ElectricHeat_ER1_MF	884.18	Cooling RES	0.0009474181	0.837688	6.0	\$2,505.75	1.6
351750 2021 12	MF	Mini/MultiSplitASHP-Replace_CAC_ElectricHeat_ER1_MF	3,895.33	Heating RES	0.0000000000	0.000000	6.0	\$0.00	
351750 2021 12	MF	Mini/MultiSplitASHP-Replace_CAC_ElectricHeat_ER2_MF	362.75	Cooling RES ER2	0.0009474181	0.343676	12.0	\$0.00	
351750 2021 12	MF	Mini/MultiSplitASHP-Replace_CAC_ElectricHeat_ER2_MF	3,895.33	Heating RES ER2	0.0000000000	0.000000	12.0	\$0.00	
351751 2021 12	Mfc	Mini/MultiSplitASHP-Replace_CAC_ElectricHeat_ER1_MF_CompE	580.64	Cooling RES	0.0009474181	0.550109	6.0	\$2,505.75	1.6
351751 2021 12	Mfc	Mini/MultiSplitASHP-Replace_CAC_ElectricHeat_ER1_MF_CompE	1,480.53	Heating RES	0.0000000000	0.000000	6.0	\$0.00	
351751 2021 12	Mfc	Mini/MultiSplitASHP-Replace_CAC_ElectricHeat_ER2_MF_CompE	238.21	Cooling RES ER2	0.0009474181	0.225684	12.0	\$0.00	
351751 2021 12	Mfc	Mini/MultiSplitASHP-Replace_CAC_ElectricHeat_ER2_MF_CompE	1,480.53	Heating RES ER2	0.0000000000	0.000000	12.0	\$0.00	
351800 2021 12	MF	Mini/MultiSplitASHP-Replace_CAC_ElectricHeat_ROF_MF	346.51	Cooling RES	0.0009474181	0.328290	18.0	\$337.90	1.7
351800 2021 12	MF	Mini/MultiSplitASHP-Replace_CAC_ElectricHeat_ROF_MF	4,359.36	Heating RES	0.0000000000	0.000000	18.0	\$0.00	
351801 2021 12	Mfc	Mini/MultiSplitASHP-Replace_CAC_ElectricHeat_ROF_MF_CompE	227.55	Cooling RES	0.0009474181	0.215585	18.0	\$337.90	1.7
351801 2021 12	Mfc	Mini/MultiSplitASHP-Replace_CAC_ElectricHeat_ROF_MF_CompE	1,656.89	Heating RES	0.0000000000	0.000000	18.0	\$0.00	
351850 2021 12	MF	Mini/MultiSplitASHP_ER1_MF	843.09	Cooling RES	0.0009474181	0.798759	6.0	\$698.33	1.5
351850 2021 12	MF	Mini/MultiSplitASHP_ER1_MF	1,692.45	Heating RES	0.0000000000	0.000000	6.0	\$0.00	
351850 2021 12	MF	Mini/MultiSplitASHP_ER2_MF	352.11	Cooling RES ER2	0.0009474181	0.333955	12.0	\$0.00	
351850 2021 12	MF	Mini/MultiSplitASHP_ER2_MF	1,108.68	Heating RES ER2	0.0000000000	0.000000	12.0	\$0.00	
351851 2021 12	Mfc	Mini/MultiSplitASHP_ER1_MF_CompE	553.65	Cooling RES	0.0009474181	0.524538	6.0	\$698.33	1.5
351851 2021 12	Mfc	Mini/MultiSplitASHP_ER1_MF_CompE	643.26	Heating RES	0.0000000000	0.000000	6.0	\$0.00	
351851 2021 12	Mfc	Mini/MultiSplitASHP_ER2_MF_CompE	231.23	Cooling RES ER2	0.0009474181	0.219071	12.0	\$0.00	
351851 2021 12	Mfc	Mini/MultiSplitASHP_ER2_MF_CompE	421.38	Heating RES ER2	0.0000000000	0.000000	12.0	\$0.00	

Dual Fuel Heat Pumps

*Mfc = Multifamily Comprehensive Envelope, CompE = Comprehensive Envelope

Measure Reference No.	Program/Channel	Measure	kWh Annual Savings	End Use	kW Factor	kW	EUL	Inc. Cost	Units (tons/measure)
351900 2019 12	MF	DHHP-SEER13-ROF_MF	423.49	Cooling Res	0.0009474181	0.410412	18.0	\$2,936.60	3.4
351900 2019 12	MF	DHHP-SEER13-ROF_MF	653.42	Heating Res	0.0000000000	0.000000	18.0	\$0.00	
351901 2019 12	Mfc	DHHP-SEER13-ROF_MF_CompE	315.05	Cooling Res	0.0009474181	0.298484	18.0	\$2,936.60	3.4
351901 2019 12	Mfc	DHHP-SEER13-ROF_MF_CompE	296.89	Heating Res	0.0000000000	0.000000	18.0	\$0.00	
351950 2019 12	MF	DHHP-SEER20-ROF_MF	639.09	Cooling Res	0.0009474181	0.605485	18.0	\$3,176.60	4.4
351950 2019 12	MF	DHHP-SEER20-ROF_MF	990.72	Heating Res	0.0000000000	0.000000	18.0	\$0.00	
351951 2019 12	Mfc	DHHP-SEER20-ROF_MF_CompE	464.79	Cooling Res	0.0009474181	0.440360	18.0	\$3,176.60	4.4
351951 2019 12	Mfc	DHHP-SEER20-ROF_MF_CompE	451.54	Heating Res	0.0000000000	0.000000	18.0	\$0.00	
352000 2019 12	MF	DHHP-SEER21-ROF_MF	871.48	Cooling Res	0.0009474181	0.825656	18.0	\$3,626.60	5.4
352000 2019 12	MF	DHHP-SEER21-ROF_MF	1,383.74	Heating Res	0.0000000000	0.000000	18.0	\$0.00	
352001 2019 12	Mfc	DHHP-SEER21-ROF_MF_CompE	633.81	Cooling Res	0.0009474181	0.600483	18.0	\$3,626.60	5.4
352001 2019 12	Mfc	DHHP-SEER21-ROF_MF_CompE	630.66	Heating Res	0.0000000000	0.000000	18.0	\$0.00	

RESIDENTIAL HVAC

Ground Source Heat Pumps

Measure Reference No.	Program/Channel	Measure	kWh Annual Savings	End Use	kW Factor	kW	EUL	Inc. Cost	Units (tons/measure)
352050_2021_12	SF	GSHP-EER23-Replace_CAC_ElectricHeat_ROF_SF	1,403.37	Cooling Res	0.0009474181	1.329578	18.0	\$4,717.00	4.06
352050_2021_12	SF	GSHP-EER23-Replace_CAC_ElectricHeat_ER2_SF	15,839.40	Heating RES	0.0000000000	0.000000	18.0		
352100_2021_12	SF	GSHP-EER23-Replace_CAC_ElectricHeat_ER1_SF	5,417.20	Cooling Res	0.0009474181	5.123363	6.0	\$5,250.00	4.06
352100_2021_12	SF	GSHP-EER23-Replace_CAC_ElectricHeat_ER1_SF	16,555.19	Heating RES	0.0000000000	0.000000	6.0		
352100_2021_12	SF	GSHP-EER23-Replace_CAC_ElectricHeat_ER2_SF	1,743.88	Cooling Res ER2	0.0009474181	1.652183	12.0		
352100_2021_12	SF	GSHP-EER23-Replace_CAC_ElectricHeat_ER2_SF	16,555.19	Heating RES ER2	0.0000000000	0.000000	12.0		
352200_2021_12	SF	GSHP-EER23_ER1_SF	3,155.16	Cooling Res	0.0009474181	2.989256	6.0	\$4,859.00	4.07
352200_2021_12	SF	GSHP-EER23_ER1_SF	2,827.56	Heating RES	0.0000000000	0.000000	6.0		
352200_2021_12	SF	GSHP-EER23_ER2_SF	1,481.42	Cooling Res ER2	0.0009474181	1.403524	12.0		
352200_2021_12	SF	GSHP-EER23_ER2_SF	2,082.04	Heating RES ER2	0.0000000000	0.000000	12.0		
352250_2021_12	SF	GSHP-EER23_ROF_SF	1,520.53	Cooling Res	0.0009474181	1.440578	18.0	\$3,200.00	4.16
352250_2021_12	SF	GSHP-EER23_ROF_SF	2,128.55	Heating RES	0.0000000000	0.000000	18.0		

Air Source Heat Pumps

*Mfc = Multifamily Comprehensive Envelope, CompE = Comprehensive Envelope

Measure Reference No.	Program/Channel	Measure	kWh Annual Savings	End Use	kW Factor	kW	EUL	Inc. Cost	Units (tons/measure)
352300_2021_12	SF	ASHP-SEER15-Replace_CAC_ElectricHeat_ER1_SF	1,696.71	Cooling Res	0.0009474181	1.607494	6.0	\$991.06	2.9
352300_2021_12	SF	ASHP-SEER15-Replace_CAC_ElectricHeat_ER1_SF	9,228.66	Heating Res	0.0000000000	0.000000	6.0	\$0.00	
352300_2021_12	SF	ASHP-SEER15-Replace_CAC_ElectricHeat_ER2_SF	324.06	Cooling Res ER2	0.0009474181	0.307020	12.0	\$0.00	
352300_2021_12	SF	ASHP-SEER15-Replace_CAC_ElectricHeat_ER2_SF	9,228.66	Heating Res ER2	0.0000000000	0.000000	12.0	\$0.00	
352310_2021_12	SF	ASHP-SEER15-Replace_CAC_NonElectricHeat_ER1_SF	1,696.71	Cooling Res	0.0009474181	1.607494	6.0	\$991.06	2.9
352310_2021_12	SF	ASHP-SEER15-Replace_CAC_NonElectricHeat_ER1_SF	0.00	Heating Res	0.0000000000	0.000000	6.0	\$0.00	
352310_2021_12	SF	ASHP-SEER15-Replace_CAC_NonElectricHeat_ER2_SF	324.06	Cooling Res ER2	0.0009474181	0.307020	12.0	\$0.00	
352310_2021_12	SF	ASHP-SEER15-Replace_CAC_NonElectricHeat_ER2_SF	0.00	Heating Res ER2	0.0000000000	0.000000	12.0	\$0.00	
352350_2021_12	SF	ASHP-SEER15_ER1_SF	1,735.46	Cooling Res	0.0009474181	1.644206	6.0	\$1,049.29	3.1
352350_2021_12	SF	ASHP-SEER15_ER1_SF	2,167.42	Heating Res	0.0000000000	0.000000	6.0	\$0.00	
352350_2021_12	SF	ASHP-SEER15_ER2_SF	175.54	Cooling Res ER2	0.0009474181	0.166310	12.0	\$0.00	
352350_2021_12	SF	ASHP-SEER15_ER2_SF	483.92	Heating Res ER2	0.0000000000	0.000000	12.0	\$0.00	
352400_2021_12	SF	ASHP-SEER15-Replace_CAC_ElectricHeat_ROF_SF	349.89	Cooling Res	0.0009474181	0.331492	18.0	\$303.00	3.1
352400_2021_12	SF	ASHP-SEER15-Replace_CAC_ElectricHeat_ROF_SF	9,964.14	Heating Res	0.0000000000	0.000000	18.0	\$0.00	
352410_2021_12	SF	ASHP-SEER15-Replace_CAC_NonElectricHeat_ROF_SF	349.89	Cooling Res	0.0009474181	0.331492	18.0	\$303.00	3.1
352410_2021_12	SF	ASHP-SEER15-Replace_CAC_NonElectricHeat_ROF_SF	0.00	Heating Res	0.0000000000	0.000000	18.0	\$0.00	
352450_2021_12	SF	ASHP-SEER15_ROF_SF	159.12	Cooling Res	0.0009474181	0.150753	18.0	\$303.00	3.0
352450_2021_12	SF	ASHP-SEER15_ROF_SF	292.62	Heating Res	0.0000000000	0.000000	18.0	\$0.00	
352500_2021_12	SF	ASHP-SEER16-Replace_CAC_ElectricHeat_ER1_SF	1,835.16	Cooling Res	0.0009474181	1.738664	6.0	\$1,136.29	2.9
352500_2021_12	SF	ASHP-SEER16-Replace_CAC_ElectricHeat_ER1_SF	9,585.06	Heating Res	0.0000000000	0.000000	6.0	\$0.00	
352500_2021_12	SF	ASHP-SEER16-Replace_CAC_ElectricHeat_ER2_SF	447.63	Cooling Res ER2	0.0009474181	0.424093	12.0	\$0.00	
352500_2021_12	SF	ASHP-SEER16-Replace_CAC_ElectricHeat_ER2_SF	9,585.06	Heating Res ER2	0.0000000000	0.000000	12.0	\$0.00	
352510_2021_12	SF	ASHP-SEER16-Replace_CAC_NonElectricHeat_ER1_SF	1,835.16	Cooling Res	0.0009474181	1.738664	6.0	\$1,136.29	2.9
352510_2021_12	SF	ASHP-SEER16-Replace_CAC_NonElectricHeat_ER1_SF	0.00	Heating Res	0.0000000000	0.000000	6.0	\$0.00	
352510_2021_12	SF	ASHP-SEER16-Replace_CAC_NonElectricHeat_ER2_SF	447.63	Cooling Res ER2	0.0009474181	0.424093	12.0	\$0.00	
352510_2021_12	SF	ASHP-SEER16-Replace_CAC_NonElectricHeat_ER2_SF	0.00	Heating Res ER2	0.0000000000	0.000000	12.0	\$0.00	
352550_2021_12	SF	ASHP-SEER16_ER1_SF	1,797.54	Cooling Res	0.0009474181	1.703022	6.0	\$1,165.49	3.0
352550_2021_12	SF	ASHP-SEER16_ER1_SF	2,313.43	Heating Res	0.0000000000	0.000000	6.0	\$0.00	
352550_2021_12	SF	ASHP-SEER16_ER2_SF	297.11	Cooling Res ER2	0.0009474181	0.281487	12.0	\$0.00	
352550_2021_12	SF	ASHP-SEER16_ER2_SF	672.35	Heating Res ER2	0.0000000000	0.000000	12.0	\$0.00	
352600_2021_12	SF	ASHP-SEER16-Replace_CAC_ElectricHeat_ROF_SF	506.78	Cooling Res	0.0009474181	0.480113	18.0	\$438.00	3.0
352600_2021_12	SF	ASHP-SEER16-Replace_CAC_ElectricHeat_ROF_SF	9,883.59	Heating Res	0.0000000000	0.000000	18.0	\$0.00	
352650_2021_12	SF	ASHP-SEER16_ROF_SF	292.86	Cooling Res	0.0009474181	0.277461	18.0	\$438.00	3.1
352650_2021_12	SF	ASHP-SEER16_ROF_SF	637.16	Heating Res	0.0000000000	0.000000	18.0	\$0.00	
352700_2021_12	MfC	ASHP-SEER15_ER1_MF	1,068.07	Cooling Res	0.0009474181	1.011909	6.0	\$755.99	2.9
352700_2021_12	MfC	ASHP-SEER15_ER1_MF	1,319.43	Heating Res	0.0000000000	0.000000	6.0	\$0.00	
352700_2021_12	MfC	ASHP-SEER15_ER2_MF	105.03	Cooling Res ER2	0.0009474181	0.099507	12.0	\$0.00	
352700_2021_12	MfC	ASHP-SEER15_ER2_MF	297.58	Heating Res ER2	0.0000000000	0.000000	12.0	\$0.00	
352701_2021_12	MfC	ASHP-SEER15_ER1_MF_CompE	980.26	Cooling Res	0.0009474181	0.928716	6.0	\$755.99	2.9
352701_2021_12	MfC	ASHP-SEER15_ER1_MF_CompE	449.81	Heating Res	0.0000000000	0.000000	6.0	\$0.00	
352701_2021_12	MfC	ASHP-SEER15_ER2_MF_CompE	76.39	Cooling Res ER2	0.0009474181	0.072373	12.0	\$0.00	
352701_2021_12	MfC	ASHP-SEER15_ER2_MF_CompE	101.45	Heating Res ER2	0.0000000000	0.000000	12.0	\$0.00	
352750_2021_12	MfC	ASHP-SEER15-Replace_CAC_ElectricHeat_ER1_MF	5,401.11	Cooling Res	0.0009474181	0.866490	6.0	\$691.27	2.5
352750_2021_12	MfC	ASHP-SEER15-Replace_CAC_ElectricHeat_ER1_MF	201.35	Cooling Res ER2	0.0009474181	0.190763	12.0	\$0.00	
352750_2021_12	MfC	ASHP-SEER15-Replace_CAC_ElectricHeat_ER2_MF	5,401.11	Heating Res ER2	0.0000000000	0.000000	12.0	\$0.00	
352751_2021_12	MfC	ASHP-SEER15-Replace_CAC_ElectricHeat_ER1_MF_CompE	839.47	Cooling Res	0.0009474181	0.795329	6.0	\$691.27	2.5
352751_2021_12	MfC	ASHP-SEER15-Replace_CAC_ElectricHeat_ER1_MF_CompE	1,841.29	Heating Res	0.0000000000	0.000000	6.0	\$0.00	
352751_2021_12	MfC	ASHP-SEER15-Replace_CAC_ElectricHeat_ER2_MF_CompE	1,841.29	Heating Res ER2	0.0000000000	0.000000	12.0	\$0.00	
352760_2021_12	MfC	ASHP-SEER15-Replace_CAC_NonElectricHeat_ER1_MF	914.58	Cooling Res	0.0009474181	0.866490	6.0	\$691.27	2.5
352760_2021_12	MfC	ASHP-SEER15-Replace_CAC_NonElectricHeat_ER1_MF	0.00	Heating Res	0.0000000000	0.000000	6.0	\$0.00	
352760_2021_12	MfC	ASHP-SEER15-Replace_CAC_NonElectricHeat_ER2_MF	201.35	Cooling Res ER2	0.0009474181	0.190763	12.0	\$0.00	
352760_2021_12	MfC	ASHP-SEER15-Replace_CAC_NonElectricHeat_ER2_MF	0.00	Heating Res ER2	0.0000000000	0.000000	12.0	\$0.00	
352761_2021_12	MfC	ASHP-SEER15-Replace_CAC_NonElectricHeat_ER1_MF_CompE	839.47	Cooling Res	0.0009474181	0.795329	6.0	\$691.27	2.5
352761_2021_12	MfC	ASHP-SEER15-Replace_CAC_NonElectricHeat_ER1_MF_CompE	0.00	Heating Res	0.0000000000	0.000000	6.0	\$0.00	
352761_2021_12	MfC	ASHP-SEER15-Replace_CAC_NonElectricHeat_ER2_MF_CompE	131.84	Cooling Res ER2	0.0009474181	0.124908	12.0	\$0.00	
352761_2021_12	MfC	ASHP-SEER15-Replace_CAC_NonElectricHeat_ER2_MF_CompE	0.00	Heating Res ER2	0.0000000000	0.000000	12.0	\$0.00	
352800_2019_12	MfC	ASHP-SEER15-Replace_CAC_ElectricHeat_ROF_MF	196.21	Cooling Res	0.0009474181	0.185893	18.0	\$303.00	2.6
352800_2019_12	MfC	ASHP-SEER15-Replace_CAC_ElectricHeat_ROF_MF	5,369.26	Heating Res	0.0000000000	0.000000	18.0	\$0.00	
352801_2021_12	MfC	ASHP-SEER15-Replace_CAC_ElectricHeat_ROF_MF_CompE	142.70	Cooling Res	0.0009474181	0.135197	18.0	\$303.00	2.6
352801_2021_12	MfC	ASHP-SEER15-Replace_CAC_ElectricHeat_ROF_MF_CompE	1,830.43	Heating Res	0.0000000000	0.000000	18.0	\$0.00	
352810_2021_12	MfC	ASHP-SEER15-Replace_CAC_NonElectricHeat_ROF_MF	106.11	Cooling Res	0.0009474181	0.185893	18.0	\$303.00	2.6
352810_2021_12	MfC	ASHP-SEER15-Replace_CAC_NonElectricHeat_ROF_MF	0.00	Heating Res	0.0000000000	0.000000	18.0	\$0.00	
352811_2021_12	MfC	ASHP-SEER15-Replace_CAC_NonElectricHeat_ROF_MF_CompE	142.70	Cooling Res	0.0009474181	0.135197	18.0	\$303.00	2.6
352811_2021_12	MfC	ASHP-SEER15-Replace_CAC_NonElectricHeat_ROF_MF_CompE	0.00	Heating Res	0.0000000000	0.000000	18.0	\$0.00	
352850_2021_12	MfC	ASHP-SEER16_ER1_MF	1,217.31	Cooling Res	0.0009474181	1.153302	6.0	\$903.93	3.0
352850_2021_12	MfC	ASHP-SEER16_ER1_MF	1,441.30	Heating Res	0.0000000000	0.000000	6.0	\$0.00	
352850_2021_12	MfC	ASHP-SEER16_ER2_MF	181.56	Cooling Res ER2	0.0009474181	0.172013	12.0	\$0.00	
352850_2021_12	MfC	ASHP-SEER16_ER2_MF	390.25	Heating Res ER2	0.0000000000	0.000000	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/yr)
352851 2021 12	Mfc	ASHP-SEER16 ER1 MF CompE	851.07	Cooling Res	0.0009474181	0.806319	6.0	\$903.93	3.0
352851 2021 12	Mfc	ASHP-SEER16_ER1_MF_CompE	491.35	Heating Res	0.0000000000	0.000000	6.0	\$0.00	
352851 2021 12	Mfc	ASHP-SEER16_ER1_MF_CompE	132.04	Cooling Res ER2	0.0009474181	0.125097	12.0	\$0.00	
352851 2021 12	Mfc	ASHP-SEER16_ER2 MF CompE	133.04	Heating Res ER2	0.0000000000	0.000000	12.0	\$0.00	
352900 2021 12	Mf	ASHP-SEER16_ROF_MF	181.56	Cooling Res	0.0009474181	0.172013	18.0	\$438.00	3.0
352900 2021 12	Mf	ASHP-SEER16_ROF_MF	379.47	Heating Res	0.0000000000	0.000000	18.0	\$0.00	
352901 2021 12	Mfc	ASHP-SEER16_ROF_MF_CompE	132.04	Cooling Res	0.0009474181	0.125097	18.0	\$438.00	3.0
352901 2021 12	Mfc	ASHP-SEER16_ROF_MF_CompE	129.37	Heating Res	0.0000000000	0.000000	18.0	\$0.00	
352950 2019 12	Mf	ASHP-SEER16-Replace_CAC_ElectricHeat_ROF_MF	245.36	Cooling Res	0.0009474181	0.232459	18.0	\$438.00	2.0
352950 2019 12	Mf	ASHP-SEER16-Replace_CAC_ElectricHeat_ROF_MF	4,307.18	Heating Res	0.0000000000	0.000000	18.0	\$0.00	
352951 2019 12	Mfc	ASHP-SEER16-Replace_CAC_ElectricHeat_ROF_MF_CompE	178.45	Cooling Res	0.0009474181	0.169067	18.0	\$438.00	2.0
352951 2019 12	Mfc	ASHP-SEER16-Replace_CAC_ElectricHeat_ROF_MF_CompE	1,468.36	Heating Res	0.0000000000	0.000000	18.0	\$0.00	
352960 2021 12	Mf	ASHP-SEER16-Replace_CAC_NonElectricHeat_ROF_MF	245.36	Cooling Res	0.0009474181	0.232459	18.0	\$438.00	2.0
352960 2021 12	Mf	ASHP-SEER16-Replace_CAC_NonElectricHeat_ROF_MF	0.00	Heating Res	0.0000000000	0.000000	18.0	\$0.00	
352961 2021 12	Mfc	ASHP-SEER16-Replace_CAC_NonElectricHeat_ROF_MF_CompE	178.45	Cooling Res	0.0009474181	0.169067	18.0	\$438.00	2.0
352961 2021 12	Mfc	ASHP-SEER16-Replace_CAC_NonElectricHeat_ROF_MF_CompE	0.00	Heating Res	0.0000000000	0.000000	18.0	\$0.00	
353000 2021 12	Mf	ASHP-SEER16-Replace_CAC_ElectricHeat_ER1_MF	1,169.45	Cooling Res	0.0009474181	1.107958	6.0	\$748.62	2.0
353000 2021 12	Mf	ASHP-SEER16-Replace_CAC_ElectricHeat_ER1_MF	4,250.80	Heating Res	0.0000000000	0.000000	6.0	\$0.00	
353000 2021 12	Mf	ASHP-SEER16-Replace_CAC_ElectricHeat_ER2_MF	195.53	Cooling Res ER2	0.0009474181	0.185249	12.0	\$0.00	
353000 2021 12	Mf	ASHP-SEER16-Replace_CAC_ElectricHeat_ER2_MF	4,250.80	Heating Res ER2	0.0000000000	0.000000	12.0	\$0.00	
353001 2021 12	Mfc	ASHP-SEER16-Replace_CAC_ElectricHeat_ER1_MF_CompE	567.38	Cooling Res	0.0009474181	0.537546	6.0	\$748.62	2.0
353001 2021 12	Mfc	ASHP-SEER16-Replace_CAC_ElectricHeat_ER1_MF_CompE	1,449.14	Heating Res	0.0000000000	0.000000	6.0	\$0.00	
353001 2021 12	Mfc	ASHP-SEER16-Replace_CAC_ElectricHeat_ER1_MF_CompE	142.20	Cooling Res ER2	0.0009474181	0.134713	12.0	\$0.00	
353001 2021 12	Mfc	ASHP-SEER16-Replace_CAC_ElectricHeat_ER2_MF_CompE	1,449.14	Heating Res ER2	0.0000000000	0.000000	12.0	\$0.00	
353010 2021 12	Mf	ASHP-SEER16-Replace_CAC_NonElectricHeat_ER1_MF	1,169.45	Cooling Res	0.0009474181	1.107958	6.0	\$748.62	2.0
353010 2021 12	Mf	ASHP-SEER16-Replace_CAC_NonElectricHeat_ER1_MF	0.00	Heating Res	0.0000000000	0.000000	6.0	\$0.00	
353010 2021 12	Mf	ASHP-SEER16-Replace_CAC_NonElectricHeat_ER2_MF	195.53	Cooling Res ER2	0.0009474181	0.185249	12.0	\$0.00	
353010 2021 12	Mf	ASHP-SEER16-Replace_CAC_NonElectricHeat_ER2_MF	0.00	Heating Res	0.0000000000	0.000000	12.0	\$0.00	
353011 2021 12	Mfc	ASHP-SEER16-Replace_CAC_NonElectricHeat_ER1_MF_CompE	567.38	Cooling Res	0.0009474181	0.537546	6.0	\$748.62	2.0
353011 2021 12	Mfc	ASHP-SEER16-Replace_CAC_NonElectricHeat_ER1_MF_CompE	0.00	Heating Res	0.0000000000	0.000000	6.0	\$0.00	
353011 2021 12	Mfc	ASHP-SEER16-Replace_CAC_NonElectricHeat_ER2_MF_CompE	142.20	Cooling Res ER2	0.0009474181	0.134723	12.0	\$0.00	
353011 2021 12	Mfc	ASHP-SEER16-Replace_CAC_NonElectricHeat_ER2_MF_CompE	0.00	Heating Res ER2	0.0000000000	0.000000	12.0	\$0.00	
353050 2021 12	Mf	ASHP-SEER15_ROF_MF	64.88	Cooling Res	0.0009474181	0.061563	18.0	\$303.00	2.0
353050 2021 12	Mf	ASHP-SEER15_ROF_MF	254.65	Heating Res	0.0000000000	0.000000	18.0	\$0.00	
353051 2021 12	Mfc	ASHP-SEER15_ROF_MF_CompE	51.64	Cooling Res	0.0009474181	0.048925	18.0	\$303.00	2.0
353051 2021 12	Mfc	ASHP-SEER15_ROF_MF_CompE	86.81	Heating Res	0.0000000000	0.000000	18.0	\$0.00	
353100 2021 12	Sf	ASHP-SEER17-Replace_CAC_ElectricHeat_ROF_SF	538.32	Cooling Res	0.0009474181	0.510014	18.0	\$724.00	2.7
353100 2021 12	Sf	ASHP-SEER17-Replace_CAC_ElectricHeat_ROF_SF	9,112.05	Heating Res	0.0000000000	0.000000	18.0	\$0.00	
353150 2019 12	Mf	ASHP-SEER17-Replace_CAC_ElectricHeat_ROF_MF	343.51	Cooling Res	0.0009474181	0.325448	18.0	\$724.00	2.8
353150 2019 12	Mf	ASHP-SEER17-Replace_CAC_ElectricHeat_ROF_MF	6,213.11	Heating Res	0.0000000000	0.000000	18.0	\$0.00	
353151 2019 12	Mfc	ASHP-SEER17-Replace_CAC_ElectricHeat_ROF_MF_CompE	249.83	Cooling Res	0.0009474181	0.236693	18.0	\$724.00	2.8
353151 2019 12	Mfc	ASHP-SEER17-Replace_CAC_ElectricHeat_ROF_MF_CompE	2,118.10	Heating Res	0.0000000000	0.000000	18.0	\$0.00	
353160 2021 12	Mf	ASHP-SEER17-Replace_CAC_NonElectricHeat_ROF_MF	343.51	Cooling Res	0.0009474181	0.325448	18.0	\$724.00	2.8
353160 2021 12	Mf	ASHP-SEER17-Replace_CAC_NonElectricHeat_ROF_MF	0.00	Heating Res	0.0000000000	0.000000	18.0	\$0.00	
353161 2021 12	Mfc	ASHP-SEER17-Replace_CAC_NonElectricHeat_ROF_MF_CompE	249.83	Cooling Res	0.0009474181	0.236693	18.0	\$724.00	2.8
353161 2021 12	Mfc	ASHP-SEER17-Replace_CAC_NonElectricHeat_ROF_MF_CompE	0.00	Heating Res	0.0000000000	0.000000	18.0	\$0.00	
353200 2021 12	Sf	ASHP-SEER18-Replace_CAC_ElectricHeat_ROF_SF	651.80	Cooling Res	0.0009474181	0.617053	18.0	\$962.92	3.0
353200 2021 12	Sf	ASHP-SEER18-Replace_CAC_ElectricHeat_ROF_SF	10,428.83	Heating Res	0.0000000000	0.000000	18.0	\$0.00	
353250 2021 12	Mf	ASHP-SEER18-Replace_CAC_ElectricHeat_ROF_MF	434.50	Cooling Res	0.0009474181	0.411653	18.0	\$962.92	3.0
353250 2021 12	Mf	ASHP-SEER18-Replace_CAC_ElectricHeat_ROF_MF	6,580.92	Heating Res	0.0000000000	0.000000	18.0	\$0.00	
353251 2021 12	Mfc	ASHP-SEER18-Replace_CAC_ElectricHeat_ROF_MF_CompE	316.00	Cooling Res	0.0009474181	0.299384	18.0	\$962.92	3.0
353251 2021 12	Mfc	ASHP-SEER18-Replace_CAC_ElectricHeat_ROF_MF_CompE	2,243.50	Heating Res	0.0000000000	0.000000	18.0	\$0.00	
353260 2021 12	Mf	ASHP-SEER18-Replace_CAC_NonElectricHeat_ROF_SF	434.50	Cooling Res	0.0009474181	0.411653	18.0	\$962.92	3.0
353260 2021 12	Mf	ASHP-SEER18-Replace_CAC_NonElectricHeat_ROF_SF	0.00	Heating Res	0.0000000000	0.000000	18.0	\$0.00	
353261 2021 12	Mfc	ASHP-SEER18-Replace_CAC_NonElectricHeat_ROF_SF_CompE	316.00	Cooling Res	0.0009474181	0.299384	18.0	\$962.92	3.0
353261 2021 12	Mfc	ASHP-SEER18-Replace_CAC_NonElectricHeat_ROF_SF_CompE	0.00	Heating Res	0.0000000000	0.000000	18.0	\$0.00	
353300 2021 12	Sf	ASHP-SEER19-Replace_CAC_ElectricHeat_ROF_SF	1,013.25	Cooling Res	0.0009474181	0.959971	18.0	\$1,203.65	4.0
353300 2021 12	Sf	ASHP-SEER19-Replace_CAC_ElectricHeat_ROF_SF	14,530.06	Heating Res	0.0000000000	0.000000	18.0	\$0.00	
353350 2021 12	Mf	ASHP-SEER19-Replace_CAC_ElectricHeat_ROF_MF	486.64	Cooling Res	0.0009474181	0.461052	18.0	\$1,203.65	2.8
353350 2021 12	Mf	ASHP-SEER19-Replace_CAC_ElectricHeat_ROF_MF	6,213.11	Heating Res	0.0000000000	0.000000	18.0	\$0.00	
353351 2019 12	Mfc	ASHP-SEER19-Replace_CAC_ElectricHeat_ROF_MF_CompE	335.29	Cooling Res	0.0009474181	0.317660	18.0	\$1,203.65	2.8
353351 2019 12	Mfc	ASHP-SEER19-Replace_CAC_ElectricHeat_ROF_MF_CompE	2,118.10	Heating Res	0.0000000000	0.000000	18.0	\$0.00	
353360 2021 12	Mf	ASHP-SEER19-Replace_CAC_NonElectricHeat_ROF_MF	486.64	Cooling Res	0.0009474181	0.461052	18.0	\$1,203.65	2.8
353360 2021 12	Mf	ASHP-SEER19-Replace_CAC_NonElectricHeat_ROF_MF	0.00	Heating Res	0.0000000000	0.000000	18.0	\$0.00	
353361 2021 12	Mfc	ASHP-SEER19-Replace_CAC_NonElectricHeat_ROF_MF_CompE	335.29	Cooling Res	0.0009474181	0.317660	18.0	\$1,203.65	2.8
353361 2021 12	Mfc	ASHP-SEER19-Replace_CAC_NonElectricHeat_ROF_MF_CompE	0.00	Heating Res	0.0000000000	0.000000	18.0	\$0.00	
353400 2021 12	Sf	ASHP-SEER20-Replace_CAC_ElectricHeat_ER1_SF	2,197.42	Cooling Res	0.0009474181	2.081875	6.0	\$2,161.19	3.0
353400 2021 12	Sf	ASHP-SEER20-Replace_CAC_ElectricHeat_ER1_SF	10,941.66	Heating Res	0.0000000000	0.000000	6.0	\$0.00	
353400 2021 12	Sf	ASHP-SEER20-Replace_CAC_ElectricHeat_ER2_SF	842.26	Cooling Res ER2	0.0009474181	0.797972	12.0	\$0.00	
353400 2021 12	Sf	ASHP-SEER20-Replace_CAC_ElectricHeat_ER2_SF	10,941.66	Heating Res ER2	0.0000000000	0.000000	12.0	\$0.00	
353410 2021 12	Sf	ASHP-SEER20-Replace_CAC_NonElectricHeat_ER1_SF	2,197.42	Cooling Res	0.0009474181	2.081875	6.0	\$2,161.19	3.0
353410 2021 12	Sf	ASHP-SEER20-Replace_CAC_NonElectricHeat_ER1_SF	0.00	Heating Res	0.0000000000	0.000000	6.0	\$0.00	
353410 2021 12	Sf	ASHP-SEER20-Replace_CAC_NonElectricHeat_ER2_SF	842.26	Cooling Res ER2	0.0009474181	0.797972	12.0	\$0.00	
353410 2021 12	Sf	ASHP-SEER20-Replace_CAC_NonElectricHeat_ER2_SF	0.00	Heating Res ER2	0.0000000000	0.000000	12.0	\$0.00	
353450 2021 12	Sf	ASHP-SEER20-Replace_CAC_ElectricHeat_ROF_SF	701.88	Cooling Res	0.0009474181	0.664974	18.0	\$1,444.38	2.5
353450 2021 12	Sf	ASHP-SEER20-Replace_CAC_ElectricHeat_ROF_SF	8,887.00	Heating Res	0.0000000000	0.000000	18.0	\$0.00	
353500 2019 12	Mf	ASHP-SEER20-Replace_CAC_ElectricHeat_ROF_MF	583.97	Cooling Res	0.0009474181	0.553264	18.0	\$1,444.38	3.2
353500 2019 12	Mf	ASHP-SEER20-Replace_CAC_ElectricHeat_ROF_MF	7,100.69	Heating Res	0.0000000000	0.000000	18.0	\$0.00	
353501 2019 12	Mfc	ASHP-SEER20-Replace_CAC_ElectricHeat_ROF_MF_CompE	424.70	Cooling Res	0.0009474181	0.402368	18.0	\$1,444.38	3.2
353501 2019 12	Mfc	ASHP-SEER20-Replace_CAC_ElectricHeat_ROF_MF_CompE	2,420.69	Heating Res	0.0000000000	0.000000	18.0	\$0.00	
353510 2021 12	Mf	ASHP-SEER20-Replace_CAC_NonElectricHeat_ROF_MF	583.97	Cooling Res	0.0009474181	0.553264	18.0	\$1,444.38	3.2
353510 2021 12	Mf	ASHP-SEER20-Replace_CAC_NonElectricHeat_ROF_MF	0.00	Heating Res	0.0000000000	0.000000	18.0	\$0.00	
353511 2021 12	Mfc	ASHP-SEER20-Replace_CAC_NonElectricHeat_ROF_MF_CompE	424.70	Cooling Res	0.0009474181	0.402368	18.0	\$1,444.38	3.2
353511 2021 12	Mfc	ASHP-SEER20-Replace_CAC_NonElectricHeat_ROF_MF_CompE	0.00	Heating Res	0.0000000000	0.000000	18.0	\$0.00	
353550 2021 12	Sf	ASHP-SEER21-Replace_CAC_ElectricHeat_ER1_SF	2,697.17	Cooling Res	0.0009474181	2.553448	6.0	\$2,547.93	3.6
353550 2021 12	Sf	ASHP-SEER21-Replace_CAC_ElectricHeat_ER1_SF	12,895.04	Heating Res	0.0000000000	0.000000	6.0	\$0.00	
353550 2021 12	Sf	ASHP-SEER21-Replace_CAC_ElectricHeat_ER2_SF	1,151.58	Cooling Res ER2</					

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Measure Reference No.	Program/Channel	Measure	kWh Annual Savings	End Use	kW Factor	kW	EUL	Inc. Cost	Units (tons/measure)
353600 2019 12	MF	ASHP-SEER21-Replace CAC ElectricHeat ER1 MF	1,521.91	Cooling Res	0.0009474181	1.441885	6.0	\$2,171.38	3.1
353600 2019 12	MF	ASHP-SEER21-Replace_CAC_ElectricHeat_ER1_MF	6,759.78	Heating Res	0.0000000000	0.000000	6.0	\$0.00	
353600 2019 12	MF	ASHP-SEER21-Replace_CAC_ElectricHeat_ER2_MF	615.75	Heating Res ER2	0.0009474181	0.583373	12.0	\$0.00	
353600 2019 12	MF	ASHP-SEER21-Replace CAC ElectricHeat ER2 MF	6,759.78	Heating Res ER2	0.0000000000	0.000000	12.0	\$0.00	
353601 2019 12	MfC	ASHP-SEER21-Replace CAC ElectricHeat ER1 MF CompE	1,106.84	Cooling Res	0.0009474181	1.048640	6.0	\$2,171.38	3.1
353601 2019 12	MfC	ASHP-SEER21-Replace CAC NonElectricHeat ER1 MF CompE	2,304.47	Heating Res	0.0000000000	0.000000	6.0	\$0.00	
353601 2019 12	MfC	ASHP-SEER21-Replace_CAC_ElectricHeat_ER2_MF_CompE	447.82	Cooling Res ER2	0.0009474181	0.424273	12.0	\$0.00	
353601 2019 12	MfC	ASHP-SEER21-Replace_CAC_NonElectricHeat_ER2_MF_CompE	2,304.47	Heating Res ER2	0.0000000000	0.000000	12.0	\$0.00	
353610 2021 12	MF	ASHP-SEER21-Replace CAC NonElectricHeat ER1 MF	0.00	Heating Res	0.0000000000	0.000000	6.0	\$0.00	
353610 2021 12	MF	ASHP-SEER21-Replace CAC NonElectricHeat ER2 MF	615.75	Cooling Res ER2	0.0009474181	0.583373	12.0	\$0.00	
353610 2021 12	MF	ASHP-SEER21-Replace_CAC_NonElectricHeat_ER2_MF	0.00	Heating Res ER2	0.0000000000	0.000000	12.0	\$0.00	
353611 2021 12	MfC	ASHP-SEER21-Replace_CAC_NonElectricHeat_ER1_MF_CompE	1,106.84	Cooling Res	0.0009474181	1.048640	6.0	\$2,171.38	3.1
353611 2021 12	MfC	ASHP-SEER21-Replace CAC NonElectricHeat ER1 MF CompE	0.00	Heating Res	0.0000000000	0.000000	6.0	\$0.00	
353611 2021 12	MfC	ASHP-SEER21-Replace_CAC_NonElectricHeat_ER2_MF_CompE	447.82	Cooling Res ER2	0.0009474181	0.424273	12.0	\$0.00	
353611 2021 12	MfC	ASHP-SEER21-Replace CAC NonElectricHeat ER2 MF CompE	0.00	Heating Res ER2	0.0000000000	0.000000	12.0	\$0.00	
353650 2021 12	SF	ASHP-SEER21-Replace_CAC_ElectricHeat_ROF_SF	1,109.96	Cooling Res	0.0009474181	1.051596	18.0	\$1,689.92	3.5
353650 2021 12	SF	ASHP-SEER21-Replace_CAC_NonElectricHeat_ROF_SF	12,441.81	Heating Res	0.0000000000	0.000000	18.0	\$0.00	
353700 2019 12	MF	ASHP-SEER21+Replace CAC_ElectricHeat_ROF_MF	635.61	Cooling Res	0.0009474181	0.602188	18.0	\$1,689.92	3.2
353700 2019 12	MF	ASHP-SEER21+Replace_CAC_ElectricHeat_ROF_MF	7,100.69	Heating Res	0.0000000000	0.000000	18.0	\$0.00	
353701 2019 12	MfC	ASHP-SEER21+Replace CAC ElectricHeat ROF MF CompE	462.26	Cooling Res	0.0009474181	0.437953	18.0	\$1,689.92	3.2
353701 2019 12	MfC	ASHP-SEER21+Replace_CAC_ElectricHeat_ROF_MF_CompE	2,420.69	Heating Res	0.0000000000	0.000000	18.0	\$0.00	
353710 2021 12	MF	ASHP-SEER21-Replace_CAC_NonElectricHeat_ROF_MF	635.61	Heating Res	0.0009474181	0.602188	18.0	\$1,689.92	3.2
353710 2021 12	MF	ASHP-SEER21-Replace_CAC_ElectricHeat_ROF_MF	0.00	Heating Res	0.0000000000	0.000000	18.0	\$0.00	
353711 2021 12	MfC	ASHP-SEER21+Replace CAC NonElectricHeat ROF MF CompE	462.26	Cooling Res	0.0009474181	0.437953	18.0	\$1,689.92	3.2
353711 2021 12	MfC	ASHP-SEER21+Replace_CAC_NonElectricHeat_ROF_MF_CompE	0.00	Heating Res	0.0000000000	0.000000	18.0	\$0.00	
353750 2021 12	SF	ASHP-SEER17_ER1_SF	1,716.58	Cooling Res	0.0009474181	1.626319	6.0	\$1,423.75	2.9
353750 2021 12	SF	ASHP-SEER17_ER1_SF	2,388.46	Heating Res	0.0000000000	0.000000	6.0	\$0.00	
353750 2021 12	SF	ASHP-SEER17_ER2_SF	399.92	Cooling Res ER2	0.0009474181	0.378891	12.0	\$0.00	
353750 2021 12	SF	ASHP-SEER17_ER2_SF	809.97	Heating Res ER2	0.0000000000	0.000000	12.0	\$0.00	
353800 2021 12	SF	ASHP-SEER17_ROF_SF	612.74	Cooling Res	0.0009474181	0.580521	18.0	\$724.00	3.9
353800 2021 12	SF	ASHP-SEER17_ROF_SF	1,235.04	Heating Res	0.0000000000	0.000000	18.0	\$0.00	
353850 2021 12	SF	ASHP-SEER18_ER1_SF	2,063.04	Cooling Res	0.0009474181	1.954114	6.0	\$1,295.95	3.2
353850 2021 12	SF	ASHP-SEER18_ER1_SF	2,980.40	Heating Res	0.0000000000	0.000000	6.0	\$0.00	
353850 2021 12	SF	ASHP-SEER18_ER2_SF	523.08	Cooling Res ER2	0.0009474181	0.495575	12.0	\$0.00	
353850 2021 12	SF	ASHP-SEER18_ER2_SF	1,250.13	Heating Res ER2	0.0000000000	0.000000	12.0	\$0.00	
353950 2021 12	SF	ASHP-SEER18_ROF_SF	591.21	Cooling Res	0.0009474181	0.560123	18.0	\$962.92	3.4
353950 2021 12	SF	ASHP-SEER18_ROF_SF	1,676.32	Heating Res	0.0000000000	0.000000	18.0	\$0.00	
354000 2021 12	SF	ASHP-SEER19_ER1_SF	2,424.93	Cooling Res	0.0009474181	2.297423	6.0	\$2,159.40	4.0
354000 2021 12	SF	ASHP-SEER19_ER1_SF	3,760.88	Heating Res	0.0000000000	0.000000	6.0	\$0.00	
354000 2021 12	SF	ASHP-SEER19_ER2_SF	795.55	Cooling Res ER2	0.0009474181	0.753718	12.0	\$0.00	
354000 2021 12	SF	ASHP-SEER19_ER2_SF	1,604.88	Heating Res ER2	0.0000000000	0.000000	12.0	\$0.00	
354050 2021 12	SF	ASHP-SEER19_ROF_SF	438.97	Cooling Res	0.0009474181	0.406414	18.0	\$1,203.65	2.2
354050 2021 12	SF	ASHP-SEER19_ROF_SF	1,045.15	Heating Res	0.0000000000	0.000000	18.0	\$0.00	
354100 2021 12	SF	ASHP-SEER17-Replace CAC ElectricHeat ER1 SF	1,948.61	Cooling Res	0.0009474181	1.846148	6.0	\$1,402.80	2.8
354100 2021 12	SF	ASHP-SEER17-Replace CAC ElectricHeat ER1 SF	9,594.00	Heating Res	0.0000000000	0.000000	6.0	\$0.00	
354100 2021 12	SF	ASHP-SEER17-Replace_CAC_ElectricHeat_ER2_SF	550.07	Cooling Res ER2	0.0009474181	0.521146	12.0	\$0.00	
354100 2021 12	SF	ASHP-SEER17-Replace_CAC_NonElectricHeat_ER2_SF	9,594.00	Heating Res ER2	0.0000000000	0.000000	12.0	\$0.00	
354110 2021 12	SF	ASHP-SEER17-Replace CAC NonElectricHeat ER1 SF	1,948.61	Cooling Res	0.0009474181	1.846148	6.0	\$1,402.80	2.8
354110 2021 12	SF	ASHP-SEER17-Replace CAC NonElectricHeat ER1 SF	0.00	Heating Res	0.0000000000	0.000000	6.0	\$0.00	
354110 2021 12	SF	ASHP-SEER17-Replace CAC NonElectricHeat ER2 SF	550.07	Cooling Res ER2	0.0009474181	0.521146	12.0	\$0.00	
354110 2021 12	SF	ASHP-SEER17-Replace_CAC_NonElectricHeat_ER2_SF	0.00	Heating Res ER2	0.0000000000	0.000000	12.0	\$0.00	
354150 2019 12	MF	ASHP-SEER17-Replace CAC ElectricHeat ER1 MF	1,286.47	Cooling Res	0.0009474181	1.218825	6.0	\$1,205.46	3.1
354150 2019 12	MF	ASHP-SEER17-Replace CAC ElectricHeat ER2 MF	6,759.78	Heating Res	0.0000000000	0.000000	6.0	\$0.00	
354150 2019 12	MF	ASHP-SEER17-Replace_CAC_ElectricHeat_ER2_MF	380.32	Cooling Res ER2	0.0009474181	0.360322	12.0	\$0.00	
354150 2019 12	MF	ASHP-SEER17-Replace_CAC_ElectricHeat_ER2_MF	6,759.78	Heating Res ER2	0.0000000000	0.000000	12.0	\$0.00	
354151 2019 12	MfC	ASHP-SEER17-Replace_CAC_ElectricHeat_ER1_MF_CompE	935.62	Cooling Res	0.0009474181	0.886423	6.0	\$1,205.46	3.1
354151 2019 12	MfC	ASHP-SEER17-Replace_CAC_ElectricHeat_ER1_MF_CompE	2,304.47	Heating Res	0.0000000000	0.000000	6.0	\$0.00	
354151 2019 12	MfC	ASHP-SEER17-Replace_CAC_ElectricHeat_ER2_MF_CompE	276.59	Cooling Res ER2	0.0009474181	0.262046	12.0	\$0.00	
354151 2019 12	MfC	ASHP-SEER17-Replace_CAC_ElectricHeat_ER2_MF_CompE	2,304.47	Heating Res ER2	0.0000000000	0.000000	12.0	\$0.00	
354160 2021 12	MF	ASHP-SEER17-Replace CAC NonElectricHeat ER1 MF	1,286.47	Cooling Res	0.0009474181	1.218825	6.0	\$1,205.46	3.1
354160 2021 12	MF	ASHP-SEER17-Replace_CAC_NonElectricHeat_ER1_MF	0.00	Heating Res	0.0000000000	0.000000	6.0	\$0.00	
354160 2021 12	MF	ASHP-SEER17-Replace_CAC_NonElectricHeat_ER2_MF	380.32	Cooling Res ER2	0.0009474181	0.360322	12.0	\$0.00	
354160 2021 12	MF	ASHP-SEER17-Replace_CAC_NonElectricHeat_ER2_MF	0.00	Heating Res ER2	0.0000000000	0.000000	12.0	\$0.00	
354161 2021 12	MfC	ASHP-SEER17-Replace CAC NonElectricHeat ER1 MF CompE	935.62	Cooling Res	0.0009474181	0.886423	6.0	\$1,205.46	3.1
354161 2021 12	MfC	ASHP-SEER17-Replace_CAC_NonElectricHeat_ER1_MF_CompE	0.00	Heating Res	0.0000000000	0.000000	6.0	\$0.00	
354161 2021 12	MfC	ASHP-SEER17-Replace_CAC_NonElectricHeat_ER2_MF_CompE	276.59	Cooling Res ER2	0.0009474181	0.262046	12.0	\$0.00	
354161 2021 12	MfC	ASHP-SEER17-Replace_CAC_NonElectricHeat_ER2_MF_CompE	0.00	Heating Res ER2	0.0000000000	0.000000	12.0	\$0.00	
354200 2019 12	MF	ASHP-SEER17_ER1_MF	1,369.47	Cooling Res	0.0009474181	1.297461	6.0	\$1,236.52	3.3
354200 2019 12	MF	ASHP-SEER17_ER1_MF	1,798.76	Heating Res	0.0000000000	0.000000	6.0	\$0.00	
354200 2019 12	MF	ASHP-SEER17_ER2_MF	281.95	Cooling Res ER2	0.0009474181	0.267125	12.0	\$0.00	
354200 2019 12	MF	ASHP-SEER17_ER2_MF	642.61	Heating Res ER2	0.0000000000	0.000000	12.0	\$0.00	
354201 2019 12	MfC	ASHP-SEER17_ER1_MF CompE	995.98	Cooling Res	0.0009474181	0.943629	6.0	\$1,236.52	3.3
354201 2019 12	MfC	ASHP-SEER17_ER1_MF CompE	613.21	Heating Res	0.0000000000	0.000000	6.0	\$0.00	
354201 2019 12	MfC	ASHP-SEER17_ER2_MF CompE	205.05	Cooling Res ER2	0.0009474181	0.194268	12.0	\$0.00	
354201 2019 12	MfC	ASHP-SEER17_ER2_MF CompE	219.07	Heating Res ER2	0.0000000000	0.000000	12.0	\$0.00	
354250 2021 12	SF	ASHP-SEER18-Replace_CAC_ElectricHeat_ER1_SF	2,068.02	Cooling Res	0.0009474181	1.959280	6.0	\$1,734.02	3.1
354250 2021 12	SF	ASHP-SEER18-Replace_CAC_ElectricHeat_ER1_SF	10,952.77	Heating Res	0.0000000000	0.000000	6.0	\$0.00	
354250 2021 12	SF	ASHP-SEER18-Replace_CAC_ElectricHeat_ER2_SF	697.15	Cooling Res ER2	0.0009474181	0.660493	12.0	\$0.00	
354250 2021 12	SF	ASHP-SEER18-Replace_CAC_ElectricHeat_ER2_SF	10,952.77	Heating Res ER2	0.0000000000	0.000000	12.0	\$0.00	
354260 2021 12	SF	ASHP-SEER18-Replace CAC NonElectricHeat ER1 SF	2,068.02	Cooling Res	0.0009474181	1.959280	6.0	\$1,734.02	3.1
354260 2021 12	SF	ASHP-SEER18-Replace_CAC_NonElectricHeat_ER1_SF	0.00	Heating Res	0.0000000000	0.000000	6.0	\$0.00	
354260 2021 12	SF	ASHP-SEER18-Replace_CAC_NonElectricHeat_ER2_SF	697.15	Cooling Res ER2	0.0009474181	0.660493	12.0	\$0.00	
354260 2021 12	SF	ASHP-SEER18-Replace_CAC_NonElectricHeat_ER2_SF	0.00	Heating Res ER2	0.0000000000	0.000000	12.0	\$0.00	
354300 2021 12	MF	ASHP-SEER18-Replace CAC ElectricHeat ER1 MF	1,312.04	Cooling Res	0.0009474181	1.243050	6.0	\$1,195.88	1.5
354300 2021 12	MF	ASHP-SEER18-Replace CAC ElectricHeat ER1 MF	3,382.58	Heating Res	0.0000000000	0.000000	6.0	\$0.00	
354300 2021 12	MF	ASHP-SEER18-Replace_CAC_ElectricHeat_ER2_MF	217.25	Cooling Res ER2	0.0009474181	0.205827	12.0	\$0.00	
354300 2021 12	MF	ASHP-SEER18-Replace_CAC_ElectricHeat_ER2_MF	3,382.58	Heating Res ER2	0.0000000000	0.000000	12.0	\$0.00	
354301 2021 12	MfC	ASHP-SEER18-Replace CAC ElectricHeat ER1 MF CompE	476.88	Cooling Res	0.0009474181				

RESIDENTIAL HVAC
Air Source Heat Pumps

Measure Reference No.	Program/Channel	Measure	*MFC - Multifamily Comprehensive Envelope, CompE - Comprehensive Envelope	kWh Annual Savings	End Use	kW Factor	kW	EUL	Inc. Cost	Units (tons/measure)
354310 2021 12	MF	ASHP-SEER18-Replace_CAC_NonElectricHeat_ER1_MF		1,312.04	Cooling Res	0.0009474181	1.243050	6.0	\$1,195.88	1.5
354310 2021 12	MF	ASHP-SEER18-Replace_CAC_NonElectricHeat_ER1_MF		0.00	Heating Res	0.0000000000	0.000000	6.0	\$0.00	
354310 2021 12	MF	ASHP-SEER18-Replace_CAC_NonElectricHeat_ER2_MF		217.25	Heating Res ER2	0.0009474181	0.209817	12.0	\$0.00	
354310 2021 12	MF	ASHP-SEER18-Replace_CAC_NonElectricHeat_ER2_MF		0.00	Heating Res ER2	0.0000000000	0.000000	12.0	\$0.00	
354311 2021 12	MFC	ASHP-SEER18-Replace_CAC_NonElectricHeat_ER1_MF_CompE		476.88	Cooling Res	0.0009474181	0.451805	6.0	\$1,195.88	1.5
354311 2021 12	MFC	ASHP-SEER18-Replace_CAC_NonElectricHeat_ER1_MF_CompE		0.00	Heating Res	0.0000000000	0.000000	6.0	\$0.00	
354311 2021 12	MFC	ASHP-SEER18-Replace_CAC_NonElectricHeat_ER2_MF_CompE		158.00	Cooling Res ER2	0.0009474181	0.149692	12.0	\$0.00	
354311 2021 12	MFC	ASHP-SEER18-Replace_CAC_NonElectricHeat_ER2_MF_CompE		0.00	Heating Res ER2	0.0000000000	0.000000	12.0	\$0.00	
354350 2021 12	MF	ASHP-SEER18 ER1 MF		2,201.50	Cooling Res	0.0009474181	2.085741	6.0	\$1,739.47	5.0
354350 2021 12	MF	ASHP-SEER18 ER1 MF		2,725.40	Heating Res	0.0000000000	0.000000	6.0	\$0.00	
354350 2021 12	MF	ASHP-SEER18 ER2 MF		588.84	Cooling Res ER2	0.0009474181	0.557878	12.0	\$0.00	
354350 2021 12	MF	ASHP-SEER18 ER2 MF		973.65	Heating Res ER2	0.0000000000	0.000000	12.0	\$0.00	
354351 2021 12	MFC	ASHP-SEER18 ER1 MF_CompE		1,589.63	Cooling Res	0.0009474181	1.526625	6.0	\$1,739.47	5.0
354351 2021 12	MFC	ASHP-SEER18 ER1 MF_CompE		929.11	Heating Res	0.0000000000	0.000000	6.0	\$0.00	
354351 2021 12	MFC	ASHP-SEER18 ER2 MF_CompE		391.24	Cooling Res ER2	0.0009474181	0.370668	12.0	\$0.00	
354351 2021 12	MFC	ASHP-SEER18 ER2 MF_CompE		331.93	Heating Res ER2	0.0000000000	0.000000	12.0	\$0.00	
354400 2021 12	SF	ASHP-SEER19-Replace_CAC_ElectricHeat_ER1_SF		2,436.71	Cooling Res	0.0009474181	2.308583	6.0	\$2,063.83	3.6
354400 2021 12	SF	ASHP-SEER19-Replace_CAC_ElectricHeat_ER1_SF		12,553.53	Heating Res	0.0000000000	0.000000	6.0	\$0.00	
354400 2021 12	SF	ASHP-SEER19-Replace_CAC_ElectricHeat_ER2_SF		924.84	Cooling Res ER2	0.0009474181	0.876210	12.0	\$0.00	
354400 2021 12	SF	ASHP-SEER19-Replace_CAC_ElectricHeat_ER2_SF		12,553.53	Heating Res ER2	0.0000000000	0.000000	12.0	\$0.00	
354410 2021 12	SF	ASHP-SEER19-Replace_CAC_NonElectricHeat_ER1_SF		2,436.71	Cooling Res	0.0009474181	2.308583	6.0	\$2,063.83	3.6
354410 2021 12	SF	ASHP-SEER19-Replace_CAC_NonElectricHeat_ER1_SF		0.00	Heating Res	0.0000000000	0.000000	6.0	\$0.00	
354410 2021 12	SF	ASHP-SEER19-Replace_CAC_NonElectricHeat_ER2_SF		924.84	Cooling Res ER2	0.0009474181	0.876210	12.0	\$0.00	
354410 2021 12	SF	ASHP-SEER19-Replace_CAC_NonElectricHeat_ER2_SF		0.00	Heating Res ER2	0.0000000000	0.000000	12.0	\$0.00	
354450 2019 12	MF	ASHP-SEER19-Replace_CAC_ElectricHeat_ER1_MF		1,416.58	Cooling Res	0.0009474181	1.342094	6.0	\$1,685.11	3.1
354450 2019 12	MF	ASHP-SEER19-Replace_CAC_ElectricHeat_ER1_MF		6,759.78	Heating Res	0.0000000000	0.000000	6.0	\$0.00	
354450 2019 12	MF	ASHP-SEER19-Replace_CAC_ElectricHeat_ER2_MF		510.42	Cooling Res ER2	0.0009474181	0.483581	12.0	\$0.00	
354450 2019 12	MF	ASHP-SEER19-Replace_CAC_ElectricHeat_ER2_MF		6,759.78	Heating Res ER2	0.0000000000	0.000000	12.0	\$0.00	
354451 2019 12	MFC	ASHP-SEER19-Replace_CAC_ElectricHeat_ER1_MF_CompE		1,030.24	Cooling Res	0.0009474181	0.976068	6.0	\$1,685.11	3.1
354451 2019 12	MFC	ASHP-SEER19-Replace_CAC_ElectricHeat_ER1_MF_CompE		2,304.47	Heating Res	0.0000000000	0.000000	6.0	\$0.00	
354451 2019 12	MFC	ASHP-SEER19-Replace_CAC_ElectricHeat_ER2_MF_CompE		371.22	Cooling Res ER2	0.0009474181	0.351701	12.0	\$0.00	
354451 2019 12	MFC	ASHP-SEER19-Replace_CAC_ElectricHeat_ER2_MF_CompE		2,304.47	Heating Res ER2	0.0000000000	0.000000	12.0	\$0.00	
354460 2021 12	MF	ASHP-SEER19-Replace_CAC_NonElectricHeat_ER1_MF		1,416.58	Cooling Res	0.0009474181	1.342094	6.0	\$1,685.11	3.1
354460 2021 12	MF	ASHP-SEER19-Replace_CAC_NonElectricHeat_ER1_MF		0.00	Heating Res	0.0000000000	0.000000	6.0	\$0.00	
354460 2021 12	MF	ASHP-SEER19-Replace_CAC_NonElectricHeat_ER2_MF		510.42	Cooling Res ER2	0.0009474181	0.483581	12.0	\$0.00	
354460 2021 12	MF	ASHP-SEER19-Replace_CAC_NonElectricHeat_ER2_MF		0.00	Heating Res ER2	0.0000000000	0.000000	12.0	\$0.00	
354461 2021 12	MFC	ASHP-SEER19-Replace_CAC_NonElectricHeat_ER1_MF_CompE		1,030.24	Cooling Res	0.0009474181	0.976068	6.0	\$1,685.11	3.1
354461 2021 12	MFC	ASHP-SEER19-Replace_CAC_NonElectricHeat_ER1_MF_CompE		0.00	Heating Res	0.0000000000	0.000000	6.0	\$0.00	
354461 2021 12	MFC	ASHP-SEER19-Replace_CAC_NonElectricHeat_ER2_MF_CompE		371.22	Cooling Res ER2	0.0009474181	0.351701	12.0	\$0.00	
354461 2021 12	MFC	ASHP-SEER19-Replace_CAC_NonElectricHeat_ER2_MF_CompE		0.00	Heating Res ER2	0.0000000000	0.000000	12.0	\$0.00	
354500 2019 12	MF	ASHP-SEER19 ER1 MF		1,507.97	Cooling Res	0.0009474181	1.428678	6.0	\$1,716.17	3.3
354500 2019 12	MF	ASHP-SEER19 ER1 MF		1,798.76	Heating Res	0.0000000000	0.000000	6.0	\$0.00	
354500 2019 12	MF	ASHP-SEER19 ER2 MF		400.45	Cooling Res ER2	0.0009474181	0.388412	12.0	\$0.00	
354500 2019 12	MF	ASHP-SEER19 ER2 MF		642.61	Heating Res ER2	0.0000000000	0.000000	12.0	\$0.00	
354501 2019 12	MFC	ASHP-SEER19 ER1 MF_CompE		1,096.71	Cooling Res	0.0009474181	1.039043	6.0	\$1,716.17	3.3
354501 2019 12	MFC	ASHP-SEER19 ER1 MF_CompE		613.21	Heating Res	0.0000000000	0.000000	6.0	\$0.00	
354501 2019 12	MFC	ASHP-SEER19 ER2 MF_CompE		305.78	Cooling Res ER2	0.0009474181	0.289702	12.0	\$0.00	
354501 2019 12	MFC	ASHP-SEER19 ER2 MF_CompE		2,193.07	Heating Res ER2	0.0000000000	0.000000	12.0	\$0.00	
354550 2021 12	SF	ASHP-SEER20 ER1 SF		3,652.30	Cooling Res	0.0009474181	3.460255	6.0	\$2,639.07	5.0
354550 2021 12	SF	ASHP-SEER20 ER1 SF		5,092.77	Heating Res	0.0000000000	0.000000	6.0	\$0.00	
354550 2021 12	SF	ASHP-SEER20 ER2 SF		1,117.29	Cooling Res ER2	0.0009474181	1.058541	12.0	\$0.00	
354550 2021 12	SF	ASHP-SEER20 ER2 SF		2,397.77	Heating Res ER2	0.0000000000	0.000000	12.0	\$0.00	
354600 2021 12	MF	ASHP-SEER20 ROF SF		675.57	Cooling Res	0.0009474181	0.644116	18.0	\$1,444.38	3.0
354600 2021 12	MF	ASHP-SEER20 ROF SF		1,611.73	Heating Res	0.0000000000	0.000000	18.0	\$0.00	
354650 2019 12	MF	ASHP-SEER20-Replace_CAC_ElectricHeat_ER1_MF		1,471.88	Cooling Res	0.0009474181	1.394486	6.0	\$1,925.84	3.1
354650 2019 12	MF	ASHP-SEER20-Replace_CAC_ElectricHeat_ER1_MF		6,759.78	Heating Res	0.0000000000	0.000000	6.0	\$0.00	
354650 2019 12	MF	ASHP-SEER20-Replace_CAC_ElectricHeat_ER2_MF		565.72	Cooling Res ER2	0.0009474181	0.535973	12.0	\$0.00	
354650 2019 12	MF	ASHP-SEER20-Replace_CAC_ElectricHeat_ER2_MF		6,759.78	Heating Res ER2	0.0000000000	0.000000	12.0	\$0.00	
354651 2019 12	MFC	ASHP-SEER20-Replace_CAC_ElectricHeat_ER1_MF_CompE		1,070.46	Cooling Res	0.0009474181	1.014173	6.0	\$1,925.84	3.1
354651 2019 12	MFC	ASHP-SEER20-Replace_CAC_ElectricHeat_ER1_MF_CompE		2,304.47	Heating Res	0.0000000000	0.000000	6.0	\$0.00	
354651 2019 12	MFC	ASHP-SEER20-Replace_CAC_ElectricHeat_ER2_MF_CompE		411.43	Cooling Res ER2	0.0009474181	0.389796	12.0	\$0.00	
354651 2019 12	MFC	ASHP-SEER20-Replace_CAC_ElectricHeat_ER2_MF_CompE		2,304.47	Heating Res ER2	0.0000000000	0.000000	12.0	\$0.00	
354660 2021 12	MF	ASHP-SEER20-Replace_CAC_NonElectricHeat_ER1_MF		1,471.88	Cooling Res	0.0009474181	1.394486	6.0	\$1,925.84	3.1
354660 2021 12	MF	ASHP-SEER20-Replace_CAC_NonElectricHeat_ER1_MF		0.00	Heating Res	0.0000000000	0.000000	6.0	\$0.00	
354660 2021 12	MF	ASHP-SEER20-Replace_CAC_NonElectricHeat_ER2_MF		565.72	Cooling Res ER2	0.0009474181	0.535973	12.0	\$0.00	
354660 2021 12	MF	ASHP-SEER20-Replace_CAC_NonElectricHeat_ER2_MF		0.00	Heating Res ER2	0.0000000000	0.000000	12.0	\$0.00	
354661 2021 12	MFC	ASHP-SEER20-Replace_CAC_NonElectricHeat_ER1_MF_CompE		1,070.46	Cooling Res	0.0009474181	1.014173	6.0	\$1,925.84	3.1
354661 2021 12	MFC	ASHP-SEER20-Replace_CAC_NonElectricHeat_ER1_MF_CompE		0.00	Heating Res	0.0000000000	0.000000	6.0	\$0.00	
354661 2021 12	MFC	ASHP-SEER20-Replace_CAC_NonElectricHeat_ER2_MF_CompE		411.43	Cooling Res ER2	0.0009474181	0.389796	12.0	\$0.00	
354661 2021 12	MFC	ASHP-SEER20-Replace_CAC_NonElectricHeat_ER2_MF_CompE		0.00	Heating Res ER2	0.0000000000	0.000000	12.0	\$0.00	
354700 2019 12	MF	ASHP-SEER20 ER1 MF		1,566.84	Cooling Res	0.0009474181	1.484453	6.0	\$1,956.90	3.3
354700 2019 12	MF	ASHP-SEER20 ER1 MF		1,798.76	Heating Res	0.0000000000	0.000000	6.0	\$0.00	
354700 2019 12	MF	ASHP-SEER20 ER2 MF		479.12	Cooling Res ER2	0.0009474181	0.454416	12.0	\$0.00	
354700 2019 12	MF	ASHP-SEER20 ER2 MF		642.61	Heating Res ER2	0.0000000000	0.000000	12.0	\$0.00	
354701 2019 12	MFC	ASHP-SEER20 ER1 MF_CompE		1,139.52	Cooling Res	0.0009474181	1.079602	6.0	\$1,956.90	3.3
354701 2019 12	MFC	ASHP-SEER20 ER1 MF_CompE		613.21	Heating Res	0.0000000000	0.000000	6.0	\$0.00	
354701 2019 12	MFC	ASHP-SEER20 ER2 MF_CompE		348.59	Cooling Res ER2	0.0009474181	0.330260	12.0	\$0.00	
354701 2019 12	MFC	ASHP-SEER20 ER2 MF_CompE		2,193.07	Heating Res ER2	0.0000000000	0.000000	12.0	\$0.00	
354750 2021 12	SF	ASHP-SEER21 ER1 SF		2,550.00	Cooling Res	0.0009474181	2.415916	6.0	\$2,498.64	3.4
354750 2021 12	SF	ASHP-SEER21 ER1 SF		3,612.16	Heating Res	0.0000000000	0.000000	6.0	\$0.00	
354750 2021 12	SF	ASHP-SEER21 ER2 SF		905.45	Cooling Res ER2	0.0009474181	0.857840	12.0	\$0.00	
354750 2021 12	SF	ASHP-SEER21 ER2 SF		1,787.85	Heating Res ER2	0.0000000000	0.000000	12.0	\$0.00	
354800 2021 12	SF	ASHP-SEER21 ROF SF		995.87	Cooling Res	0.0009474181	0.943505	18.0	\$1,689.92	3.9
354800 2021 12	SF	ASHP-SEER21 ROF SF		2,086.72	Heating Res	0.0000000000	0.000000	18.0	\$0.00	
354850 2019 12	MF	ASHP-SEER21-Replace_CAC_ElectricHeat_ROF_MF		556.16	Cooling Res	0.0009474181	0.526916	18.0	\$1,689.92	2.8

RESIDENTIAL HVAC
Air Source Heat Pumps

*Mfc - Multifamily Comprehensive Envelope, CompE - Comprehensive Envelope

Measure Reference No.	Program/Channel	Measure	kWh Annual Savings	End Use	kW Factor	kW	EUL	Inc. Cost	Units (tons/measure)
354901_2019_12	Mfc	ASHP-SEER21 ER1 MF CompE	1,178.25	Cooling Res	0.0009474181	1.116295	6.0	\$2,202.45	3.3
354901_2019_12	Mfc	ASHP-SEER21_ER1_MF_CompE	613.21	Heating Res	0.0000000000	0.000000	6.0	\$0.00	
354901_2019_12	Mfc	ASHP-SEER21_ER2_MF_CompE	387.33	Cooling Res ER2	0.0009474181	0.366963	12.0	\$0.00	
354901_2019_12	Mfc	ASHP-SEER21_ER2_MF_CompE	219.07	Heating Res ER2	0.0000000000	0.000000	12.0	\$0.00	
354950_2019_12	MF	ASHP-SEER17_ROF_MF	281.95	Cooling Res	0.0009474181	0.267125	18.0	\$724.00	3.3
354950_2019_12	MF	ASHP-SEER17_ROF_MF	766.69	Heating Res	0.0000000000	0.000000	18.0	\$0.00	
354951_2019_12	Mfc	ASHP-SEER17_ROF_MF_CompE	205.05	Cooling Res	0.0009474181	0.194268	18.0	\$724.00	3.3
354951_2019_12	Mfc	ASHP-SEER17_ROF_MF_CompE	261.37	Heating Res	0.0000000000	0.000000	18.0	\$0.00	
355000_2019_12	MF	ASHP-SEER18_ROF_MF	355.05	Cooling Res	0.0009474181	0.336381	18.0	\$962.92	3.3
355000_2019_12	MF	ASHP-SEER18_ROF_MF	766.69	Heating Res	0.0000000000	0.000000	18.0	\$0.00	
355001_2021_12	Mfc	ASHP-SEER18_ROF_MF_CompE	258.22	Cooling Res	0.0009474181	0.244642	18.0	\$962.92	3.3
355001_2021_12	Mfc	ASHP-SEER18_ROF_MF_CompE	261.37	Heating Res	0.0000000000	0.000000	18.0	\$0.00	
355050_2019_12	MF	ASHP-SEER19_ROF_MF	420.45	Cooling Res	0.0009474181	0.398342	18.0	\$1,203.65	3.3
355050_2019_12	MF	ASHP-SEER19_ROF_MF	766.69	Heating Res	0.0000000000	0.000000	18.0	\$0.00	
355051_2019_12	Mfc	ASHP-SEER19_ROF_MF_CompE	305.78	Cooling Res	0.0009474181	0.289702	18.0	\$1,203.65	3.3
355051_2019_12	Mfc	ASHP-SEER19_ROF_MF_CompE	261.37	Heating Res	0.0000000000	0.000000	18.0	\$0.00	
355100_2019_12	MF	ASHP-SEER20_ROF_MF	479.32	Cooling Res	0.0009474181	0.454116	18.0	\$1,444.38	3.3
355100_2019_12	MF	ASHP-SEER20_ROF_MF	766.69	Heating Res	0.0000000000	0.000000	18.0	\$0.00	
355101_2019_12	Mfc	ASHP-SEER20_ROF_MF_CompE	348.59	Cooling Res	0.0009474181	0.330260	18.0	\$1,444.38	3.3
355101_2019_12	Mfc	ASHP-SEER20_ROF_MF_CompE	261.37	Heating Res	0.0000000000	0.000000	18.0	\$0.00	
355150_2019_12	MF	ASHP-SEER21_ROF_MF	532.37	Cooling Res	0.0009474181	0.504566	18.0	\$1,689.92	3.3
355150_2019_12	MF	ASHP-SEER21_ROF_MF	766.69	Heating Res	0.0000000000	0.000000	18.0	\$0.00	
355151_2019_12	Mfc	ASHP-SEER21_ROF_MF_CompE	387.33	Cooling Res	0.0009474181	0.366963	18.0	\$1,689.92	3.3
355151_2019_12	Mfc	ASHP-SEER21_ROF_MF_CompE	261.37	Heating Res	0.0000000000	0.000000	18.0	\$0.00	

RESIDENTIAL INCOME ELIGIBLE

AC Tune-up

*MFIEc = Multifamily Income Eligible Comprehensive Envelope, CompE = Comprehensive Envelope

Measure Reference No.	Program/Channel	Measure	kWh Annual Savings	End Use	kW Factor	kW	EUL	Inc. Cost	Units
400050_2019_12	SFIE	AC General Tune-Up (no charge or coil clean) SF	140.67	Cooling RES	0.0009474181	0.133273	2.0	\$70.00	per measure
400100_2019_12	MFIE	AC General Tune-Up (no charge or coil clean) MF	91.43	Cooling RES	0.0009474181	0.086622	2.0	\$70.00	per measure
400101_2019_12	MFIEc	AC General Tune-Up (no charge or coil clean) MF CompE	66.50	Cooling RES	0.0009474181	0.063003	2.0	\$70.00	per measure
400150_2019_12	SFIE	AC Tune-up / Refrigerant charge SF	586.71	Cooling RES	0.0009474181	0.555860	2.0	\$81.00	per measure
400200_2019_12	MFIE	AC Tune-up / Refrigerant charge MF	381.36	Cooling RES	0.0009474181	0.361307	2.0	\$81.00	per measure
400201_2019_12	MFIEc	AC Tune-up / Refrigerant charge MF CompE	277.35	Cooling RES	0.0009474181	0.262756	2.0	\$81.00	per measure
400250_2019_12	SFIE	AC Tune-up / Indoor Coil (Evaporator) Cleaning SF	97.11	Cooling RES	0.0009474181	0.092004	2.0	\$63.00	per measure
400300_2019_12	MFIE	AC Tune-up / Indoor Coil (Evaporator) Cleaning MF	63.12	Cooling RES	0.0009474181	0.059801	2.0	\$63.00	per measure
400301_2019_12	MFIEc	AC Tune-up / Indoor Coil (Evaporator) Cleaning MF CompE	45.91	Cooling RES	0.0009474181	0.043496	2.0	\$63.00	per measure
400350_2019_12	SFIE	AC Tune-up / Outdoor Coil (Condenser) Cleaning SF	194.21	Cooling RES	0.0009474181	0.183998	2.0	\$31.00	per measure
400400_2019_12	MFIE	AC Tune-up / Outdoor Coil (Condenser) Cleaning MF	126.24	Cooling RES	0.0009474181	0.119602	2.0	\$31.00	per measure
400401_2019_12	MFIEc	AC Tune-up / Outdoor Coil (Condenser) Cleaning MF CompE	91.81	Cooling RES	0.0009474181	0.086982	2.0	\$31.00	per measure
400410_2021_12	SFIE	AC Tune-up / Packaged Service SF	365.21	Cooling RES	0.0009474181	0.346007	2.0	\$185.00	per measure
400411_2021_12	MFIE	AC Tune-up / Packaged Service MF	237.39	Cooling RES	0.0009474181	0.224908	2.0	\$185.00	per measure
400412_2021_12	MFIEc	AC Tune-up / Packaged Service MF CompE	172.64	Cooling RES	0.0009474181	0.163562	2.0	\$185.00	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)
400450_2019_12	MFIE	Air Sealing (Infiltration reduction) - 30% MF IE DI electric furnace base	0.33	Building Shell RES	0.0004660805	0.29	0.04	0.000154	15.0	\$0.12	1.0
400500_2019_12	MFIE	Air Sealing (Infiltration reduction) - 30% MF IE DI heat pump base	0.25	Building Shell RES	0.0004660805	0.21	0.04	0.000117	15.0	\$0.12	1.0
400550_2019_12	SFIE	Air Sealing (Infiltration reduction) - 30% SF IE DI electric furnace base	0.36	Building Shell RES	0.0004660805	0.31	0.05	0.000168	15.0	\$0.12	1.0
400551_2019_12	SFIE	Air Sealing (Infiltration reduction) - 30% SF IE DI gas furnace base	0.06	Building Shell RES	0.0004660805	0.01	0.05	0.000028	15.0	\$0.12	1.0
400600_2019_12	SFIE	Air Sealing (Infiltration reduction) - 30% SF IE DI heat pump base	0.31	Building Shell RES	0.0004660805	0.26	0.05	0.000144	15.0	\$0.12	1.0
400650_2019_12	SFIE	MH Adjusted Air Sealing (Infiltration reduction) - 30% SF IE DI electric furnace base	0.48	Building Shell RES	0.0004660805	0.41	0.06	0.000224	15.0	\$0.12	1.0
400651_2019_12	SFIE	MH Adjusted Air Sealing (Infiltration reduction) - 30% SF IE DI heat pump base	0.45	Building Shell RES	0.0004660805	0.39	0.06	0.000210	15.0	\$0.12	1.0
400652_2019_12	SFIE	MH Adjusted Air Sealing (Infiltration reduction) - 30% SF IE DI gas furnace base	0.08	Building Shell RES	0.0004660805	0.02	0.06	0.000037	15.0	\$0.12	1.0

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)
400700_2019_12	MFIE	Ceiling Insulation R11-R49 MF IE DI electric furnace base	1.06	Building Shell RES	0.0004660805	1.0	0.10	0.000494	25.0	\$2.12	1.0
400750_2019_12	MFIE	Ceiling Insulation R11-R49 MF IE DI heat pump base	0.66	Building Shell RES	0.0004660805	0.5	0.11	0.000308	25.0	\$2.12	1.0
400800_2019_12	MFIE	Ceiling Insulation R11-R49 MF IE DI gas heat electric cool base	0.14	Building Shell RES	0.0004660805	0.0	0.10	0.000065	25.0	\$2.12	1.0
400850_2019_12	SFIE	Ceiling Insulation R11-R49 SF IE DI electric furnace base	1.06	Building Shell RES	0.0004660805	1.0	0.10	0.000494	25.0	\$2.12	1.0
400900_2019_12	SFIE	Ceiling Insulation R11-R49 SF IE DI heat pump base	0.66	Building Shell RES	0.0004660805	0.5	0.11	0.000308	25.0	\$2.12	1.0
400950_2019_12	SFIE	Ceiling Insulation R11-R49 SF IE DI gas heat electric cool base	0.14	Building Shell RES	0.0004660805	0.0	0.10	0.000065	25.0	\$2.12	1.0
401000_2019_12	MFIE	Ceiling Insulation R5-R30 MF IE DI electric furnace base	1.71	Building Shell RES	0.0004660805	1.6	0.16	0.000797	25.0	\$1.16	1.0
401050_2019_12	MFIE	Ceiling Insulation R5-R30 MF IE DI heat pump base	1.07	Building Shell RES	0.0004660805	0.9	0.18	0.000499	25.0	\$1.16	1.0
401100_2019_12	MFIE	Ceiling Insulation R5-R30 MF IE DI gas heat electric cool base	0.23	Building Shell RES	0.0004660805	0.1	0.16	0.000107	25.0	\$1.16	1.0
401150_2019_12	SFIE	Ceiling Insulation R5-R30 SF IE DI electric furnace base	1.71	Building Shell RES	0.0004660805	1.6	0.16	0.000797	25.0	\$1.16	1.0
401200_2019_12	SFIE	Ceiling Insulation R5-R30 SF IE DI heat pump base	1.07	Building Shell RES	0.0004660805	0.9	0.18	0.000499	25.0	\$1.16	1.0
401250_2019_12	SFIE	Ceiling Insulation R5-R30 SF IE DI gas heat electric cool base	0.23	Building Shell RES	0.0004660805	0.1	0.16	0.000107	25.0	\$1.16	1.0
401300_2019_12	MFIE	Ceiling Insulation R5-R38 MF IE DI electric furnace base	1.84	Building Shell RES	0.0004660805	1.7	0.17	0.000858	25.0	\$1.68	1.0
401350_2019_12	MFIE	Ceiling Insulation R5-R38 MF IE DI heat pump base	1.15	Building Shell RES	0.0004660805	1.0	0.19	0.000536	25.0	\$1.68	1.0
401400_2019_12	MFIE	Ceiling Insulation R5-R38 MF IE DI gas heat electric cool base	0.25	Building Shell RES	0.0004660805	0.1	0.17	0.000117	25.0	\$1.68	1.0
401450_2019_12	SFIE	Ceiling Insulation R5-R38 SF IE DI electric furnace base	1.84	Building Shell RES	0.0004660805	1.7	0.17	0.000858	25.0	\$1.68	1.0
401500_2019_12	SFIE	Ceiling Insulation R5-R38 SF IE DI heat pump base	1.15	Building Shell RES	0.0004660805	1.0	0.19	0.000536	25.0	\$1.68	1.0
401550_2019_12	SFIE	Ceiling Insulation R5-R38 SF IE DI gas heat electric cool base	0.25	Building Shell RES	0.0004660805	0.1	0.17	0.000117	25.0	\$1.68	1.0
401600_2019_12	MFIE	Ceiling Insulation R5-R49 MF IE DI electric furnace base	1.96	Building Shell RES	0.0004660805	1.8	0.19	0.000914	25.0	\$2.57	1.0
401650_2019_12	MFIE	Ceiling Insulation R5-R49 MF IE DI heat pump base	1.22	Building Shell RES	0.0004660805	1.0	0.20	0.000569	25.0	\$2.57	1.0
401700_2019_12	MFIE	Ceiling Insulation R5-R49 MF IE DI gas heat electric cool base	0.26	Building Shell RES	0.0004660805	0.1	0.19	0.000121	25.0	\$2.57	1.0
401750_2019_12	SFIE	Ceiling Insulation R5-R49 SF IE DI electric furnace base	1.96	Building Shell RES	0.0004660805	1.8	0.19	0.000914	25.0	\$2.57	1.0
401800_2019_12	SFIE	Ceiling Insulation R5-R49 SF IE DI heat pump base	1.22	Building Shell RES	0.0004660805	1.0	0.20	0.000569	25.0	\$2.57	1.0
401850_2019_12	SFIE	Ceiling Insulation R5-R49 SF IE DI gas heat electric cool base	0.26	Building Shell RES	0.0004660805	0.1	0.19	0.000121	25.0	\$2.57	1.0
401900_2019_12	MFIE	Ceiling Insulation R5-R60 MF IE DI electric furnace base	2.03	Building Shell RES	0.0004660805	1.8	0.19	0.000946	25.0	\$3.42	1.0
401950_2019_12	MFIE	Ceiling Insulation R5-R60 MF IE DI heat pump base	1.27	Building Shell RES	0.0004660805	1.1	0.21	0.000592	25.0	\$3.42	1.0
402000_2019_12	MFIE	Ceiling Insulation R5-R60 MF IE DI gas heat electric cool base	0.27	Building Shell RES	0.0004660805	0.1	0.19	0.000126	25.0	\$3.42	1.0
402050_2019_12	SFIE	Ceiling Insulation R5-R60 SF IE DI electric furnace base	2.03	Building Shell RES	0.0004660805	1.8	0.19	0.000946	25.0	\$3.42	1.0
402100_2019_12	SFIE	Ceiling Insulation R5-R60 SF IE DI heat pump base	1.27	Building Shell RES	0.0004660805	1.1	0.21	0.000592	25.0	\$3.42	1.0
402150_2019_12	SFIE	Ceiling Insulation R5-R60 SF IE DI gas heat electric cool base	0.27	Building Shell RES	0.0004660805	0.1	0.19	0.000126	25.0	\$3.42	1.0

Floor Insulation

*MH = Mobile Home

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)
402200_2019_12	SFIE	Floor Insulation R25 (R-3.96 base) MH electric furnace/baseboard and electric cooling	2.45	Building Shell RES	0.0004660805	2.21	0.23	0.001142	25.0	\$0.68	1.0
402201_2019_12	SFIE	Floor Insulation R25 (R-3.96 base) MH heat pump and electric cooling	1.42	Building Shell RES	0.0004660805	1.19	0.23	0.000662	25.0	\$0.68	1.0
402202_2019_12	SFIE	Floor Insulation R25 (R-3.96 base) MH gas furnace/baseboard and electric cooling	0.23	Building Shell RES	0.0004660805	0.00	0.23	0.000107	25.0	\$0.68	1.0
402203_2020_02	SFIE	Floor Insulation R25 (R-13 base) MH electric furnace/baseboard and electric cooling	0.22	Building Shell RES	0.0004660805	0.20	0.02	0.000103	25.0	\$0.68	1.0
402204_2020_02	SFIE	Floor Insulation R25 (R-13 base) MH heat pump and electric cooling	0.13	Building Shell RES	0.0004660805	0.11	0.02	0.000061	25.0	\$0.68	1.0
402205_2020_02	SFIE	Floor Insulation R25 (R-13 base) MH gas furnace/baseboard and electric cooling	0.02	Building Shell RES	0.0004660805	0.00	0.02	0.000009	25.0	\$0.68	1.0

Dirty Filter Alarm

*MFIEc = Multifamily Income Eligible Comprehensive Envelope, CompE = Comprehensive Envelope

Measure Reference No.	Program/Channel	Measure	kWh Annual Savings	End Use	kW Factor	Heating kWh	Cooling kWh	kW	EUL	Inc. Cost	Units
402250_2019_12	MFIE	Dirty Filter Alarm_MFIE	102.68	HVAC RES	0.0004660805	65.0	37.7	0.047857	14.0	\$5.00	per measure
402251_2019_12	MFIEc	Dirty Filter Alarm_MFIE CompE	49.58	HVAC RES	0.0004660805	22.1	27.4	0.023108	14.0	\$5.00	per measure

RESIDENTIAL INCOME ELIGIBLE

Duct Insulation

Measure Reference No.	Program/Channel	Measure	kWh Annual Savings	End Use	kW Factor	ΔkWhCooling	ΔkWhHeating	Δtherms	kW	EUL	Inc. Cost*	Units - DuctLength (ft.)
402300_2019_12	SFIE	Duct Insulation - Electric Heating	29.13	HVAC RES	0.0004660805	1.6	27.5	0.00	0.013577	20.0	\$4.22	1.0
402350_2019_12	SFIE	Mobile Home Adjusted Duct Insulation - Electric Heating	29.13	HVAC RES	0.0004660805	1.6	27.5	0.00	0.013577	20.0	\$4.22	1.0
402400_2019_12	SFIE	Duct Insulation - Gas Heating	2.69	HVAC RES	0.0004660805	1.6	1.1	1.20	0.001254	20.0	\$4.22	1.0

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.)
402450_2019_12	SFIE	Duct Repair (Sealing) - Electric Heating SF	4.92	HVAC RES	0.0004660805	0.8	4.1	0.002293	20.0	\$8.04	1.0
402451_2021_12	SFIE	Duct Repair (Sealing) - Gas Heating SF	1.00	HVAC RES	0.0004660805	0.8	0.2	0.000466	20.0	\$8.04	1.0
402452_2020_12	MFIE	Duct Repair (Sealing) - Electric Heating MF Adjusted	4.11	HVAC RES	0.0004660805	0.70	3.41	0.001916	20.0	\$8.04	1.0
402453_2021_12	MFIE	Duct Repair (Sealing) - Gas Heating MF Adjusted	0.87	HVAC RES	0.0004660805	0.70	0.17	0.000405	20.0	\$8.04	1.0
402500_2019_12	SFIE	Duct Repair (Sealing) - Electric Heating MH Adjusted	6.01	HVAC RES	0.0004660805	1.0	5.1	0.002801	20.0	\$8.04	1.0
402501_2021_12	SFIE	Duct Repair (Sealing) - Gas Heating MH Adjusted	1.19	HVAC RES	0.0004660805	1.0	0.2	0.000555	20.0	\$8.04	1.0

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
402550_2021_12	SFIE	ECM Auto Fan EUL Replacement -SF	0.00	HVAC RES	0.0004660805	0.0	0.0	0.0	0.0	0.000000	20	\$74.33	per measure
402600_2021_12	SFIE	ECM Auto Fan Early Replacement ER1 (Full Cost) - SF	582.00	HVAC RES	0.0004660805	264.1	31.1	286.7	0.0	0.271259	6	\$475.00	per measure
402600_2021_12	SFIE	ECM Auto Fan Early Replacement ER2 (Remaining Life) - SF	0.00	HVAC RES ER2	0.0004660805	0.0	0.0	0.0	0.0	0.000000	0	\$0.00	per measure
402650_2021_12	SFIE	ECM Continuous Fan EUL Replacement - SF	0.00	HVAC RES	0.0004660805	0.0	0.0	0.0	0.0	0.000000	20	\$74.33	per measure
402700_2021_12	SFIE	ECM Continuous Fan Early Replacement ER1 (Full Cost) - SF	582.00	HVAC RES	0.0004660805	264.1	31.1	0.0	286.7	0.271259	6	\$475.00	per measure
402700_2021_12	SFIE	ECM Continuous Fan Early Replacement ER2 (Remaining Life) - SF	0.00	HVAC RES ER2	0.0004660805	0.0	0.0	0.0	0.0	0.000000	0	\$0.00	per measure
402750_2021_12	MFIE	ECM Auto Fan EUL Replacement - MF	0.00	HVAC RES	0.0004660805	0.0	0.0	0.0	0.0	0.000000	20	\$74.33	per measure
402800_2021_12	MFIE	ECM Auto Fan Early Replacement ER1 (Full Cost) - MF	582.00	HVAC RES	0.0004660805	264.1	31.1	286.7	0.0	0.271259	6	\$475.00	per measure
402800_2021_12	MFIE	ECM Auto Fan Early Replacement ER2 (Remaining Life) - MF	0.00	HVAC RES ER2	0.0004660805	0.0	0.0	0.0	0.0	0.000000	0	\$0.00	per measure
402850_2021_12	MFIE	ECM Continuous Fan EUL Replacement - MF	0.00	HVAC RES	0.0004660805	0.0	0.0	0.0	0.0	0.000000	20	\$74.33	per measure
402900_2021_12	MFIE	ECM Continuous Fan Early Replacement ER1 (Full Cost) - MF	582.00	HVAC RES	0.0004660805	264.1	31.1	0.0	286.7	0.271259	6	\$475.00	per measure
402900_2021_12	MFIE	ECM Continuous Fan Early Replacement ER2 (Remaining Life) - MF	0.00	HVAC RES ER2	0.0004660805	0.0	0.0	0.0	0.0	0.000000	0	\$0.00	per measure

Note: As part of the Code of Federal Regulations, energy conservation standards for covered residential furnace fans became effective on July 3, 2019 (10 CFR 430.321v). This code requirement effectively makes ECMs part of the baseline for New Construction (NC), Replace-on-Fail (ROF), Time-of-Placement (TOS), and Early Replacement (EREP) scenarios. Savings are only allowable for EREP measures, for the remaining useful life of the existing equipment (ER1, 6 years). Therefore, the EUL of the measure is assumed to be 6 years. (ER1 = 6, ER2 = 0).

Heat Pump (HP) Tune-up

Measure Reference No.	Program/Channel	Measure	kWh Annual Savings	End Use	kW Factor	kW	EUL	Inc. Cost	Units
402950_2019_12	SFIE	General HP tune-up (no charge or coil clean)	141.72	Cooling RES	0.0009474181	0.134268	2.0	\$70.00	per measure
402950_2019_12	SFIE	General HP tune-up (no charge or coil clean)	114.06	Heating RES	0.0000000000	0.000000	2.0	\$0.00	per measure
403000_2019_12	MFIE	General HP tune-up (no charge or coil clean)	87.28	Cooling RES	0.0009474181	0.082691	2.0	\$70.00	per measure
403000_2019_12	MFIE	General HP tune-up (no charge or coil clean)	70.25	Heating RES	0.0000000000	0.000000	2.0	\$0.00	per measure
403050_2019_12	SFIE	HP tune-up / Refrigerant charge SF	591.08	Cooling RES	0.0009474181	0.560000	2.0	\$81.00	per measure
403050_2019_12	SFIE	HP tune-up / Refrigerant charge SF	549.10	Heating RES	0.0000000000	0.000000	2.0	\$0.00	per measure
403100_2019_12	MFIE	HP tune-up / Refrigerant charge MF	364.03	Cooling RES	0.0009474181	0.344889	2.0	\$81.00	per measure
403100_2019_12	MFIE	HP tune-up / Refrigerant charge MF	338.18	Heating RES	0.0000000000	0.000000	2.0	\$0.00	per measure
403101_2019_12	MFIEc	HP tune-up / Refrigerant charge MF_CompE	264.75	Cooling RES	0.0009474181	0.250829	2.0	\$81.00	per measure
403101_2019_12	MFIEc	HP tune-up / Refrigerant charge MF_CompE	115.29	Heating RES	0.0000000000	0.000000	2.0	\$0.00	per measure
403150_2019_12	SFIE	HP tune-up / Indoor Coil (Evaporator) Cleaning SF	97.83	Cooling RES	0.0009474181	0.092686	2.0	\$63.00	per measure
403150_2019_12	SFIE	HP tune-up / Indoor Coil (Evaporator) Cleaning SF	77.73	Heating RES	0.0000000000	0.000000	2.0	\$0.00	per measure
403200_2019_12	MFIE	HP tune-up / Indoor Coil (Evaporator) Cleaning MF	60.25	Cooling RES	0.0009474181	0.057082	2.0	\$63.00	per measure
403200_2019_12	MFIE	HP tune-up / Indoor Coil (Evaporator) Cleaning MF	47.87	Heating RES	0.0000000000	0.000000	2.0	\$0.00	per measure
403201_2019_12	MFIEc	HP tune-up / Indoor Coil (Evaporator) Cleaning MF_CompE	43.82	Cooling RES	0.0009474181	0.041516	2.0	\$63.00	per measure
403201_2019_12	MFIEc	HP tune-up / Indoor Coil (Evaporator) Cleaning MF_CompE	16.32	Heating RES	0.0000000000	0.000000	2.0	\$0.00	per measure
403250_2019_12	SFIE	HP tune-up / Outdoor Coil (Condenser) Cleaning SF	195.66	Cooling RES	0.0009474181	0.185372	2.0	\$31.00	per measure
403250_2019_12	SFIE	HP tune-up / Outdoor Coil (Condenser) Cleaning SF	160.04	Heating RES	0.0000000000	0.000000	2.0	\$0.00	per measure
403300_2019_12	MFIE	HP tune-up / Outdoor Coil (Condenser) Cleaning MF	120.50	Cooling RES	0.0009474181	0.114164	2.0	\$31.00	per measure
403300_2019_12	MFIE	HP tune-up / Outdoor Coil (Condenser) Cleaning MF	98.57	Heating RES	0.0000000000	0.000000	2.0	\$0.00	per measure
403301_2019_12	MFIEc	HP tune-up / Outdoor Coil (Condenser) Cleaning MF_CompE	87.64	Cooling RES	0.0009474181	0.083032	2.0	\$31.00	per measure
403301_2019_12	MFIEc	HP tune-up / Outdoor Coil (Condenser) Cleaning MF_CompE	33.60	Heating RES	0.0000000000	0.000000	2.0	\$0.00	per measure
403310_2021_12	SFIE	HP tune-up / Packaged Service SF	367.93	Cooling RES	0.0009474181	0.348584	2.0	\$185.00	per measure
403310_2021_12	SFIE	HP tune-up / Packaged Service SF	1180.10	Heating RES	0.0000000000	0.000000	2.0	\$0.00	per measure
403311_2021_12	MFIE	HP tune-up / Packaged Service MF	226.69	Cooling RES	0.0009474181	0.214685	2.0	\$185.00	per measure
403311_2021_12	MFIE	HP tune-up / Packaged Service MF	726.80	Heating RES	0.0000000000	0.000000	2.0	\$0.00	per measure
403312_2021_12	MFIEc	HP tune-up / Packaged Service MF_CompE	164.80	Cooling RES	0.0009474181	0.156135	2.0	\$185.00	per measure
403312_2021_12	MFIEc	HP tune-up / Packaged Service MF_CompE	247.77	Heating RES	0.0000000000	0.000000	2.0	\$0.00	per measure

Low Flow Faucet Aerators (Bathroom)

Measure Reference No.	Program/Channel	Measure	kWh Annual Savings	End Use	kW Factor	EPG_electric	kW	EUL	Inc. Cost	Units
403350_2019_12	MFIE	Low Flow Bathroom Faucet Aerator MFIE	37.02	Water heating RES	0.0000887318	0.047	0.003285	11.0	\$3.00	per measure
403351_2020_12	SFIE	Low Flow Bathroom Faucet Aerator SFIE	37.02	Water heating RES	0.0000887318	0.047	0.003285	11.0	\$3.00	per measure
403400_2019_12	MFIE DI	Low Flow Bathroom Faucet Aerator MFIE DI	35.17	Water heating RES	0.0000887318	0.047	0.003121	11.0	\$11.33	per measure
403450_2019_12	SFIE DI	Low Flow Bathroom Faucet Aerator SFIE DI	35.17	Water heating RES	0.0000887318	0.047	0.003121	11.0	\$11.33	per measure

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Low Flow Faucet Aerators (Kitchen)

Measure Reference No.	Program/Channel	Measure	kWh Annual Savings	End Use	kW Factor	EPG_electric	kW	EUL	Inc. Cost	Units
403470_2020_12	MFIE	Low Flow Kitchen Faucet Aerator MFIE	116.88	Water Heating RES	0.0000887318	0.079	0.010371	11.0	\$3.00	per measure
403471_2020_12	SFIE	Low Flow Kitchen Faucet Aerator SFIE	116.88	Water Heating RES	0.0000887318	0.079	0.010371	11.0	\$3.00	per measure
403480_2020_12	MFIE DI	Low Flow Kitchen Faucet Aerator MFIE DI	111.03	Water Heating RES	0.0000887318	0.079	0.009852	11.0	\$11.33	per measure
403481_2020_12	SFIE DI	Low Flow Kitchen Faucet Aerator SFIE DI	111.03	Water Heating RES	0.0000887318	0.079	0.009852	11.0	\$11.33	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
403500_2021_12	MFIE	Low Flow Showerhead MFIE	220.32	Water heating RES	0.0000887318	0.109	0.019549	10.0	\$7.00	per measure
403550_2021_12	MFIE DI	Low Flow Showerhead MFIE DI	232.51	Water heating RES	0.0000887318	0.109	0.020631	10.0	\$12.98	per measure
403551_2021_12	MFIE DI	Low Flow Handheld Showerhead MFIE DI	232.51	Water heating RES	0.0000887318	0.109	0.020631	10.0	\$12.47	per measure
403600_2021_12	SFIE DI	Low Flow Showerhead SFIE DI	194.72	Water heating RES	0.0000887318	1.856	0.017278	10.0	\$12.98	per measure
403601_2021_12	SFIE DI	Low Flow Handheld Showerhead SFIE DI	194.72	Water heating RES	0.0000887318	1.856	0.017278	10.0	\$18.45	per measure

Pipe Insulation

Measure Reference No.	Program/Channel	Measure	kWh Annual Savings	End Use	kW Factor	kW	EUL	Inc. Cost	Units
403650_2019_12	MFIE	Pipe Insulation MFIE	4.64	Water heating RES	0.0000887318	0.000412	12.0	\$7.10	per foot
403700_2019_12	MFIE DI	Pipe Insulation MFIE DI	4.64	Water heating RES	0.0000887318	0.000412	12.0	\$5.66	per foot
403750_2019_12	SFIE DI	Pipe Insulation SFIE DI	4.64	Water heating RES	0.0000887318	0.000412	12.0	\$5.66	per foot

Programmable Thermostat

*MFLIC = Multifamily Low Income Comprehensive Envelope, CompE = Comprehensive Envelope

Measure Reference No.	Program/Channel	Measure	kWh Annual Savings	End Use	kW Factor	kW	EUL	Inc. Cost	Units
403800_2019_12	MFIE	Setback thermostat - full setback - ASHP heating/cooling MF	201.39	Cooling RES	0.0009474181	0.190801	10.0	\$70.00	per measure
403800_2019_12	MFIE	Setback thermostat - full setback - ASHP heating/cooling MF	30.37	Heating RES	0.0000000000	0.000000	10.0	\$0.00	per measure
403801_2019_12	MFIEc	Setback thermostat - full setback - ASHP heating/cooling MF_CompE	146.46	Cooling RES	0.0009474181	0.138759	10.0	\$70.00	per measure
403801_2019_12	MFIEc	Setback thermostat - full setback - ASHP heating/cooling MF_CompE	10.35	Heating RES	0.0000000000	0.000000	10.0	\$0.00	per measure
403850_2019_12	SFIE	Setback thermostat - full setback - ASHP heating/cooling SF	358.20	Cooling RES	0.0009474181	0.339365	10.0	\$70.00	per measure
403850_2019_12	SFIE	Setback thermostat - full setback - ASHP heating/cooling SF	87.38	Heating RES	0.0000000000	0.000000	10.0	\$0.00	per measure
403900_2019_12	MFIE	Setback thermostat - full setback - elec furnace heating / central AC MF	201.39	Cooling RES	0.0009474181	0.190801	10.0	\$70.00	per measure
403900_2019_12	MFIE	Setback thermostat - full setback - elec furnace heating / central AC MF	62.33	Heating RES	0.0000000000	0.000000	10.0	\$0.00	per measure
403901_2019_12	MFIEc	Setback thermostat - full setback - elec furnace heating / central AC MF_CompE	146.46	Cooling RES	0.0009474181	0.138759	10.0	\$70.00	per measure
403901_2019_12	MFIEc	Setback thermostat - full setback - elec furnace heating / central AC MF_CompE	21.25	Heating RES	0.0000000000	0.000000	10.0	\$0.00	per measure
403950_2019_12	SFIE	Setback thermostat - full setback - elec furnace heating / central AC SF	358.20	Cooling RES	0.0009474181	0.339365	10.0	\$70.00	per measure
403950_2019_12	SFIE	Setback thermostat - full setback - elec furnace heating / central AC SF	148.63	Heating RES	0.0000000000	0.000000	10.0	\$0.00	per measure
404000_2019_12	MFIE	Setback thermostat - full setback - gas heating / central AC MF	201.39	Cooling RES	0.0009474181	0.190801	10.0	\$70.00	per measure
404000_2019_12	MFIE	Setback thermostat - full setback - gas heating / central AC MF	0.00	Heating RES	0.0000000000	0.000000	10.0	\$0.00	per measure
404001_2019_12	MFIEc	Setback thermostat - full setback - gas heating / central AC MF_CompE	146.46	Cooling RES	0.0009474181	0.138763	10.0	\$70.00	per measure
404001_2019_12	MFIEc	Setback thermostat - full setback - gas heating / central AC MF_CompE	0.00	Heating RES	0.0000000000	0.000000	10.0	\$0.00	per measure
404050_2019_12	SFIE	Setback thermostat for SF - full setback - gas heating / central AC	358.20	Cooling RES	0.0009474181	0.339365	10.0	\$70.00	per measure
404050_2019_12	SFIE	Setback thermostat for SF - full setback - gas heating / central AC	0.00	Heating RES	0.0000000000	0.000000	10.0	\$0.00	per measure
404100_2019_12	MFIE	Setback thermostat - full setback - Unknown MF	201.39	Cooling RES	0.0009474181	0.190801	10.0	\$70.00	per measure
404100_2019_12	MFIE	Setback thermostat - full setback - Unknown MF	15.49	Heating RES	0.0000000000	0.000000	10.0	\$0.00	per measure
404101_2019_12	MFIEc	Setback thermostat - full setback - Unknown MF_CompE	146.46	Cooling RES	0.0009474181	0.138759	10.0	\$70.00	per measure
404101_2019_12	MFIEc	Setback thermostat - full setback - Unknown MF_CompE	5.28	Heating RES	0.0000000000	0.000000	10.0	\$0.00	per measure
404150_2019_12	SFIE	Setback thermostat for SF - full setback - Unknown	358.20	Cooling RES	0.0009474181	0.339365	10.0	\$70.00	per measure
404150_2019_12	SFIE	Setback thermostat for SF - full setback - Unknown	32.33	Heating RES	0.0000000000	0.000000	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
404200_2019_12	SFIE DI	Shower Start 1.5 gpm electric water heater SFIE DI	41.68	Water heating RES	0.0000887318	0.109	0.003698	10.0	\$50.00	per measure
404250_2019_12	MFIE DI	Shower Start 1.5 gpm electric water heater MFIE DI	47.32	Water heating RES	0.0000887318	1.856	0.004199	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
404300_2019_12	SFIE	Water Heater Wrap SFIE	100.55	Water heating RES	0.0000887318	0.008922	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
404350_2019_12	MFIE	Common Area Low Flow Bathroom Faucet Aerator	28.40	Water heating RES	0.0000887318	0.071	0.002520	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
404400_2019_12	MFIE DI	Common Area Low Flow Showerhead	213.29	Water heating RES	0.0000887318	0.109	0.018926	10.0	\$7.00	per measure

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Lighting

** CFL baseline is Post 2021, EISA baseline is pre-2021 **

Measure Reference No.	Program/Channel	Measure	kWh Annual Savings	End Use - RES	kW Factor - RES	End Use - BUS	kW Factor - BUS	kWh RES	kW BUS	kW	EUL - RES	EUL - BUS**	Inc. Cost*		Units
													SF	MF	
404450_2019_12	SFIE / MFIE	LED - 10 SW Downlight E26 (EISA baseline) IE DI	23.59	Lighting RES	0.0001492529	Lighting BUS	0.0001899635	23.6	0.0000000	0.003521	19.0	6.0	\$6.00	\$3.30	per measure
404500_2019_12	SFIE / MFIE	LED - 10W (Halogen baseline) (750-1049 lumens) IED	22.22	Lighting RES	0.0001492529	Lighting BUS	0.0001899635	22.2	0.0000000	0.003316	19.0	6.0	\$6.00	\$3.68	per measure
404550_2019_12	SFIE / MFIE	LED - 12W (Halogen baseline) IE DI	22.95	Lighting RES	0.0001492529	Lighting BUS	0.0001899635	23.0	0.0000000	0.003425	19.0	6.0	\$6.00	\$4.72	per measure
404600_2019_12	SFIE / MFIE	LED - 12W Dimmable Light Bulb (Replacing Specialty Incandescent) IE DI	27.52	Lighting RES	0.0001492529	Lighting BUS	0.0001899635	27.5	0.0000000	0.004108	19.0	6.0	\$6.00	\$3.53	per measure
404650_2019_12	SFIE / MFIE	LED - 15W (Halogen baseline) (1050-1489 lumens) IEDI	27.79	Lighting RES	0.0001492529	Lighting BUS	0.0001899635	27.8	0.0000000	0.004147	19.0	6.0	\$8.00	\$6.27	per measure
404651_2020_12	SFIE / MFIE	LED - 11W Flood Light BR30 Bulb (Halogen baseline) IE DI	35.39	Lighting RES	0.0001492529	Lighting BUS	0.0001899635	35.4	0.0000000	0.005282	19.0	6.0	\$10.00	\$4.92	per measure
404700_2019_12	SFIE / MFIE	LED - 15W Flood Light PAR30 Bulb (Halogen baseline) IE DI	26.87	Lighting RES	0.0001492529	Lighting BUS	0.0001899635	26.9	0.0000000	0.004010	19.0	6.0	\$10.00	\$4.92	per measure
404750_2019_12	SFIE / MFIE	LED - 18W Flood Light PAR38 Bulb (Halogen baseline) IE DI	34.73	Lighting RES	0.0001492529	Lighting BUS	0.0001899635	34.7	0.0000000	0.005184	19.0	6.0	\$15.00	\$4.92	per measure
404800_2019_12	SFIE / MFIE	LED - 20W (Halogen baseline) (1490-2600 lumens) IEDI	37.35	Lighting RES	0.0001492529	Lighting BUS	0.0001899635	37.4	0.0000000	0.005575	19.0	6.0	\$8.00	\$7.83	per measure
404850_2019_12	SFIE / MFIE	LED - 4W Candelabra (Replacing Specialty Incandescent) IE DI	23.53	Lighting RES	0.0001492529	Lighting BUS	0.0001899635	23.5	0.0000000	0.003512	19.0	6.0	\$7.00	\$3.27	per measure
404900_2019_12	SFIE / MFIE	LED - 4W Candelabra (CFL baseline) IEDI	2.95	Lighting RES	0.0001492529	Lighting BUS	0.0001899635	2.9	0.0000000	0.000440	19.0	6.0	\$7.00	\$3.27	per measure
404950_2019_12	SFIE / MFIE	LED - 8W Globe Light G25 Bulb (Replacing Specialty Incandescent) IE DI	14.42	Lighting RES	0.0001492529	Lighting BUS	0.0001899635	14.4	0.0000000	0.002152	19.0	6.0	\$7.00	\$3.27	per measure
405000_2019_12	SFIE / MFIE	LED - 8W Globe Light G25 Bulb (Replacing CFL) IEDI	2.62	Lighting RES	0.0001492529	Lighting BUS	0.0001899635	2.6	0.0000000	0.000391	19.0	6.0	\$7.00	\$3.27	per measure
405050_2019_12	SFIE / MFIE	LED - 10W (CFL baseline) (750-1049 lumens) IEDI	2.82	Lighting RES	0.0001492529	Lighting BUS	0.0001899635	2.8	0.0000000	0.000421	19.0	6.0	\$6.00	\$3.68	per measure
405100_2019_12	SFIE / MFIE	LED - 10.5W Downlight E26 (CFL baseline) IEDI	8.52	Lighting RES	0.0001492529	Lighting BUS	0.0001899635	8.5	0.0000000	0.001272	19.0	6.0	\$6.00	\$3.30	per measure
405150_2019_12	SFIE / MFIE	LED - 12W Dimmable Light Bulb (Replacing CFL) IEDI	5.57	Lighting RES	0.0001492529	Lighting BUS	0.0001899635	5.6	0.0000000	0.000831	19.0	6.0	\$6.00	\$3.53	per measure
405200_2019_12	SFIE / MFIE	LED - 12W (Replacing CFL) IEDI	5.57	Lighting RES	0.0001492529	Lighting BUS	0.0001899635	5.6	0.0000000	0.000831	19.0	6.0	\$6.00	\$4.72	per measure
405250_2019_12	SFIE / MFIE	LED - 15W (CFL baseline) (1050-1489 lumens) IEDI	5.44	Lighting RES	0.0001492529	Lighting BUS	0.0001899635	5.4	0.0000000	0.000812	19.0	6.0	\$8.00	\$6.27	per measure
405251_2020_12	SFIE / MFIE	LED - 11W Flood Light BR30 Bulb (CFL baseline) IEDI	5.17	Lighting RES	0.0001492529	Lighting BUS	0.0001899635	5.2	0.0000000	0.000772	19.0	6.0	\$10.00	\$4.92	per measure
405300_2019_12	SFIE / MFIE	LED - 15W Flood Light PAR30 Bulb (CFL baseline) IEDI	3.15	Lighting RES	0.0001492529	Lighting BUS	0.0001899635	3.1	0.0000000	0.000469	19.0	6.0	\$10.00	\$4.92	per measure
405350_2019_12	SFIE / MFIE	LED - 18W Flood Light PAR38 Bulb (CFL baseline) IEDI	3.28	Lighting RES	0.0001492529	Lighting BUS	0.0001899635	3.3	0.0000000	0.000489	19.0	6.0	\$15.00	\$4.92	per measure
405400_2019_12	SFIE / MFIE	LED - 20W (CFL baseline) (1490-2600 lumens) IEDI	6.42	Lighting RES	0.0001492529	Lighting BUS	0.0001899635	6.4	0.0000000	0.000959	19.0	6.0	\$8.00	\$7.83	per measure
405409_2021_12	SFIE / MFIE	LED - 6W (CFL baseline) (310-749 lumens) IEDI	3.78	Lighting RES	0.0001492529	Lighting BUS	0.0001899635	3.8	0.0000000	0.000564	19.0	6.0	\$7.00	\$3.27	per measure
405410_2019_12	SFIE / MFIE	LED - 6W (Halogen baseline) (310-749 lumens) IEDI	15.07	Lighting RES	0.0001492529	Lighting BUS	0.0001899635	15.1	0.0000000	0.002250	19.0	6.0	\$6.00	\$3.68	per measure
405430_2021_12	SFIE / MFIE	LED Nightlights	28.53	Lighting RES	0.0001492529	Lighting BUS	0.0001899635	28.5	0.0000000	0.004258	19.0	6.0	\$6.00	\$3.68	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
405450_2021_12	SFIE / MFIE	Advanced Tier 1 Power Strips / TOS/NC - Home Office	29.450	Miscellaneous RES	0.0001148238	0.003382	10.0	\$20.00	per measure
405451_2021_12	SFIE / MFIE	Advanced Tier 1 Power Strips / DI - Home Office	29.450	Miscellaneous RES	0.0001148238	0.003382	10.0	\$30.00	per measure
405500_2019_12	SFIE / MFIE	Advanced Tier 1 Power Strips / Kits - Home Office	24.180	Miscellaneous RES	0.0001148238	0.002776	10.0	\$20.00	per measure
405550_2021_12	SFIE / MFIE	Advanced Tier 1 Power Strips / TOS/NC - Home Entertainment	71.350	Miscellaneous RES	0.0001148238	0.008193	10.0	\$20.00	per measure
405551_2021_12	SFIE / MFIE	Advanced Tier 1 Power Strips / DI - Home Entertainment	71.350	Miscellaneous RES	0.0001148238	0.008193	10.0	\$30.00	per measure
405600_2019_12	SFIE / MFIE	Advanced Tier 1 Power Strips / Kits - Home Entertainment	58.580	Miscellaneous RES	0.0001148238	0.006726	10.0	\$20.00	per measure
405650_2021_12	SFIE / MFIE	Advanced Tier 1 Power Strips / TOS/NC - Unknown Location	56.260	Miscellaneous RES	0.0001148238	0.006460	10.0	\$20.00	per measure
405651_2021_12	SFIE / MFIE	Advanced Tier 1 Power Strips / DI - Unknown Location	56.260	Miscellaneous RES	0.0001148238	0.006460	10.0	\$30.00	per measure
405700_2019_12	SFIE / MFIE	Advanced Tier 1 Power / Kits - Unknown Location	42.070	Miscellaneous RES	0.0001148238	0.004831	10.0	\$20.00	per measure
405750_2019_12	SFIE / MFIE	Advanced Tier 2 Power Strips / TOS/NC / Average	151.960	Miscellaneous RES	0.0001148238	0.017449	10.0	\$30.00	per measure
405751_2020_12	SFIE / MFIE	Advanced Tier 2 Power Strips / DI / Average	153.900	Miscellaneous RES	0.0001148238	0.017671	10.0	\$60.00	per measure

Refrigerator

Measure Reference No.	Program/Channel	Measure	kWh Annual Savings	End Use	kW Factor	kW	EUL	Inc. Cost	Units
405800_2019_12	SFIE / MFIE	Refrigerator - early replacement ER1	564.66	Refrigeration RES	0.0001286107	0.072621	6.0	\$753.00	per measure
405800_2019_12	SFIE / MFIE	Refrigerator - early replacement ER2	46.72	Refrigeration RES ER2	0.0001286107	0.006009	11.0	\$0.00	per measure
405825_2019_12	SFIE / MFIE	Refrigerator - Pre 1993 - ER1	1269.91	Refrigeration RES	0.0001286107	0.163324	6.0	\$753.00	per measure
405825_2019_12	SFIE / MFIE	Refrigerator - Pre 1993 - ER2	46.72	Refrigeration RES ER2	0.0001286107	0.006009	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
405850_2021_12	MFIE	AC - Energy Star Room - unknown size - Thru-Wall_MF	190.46	Cooling RES	0.0009474181	0.180445	9.0	\$20.00	per measure
405900_2021_12	SFIE	AC - Energy Star Room - unknown size - Thru-Wall_SF	75.04	Cooling RES	0.0009474181	0.071094	9.0	\$20.00	per measure
405950_2021_12	MFIE	AC - Energy Star Room - unknown size - MF	190.46	Cooling RES	0.0009474181	0.180445	9.0	\$20.00	per measure
406000_2021_12	SFIE	AC - Energy Star Room - unknown size - SF	75.04	Cooling RES	0.0009474181	0.071094	9.0	\$20.00	per measure
405851_2021_12	MFIE	AC - Energy Star Room - 5kBTu - Thru-Wall_MF	81.08	Cooling RES	0.0009474181	0.076817	9.0	\$20.00	per measure
405901_2021_12	SFIE	AC - Energy Star Room - 5kBTu - Thru-Wall_SF	36.35	Cooling RES	0.0009474181	0.034439	9.0	\$20.00	per measure
405951_2021_12	MFIE	AC - Energy Star Room - 5kBTu - MF	81.08	Cooling RES	0.0009474181	0.076817	9.0	\$20.00	per measure
406001_2021_12	SFIE	AC - Energy Star Room - 5kBTu - SF	36.35	Cooling RES	0.0009474181	0.034439	9.0	\$20.00	per measure
405852_2021_12	MFIE	AC - Energy Star Room - 8kBTu - Thru-Wall_MF	129.73	Cooling RES	0.0009474181	0.122909	9.0	\$20.00	per measure
405902_2021_12	SFIE	AC - Energy Star Room - 8kBTu - Thru-Wall_SF	58.16	Cooling RES	0.0009474181	0.055102	9.0	\$20.00	per measure
405952_2021_12	MFIE	AC - Energy Star Room - 8kBTu - MF	129.73	Cooling RES	0.0009474181	0.122909	9.0	\$20.00	per measure
406002_2021_12	SFIE	AC - Energy Star Room - 8kBTu - SF	58.16	Cooling RES	0.0009474181	0.055102	9.0	\$20.00	per measure
405853_2021_12	MFIE	AC - Energy Star Room - 10kBTu - Thru-Wall_MF	162.16	Cooling RES	0.0009474181	0.153633	9.0	\$20.00	per measure
405903_2021_12	SFIE	AC - Energy Star Room - 10kBTu - Thru-Wall_SF	72.70	Cooling RES	0.0009474181	0.068877	9.0	\$20.00	per measure
405953_2021_12	MFIE	AC - Energy Star Room - 10kBTu - MF	162.16	Cooling RES	0.0009474181	0.153633	9.0	\$20.00	per measure
406003_2021_12	SFIE	AC - Energy Star Room - 10kBTu - SF	72.70	Cooling RES	0.0009474181	0.068877	9.0	\$20.00	per measure
405854_2021_12	MFIE	AC - Energy Star Room - 12kBTu - Thru-Wall_MF	194.59	Cooling RES	0.0009474181	0.184358	9.0	\$20.00	per measure
405904_2021_12	SFIE	AC - Energy Star Room - 12kBTu - Thru-Wall_SF	87.24	Cooling RES	0.0009474181	0.082653	9.0	\$20.00	per measure
405954_2021_12	MFIE	AC - Energy Star Room - 12kBTu - MF	194.59	Cooling RES	0.0009474181	0.184358	9.0	\$20.00	per measure
406004_2021_12	SFIE	AC - Energy Star Room - 12kBTu - SF	87.24	Cooling RES	0.0009474181	0.082653	9.0	\$20.00	per measure
405855_2021_12	MFIE	AC - Energy Star Room - 15kBTu - Thru-Wall_MF	243.24	Cooling RES	0.0009474181	0.230450	9.0	\$20.00	per measure
405905_2021_12	SFIE	AC - Energy Star Room - 15kBTu - Thru-Wall_SF	109.05	Cooling RES	0.0009474181	0.103316	9.0	\$20.00	per measure
405955_2021_12	MFIE	AC - Energy Star Room - 15kBTu - MF	243.24	Cooling RES	0.0009474181	0.230450	9.0	\$20.00	per measure
406005_2021_12	SFIE	AC - Energy Star Room - 15kBTu - SF	109.05	Cooling RES	0.0009474181	0.103316	9.0	\$20.00	per measure

RESIDENTIAL INCOME ELIGIBLE

Storm Window

Measure Reference No.	Program/Channel	Measure	kWh Annual Savings	End Use	kW Factor	kW	EUL	Inc. Cost	Units
406025_2020_12	SFIE / MFIE	Storm Window - Single Pane, Double Hung - Electric Furnace	17.54	Building Shell RES	0.0004660805	0.008173	20	\$9.29	per sq ft
406050_2020_12	SFIE / MFIE	Storm Window - Single Pane, Double Hung - Heat Pump	10.42	Building Shell RES	0.0004660805	0.004856	20	\$9.29	per sq ft
406075_2020_12	SFIE / MFIE	Storm Window - Single Pane, Double Hung - Gas Heating	2.39	Building Shell RES	0.0004660805	0.001114	20	\$9.29	per sq ft
406100_2020_12	SFIE / MFIE	Storm Window - Double Pane, Double Hung - Electric Furnace	5.90	Building Shell RES	0.0004660805	0.002751	20	\$9.29	per sq ft
406125_2020_12	SFIE / MFIE	Storm Window - Double Pane, Double Hung - Heat Pump	3.67	Building Shell RES	0.0004660805	0.001711	20	\$9.29	per sq ft
406150_2020_12	SFIE / MFIE	Storm Window - Double Pane, Double Hung - Gas Heating	1.15	Building Shell RES	0.0004660805	0.000538	20	\$9.29	per sq ft
406175_2020_12	SFIE / MFIE	Storm Window - Single Pane, Fixed - Electric Furnace	17.53	Building Shell RES	0.0004660805	0.008170	20	\$9.29	per sq ft
406200_2020_12	SFIE / MFIE	Storm Window - Single Pane, Fixed - Heat Pump	10.41	Building Shell RES	0.0004660805	0.004854	20	\$9.29	per sq ft
406225_2020_12	SFIE / MFIE	Storm Window - Single Pane, Fixed - Gas Heating	2.39	Building Shell RES	0.0004660805	0.001114	20	\$9.29	per sq ft
406250_2020_12	SFIE / MFIE	Storm Window - Double Pane, Fixed - Electric Furnace	5.59	Building Shell RES	0.0004660805	0.002608	20	\$9.29	per sq ft
406275_2020_12	SFIE / MFIE	Storm Window - Double Pane, Fixed - Heat Pump	3.42	Building Shell RES	0.0004660805	0.001592	20	\$9.29	per sq ft
406300_2020_12	SFIE / MFIE	Storm Window - Double Pane, Fixed - Gas Heating	0.96	Building Shell RES	0.0004660805	0.000446	20	\$9.29	per sq ft

RESIDENTIAL HOME ENERGY REPORT

Home Energy Report

Measure Reference No.	Program/Channel	Measure	kWh Annual Savings [1]	End Use	kW Factor	kW	EUL [2]	Inc. Cost	Units
450050_2021_12	SF	Home Energy Report	120.14	Building Shell RES	0.0004660805	0.0559950	5.0	\$0.00	per report

[1] Ameren MO PY20 Evaluation Report, PY2020 HER Program Adjusted Net Annual Savings / Number of Customers Treated)
 36,002 Table 46. Final Adjusted Net Program Savings (MWh)
 299,668 Table 42. Number of Customers Treated
 120.14 Savings per household (kWh)

[2] EUL is 5.0 years; however, the annual energy savings are estimated to decline each year over the 5-year lifetime. The table below shows the estimated annual savings for each year in the measure life.

120.14	First Year Annual kWh
20%	Annual Savings Decay

Annual Savings over the 5-Year EUL	
Year	kWh Annual Savings [1]
1	120.14
2	96.11
3	76.89
4	61.51
5	49.21

RESIDENTIAL MULTI-FAMILY MARKET RATE

AC Tune-up

*MFMRc = Multifamily Market Rate Comprehensive Envelope, CompE = Comprehensive Envelope

Measure Reference No.	Program/Channel	Measure	kWh Annual Savings	End Use	kW Factor	kW	EUL	Inc. Cost	Units
500050_2019_12	MFMR	General Tune-Up (no charge or coil clean) / MFMR	91.43	Cooling RES	0.0009474181	0.086622	2.0	\$70.00	per measure
500051_2019_12	MFMRc	General Tune-Up (no charge or coil clean) / MFMR_CompE	66.50	Cooling RES	0.0009474181	0.063003	2.0	\$70.00	per measure
500100_2019_12	MFMR	AC Tune-up / refrigerant charge / MFMR	381.36	Cooling RES	0.0009474181	0.361307	2.0	\$81.00	per measure
500101_2019_12	MFMRc	AC Tune-up / refrigerant charge / MFMR_CompE	277.35	Cooling RES	0.0009474181	0.262766	2.0	\$81.00	per measure
500150_2019_12	MFMR	Indoor Coil (Evaporator) Cleaning / MFMR	63.12	Cooling RES	0.0009474181	0.059801	2.0	\$63.00	per measure
500151_2019_12	MFMRc	Indoor Coil (Evaporator) Cleaning / MFMR_CompE	45.91	Cooling RES	0.0009474181	0.043496	2.0	\$63.00	per measure
500200_2019_12	MFMR	Outdoor Coil (Condenser) Cleaning / MFMR	126.24	Cooling RES	0.0009474181	0.119602	2.0	\$31.00	per measure
500201_2019_12	MFMRc	Outdoor Coil (Condenser) Cleaning / MFMR_CompE	91.81	Cooling RES	0.0009474181	0.086982	2.0	\$31.00	per measure
500210_2021_12	MFMR	AC Tune-up / Packaged Service / MFMR	237.39	Cooling RES	0.0009474181	0.105069	2.0	\$185.00	per measure
500211_2021_12	MFMRc	AC Tune-up / Packaged Service / MFMR_CompE	172.64	Cooling RES	0.0009474181	0.076419	2.0	\$185.00	per measure

HP Tune-up

*MFMRc = Multifamily Market Rate Comprehensive Envelope, CompE = Comprehensive Envelope

Measure Reference No.	Program/Channel	Measure	kWh Annual Savings	End Use	kW Factor	kW	EUL	Inc. Cost	Units
500230_2021_12	MFMR	HP Tune-up / Packaged Service / MFMR	237.39	Cooling RES	0.0009474181	0.224903	2.0	\$185.00	per measure
500230_2021_12	MFMR	HP Tune-up / Packaged Service / MFMR	761.39	Heating RES	0.0000000000	0.000000	2.0	\$0.00	per measure
500231_2021_12	MFMRc	HP Tune-up / Packaged Service / MFMR_CompE	172.64	Cooling RES	0.0009474181	0.163566	2.0	\$185.00	per measure
500231_2021_12	MFMRc	HP Tune-up / Packaged Service / MFMR_CompE	259.56	Heating RES	0.0000000000	0.000000	2.0	\$0.00	per measure

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)
500250_2019_12	MFMR	Ceiling Insulation R11-R49 MFMR electric furnace base	1.06	Building Shell RES	0.0004660805	1.0	0.10	0.000494	25.0	\$2.12	1.0
500300_2019_12	MFMR	Ceiling Insulation R11-R49 MFMR gas heat and electric cool base	0.53	Building Shell RES	0.0004660805	0.4	0.11	0.000247	25.0	\$2.12	1.0
500350_2019_12	MFMR	Ceiling Insulation R5-R30 MFMR electric furnace base	1.71	Building Shell RES	0.0004660805	1.6	0.16	0.000797	25.0	\$1.16	1.0
500400_2019_12	MFMR	Ceiling Insulation R5-R30 MFMR gas heat and electric cool base	0.86	Building Shell RES	0.0004660805	0.7	0.18	0.000401	25.0	\$1.16	1.0
500450_2019_12	MFMR	Ceiling Insulation R5-R38 MFMR electric furnace base	1.84	Building Shell RES	0.0004660805	1.7	0.17	0.000858	25.0	\$1.68	1.0
500500_2019_12	MFMR	Ceiling Insulation R5-R38 MFMR gas heat and electric cool base	0.93	Building Shell RES	0.0004660805	0.7	0.19	0.000433	25.0	\$1.68	1.0
500550_2019_12	MFMR	Ceiling Insulation R5-R49 MFMR electric furnace base	1.96	Building Shell RES	0.0004660805	1.8	0.19	0.000914	25.0	\$2.57	1.0
500600_2019_12	MFMR	Ceiling Insulation R5-R49 MFMR gas heat and electric cool base	0.99	Building Shell RES	0.0004660805	0.8	0.20	0.000461	25.0	\$2.57	1.0
500650_2019_12	MFMR	Ceiling Insulation R5-R60 MFMR electric furnace base	2.03	Building Shell RES	0.0004660805	1.8	0.19	0.000946	25.0	\$3.42	1.0
500700_2019_12	MFMR	Ceiling Insulation R5-R60 MFMR gas heat and electric cool base	1.02	Building Shell RES	0.0004660805	0.8	0.21	0.000475	25.0	\$3.42	1.0

Dirty Filter Alarm

*MFMRc = Multifamily Market Rate Comprehensive Envelope, CompE = Comprehensive Envelope

Measure Reference No.	Program/Channel	Measure	kWh Annual Savings	End Use	kW Factor	Heating kWh	Cooling kWh	kW	EUL	Inc. Cost	Units
500750_2019_12	MFMR	Dirty Filter Alarm_MFMR	79.20	HVAC RES	0.0004660805	50.1	29.1	0.036914	14.0	\$5.00	per measure
500751_2019_12	MFMRc	Dirty Filter Alarm_MFMR_CompE	38.24	HVAC RES	0.0004660805	17.1	21.2	0.017823	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	Continuous kWh	kW	EUL*	Inc. Cost	Units
500800_2021_12	MFMR	ECM Auto Fan Early Replacement ER1 (Full Cost) - MFMR	582.00	HVAC RES	0.0004660805	264.1	31.1	286.7	0.0	0.271259	6.0	\$74.33	per measure
500800_2021_12	MFMR	ECM Auto Fan Early Replacement ER2 (Remaining Life) - MFMR	0.00	HVAC RES ER2	0.0004660805	0.0	0.0	0.0	0.0	0.000000	0.0		per measure

Note: As part of the Code of Federal Regulations, energy conservation standards for covered residential furnace fans became effective on July 3, 2019 (10 CFR 430.32(v)). This code requirement effectively makes ECMs part of the baseline for New Construction (NC), Replace-Fail (ROF), Time-of-Replacement (TOS), and Early Replacement (EREP) scenarios. Savings are only allowable for EREP measures, for the remaining useful life of the existing equipment (ER1, 6 years). Therefore, the EUL of the measure is assumed to be 6 years. (ER1 = 6, ER2 = 0).

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
500850_2019_12	MFMR	LED - 10W (CFL baseline) (750-1049 lumens)	4.11	Lighting RES	0.0001492529	Lighting BUS	0.0001899635	4.1	0.0	0.000613	19.0	6.0	\$2.03	per measure
500900_2019_12	MFMR	LED - 10W (Halogen baseline) (750-1049 lumens)	23.12	Lighting RES	0.0001492529	Lighting BUS	0.0001899635	23.1	0.0	0.003451	19.0	6.0	\$2.03	per measure
500950_2019_12	MFMR	LED - 12W Dimmable Light Bulb (Replacing CFL)	5.46	Lighting RES	0.0001492529	Lighting BUS	0.0001899635	5.5	0.0	0.000815	19.0	6.0	\$4.14	per measure
501000_2019_12	MFMR	LED - 12W Dimmable Light Bulb (Replacing Specialty Incandescent)	42.87	Lighting RES	0.0001492529	Lighting BUS	0.0001899635	42.9	0.0	0.006399	19.0	6.0	\$4.14	per measure
501050_2019_12	MFMR	LED - 12W (Halogen baseline)	22.49	Lighting RES	0.0001492529	Lighting BUS	0.0001899635	22.5	0.0	0.003357	19.0	6.0	\$4.72	per measure
501100_2019_12	MFMR	LED - 12W (Replacing CFL)	5.46	Lighting RES	0.0001492529	Lighting BUS	0.0001899635	5.5	0.0	0.000815	19.0	6.0	\$4.72	per measure
501150_2019_12	MFMR	LED - 15W (Halogen baseline) (1050-1489 lumens)	27.23	Lighting RES	0.0001492529	Lighting BUS	0.0001899635	27.2	0.0	0.004064	19.0	6.0	\$6.27	per measure
501200_2019_12	MFMR	LED - 15W (CFL baseline) (1050-1489 lumens)	5.33	Lighting RES	0.0001492529	Lighting BUS	0.0001899635	5.3	0.0	0.000796	19.0	6.0	\$6.27	per measure
501250_2019_12	MFMR	LED - 20W (Halogen baseline) (1490-2600 lumens)	36.61	Lighting RES	0.0001492529	Lighting BUS	0.0001899635	36.6	0.0	0.005464	19.0	6.0	\$7.83	per measure
501300_2019_12	MFMR	LED - 20W (CFL baseline) (1490-2600 lumens)	6.29	Lighting RES	0.0001492529	Lighting BUS	0.0001899635	6.3	0.0	0.000939	19.0	6.0	\$7.83	per measure
501310_2020_12	MFMR	LED - 11W Flood Light BR30 Bulb (Halogen baseline)	34.68	Lighting RES	0.0001492529	Lighting BUS	0.0001899635	34.7	0.0	0.005176	19.0	6.0	\$1.66	per measure
501311_2020_12	MFMR	LED - 11W Flood Light BR30 Bulb (CFL baseline)	5.07	Lighting RES	0.0001492529	Lighting BUS	0.0001899635	5.1	0.0	0.000756	19.0	6.0	\$1.66	per measure
501350_2019_12	MFMR	LED - 15W Flood Light PAR30 Bulb (Halogen baseline)	32.31	Lighting RES	0.0001492529	Lighting BUS	0.0001899635	32.3	0.0	0.004822	19.0	6.0	\$3.05	per measure
501400_2019_12	MFMR	LED - 15W Flood Light PAR30 Bulb (CFL baseline)	3.08	Lighting RES	0.0001492529	Lighting BUS	0.0001899635	3.1	0.0	0.000460	19.0	6.0	\$3.05	per measure
501401_2019_12	MFMR	LED - 6W (Halogen baseline) (310-749 lumens)	14.77	Lighting RES	0.0001492529	Lighting BUS	0.0001899635	14.8	0.0	0.002205	19.0	6.0	\$2.03	per measure
501402_2021_12	MFMR	LED - 6W (CFL baseline) (310-749 lumens)	3.70	Lighting RES	0.0001492529	Lighting BUS	0.0001899635	3.7	0.0	0.000553	19.0	6.0	\$2.03	per measure
501450_2021_12	MFMR	LED Nightlights	27.18	Lighting RES	0.0001492529	Lighting BUS	0.0001899635	27.2	0.0	0.004056	19.0	6.0	\$3.35	per measure

RESIDENTIAL MULTI-FAMILY MARKET RATE

Faucet Aerators (Kitchen)

Measure Reference No.	Program/Channel	Measure	kWh Annual Savings	End Use	kW Factor	EPG_electric	kW	EUL	Inc. Cost	Units
501500_2021_12_	MFMR	Faucet Aerators (Kitchen) MFMR	115.98	Water Heating RES	0.0000887318	0.079	0.010291	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
501550_2021_12_	MFMR	Faucet Aerators (Bathroom) MFMR	33.50	Water Heating RES	0.0000887318	0.062	0.002973	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
501600_2021_12_	MFMR	Low Flow Showerhead MFMR	382.24	Water Heating RES	0.0000887318	0.109	0.033917	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
501650_2019_12_	MFMR	Advanced Tier 1 Power Strips / TOS/NC/DI - Home Office	29.45	Miscellaneous RES	0.0001148238	0.003382	10.0	\$20.00	per measure
501700_2019_12_	MFMR	Advanced Tier 1 Power Strips / Kits - Home Office	29.08	Miscellaneous RES	0.0001148238	0.003339	10.0	\$20.00	per measure
501750_2019_12_	MFMR	Advanced Tier 1 Power Strips / TOS/NC/DI - Home Entertainment	71.35	Miscellaneous RES	0.0001148238	0.008193	10.0	\$20.00	per measure
501800_2019_12_	MFMR	Advanced Tier 1 Power Strips / Kits - Home Entertainment	70.44	Miscellaneous RES	0.0001148238	0.008088	10.0	\$20.00	per measure
501850_2019_12_	MFMR	Advanced Tier 1 Power Strips / TOS/NC/DI - Unknown Location	56.26	Miscellaneous RES	0.0001148238	0.006460	10.0	\$20.00	per measure
501900_2019_12_	MFMR	Advanced Tier 1 Power / Kits - Unknown Location	50.59	Miscellaneous RES	0.0001148238	0.005809	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
501950_2019_12_	MFMR	Advanced Tier 2 Power Strips - A	237.60	Miscellaneous RES	0.0001148238	0.027282	10.0	\$30.00	per measure
502000_2019_12_	MFMR	Advanced Tier 2 Power Strips - B	216.00	Miscellaneous RES	0.0001148238	0.024802	10.0	\$30.00	per measure
502050_2019_12_	MFMR	Advanced Tier 2 Power Strips - C	194.40	Miscellaneous RES	0.0001148238	0.022322	10.0	\$30.00	per measure
502100_2019_12_	MFMR	Advanced Tier 2 Power Strips - D	172.80	Miscellaneous RES	0.0001148238	0.019842	10.0	\$30.00	per measure
502150_2019_12_	MFMR	Advanced Tier 2 Power Strips - E	151.20	Miscellaneous RES	0.0001148238	0.017361	10.0	\$30.00	per measure
502200_2019_12_	MFMR	Advanced Tier 2 Power Strips - F	129.60	Miscellaneous RES	0.0001148238	0.014881	10.0	\$30.00	per measure
502250_2019_12_	MFMR	Advanced Tier 2 Power Strips - G	108.00	Miscellaneous RES	0.0001148238	0.012401	10.0	\$30.00	per measure
502300_2019_12_	MFMR	Advanced Tier 2 Power Strips - H	86.40	Miscellaneous RES	0.0001148238	0.009921	10.0	\$30.00	per measure
502350_2019_12_	MFMR	Advanced Tier 2 Power Strips / TOS/NC / Average	162.00	Miscellaneous RES	0.0001148238	0.018601	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
502400_2021_12_	MFMR	Variable Speed Pool Pump - ROF	315.21	Pool Spa RES	0.0002354459	20.9760	1.58	2.52	0.074215	10.0	\$314.00	per measure
502401_2021_12_	MFMR	Variable Speed Pool Pump - ER	1478.34	Pool Spa RES	0.0002354459	7.1179	14.38	0.39	0.348069	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
502450_2019_12_	MFMR	Refrigerator - early replacement ER1 (full cost) - MFMR	564.66	Refrigeration RES	0.0001286107	0.072621	6.0	\$753.00	per measure
502450_2019_12_	MFMR	Refrigerator - early replacement ER2 (remaining life) - MFMR	46.72	Refrigeration RES ER2	0.0001286107	0.006009	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
550050_2019_12_	Appliance Recycling	Refrigerator recycling (pre-1990)	1020.32	Refrigeration RES	0.0001286107	0.131224	8.0	\$140.00	per measure
550100_2019_12_	Appliance Recycling	Refrigerator recycling (post-1990)	520.00	Refrigeration RES	0.0001286107	0.066878	8.0	\$140.00	per measure

Freezer Recycling

Measure Reference No.	Program/Channel	Measure	kWh Annual Savings	End Use	kW Factor	kW	EUL	Inc. Cost	Units
550150_2019_12_	Appliance Recycling	Freezer recycling	825.22	Freezer RES	0.0001685722	0.139109	8.0	\$140.00	per measure

Room AC Recycling

Measure Reference No.	Program/Channel	Measure	kWh Annual Savings	End Use	kW Factor	kW	EUL	Inc. Cost	Units
550200_2019_12_	Appliance Recycling	Room AC recycling - Primary	302.53	Cooling RES	0.0009474181	0.286622	4.0	\$64.89	per measure
550250_2019_12_	Appliance Recycling	Room AC recycling - Secondary	195.59	Cooling RES	0.0009474181	0.185306	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
550300_2019_12_	Appliance Recycling	Dehumidifier Recycling	139.00	HVAC RES	0.0004660805	0.064785	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 [1]	Gross kWh Annual Savings [2]	End Use [3]	kW Factor [4]	kW (Annual) [5]	EUL	Inc. Cost	Units
600050_2020_12	DR	Demand Response Advanced Thermostat - with Program-driven Optimization	55.97	-	n/a	-	11.0	\$0.00	per thermostat
600100_2021_12	DR	Demand Response Advanced Thermostat - without Program-Driven Optimization	0.00	-	n/a	-	11.0	\$0.00	per thermostat

[Note 1] As advanced thermostats mature, some models include embedded optimization routines that achieve energy savings. The program differentiates between thermostats with "program-driven optimization," which achieve savings through program influence to operate optional optimization, and without "program-driven optimization," which achieve no energy savings due to either the default optimization baseline or no optimization routine employed.

[Note 2] Source for Savings: Ameren MO PY2019 Final Report
 Demand Impact, Per Device: Table 4-13. Residential DR Program – Resource Capability Impacts
 Optimization Energy Savings Summary, Per Device: Table 4-19. Residential DR Program – Device Optimization Energy Savings Summary

[Note 3] End Use may be "HVAC RES" for optimization routines that save energy during the cooling and heating seasons, or "Cooling RES" for optimization routines that save energy only during the cooling season.

[Note 4] The kW factor based on end use is not used because the actual demand impacts are directly measured.

[Note 5] Demand savings are calculated for demand response events, therefore no demand savings are calculated based on the energy savings for this measure. For planning estimates a value of 1.41 kW/thermostat is assumed based on the PY19 evaluation results.

Residential demand response: For demand and energy savings associated with calling a demand response event, smart thermostat program participants will be randomly partitioned into two groups. In this scenario, on an event day, participants in one group receive a signal to initiate activity on the thermostat, while the other group of participants would not receive this signal. As a result, the participants who receive the signal will serve as the treatment group, and the participants who do not receive a signal will serve as the control group. Demand impacts will be estimated from the average of the hours over all event periods. Energy savings impacts will be estimated from comparing the 24 hours of the control group for each event day to the 24 hours of actual kWh consumption for each event day.

Business demand response: For demand and energy savings associated with calling a demand response event, a customer baseline load ("CBL") approach will be used. A CBL approach applies a model or algorithm to develop customer-specific baselines for each event that are used to estimate load impacts for each hour of the event. Demand impacts will be estimated from the average of the hours over all event periods. Energy savings impacts will be estimated from comparing the 24 hours of the CBL for each event day to the 24 hours of actual kWh consumption for each event day.