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# The Empowered Consumer

# Smart Thermostats: The Next Wave in Consumer Empowerment

## What is The Empowered Consumer Report?

In May 2016 the Smart Grid Consumer Collaborative (SGCC) released The Empowered Consumer Report (TEC), a first-of-its-kind look at how consumers in the United States are faring post American Recovery and Reinvestment Act (ARRA) grant funding. TEC explored consumers' awareness and preferences for, and interest in nine smart energy technologies and services. Two conjoint statistical analyses were conducted to provide an in-depth understanding of what consumers value in a smart thermostat program and from time-varying rate plans. This choice-based methodology simulated real-world purchasing experiences, forcing respondents to make “trade-off” decisions when evaluating features and services.

For our analysis, SGCC surveyed consumers in “advanced states” with an Advanced Metering Infrastructure (AMI) and “control states” without one. Additionally, we analyzed survey respondents through the lens of a consumer segmentation framework that groups individuals based on distinctive patterns of awareness, favorability, expectations and preferences relating to smart grid and smart grid-enabled programs and technologies.

## Smart Thermostat Conjoint Analysis Key Findings

SGCC determined that up to 68% of consumers are interested in participating in a smart thermostat program with specific program elements in place. These elements include a do-it-yourself (DIY) installation method, a thermostat with programmable and auto-adjusting features, no demand response enablement, and a \$125 incentive paid in the form of a rebate. Within this context, SGCC has also determined that consumers value identifiable elements of control, as exhibited by their preference for the DIY installation method and thermostat capabilities. Lastly, our analysis revealed that even when demand response (which is often perceived by consumers as only benefiting the energy provider) is enabled, more than half of consumers indicate that they are still interested in participating in a smart thermostat program.

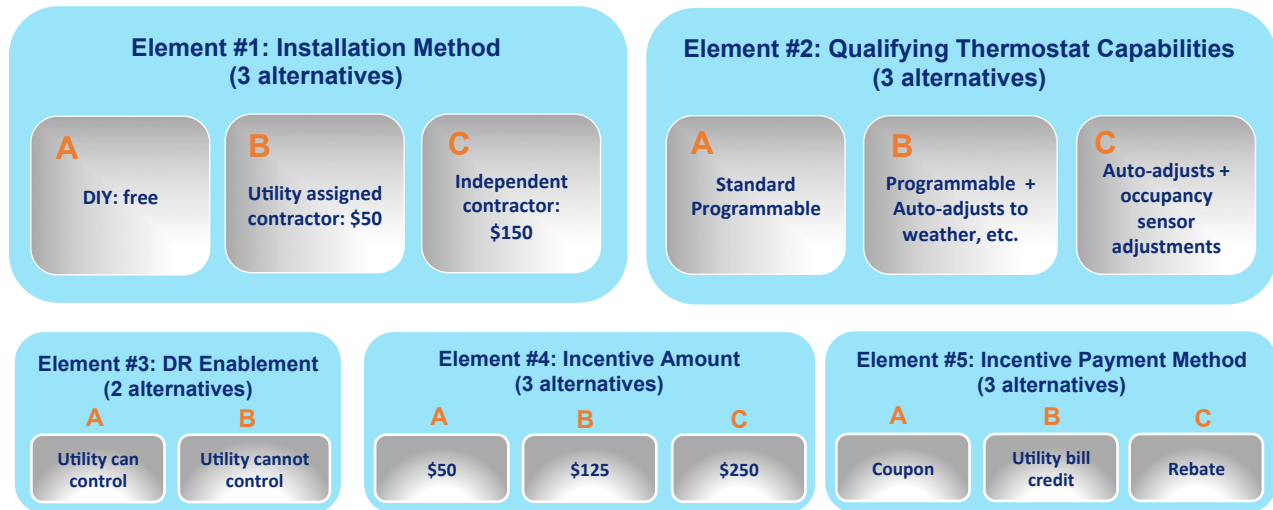
SGCC sees smart thermostats programs as a gateway-opportunity to engage consumers and offer them information about additional smart energy products and services.

## Conjoint Analysis Deep Dive

Using a conjoint analysis, we implemented a holistic approach to understanding consumer preferences for various components of a smart thermostat program. Among these five customizable elements in a smart thermostat program — installation method, advanced thermostat capabilities, demand response enablement, incentive amount, and incentive payment method — consumers exhibited their preferences from 162 different configurations. *Figure 1* details the options that were provided to each respondent.

Figure 1

### Tested Smart Thermostat Program Elements



### No Exhibited Sensitivity to Incentive Adjustments

Of the 162 possible configurations tested, a program that offered a \$250 rebate for consumers who self-installed a programmable/auto-adjusting smart thermostat that has no demand response enablement appealed to the largest majority, 68% of consumers. Further testing consumers’ sensitivity to the value of the incentive being offered, we reduced the incentive amount by 50% to \$125. We found that consumer appeal was virtually unchanging (.03% reduction in appeal), with 68% of consumers *still agreeing that this was the ideal program configuration*. Further reducing the incentive to \$50, we discovered only a marginal decline in appeal whereas 64% of consumers still believed this to be an ideal configuration.

### Demand Response Enablement Still Yields a Majority Appeal

To solidify what consumers value the most in a smart thermostat program, we tested the enablement of demand response by a utility (explaining to survey respondents that users can override any demand response event, accompanied by relevant information about savings). Utilizing the previously tested configuration (\$250 incentive) that appealed to 68% of consumers, when enabling demand response 55% of consumers indicated that this configuration still appeals to them. Further testing sensitivity to incentive amounts as they relate to demand response, the same program tested again with the \$125 incentive appealed to 54% of consumers.

In conclusion, while demand response enablement was shown to slightly reduce program appeal, we can see that a demand response enabled smart thermostat program still appeals to the majority of consumers.

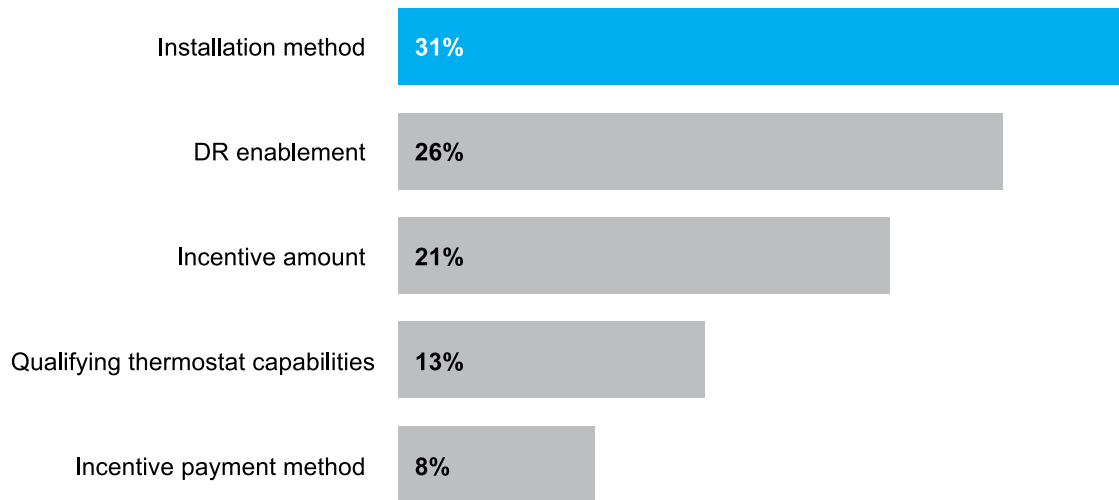
### A Strong Preference for Do-It-Yourself Installation

Our conjoint analysis also found that consumers exhibit a strong preference to remain “in the driver’s seat” while keeping an eye on their bottom-line. When choosing an installation method, 52% of consumers said that they prefer a no-cost DIY method of installation for their smart thermostat. Roughly 27% of consumers said that they would prefer for their energy provider to assign them a contractor at a discounted rate of \$50 who would then come to their home and perform the smart thermostat installation, while only 7% of consumers said that they would prefer to seek out their own independent contractor (an estimated \$150 expense).

## Thermostat Capabilities & Incentive Payment Method Have Minimal Impact on Appeal

While respondents did exhibit a degree of sensitivity to incentive amounts and demand response enablement, there was almost no measurable effect on the variations in thermostat capabilities or the method through which incentive payments would be received. Survey respondents only exhibited a marginally higher preference for incentives in the form of a rebate and thermostats that are self-programmable and auto-adjusting.

**Figure 2**



Referencing *Figure 2* which lists program elements in their order of importance according to survey respondents, you can see that “installation method” and “demand response enablement” are ranked almost twice as important as thermostat capabilities and incentive payment method.

## Smart Thermostats Through the Lens of Consumer Segmentation

Knowing that subsets of consumers have different values and interests, we also evaluated smart thermostat programs through the lens of a smart grid customer segmentation framework that groups individuals together based on similar characteristics. What we found is that consumers who are classified as “Green Champions” (environmentally cautious) or “Savings Seekers” (pennywise) are up to 27% more likely to enroll in a smart thermostat program. These two consumer segments represent the interests of roughly 50% of the populations.

## Smart Thermostats: A Path Forward

Our analysis has revealed that smart thermostat programs represent an ample opportunity for energy providers to engage consumers with a variety of smart grid enabled products and services. With low barriers for consumer adoption, smart thermostat programs can serve as a gateway for future offerings. Additionally, outreach and marketing efforts for smart thermostat programs should be designed to target subsets of an energy provider’s population who are environmentally aware and interested in saving money on their monthly bill. Lastly, TEC findings have shown that smart thermostat messaging should outline a clear path to savings, individual control, and take advantage of real world examples to maximize consumer appeal.

To learn more about *The Empowered Consumer* or to download a free copy of the report’s Executive Summary, please visit [www.Smartgridcc.org/Empowered-Consumer](http://www.Smartgridcc.org/Empowered-Consumer).