Behavior Change Interventions; What Works, What Doesn't and Why

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ABSTRACT

Recent studies have identified significant energy efficiency savings potential resulting from behavioral interventions. These interventions are beginning to gain traction, acceptance, and credit from regulatory entities for the energy and demand savings they produce as well as their market transformation effects. Early interventions have been launched and much research is underway in this field. This paper summarizes a meta-analysis of existing research on energy-related consumer behavior and initiatives. In this analysis, leading thinkers in the field were interviewed and current studies, initiatives, and evaluations were identified and analyzed. The research, evaluations and pilot programs reviewed were categorized by their approach, and best practices and key lessons learned were teased out and summarized.

A thorough understanding of successful behavior change approaches and consumers' energy-related behaviors and attitudes is essential not only to launching successful behavior change interventions, but also to maximizing participation in traditional energy efficiency programs. This paper provides an overview of recent research and outlines strengths and weaknesses of the approaches analyzed.

Introduction

This research project was funded through the Northwest Energy Efficiency Alliance (NEEA) at the direction of the Northwest Energy Efficiency Taskforce (NEET) Work Group 4 Energy Efficiency Regional Marketing Coordinating Council (hereafter "the Council"). The project involves a comprehensive review of the existing research on effective behavior change strategies employed in the energy and utility industry as well as a limited review of such initiatives in other industries. As a regional market transformation organization, the Council was interested to learn if a regional behavioral initiative would be an appropriate strategy for the Northwest. Historically, energy efficiency program design has relied primarily on technologies and financial incentives to produce quantifiable savings impacts. This approach does not acknowledge that it is ultimately human behavior that drives energy use. Whether the decision being considered is where to set the thermostat, which refrigerator to buy or whether or not to tune up the HVAC system, the key to achieving deeper efficiency gains lies in influencing human behavior. The primary barriers to more wide spread implementation of efficiency are sociological, not technological. This report represents a summary of some of the energy efficiency specific behavioral research and initiatives to date.

Research Objectives

The specific objectives of this research study were to:

- Identify and review relevant current research, evaluations, and behavior change initiatives
- Catalog and summarize insights from the studies identified

- Identify gaps in existing research and knowledge to effectively inform planning for future primary research efforts.
- Provide recommendations for developing a behavior based strategy for reducing consumers' energy use

The programs that are the focus of this research use a variety of strategies and channels to influence energy use decisions in the home. These behaviors can include habitual behaviors (e.g., turning off lights or adjusting HVAC settings), purchasing behaviors (e.g., choosing to purchase CFLs or energy-efficient appliances), maintenance behaviors (e.g., cleaning refrigerator coils or getting yearly furnace tune-ups), and program participation decisions (e.g., participation in a utility home audit program). Effectively supporting changes in these behaviors will vary depending on the type of behavior that is requested. Unlike most traditional utility programs, the efforts reviewed in this report focus primarily on communications strategies to promote behavior changes.

Research Methodology

Based on previous experience and research in this area, the project team established a list of interviewees and thought leaders within the industry as well as studies of merit. The team then began conducting interviews and compiling research. Studies reviewed included relevant current research and evaluations of behavior change initiatives in the Northwest, nationally, and internationally.

In total, the project team reviewed over 100 research studies, evaluations and implementation plans and spoke with more than 20 thought leaders in informational interviews. The team identified those initiatives most relevant to the Council's interests and worked to capture key findings (progress, successes, barriers, lessons learned, use of established best practices, replicability, and feasibility of application.) The project team grouped the reviewed studies into four broad categories: mass media and multi-media campaigns, community-based social marketing, feedback, and competitions. These reviewed studies were then catalogued and summarized in narrative and tabular format to identify best practices as well as gaps in the current research that warrant further investigation. Finally, a list of recommendations for consideration in the design and implementation of an effective behavioral initiative was developed.

Key Findings

Behavior change initiatives work best if appropriately targeted and delivered in a sustained and coordinated fashion. The following summary highlights the common elements shared by many of the most successful behavior change initiatives reviewed in this research.

- **Use of social norms**. Research supports the power of social norms; the more we see others behaving in a certain way or making particular decisions, the more we feel obliged to follow suit. Adapting messaging and behavioral initiatives to take advantage of the triggers of social normative behavior should lead to greater success.
- **Use of multiple intervention strategies in combination**. Behavior change can be promoted across a variety of channels (See Table 1 below). Historically, campaigns have

focused on one of these strategies; if coordination and support exists, a more holistic campaign may yield improved traction.

- **Pilots and evaluation planning.** Proper experimental design and evaluation techniques need to be employed to address concerns of attribution, persistence and quantification of savings.
- **Targeted messaging informed by segmentation and barriers research.** The effectiveness of media messages and program communications can be maximized through research to identify segment-specific barriers and approaches to address them.
- **Social marketing tools.** All types of behavior change initiatives, even mass media-based campaigns, can successfully employ the tools of social marketing, which include use of social norms, goals/commitments, feedback, prompts, and community-based one-on-one interactions.
- **Trustworthy messengers and empowered change agents.** The "voice" of the campaign should be trustworthy and inspiring; consumers need to both believe the information provided and feel empowered to take action. This can be achieved by using trusted sources to promote program messages including the use of community leaders as local change agents.

Summary of Behavioral Initiatives by Type

While the following categories are not always mutually exclusive and often an initiative may employ two or more of these approaches, the research team found that behavioral approaches can be classified, *roughly*, into 4 categories: Mass media and social media campaigns, community based social marketing, feedback and competitions. Table 1 below summarizes these categories and their corresponding attributes.

Table 1: Categories of Behavior Change Strategies

Strategy	Tactics	Strengths	Weaknesses
Mass Media and Multi-Media Campaigns	Social modeling, awareness building, branding. Social media is sometimes used in support of conventional media campaigns. Many existing state and utility campaigns are in the process of integrating other elements such as community-based social marketing and outreach events with traditional media approaches.	Media has the power to reach a large geographic region and a variety of households. Industry is comfortable with this medium and television affords the ability to visualize rather than simply describe desired actions. Social media can be very cost-effective and provide opportunities to learn from customers' experiences.	Mass media is expensive and impacts can be difficult to attribute to a specific campaign. New brands and programs can take significant time and money to gain traction, especially in those markets with competing brands and messages.
Community-Based Social Marketing	Uses direct engagement (e.g., door to door canvassing) and tools of reciprocity, commitments, prompts, norms, peer-to-peer communication, etc. Most successful when employed using volunteer community members as they are a trusted source of information.	Personal touch provides opportunities to address household-specific barriers. Customizable for utility program support. Strong earned media when run at scale. New GIS tools support data-mining.	Requires experience to scale. If reciprocity strategies are employed (e.g., a free light bulb or power-strip) some utility subsidy may be required to support costs.
Feedback	Information provisioning in the form of reports, online audits, or in-home displays. Can also utilize normative strategies.	Feedback can be timely and personalized to user, depending on method. Research in California reveals a strong customer desire for quantification of impacts.	In-home displays can be expensive, complex, and difficult to install. Participation in utility programming not yet correlated with feedback. Persistence of savings not yet documented.
Competitions	Pit one town (or school) against another for conservation "status," or encourage households to compete against each other, perhaps to win a home energy makeover.	Often used to jumpstart a campaign by garnering attention and earned media.	May display actions as "extreme" rather than everyday and normative; needs integration into forward-looking campaign to avoid this perception.

Mass Media and Multi Media Campaigns

A mass media strategy in which a campaign seeks to influence attitudes and behaviors by reaching a broad population through television, radio and print is a comfortable and well understood means of raising awareness of a message. However, these efforts can be costly and difficult to track, and some researchers question whether it is an effective strategy for driving behavior change on its own (ODC, 2008). Where campaigns do focus tightly on promoting utility programs, a stronger correlation is observed between media spend and program uptake. Incorporating the use of online advertising and social media can boost a campaign's cost-effectiveness and provide more customizable and interactive learning experiences than the one-way communications of mass media, which may also enhance the campaign's ability to influence actual changes in behavior. Campaigns should keep in mind that one way of segmenting consumers is through their varying preferences in communications channels. It is important to know your customers and meet them where they are; if that is in the newspaper, then be there, if that is on Facebook, then be there, etc.

Several of the earliest energy conservation campaigns are being rebranded (California, New York) or are shifting emphasis to a state brand (New Jersey). Each of these rebranding or new branding exercises is also providing significant support for grassroots or higher touch efforts focused on community-based social marketing and/or marketing to communities themselves.

This new trend challenges marketers to craft complementary messages that support rather than compete in a crowded space. Historically, media campaigns have tended to focus either on supporting the change of individual behaviors (e.g., turning off lights not in use) or on promotion of beliefs to support utility programs (e.g., every little bit matters). Truly integrated marketing efforts across a large region with multiple utility "buy-in" do not appear to exist yet. This may be a missed opportunity, as the research suggests that exposure to the same message in varying media and access points, such as through partnerships, can improve efficacy. However, the coordination and control issues implicated are appreciable.

The research team looked at energy industry experiences with mass media campaigns in three locations: New York, California, and Avista Utilities' efforts in Washington, Oregon and Idaho. The team found that in terms of message development, consumers remain confused about what specific actions they can take (The Shelton Group, 2008). This is consistent with feedback from other utility programs and web sites in which lengthy lists of energy savings strategies are offered. Customers feel overwhelmed and don't know how to prioritize. As a result, information should be clear and concise throughout all the touch points of the campaign (mass media, website, social media presence, printed collateral, etc.). Seasonal triggers (e.g., in fall, remind customers to service their furnace; at spring cleaning time, remind customers to replace their AC filter) should be considered in message development. Customers who believe they are already doing all they can, a common assertion (CBEE, 1999), should be challenged to do more. Given the significant costs of mass media to get good purchased media value, campaigns should take caution against overspending for awareness efforts that don't directly promote specific actions or program participation.

Due to the pressures of delivering a campaign within funding horizons and seasons, it can be tempting to decide on specific messaging too soon. However, fine-tuning messaging after pre-tests will have a better chance of success and avoid potentially costly missteps.

In terms of channel selection, there are several important considerations to be made. Given the numerous energy conservation campaigns delivered by utilities and governments at varying levels, care should be taken to avoid competing messages. One solution is to consider marketing in channels that the utilities are less active in or work together to understand how best to support a diverse group of utilities and regional stakeholders. Campaigns should also appreciate that the media choices of younger customers and other specific segments may vary; these channel preferences can be explored as part of segmentation research.

A key theme that emerged from the review of these mass media campaigns is the importance of understanding regional diversity. There are regional variations in barriers to energy efficiency, and information that is persuasive in one region may not be credible in another. Economic, political, and cultural conditions vary by community, which can have a significant effect on message traction. Regional campaigns need to maintain enough flexibility to tailor messages to sub-regions. Furthermore, a multi-state campaign will need to take into account the differing regulatory treatment of marketing expenses and attribution of behavioral impacts, as that will affect utilities' willingness to provide funding support.

Social Media

Social media can be thought of as any online presence which invites user-generated content or peer-to-peer interaction, including social networking sites (e.g., Facebook, MySpace, LinkedIn), media sharing sites (e.g., YouTube, Flickr), blogs, microblogs (e.g., Twitter), text

messaging, and message boards, among other applications. The use of social media is evolving rapidly, and many utilities and behavioral campaigns have found unique ways to more effectively interact with consumers through the use of social media. For instance, a number of utilities have found that by tracking the social media "buzz" around their company, they can improve customer relations by responding quickly to complaints, nipping potential PR disasters in the bud, and identifying what messages are resonating with their customers (or not).

Social media can be an inexpensive way to reach a large audience. Contrary to popular belief, the use of social media is not limited to the teenage crowd. A recent survey by the Pew Internet and American Life Project (Lenhart, 2009) found that the median age of Facebook users is 33 years old, and the median age of Twitter users is 31 years old. The use of social networking sites by adults between the age of 35 and 64 grew 60% from 2008 to 2009. More importantly, social media makes Internet users feel more personally connected with campaigns.

One of the key advantages of social media is the ability of consumers to share items of interest (e.g., videos, articles, etc.) with their peers and to publicly affiliate themselves with various causes. For instance, ConEd has launched a campaign called "the Power of Green," and they have a Facebook page representing this campaign; a ConEd customer can become a "fan" of the campaign, which will then show up on their profile and their friends will see it. Some of those friends may be curious about what the Power of Green is and will click on the link to see what the campaign is all about; if they agree with what the campaign stands for (or if they want to be perceived by their friends as caring), they may become a fan of the campaign also. Periodically, the Power of Green campaign will post content, such as energy conservation tips, interesting videos, or links to opportunities to participate in ConEd's various programs. Fans then might decide that the content is interesting enough that they should share it with their friends by forwarding it on or reposting it on their own page or blog (or in Twitter parlance, "re-tweeting" the content). This type of peer-to-peer communication is very effective for changing behavior, because it helps to provide evidence for descriptive social norms (i.e., the sentiment of "If my friends think that this is interesting or cool or 'the right thing to do,' then maybe I should too!") Calling on social norms is consistently cited in behavioral research (www.socialnorm.org/FAQ/FAQ.php) as an effective strategy to motivate behavioral change.

Perhaps equally as valuable as the peer-to-peer communication is the ability for campaign implementers to have direct interactions with their target audience through social media. Unlike traditional advertising, social media is a two-way form of communication which enables consumers to comment on content in real time. Program implementers can evaluate the effectiveness of their messages and content by observing which content receives the most "hits" and "click throughs" and assessing the tone of comments. Implementers can also obtain suggestions for additional content. Some campaigns seek even more sophisticated "user-generated content"; for instance, the America's Greenest Campus campaign sponsored a contest in which people could submit videos that encourage young adults to save energy. The makers of the winning video (available at www.youtube.com/smartpower) won $10,000 for their efforts.

Another advantage of using social media to support a brand or campaign is that providing dynamic, frequently updated content and linking back and forth between the campaign's website, social networking sites, file sharing sites such as YouTube and Flickr, and blogs/microblogs greatly improves the campaign's online presence in terms of search engine optimization. In other words, when people Google "energy conservation," they are more likely to find websites that are actively engaged in the social media realm, rather than static, unchanging websites.

Social media and other online content are increasingly being accessed via mobile devices (e.g., smartphones such as the iPhone or Blackberry), which present additional opportunities for behavioral campaigns to engage consumers in an interactive context. Smoking cessation campaigns have used text messaging to provide reminders and encouragement to people trying to quit smoking; there are services that send you a text in the morning to remind you to take an umbrella with you if there is rain forecast that day. One can envision a number of applications of this technology for prompting energy-efficient behavior in a timely manner; for instance, an iPhone app that pops up a message that says "have you unplugged your charger?" when it senses that the iPhone has been disconnected from the charger, or a text message that asks "did you remember to adjust the thermostat when you left the house today?" Just as there are significant variations in consumers' attitudes and behaviors, there are also varying preferences for communication channels, and consumers are increasingly using their phone as a primary means for accessing information.

The power and sheer ubiquity of social media indicates that any marketing campaign without a well-integrated social media presence is missing significant opportunities to engage consumers in a medium in which they are already spending significant amounts of time.

Community Based Social Marketing

While both social marketing and community-based social marketing (CBSM) market behaviors and ideas rather than products, CBSM focuses directly on addressing the specific barriers and benefits perceived within a given community. The approach exploits what psychologists and sociologists know about energy: it can be deeply personal and rooted in community context (Lutzenhiser, 2006.) By focusing on specific, local barriers to efficiency and conservation behaviors, this approach can yield significant impacts as discussed below (http://www.cbsm.com.)

Historically, community-based efforts have been "grassroots," homespun efforts typically run by a variety of non-profits with little control on message or regional cohesion. These efforts are beginning to come of age in many regards as larger campaigns integrate the principles of community-based social marketing into multi-faceted programs. First, as the New Jersey Clean Energy Task Force learned in their Project Porchlight effort, the use of non-profits as partners gives utilities and state entities access to communities through credible messengers in that they have no commercial gain from participation. Non-profits can also say and do things that utilities sometimes cannot, for instance, taking a more light-hearted, nimble, and fun tone in their communications. Community-based social marketing campaigns are also starting to leverage new technologies such as GIS-enhanced online databases and mobile technologies (e.g., iPhone applications) to greatly enhance volunteers' ability to canvass neighborhoods, track their efforts, and collect evaluation-grade data. Community-based social marketing efforts require discipline and often techno-savvy to scale well, but have been demonstrated to deliver cost-effective energy savings when implemented properly.

Feedback Mechanisms

"Feedback" refers to any intervention or strategy in which an entity is provided information on their energy usage habits with the goal of reducing energy consumption or shifting consumption to non-peak times. As with the use of mass media, providing information

alone increases knowledge, but does not necessarily decrease energy use. Evaluation various feedback approaches show widely varying results (Faruqui, 2009) and persistence of savings is as yet undocumented. However, the combination of energy consumption feedback with other behavior change strategies can be a powerful tool for reducing energy consumption (Abrahamse, 2007). Feedback is an increasingly popular intervention, which is being incorporated into many utilities' efficiency and demand response efforts in various ways, including technology-enabled (direct) feedback, billing analysis-based (indirect) feedback, and the simple provision of quantitative estimates of various efficiency and conservation actions in utility communications materials (typically on line audits.)

Many researchers believe it is important to provide people with information regarding the impacts of their own actions and which savings options are going to be most effective for them. Research suggests that when one can see or feel the results of their actions—preferably on an immediate and continuous basis—that individual is more likely to maintain the behavior over time. For example, research into efficient driving habits shows that drivers welcome feedback devices in their vehicles and that they drive more efficiently as a result. Similarly, energy consumption feedback has been shown in numerous studies to be an effective means of achieving energy savings. A number of studies indicate feedback is most effective when:

- It is provided frequently, as soon after the consumption behavior as possible.
- It is clearly and simply presented.
- It is customized to the household's specific circumstances.
- It is provided relative to a meaningful standard of comparison.
- It is provided over an extended period of time.
- It includes appliance-specific consumption breakdown (some studies).
- It is interactive (some studies).
- It is provided in combination with actionable suggestions for conservation (EPRI, 2009).

There are two types of feedback commonly being employed in residential energy efficiency today: Direct feedback (typically in-home energy use monitors) and indirect feedback (typically enhanced or comparative billing practices). Closely related to feedback is the use of online carbon calculators, which are less accurate than direct and indirect feedback mechanisms, but are cost-effective ways to integrate the concept of feedback into a communications-based campaign.

As with many forms of behavioral interventions, the effects of feedback can be enhanced when used in conjunction with other approaches:

- Antecedent strategies, e.g. commitments, prompts, goal setting/targets
- Consequence strategies, e.g. rewards/incentives
- Dynamic pricing regimes, .e.g. consumption information and pricing information provided concurrently through the same interface

One way that energy use feedback has been integrated into broader campaigns is carbon footprint evaluation. Many organizations have put together online "carbon calculators" which allow individuals to enter in details about their household's energy-using equipment and typical energy bills, along with other behaviors that impact total resource use such as transportation and purchasing habits. After entering in these details, the calculators estimate the individual's carbon

footprint and typically provide suggestions on how to reduce that footprint. Some websites ask individuals to commit through pledges to taking certain actions to reduce their footprint, and may provide them a means to publicly track their progress (e.g., by posting a widget on a Facebook page); some provide comparative data on the carbon footprint of people with similar lifestyles. There are issues of accuracy and lack of customization with these tools that leave room for improvement; however, these calculators offer a low-cost way to quantify and visualize one's actions and impacts. The key objective is to provide consumers with information that helps them prioritize actions based on relative expected savings; achieving precise calculations of consumers' carbon footprints and potential energy savings from various actions is less important.

Competitions

Competitions can be an effective means to stimulate action and generate excitement and publicity around an energy conservation campaign, and they can also be a powerful force in transforming the market towards energy efficiency. As stated by Karen Ehrhardt-Martinez of the American Council for an Energy Efficient Economy, competitions can be very effective in inspiring changes because "social incentives are often more effective than economic incentives in spurring people to change their behavior." The social incentives in an energy conservation competition are typically public recognition of "winners" and increased "team" or community pride (i.e., a sense of being a part of something bigger than you). Psychological research indicates that people are more likely to make green choices if they think others are too; competitions provide an opportunity to establish these social norms by providing recognition to residents and businesses that are modeling "good behavior."[1] There are numerous examples of energy efficiency competitions. Most fit into the following general categories:

- Community energy challenges
- Inducement prizes
- Home energy makeovers
- School energy challenges

Competitions have been demonstrated to leverage multiple resources by engaging disparate organizations such as municipalities, non-profits, and utilities in collaborative efforts. Competitions can attain significant savings at low cost and can be an integral part of a regional campaign. Tools, promotional materials, and examples can be made available for communities, schools, and utilities who want to bring their campaign to the local level.

[1] One only needs to watch an episode of NBC's "The Biggest Loser" reality weight loss show to understand the power of social incentives and competition in motivating behavior change. The contestants' private struggles (and also—importantly—their triumphs) are literally broadcast for all to see, providing extra motivation to change their behaviors. By moving actions that are typically done in private (stepping on the bathroom scale, reading your utility bill) into the public realm, and by establishing social norms (i.e., the sense that "all my 'teammates' or peers are doing this, and I don't want to let them down or stick out as the slacker"), competitions can be powerful opportunities for teaching people to live more sustainable lifestyles.

Conclusions

The following items were found to be important in the design and implementation of an effective behavioral initiative.

- **Deploy a multifaceted approach** that can capitalize on the strengths of each strategy, such as using expensive mass media at the outset to garner attention for a low-cost community-based social marketing effort. For instance, a mass media campaign can direct viewers to a website where they make a commitment to reduce their energy consumption by a certain percentage by taking specific actions. By using experimental design techniques (use of control groups, establishment of a baseline, evaluating progress), the campaign developer can support the discovery of what combinations work best to accelerate the adoption of behavior change. Consider the use of competitions as a way to generate publicity for a campaign and demonstrate the value of energy efficiency in a public setting.
- **Utilize the whole range of social marketing tools**, including social norms, commitments, prompts, feedback, and behavior- and community-specific barrier research. These tools can be used in all types of behavior change strategies, not just community-based social marketing;
- **Target messaging to address the specific barriers faced by the target segment(s)**; this will dramatically increase the program's yield in comparison to a one-size-fits-all approach. Segmentation must take both customers' receptiveness to a "green" message and their potential for energy savings into account when selecting a target audience and tailoring messages for that audience. Don't assume that the only barrier to increased action is lack of awareness/knowledge; investigate all possible barriers to the desired behavior changes. Take advantage of segmentation research that has been done in the region to target messages to specific psychographic/attitudinal segments.
- **Provide clear, concise, specific and actionable information on what to do.** Focusing on a few simple requested behavior changes may improve message traction and evaluability. Consumers can feel overwhelmed if they are presented with a long list of actions to take.
- **Deliver messages by trusted sources, ideally within the community.** This is most effective when people from different organizations at the regional and local levels are empowered to act as champions of the program's message. Consider using positive, can-do messaging – research indicates that the American public is increasingly overwhelmed by negative media, dire predictions of climate collapse, and fear-based tactics to induce behavior change. Framing issues, materials, and media in more positive, solution-focused terms has proven to be successful in helping to overcome disengagement, leading to positive action.
- **Consider developing a "toolbox" of offerings** that could be deployed by partners such as local governments, utilities, non-profits, and community groups, which would enable partners to participate in the campaign in a way that makes sense for their community. For instance guidelines on how to develop a community energy challenge along with publicity/marketing collateral. This would provide value to the region by preventing these smaller organizations from reinventing the wheel.

- **Design and conduct pilots using proper experimental design and evaluation planning.** Prior to launching campaigns, pilots should be deployed to test various approaches. Baseline measurements with an emphasis on correlating specific behaviors with each major customer segment, and control groups should be used to enable accurate quantification and attribution of impacts. This research could be appended to a study on existing building stock in the region, as it would involve significant quantitative (survey) research, followed by more qualitative research (e.g., focus groups, ethnographic in-home research) to better understand the attitudes and behaviors predominant in the region and identify specific barriers to behavior changes within prioritized customer segments.
- **Consider Evaluation From the Outset.** Most utilities operate in a state-regulated environment. Regulators require accountability for all expenditures of ratepayer funds. In order to receive regulatory approval, and therefore funding, energy efficiency programs must measure and verify electric energy and demand savings. All work and analysis methodologies used to determine these savings must be documented and will likely need to comply with the rigor level criteria found in various evaluation protocols that states are developing. Behavior programs are no exception. In order for these new, innovative, and potentially impactful programs to get funded, pilots and other early efforts must show results. Marketing and other behavioral changes approaches can be impactful, however, quantifying the outcomes and impacts of behavioral programs may require innovation in evaluation methodologies. More quantitative analytic methods need to be applied in the design of these programs in order to verify savings for utilities and their regulators.
- **Assess existing brands' equity.** How a campaign interacts with other moderators such as community engagement, feedback, other utility offers, or some combination is worthy of exploration. New campaigns do not operate in a vacuum; there are entities promoting energy conservation at the local, statewide, regional, national, and global levels. What potential opportunities for collaboration and cross-promotion might exist between all interested parties? Early and regular reviews of program logic and monitoring of implementation efforts can identify and build on the efforts of potential program partners. Consider conducting an assessment of the current brand equity of various regional (and national) conservation efforts to determine if there is a campaign/brand with enough traction that it might be adapted for the entire region. The state of California has recently undergone a similar effort for recent campaigns, and the research approach was well documented and could be adapted for any region.

Needs for Primary Research

There is a need for more firm data to assuage the concerns of utilities and regulators in supporting behavior based initiatives. Through this research, several areas in need of more research were identified.

- **Analyze the synergistic effects of multiple strategies.** There is much to be learned regarding the synergistic effects of different approaches. For example: feedback mechanisms combined with dynamic pricing, social marketing combined with financial incentives, etc. Experimental design approaches that define control groups and measureable metrics can separate the impacts of individual strategies from those that occur only from the use of combined strategies.

- **Analyze the persistence of impacts from different strategies.** Persistence of savings resulting from behavioral initiatives was consistently identified at the recent 2009 ACEEE Behavior, Energy & Climate Change (BECC) Conference as a significant barrier to increased utility program spending in this area. Many behavioral programs and pilots have not been around long enough to study the effects of what happens when the program stops or what follow-on efforts could be employed to migrate households to new behaviors. Follow-up research (maybe two to three years after a program has operated) is needed to determine if the behavior change persisted beyond the program period. From this research, keys to what causes behavior change to stick can be ascertained

Behavior change initiatives are still in the early stages of development, research and implementation. They are beginning to garner the close attention of utilities and market transformation organizations as critical additions to traditional DSM methodologies. Behavior change approaches are becoming more prevalent as people become more familiar with them and methodologies for quantifying and attributing savings become more firm. This report confirms the assertion by ACEEE in the introduction that there is tremendous potential efficiency gains through the use of behavior based approaches.

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For a copy of the study this paper was based on, please contact the author at jan.harris@navigantconsulting.com