DEEMED SAVINGS TECHNICAL ASSUMPTIONS

Program: Smart Thermostat Pilot

Description:

Residential customers that are electric and natural gas Xcel Energy customers are eligible to receive a rebate for purchasing and installing a qualifying smart thermostat device. In addition to the rebate for purchase and installation, another subset of customers that are electric customers of Xcel Energy can receive rebates for participating in demand response

Equations:

Electrical Energy Savings (Customer kWh)	= (Group_Consumption - Group_Rebate_Product_Participation) * Control_Group - (Group_Consumption - Group_Rebate_Product_Participation) * Test Group = Deemed kWh as determined through pilot M&V, 197 kWh used for forecast based on preliminary data
Electrical Demand Savings (Customer kW)	= Determined by pilot evaluation, 0.2 kW used for forecast based on preliminary data
Electrical Peak Demand Savings (PCkW)	= Electrical_Demand_Savings * Coincidence_Factor_EE
Natural Gas Energy Savings (Customer Dth)	= (Group_Consumption - Group_Rebate_Product_Participation) * Control_Group - (Group_Consumption - Group_Rebate_Product_Participation)* Test Group
Demand Response Electrical Energy Savings (Customer kWh)	= measured by event, 13 kWh used for forecast based on Savers Switch
Demand Response Electrical Demand Savings (Customer kW)	= measured by event, 1.03 kW used for forecast based on Savers Switch
Demand Response Electrical Peak Demand Savings (PCkW)	= Demand_Response_Electrical_Demand_Savings * Coincidence_Factor_DR

Variable ID	Value	Description
Coincidence_Factor_EE	58%	TBD through pilot evaluation, 58% used for forecast based on initial assumptions
Coincidence_Factor_DR	100%	Coincidence Factor for Demand Response, based on Savers Switch
Test_Group	TBD by M&V	Group of participating gas & electric customers participating in Smart Thermostat Pilot
Control_Group	TBD by M&V	Uninformed random sample of gas & electric customers receiving no specific information or treatment from this program of similar size to Participant group.
Group_Consumption	TBD by M&V	Gross consumption for each group (Test or Control), kWh and Dth resulting from pilot evaluation
Group_Rebate_Product_Participation	TBD by M&V	Energy savings generated by participation in our rebate products for both Test and Control groups, kWh and Dth. Rebated product participation from other products, (e.g. rebate for installing new lighting fixtures), are savings that will be included in the regression anlysis and deducted from the pilot results if statsitaclly sigficant. DSM Product participation from other Public Service DSM products will come from the Company database.
Measure Life Thermostats	10	Measure life is assumed to be 10 years for Smart Thermostats energy savings.
Measure Life Demand Response	1	Measure life is assumed to be 1 years for Demand Response.

Assumptions:

The forecasted values presented in these assumptions are based on data from the Energy Information Administration's (EIA) 2009 Residential Energy Consumption Survey (RECS), along with proprietary data provided by thermostat manufacturers. This data was used to build a model that compared temperature setbacks and setback schedules for an average customer against a customer with an installed smart thermostat device, and the resulting energy consumption and demand savings. The forecasted values are estimates of expected savings. Actual savings will be determined through a pilot evaluation which will be filed at the conclusion of the pilot.

The M&V plan will evaluate annual consumption reductions for electricity and gas, as well as peak electric load reduction. To do this, the Company will hire a third-party evaluator to perform all analysis via a controlled-match methodology, comparing customers with smart thermostats (participant group) to a matched control group based on similar consumption, location, segmentation, etc. The analysis to calculate peak electric load savings will involve deploying data-loggers on air conditioning equipment for test and control group participants, and conducting a difference of differences analysis. The intent of this analysis is to deem an electric energy, electric peak-load demand, and natural gas reduction for smart thermostat owners going forward.

For the demand response measure, the forecasted values are those used for the Company's Saver Switch program. Similar to the efficiency measure, this is a forecast of anticipated savings, but the pilot will M&V actual reductions and report those in the final evaluation. The M&V methodology deployed will be the same as Saver Switch - sampling a portion of participants with data loggers and recording actual load reductions during events. The intent of this analysis is to deem an average reduction value across all participants going forward.

References:

1. Energy Information Administration's (EIA) 2009 Residential Energy Consumption Survey (RECS)
2. Proprietary data provided by thermostat manufacturers

Changes from Last Filing

1. New Pilot