Residential Equipment
Central Air Conditioner (CAC)

Description: Central Air Conditioners < 65 MBTu with SEER 14 and above

Savings Algorithm *:

$$\text{Annual kwh} = \left(\frac{1}{\text{BASE}} - \frac{1}{\text{SEER}}\right) \text{ x CAP x CFLH x } 0.001$$

BASE: baseline efficiency SEER 13.6
SEER: efficiency rating of new CAC
CAP: capacity of new CAC in MBTu
CFLH: 705 equivalent full load hours of cooling

$$\text{Annual Peak kW} = \left(\frac{1}{\text{BASE}} - \frac{1}{\text{EER}}\right) \text{ x CAP x CF x } 0.001$$

BASE: baseline efficiency SEER 11.5
EER: efficiency rating of new CAC
CAP: capacity of new CAC in MBTu
CF: 0.8 coincidence factor

Residential Equipment
Furnace Fan

Description: ECM Motor – Gas Furnace < 225 MBTu

Savings Algorithm *:

Annual kwh = 554.83
Annual Therms = -10.60

Peak kW = 0.127
Peak Therms = -0.175

Residential Equipment
Air Source Heat Pump (ASHP)

Description: Air Source Heat Pump < 65 MBTu with SEER >= 14 or HSPF >= 8

Savings Algorithm *:

$$\text{Cooling kwh} = \left(\frac{1}{\text{SEER(base)}} - \frac{1}{\text{SEER(act)}}\right) \text{ x CAP x CFLH x } 0.001$$

$$\text{Heating kwh} = \left(\frac{1}{\text{HSPF(base)}} - \frac{1}{\text{HSPF(act)}}\right) \text{ x CAP x HFLH x } 0.001$$

$$\text{Annual kwh} = \text{Cooling kWh} + \text{Heating kWh}$$

SEER(base): baseline efficiency SEER 14.4
SEER(act): cooling efficiency rating of new ASHP
HSPF(base): baseline efficiency HSPF 8.2
HSPF(act): heating efficiency rating of new ASHP
CFLH: 794 equivalent full load hours of cooling
HFLH: 2,358 equivalent full load hours of heating
CAP: capacity of cooling system in MBTu

$$\text{Peak kW} = \left(\frac{1}{\text{EER(base)}} - \frac{1}{\text{EER(act)}}\right) \text{ x CAP x CF x } 0.001$$

EER(base): baseline efficiency SEER 11.8
EER(act): cooling efficiency rating of new ASHP
CF: 0.8 coincidence factor
CAP: capacity of cooling system in MBTu

Residential Equipment
Furnace

Description: High Efficiency Furnace < 250 MBTu with AFUE 92% and above

Savings Algorithm *:

$$\text{Annual Therms} = \left(\frac{\text{AFUE}}{\text{BASE}} - 1\right) \text{ x CAP x HFLH x } 0.00001$$

$$\text{Peak Therms} = \text{Annual Therms x CF}$$

BASE: baseline efficiency 0.85 AFUE
AFUE: efficiency rating of new unit
CAP: capacity of new unit in MBTu
HFLH: 995 equivalent full load hours of heating
CF: 0.016525 coincidence factor

Residential Equipment
Smart Programmable Thermostat – Gas Heat + Electric Cooling

Description: Smart Programmable Thermostat – Gas Heat + Electric Cooling

Savings Algorithm *:

Annual kwh = 127.56
Annual Therms = 49.04

Peak kW = 0.120
Peak Therms = 0.810

Residential Appliance Recycling
Refrigerators

Description: Removal of Secondary Refrigerator/Freezer Combo

Savings Algorithm:

Annual kwh = 1028.60
Peak kW = 0.138

Residential Appliance Recycling
Freezers

Description: Removal of Secondary Stand-Alone Freezer

Savings Algorithm:

Annual kwh = 781.20
Peak kW = 0.126

Nonresidential Equipment
Variable Speed Drive (VSD)

Description: Variable Speed Drive Controls

Savings Algorithm:

$$\text{Annual kwh} = \left(\frac{\text{HP}}{\text{EFF(MOT)}}\right) \text{ x EFF(VSD) x CONV x LOADING x HOURS x SF}$$

$$\text{Peak kW} = \text{ Annual kWh x } \frac{1}{8760} \div \text{LF}$$

HP: horsepower of the motor being controlled by VSD
EFF(MOT): efficiency rating of motor being controlled by VSD
EFF(VSD): efficiency rating of the variable speed drive
CONV: 0.746 horsepower to watts conversion rate
LOADING: 0.75 typical motor loading factor
HOURS: annual operating hours
SF: 0.40 annual approximate savings factor for motors with an average loading rate of 0.75
LF: 0.900 load factor

Nonresidential Equipment
Central Air Conditioner (CAC) - Small

Description: Central Air Conditioners < 65 MBTu with SEER 14 and above

Savings Algorithm *:

$$\text{Annual kwh} = \left(\frac{1}{\text{BASE}} - \frac{1}{\text{SEER}}\right) \text{ x CAP x CFLH x 0.001}$$

BASE: baseline efficiency SEER 13.0
SEER: efficiency rating of new CAC
CAP: capacity of new CAC in MBTu
CFLH: 851 equivalent full load hours of cooling

$$\text{Peak kW} = \left(\frac{1}{\text{BASE}} - \frac{1}{\text{EER}}\right) \text{ x CAP x CFLH x CF}$$

BASE: baseline efficiency EER 11.2
EER: efficiency rating of new CAC
CAP: capacity of new CAC in MBTu
CF: 0.798 coincidence factor

Nonresidential Equipment
Furnace

Description: High Efficiency Furnace < 250 MBTu with AFUE 92% and above

Savings Algorithm *:

$$\text{Annual Therms} = \left(\frac{\text{AFUE}}{\text{BASE}} - 1\right) \text{ x CAP x HFLH x } 0.00001$$

Peak Therms = Annual Therms x CF

BASE: baseline efficiency 0.85 AFUE
AFUE: efficiency rating of new unit
CAP: capacity of new unit in MBTu
HFLH: 1790 equivalent full load hours of heating
CF: 0.012386 coincidence factor

Nonresidential Equipment
Boiler

Description: High Efficiency Boiler with AFUE > 85% and above

Savings Algorithm *:

$$\text{Annual Therms} = \left(\frac{\text{AFUE}}{\text{BASE}} - 1\right) \text{ x CAP x HFLH x } 0.00001$$

Peak Therms = Annual Therms x CF

BASE: baseline efficiency 0.82 AFUE
AFUE: efficiency rating of new unit
CAP: capacity of new unit in MBTu
HFLH: 1790 equivalent full load hours of heating
CF: 0.012386 coincidence factor

Nonresidential Equipment
LED Lighting

Description: Standard Lighting
Baseline: High Bay Fluorescent High Output Lighting
Useful Life: 15 Years *

Savings Algorithm *:

$$\text{Annual kwh} = \left(\frac{\text{WATT(base)} - \text{WATT(eff)}}{1000}\right) \text{ x HOURS}$$

$$\text{Peak kW} = \text{ Annual kWh x } \frac{1}{8760} \div \text{LF}$$

WATT(base): Varies depending on specific application
WATT(eff): Varies depending on specific application
HOURS: Annual fixture operating hours
LF: 0.38833