Customer Segmentation – Silo Busting to Delight Customers

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ABSTRACT

In 2008, Pacific Gas and Electric Company (PG&E) brought its Energy Efficiency Portfolio to a successful close, exceeding all of the energy savings goals set by the California Public Utilities Commission (CPUC). The 2010–2012 three-year portfolio, approved in September 2009, ups the ante, requiring PG&E to meet even more challenging energy savings targets. To realize these higher goals, PG&E plans to deliver its program by offering integrated solutions targeted to specific customers segments. Ultimately, PG&E hopes to improve the efficiency of its business delivery and drive customer satisfaction by providing total energy solutions to its customers.

This strategy grew out of an integrated approach to planning around customer segments that was planned and tested in 2009. After examining customers, products, and internal delivery processes, cross-functional teams across much of PG&E's customer focused organizations developed strategies for breaking down internal silos to create and offer products that combined a variety of demand-side management (DSM) options to better meet the needs of specific customer segments. Today, teams are continuing this work, exploring every nuance of our current business plans to develop comprehensive strategies and more tightly integrated solutions to better serve customers. In addition, PG&E has built a customer database to help further hone effective, efficient, and creative marketing strategies and tactics.

This paper will discuss the genesis, concepts, and tactics regarding PG&E's effort to satisfy the diverse energy needs of each customer segment and unify PG&E's DSM programs.

Introduction

Pacific Gas and Electric Company (PG&E) has implemented one of the most comprehensive and aggressive energy efficiency programs in the nation—and enabled record energy savings across multiple customer segments. The end of 2008 saw the completion a three-year customer-based portfolio that showcased an array of energy management solutions tailored to meet customers' specific needs.

PG&E's portfolio exceeded ambitious three-year energy savings goals—set by the California Public Utilities Commission (CPUC) at 613 megawatts, 2,826 gigawatt-hours and 44.9 million therms—by delivering savings of 899 megawatts, 5,465 gigawatt-hours and 72.5 million therms[1]. Significantly, these savings have avoided the emissions of approximately 3.4 million tons of carbon dioxide (CO_2)—which has the same emissions effect of taking 476,000 cars of the road for one year. For perspective, that total includes every car registered in the City and County of San Francisco.

The 2006–2008 portfolio represents the largest energy efficiency effort ever achieved by a U.S. utility, and PG&E's 2008 accomplishments may establish a national

[1] Data are consistent with PG&E's 12th quarter report as filed with CPUC in March 2009.

record for energy efficiency achievement in a single year. This portfolio comprised 85 distinct programs and included financial rebates and incentives; energy audits and analysis; education and training; emerging technologies projects; codes and standards advocacy; marketing and outreach; and evaluation and verification.

Faced with even more aggressive energy savings targets in the next three-year portfolio, PG&E is looking to implement new strategies and programs that have evolved from a major customer-focused planning initiative. These new strategies, designed with the customer at the center, will deliver integrated offerings targeted to specific customer segments through multiple delivery channels: PG&E programs, programs run in partnership with local government, and programs run in partnership with third parties.

PG&E's DSM Experience

To understand why PG&E has embarked on this strategy, it's helpful to quickly review the history of DSM within the utility. This review highlights the immense growth in the size and complexity of DSM programs since their inception in 1976—and their growth in importance to the company. The innovative customer-focused strategy that PG&E is now implementing stems directly from the need to respond to this growth, as well as to changes in the market context for DSM.

PG&E established an Energy Conservation & Services Department on April 1, 1976. It applied an authorized budget of about $6 million—about 0.2% of PG&E's total operating budget—to develop and manage programs that focused primarily on residential home weatherization and insulation, commercial lighting improvements, industrial operational improvements, and energy audits. In its first year, the program achieved energy savings of 246 million kWh, 64 MW and 47 million therms. [Note that these savings figures were not verified through measurement and evaluation.] During the late 1970s and early 1980s, PG&E was concerned about diminishing spinning reserve (capacity) margins, and the energy efficiency and load management programs implemented during this period were extremely valuable to PG&E. Also during this time, world oil prices skyrocketed and domestic inflation rates were very high. In 1977, President Carter stated that utilities must promote conservation, not consumption.

In 1985, PG&E's Diablo Canyon nuclear power plant came on line. Although this event alleviated much of the concern over capacity constraints, PG&E's dedication to DSM remained high. As increased competition heightened the focus on customers, PG&E recognized the value of DSM to customers, especially for its ability to help control energy costs. In 1986, PG&E's authorized DSM budget was over $136 million, or nearly 2.0% of PG&E's operating revenue. Energy savings accomplishments in 1986 amounted to over 1 billion kWh, 129 MW, and 140 million therms. [These savings figures were not verified through measurement and evaluation.]

By 1986 the effects of various federal legislation focused on creating a market for non-utility electric power producers and unbundling of services were deeply felt. Encouraged by dramatically falling oil prices and the correlated drop in natural gas prices, one-third of PG&E's gas load was now transport only and customer generation capacity equal to four Diablo Canyons was under contract.

During the late 1980s and early 1990s, California formally recognized the major role energy efficiency would have in meeting the future energy needs when state

regulators collaborated with the California utilities to develop the *Energy Efficiency Blueprint for California.* During this period, regulators began to separate the different DSM approaches—energy efficiency, demand response (DR), low income energy efficiency, and solar and other distributed generation options—and PG&E responded by establishing separate internal organizations to design and implement programs guided by each of the regulatory directives. At the same time, California was considering how to provide customers with more energy delivery options, with the goal of mitigating rising costs through competition. Authorized budgets for DSM decreased: the budget in 1996 was $105 million or 1% of PG&E's operating revenue. First year accomplishments that year were 377 million kWh, 72 MW and 6 million therms.

By 2000, the California plan to deregulate the energy industry was fully implemented, in tandem with similar plans across the country, and energy trading companies had grown to be among the largest businesses in the world. PG&E formed a holding company and had several subsidiaries, including the utility. Most of PG&E's generating facilities were sold as part of the deregulation plan, forcing PG&E to purchase most of its electric supply. Unfortunately, the California plan had some weaknesses, and the energy crisis of 2001 was the result. Skyrocketing energy costs were the initial fallout from the energy crisis, and the bankruptcy of one of the largest investor-owned utilities in the world, PG&E, followed.

The dust settled after the crisis, and PG&E reinvented itself as what it had always been: a pipes-and-wires company intent on satisfying its customers. The company also began to rebuild its position as a major generation source by purchasing plants—some previous PG&E plants and some new plants built to serve PG&E's needs—placed on the market after the crisis. DSM was once again to play a key role in the resource mix and in satisfying customer needs. The DSM organizations that existed prior to the crisis experienced phenomenal growth, and they now design and implement the most comprehensive portfolio of programs in the world. The September 2009 CPUC decision on the state's EE portfolios authorizes PG&E to spend more than $1.3 billion dollars over the next three years for energy efficiency programs alone—a figure that represents nearly 3% of PG&E's operating revenue.

Demand response has also evolved within PG&E. In 2002, the CPUC started a policy-making forum to develop DR as a resource for enhancing electric system reliability, reducing power purchases and individual consumer costs, and protecting the environment. In 2005, the CPUC approved the first PG&E DR programs and budgets, authorizing PG&E to spend $8.5 million on day-ahead notification and reliability day-of DR programs. In March 2006, the CPUC approved a statewide three-year DR portfolio, run by the investor-owned utilities during 2006-2008. During this period, utilities saw increased subscriptions in their programs and PG&E began marketing a variety of innovative programs. These include the SmartAC program, a large-scale program to help customers curb air conditioning use on the hottest summer days and Auto DR, an automated load-shedding resources for businesses. These and other programs have helped the state protect the grid and avoid blackouts, even during times of high energy demand.

In 2009, the CPUC approved PG&E's DR application and budget for the 2009-2011 program years, including pilot studies to demonstrate SmartAC Ancillary Services and Commercial & Industrial Ancillary Services. PG&E Ex-Ante Load Impacts show an overall DR portfolio of 560 MW in 2009.

With the coming default Peak Day Pricing rate coming in May 2010 for all large commercial and industrial customers, PG&E expects an overall DR portfolio of 1,203 MW—which represents an overall increase in the PG&E DR of 166% from 2007 to 2010.

Evolving DSM Programs and Markets

The growth in number, complexity, budget, and effectiveness of PG&E's DSM programs over the years has encompassed both positive and negative implications. On the positive side, PG&E has achieved record-setting levels of energy savings and demand reduction. However, the internal organizations designed to deliver these results have grown as well. Reflecting the variance in DSM options, the organizations grew in a somewhat independent and disconnected manner—prompted in part by regulation, mentioned above, that considered different types of programs separately for rate-making purposes.

Specifically, the CPUC authorized separate budgets for distinct DSM options—customer energy efficiency, demand response, distributed generation, and low-income energy efficiency—and the relevant internal organizations responded by planning program delivery methods independently. As noted above, the energy savings and demand reduction have been outstanding, but at a cost of some duplication of effort. Other downsides of program independence have been multiple contacts with customers to promote the various programs, as well as some customer confusion over the best long-term options to meet all their energy needs.

Stepping back, it's also useful to note that the context for energy efficiency has evolved significantly over the past several years. Many more energy products—with a range of features, costs, ease of use, and benefits—are now available than ever before. Monitoring and evaluating this array of products and communicating features and benefits to customers has become more difficult and time-consuming than ever before.

At the same time, customer focus on sustainability has never been higher, as evidenced by the increasing popularity and awareness of such federal programs as ENERGY STAR® and green building certifications and ratings, as well as expanded corporate emphasis on environmental responsibility. Multiple regulatory mandates will intensify this focus by encouraging customers to seriously consider reducing their carbon footprint/emissions through such actions as implementing water efficiency on-site, reducing load usage during peak hours of demand, increasing energy efficiency with equipment purchases and smarter building design, and implementing waste reduction strategies. In California and perhaps other locations, tax incentives, rebates, and incentives to ease compliance add to the complexity. Customers overwhelmed by the regulations and the options available for compliance will likely require support from the community, utilities, and government to determine the best path forward.

Clearly, DSM programs that evolve to respond to this changing environment will be better positioned for success. After evaluating the landscape, PG&E determined that the time was ripe to revamp internal DSM programs. Specifically, leaders from several internal organizations examined feedback from staff and customer and recognized that there may be a better way to plan for meeting customer needs while attaining regulatory goals. These leaders envisioned a coordinated planning process that would align customer

needs, program features, and delivery channels. They wanted to bring the **right** people together to provide the **right** solutions to the **right** customers at the **right** time. This would involve combining the various customer DSM approaches to offer integrated solutions based upon a clear understanding of customer needs. PG&E decided to pursue this strategy, recognizing it could not only enhance energy savings, but also change customers' perceptions of the role of the utility and position PG&E as a trusted resource for achieving their energy management goals.

The Right People

The basis for understanding customer needs is knowledge about customers, which currently resides with many people in many PG&E organizations. Cross-functional teams—comprising customer segment experts from these organizations—were organized to plan for achieving short- and long-term goals around defined customer segments:

Agriculture
Food Processing
Wastewater and Water Treatment
Petroleum
Chemicals and Minerals
Manufacturing and Transportation
High Tech
Biotechnology
Healthcare
Schools
Retail
Hospitality
Offices
Federal Government
State Government
Local Government
Multi-Family Residential
Single-Family Residential

The goal was to break down department silos and shift from a program-specific mindset to a customer-focused approach. We also established a steering committee with leaders from the various "silos" to advise the segment teams during the planning process and to ensure, to the extent practicable, that adequate resources were available to complete useful comprehensive plans. In addition, the steering committee monitored the progress of teams, provided support, and addressed important issues to remove barriers to success. Thus, bringing the right people together also entailed gathering the right information, programs, and resources.

The Right Solutions

The teams worked hard to create customer segment plans that distilled a strong understanding of our customer needs, the marketplace, and the PG&E offerings best suited to meet these needs. The teams applied this understanding to create strategies and tactics appropriate for each customer segment. Through the planning process, we also identified knowledge gaps and assigned staff to fill these gaps. The cross-functional make-up of the teams facilitated better coordination among program managers, field representatives, and marketing personnel, and regular reporting sessions to the steering committee allowed for sharing of ideas and best practices among the teams.

Participants also identified strategies that cut across all or many of the segments and designated additional support personnel to coordinate those cross-cutting plans. From an outreach perspective, coordinating messages not only helps the customers better understand PG&E and our offerings, but also creates efficiencies in the organization. All in all, the planning process fostered greater collaboration among employees and partners, providing a strong base from which to develop and present to customers energy management solutions for their distinct needs.

The Right Customers

Numerous data sources reveal the type and extent of the relationship each customer has with PG&E. To maximize use of these sources toward enhancing PG&E's customer focus, a team collected a large amount of residential and business customer data from numerous PG&E systems and aggregated the data into a single source. The team then added data from outside sources, such as data on purchase behavior, business practices, and media preferences. These data were then associated to each customer, enabling analysis of a breadth of information. This analysis resulted in customer segmentation, profiles, and models that provide a broad, detailed, and revealing representation of who specific customers are, what is important to those customers, what their needs are at any given time, and how best to motivate them to act.

This approach directly benefits customers. In recent research studies, customers have indicated they want more information and support from PG&E, as well as more control over their energy use. They want PG&E to take the lead and show them what to do, and then empower them to get it done. Customers do not want to complete control of their energy. Rather, they want to understand the implications and the benefits of different energy options, make informed decisions, and successfully follow through.

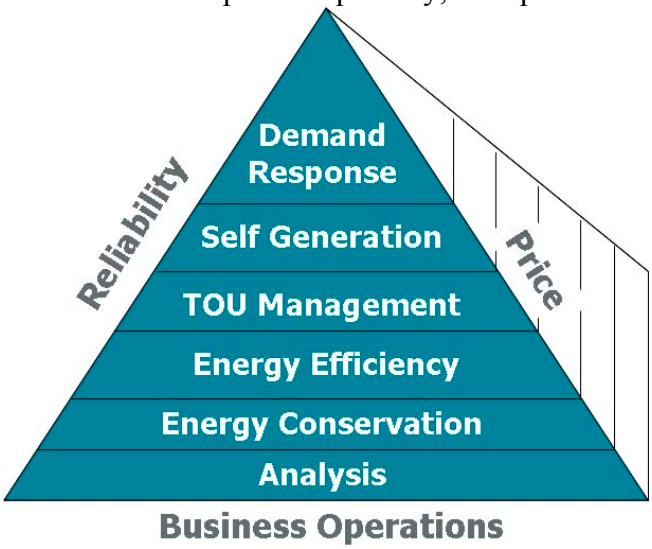
The Right Time

Because approaching customers at the right time helps maximize the return on outreach efforts, PG&E has put considerable effort into getting to know the seasonal timetable for each customer segment. It's important to understand both when energy might be a priority for customers and when customers are likely to tune out messages about energy. For example, knowing what industry regulations are coming down the pipeline for specific customer types allows us to plan discussions to help customers comply within deadlines. We've also learned when to back off. As just one example, we

avoid conducting wine tank insulation campaigns during the winery crush season, when customers are too busy managing their main business to contemplate energy projects.

Putting It Together

The integrated customer segment planning teams effectively created integrated offerings tailored to the needs of specific customer segments. These offerings were tested in 2009—a period when the funding for DSM programs was held in check (but goals maintained unchanged)—to provide time for the CPUC to deliberate the state's EE portfolios. The plans were rolled out to customer-contact personnel in the field in April, along with training to emphasize the integrated approach being sought for customer solutions. Because customer contact representatives had participated on customer segment teams, their needs—such as the need for integrated marketing collateral for specific segments—had been addressed the planning process. Training for customer contact reps consolidated information on the different DSM options into single events, which encouraged the adoption of a holistic mindset, while making efficient use of the representatives' valuable time. In addition, we coordinated customer outreach activities across the DSM organizations so customers were encouraged to look at integrated DSM rather than at the DSM options separately, as depicted in the following diagram.



Because of the greater emphasis on greenhouse gas reductions, global warming, and "green" reputations, many customers were considering solar applications for their businesses even during the tough economic times. The coordinated outreach activities resulted in numerous leads for EE and DR actions, as well as the consideration of a proper order for implementing DSM options, depending upon specific customer needs

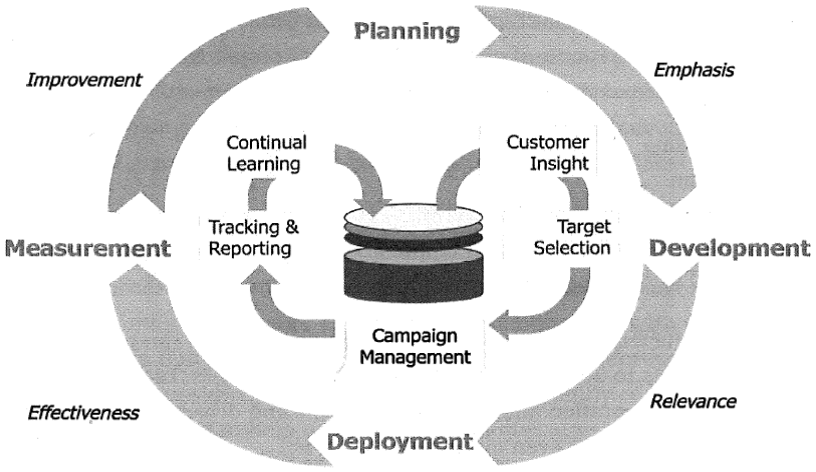
Given the success of the planning and pilot implementation of integrated customer-focused offerings, PG&E is contemplating changes to the DSM organization structure to further increase efficiency and scalability and improve services and service levels. Our service delivery model will drive stronger customer interactions by tailoring PG&E's offerings to meet the specific needs of each customer segment.

To that end, as discussed above, PG&E has built a customer database that includes analytics, campaign management tools, and reporting capabilities. Numerous

PG&E data sources reveal the type and extent of the relationship with each customer has with PG&E, including program participation, website use and payment methods. Data from outside sources is then added to this information to help form a picture of the lifestyle and attitudes of residential customers or to working attributes of business customers. The customer database helps DSM programs succeed by aligning the most relevant and meaningful programs to customers most likely to respond and delivering the programs in a motivating manner at the right time and through the right channel to increase response.

This approach drives more customers to participate at a higher level in DSM activities. The database's role in intensifying customer interactions is particularly significant, because sustainable DSM requires behavior changes, which can be driven through customer involvement. Customers need to be aware, take certain actions, make certain kinds of decisions, and conduct certain behaviors related to DSM. The customer database is designed and being used to enable and facilitate this critical objective. Ultimately, the database allows PG&E to achieve more sustained energy savings and demand reductions with a more cost-effective spend, netting a greater return and stronger benefits than would conducting program outreach without the database.

Currently, the information, analytic capabilities and data management capabilities of the database are being deployed as standard practice across many DSM activities. As we gain greater experience with this resource, PG&E will improve its effectiveness through a closed loop process of plan, deploy, and measure as outlined below.



Similarly, the integrated customer segment planning process—summarized in the diagram below—is being repeated and improved. PG&E plans to share findings, successes, and lessons learned after implementing the next generation of customer-focused DSM product design and delivery strategies in 2010.