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consumer
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The Empowered Consumer

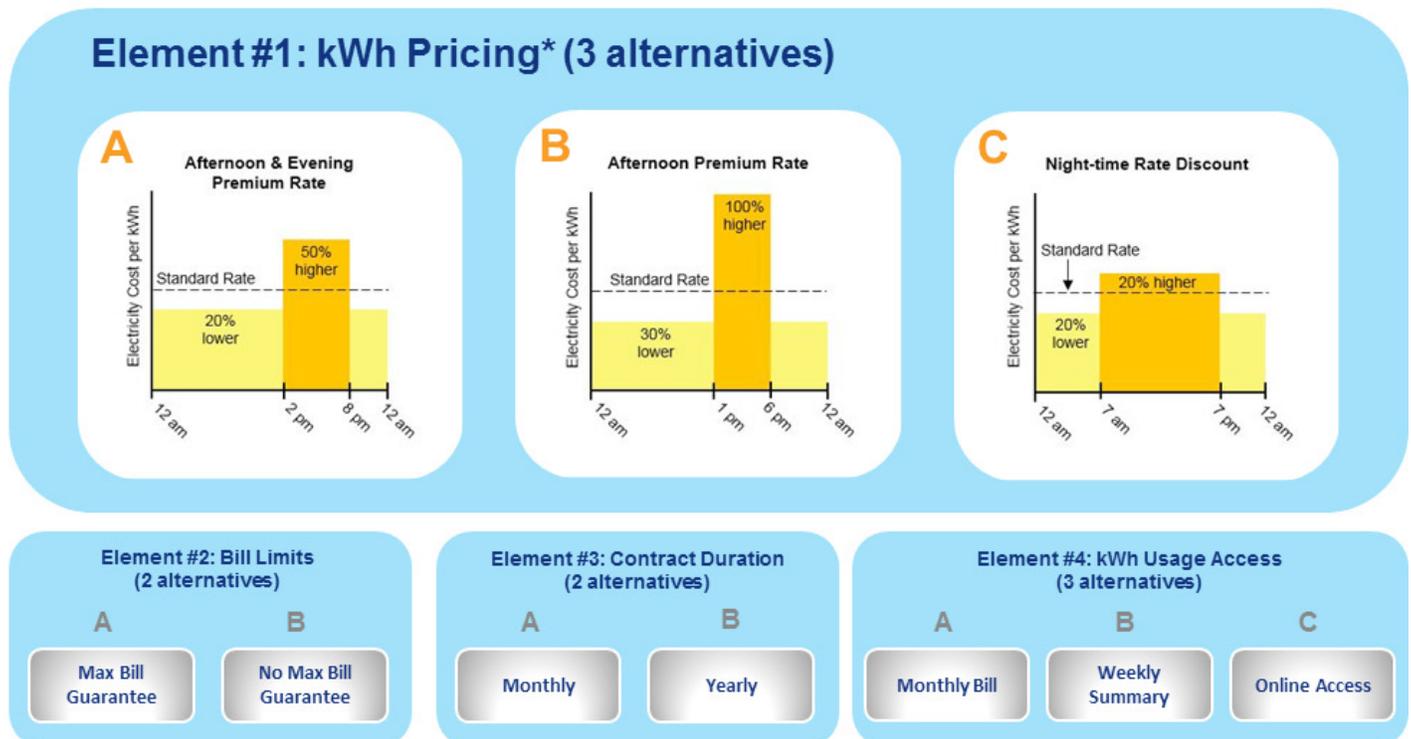
Time-Varying Rates: Catalyzing Behavioral Changes in Electrical Usage

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.

Figure 1



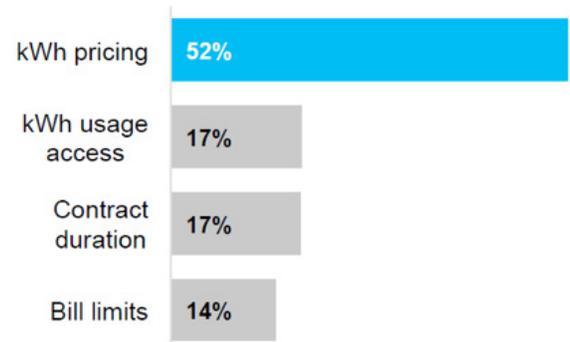
Time-Varying Rate Key Findings

TEC analysis revealed that up to 55% of consumers are interested in enrolling in a time-varying rate plan when given the option over a standard rate plan. Furthermore, up to 60% of consumers are interested in enrolling in a time-varying rate plan when they are presented with the opportunity to choose from an offering of three various time-varying rate plans alongside a standard rate plan. Whether consumers were given the opportunity to choose a single time-varying rate plan or from the three variations tested, consumers exhibited a strong preference for a night-time rate discount. This plan in particular is easy for consumers to understand because the time frame is a simple 12 hours on-peak and 12 hours off-peak schedule, the peak charge premium is modest in scope, and it limits their financial risk.

Conjoint Analysis Deep Dive

Using a conjoint analysis, we implemented a holistic approach to understanding consumer preferences for the various elements that comprise a time-varying rate plan outlined in *Figure 1*. What we found was that consumers placed the greatest importance on kilowatt-hour (kWh) pricing by more than a 3:1 margin as detailed in *Figure 2*. As the kWh pricing scheme is the only element that significantly affects predicted participation rates, other tested rate plan elements (maximum bill limits, contract duration, and how usage is tracked) are predicted to have a minimal effect on rate plan preferences. Thus, energy providers have a degree of flexibility with these [non-kWh pricing] elements when designing time-varying rate plans.

Figure 2

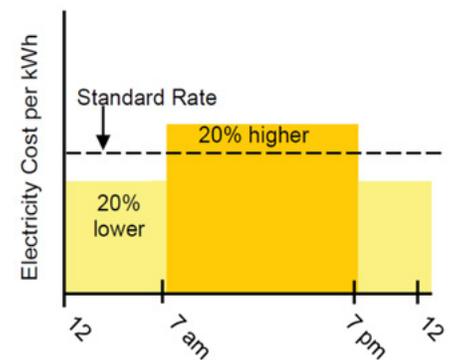


The Value of Choice

TEC analysis revealed that an increasing number of consumers expressed an interest in enrolling in a time-varying rate plan when they were presented with the opportunity to choose from multiple options. When survey respondents were given the opportunity to select either a time-varying rate plan (randomly selected from the three options tested) or a standard rate plan, 55% of consumers chose the time-varying rate plan. Given the opportunity to see all three tested time-varying rate plans, and the standard rate plan, 60% of consumers exhibited an interest in enrolling in a time-varying rate plan.

The Most Preferred Option: Night-Time Rate Discount

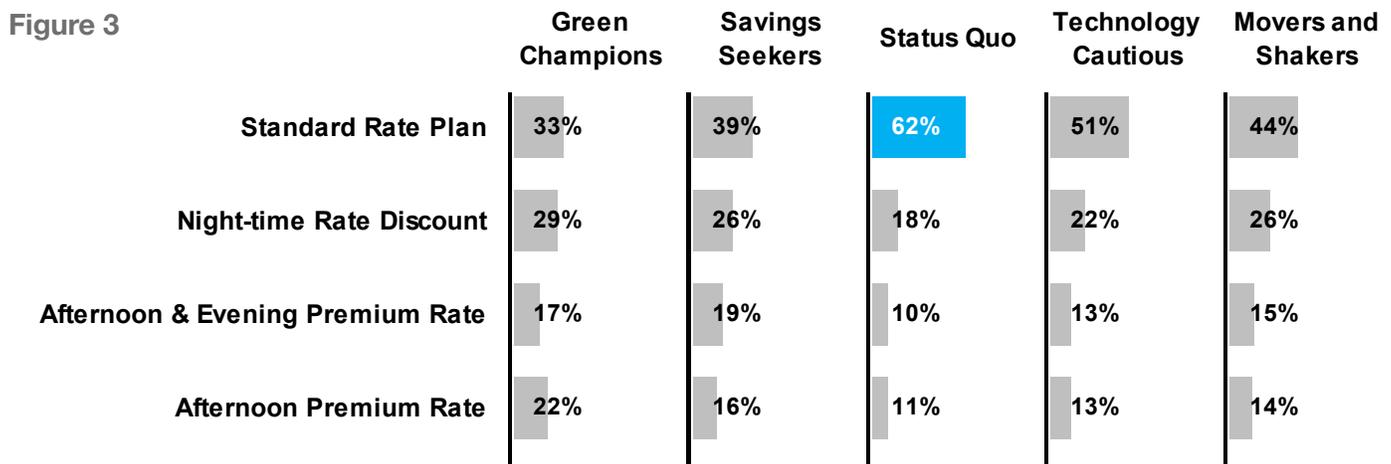
Whether consumers were presented with a single time-varying rate plan, or all three time-varying rate plans, there was a preference for the night-time rate discount plan. When presented with the single option, 24% of respondents chose the night-time rate discount plan, and when presented with all three options, 30% of respondents favored the plan. The night-time rate discount offers modest price premium spread out across the day (20% higher / 7 AM–7 PM) and modest discounts throughout the evening and night (20% lower / 7 AM–7 PM), limiting financial risk for the consumers. As ease of use and comprehension are at the forefront of expected enrollment, consumers understand that energy intensive activities performed throughout the day will only moderately affect their electric bill, and that they may pay less if these activities are performed at night.



Time-Varying Rates through the Lens of Consumer Segmentation

Building on these findings within the context of SGCC’s consumer segmentation, TEC further analyzed the demographic characteristics of consumers who preferred one of the time-varying rate plans versus a standard rate plan, detailed in *Figure 3* below. Most, regardless of their general consumer 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 characteristic. More than two-thirds of younger (18–44 years old), college educated, and/or wealthier consumers (\$100,000 or higher incomes) preferred time-varying rates over standard rates. Strong interest exists in older, less educated and low-to-moderate income consumer demographics as well. Fully half of these consumers prefer a time-varying rate. A thorough understanding of these preferences requires further research; however, initial findings point to many potential opportunities. For example, the openness of certain consumer demographics (such as, those who are college educated) to time-varying rate plans indicates they may represent an important initial target audience for marketing and outreach efforts.

Figure 3



The 62% of “Status Quo” respondents who chose the standard rate plan is highlighted in blue as this is a statistically significant finding for that consumer segment

Understanding and Accepting the Status Quo

While TEC results have revealed that up to 60% of consumers have expressed an interest in enrolling in a time-varying rate plan, there are still 40% of consumers who have no interest in doing so. Despite the program configuration, pricing discounts, contract durations, or usage access, these consumers do not want to accept a change. Findings such as this serve to further highlight the importance of utilizing a consumer segmentation to assure the targeted delivery and design of program information.

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).