

Unlock the Full Potential of Customer Surveys

By Power System Engineering, Inc. (PSE)

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be the first step of any
strategic plan.



Introduction

Historically, many utilities have performed surveys of their customers simply to collect satisfaction data or because regulators require them. But some utilities are beginning to add questions regarding customer attitudes, demographics, and behavior. Improving these existing surveys maximizes the work many utilities are already putting in, and the additional data can help a utility streamline its existing programs and target new marketing efforts.

The information collected by a carefully constructed survey can help utilities identify many strategic opportunities. A detailed understanding of your customer base should be considered the first step of any strategic sales plan. Improved surveys can provide information regarding equipment saturations, current trends, motivating factors for special rate program participation, and preferred marketing messages and channels.

This article discusses how customer surveys can be expanded and used to increase profitability. We discuss some of the important considerations in obtaining an appropriate sample. We also present a simple example of how customer information can be used to identify “low-hanging fruit,” the programs or initiatives that can quickly and cost-effectively increase corporate profits and management buy-in.

A well designed survey will help the utility make accurate inferences about their population.

Survey Applications

Many utilities are leaving millions of dollars in savings on the table because they are not optimizing utility programs. But, by incorporating customer data, many programs and analyses can be improved, including load forecasts, IRPs, DSM and EE studies and pilots, and engineering surveys. Studies have found that individual customers react differently to utility initiatives based on socioeconomic conditions, education, housing footprint, and household characteristics (e.g. family size and composition). One tool a utility can use to gather this information is a survey.

Why Choose an Expert to Design Your Survey?

Research shows that a poorly designed survey can lead to misleading results; however, if the survey is done correctly, the results can add considerable value, while lowering the chances of negative customer feedback.

One of the key goals of a survey is to allow inferences to be made about an entire population without collecting data on every household. These inferences are dependent upon several critical issues. If survey questions are designed incorrectly, they can introduce serious bias into the data and nullify your efforts. Factors that can influence bias include survey length, question sequence, question wording, and question response type. A well-designed survey with questions phrased and ordered correctly, and distributed to a representative sample, will ensure your utility is making more accurate inferences about your population.

Sampling

One aspect of survey design that requires expert attention is sampling. Proper sample methodology minimizes data collection and analysis costs, as well as potential bias. The art of establishing the final sample is a critical task. Decisions made using inaccurate conclusions can have serious negative impacts, so accurately reflecting your population is the primary concern in drawing any sample.

There are several types of sampling methods. A “simple random” sampling method is one of the most common, and it is adequate in most cases to determine, for example, appliance or equipment saturations for load forecasting. A “stratified random” sampling method is more sophisticated, and it enables you to distribute the survey to a smaller number of customers. This can significantly reduce costs, especially if load research meters will be installed to supplement the survey data.

Survey Design Details that Require Expert Attention:

- Sampling
- Questions and Responses
- Data Collection

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A well-constructed stratified sample can help guarantee that enough observations from each customer segment are available to provide a measurable comparison between customer groups, whereas a simple random sample has a risk of having too few observations to draw statistically significant comparisons.

Therefore, before a survey is designed, it is critical that the strategic goals of the survey be outlined. The sample should then be developed based on these goals to ensure that an adequate number of responses will be available to identify statistically significant strategic insights.

An improved survey may help to answer the following questions:

- What are the motivating factors of program participants?
- What customer attributes can be used to predict program participation?
- Which marketing messages tend to be preferred by participants, and which tend to turn people away?
- What marketing channel is most preferred for communicating program information?

The answers to these questions, and more, can help a utility build a detailed plan for strategic energy sales.

Questions and Responses

Within the survey itself, question order and phrasing can influence the responses you receive. Thus, careful ordering and wording is necessary to minimize bias and ensure accurate results.

Here's an example. End-use customers desire a low-cost system that offers high reliability. These conflicting demands require the T&D planner to make trade-offs between reliability and cost, and utilities can use a survey to gauge the value customers place on reliability. But these questions must be properly worded in order to avoid skewed results. For example, consider the difference between asking, "How much would you be willing to pay a month to reduce outages?" and asking, "How many minutes of outage time will you accept, if it means rates will not be increased?" Both questions are after the same information, but the two may yield very different results.

Similarly, the phrasing of the question, "Would you be willing to face higher bills in order to reduce outages?" could skew the responses negatively, whereas customers may be more receptive to "paying slightly more for better reliability."

When evaluating an investment (such as smart feeder switching) or a process change (such as tree trimming or pole inspection cycles), the cost should not exceed the benefit, so obtaining accurate information from customers is key. A survey can help you determine, for example, that customers are willing to pay \$10 more per year to reduce outages by ten minutes annually. That kind of information can help justify investments as well as retain satisfied customers.

Data Collection

Another source of potential bias is the method chosen to collect data. With the recent move away from landline telephones, and the presence of "do-not-call" lists, there are significant population segments that cannot be reached by phone. For most utilities, surveys by mail represent the most effective way to reach their entire population, but a combination of distribution methods (e.g. mail, phone, and internet) can help ensure that all customers have the option to complete the survey by their preferred method.

The chart below includes some of the advantages and key drawbacks of the three common survey distribution methods.

Distribution Method	Advantages	Key Drawbacks
Phone	Can clarify questions	Significant gaps in ability to reach certain segments of the population (younger and lower-income customers may be underrepresented)
Internet	Inexpensive	Significant gaps in ability to reach certain segments of the population (older customers may be underrepresented)
Mail	Billing data allows the reaching of all cooperative customers	Concern that responses skew to older demographics

While establishing its DR program, the utility can use a survey to help determine which customers can help achieve the greatest reductions.

Using Survey Data to Enhance Marketing of a DR Program

In many demand response (DR) programs, the utility encourages its customers to reduce their peak in order to help the utility avoid additional power supply capacity. While establishing its DR program, the utility can use a survey to help determine which customers can help achieve the greatest reductions. In this section, we will walk through a simple example of how to identify the “low-hanging-fruit” on the system. For the purposes of this DR investment, a well-designed survey will facilitate:

- Earliest possible maximization of returns on investment.
- Highest possible early program satisfaction, leading to positive word-of-mouth, leading to better chances for successful future marketing.
- Early success will maximize the likelihood of program buy-in from interested parties.

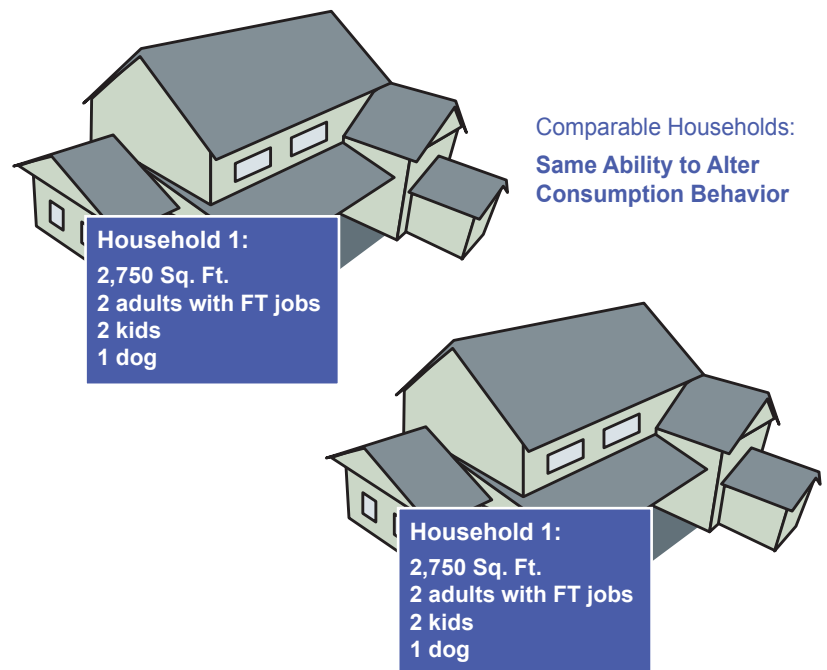
While this DR example is simple, the theory is to **identify** those customers on your system who are most likely to use the program, be satisfied, and demonstrate a return on investment for the utility, and then actively **develop** a program based on these customer attributes, and strategically market and **deploy** the program to a receptive customer base.

The survey is used to identify customer attributes, preferred marketing channels, and preferred marketing messages that will provide the utility with the best way to strategically target these customers. This process offers the utility better chances for early program success than simply opting for a general rollout of the program; in a “blind” rollout, disinterested parties may actually represent a threat to the long-term sustainability of the new program.

Identifying Preferred Marketing Channels

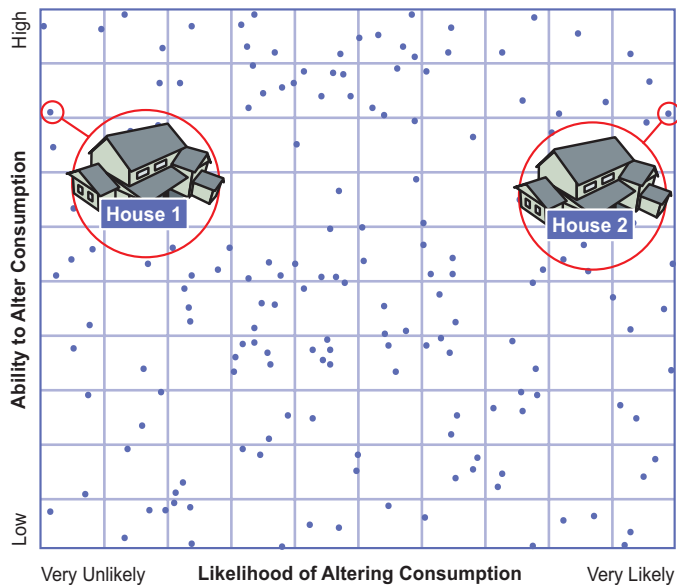


The survey is able to identify different attributes that will help with the marketing beyond just appliance types. In the following example, the households have the same physical attributes; however, the likelihood that they will participate and reduce peak is different. A combination of survey questions can measure a person’s attitudes toward DSM programs and gauge their interest and possible reduction level.



The survey includes a sequence of questions that will gauge the household’s likelihood of altering energy consumption given a certain set of conditions. Now the utility knows household attributes as well as the likelihood of altering consumption.

Ability to Alter Consumption Vs. Likelihood to Alter Consumption



While both households could provide substantial peak reductions, it makes more sense to focus on House 2.

As shown below, it makes more sense to market to those consumers you know will give larger reductions compared to those who may need more convincing. Thus, using this technique, marketing strategies can be refined and targeted to customers who will be more willing to help your utility achieve its kW savings goals.

Comparison of Survey Findings

Household 1	Household 2
High ability to shift consumption	High ability to shift consumption
Low likelihood of reduction in peak usage	High likelihood of reduction in peak usage
More likely to be “dissatisfied” with program = bad word of mouth	More likely to be “satisfied” with program = good word of mouth
Threat to program success	Key to program success Low hanging fruit

Conclusion

A properly designed sample and survey is a powerful tool to help gain a deeper understanding of your system in the most cost-effective way.

PSE can team with you to make the most from your surveys. We can design and implement a survey that provides your management team with valuable information to support your strategic decisions.

PSE combines our market research capabilities with experts who regularly work with electric utilities on a wide variety of engineering and economic issues. We have helped utilities design, pilot, implement, and analyze numerous types of DR programs, so we know what survey questions are important. Our team can help implement surveys designed to measure specific questions related to energy efficiency, demand response, load forecasting, load research, customer satisfaction, and T&D planning activities. These survey questions can help you tailor your programs to maximize demand reductions and other savings.

Contact Chris Ivanov at 608-268-3516 or ivanovc@powersystem.org with any questions regarding PSE’s survey capabilities.



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