



SmartGrid
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The Empowered Consumer

Executive Summary for Non-SGCC Members

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A full report with detailed findings is available free to SGCC members.

Please contact us to discuss membership at membership@smartgridcc.org or visit our website at www.SmartGridCC.org.



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Smart Grid Consumer Collaborative (SGCC) is a consumer focused non-profit organization aiming to promote the understanding and benefits of modernized electrical systems among all stakeholders in the United States. Membership is open to all consumer and environmental advocates, technology vendors, and electric utilities for sharing in research, best practices, and collaborative efforts of the group. Learn more at smartgridcc.org.

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This research was conducted by Research Into Action, a market research and evaluation services firm that provides actionable insights about audiences, markets, and processes, and is committed to increasing the responsible use of energy and natural resources throughout the nation and the world. Learn more at researchintoaction.com.

Executive Summary

The Smart Grid Consumer Collaborative (SGCC) conducted The Empowered Consumer (TEC) report to help its members better understand the preferences of consumers regarding a wide range of current and emerging Smart Grid-enabled services and technologies. The following report presents findings from 1,500 online surveys completed by consumers in a total of 16 states; nine states determined to be the most advanced in Smart Grid implementation and seven control states. The sample size of this study satisfies overall confidence and precision of 95% +/- 2.5%, and minimum of 90% +/- 10% within each of the segment and the sample state. This report also presents an analysis across five consumer segments, as well as results from two discrete choice analyses, which tested consumer preferences regarding smart thermostats and time-varying electricity rates.

TEC revealed practical, actionable insights for engaging consumers in Smart Grid-enabled services and technologies. These findings are best summarized as follows:

- Awareness and interest in Smart Grid services and technologies is more closely aligned with consumer segmentation than with geographic location. This suggests consumer awareness and interest do not depend on an existing Smart Grid infrastructure, but rather on the personal characteristics and motivations of consumers.
- Consumers need further evidence — such as testimonials — of the benefits of Smart Grid-enabled services and technologies. Real-world examples may establish confidence and trust, providing a strong foundation for engagement.
- Smart thermostat programs offer a range of opportunities for utilities to engage consumers — even with a low incentive and a demand response (DR) requirement — and may be the best first step given high levels of consumer interest in such programs.
- High consumer interest in time-varying rates demonstrates their potential as a load shifting tool for utilities. Consumer preference is highest for pricing options that have a modest price premium spread throughout the day. Offering consumers a choice of multiple time-varying rate options is likely to further increase consumer interest and participation.
- The more nascent technologies like smart appliances, onsite energy storage and smart homes offer an expanded set of opportunities for education and market development.

The following discussion addresses two key questions this report intended to answer:

What separates consumer perspectives on specific Smart Grid-enabled services and technologies?

TEC explored consumers' awareness and interest, as well as their perceived benefits and concerns, regarding the following nine Smart Grid-enabled technologies and services: *electricity usage tracking and alerts, time-varying rate plans, peak time savings, prepaid billing plans, smart appliances, device remote control, onsite power storage, rooftop solar, and Smart Homes.*

TEC also examined consumers' responses within a framework of five previously-determined segments: Green Champions, Savings Seekers, Status Quo, Technology Cautious, and Movers & Shakers. As shown in **Table 1** and previously described in SGCC's *Consumer Pulse and Market Segmentation Wave 5 Study*, each segment exhibits distinct levels of awareness, interest, and values around Smart Grid services and technologies.

Table 1: Characteristics of Each Segment

SEGMENTS	PERSPECTIVES	KEY DEMOGRAPHICS	AWARENESS AND INTEREST
Green Champions	<i>“Smart energy technologies fit our environmentally aware, high-tech lifestyle.”</i>	Youngest, more likely to be college educated	Highest levels of awareness and interest in almost all concepts
Savings Seekers	<i>“How can smart energy programs help us save money?”</i>	Younger, more likely to be college educated	Modest awareness level and high interest, especially peak time savings and time-varying rate
Status Quo	<i>“We’re okay; you can leave us alone.”</i>	More likely middle age low income renters living in non-single family dwellings, less likely to be college educated	Lowest levels of awareness and interest in all concepts
Technology Cautious	<i>“We want to use energy wisely, but we don’t see how technologies can help.”</i>	More likely homeowners who are older in age, less likely to be college educated	High levels of awareness and low interest in all concepts except smart appliances
Movers & Shakers	<i>“Impress us with smart energy technology and maybe we will start to like the utility more.”</i>	More likely middle age high income single-family homeowners, and college educated	High levels of awareness but moderately low interest in all concepts except smart appliances

Survey findings revealed distinct differences among the five segments in relation to engagement tactics and certain services and technologies; however, there were very few significant differences by geography. This lack of a geographic correlation countered initial hypotheses that consumers in “advanced” states who have been exposed to an existing Smart Grid-enabled infrastructure and programs would be more knowledgeable, and therefore more likely to embrace these new opportunities.

TEC findings also indicated that more than 50% of consumers are already aware of the nine products and services tested — except the most nascent technology, onsite power storage. Consumer interest in future adoption is highest for smart appliances and peak time savings. Although consumers value potential bill reduction and increased convenience as the most important benefits, the most commonly mentioned concerns in adopting Smart Grid programs are costs associated with acquiring these services and technologies, diminished control over their home features, and the authenticity of bill savings claims.

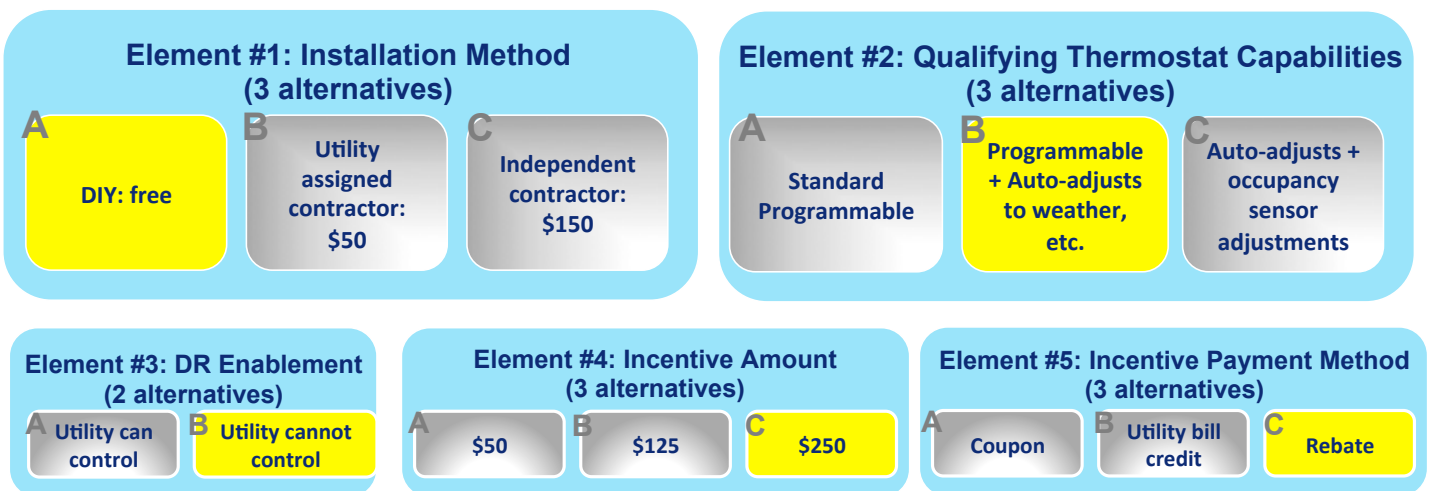
Stakeholders across the country may take advantage of these insights to reach consumers and advance Smart Grid services and technologies, regardless of whether there is an existing Smart Grid infrastructure. These findings provide a look into the unique characteristics of each audience, which can be leveraged to further tailor messaging and communications to engage a broad array of consumers.

What do consumers look for in smart thermostat and time-varying rate programs?

To further define how utilities can design future programs using Smart Grid technologies in light of consumer preference, TEC tested options for smart thermostat programs and a set of alternative rate programs using a discrete choice technique. The first discrete choice analysis simulated more than 160 possible configurations of utility-sponsored smart thermostat program elements (for example, installation methods, thermostat capabilities, demand response (DR) enablement, incentive amounts, and incentive payment methods).

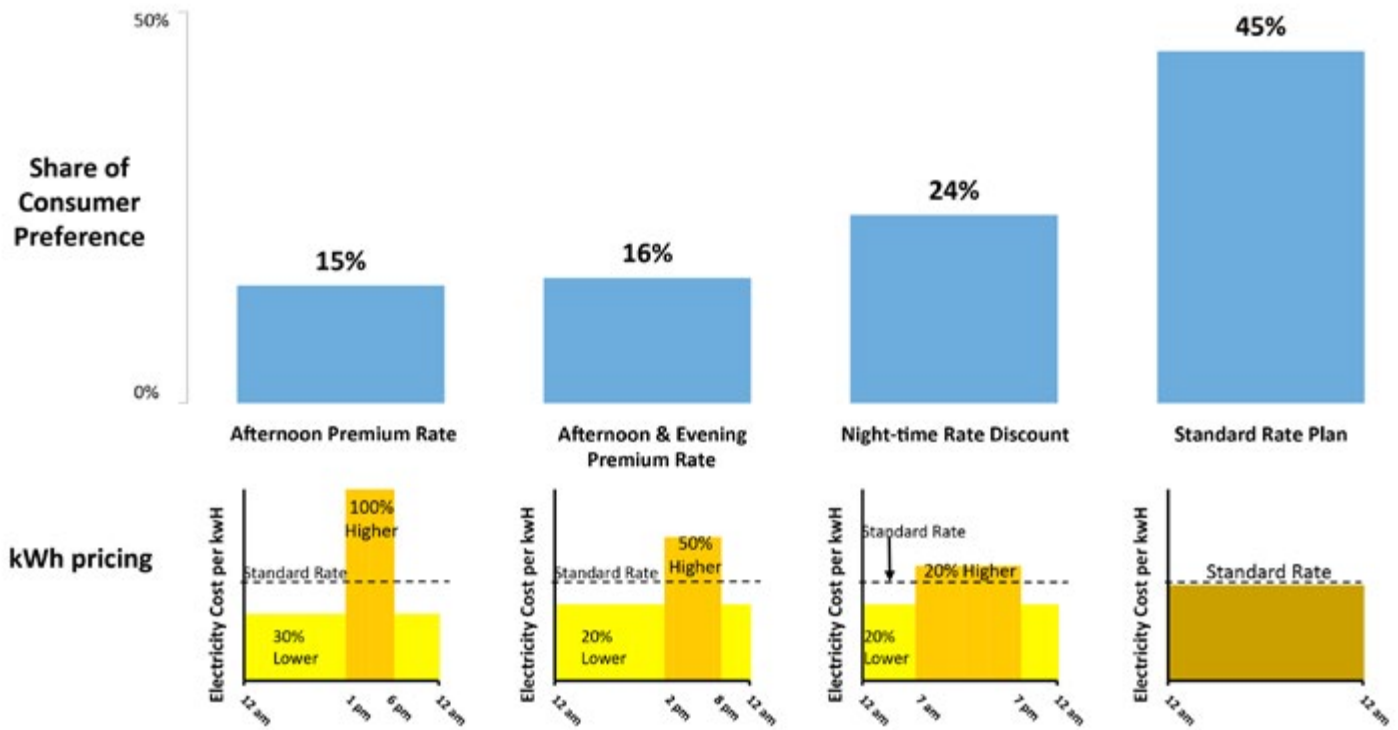
This analysis highlighted the program configuration that would likely attract a majority of consumers: a free (full cost incentive), self-installed smart thermostat that provides both programmable and automatic adjustments, without utility control capabilities. This analysis also revealed that consumers are not particularly sensitive to the participation incentive offered or to whether DR is enabled on the thermostat under this optimal program configuration. Hence, utilities may successfully develop programs with lower incentives and some measure of utility control, without losing a significant number of program participants.

Consumers' Most Preferred Smart Thermostat Program Configuration



The second discrete choice analysis compared three peak-pricing plans, each with different premium rates and peak-time durations, to a standard fixed rate plan. The analysis also considered other program elements including a bill cap, contract duration, and access to usage tracking and alerts. The analysis revealed that more than half of consumers would prefer time-varying rates over a standard rate plan, especially if offered a choice among multiple time-varying rates. This is a stronger level of support than expected.

Estimated Share of Consumer Preference When Offered a Choice among Three Time-Varying Pricing Plans versus a Standard Rate Plan



A closer examination of respondent demographics revealed further insights on how to increase consumer participation in time-varying rate plans. For example, most consumers, regardless of their general segment or specific demographic characteristics, preferred the “night-time rate discount” option; however, overall openness to the idea of a time-varying rate plan did vary by specific demographic characteristics. These initial findings point to potential opportunities for marketing. The openness of certain consumer demographics (for example, those who are college educated) to time-varying rate plans indicates they may represent important initial target audiences for messaging and outreach efforts.

Data from this research identifies what consumers want and evaluates their propensity to adopt and participate in a variety of Smart Grid-enabled programs. These findings are intended to serve as a basis for how to best design and develop future programs to maximize consumer participation and satisfaction with their utility.

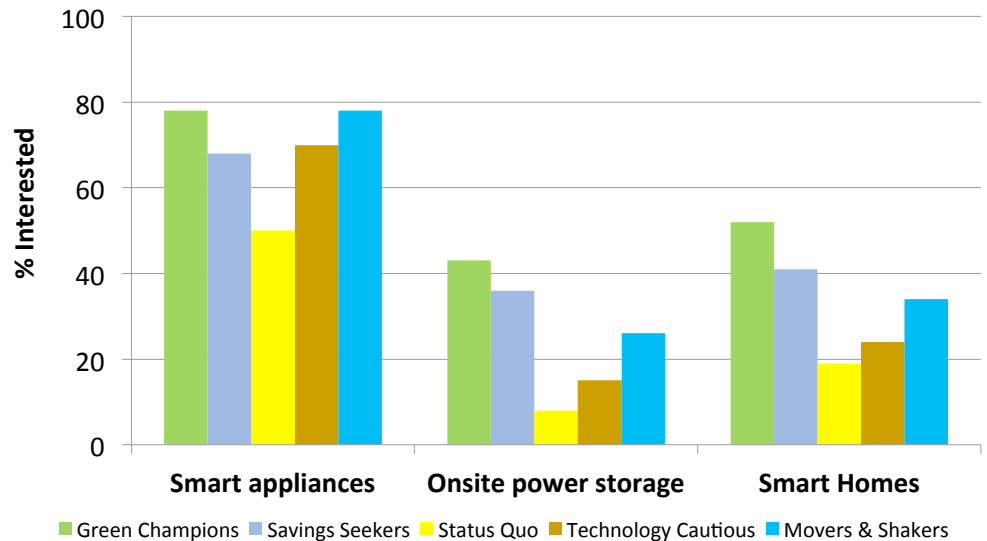
Opportunities for Consumer Engagement

The findings of this study showcase the evolving views of consumers, revealing the breadth of opportunities available to increase consumer engagement and satisfaction for energy providers and technology vendors alike.

- Since consumer awareness and interest in Smart Grid services and technologies better aligns with the characteristics that constitute individual consumer segments, a renewed focus should be applied to segmented offerings. Understanding that today’s consumers have come to evaluate products and services through a lens that blends their unique perspectives on technology, ease of use, and financial freedom further debunks the idea that one size still fits all.

- With more than 68% of consumers indicating that they are interested in participating in a smart thermostat program, broad opportunities for consumer engagement exist. As findings have indicated, consumers are the most willing to act when there is limited financial risk accompanied by low barriers to entry — in this case, the preferred program allows the consumer to recoup at least half the cost of their investment while avoiding installation costs or service calls through a DIY installation.
- In today’s world where customization (colors, flavors, sizes, etc.) is commonplace, consumers are looking to their energy providers to also offer choices unique to them. With more than half of consumers willing to adopt a time-varying rate plan, targeted offerings and educational campaigns, based on consumer segmentation, offer good opportunities to strengthen local grids by using multiple price points as a catalyst to adjust consumer behavior.
- Consumers in all segments are interested in smart appliances — one of the Smart Grid technologies that is still maturing. This interest is an opportunity for industry stakeholders to educate and bring consumers along as the technology matures. Offers that help consumers address the initial purchase cost hurdle and provide easy to use controls will leverage the interest that is already there and should help accelerate adoption.

Consumer Interest by Segment



Aligning offerings with the varied consumer interests and concerns discussed throughout this report, the Smart Grid industry has the potential to engage a broader spectrum of consumers than currently done to date. Further modernizing our nation’s electrical grid will continue to empower consumers to transform their values and interests into actions.

SGCC Wishes to Thank the Following Companies for Their Assistance in This Project:





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