

# **The Time for (Behavior) Change is Now: Applying Social Marketing Principles to Residential Energy Efficiency Programs**

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## **ABSTRACT**

Utilities and governments across the U.S. are starting to realize that their technology-centric energy efficiency programs can benefit from a more thorough understanding of the social and behavioral aspects of energy use. This paper presents the results of a meta-analysis of successful behavior change programs in the energy industry as well as in other fields. Navigant Consulting conducted a study for the Northwest Energy Efficiency Taskforce Regional Marketing Coordinating Council with the goal of developing a comprehensive understanding of strategies that can be used to make residential energy-efficient behaviors as commonplace as recycling. National potential studies indicate that U.S. households can reduce their energy consumption by roughly 30% (approximately 11% of total U.S. energy consumption) with no sacrifice of quality of life and little to no economic hardship through changes in their purchases and use of household and vehicle technologies. Yet the cost-effectiveness appeal traditionally employed by utilities and governments promoting energy efficiency does not seem to be effective in convincing American consumers to adopt energy-efficient practices and purchasing behaviors. There is a growing body of evidence—summarized in this paper—that social incentives can be more effective than financial ones in promoting energy-efficient behaviors and purchase decisions.

## **Introduction**

This paper presents the results of a meta-analysis of successful behavior change programs in the energy industry as well as other fields. Navigant Consulting conducted a study for the Northwest Energy Efficiency Taskforce Regional Marketing Coordinating Council with the goal of developing a comprehensive understanding of strategies that can be used to make residential energy-efficient behaviors as commonplace as recycling. The authors identified and categorized over 100 evaluations and academic studies on behavior change and social marketing strategies implemented in the energy industry and other fields such as water conservation, recycling, transportation, and public health. Of these studies, four broad categories emerged: media-based campaigns, community-based social marketing, feedback, and competitions. A selection of successful programs in each category received in-depth analysis to identify best practices and lessons learned. This research is intended to inform the development of a regional communications campaign promoting the adoption of residential energy-efficient behaviors as well as increased participation in traditional utility resource acquisition programs.<sup>1</sup>

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<sup>1</sup> Traditional resource acquisition programs are defined, for the purpose of this paper, as energy efficiency programs which directly install or provide financial incentives for the installation of specific energy efficiency measures. In resource acquisition programs, the utilities are “acquiring” energy savings that count towards their energy efficiency targets, which are often mandated by state governments or public utility commissions. Programs which indirectly promote energy efficiency measures or behaviors (e.g., through education, advertising, energy audits, etc.) are often referred to as “non-resource programs” and often the energy savings generated by those programs do not count toward the utility’s goals.

## **Importance of Targeting Residential Energy Behaviors**

Utilities and governments across the U.S. are starting to realize that their technology-centric energy efficiency programs can benefit from a more thorough understanding of the social and behavioral aspects of energy use. It should come as no surprise to anyone that Americans love their technology. Each new technological gadget is not only coveted, but also quickly elevated to “must have” status; consider how often a recent iPhone convert utters the phrase “I don’t know how I ever lived without it.” Technology solves so many problems that it’s only logical that many Americans are hoping for a technological solution to one of the most daunting challenges of our time: climate change. Many people seem to be counting on a technological *deus ex machina* swooping in just before we reach the tipping point and wiping out those pesky carbon emissions. The reality is that we already have the technology necessary to make a significant reduction in our carbon emissions through cost-effective residential energy efficiency actions. National potential studies indicate that U.S. households can reduce their energy consumption by roughly 20-30% (up to approximately 11% of total U.S. energy consumption) with no sacrifice of quality of life and little to no economic hardship through changes in their purchases and use of household and vehicle technologies (Gardner and Stern 2008, Laitner, Ehrhardt-Martinez, and McKinney 2009, Nadel, Shipley and Elliot 2004). In other words, American households could reduce their energy consumption by up to 30% simply by making energy-efficient choices that are in their financial best interest. The question is: why haven’t we been making these choices all along?

The answer to that question is relatively simple when one considers that the utilities have delivered the majority of energy efficiency programs: utilities love gadgets, too. Specifically, utilities who seek to recover their energy efficiency program costs love the kind of gadgets that they can count: CFLs, refrigerators, air-conditioning units, etc. When a utility gives a rebate for an energy-efficient refrigerator, they can assume that the refrigerator will achieve a specific amount of energy savings over its lifetime. It is relatively easy to calculate a program’s cost-effectiveness in terms of energy saved per dollar spent when there is a database tracking each rebated appliance. For the past 30 years or so, utility energy efficiency programs have focused on providing financial incentives to residential customers to get them to install energy-efficient lighting and appliances and to take other energy efficiency actions such as weatherization. Yet the gap between what people actually do in terms of energy efficiency and what would be cost-effective for them to do remains significant. The provision of financial incentives is convenient for utilities, but financial incentives alone do little to create lasting demand for energy efficiency once a program’s financial incentives run out, and they do nothing to mitigate any non-financial barriers to energy efficiency that may exist. There is a growing body of evidence—summarized in this paper—that social incentives can be more effective than financial ones in promoting energy-efficient behaviors and purchase decisions.

## **Defining Social Marketing and Behavior Change Tools**

The term “social marketing” has become a buzzword in the energy industry in the past few years, and there is some confusion over what the term actually means. For many, social marketing equals social media. Social media (e.g., social networking sites such as Facebook and blogging/user-generated content sites such as Twitter and YouTube) is one marketing channel of many that utilities and governments can use (others include mass media, direct mail, bill inserts, online advertising, retail partners, word-of-mouth, etc.), but social marketing is not a channel. Rather, social marketing is a marketing strategy that draws on social science findings to influence people’s attitudes and behaviors. Instead of selling a product, social marketers are essentially selling an idea. Further, the idea that is promoted is typically one that will benefit society, not just individuals. One textbook on social marketing defines the social marketing strategy as follows: “Social marketing is the use of marketing principles and techniques to influence a target audience to voluntarily accept, reject,

modify, or abandon a behavior for the benefit of individuals, groups, or a society as a whole” (Kotler, Roberto and Lee 2002).

Social marketing has been used in the U.S. and around the world to promote attitudes and behaviors that will benefit public health, law and order, and the environment for decades. In recent years the application of social marketing strategies to sustainability behaviors such as recycling and energy conservation has been popularized largely by the work of Doug McKenzie-Mohr and William Smith. Their book *Fostering Sustainable Behavior: An Introduction to Community-Based Social Marketing* lays out many of the specific tools that are useful for promoting sustainable behaviors, including prompts, commitments, feedback, and social norms (McKenzie-Mohr and Smith 1999). Although the term “community-based social marketing” that McKenzie-Mohr and Smith use indicates that these strategies are meant to be implemented at the community level, these four tools (prompts, commitments, feedback, and social norms) can all be integrated into larger scale campaigns as well. The following bullets describe these tools and their possible applications in promoting energy efficiency behaviors:

- **Prompts** are messages that remind us to take certain actions at strategic times or locations. For instance, the *These Come from Trees* stickers on paper towel dispensers in public restrooms<sup>2</sup> (the result of a guerilla marketing campaign) remind us to use fewer paper towels or use the air dryer instead of wasting paper resources. Similarly, stickers on the light switches reminding us to turn out lights when we leave the room are prompts that help us develop habitual behaviors. On a broader scale, utilities and governments can strategically time media and program messages to coincide with various triggers such as the changing seasons or the turnover of a home from one owner to the next.
- **Commitments** are public pledges made to take certain actions. Utilities and governments can challenge their customers/citizens to reduce their energy consumption by a specific amount or to replace all the lightbulbs in their home with CFLs, for instance. Research has shown that by asking someone to commit to taking one small action (such as installing a CFL), they may be more likely to agree to taking a larger or more expensive action (such as conducting a home energy audit) when approached later.
- **Feedback** mechanisms provide participants with information on the impacts of their changed behaviors. Feedback on energy consumption can take the form of technology-enabled direct feedback such as in-home energy use monitors or indirect feedback strategies such as comparative billing. In comparative billing, customers receive utility bills that compare their household’s consumption to the average consumption by similarly sized homes in their neighborhood as well as the most efficient similar homes. Feedback and commitment strategies are often used in concert, such as National Grid’s 3% Less initiative in Massachusetts, in which customers pledge to reduce their consumption by 3% per year and receive enhanced bills tracking their progress toward that goal.
- **Social norms** approaches seek to portray the desired behavior as the “mainstream” behavior. Some behaviors are adopted simply because people view them as the “right thing to do” and perceive potential negative social consequences if they don’t comply. Recycling and anti-littering campaigns have successfully reframed these behaviors as “the norm” to the point where it is conspicuous when your friends and family don’t engage in these behaviors. It is more challenging to promote energy-efficient behaviors as social norms because these behaviors mainly occur in private and are mostly invisible to outsiders, but there a number of ways in which utilities and governments can reframe energy efficiency as a social norm. The comparative billing strategy described in the previous bullet on feedback invokes a social normative message by letting people know if their energy consumption is extremely high compared to their neighbors. Advertising and

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<sup>2</sup> <http://thesecomefromtrees.blogspot.com/>.

media messages can portray energy-efficient behavior as something that everyone's doing, rather than something that only "tree-huggers" do.

## **Findings: Characteristics of Successful Behavior Change Campaigns**

This section presents the program elements shared by many of the successful behavior change campaigns reviewed in this research project.

### **Segmentation and Barriers Research to Inform Program Design**

One of the pillars of social marketing is the use of segmentation and barriers research to inform program design. Many utilities assume that the target audience for their residential energy efficiency programs should be "all residential customers" or "all homeowners," but the reality is that the energy-using characteristics of households vary dramatically based on a number of factors including household composition, lifestyle, demographics, and attitudes. There is also significant variability in the barriers that each household faces with regard to energy efficiency. The effectiveness of media messages and program communications can be maximized by identifying and prioritizing target segments and conducting segment-specific barriers research. Understanding and segmenting the market into distinct groups based on their shared characteristics, needs, and preferences allows for customization of messaging. Segments are typically prioritized based on both a hypothesis about their capacity to change specific behaviors *and* the potential impacts of those behavior changes. After target segments are selected, qualitative research into the specific barriers that the target segment(s) are facing should be conducted. Messaging that speaks to the specific barriers a segment of the population experiences in behavior change increases energy savings over one-size-fits-all messaging.

One example of a behavior change campaign that successfully deployed targeted messaging based on segment-specific barriers research comes from the field of public health. EX is a smoking cessation pilot campaign that relied on television advertising, a telephone helpline, and a website, along with community outreach (McCausland et al 2009). The campaign was targeted to smokers who wanted to quit smoking, but needed assistance in overcoming specific barriers. The campaign focused on increasing smokers' sense of self-efficacy and making them feel prepared and hopeful for the process of quitting smoking, as opposed to filled with dread and shame. Barriers research conducted for the EX campaign found that smokers who want to quit, but have repeatedly failed, have had difficulty "re-learning" to be a non-smoker. The campaign's tagline is "re-learn life without cigarettes", and provides advice on how to get through specific situations without cigarettes. The campaign acknowledges that by removing the cigarette from habitual behaviors (e.g., the first cup of coffee of the day), which changes the smoker's experience of those behaviors and others as well, they have to "re-learn coffee" to mean something different than what it meant when it was always accompanied by a cigarette. The campaign encouraged smokers to adopt a step-by-step mentality, looking at quitting as a series of behaviors that they needed to re-learn, rather than a radical, all-at-once lifestyle change.

The EX campaign has a number of relevant lessons for energy efficiency campaigns. For starters, a campaign focused on empowering people to take small, manageable steps to increase their sense of self-efficacy over a seemingly insurmountable challenge would resonate with environmentally conscious consumers who feel overwhelmed by the issue of climate change. The EX campaign specifically avoided any sense of shaming or authoritative lecturing, and cultivated a "peer-to-peer" style of communication (i.e., "smoker-to-smoker"). For an issue as deeply personal as how people behave in their own home, a peer-to-peer message may be better received than a message coming from an "authority figure." The EX campaign targeted people who desired to change their behavior, but needed specific assistance in overcoming barriers; energy efficiency behavior change programs will likely obtain greater energy savings if they focus first on assisting the

people who want to change their behavior, rather than trying to convince everyone that they should want to change their behavior.

### **Program Design with Evaluation in Mind: Baseline Research, Pilots, Control Groups**

If a campaign intends to estimate energy impacts from behavior changes, it is imperative that proper experimental design techniques be used from the outset. Before significant investments of time and money are made, qualitative research (e.g., focus groups) and small-scale pilot programs should be conducted to avoid potentially costly “false starts” with messages that won’t appeal to the target audience. Baseline research will enable tracking of changes in behaviors and attitudes over the course of the campaign (and beyond). If possible, control groups (i.e., similar populations which will not receive the campaign’s messages and interventions) should be identified, with the same baseline and post-campaign surveys conducted in both the experimental and control groups. The use of control groups enables more accurate attribution of program impacts by helping to differentiate the influence of the campaign relative to other sources of energy conservation/efficiency messages, although it can be difficult to establish control groups when mass media is used.

One way a campaign can enhance the evaluability of a campaign is by narrowly focusing its efforts on a few specific behaviors, rather than approaching the target segment with a more general “save energy” message followed by a laundry list of possible actions to take. This enables the evaluators to collect more specific details on each behavior change, which enables a more accurate impact evaluation, and it can also help to isolate the effects of the campaign from other influences in the marketplace.

A good example of a tightly-focused and well-evaluated campaign is the “Off. Really off?” campaign in Germany. The campaign raised awareness of the energy wasted by plug loads (i.e., consumer electronics) even when they are “off,” and promoted a few specific, related behaviors: unplug electronics when they aren’t in use, purchase/use power strips, and take standby power consumption into consideration when making electronics purchases (Wortmann and Mohring-Huser 2003). The campaign was evaluated extensively, with a baseline survey conducted before the campaign, a survey conducted at the peak of the campaign, and a follow-up survey conducted one year after the campaign, to assess the persistence of these behaviors. After just three months, awareness of the campaign was 33%. Both awareness of the standby power problem and the prevalence of the requested behaviors rose during the campaign and remained elevated over pre-campaign levels one year after the campaign ended.

The “Off. Really off?” campaign also selected a nearby region which was unaffected by the campaign and surveyed residents in that region as well, to establish a control group. By focusing on a few specific behaviors, planning ahead for evaluation by establishing a baseline and a control group, and conducting a post-campaign survey to establish long-term effects, the evaluators were able to identify the effects of the campaign on those behaviors and estimate energy savings with far more confidence than most other marketing/information-based utility programs. The campaign resulted in 14.7 million kWh of short-term savings (from behavior changes expected to persist for 2 years) and 11.3 million kWh of long-term savings (from energy-efficient purchases with savings expected to persist for 10 years).<sup>3</sup>

In a waste reduction behavior change campaign, the King County (Washington) government developed a promising methodology for tracking environmental-related behaviors and people’s willingness to change those behaviors against a baseline, called the Environmental Behavior Index. The county developed a comprehensive list of environmental behaviors related to recycling, waste reduction, and disposal of hazardous waste, and then developed survey questions for each behavior

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<sup>3</sup> The “Off. Really off?” campaign cost 890,000 Euro in 2000-2001. Based on the Euro-dollar exchange rate on January 2, 2001 (the first business day of the year), that is approximately \$839,000 in U.S dollars (or 3 cents per kWh). Historical exchange rates obtained at <http://www.oanda.com/currency/historical-rates>.

on the list. For each behavior, respondents were asked variations on three questions: 1) “what do you do?” (providing both pro-environmental and less desirable options), 2) “how often do you do it that way?” (always, sometimes, or never), and 3) “have you ever considered doing it differently?” (to determine the willingness/likelihood of behavior change and identify barriers). Questions about demographics, attitudes, and household characteristics were also asked. The survey was first deployed in 2005, and has been repeated several times since. The results are broken down by socioeconomic and geographic characteristics to identify segments/regions which are either far above or below the norm in terms of environmentally friendly behaviors, and the results are used to fine-tune program delivery and track program progress (Jull 2009).

### **Appropriate Selection of Marketing Channels**

Many of the most effective behavior change campaigns rely on a mix of marketing channels. For instance, mass media advertising has been combined with social media; direct mail has been combined with community outreach. This type of multi-modal campaign is beneficial since research suggests that exposure to the same message in varying media and access points, such as through partnerships, can improve efficacy (Briggs and Stuart 2003). Many campaigns use the more expensive mass media advertising to kick off a campaign, then sustain the campaign with lower cost social media and outreach efforts. Pilots incorporating experimental design (as discussed in the previous section) can help a campaign find the right mix of marketing channels.

The “Off. Really off?” campaign in Germany (as described in the section above) was also an excellent example of how a campaign can take advantage of the particular strengths of different types of media and outreach to maximize the value of each. The campaign used traditional advertising (TV, radio, newspaper) primarily for raising awareness and creating a buzz around the campaign; the mass media advertising used humor and wordplay to catch the audience’s attention. Then social media and retailer partners (who received free marketing materials) were used to provide more specific, action-oriented information; these more interactive forms of communication are better suited to conveying complex actions because the consumers can ask questions and seek out information tailored to their specific needs.

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.<sup>4</sup> 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. 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 public relations 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 found that the median age of Facebook users is 33 years old, and the median age of Twitter users is 31 years old.<sup>5</sup> More importantly, social media makes Internet users feel more personally connected with campaigns; another recent Pew survey found that 54% of Internet users who participate in social media agree with the statement “The Internet makes me feel more personally connected to my candidate or campaign of choice,” compared to just 28% of all Internet users.<sup>6</sup> While this survey was asking about political campaigns, it stands to reason that social media

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<sup>4</sup> There is a social networking site for utilities to share information and ideas related to social media, located at <http://socialutilities.ning.com>.

<sup>5</sup> <http://www.pewinternet.org/Reports/2009/17-Twitter-and-Status-Updating-Fall-2009.aspx>.

<sup>6</sup> <http://www.pewinternet.org/Presentations/2009/RTIP-Social-Media.aspx>.

users would feel more personally engaged with issue-oriented campaigns (e.g., energy conservation) as well.

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, a New York utility, 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, too. 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 may be effective for changing behavior, because it helps to provide evidence for 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!”).

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 that 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 assessing the tone of comments.<sup>7</sup> Implementers can also obtain suggestions for additional content (for instance, see Figure 1) – one fan of the Power of Green campaign suggested that the campaign provide a cookbook that is “low energy, high taste, and healthy,” in response to a recommendation to use the toaster oven more. 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 <http://www.youtube.com/smartpower>) won \$10,000 for their efforts.

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<sup>7</sup> There are many analytical tools and services (e.g., FiltrBox, Vocus, others) available to assist in tracking both the quantity and quality of social media interactions. These can be used to identify and track what people are saying about a campaign on all social media websites, not just social media efforts put forth by the campaign. Even if a campaign does not have an active social media presence, it doesn’t mean that people aren’t talking about it on their social networking sites, blogs, and message boards, and savvy marketers can learn a lot about their customers and the effectiveness of their campaign by studying their social media “buzz.”

**Figure 1. Example of Content from ConEd's Power of Green Facebook Page**



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. 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. Almost one-third (32%) of Americans have used their mobile phones to access the internet, and one in five use the Internet on their mobile phones on a daily basis (Ngo 2009). Almost half of Americans (49%) use the SMS (text messaging) feature of their mobile phones.

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 (Holmen 2009). 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?"<sup>8</sup>

Arguably one of the largest and most successful public campaigns in recent memory, Barack Obama's 2008 campaign for President of the U.S. relied heavily on social and mobile media for community organizing, information dissemination, fundraising, and get-out-the-vote efforts. The campaign's effective integration of social media and real-world community organizing is widely thought to be one of the key advantages over opponent Senator John McCain's campaign (Stirland 2008). 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.

### **Empowered Local Change Agents**

Many of the most engaging behavior change campaigns abide by the old adage, "think global, act local," by forming partnerships with local governments, schools, non-profits, churches, and other community groups to deliver the program on a local level. Empowering local community leaders and citizens to act as ambassadors of the program (or "change agents") has a number of advantages:

<sup>8</sup> Ecobee smart thermostats can be controlled remotely by an iPhone application. <http://www.appstorehq.com/ecobeessmartthermostat-iphone-85397/app>.

- **Inspiration.** Individuals who read about doomsday climate change scenarios in the newspaper can feel overwhelmed by the magnitude of the problem and question the efficacy of individual actions in fighting a global danger; however, the realization that other members of their own community are also engaged and taking action can be very inspiring.
- **Credibility.** The multitude of messages related to climate change and clean energy coming from the media, governments, utilities, advocacy groups, and corporations can also be overwhelming to consumers, and many of those organizations are perceived to have a political or financial agenda. Local non-profits and community groups are viewed as particularly credible messengers in that they have no financial agenda.
- **Access to resources.** These local partners can provide logistical and financial support as well as volunteer manpower, greatly extending the reach of a state- or utility-sponsored campaign.
- **Refined messaging.** Local partners also often have a more nuanced understanding of their communities' unique cultural and social contexts than campaign sponsors, which can aid in customizing program messages and strategies for specific communities.

One example of a campaign that has engaged communities on a broad scale is Project Porchlight, which has been sponsored by utilities and governments across the U.S. and Canada. The campaign (which is run by the non-profit organization One Change) recruits volunteers through community groups, schools, and businesses, and the volunteers canvass their neighborhoods and deliver free CFL bulbs as well as targeted energy efficiency program information from the sponsoring utility. The economies of scale from purchasing many bulbs and the use of volunteers to deliver the bulbs result in very cost-effective energy savings<sup>9</sup>, even before you take into account the effects of additional savings from behavior changes or additional energy efficiency purchases that likely result from the bulb recipients' increased knowledge of energy efficiency options.

Another innovative way in which community groups and social networks have been enlisted to educate peers and promote behavior change is the Home Energy Efficiency Team (HEET) that is being implemented by a non-profit in Cambridge, Massachusetts. HEET repurposes the traditional New England "barnraising party" for home weatherization, in which trained staff assist a homeowner in assessing their weatherization needs and recruiting a small army of friends, family, and community members to provide free manual labor (the homeowner pays for supplies).<sup>10</sup> Just like the old barnraising parties, these events are fun and lively, with food, music, and neighborly conversations. The staff and a few skilled volunteers teach the unskilled volunteers everything they need to know about weatherizing a home, along with other possible energy efficiency retrofits. The program operates with very low overhead and provides a hands-on energy efficiency education to a large group of volunteers, 40% of whom go on to make weatherization and efficiency retrofits in their own homes.<sup>11</sup>

HEET's educational effort results in more transfer of knowledge and diffusion of energy-efficient practices through a social network than would result from a traditional home energy audit program in which the homeowner must find (and pay) contractors and other laborers to install the recommended upgrades and retrofits. On its website, HEET provides many resources including an implementation manual for weatherization parties with many helpful suggestions about how to overcome various hurdles, such as raising the funds to pay for the weatherization materials, finding volunteers, addressing liability and safety concerns, etc. (HEET 2010). Utilities and governments could incorporate this "barnraising" model into existing home energy audit programs by training

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<sup>9</sup> Costs are approximately 1-2 cents per kWh, depending on the scale of the campaign. Personal communication with One Change/Project Porchlight staff.

<sup>10</sup> For more information, see <http://www.heetma.com/>.

<sup>11</sup> Personal communication with HEET staff.

staff and/or volunteers to act as team leaders and assist homeowners with holding their own home weatherization parties to implement the audit recommendations.

## **Social Norms**

One reason that community-based campaigns like Project Porchlight and HEET are so successful is that people are often more receptive to messages coming from people that they perceive as their peers. Project Porchlight's trained volunteers are able to engage their neighbors in peer-to-peer dialogues about opportunities to save energy (beyond installing the bulb). By presenting energy-efficient behaviors as mainstream "things that people like you do," campaigns can invoke the power of social norms. People are more likely to change their behavior if they believe that others are doing so, too, and most people harbor a strong desire to avoid being perceived as outside the mainstream. The one-on-one interactions made possible through community-based social marketing campaigns (as well as the use of social media) also enable people to ask questions and obtain information that is personalized to their unique situation, which further increases the likelihood that they'll act on the information that they receive.

It is hypothesized that these "foot-in-the-door" behaviors such as installing a free CFL lead to a greater likelihood of taking more significant energy efficiency actions in the future.<sup>12</sup> Project Porchlight's philosophy, based on the self-perception theory, is that by taking that first step of installing the free CFL, people actually change how they view themselves; they suddenly become "people who do the energy efficiency thing." This change in self-perception makes them more likely to agree to the next request to take an even bigger action, such as conducting a home energy audit or purchasing an energy-efficient appliance, because people have a strong desire to be viewed (by themselves and others) as being consistent in their thinking and values.

Another intriguing community-based effort is the use of bible study-type groups to study and discuss ways in which participants can lead more sustainable lives. Many parishes of the Unitarian Universalist Church have implemented these types of study groups that use the "Low Carbon Diet" workbook as the "bible."<sup>13</sup> The groups, often called "Carbon Rings," provide emotional and practical support and an opportunity for sharing ideas/solutions for members who are committed to changing their lifestyles to reduce their carbon footprint. Each "Carbon Ring" begins with a carbon footprint audit, and goals for reduction are set. In California, results are reported to the state coordinator to encourage friendly competition among churches. While the Unitarian Universalist Church's use of this approach is the most documented, these types of study/discussion guides are used by book clubs, workplaces, and other types of community organizations across the country as well. These community-based groups are particularly powerful in that participants are changing their behavior to better align with a set of moral values shared with their peers.

## **Consumers' Desire for Quantification and Prioritized Recommendations**

Utilities can invoke social norms to promote energy conservation by providing comparative billing data on how one household's energy consumption compares to similar homes in their neighborhood. Several companies, most notably OPOWER, provide software solutions to utilities to implement this strategy, which has consistently resulted in energy usage reductions averaging 1.5-3.5% per customer in pilots across the country (Summit Blue Consulting 2009). There is anecdotal

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<sup>12</sup> For instance, in New Jersey, one county in which a Project Porchlight campaign distributed information about a refrigerator recycling program accounted for 25% of the program's statewide activity. <http://www.onechange.org/wp-content/2010/04/PROJECT-PORCHLIGHT-SUMMARY.pdf>.

<sup>13</sup> The "Low Carbon Diet" workbook was developed by the Empowerment Institute (<http://www.empowermentinstitute.net/lcd/index.html>); other similar discussion group curricula and workbooks are compiled by the Northwest Earth Institute (<http://www.nwei.org>).

evidence that OPOWER program participants actually look forward to opening their utility bills, hoping to see the little smiley face that indicates that they used less energy than most of their neighbors. These feedback efforts are most effective when coupled with information about prioritized actions that participants can take.

Recent qualitative research efforts in California and New York (two states with long histories of promoting energy efficiency) have revealed that consumers still feel that they lack sufficient information about what energy efficiency behaviors and purchases will result in the greatest savings for them, and they want to see the results of the actions that they have taken. Too often, campaigns provide consumers with long “laundry lists” of possible actions with no estimate or ranking of each action’s possible impacts; these lists are overwhelming and generally useless to people with limited time and energy for thinking about energy efficiency (Gardner and Stern 2008). Consumers have a strong desire for a quantitative estimate (even if it’s a rough estimate) of how much their actions matter. Feedback mechanisms such as comparative billing can fulfill that desire for quantification.

One way that energy use feedback has been integrated into communications-based 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 (Padgett et al. 2008). The key objective is to provide consumers with information that helps them to prioritize actions based on relative expected savings; achieving precise calculations of consumers’ carbon footprints and potential energy savings from various actions is less important.<sup>14</sup>

Providing estimates of possible savings from energy efficiency actions is also useful in helping to manage consumer expectations. It is important to avoid overly vague claims of saving money, because when consumers are told that they can expect to save money, but they aren’t given an estimate of what they’ll save, they mentally “fill in the gaps” in the message and assign a overly high number for their expected savings. Recent research has found that American consumers expect a \$4,000 investment in energy efficiency upgrades to result in approximately 50% savings on their utility bills, which is an unrealistic expectation (Shelton Group 2009). When consumers’ expectations about cost savings from efficiency upgrades are not met, it can create a negative association with energy efficiency which may seriously hamper future campaign efforts.

## **Enthusiasm and Excitement**

Making energy efficiency and conservation seem fun and feasible for an ordinary household (rather than an onerous exercise in deprivation undertaken only by “tree-huggers”) is essential to winning over the hearts and minds of the average consumer and transforming the market for residential energy efficiency. Many people hear the word “conservation” and their minds go back to Jimmy Carter’s 1977 fireside chat in which he told Americans to turn down the heat and put on a sweater as an act of patriotism. Over thirty years later, conservation is still associated with deprivation. Yet, there are numerous energy efficiency actions that ordinary people can take in their homes without reducing their quality of life at all (and, in many cases, these actions can actually increase their quality of life, e.g., reduced drafts, improved indoor air quality, reduced utility bills,

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<sup>14</sup> Consider the use of the bathroom scale in weight loss: the measurement accuracy of the scale is less important than the ability to track progress relative to the original weight.

etc.). The negative attitude towards efficiency and conservation needs to be counteracted by creating campaigns that are fun and empowering.

Competitions can be an effective means to generate excitement and publicity around an energy conservation campaign. There are numerous examples of competitions used effectively to promote energy conservation, including community energy challenges, school energy challenges, and home energy makeover contests. Competitions are particularly effective because they use social incentives to change behavior by moving energy efficiency actions out into the public realm. 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 yourself).<sup>15</sup> 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.”

Competitions can entertain and engage consumers by tapping into the popularity of home renovation shows (e.g., *Extreme Makeover Home Edition*) and competition-based reality shows (e.g., *Survivor*, *the Biggest Loser*, etc.). An example of this is Ireland’s *Power of One Street*, which was one element of a multi-faceted campaign (called the *Power of One*) to reduce residential energy consumption. The concept of *Power of One Street* is that a variety of consumers (12 households, two businesses, and one school) became the stars of case studies via reality-style television and faced a series of challenges to reduce their energy consumption. Each month, the challenges focused on different end uses: space heating, lighting, domestic hot water, small power (i.e., plug loads), cooking, and an eco-driving challenge. Feedback also played a significant role in this challenge, as the participants had energy consumption feedback and also energy “coaches” who were available to help them to interpret the data and brainstorm methods of reducing consumption. The participants’ energy savings were in the range of 13% to 27%, and the competition generated a high level of media interest (Shanks 2009). Similarly, a public access reality TV show called *the Greenest House* has been developed with two families in the Pacific Northwest region competing to reduce their carbon footprint, with the help of “coaches.”<sup>16</sup> Campaigns can produce similar television series themselves or work with local news media (TV and newspapers) to chronicle the competitions. These competition-based stories provide opportunities for demonstrating the ease and benefits of residential energy efficiency behaviors through a fun and entertaining medium.

## **The Need for Robust Evaluations**

The previous sections presented a wide variety of effective ways to promote residential energy efficiency behavior change through the application of social marketing tools. Yet, most utilities in the U.S. are not implementing any of these tools (or not implementing them at a scale that can make a difference). The problem lies in the way that regulated utilities are typically compensated for their energy efficiency efforts. In order to recover costs from an energy efficiency program, the utilities must demonstrate cost-effective energy savings to the regulators. To demonstrate cost-effective energy savings, the utilities typically must conduct third-party impact evaluations of programs. For a program that involves handing out financial incentives for installing specific pieces of energy-efficient equipment, that impact evaluation is relatively straightforward, and the cost-effectiveness of the program can be easily calculated within a few months of the program’s

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<sup>15</sup> 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.

<sup>16</sup> <http://www.thegreenesthouse.com/>.

deployment. For a social marketing campaign that seeks to transform a market and change behaviors and attitudes over the long term, it may take many years for the campaign's full impacts to be realized, and it can be difficult to separate out the effects of a campaign from other influences such as other energy conservation campaigns, energy prices, political influences, etc. Thus, marketing and communications efforts are typically classified as part of a utility's overhead, and, therefore, evaluations of those expenditures are not required. However, if no evaluation is done, then no savings can be counted toward utilities' energy efficiency targets, and the utility can't recover any of those costs, thereby diminishing the value of these types of programs in the eyes of the utility.

Some behavior change programs are more easily evaluated than others, e.g., the OPOWER comparative billing pilots have been evaluated numerous times using billing analysis, and California has recently taken steps toward allowing the savings from OPOWER-style feedback programs to count toward utility efficiency targets (thus enabling cost recovery for those programs).<sup>17</sup> However, only savings achieved during the campaign's active implementation phase will be counted, and no market transformation effects will be counted. Very few evaluations of more comprehensive social marketing efforts (particularly media-based or community-based efforts) have been conducted. The situation is basically a deadlock: until utilities can count on recovering the costs associated with social marketing and behavior change programs by demonstrating cost-effective savings, they won't invest significant sums of money in them, but it is difficult to prove cost-effective energy savings until someone implements and evaluates full-scale, long-term social marketing and behavior change programs.

So how do we break this deadlock? There are several paths forward here. First of all, state regulators can create regulatory environments that encourage and incentivize the development of longer-term pilot programs for social marketing and behavior change, understanding that it can take longer for energy savings to materialize from market transformation-oriented approaches. Utilities can apply many of the social marketing principles to their existing resource acquisition programs (e.g., adding a "home weatherization barnraising party" approach to an existing home energy audit program) on a pilot basis, preserving control groups if possible which would not receive the added social marketing intervention, and then evaluating the impacts of the added program elements. Evaluators can encourage their utility clients to include the tracking of energy efficiency-related attitudes and behaviors in customer research such as surveys for other evaluation projects, which will help establish baselines for future behavior change program evaluation.

## Conclusion

Attempting to influence consumer behavior and purchases through social marketing rather than financial incentives is a major shift in thinking for most utilities. State policymakers can help to ease them through this transition to a more behavior-focused approach by creating a regulatory environment that encourages the development and evaluation of longer-term behavior-based pilot programs which will demonstrate the magnitude and persistence of energy savings. California has recently taken steps toward allowing the energy savings from certain types of behavior change programs to count towards utilities' mandated energy efficiency targets, but much more remains to be done to enable utilities to deploy the full range of social marketing strategies and thus help create an enduring culture of energy conservation in the United States.

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<sup>17</sup> In California, a recent ruling by Administrative Law Judge (ALJ) Gamson released on March 9, 2010 stated that the state will adopt a policy to estimate, measure, and count savings from comparative usage programs (i.e., OPOWER-style programs), and that further efforts to create a regulatory environment that encourages behavior change and conservation were necessary. The current position is that only ex post savings during the 2010-2012 program cycle will be counted, but the onus is on the program implementers to prove that projected ex ante savings will materialize. The ALJ ruling can be found at <http://docs.cpuc.ca.gov/efile/PD/114662.pdf>.

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