

Background Logistics

The purpose of the study was to understand the effect of smart thermostats in residential homes within specific PG&E climate zones. The two focus areas were:

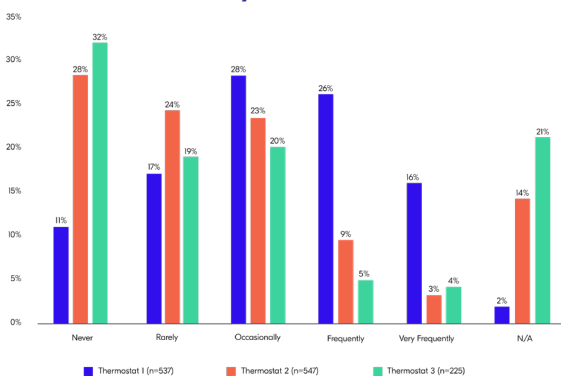
- An estimation of the energy savings
- An assessment of the participants' experience

Three different brands of thermostats were tested with the goal to install 1,000 units of each brand. A total of 2,207 thermostats were installed.

The study used a randomized encouragement design (RED) in which several thousand homes were randomly assigned to the encouraged group and offered a free, directly installed smart thermostat. Two thousand similar homes were randomly assigned to a control group.

Monitoring occurred over two winter heating and two summer cooling seasons from late 2015 through the summer of 2017.

Overview of Analysis



The **impact analysis** leveraged a regression-based approach to estimate monthly and annual electricity and natural gas savings from participants with smart thermostats in the encouraged group.

The **Participant experience analysis** employed web-based surveys over the course of the study to understand experience, satisfaction, and energy efficiency attitudes among participants. The study also surveyed control customers for comparison. The bar graph shows percent of participants using green features.

Key Results & Applications

The studied result in the acceptance of the Smart Thermostat measure as a deemed savings estimate in the California TRM.

Treatment Group		Reference (kWh)	Actual (kWh)	Savings (kWh)	% Savings
Thermostat 1	Year 1	6,170	5,953	217	4%
	Year 2	6,950	6,905	44	1%
Thermostat 2	Year 1	6,401	6,076	324	5%
	Year 2	7,610	7,229	381	5%
Thermostat 3	Year 1	5,853	5,560	293	5%
	Year 2	6,877	6,718	159	2%

View the full report: <https://www.etcc-ca.com/reports/smart-thermostat-study>

