

# Crafting a Persuasive Smart Meter Customer Experience

**PUBLISHED IN *METERING INTERNATIONAL AS***

Honebein, P. C. and Cammarano, R.F. (2008), Crafting a Persuasive Smart Meter Customer Experience. *Metering International*, January(1), 102-105.

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January 7, 2008 | Final

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# Crafting a Persuasive Smart Meter Customer Experience

By Peter C. Honebein and Roy F. Cammarano  
January 7, 2008

Smart Metering is sweeping the world, with many short and long term benefits being associated with this trend. For most electric utilities, the business case for investing in Smart Meters is solidly based upon increased operational efficiencies and process changes which require improved employee performance. For other utilities, the business case must also include achievement of demand response and energy efficiency goals, which requires improved customer performance.

The purpose of this article is to provide you ideas for designing Smart Meter customer experiences that enable customer performance. Customer performance occurs when customers are willing and able to take specific actions that contribute to achieving the demand response and energy efficiency goals that are often part of the Smart Meter business case.

## The Four Facets of Customer Performance

Economists have long been the oracles of strategy for shaping customer behavior with regard to demand response and energy efficiency. For example, if you significantly increase the price of electricity on a peak day, most customers reduce consumption provided they have been informed and believe that they can take action.

The theory of price elasticity is often met with the reality that price is a sensitive issue for utility customers, and it can easily cause customer backlash and ultimately restrictive legislation. Thus, triggering a significant change in customer performance rarely rests on one strategy. Rather, coordinated, sustained change requires an orchestration of strategies. In our work with a variety of companies, across a wide range of disciplines including utilities, we have found that the four key strategies for enhancing customer performance and changing customer behavior are Vision, Access, Incentive, and Expertise.



*The Four Facets of Customer Performance: Vision, Access, Incentive, and Expertise*

## **Vision**

Vision is showing customers the kind of performance you want from them, and then providing feedback on how well they are achieving the desired performance. The combination of these two elements packs a powerful one-two punch for getting customers to perform differently. Researchers clearly demonstrated over 30 years ago that the combination of a goal and feedback increases performance three-fold when compared to using these tactics individually.

A similar effect with energy usage and Smart Metering was discovered by researchers in the Netherlands. They found that a goal to reduce energy consumption (10%) combined with a real-time feedback device resulted in increased performance. Consumers with the real-time feedback device exceed the goal, reducing their consumption by 12%. Customers with feedback that was less frequent couldn't manage more than an 8% reduction.

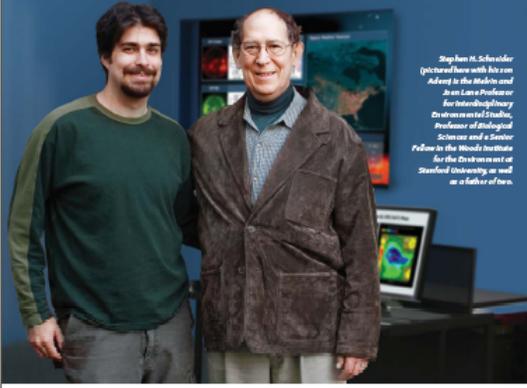
These results have an obvious recommendation for Smart Metering: inform customers of the goal, and then tie the data (feedback) from the Smart Meter to that goal, ideally in real-time.

Goals for demand response and energy efficiency come from a variety of sources. One source for these goals is your Smart Meter business case. The business case should describe the demand response needed on a peak day, from which you can calculate a rough reduction percentage customers need to achieve.

A second source for goals is consumer behavior research. The Netherlands research above suggests that 12% is an achievable goal. Research from California suggests a reduction goal of 14% for customer with central air conditioning, and 8% for customers without air conditioning.

A third source for goals is third-party organizations. The Sierra Club has recently started its 2% Solution campaign. The aim of this energy efficiency campaign is to encourage people to reduce energy consumption by 2% per year over the next 40 years. Plus, it has a connection to the broader goal of environmental stewardship.

"It is time for action. Today is the day to start protecting our children's tomorrow."



Stephen M. Schneider  
 (pictured here with his son  
 Adam) is the Martin and  
 Jean Lane Professor  
 for Interdisciplinary  
 Environmental Studies,  
 Professor of Ecological  
 Science and a Senior  
 Fellow in the Woods Institute  
 for the Environment at  
 Stanford University, as well  
 as a father of two.

I have spent my professional life on global climate research and can tell you there is still time to curb the most dangerous effects of global warming. But to do so, government, businesses and individuals must work to cut carbon emissions by 80% by the year 2050. It sounds like a big number, but in fact this is achievable with a 2% annual reduction in emissions, starting this year. There are many things you can do to reduce your carbon emissions on the state and local levels, but also from your home, car and office. The most important thing is to remember why you need to take action. Our children and the world they will inherit are counting on us.

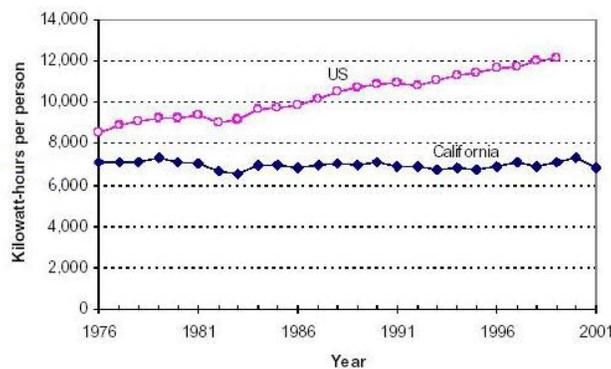
LEARN MORE ABOUT HOW YOU CAN BE PART OF THE 2% SOLUTION. VISIT [www.sierraclub.org/twopercent](http://www.sierraclub.org/twopercent)



Empire, we go and protect the planet  
[www.sierraclub.org](http://www.sierraclub.org)

*Sierra Club's 2% Solution Campaign*

A fourth source of goals is historical trends, especially if they are a source of pride or competition. For example, the graph below illustrates per-capita electricity consumption in the United States. The graph shows that California has remained relatively constant for 25 years, at about 7,000 kW per person, while the rest of the country has steadily increased to 12,000 kW per person. Thus, for Californians, the goal is to maintain or reduce their per-capita kW consumption. For other states, perhaps the goal is to catch up with California.



*Comparison of California's per capita energy consumption with the rest of the United States*

A fifth source of goals is customers themselves. While many of the goals we've discussed involve some organization setting goals for a customer, we must not forget customers setting goals for themselves. In our research, this typically reflects customer desire to set a dollar amount for how much they want to spend on electricity each month.

With the goal set, data from the Smart Meter can guide customers in achieving the goal. That's the loop that you need to close. Each of the goals described above requires that there is a clear, easy-to-understand feedback loop. For example, when a person buys a Toyota Prius, they have a goal to achieve a certain number of miles per gallon of gas. What helps them achieve this is the Prius' Energy Monitor, which displays immediate and average miles-per-gallon information. Thus, customers can instantly see the effects of putting the pedal to the metal, driving the speed limit, and sitting in traffic.



*The Toyota Prius' Energy Monitor displays feedback to the driver.*

### **Access**

Access is providing customers the tools they need to perform. Obviously, a key tool utilities are providing customers is the Smart Meter itself. Does this tool have an interface that is useful to the customer? No, but utilities can connect it to a system of other tools that provide useful interfaces to customers.

Let's first discuss tools for providing feedback. In our research, it is evident that customers prefer real-time, information-push tools (in-home displays) over historical, information-pull tools (web presentment, paper bills). The reason is effort. An in-home display requires no effort – you place it in a visible place and it tells you how much you are consuming. Web presentment, on the other hand, requires effort. You need to go to your computer, connect to the website, enter your username and password, and then navigate to the information. But there is a cost to consider. Customers typically must purchase in-home displays, whereas web presentment is typically provided to customers with a computer and internet access for free.

To make web presentment more alluring to customers, organizations create user interfaces that are both attractive and functional. A compelling user interface we've seen implemented was created by Oberlin College and their partner, the LucidDesignGroup. This interface provides energy consumption data for each of the college's dorms. You can view data by the hour, day, or month, and select a "currency" that expresses an emotionally-linked consumption unit: watts, lightbulbs, fuels, automobiles, burgers, and dollars.



*Oberlin College's Dorm Energy Web Presentation System*

Other tools that utilities should consider integrating into their Smart Meter system are email, text messaging, and voicemail. According to the Pew Internet and American Life survey, 91% of internet users between the ages of 18 and 64 send or read email. Most developed countries now have cell phone penetration exceeding 75%. The widespread adoption of these technologies makes them ideal communication vehicles to communicate not only feedback to customers, but goals as well. California's Flex Your Power program offers FlexAlerts, which notify consumers of statewide demand response events via email or text messaging.

Another kind of tool that utilities are offering customers is passive demand response systems. Examples of this are automated air conditioning and pool pump cycling. Gulf Power's Good Cents Select program offers customers a Smart Meter and a programmable, controllable thermostat. These tools allow Gulf Power to automatically control the customer's air conditioner, pool pump, and hot water heater.

The advantage of these kinds of tools is that customers don't need to do anything to respond to demand response events. The utility raises the customer's thermostat or turns off the pool pump. Yet many customers are wary of these kinds of passive tools due to the customer's perceived lack of control or mistrust of the utility. The most requested requirement when we discuss these systems with customers is that there is a manual override.

### **Incentives**

Incentives provide customers an external motivator to perform in a specific way. Incentives are typically required for any kind of new customer performance involving new technologies. For example, when Southwest Airlines introduced its online reservation system, it offered customers the incentive of double Rapid Rewards points for booking tickets online. This encouraged customers to book online rather than on the phone. Other airlines, such as American Airlines, combine an incentive and disincentive. If you book a

reservation online, you earn 1,000 miles (an incentive). If you book a reservation by phone, you're charged \$10.00 (a disincentive). Both types of incentives are often necessary to initiate customer performance.

Similar to the airline examples, utilities need a similar strategy for driving customer adoption of Smart Meter-related demand response and energy efficiency behaviors. The strongest incentive utilities control is dynamic, time-based pricing. Making electricity inexpensive at times of low demand is an incentive that motivates customers to push certain activities into different hours. For residential customers, this might mean washing clothes in the evening rather than the day. For commercial customers, it might mean pre-cooling buildings or changing a manufacturing schedule. The disincentive, of course, is the higher prices charged during peak times, especially during critical peak times when the cost of electricity is significantly higher than normal. These pricing schemes are affectionately known as "sticks", which reflect their punishing nature. And the research shows that they are very effective.

Some utilities, however, may opt for more of a "carrot" approach in their pricing, which is all about rewards. This incentive is a "peak time rebate", and it rewards customers when they reduce consumption on peak days. For example, if customers reduce consumption on a peak day (when compared to a preceding five-day average), they earn some specific dollar per kWh rebate.

Which approach is better, the carrot or the stick? Economically speaking, for residential customers both options are relatively equal. Over the course of a year, if an average customer uses less electricity on peak days, they could either earn \$50 in rebates, or avoid paying \$50 in additional charges. But from a consumer psychology perspective, the \$50 carrot has less perceived motivational influence than the \$50 stick.

We do know from customer interviews and data from Whirlpool Corporation that \$50 may be a weak motivator for energy-saving behaviors that make customers less comfortable. Thus, a package of incentives may be a better strategy. There is some evidence that suggests that non-price incentives, such as surge protection insurance, outage notification services, and green power options that are included as part of the Smart Meter package, have additional motivational benefits.

### **Expertise**

Expertise reflects the knowledge and skill customers must acquire to be able to perform tasks. To provide customers knowledge and skills, utilities use a variety of customer education solutions. But before picking solutions, it is important to know what customers want to know, and when they want to know it.

Like any new innovation, Smart Meters involve customers across three distinct phases: before, during, and after. In the before phase, customers are first introduced to Smart Meters. They want to know who, what, why, when, where, and how regarding the technology, with a heavy emphasis on the benefits. After all, if the Smart Meter doesn't offer anything interesting or compelling, then customers will direct their attention

elsewhere. Often it is directed towards the loss of jobs at the utility and in some instances a resistance to the technology causing the loss of jobs.

In the during phase, the focus is Smart Meter installation. For some customers, like those in California and Ontario, Canada, there isn't a choice – everyone gets a Smart Meter. But in other locations, such as Florida, Smart Meters are an optional service. Regardless, customers want to know when the Smart Meter is going to be installed, and what they need to do to prepare for installation.

Finally, in the after phase, customers want to know how to use the technology to their benefit. Customer need to understand such complex topics as dynamic rates and demand response. They may even want to learn how to use associated tools, such as web presentment and in-home displays.

Given that over 70% of people in the U.S. have broadband internet access, the web becomes an attractive, single-source solution for all Smart Meter education. All kinds of content, from articles to videos to Flash-based tutorials, can be centrally located and distributed via the web. For example, Ontario, Canada's Hydro One provides not only a Smart Meter Answerbook on their website, but also an installation video and an installation photo gallery. Gulf Power's Good Cents Select program provides a video, which is aimed at selling this optional service, as well as text-based information. Chicago-based Commonwealth Edison, along with their partner Converge, provide compelling Flash-based Smart Meter education at [www.theWattSpot.com](http://www.theWattSpot.com).

Since most Smart Meter initiatives receive minimal funding for customer education, distribution of educational materials beyond the web must be carefully considered. Bill inserts, direct mail, and door hangers are the most likely media for educating customers, as are public events. Advertising through newspaper, TV, and radio is an option, but it is expensive and may not be cost effective if your Smart Meter installation spans several years. The same holds true for traditional public relations efforts.

A promising strategy is using third-parties to educate customers about Smart Meters. An ideal context is schools. The schoolchildren of today are the generation in which Smart Meter systems will be a part of their everyday lives. Content involving Smart Meters may be integrated into science classes, and Smart Meter systems in the schools can be integrated into curricula.

## **Conclusion**

In this article we have provided a model that orchestrates various elements of a Smart Meter system to drive customer performance. The primary customer performance utilities desire is participation in demand response events. Secondary performance is energy efficiency. To achieve desired customer performance, utilities must structure a customer experience strategy that orchestrates vision, access, incentives, and expertise.

As you begin to craft your Smart Meter customer experience strategy, keep these principles in mind:

1. Know your customers. Identify who you see are the innovators and early adopters in your market, and target them. Also, note that there are significant differences between residential and commercial customers, and each will require its own strategy.
2. Create your Smart Meter experience by design, not by default. Develop a marketing strategy for your Smart Meter implementation. If possible, conduct controlled experiments to prove the tactics you use to support the strategy.
3. Give customers choices. Avoid providing customers only one option. Rather given them a choice of services that accompany the Smart Meter system. Utilities can utilize draconian methods of compliance, but this will not facilitate customer satisfaction. It will result in a rate payer who is potentially hostile.
4. See customers as co-creators of value. Recognize that once you put the technology in their hands, customers will be the ones to figure out how to best use it. Be sure to capture their innovations and use them as models for other customers.
5. Reduce the effect of silos. Although a part of most organizations, silos are a significant threat to a seamless customer experience. Be sure to envision the Smart Meter experience from the customer's point of view, and not just the utility's.

#### **About the Authors**

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