Ethnographic Inquiry in Energy: Exploring Meaning-Making and Sociality in Language Use, Program Participation, and Behavioral Choice

Anne Dougherty and Jennifer Mitchell-Jackson, Opinion Dynamics Corporation
Pamela Wellner, California Public Utilities Commission

ABSTRACT

Ethnographic research provides unique insights into the everyday lives of individual households that other research methods cannot. Focusing on the living, day-to-day culture of individuals, ethnography provides a window into the ways language use, belief systems, family and social networks, and one's geography inform and guide energy-saving (or wasting) practices.

Opinion Dynamics conducted one of the largest ethnographic research studies in the energy industry, conducting 136 two-hour in-home visits throughout the state of California to understand how households make day-to-day decisions on their energy use, and what specific cultural factors promote and detract from smart energy choices. Here, we discuss how our observations of and conversations with households have generated new knowledge for the energy industry that can inform and enhance program implementation, communication, and upfront market and evaluation research design.

In particular, we will focus on the insights gained in listening to everyday language use and meaning-making around energy, household and social dynamics, what households say versus what they do and mean, and the cultural particularities that emerged in our research. We will highlight how these insights add depth of understanding to more traditional research techniques, such as surveys and in-depth interviews. Further, we will discuss how our ethnographic research can be taken off the shelf and incorporated into multiple program and evaluation efforts implemented throughout the US.

Introduction

Few methods have the ability to provide depth of insight and context into the behavioral choices of residential consumers. Ethnography is one of these methods. Ethnographic research, the methodological cornerstone of anthropologists, requires that researchers embed themselves in the culture of its subjects, aiming to obtain a highly contextualized and textured understanding of behaviors.

Opinion Dynamics, on behalf of the California Public Utilities Commission (CPUC), went to the homes of nearly 150 residential energy users to determine the drivers and barriers to positive energy behaviors. Through a careful analysis of California's energy culture, we unearthed multiple subtleties to energy positive behavior adoption that have been otherwise unobserved in many quantitative studies. Here, we specifically explore the implications of language use, behavioral choice and "exchange," and the physical and social influences on program design and development, demonstrating why ethnography can serve as a valuable resource in the researcher's toolbox.

Methodology

The Opinion Dynamics team conducted 136 in-depth interviews in homes across California. These interviews were conducted by trained ethnographers in two languages: English and Spanish. In total, our team conducted 110 of the interviews in English, and 26 in Spanish. We also attempted to represent a variety of viewpoints: urban versus rural; low-, medium-, and high-income; a variety of ethnicities; and geographic differences.

In addition to an in-depth interview, respondents were also asked to use story-telling and show-and-tell to describe the factors affecting energy use in their homes. Specifically, there were four parts to each visit: (1) a general discussion of lifestyle and daily practices in the home; (2) a general discussion of energy, issues facing the nation with regards to energy, and how energy is used in the home during a typical day; (3) a show-and-tell where we asked the respondent to walk us through their home (specifically the kitchen and primary living space) and talk to us about how they use energy in each room, what uses the most energy, and what they have done and/or could do to save energy in that room; (4) a brief survey where we asked respondents to fill out standard survey questions about energy efficiency actions that they had taken and equipment that they might have installed in their home; and (5) a discussion of motivations and barriers that prevented their household from taking energy saving actions. As such, our team used multiple forms of data collection within the respondent's home to paint a full picture of household energy use.

Through this research, we sought to examine the process of how residents make their daily practices meaningful through their attitudes and beliefs. We also sought to determine how residents make sense of and rationalize their interactions with their physical and social environments. With this information, Opinion Dynamics was able to determine the underlying ethics that drive energy use and thus provide insights into the levers of change. In addition, we explored the use of language and the subtle meaning and distinctions behind commonly used terms like "waste," "save," "conservation," "efficiency," and "energy." We also examined the ways in which respondents imbue these terms with meaning by drawing on their own experiences, personal histories, and sense of self-efficacy. Below are our key findings on language, context, motivations and barriers.

Discussion

Ethnographic Insights for Communications

Ethnography, the primary data collection method of anthropologists, provides a substantive, whole-life perspective on the behaviors and practices of individuals and groups. In particular, ethnography is well suited to the task of exploring and understanding communications, namely how meaning is or is not conveyed in multiple communication efforts, from every-day colloquial speak to mass communications efforts.

Communication among individuals and groups is highly complex, meriting multiple social science disciplines devoted to exploring how, why, and in what ways individuals and groups come to create meaning through their interactions. For anthropologists and linguistic anthropologists, understanding communication is *context dependent*, asserting that to effectively understand the meaning of a word or phrase requires an understanding of the social circumstances under which it is conveyed. Foundational anthropologist Clifford Geertz asserts

that ethnography is necessary to understand the context of social interactions, asserting "thick description" is necessary to effectively capture the meaning behind words and actions. Geertz demonstrated the importance of context in the following passage of his seminal work, *The Interpretation of Cultures* (Geertz 1973). Referencing the example of philosopher Gilbert Rye, Geertz writes:

> "Consider two boys rapidly contracting the eyelids of their right eyes. In one, this is an involuntary twitch, in the other a conspiratorial signal to a friend. The two movements, as movements, are identical; form an I-am-the-camera. . .observation alone, one could not tell which was a twitch and which was a wink. . . Yet the difference, however unphotographable, between a twitch and a wink is vast; as anyone unfortunate to have the first taken for the second knows. The winker is communicating, and indeed communicating in a quite precise and special way: (1) deliberately, (2) to someone in particular, (3) to impart a particular meaning, (4) according to some socially established code, and (5) without cognizance of the rest of the company."

As Geertz exemplifies in this passage, understanding the true meaning of our words and actions requires an understanding of the context in which they are being communicated. Unlike quantitative data, ethnography provides this context. For example, Opinion Dynamics could quantify the number of winks a group of individuals exchange, but it fails to capture the intent and effect of this communication exchange. In addition, it would be difficult to ask an individual to quantify, in order to measure and understand the intent of the wink, the number of times they used a wink to communicate different meanings, such as insider knowledge, joking or jest, and sexual attraction, to name a few.

Moreover, without the social context and observing the reaction of the recipient, it would be difficult to understand the effect of this gesture, which would be otherwise understood through our observations of the recipient's body language, our understanding of the social setting, etc. For these reasons, ethnography provides a deeper understanding of the intent and effect of communications, enabling researchers to understand multiple levels of meaning, from the literal interpretation of communications to the value it imbues.

Linguistic anthropologist Michael Silverstein asserts in his theory of *indexical presupposition*, that a given word or term engenders a socially-understood meaning that is greater than its literal definition (Silverstein 1976); words serve as an *index* of larger social meaning that are exchanged to communicate ethics, power, and social standing among others. For Silverstein, the *indexical presupposition* is culturally determined and specific, requiring a shared understanding between those communicating with one another. To simplify Silverstein's theories, effective communication requires that we must share the literal meaning of a word *and* what it implies in the social context to effectively index the same thing. Otherwise, communicators can be saying something with a particular intent, but failing to communicate the appropriate meaning to the recipients of that information. As many translators will attest, understanding the literal translation of a passage does not ensure the reader understands its meaning, particularly when the writer and reader do not share the same cultural background. While most organizations engaged in cross-cultural or in-language communications understand this when developing marketing and outreach materials, few pay attention to the cultural complexities and limitations of communication to English-language speakers. In this way, language is far more loaded than we often imagine.

Our ethnographic research indicates that often communicators' messages are "lost in translation" between the implementers and those exposed to the messages. This occurs for a number of reasons, including but not limited to: (1) differing definitions of terms used in

communications, such as energy efficiency; (2) differing meanings and cultural contexts assigned to those terms, such as positive or negative associations; and (3) misaligned marketing and outreach approaches and populations (or segments).

Through careful, in-depth conversations with residential customers, Opinion Dynamics ethnographers examined both the way residents used language in every day speech and the cultural meanings of those terms. Through careful examination of the way respondents use language, Opinion Dynamics ethnographers discovered how terms such as conservation and efficiency are sometimes construed differently. Specifically, we found that residents and communicators carry different literal meanings (denotations) of terms like "energy efficiency" and "energy conservation." [1] Specifically:

- **Residents do not use the terms energy efficiency and conservation.** Respondents do not differentiate between the terms "efficiency" and "conservation" in colloquial speech unless asked to define them directly. Typically, respondents are more likely to use terms like "saving" or "wasting" energy. For most, efficiency and conservation carry the same colloquial meaning. If pressed to differentiate the two terms, many can provide formal and differing definitions. However, practically speaking, these terms are not part of the lexicon for most respondents.
    - **Energy efficiency is a machine.** Respondents understand efficiency as the property of a machine or appliance and do not readily associate the term with actions such as weatherization and retrofits.
    - **Energy efficiency is assumed or unnecessary.** Many respondents indicate that the equipment in their home was efficient because it was new. Specifically, their frame of reference was their older equipment that they had replaced. For example, one respondent stated *"I've got a new refrigerator. I'm sure it must be saving energy…because I just bought it. I had an old one, and I'm sure that wasn't saving anything. I've got a fairly new stove, and that's electric, so that must be saving electricity…you see advertisements all the time saying that the newer appliances are made to save energy, so I'm hoping that mine are."*

These insights indicate that the working definitions or denotations of terms like "energy efficiency" and "conservation" are markedly different between program implementers and communicators than the residents they serve. Further, the connotation or cultural meaning behind these terms differs as well. Our ethnographic research indicates that respondents bring specific meaning to these terms that reflect their socio-cultural belief systems. Specifically, we found that:

- **Energy efficiency is not something humans choose.** When discussing the concepts of energy efficiency versus energy conservation, respondents more strongly identified conservation with human actions and efficiency with the actions of machines. This perception of energy conservation as "human" and energy efficiency as "machine" generates very different attitudes towards these actions:
    - Energy conservation is something "I can do," and engenders feelings of personal, social, and political empowerment.

[1] Note here we use the term conservation to mean energy-saving behaviors, such as turning off the lights.

  - Energy efficiency is not necessarily linked to one's personal choices. Rather, it is a property of a product that is driven by other technological advances and/or the market.
  - Energy efficiency is considered a purchase consideration, not necessarily part of a suite of lifestyle decisions.
- **Energy efficiency is not associated with natural resources, but energy conservation is.** Energy conservation is readily associated with natural resources. Many respondents equated leaving your lights on with keeping the faucet running or poor waste management. One researcher noted of a respondent: *"The respondent has a strong connection to not "wasting water," and she repeated this a few times during our interview. She's not alone. Most of the people I interviewed connected water use and waste with energy.*"
- **Energy efficiency can be perceived as wasteful.** Many respondents view equipment upgrades prior to the end of a product's life, even upgrades performed for efficiency reasons, as wasteful. Further, many environmentally conscious individuals equate energy efficient purchases with unnecessary consumption. The following quotes exemplify this efficiency-waste paradox. One respondent noted: *"I tend to be more on the conservation side. I'm not going to get, like, a new efficient microwave. I think it is better just to not have a microwave if you don't need one. To me, buying an energy-efficient thing is being part of the problem, in a certain sense."* A different respondent indicated: *"With energy efficiency, you're going to use something. With energy conservation, you might decide not to use something at all. . .Why would I need, you know, two refrigerators? So, I conserve by not having surplus things that I don't need that use energy. I also conserve by using less of what I have. But efficiency means that you've worked yourself into a situation where you can have a lot of what you have without throwing away energy… People are not. . going to do more with less."*

In addition, our research found that this sentiment, that energy conservation is something people do and that machines are wasteful, was particularly strong among Spanish-speaking respondents. The emphasis on machines over human effort was perceived as an issue of the "new generation" and represented a chasm between old and new country values. Spanish-speaking respondents valued personal effort over convenience and felt it to be inherent to their culture. Letting a machine do something that could be done manually was seen as antithetical to the group's sense of cultural identity. One respondent lamented this new reliance on machines (implying the new generation in the US) in the following quote:

> "And the waste we make of energy… The more ways we have to use energy, the more sedentary we become. When there was no blender, we used other devices. When there was no [electric] mixer, we exercised our hands [by mixing manually]. Now with TV and the internet, we don't read… we don't talk [to each other] anymore. Personally, we [Hispanics] are more inclined to talk to each other; in this country, no, it's like everyone is in their own house. Because of energy use, we become more isolated… like we lose human relations because of this [increased energy use]."

This population is often touted as very receptive to energy efficiency because of their emphasis on conservation. However, the former respondent's quote further demonstrates how energy efficiency can be perceived as wasteful. In effect, purchasing new appliances, for this respondent, moves away from self reliance and manual work to a more convenience-driven lifestyle which was blamed, in part, for the loss of connection among new immigrants in the US.

Furthermore, purchasing an energy efficient appliance did not accurately address this population's concerns and beliefs around saving energy, and may even contradict them. The concept of making a purchase in order to "save" was foreign and altogether devoid of meaning for this group. Ultimately, energy efficient purchases were widely viewed as wasteful.

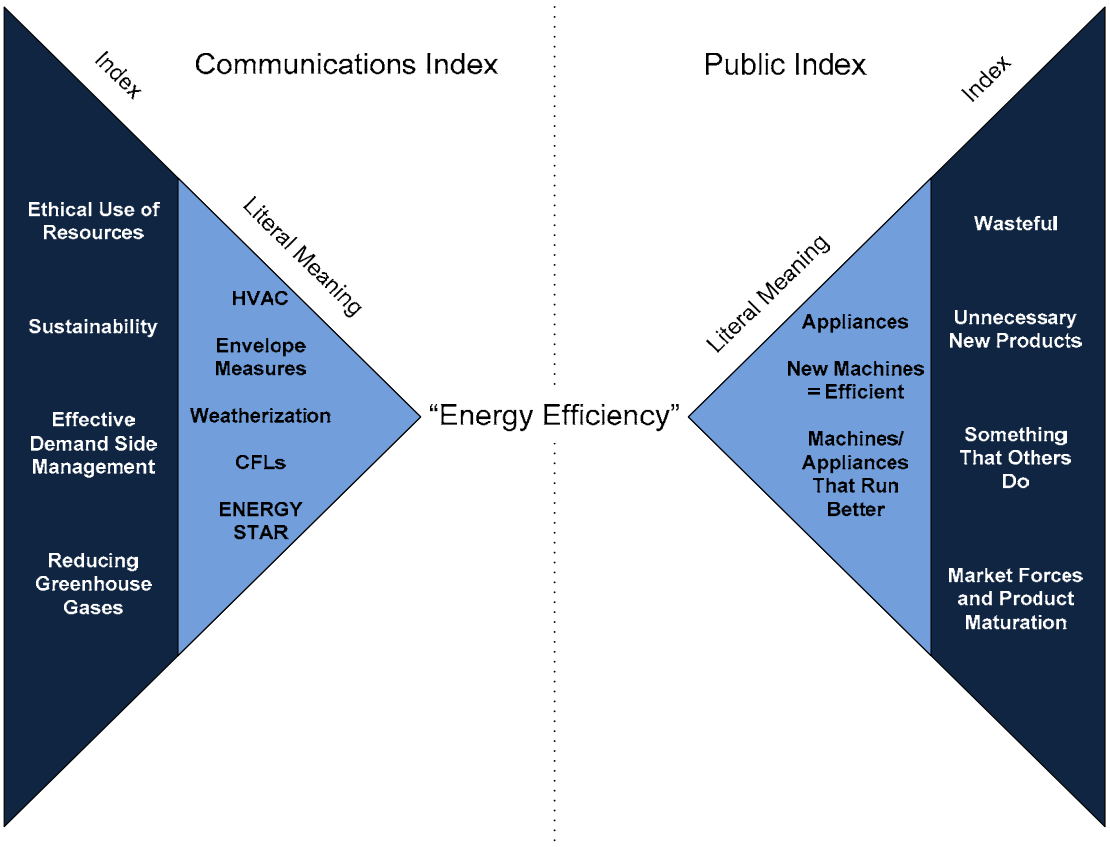
These findings indicate that, with energy efficiency in particular, residents' sense of self-efficacy[2] is low because it is often viewed as something others do, that machines do, or that is in direct opposition to positive cultural values around saving. This presents a very real obstacle to energy efficiency marketing, education, and outreach.

In addition, our findings indicate that respondents are unlikely to equate energy efficiency with conscious consumer choice, and do not feel that their purchase choices can have an impact on the market. Rather, market actors and market forces determine efficiency. By extension, our research suggests that, because respondents believe that energy efficiency is the product of machines and not something they can affect, it is more difficult to use environmental or non-energy saving benefits to motivate efficiency actions.

Figure 1 provides an illustrative example of Silverstein's theories, showing how the aforementioned findings reveal different cultural meanings or indexes for the communicators and the public they trying to speak to. Ultimately, communicators may be ineffective in their marketing and outreach strategies if their efforts are misaligned with the public's (i.e. they are indexing different things).

[2] Here, we draw on Bagozzi and Warshaw's (Bagozzi and Warshaw 1990) use of self-efficacy, describing an individual's belief that they have the ability to affect a specific outcome, in this case energy efficiency. This is to be differentiated from *action efficacy*, which is the belief that a specific action has the claimed effect, e.g. installing an energy efficient HVAC system will result in x number of kWh savings.

Figure 1. Example of Discrepancies in Communicators and the Public's Index of the Term "Energy Efficiency"



Ethnography in Understanding Consumer Choice and Trade-Off

Choice is a central component of behavior change. As social actors engage in a complex exchange of behavior and meaning, two factors need to be present to ensure that an individual actor will engage in a promoted behavior, such as the purchase of an appliance or the cessation of energy-wasting actions. These factors are a sense of *action efficacy*, i.e. that a specific action will garner the promised effect (Bagozzi and Warshaw 1990), and a satisfactory "exchange" of one's actions for a particular outcome (Andreasen 1995; Bagozzi 1975; Kotler, Roberto and Lee 2002). The former is relatively straightforward: Actors need to trust that the promoted measure or rebate will net them the effect they desire. This could include any number (Bagozzi, Marketing as Exchange 1975) of potentially desirable outcomes, such as a reduction in costs or a reduced carbon footprint. Generally speaking, most programs attempt to convince residents of such benefits, ultimately trying to increase the actor's sense of action efficacy.

However, our ethnographic research indicates that it is the latter, the proposition of an "exchange" of behavior for an outcome, that is markedly more complex than initially understood. Namely, residential consumers are generally convinced that taking an efficiency or conservation action will net the promised outcome. Rather, it is what they perceive as the cost of the exchange, not simply the behavioral effect, which promotes or hinders action.

Our research findings indicate the cost for adoption is greater than a one-for-one economic choice model. Rather, respondents were weighing energy efficiency and conservation

actions among a larger suite of socially desirable behaviors that garner similar results, e.g. the feeling that they were "doing their part." Overall, the many of respondents with whom we spoke felt that they were "doing everything that they can" to save energy under the realm of their control. This finding is consistent with quantitative research conducted in other areas of the country, where approximately half of the respondents agree with the statement that "I've already done everything I can to save energy in my home."[3] We found two underlying reasons that respondents feel this way:

- **Residents have a limited number of altruistic actions they are willing to take in order to feel like a responsible member of society.** Our research indicated that each household engaged in a wide number of energy and non-energy behaviors that bolster their feelings of social responsibility and belonging, whether it be through thriftiness, waste-avoidance, or environmental preservations. Energy-related practices are only one area among many where residents take actions, often feeling like they are "doing enough."
- **Residents are working to save energy in many ways—and think more globally about energy usage than just saving electricity in their homes.** There are many things that Californians can do to save energy—everything from turning off lights to "reusing water" and/or driving a Prius. In general, respondents were able to list several actions that they were taking, and while it may not have been a comprehensive list of everything they could do, there was a feeling that they were "doing their part."

Ultimately, respondents are actively engaged in factoring the economic and *social* costs and benefits of adopting energy efficiency among a series of alternative actions perceived to garner the same result, including building social capital. These insights indicate that the "cost" of taking a given energy-saving action is as much symbolic as it is economic.

Using Ethnography to Understand and Leverage Energy-Saving Behaviors

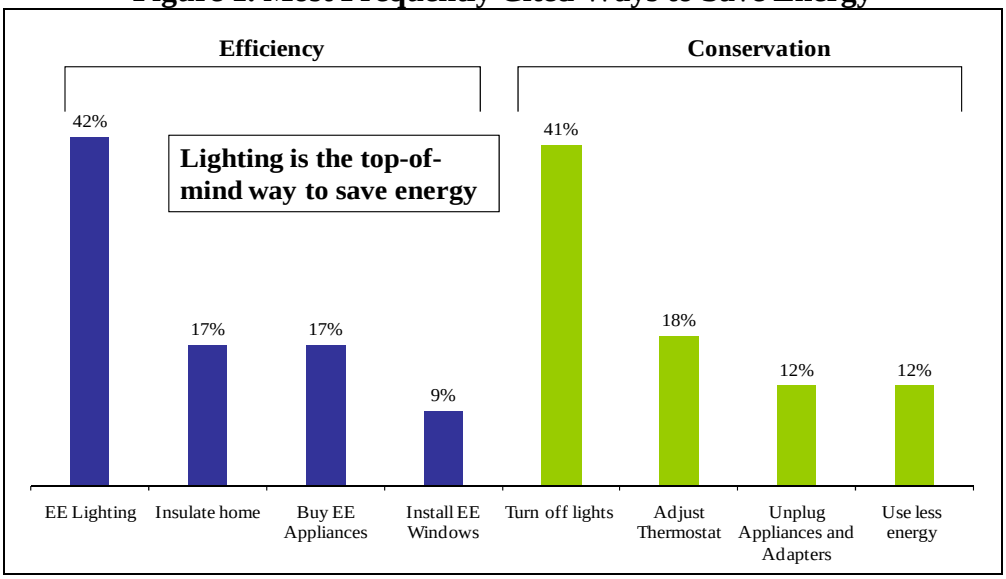
Anthropologists understand that behaviors are better understood when they are observed. Multiple factors, such as the physical environment and the social environment, play a prominent role in behavior change. Using participant observation, ethnographers are able to more readily determine the effects of these two factors on energy behaviors. We discuss our findings for both in this section.

Opinion Dynamics used ethnographic techniques to examine the respondents' awareness and implementation of energy-saving behaviors (or lack thereof). As part of our study, we asked respondents to show us around their home and discuss day-to-day or one-time actions that reduce energy consumption. Through this exercise, we paid close attention the respondents' awareness of, and interaction with, their physical environment. Our findings provided insight into recent quantitative findings.

Opinion Dynamics conducted a baseline study of energy use practices. Our quantitative data suggests that awareness and implementation of non-lighting actions is generally low. See Figure 2 and Figure 3 below.

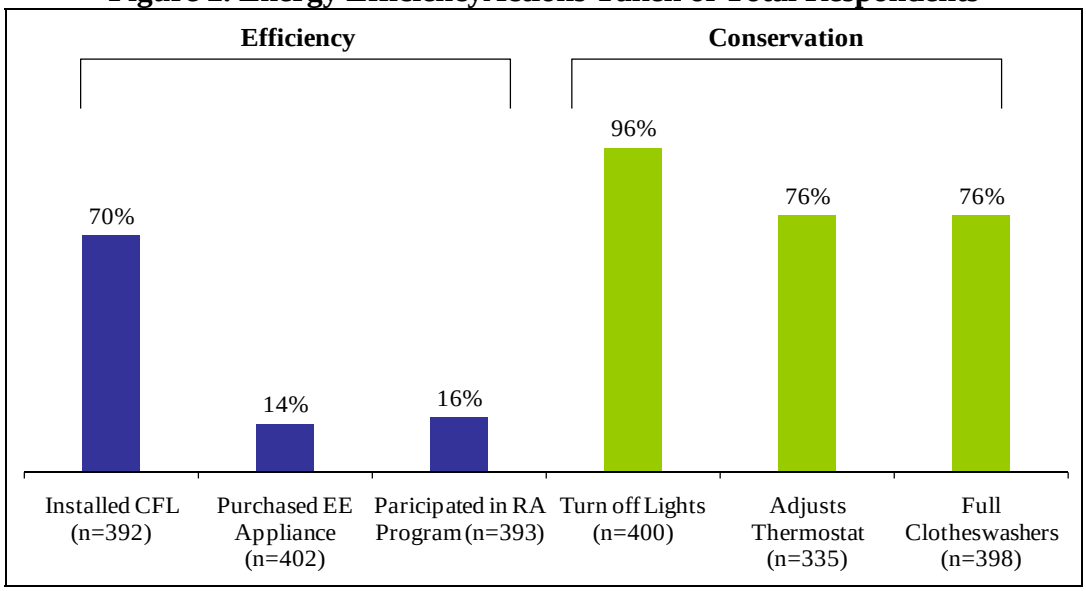
[3] Peters, J., Spahic, M., Jackson, C., Lutzenhiser, S."What Are Consumers Thinking About Energy Today?" AESP Conference. February 2010.

Figure 1. Most Frequently Cited Ways to Save Energy



Base: Total Respondents (n=402). If someone had high energy bills in their home, what are three energy efficiency improvements that they might make to lower their bill? (unaided, name up to three actions)

Figure 2. Energy EfficiencyActions Taken of Total Respondents



Base: Total Respondents, Valid Percents QG2: Do you agree or disagree with the following statements: My household…

These findings indicate that lighting remains the top-of-mind way to save energy, exceeding other measures in excess of 100%. While this is likely due, in part, to the emphasis on lighting in energy efficiency portfolios across California IOUs, it does not provide explanation as to why other measures and actions are not frequently cited.

Our ethnographic research indicated that respondents are particularly predisposed to being aware of energy saving actions that have a discernable cause and effect that they initiate. Our study revealed that energy is generally viewed as an active resource, that is, it is something

that is drawn on and/or used rather than something that is "lost" or "wasted" through the absence of efficiency measures. Through our observations, we found that:

- **Respondents associate energy with active use.** Respondents more readily mentioned "active" sources of energy use, such as lights or other things that they turned on and off. For example, within the kitchen, many respondents mentioned cooking with the microwave or stove as the primary "user" of energy.
- **Respondents' focus on active use precludes their awareness of major energy hogs:** Our research shows that households cannot readily determine what contributes the most to their energy use. Rather than focusing on larger appliances, like the refrigerator, that run all of the time, respondents felt the aforementioned "active" appliances used the most energy. Their frame of reference was their own use, and energy was more associated with the things that they directly turn on and off rather than with appliances that turn on and off on their own (e.g. refrigerators) or losses through the building envelope.

These findings suggest that "active" measures have a greater association with energy use than those that are passive (envelope measures or appliances that "run" in the background). Further, our ethnographers found that when respondents can *see* the energy use or waste (e.g. the lights are on), they are more likely to take energy-saving action. These findings suggest that part of the behavioral challenge with more passive efficiency measures is generating and maintaining an active presence in the home. For this reason, new measures that prompt customer interaction, such as switch-powered smart strips or smart meters and in-home displays, may help to generate awareness of energy efficiency.

Another benefit to ethnographic research is its ability to examine the household and community dynamics that shape the way households consume energy. In particular, our research found the following:

- **Household actors play the greatest role in mediating behavior.** Above social perceptions and authority figures (government, IOUs, etc.), individuals in the household drive energy behavior. Namely, our research found that each household has a recognized offender and nag, whose competing beliefs and actions generate a series of energy use compromises.
- **Next to household actors, personal experts and norm-setters are the most influential.** When discussing why a particular action is adopted, many respondents cited an influential friend or acquaintance that serves as the authority on energy use. Frequently, respondents who indicated they had taken high-cost actions also mentioned that they had been influenced by a well-known or lay expert in their social networks.
- **Community influences bolster egos, but do not mediate behavior.** Overall, respondents believe that they are aware of their energy use relative to their neighbors but tend to feel their actions are more noble by comparison. Respondents often make an example of neighbors or community members when citing how energy can be "wasted." However, they rarely exemplify their own actions as problematic relative to a do-good neighbor. In effect, *others* are the ones who "waste" energy, while respondents generally believe that they "save" energy.

Conclusions and Implications for Program Design

Ethnography provides unique insights into the process of language use and communications, meaning-making in behavioral choice, and the physical and social influences on behavior. These findings illuminate the behavior-change process and the particular challenges posed for energy efficiency and conservation programs. While some of these challenges may seem insurmountable for efficiency program efforts, much can be done through design and implementation to circumvent these challenges.

Generating Effective Communications

Our research indicates that there are a number of language-specific barriers to participation that should be examined prior to the implementation of any program communications efforts. Namely, it is important that program marketing and the outreach team's messages effectively align with the target audience's understanding of specific terms and phrases. Ultimately, what may be perceived as semantic differences can have tremendous implications on how messaging is received and therefore careful, secondary and qualitative research is necessary to ensure that the intended meaning of these communications is received.

- Program implementers should be careful to use colloquial language, and avoid complex or loaded terms like "efficient" that connote different meanings to different people.
- Program implementers should consider the cultural context in which messages will be disseminated, and aim to generate regionally, culturally, and socially specific media as much as possible. New media techniques, such as user-driven or one-to-one marketing has the potential to more effectively "speak" to the target audiences.

Overcoming the Social Costs to Program Participation

We found that respondents weigh multiple factors when electing to adopt a specific behavior, beyond the actual monetary cost of adoption. In particular, respondents carefully weigh the social benefit of energy efficiency and conservation actions against other altruistic actions that garner a desired effect, such as a reduction in greenhouse gases or waste-avoidance. For these reasons, many residents feel as though they are "doing everything they can" related to energy use. However, these perceptions of participation fatigue are generally driven by other, non-electric energy actions and socially desirable pursuits.

- Program implementers need to enhance the social value of energy conservation and energy efficiency in order to ensure that it ranks among other altruistic behavioral considerations.
- In particular, efforts should acknowledge the challenge of living responsibly every day, and present energy efficiency as a no-brainer alternative to other, more inconvenient options.

Utilizing the Physical and Social Environment to Generate Behavior Change

There are two primary environmental elements that limit the behaviors of individual residents: (1) the lack of visual or interactive cues that indicate energy use or loss; and (2) the

presence of social actors within or outside of the household that mediate the behaviors of individuals. Namely, respondents are unaware of those energy-users and wasters that are not actively interacted with in daily life or immediately apparent.

- Program implementers should focus on making measures more “legible” in the physical environment by providing interfaces to interact with (such as smart meter innovations), visual cues or reminders that can be situated near energy hogs, and switch-driven measures (such as smart power strips) that serve as physical reminders to save energy.
- Program implementers should leverage lay experts in communication efforts to establish local, trustworthy authority figures. Based on our research these actors, above all others, are the most available to program teams (rather than household actors) and can affect the greatest change among those who are not currently taking action.

References

Andreasen, Alan R. 1995. *Marketing Social Change.* San Francisco, California: Jossey-Bass.

Bagozzi, Richard P. 1975. "Marketing as Exchange." In **The Journal of Marketing**: 32-39.

Bagozzi, Richard P., and Paul R. Warshaw. 1990. "Trying to Consume." In **The Journal of Consumer Research**: 127-140.

Geertz, Clifford. 1973. **The Interpretation of Cultures**. New York, New York: Basic Books.

Kotler, Philip, Ned Roberto, and Nancy Lee. 2002. **Social Marketing; Improving the Quality of Life**. Thousand Oaks, California: Sage Publications.

Silverstein, Michael. 1976. "Shifters, Linguistic Categories, and Cultural Descritpion." In **Meaning in Anthropology**: 11-56.