

Smart Thermostat Software Evaluation

1. Overview

The Smart Thermostat Software Evaluation project evaluated the energy and on-peak demand savings attributable to a software feature that has been rolled out to selected thermostats in the SDG&E service territory. The software features five energy and demand savings functions:

- 1) Feels Like - This function detects fluctuations in the home's indoor humidity to ensure that it feels like the temperature homeowners set on their thermostat. This function is designed for both energy efficiency and home comfort even during periods of high or low humidity.
- 2) Schedule Assistant - This function monitors the thermostat's schedule. When the schedule does not match with the home's historic HVAC usage routine, Schedule Assistant recommends a new schedule to the user.
- 3) Smart Home and Away - This feature adjusts the temperature setpoint when it detects that the home is unoccupied. It quickly restores the temperature settings when it detects that the home is occupied again.
- 4) Time of Use - This function pre-cools and pre-heats the home during off-peak times of day. For customers that are on time of use electricity rates, this function can lower electricity bills by shifting cooling and heating to times of day when electricity is less expensive.
- 5) Community Energy Savings (CES) - The CES function makes small thermostat setpoint adjustments to reduce energy consumption from cooling or heating during demand response events.

SDG&E worked with the manufacturer to identify customers who would receive the software offer. Of the 1,300 customers who received the offer, 950 enrolled.

The primary objective of this evaluation was to develop ex post load impact estimates for overall energy (kWh) consumption and average reduction of on-peak demand (kW). The evaluation was completed in accordance with the California Demand Response (DR) Load Impact Protocols adopted by the Commission in Decision (D.) 04-08-050.

The evaluation included the following tasks: development of an EM&V Plan; data collection and validation; load impact estimation and ex ante forecasting; and a final report that summarized the findings of this evaluation.

2. Collaboration

The progress and results were shared with other CA IOUs ET-DR Leads. SDG&E's ET Team collaborated with its Demand Response Program team on this study.

3. Status

The project has been completed, and the report has been published to the Emerging Technologies Coordinating Council (ETCC) website for public review and reference.