

DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Product: Smart Thermostat - CO

Description:

Residential electric and combo customers can receive a rebate for installing an Energy Star certified smart thermostat.

Program References:

Measure "Smart Thermostat Optimization"	See "Programmable Thermostat" from 'Home Energy Squad - CO' for equations and variables with the exception of Cooling_Delta_T and Heating_Delta_T which are documented in the Variable ID table below.
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Equations:

ENERGY STAR Smart Thermostat Demand Savings (Gross kW)	= Baseline kW * (1 - ES_Reduction_Cooling)
ENERGY STAR Smart Thermostat Electrical Energy Savings (Gross Annual kWh)	= Baseline kW * (1 - ES_Reduction_Cooling) * EFLH
ENERGY STAR Smart Thermostat Coincident Demand Savings (Gross PCKW)	= Baseline kW * (1 - ES_Reduction_Cooling) * EnergyStar_CF
ENERGY STAR Smart Thermostat Gas Savings (Gross Dth/Yr)	= Baseline Dth * (1 - ES_Reduction_Heating)

Variable ID	Value	Description
ES_Reduction_Cooling	10%	Energy Star Connected Thermostat criteria for annual cooling equipment runtime reduction (Reference 1)
ES_Reduction_Heating	8%	Energy Star Connected Thermostat criteria for annual heating equipment runtime reduction (Reference 1)
Baseline kW	2.912	Forecasted High Efficiency Thermostat demand from 'Home Energy Squad - CO'
EFLH	573	Forecasted High Efficiency Thermostat hours from 'Home Energy Squad - CO'
Baseline Dth	60.2	Forecasted High Efficiency Thermostat gas use from 'Home Energy Squad - CO'
Heating_Delta_T	0.81	Average degrees of setback during heating season for seasonal thermostat savings
Cooling_Delta_T	0.38	Average degrees of setback during cooling season for seasonal thermostat savings (Reference 2)
EnergyStar_CF	76%	Coindicence Factor for High Efficiency Thermostat from 'Home Energy Squad - CO'
Measure Life	10	Measure life for programmable thermostat (Reference 4)
Incremental Cost	\$ 215.00	Incremental cost for ENERGY STAR smart thermostat.
NTG	100%	Net-to-gross factor. Assumed to be 100% for a new program.

References:

1. ENERGY STAR Connected Thermostat Key Product Criteria - https://www.energystar.gov/products/heating_cooling/smart_thermostats/key_product_criteria
2. 2017 Seasonal Savings Evaluation, Navigant, 3/5/2018
3. Xcel Study of Winter Seasonal Savings, 2017-2018, Initial Estimates
4. Lifetime of 10 years for programmable T-Stats from "Measure Life Report Residential and Commercial/Industrial Lighting and HVAC Measures", June

Changes from Recent Filing:

1. New program