



**PROCESS EVALUATION OF SELECTED CALIFORNIA 2005  
DEMAND RESPONSE EDUCATION, AWARENESS, AND  
OUTREACH PROGRAMS**

**APPENDICES**

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**APPENDIX A:**  
**LITERATURE REVIEW**

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## EXECUTIVE SUMMARY

### I. Introduction

As a means of developing a contextual framework for evaluating California's demand response-related education, outreach and awareness programs, Summit Blue Consulting reviewed over twenty-five articles, reports and books covering a range of relevant topics. Through this process, the project team has made a number of important observations that can inform both the evaluation process, as well as future implementation of the programs undergoing evaluation. For the purposes of this summary, key findings and insights from the literature review are arranged into the following categories: 1) methodology for evaluation; 2) direct education programs; 3) advertising and outreach campaigns; 4) demand response; and 5) consumer behavior theory. After each finding highlighted from the literature review, we have included a brief description of the implications for this project.

Note that each of the findings highlighted below includes a reference to the paper from which it came. Readers can search for papers by author using the Table of Contents provided in the literature review document. Articles can also be found by searching the index of the literature review for the topic headings included in this executive summary.

### II. Advertising and Outreach Campaigns

- Using focus groups to test messages upfront is an effective strategy for developing outreach campaigns (Auch & McDonald, 1994; Kotler et al, 2002). The advertising industry focuses the majority of its resources on getting messages right upfront- using focus groups to refine copy and messaging, and testing the correlation between intentions and purchase behavior. The industry does little tracking of impacts after campaigns (Green & Skumatz, 2000). **Project Implications:** Use focus groups to test the program messages where field work has only recently gotten underway, to determine if the messages should be changed before going further with program outreach. For program efforts that have concluded, but where future program cycles may be planned (i.e., do another round of education outreach to communities), focus groups may be useful as qualitative feedback on the methods, channels and information disseminated, so that future efforts can be refined according to the feedback. We're too late to do much with pre-test research, but the opportunity remains to do "mid-test" research that can benefit future program campaigns.
- The longer a campaign is carried out, the more likely it is to produce impacts (Auch & McDonald, 1994). **Project Implications:** Same comment as above on education programs producing long-term impacts – embryonic or early completion stage of the programs being evaluated in this project, and the short time they have had to exert influence, means this point cannot be assessed in this evaluation. The evaluation scope is limited to short-term effects on attitudes and intentions, and only initial behavior changes.
- In New York, an aggressive five month-long outreach campaign used television, radio, newspaper and online advertising to urge consumers to: 1) buy Energy Star products; 2) shift clothes and dish washing to off-peak ours (7pm to 7am); and 3) use programmable thermostats or a timer to control air conditioning. Pre- and post-campaign telephone surveys indicated that the campaign was effective at increasing program awareness and at shifting clothes washing to off-peak periods, but that the campaign did not succeed at increasing the use of programmable thermostats (Engle, et al., 2003). **Project Implications:** We do not have pre-campaign research

baselines with which to measure change, so again a self-reported approach will be necessary, with its likely biases. An insight to the NY work is that it focused on a very limited behavior set; it may be worth considering in this project to also focus on a limited set of desired attitudes and behaviors as a bellwether approach, to conserve project resources, and manage the length of research instruments and interviews/surveys. We do not have mass media to consider in this project, which reduces the complexity of the research design and allows focus on other channel usage. Quantitative surveys we do decide to conduct will have relatively small target populations.

- Campaigns that focus on promoting a small number of specific actions are more effective than those that promote general concepts and information (Green & Skumatz, 2000). **Project Implications:** The programs considered for this evaluation have a wide range of promotional targeting and also a wide range of actions included in them. This both increases the complexity of research – requiring coverage of many market targets, each of which can be in a different program promotional and life cycle state, and also many potential actions – and also reduces the chances of finding significant changes in attitudes and behaviors.
- Most consumers who change behavior as a result of an outreach campaign will engage in simple behaviors (like turning of the lights and shifting clothes washing to off-peak periods) (Lutzenhiser et al., 2004; Riggert et al., 1999). **Project Implications:** Focus research instruments' questions on basic attitudinal and behavioral changes customers are most likely to have made. Avoid complex theoretical questions.
- There is great diversity in the decision-making frameworks of different commercial building owners and operators. Therefore, greater market segmentation, and the development of more targeted messaging is necessary (Moezzi et al., 2004; Reed et al, 1999). **Project Implications:** Include questions that explore the variety of decision-making frameworks, and continuing barriers to becoming aware of and taking DR actions relative to those frameworks.
- Effective advertisements will: appeal to consumers' emotions and self-esteem, address the specific needs and interests of the target audience, and use humor and distinctive images to grab attention (Peters, A. 2000). **Project Implications:** Ask questions of whether emotions and self-esteem have been bolstered by the programs, whether the messages have been relevant and if they used humor effectively.
- Campaign messages with an “I can” theme will likely have greater results than those focusing on cost-savings and non-energy benefits (Peters, J. & Feldman, 2001). **Project Implications:** Ask question of whether target audiences have felt more empowered in different ways by the programs.
- Social marketing theory can be effectively applied to energy efficiency programs to leverage the impacts of existing demand-side management strategies that focus primarily on offering financial incentives for equipment replacement. By seeking to change the attitudes and values that lie at the heart of consumer decision-making, social marketing campaigns can produce lasting and cost-effective results (Keifer & LeBlanc, 1994; Kotler et al, 2002). **Project Implications:** Ask questions to explore the synergy of education and incentives, vs. just either education or incentives.



### III. Demand Response

A few of the articles and reports reviewed focused specifically on demand response programs. Findings from these studies reveal interesting facts about how and why different types of consumers respond the way they do to demand response initiatives.

- A study focusing on responses to the introduction of real-time pricing in New York found that: 1) 50% of respondents claimed they were unable to shift or forgo load; 2) many respondents were willing to participate in emergency demand response programs, but were unwilling to make a regular practice of load curtailment; 3) educational institutions (not manufacturing facilities) were shown to have the highest estimated price elasticity of demand; 4) greater response to price signals would be likely if consumers had better access to information about load curtailment strategies and the potential for cost savings (Moezzi et al., 2004). **Project Implications:** This work suggests topical areas to address in the current evaluation regarding load shifting or reductions, relative willingness to participate in emergency vs. routine curtailments, identification of elastic and inelastic market segments (and also segment-specific barriers that constrain some segments more than others), and the value of information in making consumers feel empowered and more likely to shift/reduce loads. The work, thus, should be considered for guiding the design of analogous questions regarding those DR factors in the current evaluation.
- A study examining the impacts of outreach surrounding the California energy crisis found that the greatest amount of savings came from a small subset of “super saving” households. Since use of air conditioners accounts for 35.5% of peak demand, the authors suggest that reduced use of air conditioning equipment produced the greatest amount of peak demand benefits. Consumers who changed behavior as a result of the campaign reported a variety of reasons for doing so, including cost concerns and doing their part to avoid blackouts. Utility rebates were the least reported reason for taking action (Lutzenhizer et al., 2004). **Project Implications:** This is another variation on the findings of the New York work, and suggests additional segmentation and elasticity factors (barriers). We should consider using these findings to guide the design of analogous questions regarding those DR factors in the current evaluation.
- A great deal of flexibility in consumer demand is revealed when a compelling reason exists for curtailing load (i.e. the power system is likely to go down without voluntary load curtailment) (Lutzenhizer et al., 2004; Moezzi et al., 2004). **Project Implications:** This is another variation on DR/Efficiency research findings to consider in developing this evaluation’s lines of inquiry.
- An evaluation of several of California’s demand response programs revealed that: 1) participation was greatest among medium and large customers, however, there was evidence of interest among smaller customers; 2) site-specific support may be necessary to increase participation rates; 3) many customers are participating for reasons of civic duty and reliability, and not for financial reasons; 4) the complexity of programs deterred some from participation; 5) the existence of trust and strong relationships between customers and utility staff has been an important driver of participation in other states (Quantum Consulting, 2004). **Project Implications:** The findings about large and medium business and institutional customers’ DR attitudes, norms and abilities identified in this work provide a basis for the current evaluation in regard to these markets. We should consider using these findings to guide the design of analogous questions regarding those DR factors in the current evaluation.

## IV. Consumer Behavior Theory

In order to structure programs effectively, it is important to understand consumer motivations, decision-making drivers and processes, as well as the pre-cursors to taking action. A large body of literature from the social sciences exists, and can offer several findings relevant to this research effort.

The Theory of Planned Behavior is referenced in several studies focusing on the relationship between patterns of human behavior and the adoption of energy efficiency practices. The theory, introduced by Icek Ajzen in 1988, focuses on the critical role that an individual's *intentions* play in determining their likelihood to act. Three important predictors of consumer intentions include: *attitudes* toward a behavior, *subjective norms* (perceived social pressures related to a behavior), and a *perceived ability to perform* a task successfully (Ajzen, 1991).

Applying this theory to the realm of energy efficiency outreach and education, one might suggest that: 1) energy efficiency program outreach initiatives should work harder to foster positive attitudes toward energy conservation practices and technologies; 2) programs should promote and highlight examples of energy conservation practices so that people begin to believe that energy conserving technologies and behaviors are becoming more mainstream; 3) programs should seek to convince consumers that it is within their power to save money and to benefit both themselves and society by conserving energy; and 4) programs should seek to instill an energy conserving ethic in people at an early age so that they form attitudes, beliefs and habits that will result in a lifetime of energy conserving behaviors.

While Ajzen's basic theory appears to be well-accepted in the field of behavioral science, recent research challenges a related assumption about the precursors to consumer behavior. Many energy efficiency programs are based on the assumption that knowledge of a problem will lead a consumer to seek additional information, which will then lead to a greater intent to act on the problem. A study by Rambo and Feldman (2003), focusing on a Wisconsin energy efficiency marketing campaign, found that consumer intent to perform energy efficiency measures consistently outweighed levels of awareness and intentions to seek additional information. The authors suggest that additional research is necessary to understand the barriers to pursuing energy efficiency measures and the precursors to action.

Social marketing theory confirms the importance of addressing consumers' underlying attitudes and values as a means of affecting their long-term behavior. One study suggests that if energy efficiency is a conscious part of a consumer's purchase decision, it will become a part of their value system and they will incorporate energy efficiency into future consumer choices (Kiefer et al., 1994).

Another notable theory is that of the diffusion of innovation, which describes the progression of adoption of new technologies and concepts. This theory promotes the use of change agents (those with technical knowledge but little commercial interest in behavioral change) as a means of communicating information to a target population. The theory also places great importance on targeting opinion leaders as early adopters, leveraging their credibility and visibility to compel others to act.

***Project Implications:*** Design research instruments' questions to address all three dimensions (attitudes, norms and perceived ability or control). Emphasize inquiries on respondents' intentions to take action more than awareness and intention to seek more information (don't ignore those totally but only ask one question about each factor, for example). Interview opinion leaders who were involved in the outreach efforts, to see if they have been influenced along the three dimensions, and if/how they in turn have exerted their leadership in support of the initiatives.

## V. Direct Education Programs

Following are observations from several direct educational programs that were reviewed. Educational formats included classroom instruction, on-site audits, workshops and museum exhibits.

- Effective programs are carefully designed, field-tested and implemented, and they undergo periodic evaluations during the implementation phase to ensure optimal results (Hanson & Siegel, 1995). **Project Implications:** Designs being researched have been tested in one sense, in that similar kinds of programs have been developed and fielded in the past – just not within the current program/portfolio environment and its socio-economic and political underpinnings. Advertising messages and channels specific to the programs being researched here have not been vetted through pre-launch market research, nor has interim research been conducted to help optimize them, so this project will constitute a first point of assessment. As previously noted, the research instruments to be developed as a result may need to include a greater scope of information than would be needed otherwise.
- The greater the amount of instruction, the greater the impacts (Hanson & Siegel, 1995). **Project Implications:** This is a hypothesis we could try to test, but can only do so through self-reported questioning because *a priori* baselines are not available. Again, this means a greater scope of information may be needed.
- Education programs can produce cost-effective, long-term impacts (Hanson & Siegel, 1995). **Project Implications:** We cannot address this because the programs are still either embryonic or just concluded in their outreach; long-term impacts cannot yet be observed. On the other hand, the opportunity exists to establish a longitudinal baseline, though doing so may exceed the project's available budget and schedule.
- In the case of a children's museum exhibit, conservation behaviors of program participants and non-participants were not dramatically different. However the exhibit still played an important role in reinforcing the importance of lessons about conservation messages children were already learning (Peters, J. et al., 2000). **Project Implications:** The effects of limited exposure to information are practically impossible to measure. The program efforts included in the current evaluation's scope that involved only one-shot exposure to DR information are unlikely to produce meaningful research results. Thus, we should consider removing those program efforts from the project scope (e.g., the general review efforts).
- The focused educational activities of the Pacific Energy Center (PEC) were shown to be successful at affecting the design and equipment choices of decision-makers at commercial buildings (Reed et al., 1999). **Project Implications:** This is of greatest relevance to the integrated audit program efforts, and we should look to this research for additional, specific research guidance regarding survey/interview/focus group research instrument designs and analyses.
- An evaluation of the 2003 California Statewide Education and Training Services Program revealed that: 1) the program should expand the reach of marketing beyond the existing channels; and 2) since courses were often designed and marketed for a broad range of clients, the content was not specific enough to address the varying needs and interests of the different participating professions (Wirstshafter et al., 2003). **Project Implications:** Through our questioning, we should pay particular attention to characterizing market segments, and determining the best channels for reaching those segments.

## VI. Methodology for Evaluation

The impacts of energy efficiency-related education, outreach and awareness campaigns can be difficult to measure for a variety of reasons. First, due to limited resources, external factors, and an emphasis on demonstrating immediate results, advertising and marketing initiatives are often short-lived and sporadic in nature. As a result, there are few opportunities to effectively examine the long-term impacts of outreach campaigns. Furthermore, campaigns often promote broad concepts and a range of behaviors, making it complicated to measure impacts.

The majority of evaluation efforts reviewed used interviews, surveys and a review of relevant program records as their primary sources of data. However, researchers encountered a number of hurdles and gained valuable experience that can inform future evaluation initiatives. Following are recommendations for future efforts put forth by researchers, as well as several observations from our own (?) research:

- The further along a program is in its implementation phase, the better able an evaluation team will be to effectively measure changes in consumer attitudes (Auch & McDonald, 1994). **Project implications:** Measuring attitudinal or downstream behavioral changes will be constrained where program efforts are embryonic. Some of program (and/or utility) efforts will be more amenable than others to having attitude/behavioral changes measured because of the different stages of program maturity for different program elements and utilities' respective education/outreach efforts. Due to the range of program maturity, research instruments will have to be designed to fit a variety of situations, making them more complicated than if the programs were more homogenous.
- Impacts should be measured at regular intervals during the program implementation phase so that observations can be made about the timing of impacts, and feedback can be provided to program staff to facilitate ongoing improvements in program design and implementation practices (Auch & McDonald, 1994; Feldman & Rambo, 2003). **Project Implications:** (Note: Focus of this comment is on measuring psychological and behavioral impacts, not subsequent resource impacts.) This is the first measurement of program impacts for these programs (though they grow out of a history of programs dating back to the 1980s that also included similar incarnations of education and outreach programs). Lack of program-specific baseline measurements across all programs being examined means longitudinal trending in this project will be limited to ex-post self reports by research subjects (e.g., "What did you think about X before you were exposed to this program?" or "What do you know now vs. what you knew before the program?"). The opportunity exists, however, to develop baseline information for future program evaluation cycles, if undertaken.
- Several researchers preferred using baseline measurement as the basis for determining program impacts (Conlon et al., 1999; Kiefer et al., 1994). Conlon et al. (1999) cited serious limitations (geographic, external factors, etc.) to conducting a cross-sectional analysis. However, Green & Skumatz (2000), focusing on practical suggestions for advancing the body of knowledge in this area of research, suggested further use of cross-sectional research design (comparing treatment and control groups). They suggested applying the same research design across many utility programs and comparing results, using regressions to control for differences in programs. O'Meara and Flanagan (1994) also cited the use of a controlled experiment as a favorable strategy for demonstrating impacts. **Project Implications:** No control vs. treatment groups have explicitly been identified or set up in the programs' current structures, so a rigorous cross-sectional analysis based on control vs. treatment groups is not feasible in this project. A baseline is not available, either, as this is the first evaluation of these efforts. Thus, project efforts will

need to establish some sort of relativistic baseline for each, though only self-reports by research subjects will be feasible for most of the program efforts.

- In the absence of metering devices (i.e. for residential and small commercial customers), changes in demand can be quantified by asking simple questions of the target population before and after the campaign. Questions might include, “Does your household do laundry between the hours of 7pm and 7am all the time, sometimes, rarely, or never?” Using data available from the U.S. Department of Energy and other reputable sources, participant responses can be converted into meaningful consumption data (Engle et al., 2003). **Project Implications:** We are not measuring demand/energy impacts explicitly, but instead are focusing on changes in attitudes, intentions and behaviors. This issue is somewhat irrelevant to this project’s core objectives.
- Since evaluating education, outreach and awareness campaigns is resource-intensive and complex, Green and Skumatz (2000) suggest evaluating several “template” programs to produce a set of best practices that could be broadly applied. **Project Implications:** Unsure whether any templates exist here that could be of particular use. Would need more exploration to consider the concept for this project; uncertain if budget/schedule allows. Likely not an option for this evaluation.
- The development of logic models and the analysis of program theory can play an important role in verifying and documenting the rationale behind program design and resource allocation, and in identifying important research questions (Peters, J. et al., 2000; Peters, J., et al., 2004). However, limitations in the availability of program staff can make it difficult to perform this exercise. **Project Implications:** Information is sparse (so far) on either formal or informal logic models (a.k.a. program performance metrics, or researchable evaluation questions). We are still collecting information from the clients to assess state of program logic/performance metrics. Where not explicitly stated in some way and yet where client interest is high, we or the client will need to develop appropriate logic/metrics for use in this project to determine content scope and specification, and to guide methods used to obtain research information. The evaluation budget did not anticipate this task.

## VII. Conclusion

In summary, observations from this literature review indicate that the most effective education, outreach and awareness campaigns will be:

- Designed based on relevant social science theory and an explicit pattern of logic;
- Carefully tailored to the target audience, using messaging that has been tested through focus groups;
- Focused on promoting a small number of specific behaviors;
- Delivered to children as well as adults, ensuring that a conservation ethic is instilled in the next generation of energy users at an early age, and that children and parents reinforce the importance of energy conservation through dialogue with one another.
- Motivational, using messages that highlight the consumer’s ability to make a difference.

- Long-term, and robust, using a variety of delivery channels and targeting opinion leaders as early adopters;
- Evaluated periodically to provide feedback that will facilitate on-going improvements during the implementation phase;

The implications of these findings for this evaluation effort are summarized below:

- Need to address project scope regarding development of program metrics in lieu of logic models, if models or equivalent researchable questions or performance metrics are not already available. (Utility staff could undertake this assignment.)
- Overall, the research instruments for the non-PEAK program efforts will need to be relatively complex because of the range of program maturity in the field, across utilities and market segments.
- We suggest not attempting to evaluate the “one-shot” ongoing contact efforts that are impossible to sort out the influences of the program information from other sources, including past outreach program efforts.
- The lack of baselines for the programs means this evaluation will create a “semi-post” or “mid-test” set of baselines, and the measurement of consumer attitude, intention and actual behavior changes will have to be relativistic and based on self-reports.
- The research instruments’ lines of questioning should focus on basic awareness, norms and ability/control factors and what influences those factors; seek to identify DR-sensitive market segments (so selected demographic questions will be important to include), and then current knowledge and intended future behaviors in relation to past (self-reported) knowledge and behaviors.
- Focus research instruments’ questions on a limited set of behaviors, to manage length and complexity of research instruments.
- Target opinion leaders as well as others who have been exposed to the programs.
- Utilize selected focus groups to obtain a “mid-course” assessment of program messaging, to establish a baseline as well as provide input to refine current messages for future program efforts.

## SUMMARY TABLE

Author, Title	Year of Publication	Key Topics / Features
Ajzen, Icek. The Theory of Planned Behavior.	1991	<ul style="list-style-type: none"> <li>• In-depth analysis of human behavior theory from the perspective of the field of psychology</li> </ul>
Aloha Systems, Evaluation, Measurement, and Verification (EM&V) Report Los Angeles County ISD, 2002-2003 Energy Efficiency Program, CPUC Non-Utility Program #156-02, May 20, 2004	2004	<ul style="list-style-type: none"> <li>• Direct install of lighting retrofits and other measures at County buildings.</li> <li>• Customer satisfaction high.</li> </ul>
Auch, L. &M. McDonald. Conservation Advertising Campaigns and Advertising Effectiveness Research: The Right Combination to Solidify the Conservation Ethic	1994	<ul style="list-style-type: none"> <li>• Advertising / mass market education and awareness campaign</li> <li>• Long-term monitoring of campaign effectiveness</li> </ul>
Conlon, T., Weisbrod, G. &Samiullah, S. How Can We Tell if Free Information is Really Transforming Our Market?	1999	<ul style="list-style-type: none"> <li>• SCE pump test program</li> <li>• Cross-sectional research format used to determine impacts</li> <li>• Recommendations for research methods</li> </ul>
Engle, V., Megdal, L., Rooney, T. Pakenas, L. & Soweck, S. “Quantifying Load-Shifting Benefits from an Advertising Campaign”	2003	<ul style="list-style-type: none"> <li>• Advertising / mass market education and awareness campaign</li> <li>• Quantifying demand shift resulting from education campaign</li> </ul>
Feldman, S. & E. Rambo. How’m I doing? Benefits (and costs) of tracking the effectiveness of marketing for an energy efficiency program	2003	<ul style="list-style-type: none"> <li>• Evaluates effectiveness of statewide education / outreach campaign (WI)</li> <li>• Recommendations for evaluation approaches / methodologies</li> </ul>
Geltz, Christine & Mark Martinez. 2004. “Diffusion in the Desert: Adoption of Demand Response Technology by Rural Small Businesses.” <i>Proceedings of the 2004 ACEEE Summer Study</i> , pp. 7.62-7.73. ACE3.	2004	<ul style="list-style-type: none"> <li>• Smart Thermostat</li> <li>• Mass Media</li> <li>• Technology Diffusion</li> </ul>

Author, Title	Year of Publication	Key Topics / Features
Green, J. & Skumatz, L. "Evaluating the Impacts of Education/ Outreach Programs: Lessons on Impacts, Methods, and Optimal Education"	2000	<ul style="list-style-type: none"> <li>• Overview of methodologies for measuring impacts of education campaigns</li> <li>• Lessons from advertising industry and recycling programs regarding message development and delivery</li> <li>• Recommendations for research methods and program design/messaging</li> </ul>
Hanson, R. & Siegel, D.F. The Enduring Effects of an Elementary School Energy Education Program	1995	<ul style="list-style-type: none"> <li>• Energy education for children</li> <li>• Measured long-term impacts of education program</li> <li>• Focus on evaluation methodology</li> </ul>
Kiefer, K., LeBlanc, W., & Feldman, S. 1994. "Social Marketing: The Road to Maximizing the Sustainability of Energy Efficiency and DSM Savings." <i>Proceedings of the 1994 ACEEE Summer Study</i> , pp.1.91-1.10.	1994	<ul style="list-style-type: none"> <li>• Social marketing</li> <li>• Behavior theory</li> </ul>
Kotler, P., Roberto, N., & Lee, N. <i>Social Marketing, Improving the Quality of Life</i> . 2 <sup>nd</sup> Edition.	2002	<ul style="list-style-type: none"> <li>• Social marketing text book</li> <li>• Numerous case studies</li> <li>• Combines theory and practical advice</li> </ul>
Lutzenhiser, Loren, Rick Kunkle, James Woods, Susan Lutzenhiser, and Sylvia Bender. "Lasting Impressions: Conservation and the 2001 California Energy Crisis."	2004	<ul style="list-style-type: none"> <li>• Measures post-campaign impacts of CA statewide education campaign – Flex Your Power</li> <li>• Explores drivers / motivators for energy saving behaviors</li> </ul>
Moezzi, Mithra, Charles Goldman, Osman Sezgen, Ranjit Bharvirkar, and Nicole Hopper. "Real Time Pricing and the Real Live Firm," Lawrence Berkeley National Laboratory."	2004	<ul style="list-style-type: none"> <li>• Tests economic theory of rational behavior</li> <li>• Commercial and Industrial drivers for decision-making</li> <li>• Real-time pricing</li> </ul>
Myers, M., Mayo, B., Friedman, R. "Who Says Small Commercial Customers Can't Be Reached? A Few Program Concepts for Attracting Small Customers to Energy Efficiency Programs." <i>Proceedings of the 2004 ACEEE Summer Study</i> , pp. 4-253 – 4-264.	2004	<ul style="list-style-type: none"> <li>• Strategies for reaching small commercial customers</li> </ul>



Author, Title	Year of Publication	Key Topics / Features
O'Meara, K.P. & Flanagan, J.A. Evaluating Educational Effects in Pacific Gas and Electric's Energy Savings Plan	1994	<ul style="list-style-type: none"> <li>• Residential audit program</li> <li>• Using statistical estimates to measure impacts of education program</li> </ul>
Peters, Anne. Madison Avenue Meets the Monopoly: Advertising Approaches for Energy Companies.	2000	<ul style="list-style-type: none"> <li>• General recommendations for energy advertising</li> </ul>
Peters, J., McRae, M., Morander, L. & O'Brien, D. Detecting Behavioral Change from a Visit to a Children's Museum Energy Conservation Exhibit	2000	<ul style="list-style-type: none"> <li>• Energy education for children</li> <li>• Sample logic model</li> </ul>
Peters, J.S. & S. Feldman. I Can Do It! The Role of Self-Efficacy in Motivating Changes in Attitudes and Behavior Relating to Energy Efficiency and Renewables.	2001	<ul style="list-style-type: none"> <li>• Focused literature review exploring role of human behavior / decision-making theory</li> <li>• Recommendations for program messaging</li> </ul>
Peters, J., Moran, D.C., Engel, V., Megdal, L., "Using Logic Models to Improve and Enhance Nonresidential Programs." <i>Proceedings of the 2004 ACEEE Summer Study</i> , pp. 4-275 - 4-285.	2004	<ul style="list-style-type: none"> <li>• Logic models</li> </ul>
Quantum Consulting, Inc. & Summit Blue Consulting, Working Group 2 Demand Response Program Evaluation – Program Year 2004, Final Report, December 2004.	2004	<ul style="list-style-type: none"> <li>• Evaluation of Critical Peak Pricing (CPP) tariff, Demand Bidding Program (DBP), and CA IOU's interruptible programs, and the CA Power Authority's Demand Reserves Partnership (DRP).</li> <li>• Relevant findings to this project: DBP-CPP: High barriers perceived to response; Courtesy notifications needed and technical assistance should be made more "attractive."</li> </ul>
Rambo, E. & S. Feldman. What is it I need to know? The relationship between information-seeking and intended action relating to energy efficiency.	2003	<ul style="list-style-type: none"> <li>• Tests application of human behavior / decision-making theory to energy education programs</li> <li>• Statewide education / outreach campaign (WI)</li> </ul>

Author, Title	Year of Publication	Key Topics / Features
Reed, J. O'Drain, M. & Chace, J. Transforming Markets Through Education and Information: A Study of the Pacific Energy Center	1999	<ul style="list-style-type: none"> <li>• Commercial and industrial education program</li> <li>• Measured effectiveness of message content and delivery</li> <li>• Market analysis used to determine market transformation effects</li> <li>• Analysis of commercial and industrial decision-making</li> </ul>
Riggert, J. Hall, N., Morgan, R. & Schroder, K. Cinergy's Home Energy House Call (HEHC) Program: An Information Program That Changes People's Lives	1999	<ul style="list-style-type: none"> <li>• Process evaluation</li> <li>• Residential audit program</li> <li>• Measuring customer satisfaction</li> </ul>
Stewart, David (Marshall School of Business) "Evaluating Results of Marketing Program Activities and Investments." Presentation to Consortium for Energy Efficiency, December 13, 2005.	2005	<ul style="list-style-type: none"> <li>• Few companies have comprehensive system for tracking marketing, but those that do are more successful.</li> <li>• Energy efficiency similar to marketing high tech products as both market leading actions.</li> </ul>
Vanward Consulting, Equipoise Consulting Inc., KEMA Inc., Ridge & Associates, and Shel Feldman Management Consulting, Final Report for The Evaluation of the 2002-2003 School Energy Efficiency Program, Program 177-02, February 14, 2005.	2005	<ul style="list-style-type: none"> <li>• Information-only school energy efficiency program (K-12)</li> <li>• Level 1 to 3 Process Evaluation and Level 1 Impact Evaluation</li> <li>• Detailed interviews and results.</li> </ul>
Wiggins, Grant, Educative Assessment, Designing Assessments to Inform and Improve Student Performance. (book)	1998	<ul style="list-style-type: none"> <li>• Designing, deploying and scoring assessments in the K-12 educational arena.</li> </ul>
Wirtshafter Associates, Inc., KEMA Consulting, Inc., Kreitler Research and Consulting, Evaluation Of The 2003 Statewide Education And Training Services Program, Final Report, June 3, 2005	2005	<ul style="list-style-type: none"> <li>• Satisfaction, case studies, best practices and evaluation of in class materials used by Energy Centers (physical and virtual). Uses arguable premise, "no learning has taken place if it does not lead to a change in behavior."</li> </ul>

## The Theory of Planned Behavior.

Ajzen, Icek. (1991). The Theory of Planned Behavior. *Organizational Behavior and Human Decision Processes*, 50, 179-211.

### Comments:

Ajzen's theory of planned behavior is referenced in several studies focusing on the relationship between patterns of human behavior and the adoption of energy conservation practices (papers referenced in this literature review include: Peters & Feldman, 2001; Green & Skumatz, 2000; Rambo & Feldman, 2003). We reviewed this paper to gain a better understanding of the theory and how it might relate to education and outreach programs underway in California.

### Summary:

In this paper, Ajzen describes the primary components of his theory of planned behavior and how they can be used to both predict and explain human behaviors in various contexts. In Ajzen's theory, intentions, and underlying motivational factors, of the individual play a central role in determining the likelihood that that individual will engage in a particular behavior. At a basic level, assuming that an individual possesses strong intentions as well as the ability (i.e. opportunity and resources) to perform a certain behavior, the individual should succeed in performing the behavior. The theory of planned behavior deconstructs this basic assumption by identifying and characterizing the factors that affect the relationship between intentions and behavioral outcomes.

The theory of planned behavior recognizes three independent *predictors* of intention: *attitudes toward a behavior* (positive or negative), *subjective norms* (perceived social pressures related to a particular behavior) and *perceived behavioral control* (people's understanding of the ease or difficulty of performing a particular behavior). Much of the paper is devoted to Ajzen's characterization of these three predictors and his findings based on a review of empirical data. While he believes that the relative importance of each predictor will vary depending on the circumstances and behaviors in question, the studies he reviewed showed that attitudes were a significant predictor of intentions, and that weak evidence exists for the predictive role of subjective norms. "Perceived behavioral control" is closely related to Bandura's concept of "perceived self-efficacy," (Bandura, 1982) which is also cited in the energy efficiency literature included in this literature review (Peters & Feldman, 2001). Bandura's research clearly demonstrates that, "people's behavior is strongly influenced by their confidence in their ability to perform." (Ajzen, p. 187). Accordingly, Ajzen recognizes perceived behavioral control as a strong predictor of intentions.

When it comes to using the theory of planned behavior to *understand* or *explain* actual behaviors, rather than just predict it, Ajzen states that, "behavior is a function of salient information, or beliefs, relevant to the behavior." Again, he identifies key roles for attitudes, subjective norms, and perceived behavioral control. However, in this context, he focuses on the underlying beliefs associated with each of the three categories.

The paper goes into great depth on additional issues that are of limited relevance to this literature review. While Ajzen's theory is at the same time self-evident and complex, it does provide a useful example for deconstructing patterns of human behavior to explore the role of underlying attitudes, motivations and beliefs. Applying this theory to the realm of energy efficiency outreach and education, one might suggest that: 1) energy efficiency program outreach initiatives should work harder to foster positive attitudes toward energy conservation practices and technologies; 2) programs should promote and highlight

examples of energy conservation practices so that people begin to believe that energy conserving technologies and behaviors are becoming more mainstream; 3) programs should seek to convince consumers that it is within their power to save money and to benefit both themselves and society by conserving energy; and 4) programs should seek to instill an energy conserving ethic in people at an early age so that they form attitudes, beliefs and habits that will result in a lifetime of energy conserving behaviors.

### Referenced in this summary:

Bandura, A. (1982). "Self-efficacy mechanism in human agency." *American Psychologist*, 37, 122-147.

## **Measurement, and Verification (EM&V) Report Los Angeles County ISD 2002-2003 Energy Efficiency Program CPUC Non-Utility Program #156-02**

Aloha Systems, Evaluation, Measurement, and Verification (EM&V) Report Los Angeles County ISD 2002-2003 Energy Efficiency Program CPUC Non-Utility Program #156-02, May 20, 2004

### Program Summary:

The program involved direct installation of lighting retrofits, lighting control systems, time clocks on chillers, variable-frequency drives on air handler fans, and the replacement of one 1200-ton chiller. A number of LA County Office Buildings were serviced. This report contains little to no applicable process oriented comments that can be utilized for our purposes.

### Key Findings:

Ex-ante evaluation of gross annual savings (7,287,846 kWh/yr) was 102% of the savings goals of the revised program plan (7,167,217 kWh/yr). This was accomplished by the county while maintaining the original budget, making it even more cost-effective than what was originally proposed.

Los Angeles County was generally satisfied was generally good, although some difficulties were encountered in lighting control systems.

## **Conservation Advertising Campaigns and Advertising Effectiveness Research.**

Auch, L. & M. McDonald. 1994. "Conservation Advertising Campaigns and Advertising Effectiveness Research: The Right Combination to Solidify the Conservation Ethic." *Proceedings of the 1994 ACEEE Summer Study*, pp. 1.1-1.7. ACEE3.

### Program Summary:

When Puget Sound Power & Light (Puget Power) needed to ramp up conservation as a key part of its energy resource portfolio in the late eighties, it committed to a long-term, sustained advertising and education campaign. The utility established a partnership with O'Neill and Company and invested \$6 million over a 3-year period on an advertising campaign aimed at changing residential energy consumer attitudes and behaviors related to conservation. The utility sought to reach more than just the most willing

consumers. Therefore, the campaign included radio, television, newspaper and bill insert advertisements which highlighted a variety of messages ranging in their complexity.

Since most utility conservation program advertising is done on an intermittent and short-term basis, Puget Power was unable to identify a utility program that it could use as a baseline or model for designing its program. The advertising campaign was created based on focus group research. During the first year's focus group, the researchers found that consumers were interested in knowing: why the Puget Power wanted them to use less electricity if they were in the business of selling electricity; the source of the Puget Power's energy and where conservation fits into the resource mix; and why Puget Power has to advertise the need for conservation.

The campaign ads provided customers with energy-efficiency tips, such as insulation and energy-efficient windows, and increased customer awareness of Puget Power's conservation programs such as home audits and compact fluorescent rebates. Many ads used a customer testimonial approach. Other ads were delivered by well-known spokespersons such as politicians, energy leaders and environmentalists.

After two years of aggressive communications and program support, Puget Power determined that it had laid a sufficient foundation for a conservation ethic among residential consumers. The utility shifted the focus of its programs to commercial and industrial activities, but continued to provide residential consumers with conservation information. The goal was to decrease customer dependence on energy audits and empower them to evaluate energy saving opportunities and take actions more independently.

The program's impacts were monitored with participant surveys every six months. Focus groups conducted after the first year of the campaign helped the agency refine its messaging and delivery.

### Key Findings:

- An unintended benefit of the campaign was that Puget Power's reputation and "believability" improved as the campaign progressed.
- Results of the aggressive advertising campaign occurred *earlier* than expected. Changes in consumer attitudes and behaviors occurred after the first six months of the campaign.
- The longer the campaign lasted, the greater the results. Substantial increases in program activity were seen after each year of program activity.
- By partnering with a research firm, the utility helped ensure that its messaging was effective and on-target.
- If a campaign continues for a long enough period of time, effective research can be conducted to determine how consumer attitudes are changing over time, and whether a conservation ethic is being cultivated in response to utility programs.

### **How Can We Tell if Free Information Is Really Transforming Our Market?**

Conlon, T., Weisbrod, G. & Samiullah, S. 1999. "How Can We Tell if Free Information is Really Transforming Our Market?" *Proceedings of the 1999 International Energy Program Evaluation Conference*, pp. 829-840. NEPEC.

### Comments:

This study was one of four original projects designed to test the suitability of the framework for examining utility program market effects developed in the Scoping Study on Energy Efficiency Market Transformation (Eto, Prahl, & Schlegel, 1996).

### Program Summary:

Southern California Edison's (SCE) Hydraulic Services Program ("Pump Test Program") began in 1911 and continues to provide information and pump testing services to agricultural and municipal water pump users. At the time of the study, the program provided 4,000-6,000 pump tests per year to over 650 water pump end users. The program provides municipalities, agricultural, and other water pumping customers with a pump efficiency test that determines overall system efficiency, electrical motor performance, pump hydraulics and water well characteristics. Results are summarized in a report. If pump replacement is recommended, the participant receives a cost analysis letter summarizing options for replacement.

### Evaluation Approach:

In response to growing pressure for utilities to justify their investments by demonstrating the market transformation effects of their energy efficiency programs, this study was intended to characterize the changes in market attitudes, knowledge, and behaviors that could be attributed to the Pump Test program. The evaluation team surveyed and interviewed a variety of market players operating at all levels of supply and demand chains including customers, distributors, dealers, engineers, manufacturers, lenders, regulators, and pump testers operating outside the program. Because of the program's long history in Southern California, it was impractical to rely on measurements of baseline conditions prior to the program's inception. Instead, the team used a cross-sectional approach which compared responses of market players from the Southern California area with those of pump end-users in Arizona where no water pump assistance program is offered. The study sought to obtain both qualitative and quantitative information on changes and differences occurring: (1) over time, (2) between SCE's service area and Arizona, and (3) at different levels of the supply and demand chains.

The team conducted a limited market characterization. In addition to the surveys and interviews, the research team reviewed sales data to assess comparative market shares, and program records to assess participation trends. In addition, the team reviewed data and reports from previous evaluations of the program.

The research team's approach to assessing the market effects of the program was to start by formulating a set of hypothetical program effects. They then established a baseline to use for comparison and measured the market changes against the baseline. Next, they reviewed the case for SCE's role in bringing about the market changes and looked at the permanence of the market changes.

### Key Findings:

- A significantly greater number of SCE area pump end users indicate a commitment to pump testing than in Arizona where no pump testing program exists:
  - 60% of Edison-area non-participants report pump testing through non-Edison sources,
  - 51% of existing pump test participants report they would continue testing without Edison support,

- Dealers estimate that approximately 50% of customers would continue testing if Edison support were discontinued, resulting in roughly a 50% drop in the overall number of tests performed, and
- 17% of Arizona customers (weighted to be of comparable scale to Edison’s high consumption program participants) report pump testing without any utility assistance.
- Customers, dealers, regulators and others have come to depend on the information resulting from the pump tests performed through the program. Having seen the value of the information provided by the tests, more pump end-users have sought out their own testing outside the program as program testing has been scaled back over time. However, many respondents indicated that they would not likely be as rigorous about testing indefinitely in the absence of the program.
- The research team made several recommendations for improving upon their research methods in future work. In the report, they note:
  - The importance of recognizing the difference between “market changes” and “market effects.” Market effects are those market changes that can be attributed to the program.
  - The serious limitations of conducting a cross-sectional analysis and the importance of using a retrospective baseline for comparison.
  - The importance of conducting a comprehensive market assessment prior to formulating the research questions. They believe a more accurate understanding of the market barriers would have made their research more robust.
  - The importance of reviewing data and reports from previous evaluation efforts.
  - The importance of using qualitative data as a means of defending and more accurately characterizing quantitative findings.

### **Quantifying Load-Shifting Benefits from a Marketing Campaign**

Engle, V., Megdal, L., Rooney, T. Pakenas, L. & Sowek, S. 2003. “Quantifying Load-Shifting Benefits from an Advertising Campaign.” *Proceedings of the 2003 International Energy Program Evaluation Conference*, In press. NEPEC.

#### Program Summary:

As part of its Keep Cool air conditioner turn-in program, NYSERDA conducted a multi-year, multi-media marketing campaign to educate the public about energy saving tips. The campaign urged consumers to: 1) buy Energy Star products; 2) shift clothes and dish washing to off-peak ours (7pm to 7am); and 3) use programmable thermostats or a timer to control air conditioning.

The aggressive marketing campaign implemented by DDB Bass and Howes included television, radio, newspaper and online advertising, as well as a promotion at a regional sporting event. The 2002 campaign occurred between May and September and resulted in over 271 million media impressions (the sum of the gross audiences of all advertising vehicles).

### Evaluation Approach:

Pre and post-campaign telephone surveys were conducted to measure the impacts of the campaign. Unlike a previous survey conducted in 2001, which gathered only qualitative information, the 2002 survey was designed to quantify the amount of demand shifted as a result of the 2002 campaign. The survey design was simple, asking questions such as, “Does your household do laundry between the hours of 7pm to 7am all of the time, sometimes, rarely, or never?” The evaluation team analyzed changes in behavior between the baseline and follow up surveys using a difference of means statistical analysis. A variety of data sources were used to quantify the amount of demand shift indicated by survey data.

### Key Findings:

- A 29% increase in off-peak clothes washing was recorded between the baseline survey and the follow up survey. A 21% increase in off-peak dishwashing was recorded.
- The number of respondents aware of the energy saving tips promoted by the campaign increased by 10% during the campaign period.
- The number of respondents aware of the Keep Cool campaign increased by 20% during the campaign period.
- There was a 16% increase in awareness of the Energy Star label during the campaign period.
- Statistically significant data were not found for the use of programmable thermostats and timers. Therefore, the evaluation focused on quantifying the demand shift associated with clothes and dishwashing.
- Using data sources available from DOE, utilities and other sources, evaluators can translate participant responses to simple questions about household behaviors into meaningful data.

## **How’m I Doing? Tracking the Effectiveness of Advertising an Energy Efficiency Program**

Feldman, S. & E. Rambo. 2003. “How’m I doing? Benefits (and costs) of tracking the effectiveness of marketing for an energy efficiency program.” *Proceedings of the 2003 International Energy Program Evaluation Conference*. In press. NEPEC

### Comments:

The evaluation team planned a thorough and sustained evaluation of an aggressive umbrella advertising campaign. However, due to insufficient resources, the advertising campaign, and the associated evaluation, were not as robust as anticipated. The paper provides valuable insights into the ingredients for an ideal campaign evaluation, but does not provide evidence of actual success.

### Program Summary:

The Wisconsin Focus on Energy program is a statewide energy efficiency initiative funded by the state’s systems benefits charges. A major component of the program has been an umbrella advertising campaign; a comprehensive and sustained marketing effort that highlights a broad range of energy efficiency



activities and concepts. The campaign was designed to address barriers to energy efficiency including lack of awareness of energy saving opportunities, lack of recognition of the ability to achieve benefits, and a perception of high transaction costs. The goals of the campaign were to increase awareness of the program, and trigger consumers to both seek further information about energy efficiency opportunities, and actually carry out energy saving practices.

The campaign included television and radio advertisements and was managed by Hoffman York, an experienced advertising agency. The campaign ran from August through April. However, due to resource constraints, advertising activity was curtailed significantly in the fall, and the campaign shifted from the original umbrella approach to a greater focus on the Change-A-Light program. Emphasis was placed on marketing in the La Crosse-Eau Claire region, an area that had previously received little attention. In that region, the Change-A-Light program was the focus of much of the advertising activity.

### Evaluation Approach:

Recognizing an absence of evidence for the effectiveness of energy efficiency advertising campaigns, the evaluation team sought to address the weaknesses of other evaluation attempts. They found that many energy efficiency advertising campaigns, as well as the efforts to evaluate those campaigns, are short-term, sporadic and lacking in sufficient focus and statistical power. Therefore, the team put forth a plan that included a comprehensive baseline survey, monthly tracking surveys, and a comprehensive follow up survey to be administered at the end of the initial year-long campaign.

The baseline survey was 20.5 minutes in length. It included 588 valid respondents and saw a 20.7 percent response rate. The monthly tracking surveys were 10-12 minutes in length. They included a minimum of 150 valid respondents and had a response rate of 41.2 percent.

Five metrics were used to measure progress: 1) awareness of the Focus Program; 2) attitudes toward the program; 3) awareness of Energy Star; 4) reported likelihood of seeking additional information about the Focus program; 5) reported likelihood of engaging in energy-saving behavior. The paper reported results for the first three metrics only, as the latter two were deemed to require a longer period of time to produce measurable impacts.

Part way through the campaign, state budget shortfalls and related barriers caused a break in advertising activity. While monthly tracking surveys continued, no comprehensive follow up survey was administered.

### Key Findings:

- The La Crosse-Eau Claire region showed a sharper increase in awareness and behavior changes (light bulb purchases) than the rest of the state, indicating that the more aggressive advertising campaign in the target region did make a difference in program impacts. However, none of the results were statistically significant.
- The tracking surveys provided a valuable means of monitoring on-going progress and responses to various changes.
- Outside influences, such as resource constraints and an emphasis demonstrating immediate results, make it difficult to carry out a sustained, effective energy efficiency advertising campaign. Therefore, it is difficult to fully assess the potential impacts of such a campaign.

- In order to effectively track the effects of an umbrella advertising campaign: 1) all major stakeholders must believe in the program theory; 2) the resources to carry out the activities identified in the program theory must be available; and 3) the time for an appropriate test of program theory must be provided.

### **Evaluating the Impacts of Education / Outreach Programs: Lessons on Impacts, Methods, and Optimal Education**

Green, J. & Skumatz, L. 2000. "Evaluating the Impacts of Education/ Outreach Programs: Lessons on Impacts, Methods, and Optimal Education." *Proceedings of the 2000 ACEEE Summer Study*, pp. 8.123-8.136. ACEE3.

#### Summary / Evaluation Approach:

This paper examines whether it is a worthwhile investment to measure the impacts of education and outreach activities, which program delivery strategies have been most successful, and which evaluation methods have been most effective. Historically, energy efficiency programs have focused on the direct delivery of efficiency measures, and the educational and outreach components of these programs have received little attention. Today, market transformation is the goal of many programs. Accordingly, efficiency programs are focusing a great deal of resources on education, advertising and behavioral change. These programs are typically seen as difficult to evaluate, and there has been a great deal of skepticism about the evaluation methods used and the validity of results. Recognizing that when impacts are unknown, they tend to be treated as having zero value, the authors sought to characterize the state of the science of education and outreach program evaluation to help optimize the use of future program resources.

The researchers gathered data through interviews of over 70 professionals and a literature review that included over 80 articles. This secondary research looked beyond the energy sector to seek lessons that could be learned from research in the areas of environmental and conservation work, recycling and hazardous waste programs, and the mainstream advertising and marketing industries. Most of the articles reviewed focused on campaigns targeting residential consumers.

The authors also referenced primary research that attempts to assess optimal education levels, focusing on recycling programs. The research was in progress at the time the paper was published, but we will seek to obtain any related publications as part of the literature review for this evaluation.

#### Key Findings and Observations:

- Energy efficiency programs in the 70s and 80s were built on the premise that information in and of itself would lead to behavioral change. Many of these educational programs were conducted in connection with weatherization programs. Educational activities associated with these programs were found to increase energy savings by zero to 15%.
- Energy efficiency education and outreach programs are typically evaluated using pre and post billing analysis usually using a control group that did not receive any education.
- The advertising industry focuses the majority of its resources on getting the message right upfront- using focus groups to refine copy and messaging, and testing the correlation between intentions and purchase behavior. The industry does little tracking of impacts after campaigns.

- Literature on recycling programs revealed that educational and outreach programs highlighting general messages and concepts were much less effective than those which focused on one specific action.
- Peters (Peters, 1999) and others highlight that the effects of general information strategies are difficult to measure because our energy use behaviors are numerous, complex, and habitual.
- The paper cited studies examining K-12 education program impacts, including a study of the “Energy Source Program” (Neidermeyer, 1999) and a study of a children’s museum display in Wisconsin (Peters, 1999), a study which is included in this literature review.
- This paper and others included in this literature review reference the Ajzen Theory of Planned Behavior. We have researched this theory by reviewing:

Ajzen, Icek. (1991). The Theory of Planned Behavior. *Organizational Behavior and Human Decision Processes*, 50, 179-211. A brief summary of the paper is included in this literature review.

- The authors put forth the following suggestions for future evaluations of educational and outreach campaigns:
  - Consider additional work using quasi-experimental designs using different communities as treatment and control groups (Peters, 1999).
  - Consider gathering cross section information from programs from multiple utilities and use regressions to control for differences in programs and educational methods, a method that may show promise for teasing out educational effects
  - Consider more frequent use of some of the softer advertising techniques including focus group tests of intentions to purchase to test campaigns and educational materials for effectiveness up-front.
  - Consider evaluating several “template” programs, and using their results across utility areas.

### **The Enduring Effects of an Elementary School Energy Education Program**

Hanson, R. & Siegel, D.F. 1995. “The Enduring Effects of an Elementary School Energy Education Program.” *Proceedings of the 1995 International Energy Program Evaluation Conference*, pp. 493-504. NEPEC

#### Program Summary:

The Energy Source Education Program (ESEP) was developed by the Energy Source Educational Council to affect elementary (kindergarten through 6<sup>th</sup> grade) students’ knowledge, attitudes and behaviors related to energy conservation. The program consists of eight classroom instruction units that can be delivered independently, or in a series. Each unit is geared toward a specific grade level, and is intended to be taught in ten 30-50 minute sessions. Instructional materials include a teacher’s guide, student book, home activity booklet, tests, posters and a video.

The authors state that the ESEP is well-suited for a long-term effects evaluation because it possesses a number of features that enable it to produce robust results. First, the program was carefully designed, field-tested and implemented, and has undergone periodic evaluations during its implementation. In addition, since nearly 10 million children from all across the country have participated in the program since its inception in 1982, a large and diverse sampling population exists.

### Evaluation Approach:

According to the authors, while effective evaluation methods do exist for assessing the long-term impacts of energy education programs, resource constraints and limited knowledge of the appropriate methods account for a current lack of documented results on this topic. They look to an evaluation approach that they call “confirmative evaluation,” to accurately define, measure and confirm the long-term effects of the ESEP program. This approach only applies to programs which have already undergone continuous evaluation and monitoring from the early stages of design and development all the way through the implementation phase.

The researchers set out to determine the impacts of receiving instruction in any one of the given units, as well as participation in multiple units. They developed an assessment instrument they called the “Energy Biographer.” Rather than using general measures of achievement, the evaluation instrument was designed to assess learning outcomes specifically related to each instructional unit, hypothesizing that participants who had received instruction in a particular area would show better results when tested on related items. The Energy Biographer assessed students’ 1) knowledge; 2) energy conservation behaviors; 3) interest in conservation; 4) recollection of topics covered in various units; and 5) recollection of participation in particular instructional units. The researchers also circulated “Classroom Information Sheets” to teachers to collect demographic and related data on students participating in the study. After obtaining permission from superintendents, the instruments were administered by teachers in two school districts, one in California and one in Minnesota.

### Key Findings:

- The data revealed clear evidence of long-term impacts resulting from each instructional unit, and even greater cumulative impacts resulting from exposure to multiple units. These results were evident even after as long as six years had passed.
- Students receiving three or more units of instruction: averaged 73% correct on a comprehensive test of energy knowledge compared with 46% correct for those who had not received instruction, and were more than twice as likely to identify their classroom experience as the most important source of their energy information.
- A separate analysis found the program to be cost-effective. ESEP participants were shown to conserve 15% more energy than non-participants. The estimated value of energy savings on an annual, per-participant basis was nearly seven times greater than the purchase price of each program unit. This did not take into account the savings which will accrue over the lifetime of the child.

## **Social Marketing: The Road to Maximizing the Sustainability of Energy Efficiency and DSM Savings**

Kiefer, K., LeBlanc, W., & Feldman, S. 1994. "Social Marketing: The Road to Maximizing the Sustainability of Energy Efficiency and DSM Savings." *Proceedings of the 1994 ACEEE Summer Study*, pp.1.91-1.10. Consumer Behavior Theory, Methodology for Evaluation

### Summary

The paper introduces the concept of social marketing as a strategy for adding value to existing utility DSM program investments, and achieving persistent, sustainable changes in consumer energy-usage behavior. The authors describe how the typical consumer progresses through the following steps when making a purchase decision:

Awareness → Knowledge → Preference → Action

Traditional DSM marketing activities focus largely on the preference and action stages of this cycle, and produce only short-term behavioral change (i.e. using rebates to convince consumers to choose more energy efficient equipment at the time of their purchase). In contrast, social marketing focuses on the awareness and knowledge phases, thus changing the underlying attitudes and values that affect consumer behavior over the long-term.

The authors recognize the importance of conventional DSM programs, as they produce immediate and measurable energy savings. However, they note that such programs do little to increase consumer understanding of the broad range of personal and societal benefits of energy efficiency. As a result, these programs fail to increase the likelihood that consumers will consider energy efficiency when making future purchases.

Market research demonstrates that brand loyalty results when a customer perceives one product to be superior to another in his/her value system. The authors suggest that, if the energy efficiency attributes of a product were a conscious part of the consumer's purchase decision, energy efficiency would become part of the consumer's value system. As a result, DSM programs would do much more to promote repeat sales of energy efficient equipment, to ensure that energy efficient equipment is properly maintained, and to increase word-of-mouth referrals for energy efficient equipment.

The authors describe three categories of barriers to the adoption of energy efficiency: 1) purchase-specific barriers which limit consumer access to efficient equipment (i.e. lack of awareness of technologies, limited product availability, etc.); 2) market-related barriers (i.e. high first cost, lack of codes requiring efficient technology); and 3) fundamental barriers (i.e. failures to recognize linkages between energy use and environmental quality, and the perception that energy efficiency lacks importance). All three barriers must be overcome in order to transform the market for energy efficient products and services. While traditional DSM programs are well-suited to address purchase-specific and market-related barriers, social marketing is better-equipped to address fundamental barriers. By coupling the traditional DSM activities with social marketing, DSM programs can tap the energy saving potential a previously un-tapped segment of the population, and can achieve much greater market penetration.

The effects of social marketing campaigns are less readily measured and possess greater uncertainty than those of equipment replacement programs. However, the authors argue that, if well designed and implemented (i.e. collecting baseline data on consumer beliefs, motivations and concerns), information-based campaigns can achieve benefit-cost ratios that rival, or even surpass those of traditional DSM programs.

## **Lasting Impressions: Conservation and the 2001 California Energy Crisis**

Lutzenhiser, Loren, Rick Kunkle, James Woods, Susan Lutzenhiser, and Sylvia Bender. 2004. "Lasting Impressions: Conservation and the 2001 California Energy Crisis." *Proceedings of the 2004 American Council for and Energy Efficient Economy Summer Study Conference*, pp. 7-229 – 7-240.

### Program/Problem Summary:

In response to extreme energy supply shortages experienced in California starting during the summer of 2000, California energy agencies launched aggressive initiatives to encourage energy conservation measures and a shift in energy use to off-peak periods. The Flex Your Power campaign was launched, taking the unique approach of appealing directly to consumers for voluntary changes in behavior. The campaign used media messages, appeals from public officials, executive orders, and direct contact with large energy users to deliver its call to action. More conventional policy measures were implemented as well including strategies to increase sales of efficient equipment (i.e. lighting, motors, refrigerators, cooling systems) and improve consumers' ability to respond to price signals (i.e. "real time" meters and communications hardware and software).

Addressing the unpredictable results and unpopular nature of President Carter's appeals for frugal use of energy in the 1970s, energy conservation programs in the 1980s focused on achieving predictable and measurable energy savings through technological approaches. In this era, conservation was seen as "resource acquisition," or a source of supply. Emphasis was placed on developing hardware and devices that would deliver energy efficiency without requiring any behavioral change on the part of consumers. In the 1990s, programs shifted to a focus on "market transformation" with the goal of eventually phasing out conventional energy efficiency programs. This market transformation movement did renew interest in theory about consumer behavior as it relates to persuading consumers to adopt new technologies and services.

### Evaluation Approach:

The study focused on effects within the residential energy sector. Utility companies provided data on household energy use both before and one year after the energy crisis. These data were corrected for variations in weather. In addition, two telephone surveys were conducted to measure effects immediately following the crisis, as well as one year later. During the fall of 2001, the first survey included 1,666 randomly selected consumers, stratified across five major utility service territories. Several open-ended questions provided respondents with an opportunity to describe their attitudes, motivations, and behaviors. 1,482 households participating in the first survey agreed to a follow-up interview. The follow-up survey occurred during the fall and winter of 2003 and achieved 815 completes.

### Key Findings:

- There was more flexibility in residential energy demand than expected. Results of the study showed that behavioral changes directly contributed to the fact that there were no rolling blackouts during the summer of 2001.
- 58.5% of the households surveyed took two or more actions to conserve energy.

- Despite the strong promotional push for hardware improvements during the 2001 campaign, 84% of all actions reported in 2001 fell into the category of behavioral changes. It should be noted that there was only a short time-lag between the 2001 crisis period and the first telephone survey.
  - Turning off lights was the most common conservation measure (65.5%), followed by reducing cooling/heating needs (48.5%). Since cooling accounts for 35.5% of peak demand and 7.4 percent of annual residential consumption, it is likely that conservation actions related to air conditioning were responsible for the greatest amount of peak demand benefits (CEC, 2003).
  - 20-30% of households reported taking actions related to the use of small equipment, such as turning off when not in use, using compact fluorescents, shifting energy use to off-peak hours.
  - A very small percentage reported making major energy efficiency investments (i.e. insulation) or purchasing energy efficient appliances.
- Respondents reported that they relied on past experience and common sense to determine which conservation actions to pursue.
- Owners performed more actions than renters in almost all categories, except those for which renters were could easily implement (e.g. shutting off lights and small appliances when not in use).
- Reductions in energy were somewhat concentrated, meaning that a small portion of the population was responsible for the majority of the demand reductions. This means that many of the people who reported taking energy saving actions were not contributing substantially to the overall reduction in demand. “Super-saving” households were mostly concentrated in the Southern California Edison and SMUD service areas.
- Respondents reported a range of reasons for taking conservation actions which included cost concerns, doing their part to avoid blackouts, and protecting the environment. The least reported motivation was qualifying for a utility rebate.
- Surprisingly, approximately 50% of the savings from 2001 continued through to 2002 (controlling for weather differences). Many households reported a continuation of some, but not all of the conservation behaviors from the year before. 46% of those who discontinued actions said that it was: “Just too easy to slip into old ways); 34% believed there was no need to conserve after the summer was over.
- During the second year, a similar percentage of households reported hardware improvements. However, there was a 25% decline in light bulb conservation actions.
- In summary, the study shows that consumers are capable of changing their behaviors to conserve energy when convinced that they can help alleviate a problem/crisis situation. However, consumer behavior and decision dynamics are still not well-understood and further research is suggested by the authors.

### Referenced in this summary:

CEC (California Energy Commission). 2003b. California Energy Demand 2003-2013 Forecast. February 11, 2003. Staff draft report #100-03-02SD. Sacramento, CA: California Energy Commission.

### **Real Time Pricing and the Real Live Firm**

Moezzi, Mithra, Charles Goldman, Osman Sezgen, Ranjit Bharvirkar, and Nicole Hopper. 2004. "Real Time Pricing and the Real Live Firm," Lawrence Berkeley National Laboratory." *Proceedings of the 2004 American Council for and Energy Efficient Economy Summer Study Conference*, pp. 5-168 – 5-180.

### Program Summary:

When the New York electric industry was restructured in 1998, Niagara Mohawk Power Corporation (NMPC), an electric utility serving consumers in upstate New York, introduced Real Time Pricing (RTP) as the default rate structure for its largest customers. This program was the first large-scale application of RTP in the nation, as well as the first to provide RTP as the *default* rate. Under the default RTP rate option, customers pay hourly prices indexed to NYISO's day-ahead market. Other options available to the large businesses included a fixed rate take-or-pay contract with NMPC, and offerings from competitive suppliers. These customers were also eligible to participate in a variety of NYISO's demand response (DR) programs, the most popular of which was the voluntary Emergency Demand Response Program.

### Evaluation Approach:

The authors of this paper sought to explore whether economic theory about the rational behavior of firms (i.e. firms will respond to price increases by curtailing load as a means of minimizing operating costs) accurately depicts actual behavior. A multi-dimensional study by Lawrence Berkeley National Laboratory was undertaken five years after the RTP rate was introduced. The study examined the impacts of the program, as well as the motivations and decision-making processes of the 130 organizations in the relevant rate class. Activities included: 1) a review of billing data for all customers in the rate class; 2) customer surveys (53 responses); and 3) 20 minute interviews (primarily conducted by phone) with 29 customers. NMPC provided contact information to facilitate the web-based survey, and those who completed the survey questionnaires were asked to volunteer for a follow-up interview. This paper is primarily based on the results of the interviews.

The authors recognize the inherent strengths and weaknesses of an interview format. On one hand, the interviewees are a self-selecting group who likely spend more time focusing on energy decisions than non-respondents, and who have a particular perspective or story they wish to communicate. On the other hand, the stories told by interviewees can often highlight functional, and sometimes causal relationships that might not otherwise emerge.

### Key Findings:

- There was remarkable variability in the reasons given for not curtailing load in response to the availability of RTP. This may call for modification in customer demand theory. For example, greater market segmentation may be necessary.
- About 50% of survey respondents said they were unable to shift or forego load. Primary reasons given for this lack of curtailment activity included: 1) schedules are not adjustable; 2) savings



would be insufficient; 3) no time, no interest, skepticism, frustration; and 4) interest, but insufficiently prepared.

- While manufacturing facilities are typically considered the ideal candidates for price responsiveness due to their batch processing nature of their operations, the results of this study, as well as a study by Duke Power (Schwartz et al. 2002) reveal that educational institutions possess the highest estimated price elasticity of demand. The authors suggest that this is due to their ability to shed load during summer breaks and holidays, as well as the academic “culture” which fosters a willingness to try new approaches to energy management.
- 40% of interviewees were enrolled in emergency demand response programs, indicating that they do possess the ability to curtail load under emergency conditions. Several respondents explained that they were willing to curtail load in short-term increments when it was for the purpose of avoiding a blackout or when the payments are high enough, but that they were unwilling to make a regular practice of load curtailment.
- The most common load curtailment strategies included turning off lights and air conditioning units, both of which result in occupant discomfort. While this is tolerable under rare, emergency conditions, fear of employee complaints contribute to an unwillingness to curtail load on routine basis.
- Some interviewees stated that they would be more likely to respond to price signals if they had access to better information about optimal curtailment strategies, if dollar savings potential were more clearly communicated, and if actual savings were more visible in billing. This may suggest a demand for more information products.
- For customers with limited ability to curtail load, overall efficiency improvements can serve as a hedge against variable prices.

### Referenced in this summary:

Schwartz, Peter M., Thomas N. Taylor, Matthew Birmingham, and Shana L. Dardan. 2002. “Industrial response to electricity real-time prices: short run and long-run.” *Economic Inquiry* 40(4): 597-610.

### **Who Says Small Commercial Customers Can’t Be Reached? A Few Program Concepts for Attracting Small Customers to Energy Efficiency Programs**

Myers, M., Mayo, B., Friedman, R. “Who Says Small Commercial Customers Can’t Be Reached? A Few Program Concepts for Attracting Small Customers to Energy Efficiency Programs.” *Proceedings of the 2004 ACEEE Summer Study*, pp. 4-253 – 4-264.

### Summary

In 2000, the California Public Utilities Commission (CPUC) directed California’s investor-owned utilities (IOUs) to make a greater effort to reach customers that traditionally have had limited access to program information and benefits due to issues such as language, geographic barriers and business size. The paper highlights findings from a 2002 evaluation of California’s Express Efficiency program and explores three strategies for addressing the barriers to reaching small commercial customers.

Serving customers with peak demands less than 500 kW, the Express Efficiency program is the most large-scale energy efficiency program serving small commercial customers in California. Evaluation of the program revealed that contractors are very effective at getting customers to participate in the program, but that contractors have little incentive to pursue small customers because they are less profitable than larger customers. Furthermore, in the rare event that contractors do focus on marketing to small customers, the customers often question the contractors' credibility. Three strategies were explored as possible means for increasing contractors' activity in the small commercial market: 1) utilities leverage their credibility by creating referral lists highlighting certified contractors; 2) utilities share customer audit data with contractors to generate leads; and 3) utilities partner with community-based organizations (CBOs) to provide added credibility, as well as cost-effective marketing opportunities for contractors.

*Lists of Certified Contractors.* The most commonly cited reason for selecting a contractor was referral or reputation, and those surveyed expressed a great deal of trust in their utilities. Accordingly, the concept of a utility referral list of contractors was very favorably received by most program participants. Most contractors were critical of this concept, expressing concern that small businesses would pay little attention to such lists, or that the lists would include poor-quality contractors.

*Vendor Access to Audit Information for Small Commercial Customers.* Most contractors liked this idea, viewing it as a sales tool and a source of credibility. [Note: there was no discussion of the privacy issues related to sharing customer information with vendors.]

*Partnerships with Community-Based Organizations.* Forty percent of the general population claimed to be members of community-based organizations, trade organizations, service groups or faith-based organizations. The primary focus of the CBO partnership concept was to hold events that would bring the target audience, contractors and utility representatives together under one roof. This concept received mixed reviews from vendors. While some had had positive experiences with these sorts of events, others stated that such events are not effective channels for communication, and are not the place where decisions are made. One respondent stated that 100% of their business results from one-on-one meetings with potential clients. Southern California Edison has substantial experience using CBO partnerships to reach hard to reach customers. Based on their experience, successful community events are: attended by both contractors and previous program participants; display energy efficient products; and customers can sign up for the program on the spot. Interviews also revealed that successful utility-CBO partnerships: are the result of long-term relationships; are based on trust; need upper management support; require responsive and readily available utility staff who focus on meeting the needs of the CBO.

### **Evaluating Educational Effects in Pacific Gas and Electric's Energy Savings Plan**

O'Meara, K.P. & J.A. Flanagan. 1994. "Evaluating Educational Effects in Pacific Gas and Electric's Energy Savings Plan." *Proceedings of the 1994 ACEEE Summer Study*, pp. 8.151-8.156. ACE3

#### Comments:

This impact evaluation confirms challenges of measuring educational effects, but highlights the substantial impacts of those results that are measurable – equipment replacement.

#### Program Summary and Evaluation Approach:

PG&E has offered its Energy Savings Plan program since 1991 as a low-cost means of improving the energy efficiency of single-family homes. The program has two components: an onsite component in

which a PG&E representative visits the home, conducts an audit, provides information and installs some low-cost energy saving measures (i.e. low flow shower head, compact fluorescent lightbulbs, water heater blanket); and a direct mail component, in which homeowners receive rebate coupons and information on energy saving strategies. This evaluation focused on the onsite component of the program and specifically looked at the impact of the educational aspect of the audit.

The evaluation team identified “educational effects” as energy savings that result from actions taken by customers for which the utility does not compensate the customers. The authors place those educational effects into two categories: 1) changes in household equipment stock (i.e. refrigerator, freezer or furnace replacement); and 2) energy saving behavioral changes that do not relate to equipment replacement.

To determine the impact of changes related to equipment replacement, the evaluation team conducted telephone surveys of a sample of participants and non-participants and asked questions that inquired about equipment replacement, among other things. The team used pre and post-participation billing information to calculate the per-participant impact and then determined program wide impacts by multiplying these results by the number of “excess” participants. The “excess” participants are those that reflect the difference in the rate of equipment replacement between the participant and non-participant samples.

The evaluation team had greater difficulty determining the impacts from non-equipment replacement-related educational effects. The team used an “SAE analysis” which looked at how statistical estimates of impact compare to engineering estimates of impact. If the statistical measures of impact seemed consistently higher than the engineering estimates of impact, this would indicate that some factor was affecting the estimated statistical impacts. The authors recognized that the SAE approach could only provide preliminary indications of the presence of behavioral effects, because many other factors influence the relationship between engineering estimates and statistical estimates. This portion of the study did not provide conclusive results. The team recommends that future researchers use a controlled experiment in which one set of participants receive both educational information as well as direct measures (low flow shower head, CFLs, etc.) and the other set receives only the direct measures.

### Key Findings:

- 26% of total program energy savings can be attributed to refrigerator and freezer replacement that resulted from educational information delivered as part of the program audit process.
- Improvements in estimates of the impact of this equipment replacement can be achieved by developing engineering estimates of these changes that would include model-specific data.
- The results of research into the effects of behavioral changes not related to equipment replacement were inconclusive. This was largely due to the fact that it is difficult to measure impacts of educational effects that do not result in a major impact, such as replacing an appliance.
- The evaluation team suggested doing a controlled experiment in the future to show the differences in those who receive educational information and those who do not.

## **Madison Avenue Meets the Monopoly: Advertising Approaches for Energy Companies**

Peters, Anne. 2000. Madison Avenue Meets the Monopoly: Advertising Approaches for Energy Companies. *E-Source, Inc.*, ER-00-11.

### Summary:

This paper provides insights into the opportunities, strategies, and common pitfalls associated with several different types of energy utility advertisements. Utilities and energy service providers (ESPs) spend advertising dollars for a variety of reasons. While branding cuts across all advertising efforts, advertising generally falls into three genres: informational/educational, persuasive/commercial, and political/regulatory.

Energy utilities typically spend 0.05% of their annual revenues on advertising. This is a tiny fraction of what the food products and automotives industries spend, and it is small even relative to the telecommunications industry which spends 1.10 percent of its annual revenues on advertising. Peters cites the airline and gasoline industries as examples of those that have survived on drastically reduced advertising budgets. However, with many changes underway in the energy industry, the need for more advertising, and for getting more out of every advertising dollar spent, is increasing.

One of the key barriers facing energy industry advertising is that energy is such a basic and generally reliable service that people don't think much about it. Furthermore, the fact that energy is intangible and, to many people, boring, makes it difficult to present in a way that will attract attention amidst the din of compelling advertising messages each person encounters on a daily basis. As demonstrated by the "Got Milk" campaign, these challenges are not insurmountable. Many utilities produce advertisements that appeal to their consumers' emotions and self-esteem, (i.e. images of close-knit families in their warm, well-decorated homes). Maslow's Hierarchy is a psychological framework which is useful in explaining this trend in utility advertising. The framework is based on the notion that humans need to meet needs on a variety of levels starting with the most basic "first-level" needs (i.e. clothing, water and shelter), and extending to the "high level" needs that relate to a person's sense of meeting their full potential. Peters explains that effective advertising demonstrates how a product or service meets a consumer's needs on a number of levels.

Much of the article focuses on effective strategies for branding. Sample ads are also provided to demonstrate how utilities have effectively communicated advertising messages on a variety of topics. Some of the most compelling points that are of relevance to general advertising campaigns, and educational and outreach campaigns in particular, include the following:

- Use ads and marketing strategies (i.e. partnerships/coalitions) that help provide your brand/concept with a memorable, unique personality that is well-suited to the target audience.
- Learn about the attributes your customers value and the things they dislike.
- Research the decision-making style/behavior of your target audience.
- Use humor to grab attention and make the topic less mundane, but pre-test ads to make sure they don't backfire by offending the target audience.
- Use an experienced ad agency or marketing firm.
- Since product differentiation is a key purpose for advertising, make sure ads are distinctive. Avoid over-used images.

## **Detecting Behavioral Change From a Visit to Children’s Museum Energy Conservation Exhibit**

Peters, J., McRae, M., Morander, L. & D. O’Brien. 2000. Detecting Behavioral Change from a Visit to a Children’s Museum Energy Conservation Exhibit.” *Proceedings of the 2000 ACEEE Summer Study*, pp. 8.281-292. ACE3

### Comments:

This evaluation claims to be one of the first to use a program logic model as a tool for structuring an evaluation and measuring program progress. The report explains that, by breaking down the program into its detailed components and establishing a framework for measurement, program logic models help overcome the challenge of measuring the impacts of educational programs and programs whose impacts are long-term in nature

### Program Summary:

In 1998, Wisconsin Electric (WE) endeavored to use a children’s museum exhibit as a means to change the current and future conservation behaviors of children and their parents. The exhibit was designed to be interactive and engaging. It consisted of a brightly colored model home including a kitchen, living room, bedroom, bathroom, and basement. Called the “Energy Detectives Clubhouse,” the exhibit challenged kids to identify instances of energy being wasted in the home. Messages were hidden in drawers and under lids to provide kids with clues. The exhibit focused on low or no-cost energy saving strategies such as only running full loads in the washing machine and making sure to select the proper size pot or pan for the burner being used.

Visitors were given educational workbooks and asked to join the energy detectives club by filling out a registration card. Participants who completed a certain number of workbook activities received a certificate. Those who filled out registration cards received further educational information in the mail. The information collected was used by the evaluation team to create a survey sample.

The exhibit was first shown for a four month period at the Fox Children’s Museum in Appleton. The second showing was for a one and a half month period at the Betty Brinn Children’s Museum in Milwaukee.

### Evaluation Approach:

The evaluation team began its work at the start of the first showing, and input from the evaluation team was used to enhance the exhibit for the second showing.

The evaluation team developed a program logic model as a means to achieve an orderly arrangement of program components and ensure that they were associated with measurable outputs and outcomes. The model included lists of inputs, activities, outputs, early outcomes, middle outcomes and later outcomes.

For each of the two exhibit sites (Fox and Betty Brinn), the evaluation team interviewed children who had visited the exhibit and signed up for the Energy Detectives Club (sample: 50-56), those who had visited but not signed up for the club (sample: 6-8), and children in the area who had not visited the exhibit (sample: 54-58). The team also interviewed museum staff (5) and teachers (7).

Key Findings:

- The exhibit was successful at improving conservation behaviors of children, getting children to talk to their parents about conservation behaviors, and inspiring teachers to request more materials to do follow up activities in their classrooms.
- The conservation behaviors of participants were not dramatically higher than those of non-participants (70% for participants compared to 60% for non-participants), indicating that the exhibit was reinforcing information that children were already learning.
- Museum staff and teachers felt that the exhibit played an important role in bringing to life an otherwise dry topic. Teachers liked the fact that the exhibit was fun and engaging while teaching students about an important topic that did not receive sufficient coverage through their standard curriculum.

### **I Can Do It! The Role of Self-Efficacy in Motivating Changes in Attitudes and Behavior Relating to Energy Efficiency and Renewables**

Peters, J.S. & S. Feldman. 2001. "I Can Do It! The Role of Self-Efficacy in Motivating Changes in Attitudes and Behavior Relating to Energy Efficiency and Renewables." *Proceedings of the 2001 International Energy Program Evaluation Conference*, pp.479-486. NEPEC.

Summary:

The authors cite the ineffectiveness of many energy efficiency advertising campaigns, and a lack of industry experience with using mass media messages in social marketing as motivators for exploring self efficacy and response efficacy as possible predictors of behavior related to energy efficiency and renewable energy. In this paper, the authors review the results of three separate research efforts that support the importance of using messages that focus on self-efficacy and response efficacy in energy program marketing and outreach. The authors draw upon insights and theoretical approaches from the fields of psychology and mass communications which indicate that individuals are more likely to adopt a promoted behavior if they believe they have control over performing the behavior effectively ("self-efficacy") and that their actions will have a predictable and desirable outcome ("response efficacy").

The role of self-efficacy as a possible predictor of behavior related to renewable energy first emerged out of focus groups exploring the preferences of participants in the Sacramento Municipal Utility District's (SMUD) Greenergy program. The importance of self-efficacy was confirmed by the results of surveys performed for the Tennessee Valley Authority's (TVA) Green Power Switch program and the Wisconsin Focus on Energy program. The TVA survey was a questionnaire sent out to new participants asking them why they enrolled in the program. Over 90% of the respondents agreed or strongly agreed that "each of us has to be responsible; what I do can make a difference." In Wisconsin, a random digit dialing telephone survey was performed both before (sample size: 300) and after (sample size: 400) a renewable energy advertising campaign. The results demonstrated a strong relationship between a sense of self-efficacy about pursuing renewable energy measures, and motivation to seek further information about taking action. The paper notes that further study on the issue of self-efficacy is underway in both Tennessee and Wisconsin and we should search for additional papers on the topic.

Several studies identify cost-savings and non-energy benefits as key motivators for encouraging consumers to pursue energy efficiency measures. Accordingly, many advertising campaigns focus on

these benefits, but with little success. The authors put forth that, since cost savings and non-energy benefits are relatively small and not easily discernible for most individuals, focusing on these benefits does not have a great impact. They suggest to both the energy efficiency and renewable energy sectors a shift in focus to motivational messaging with an “I can” theme.

Key works referenced by the authors include:

- Bandura, Albert. 1977. "Self-efficacy: Toward a Unifying Theory of Behavioral Change" (*Psychological Review*, 84:191-215, 1977).
- Ajzen, Issac. 1988. "The Theory of Planned Behavior." *Organizational Behavior and Human Decision Processes* 50 (2): 179-211.

### **Using Logic Models to Improve and Enhance Nonresidential Programs**

Peters, J., Moran, D.C., Engel, V., Megdal, L., “Using Logic Models to Improve and Enhance Nonresidential Programs.” *Proceedings of the 2004 ACEEE Summer Study*, pp. 4-275 - 4-285.

#### Project Background

As part of the comprehensive evaluation of its portfolio of over 30 programs, the New York State Energy Research and Development Authority (NYSERDA) contracted with GDS Associates in 2003 to develop program logic models, and to analyze NYSEDA’s programs relative to social science theory and to similar programs being implemented in other states. The paper focuses primarily on the logic modeling and analysis efforts for NYSEDA’s New Construction Program (NCP), a non-residential program with a goal of achieving 120 GWh of savings by providing incentives, technical assistance, and outreach to 785 commercial buildings over seven years.

The paper cites a growing trend toward making program theory and logic explicit in order to facilitate effective program implementation and evaluation. A related paper on the topic of NYSEDA’s logic modeling efforts (Albert et al., 2004) highlights the importance of articulating program theory and developing logic models as a means of identifying and documenting researchable issues, and making explicit the underlying assumptions of key program elements.

#### Study Approach

The study was broken into two stages: logic model development and program analysis. Logic model development consisted of: initial data collection, problem description, logic model definition, and logic model diagram construction. Logic models typically identify all program inputs, activities, target market, outputs, short- medium- and long-term outcomes, and external influences. All of NYSEDA’s programs were designed using basic logic-modeling techniques, and a logic model was developed for the NCP in 2002 during a logic modeling workshop conducted by one of the paper’s authors. Had this model not already existed, interviews or a workshop with program staff would have been necessary to understand the flow of program processes and the goals of program activities. Given the existence of a program logic model, the project team could focus on collecting secondary data, which included any documentation of program goals and objectives, the program marketing plan and reports about the program.

After developing a revised logic model and a narrative describing the model, the research team met with program staff to review the accuracy of their work. The team adjusted the model based on feedback from program staff, then began the program analysis stage.

This stage consisted of: theory research and development, theory logic model verification (testing the logic model in the context of social science theories and the experience of other programs), and recommendations. The project team explored the theories of social marketing, diffusion of innovation and consumer economics.

### Key Findings and Observations

- The NCP includes strategies and tactics aimed at achieving both resource acquisition and market transformation objectives.
- The resource acquisition component of the NCP (efforts to reduce kWh usage and peak demand) effectively applies consumer economic theory. Various financial incentives offered through the program address the need to mitigate the incremental costs of high performance building design and construction. However, the theories most relevant to the market transformation component of the program (social marketing and diffusion of innovation) are not being applied as effectively.
- Social marketing theory is very relevant to energy efficiency outreach activities; several EE marketing campaigns *are*, indirectly, social marketing campaigns. Social marketing theory is being actively applied by the Northwest Energy Efficiency Alliance through their BetterBricks campaign ([www.betterbricks.com](http://www.betterbricks.com)). That program was still in its early stages at the time the paper was published, but it was clear that the program was struggling to produce appropriate collateral materials to affect the decisions of building designers and owners.
- Diffusion of innovation theory (Rogers, 1983) describes how new technologies and concepts are adopted first by innovators, then early adopters, then the early-middle-and late majorities, and finally by the laggards. Most market transformation programs target the early adopters and early majority. Diffusion of innovation theory focuses on using change agents, those with technical knowledge and little or no commercial interest in the intended behavior change, to communicate information to the target population. The theory also highlights the importance of targeting opinion leaders within the community of interest so that their adoption of the technology or concept will cause a ripple effect leading to much deeper market penetration.
- The study revealed that the NCP was consistent with diffusion of innovation theory in that it commissions engineers and architects to function as change agents and distribute information to the community of interest. However, the project team found that NCP's marketing strategies were not sufficient to fulfill the program's expectations for causing changes in the behavior of non-participants. The project team suggested addressing perceptions about the commercial interests of the contractors acting as change agents, and they recommended targeting opinion leaders to make more effective use of limited marketing funds.
- The analysis of program theory and logic produced a list of short-, medium-, and long-term research issues to test through future program evaluation efforts.
- Since program designers and implementers are busy implementing programs, they had little time to devote to logic modeling and program analysis. Therefore, it was challenging to obtain sufficient input from key program staff.



### Referenced in this summary:

Albert, S., Engel, V., Jordan, G., Megdal L., Peters, J. “Using Program Theory and Logic to Improve Design and Likelihood of Real Market Change: Experience with a State Public Benefits Program.” *Proceedings of the 2004 ACEEE Summer Study*, pp. 6-1 – 6-12.

Rogers, E. 1983. *Communications of Innovations: A Cross-Cultural Approach*. New York, N.Y.: Free Press.

## **Working Group 2 Demand Response Program Evaluation – Program Year 2004, Final Report**

Quantum Consulting Inc., Summit Blue Consulting, LLC., Working Group 2 Demand Response Program Evaluation – Program Year 2004, Final Report, December 2004.

### Comments

This study focuses on programs that apply only to customers with peak demands greater than 200 kW, which are out of the scope of our own evaluation efforts. However, the report provides important background information on California’s approach to demand response initiatives, and the features that are most and least attractive to businesses.

### Program Summary

Working Group 2 was formed to evaluate demand response programs in California that are focused on large customer (>200 kW monthly demand) issues. In particular, “Critical Peak Pricing (CPP) tariff, the Demand Bidding Program (DBP), the California investor-owned utilities interruptible programs, and the California Power Authority’s Demand Reserves Partnership (DRP).” Utility representatives as well as those from the CEC and CPUC guided the evaluation activities. A number of sub-studies are included in the final evaluation report. The sections that are most relevant to our efforts are the process evaluations of a select group of programs, the review of non-California demand response programs, and the examples of program outreach materials.

### Key Findings

- In general there is still a significant perception that the barriers to demand response are high, yet there is conflicting evidence regarding the need for additional technical assistance. The authors are careful to point out that *perceived* costs are “as relevant to customer decision-making as actual costs.” (3-9). They also confirm other authors’ suggestions that perceived barriers vary substantially by market segment, and perhaps not surprisingly, those that were likely to shift load were less likely to be concerned about actual load reduction than program design and economics.
- Program participation among medium and large customers was significantly higher than for smaller customers (3-4). This could be due in part to the fact that the financial incentives for participating in demand response programs are not particularly compelling for smaller facilities (i.e. a demand reduction of 100kW will only produce \$240 in savings for a day-before bid event, p. 2-7). However, the study found that many customers are participating for reasons of reliability and civic duty, not for financial reasons (p. 3-5)

- While it is important to offer a range of options to suit different market and consumer needs, the numerous program details can be very confusing, leading some potential candidates to avoid participation (3-1).
- More substantial financial incentives and a lack of financial penalties were cited key features of interest for customers (p. 10-17).
- The evaluators point out that a limited amount of evaluation can be conducted due to the fact that there were insufficient “events” to study. The evaluators further suggest that additional courtesy notifications could assist participants. This is relevant to our work as the Orb and Enerpath systems could be thought of as providing such notification.
- An exploitable error (for our purposes) also occurred during the study. SCE mistakenly signed up a number of DBP participants that bid 50kW. This was an insufficient bid amount for the purposes of this study and the program, but it does highlight that a market of smaller bidders and responders does exist.
- Experience with notification technology and ability for those in authority to receive information in a timely manner was pointed to as an area of concern in this study.
- Despite the amount of technical information available on DR, including case studies, there is evidence that moving from information to action may require site-specific support.
- A review of programs in other states reveals the importance of providing financial incentives that sufficiently compensate businesses for the inconvenience and business risks that they incur as a result of load curtailment activities (11-6). Furthermore, the experience in other states highlights the importance of the having committed utility staff that can cultivate trust and maintain long-term relationships with customers.
- The value proposition of demand response programs on their own may not be enough to compel customers to participate. Integrating demand response and energy efficiency will increase the likelihood of customer participation (p. 11-9).

### **What is it I need to know? The Relationship Between Information Seeking and Intended Action Relating to Energy Efficiency**

Rambo, E. & S. Feldman. 2003. “What is it I need to know? The relationship between information-seeking and intended action relating to energy efficiency.” *Proceedings of the 2003 International Energy Program Evaluation Conference*. In press. NEPEC.

#### Comments:

This paper is based on the same Wisconsin umbrella marketing campaign as was the “How’m I doing?” paper. However, this paper focuses on testing a commonly assumed sequence of cognitive and behavioral events- that awareness of a problem leads to information seeking, which then leads to greater intentions to act on the problem.

### Program Summary:

The Wisconsin Focus on Energy program is a statewide energy efficiency initiative funded by the state's systems benefits charges. A major component of the program has been an umbrella advertising campaign; a comprehensive and sustained marketing effort that highlights a broad range of energy efficiency activities and concepts. The campaign was designed to address barriers to energy efficiency including lack of awareness of energy saving opportunities, lack of recognition of the ability to achieve benefits, and a perception of high transaction costs. The goals of the campaign were to increase awareness of the program, and trigger consumers to both seek further information about energy efficiency opportunities, and actually carry out energy saving practices.

The campaign included television and radio advertisements and was managed by Hoffman York, an experienced advertising agency. The campaign ran from August through April. However, due to resource constraints and other barriers, advertising activity was curtailed significantly and the campaign did not achieve its expected target metrics.

### Evaluation Approach:

For this study, the evaluation team sought to test a commonly assumed sequence of cognitive and behavioral events- that awareness of a problem leads to information seeking, which then leads to greater intentions to act on the problem. For the Wisconsin Focus program, the program administrators developed the program logic for the umbrella marketing campaign based on the belief that increased awareness about the campaign would lead to an increase in efforts to seek information about energy efficiency, and then an increase in intentions to pursue energy efficiency activities. The evaluation team used data from a comprehensive baseline telephone survey and eleven monthly follow up telephone surveys to determine the accuracy of this marketing theory.

### Key Findings:

- During the entire campaign, intentions to perform energy efficiency measures significantly outweighed levels of program awareness and intentions to seek additional information. This disproves the program theory that increased awareness would be followed by increased intent to seek information, and then increased intent to pursue energy efficiency measures.
- Since roughly one half of consumers do not report seeking information prior to taking action, there is a compelling need to develop a better understanding of the precursors to action.
- A more complex marketing theory may need to be developed to address those for whom a lack of information is not the key barrier to pursuing energy efficiency measures. Other potential barriers include motivational, economic and symbolic factors.
- Awareness of the program increased slightly as a result of the marketing campaign, but there was no net increase in intentions to seek information or to perform energy efficiency measures at the end of the campaign.
- Most respondents believed they already possessed sufficient knowledge about energy efficiency; 52% of respondents said they did not need any additional information about energy efficiency strategies.
- Of the 31% of respondents who said they were “very” or “extremely” likely to take energy efficiency actions within the following year, the majority intended to undertake *complex* energy

measures (such as insulation and window replacement) than *basic* measures (such as setting back the thermostat and turning off lights). Those intending to take complex actions tended to be younger but not more highly educated.

- There was a slight tendency for those who intended to take complex actions (i.e. adding insulation or replacing windows) to say that they intended to seek more information, but the results were not statistically significant.
- The program theory could be deemed appropriate for the subset of the population who intends to undertake *complex* energy efficiency measures, as many individuals in this category do seek information prior to taking action. Note that this population also had a higher level of awareness of the Focus program, and may be a suitable target if advertising dollars are limited. However, the program theory was not shown to be well suited to the majority of the population that does not already intend to pursue complex energy efficiency upgrades.

### **Transforming Markets Through Education and Awareness: A Study of the Pacific Energy Center**

Reed, J. O'Drain, M. & Chace, J. 1999. "Transforming Markets Through Education and Information: A Study of the Pacific Energy Center." *Proceedings of the 1999 International Energy Program Evaluation Conference*, pp. 841-855. NEPEC.

#### Program Summary:

The Pacific Energy Center (PEC) opened in 1991 in downtown San Francisco with the goal of educating and training professionals in the commercial building industry to create a sustainable market for energy efficiency and energy efficient products. The PEC's target audience includes architects, engineers, building owners, facilities managers, manufacturers and distributors who are located within the Pacific Gas and Electric service territory. Recognizing that it will take more than just energy savings to transform the market, the PEC's educational philosophy focuses on promoting the "whole building" or "systems" approach that highlights owner value and user comfort in addition to energy savings.

PEC's activities include classes and workshops, a library of resources, technology demonstration, tool lending, and one-on-one consultation. Classes and workshops are a primary educational tool. They focus on both basic and cutting edge topics including solar geometry, lighting design, architectural shading devices, HVAC systems design and building simulation models. The PEC has served over 30,000 visitors since it opened its doors.

#### Evaluation Approach:

The main goals of the evaluation research design were to determine: 1) whether the initiatives of the PEC have succeeded in transforming the building design and construction practices to make commercial buildings more energy efficient; and 2) what lessons can be learned about measuring market transformation programs. Specifically, the evaluation team examined:

- key market structures within the commercial building sector;
- to what extent the PEC has reached those markets and effectively communicated its messages;

- factors influencing behavioral changes;
- impacts of these behavioral changes;
- longevity of behavioral changes and the impacts resulting from PEC activities.

The research methodology included: 1) analysis of participation data maintained by the PEC to understand the amount, timing and levels of participation; 2) linking company information in the PEC participation database with Dun and Bradstreet data to determine the levels of market penetration in target markets; 3) in-depth interviews with more than 40 professionals including PEC staff, architects, engineers, lighting designers, building owners and building operators; and 4) 25 minute surveys completed by over 200 users of PEC services. The interviews were used to gain data qualitative information that helped the researchers characterize the market segments. The surveys covered a broad range of topics related to the impacts of PEC activities, including how behaviors changed in response to PEC participation, factors influencing decision making, and use of information from the PEC in actual projects. The surveys were the primary source of data for the evaluation of PEC impacts.

### Key Findings:

- The commercial building market is diverse and different decision-making structures exist depending on the construction and ownership model in question. Market transformation programs must target appropriate audiences with messages that are relevant to their decision-making patterns.
- PEC's educational activities have reached 30 to 40 percent of engineering services companies, lighting designers and lighting equipment vendors and large property owners. These numbers indicate that the PEC's impact is being felt beyond just early adopters and innovators.
- PEC's messages are resulting in behavioral changes that are affecting the design and equipment choices at commercial buildings. Survey respondents claim these behavioral changes will continue into the future. For example, 44% of respondents said the PEC was a main factor in motivating them to specify high efficiency lighting equipment, and 31% said the PEC was a main factor in motivating them to discuss the interactions among building systems with their clients.
- Different people have different decision styles which determine the type of information they seek and use. Organizations like the PEC are most likely to reach the group of "globally attentive" decision-makers who heavily weigh external factors and information.
- Many professionals are returning to use PEC services multiple times (ten percent of architects, lighting designers and engineers used PEC services five or more times), indicating that they find value in the services offered.
- Due to limited resources, the evaluation team used a cross-sectional study design. The researchers recommend that future studies of behavioral change ask the same questions at different points in time to track program influences.

## **Cinergy Home Energy House Call (HEHC) Program Evaluation**

Riggert, J. Hall, N., Morgan, R. & K. Schroder. 1999. "Cinergy's Home Energy House Call (HEHC) Program: An Information Program That Changes People's Lives." Proceedings of the 1999 International Energy Program Evaluation Conference, pp. 813-827. NEPEC

### Program Summary:

The HEHC program is an in-home energy audit program created in 1996 to educate participants about actions that can be taken in their home to reduce electric and gas consumption. The program is based on the hypotheses that an energy examination linked with a high-quality audit report and educational presentation provides customers with the information needed to make decisions and take actions to reduce or control energy consumption. It is also assumed that the average customer does not fully understand what actions are appropriate for their home, and may not be considering cost-effective actions, or even the right set of actions without the audit.

The program solicits participants through zip-code targeted mailings and has served over 7,000 customers since 1996. The enrollment rate is approximately 3 percent. Participants sign up through a single phone call to Honeywell DMC (HDMC).

The onsite audit and education process takes a total of approximately 2-3 hours. An auditor visually examines the home's mechanical systems and thermal envelope, and asks about customer behaviors. The auditor then enters the data into a small hand-held modem-equipped computer. Data is uploaded and processed immediately. While still onsite, the auditor presents the participant with an 8-page report including high quality graphics and recommendations prioritized by cost effectiveness. The auditor reviews the report and recommendations with the customer, describing expected costs and benefits.

Honeywell-DMC maintains its own searchable tracking system for participants and reports progress to Cinergy monthly. The tracking system documents customers participation in the HEHC program, including contact dates, audit dates, audit results and report recommendations.

### Evaluation Approach:

TecMRKT Works performed a process and impact evaluation of the HEHC program in 1998. The evaluation included: 1) interviews with Cinergy and HDMC program staff (including program designers, managers, and auditors); 2) a review of customer files and tracking systems; 3) pre and post program billing analysis of over 500 participants and 500 non-participants; 4) telephone interviews with over 200 program participants. The telephone interviews were stratified to account for program variations over a three year period.

### Key Findings:

- Most customers heard about the program through targeted mailings.
- Customer satisfaction was high with regard to all aspects of the program.
- Participants implemented 39% of the recommended actions within 6 months to 2 years after the audit, and another 11% still planned on implementing measures at the time of the evaluation. The majority (80%) of actions were implemented by the customer rather than a contractor.

- Minor measures are implemented at triple the rate of major measures.
- Half of all customers thought they were saving money as a result of the audit and 30% did not.
- The audit report was referred back to an average 2.6 times. The report was well planned and presented, but included information that didn't directly relate to gas or electric savings (i.e. transportation, environmental, cold water recommendations) that may have diffused the impact of the recommendations. It was recommended that Cinergy tailor future audit reports to only include non-electric/gas information if participant is interested.
- A strong majority of audited customers said their audit increased their knowledge of energy saving opportunities and that the audit helped them take actions sooner.
- Customer recommended changes included the addition of financial mechanisms to help accomplish recommendations, contractor and product referral lists, post-audit follow-up reminders, demonstration of savings, and step-by step instructions on how to install measures.

### **Final Report for the Evaluation of the 2002-2003 School Energy Efficiency Program**

Vanward Consulting, Equipoise Consulting Inc., KEMA Inc., Ridge & Associates, and Shel Feldman Management Consulting, Final Report for The Evaluation of the 2002-2003 School Energy Efficiency Program, Program 177-02, February 14, 2005.

#### Program Summary:

This was a K-12 energy efficiency information only program. It was funded by the CPUC, but was impacted by administrative changes at the State of California, and then ultimately transferred to the California Integrated Waste Management Board (CIWMB) as of May 2004. The program utilized partners to develop and offer a menu of curriculum and services. 55 School districts received services to assist in understanding and improving energy performance of their schools. The program also, "planned and coordinated classroom energy education activities to teach students about energy conservation and efficiency and organized energy efficiency demonstration projects to be used as interactive learning tools for teachers and their students." Several levels of process evaluation review occurred and a level one impact evaluation was conducted.

#### Key Findings:

- Data difficulties precluded independent verification of the achievement of many program goals.
- Transfer of the program negatively impacted the processes of the program.
- Program Partners felt that the Program collaboration was positive, however, respondents expressed a mix of views as to the logistics (e.g. numerous conference calls) involved with partnerships.
- Having a menu of offerings was viewed favorably by participants.
- Anecdotal evidence from facility staff report monthly utility savings.

- Program reporting requirements were a source of frustration.

### Recommendations:

- Centralize tracking of program information.
- Streamline reporting requirements.
- Measure outcomes
- Distribute materials more widely.
- Plan for more and sustained program participant follow-up.

## **Evaluation of the 2003 Statewide Education and Training Services Program, Final Report**

Wirtshafter Associates, Inc., KEMA Consulting, Inc., Kreitler Research and Consulting, Evaluation Of The 2003 Statewide Education And Training Services Program, Final Report, June 3, 2005

### Program Summary:

This evaluation reviewed the 2003 Statewide Education and Training Services Program, and was sponsored by Southern California Edison (SCE), Pacific Gas and Electric Company (PG&E), Southern California Gas Company (SCG), and San Diego Gas and Electric Company (SDG&E). The program is designed to collect, transfer, research, evaluate, demonstrate, and showcase energy-efficiency concepts, technologies, and products for manufacturers, businesses, researchers, educational institutions, and the general public. The program promotes energy efficiency to a variety of customer segments through Energy Centers (physical and virtual) and other informational programs.

The evaluation focused on measuring program effectiveness and testing program theory assumptions. The goal of the evaluation was to provide ongoing feedback and corrective guidance regarding program design and implementation.

### Key Findings:

- Expanding the reach of marketing beyond the existing channels was a major recommendation in prior evaluations and the issue still predominates.
- Courses were often designed and marketed for a broad range of clients. The content was not specific enough to address the varying needs and interests of the different participating professions.
- Evaluations are not being used as well as they might be to check if the centers are motivating change.
- Overall satisfaction levels are quite good for the majority of workshops.



## Educative Assessment, Designing Assessments to Inform and Improve Student Performance

Wiggins, Grant. ( *Educative Assessment, Designing Assessments to Inform and Improve Student Performance*).

This book focuses on providing information on how to conduct assessments on students that are “educative.” That is that the assessment should aim to improve student performance rather than merely audit. Written by a veteran teacher, there are numerous examples that are useful for those educators engaged in writing and shaping curriculum. For example an entire chapter is devoted to the difference between understanding and knowledge. In this section an example of an elementary student doing well on an energy module is used, where the child subsequently comments, “heat is caused by blankets.” The child was able to parrot the information fed to him in the energy module, but lacked real comprehension, or perhaps comprehended at a level appropriate to age. Nonetheless it was a teachable moment in the classroom and instructive to the designer of the curriculum not to mistake ability to parrot knowledge as true comprehension.

He goes on to describe five tenets or mechanisms to gauge level of understanding:

- 1) Sophisticated explanation and interpretation – the ability to articulate stories of what one has learned. Avoids simplistic views.
- 2) Contextual performance know-how and sensitivity (savvy) – Understanding how to use what one has learned. Applies knowledge in a novel way.
- 3) Perspective – ability to see problems from multiple vantage points. Appreciates the assumptions on which an idea is based.
- 4) Empathy – ability to see another’s view point and feelings. Listens and hears what others do not.
- 5) Self-knowledge – ability to appreciate one’s own intellectual prejudices. Accurately self-assesses.

He goes on to provide a useful Rubric for assessing understanding – (from Table 4-1, p. 95)

Meaningful	Effective	In Perspective	Empathic	Reflective
Sophisticated	Masterful	Insightful and Coherent	Mature	Wise
In-depth	Skilled	Thorough	Sensitive	Circumspect
Knowledgeable	Able	Considered	Aware	Thoughtful
Viable	Apprentice	Sketchy	Maturing	Unreflective
Naïve	Novice	Narrowly conceived	Egocentric	Innocent

There are several chapters devoted to the logic of assessment design and the balance of formal evidence of assessment versus less formal assessment and gauges of “authentic performance.” In this regard there is ample advice for those wishing to incorporate assessment into the educative process.

## Diffusion in the Desert: Adoption of Demand Response Technology by Rural Small Businesses

Geltz, Christine & Mark Martinez. 2004. "Diffusion in the Desert: Adoption of Demand Response Technology by Rural Small Businesses." *Proceedings of the 2004 ACEEE Summer Study*, pp. 7.62-7.73. ACE3.

### Summary:

This article describes how a combination of traditional communication channels such as direct mail and mass media advertisements, and more informal interpersonal communications can achieve greater penetration rates than traditional marketing strategies alone. Borrowing from the principles of Everett Rogers' *Diffusion of Innovation* book, SCE worked with Geltz Communications to implement and test the effectiveness of using a community-based outreach approach to market a new demand response program targeted at small businesses.

In the aftermath of the 2001 California energy crisis, the California Public Utilities Commission (CPUC) ordered the state's investor-owned utilities to launch pilot programs offering demand response solutions for residential and small commercial customers. The CPUC believed those customer classes had borne a disproportionate brunt of the crisis and wanted to provide them with cost-saving opportunities that would also contribute to the demand response resource going forward. Through this process, Southern California Edison (SCE) launched the Energy Smart Thermostat (EST) program in the spring of 2002.

The EST program offered to install a free "smart" thermostats that would automatically control indoor temperature and enable AC systems to run more efficiently. The customer could keep the thermostat at the end of pilot program and would also receive \$300 per year as compensation for their participation. In exchange, the utility gained the ability to remotely control the temperature of participating facilities. When necessary, SCE would increase the temperature set point of participating AC units to provide the added demand resource necessary to avoid rolling brownouts or blackouts.

The target audience for the program was small businesses in rural desert communities, as they depend heavily on air conditioning. The goal was to install 5,000 thermostats across SCE's service territory.

After the initial failure of traditional marketing strategies to achieve anywhere near the target number of program enrollments, SCE engaged Geltz Communications to introduce an additional "diffusion of innovation"-based outreach approach in hopes that the two approaches, working together, produce the desired results. The diffusion approach tapped into the interpersonal channels and social networks already in existence within the community and used direct-mail endorsements (i.e. solicitation letters sent under the name of the city or a leader within the business community), networking events and informal word of mouth communications to encourage new participants to enroll in the program.

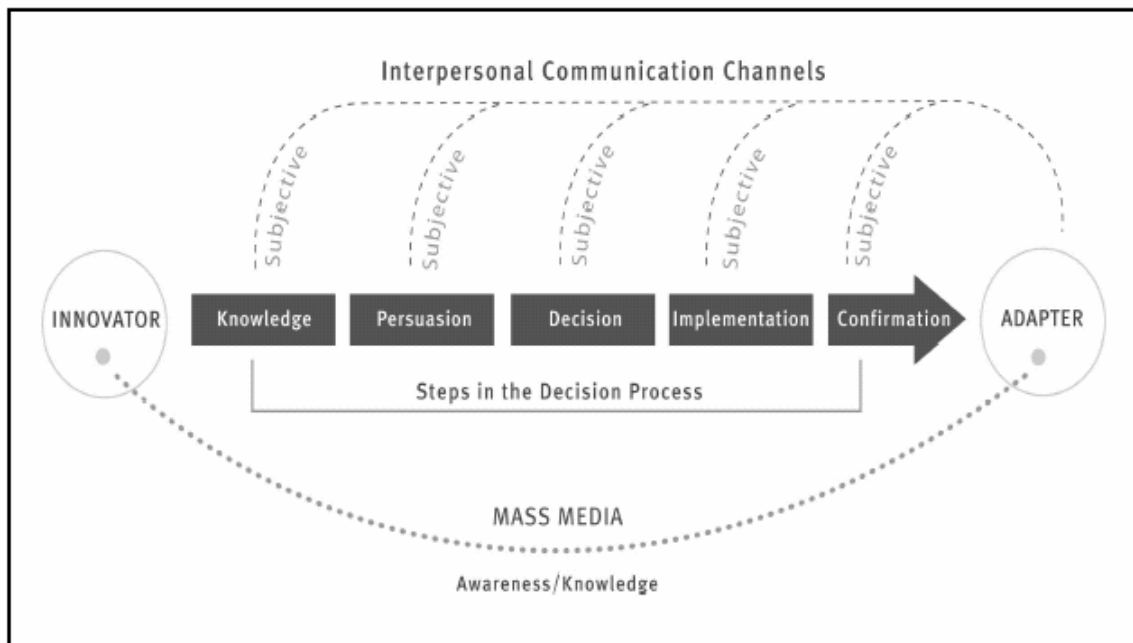
The premise for the diffusion approach is that consumers do not act rationally in their decision-making about adopting new behaviors and technologies. According the diffusion theory put forth by Rogers, while traditional communication channels (i.e., radio, television, newspaper, and mass direct mailings) provide an appropriate and necessary means for distributing information and *raising awareness* of a new idea or technology, the traditional channels are ineffective at *persuading* consumers to adopt the innovation. The theory holds that consumers rely on the subjective input of their peers, and model their behavior after those early adopters whom they trust and respect. As stated in the article,

***"the diffusion of innovations framework views decision-makers as social beings who rely on their social and business interactions for clues on whether***

*to adopt or avoid innovations. What is rational is relative, and small businesses often rely on their pragmatic approach to operations and profitability to define their decisions about technology.”*

Using the EST program as an example, one would assume that a rational business would recognize the benefits of participating in the program, and that the utility would have no trouble achieving enrollment goals as long as the target audience was informed of the opportunity. However, an initial use of traditional marketing strategies did not produce results. After the traditional and community-based / diffusion approaches were coupled, outreach efforts resulted in an over-subscription to the program.

The authors offered the following diagram to represent their hypothesis that traditional mass media channels are most appropriate at the knowledge stage of the decision process (knowledge, persuasion, decision, implementation and confirmation), but that more organic, subjective peer interactions play a role at every point in the decision process.



In the diffusion approach, “change agents” are those who engage in persuading potential adopters to accept and act on an innovation. These change agents make use of opinion leaders, such as political figures or successful business managers, and their interpersonal communication networks to spread an influential message.

Evaluation Approach:

Focusing on marketing activity that occurred in six communities within the Coachella Valley, the research team used SCE program tracking files to document all of the marketing and outreach activities that occurred in 2001-02. The team then developed a database to match names of program applicants with the mailing lists of various direct mail events. A telephone survey collected feedback from 47 participants, and in depth interviews were conducted at the business premises of nine participants and five non-participants. The team also plotted the addresses of program applicants on a map to look for clusters, testing the role of spontaneous interpersonal communications.

### Key Findings:

- Nearly three quarters of respondents said they first heard about the program through a mailing. Ten percent said they first heard about the program through conversation with a utility representative, and another ten percent said they learned about the program at a community meeting, such as a business network group.
- One quarter of respondents reported that they based their decision to participate in the program on input from others. Three quarters said that they did not discuss the program with others before deciding to participate in the program.
- Three quarters of respondents to the telephone survey said they had recommended the program to others, and several provided the names of those to whom they had made the recommendations. Interestingly, when the researchers asked those who received the recommendations where they had heard about the program, they did not acknowledge that they had been referred to the program by another business. This may indicate that individuals are not always cognizant of the sources of peer influence on their decisions.
- Opinion leaders can be influential, even if through non-interpersonal messaging, such as a letter.
- In the future, research into the effectiveness of the diffusion approach should include inquiries before, during and after the outreach campaign.
- One third of respondents cited money savings as the primary reason for participating in the program. The study found that financial incentives played an important role in persuading customers to participate despite the uncertainties associated with the program.
- When using a diffusion approach for an outreach campaign, it is important to make mid-course changes to account for the influence of new networks of opinion leaders discovered during the course of the campaign.
- Word of mouth can be a powerful and cost-effective strategy (though unpredictable) means of sharing information and winning over potential adopters.
- The researchers found that,  
***“simply informing customers about the well-designed program through mass media did not serve to diffuse the technology as we had hoped. It took the effective one-two punch of a well-researched program design delivered through a variety of diffusion communication channels to achieve successful adoption of the program.”***
- Since a message delivered through informal interpersonal channels is likely to lose some of its detail along the chain of communications, it is important to establish mechanisms to listen to and address these issues as they arise in the field.
- It is difficult but possible to track the results of a diffusion-based outreach campaign. Strategies may include tracking marketing influences as part of the program application, and looking for geographic clusters of applications that arrive around the same time.

## Evaluating Results of Marketing Program Activities and Investments

Stewart, David (Marshall School of Business) “Evaluating Results of Marketing Program Activities and Investments.” Presentation to Consortium for Energy Efficiency, December 13, 2005.

### Summary:

In a presentation to members of the Consortium for Energy Efficiency, Dr. David Stewart, professor of marketing at the University of Southern California’s Marshall School of Business, stressed the importance of establishing and using standard metrics to measure the results of marketing initiatives. Dr. Stewart acknowledged the difficulties of collecting appropriate data for evaluating marketing efforts, and that most marketing executives are dissatisfied with the level of feedback they receive on the effectiveness of marketing campaigns. However, he asserted that evaluation is essential to maintaining accountability and control over campaigns, and that the challenges of data collection and establishing standard metrics are no excuse for avoiding the tasks.

### Key Points:

- Direct response marketing (i.e. direct mail, email campaigns, website statistics, and telemarketing) can be more readily measured than broader marketing initiatives (i.e. branding, channel marketing, sales and marketing collateral, and advertising).
- Few companies (17%) have a comprehensive system for measuring the impacts of marketing, but those are the companies that have the highest revenue growth, market share and profitability.
- The biggest challenge is to standardize and formalize marketing evaluation processes, metrics and reporting.
- Models can be helpful for projecting results of promotions and price changes, but are not a substitute for measurement of actual results.
- “You get what you measure.” It is essential to establish metrics for the most important determinants of program performance, and not just the elements that are easiest to measure.
- Precision is less important than direction. Firms are often forced to make decisions based on incomplete data. In marketing, like in other business endeavors, it is necessary to maximize the value of available resources.
- Energy efficiency shares many similarities with marketing high tech products. Both industries are marketing “leading actions.” It may be useful to benchmark against high-tech companies.
- Marketing Metric Audit Protocol is a formal process to: 1) identify drivers of the desired outcomes; 2) link marketing activities to marketing metrics; 3) link marketing metrics to drivers of desired outcomes; 4) identify and test assumptions (validity and causality).
- Elements for successful marketing evaluation:
  - For evaluations focusing on **effectiveness**, establish specific metrics for short-term, intermediate, and longer-term outcomes, as well as the future opportunities created by a campaign;
  - For evaluations focusing on **efficiency**, analyze the return on investment of marketing activities, determine ways to fine-tune existing efforts, and focus on issues related to channels and demand.
  - Identify the causal links between marketing activities and outcomes (i.e. use program theory as the framework for measuring outcomes).

## Social Marketing, Improving the Quality of Life

Philip Kotler, Ned Roberto, Nancy Lee, 2<sup>nd</sup> Edition, 2002.

### Summary:

Famed marketing theorist Philip Kotler teams up with Roberto and Lee to put forth a step by step process for social marketing. Their aim is to review social marketing theory and environment and also to explain how to develop targets, strategies and manage marketing programs. They do this succinctly and with an abundance of real world social marketing campaign examples and in depth case-studies. They explain that social marketing differs from traditional marketing in that it focuses on selling behaviors as opposed to goods and service.

### Key Points:

- Kotler et al, see education as one of the tools in the social marketers tool kit, but not do not believe that education alone can create the same attention or behavior change that a true marketing effort can.
- Market research is touted as a necessary and integral part of the planning process. Selection of targets, goals and strategies should be firmly based on “homework.”
- Prior successful campaigns in social marketing have common elements, such as taking advantage of what is known and has been done before as well. He also advises that marketers should consider incorporating and promoting a tangible object within the target behavior.
- Market research can be formative (used for developing strategies), pretest (used to develop preliminary strategies) and evaluative.
- Campaigns should be focused based on SWOT analyses (strength, weakness, opportunities, and threats)
- Target market segments can be evaluated on the basis of efficiency and effectiveness. “Markets of “greatest opportunity” are those with the greatest need, most ready for action, easiest to reach, and the best match for the organization.” (p. 131)
- Though behavior change is typically the social marketers goal, belief and knowledge objectives may be necessary intermediate goals to behavior change.
- An additional iteration of market research after objectives and target audience have been determined can help the marketer gain insight into current behavior of the target, which is necessary to develop customer oriented strategies.
- Strategies for positioning offerings to alter behavior are to “(a) increase benefits of the target behavior, (b) decrease the barriers and/or costs of the target behavior (c) decrease the benefits of the competing behavior, and (d) increase the barriers and/or costs of the competing behavior.” (p.181)
- Target market segments and/or goals of marketing should be refined as additional information is gained.
- Products being sold in social marketing can be though of in three spaces: core, actual and augmented products and the price for these products is the “cost that the target audience associates with adopting the new behavior.(p.230)”
- Media channels to promote products include advertising, public relations, print media, special promotional items, signage, displays, personal selling and popular media.
- Implementation plans usually address several issues, such as target markets, geographic areas, campaign objectives and goals, stages of change, products, pricing, distribution channels, promotional messages, media channels, funding and external environmental factors. (p. 387).

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Survey, 5, 8, 9, 18, 19, 21, 22, 27, 28, 29, 32, 34, 35, 40, 42, 48, 49

Target audience, 5, 10, 31, 33, 41, 47, 48, 51

Telephone survey, 4, 21, 27, 28, 32, 35, 40, 48, 49

Television, 4, 18, 20, 22, 40, 47

Theory of planned behavior, 7, 12, 16, 24, 36

Wisconsin, 7, 21, 24, 34, 35, 39, 40



**APPENDIX B:**  
**FOCUS GROUP GUIDES**

### ***SCE Institutional Demand Response Demonstration***

***Group: Select leaders of Trade Associations brought into one focus group,***

#### **Introduction**

Welcome the group. Provide an overview of the purpose of the focus group. Describe what will happen over the course of the 1.5 hours. Talk about outcomes.

Sample intro:

- Thank you all for coming to this discussion about SCE’s Institutional Demand Response Demonstration Program
- In particular, we will be talking today about your experience with the evolution and future of the program.
- You have been selected to participate because you have all been involved with planning and potentially implementing this program and have valuable information for us to learn about.
- In a minute, we’ll go around the table and introduce everyone. My name is Bill, and I work as a consultant for Southern California Edison. We are trying to provide SCE with very honest feedback on their programs so that they can make them better each year. I will be guiding you through a series of questions today, and we really want to hear from each and every one of you. Please tell us what’s on your mind. We can’t get to the real issues unless you we get the straight scoop.
- Since we want everyone to have a chance to talk, I will occasionally ask some of you to state your opinion about something. On the flip side, I will try to make sure that one or two people don’t dominate the conversation so that we can get everyone’s opinion.
- Go around and do introductions. Tell us what role you have with the City, what exposure and knowledge you’ve had with the DR program, and what role you play or will play in the Demonstration.

#### **Warm Up Questions**

- What are the main activities of your association or group over the course of the year?
- “How did you and your organization come to be involved with this program?] Why does your [association/group] want to participate?
- Is this a good way for your members to gain value through their affiliation with your group?
- Do you all understand what Demand Response is and why it’s important?

#### **Main Script**

1. What benefits will this pilot program bring to the community that didn’t exist before?
2. What do you see your role in the program being? What should it be, if different from what you see it being presently, that would be more effective?
3. How does the program fit with other priorities of your organization?
4. Has the information provided by SCE been at an appropriate level?
  - a. Has it been motivating?

- b. Do you feel that you understand how the program works?
5. What could SCE do better from a communications standpoint? What support do you need from SCE to make this program successful?
6. What is the best way to influence members' behavior when it comes to energy management? What messages are the strongest motivators?
7. What venues/meetings/delivery methods are most effective with your members?
8. Are there possibilities for excellent demonstration projects? What are they?
9. Let's talk about customers.
  - a. What types of customers are likely to want to participate in this program?
  - b. Will customers actually sign up?
  - c. What companies do you already have strong relationships with?
  - d. Are there leaders that should be contacted so they can become evangelists?
  - e. Are there leaders in the community that would make excellent demonstration projects that others could emulate?
10. Let's step back a little and discuss the Program design. Is it designed well as is? If you designed it from scratch what would be different? What could be improved? Are there some flaws? What strengths do you see and how can those best be utilized?
11. Do you have the right amount of control over the program?
12. How is the partnership idea working so far? Tell us what's going well and what's not going well. Are there delays? Misunderstandings or miscommunications? Areas where coordination is working well?
13. If you could tell SCE anything right now about this program, what would that be?

**Close**

That wraps up our questions. Do you have any additional comments?

Thank you very much for your participation and your candid remarks. This will definitely help improve the programs.

***SDG&E Energy Orbs Focus Group: Community Partnership Program***

***Group: Employees at offices that used the Orbs in their public spaces that also had some interaction with end use customers.***

**Introduction**

Welcome the group. Provide an overview of the purpose of the focus group. Describe what will happen over the course of the 1.5 hours. Talk about outcomes.

Sample intro:

Thank you all for coming to this discussion about SDG&E Energy Orbs: Community Partnership

- In particular, we will be talking today about your experience with the evolution and future of this kind of outreach.
- You have been selected to participate because you have all been involved with observing and working with the orbs and have valuable information for us to learn about.
- In a minute, we'll go around the table and introduce everyone. My name is Patricia, and I work as a consultant for SDG&E. We are trying to provide SDG&E with very honest feedback on their programs so that they can make them better each year. I will be guiding you through a series of questions today, and we really want to hear from each and every one of you. Please tell us what's on your mind. We can't get to the real issues unless you we get the straight scoop.
- Since we want everyone to have a chance to talk, I will occasionally ask some of you to state your opinion about something. On the flip side, I will try to make sure that one or two people don't dominate the conversation so that we can get everyone's opinion.
- Go around and do introductions. Tell us what role you have with your organization, and what exposure and knowledge you've had with the program.

**Warm Up Questions**

- How did your organization end up participating with the Orbs?
- Why does your [association/group] want to participate?
- Do you all understand what Demand Response is and why it's important?

**Main Script**

1. Let's first talk specifically about the goals of the Orb outreach. What was your understanding of what the program was trying to accomplish?
  - a. Do you think the program succeeded in meeting these goals?
  - b. Why or why not? What were the shortcomings?
  - c. Did your staff understand the objectives? Were they on board with it?
  - d. Who decided to participate in the program and why?
2. Getting back to demand response and time of use rates...do you really understand why the program is in place?
  - a. What do you think time of use rates are?

- b. What do you think the term demand response means?
3. Let's now focus on the Orb itself.
  - a. How was it placed and set up in your organization?
  - b. What type of people saw it? What were they doing there primarily? Did it grab the attention of kids more often than adults? Women more than men?
  - c. Did it grab people's attention? What kind of reaction did people have?
  - d. Was the information associated with Orb useful?
  - e. What kind of questions to you receive about the Orb?
4. Logistically, how did you deal with the Orb and the questions that were received?
5. If you were given the job to design this program from scratch, what would you do?
  - a. Would you use the Orb?
  - b. What other device or method might be more useful? [brochures, videos, wall posters, person giving a talk, siren]
  - c. Have you ever used information kiosks? (with/without person)
6. What messages would be the most effective in changing peoples' attitudes towards demand response?
  - a. [present three potential benefits: 1. Community...do your part. 2. Keep me from having blackouts, 3. Save money. 4. Environmental benefits.]
  - b. Should it be called something different than demand response?
  - c. What's the best way to reach these people? Is there a more effective method?
7. Should this program continue? Why or why not?
8. I wanted to find out a bit more about how SDG&E interacted with you on the project.
  - a. Did SDG&E provide all the information they said they would?
  - b. Should they have really provide more or better information to you so you could do a better job?
  - c. Were they professional and helpful? Were they available when you needed them?

**Close**

That wraps up our questions. Do you have any additional comments? Thank you very much for your participation and your candid remarks. This will definitely help improve the programs.

### ***SDG&E PEAK Program***

***Group: Teachers in San Diego, who teach 3<sup>rd</sup> to 5<sup>th</sup> grade.***

#### **Introduction:**

Welcome the group. Provide an overview of the purpose of the focus group. Describe what will happen over the course of the 1.5 hours. Talk about outcomes.

Sample intro:

- Thank you all for coming to this discussion about SDG&E's PEAK Program
- In particular, we will be talking today about your thoughts on how to best create and implement a program to help students learn about energy efficiency and also reducing energy use during peak time period when there might be an overload on the electric system
- You have been selected to participate because you have knowledge and experience in how to best teach (science?) concepts to children in the 4<sup>th</sup> through 6<sup>th</sup> grade [check to see if that is true]
- In a minute, we'll go around the table and introduce everyone. My name is xcv, and I work as a consultant for SDG&E. We are trying to provide SDG&E with very honest feedback on their programs so that they can make them better each year. I will be guiding you through a series of questions today, and we really want to hear from each and every one of you. Please tell us what's on your mind. We can't get to the real issues unless you we get the straight scoop.
- Since we want everyone to have a chance to talk, I will occasionally ask some of you to state your opinion about something. On the flip side, I will try to make sure that one or two people don't dominate the conversation so that we can get everyone's opinion.

Go around and do introductions. Tell us what your teaching role is,

#### **Warm Up Questions:**

How much do you know about the electricity situation in California?

Have you all experienced any blackouts?

Have you ever taught an energy education module or curriculum? (If so) What was that like? How about teaching any other public service message? (recycling, water conservation, air pollution, ecology)

#### **Main Script**

[I think at this point, you should present the overall concept of what is trying to be taught through the more detailed PEAK program. Don't go into great detail, just the overall concept (details can be presented later). Such as, "A non profit group called the Energy Coalition has put together a fairly detailed curriculum that can be taught as part of the science curriculum that helps students 1) understand why energy efficiency and reducing peak loads is important, and 2) understand how to make changes in their family's energy use. I will be asking you for input on what techniques and messages might be most effective in teaching these concepts and getting students to make changes at home.

1. First, how well do you think a module on energy efficiency and conservation would fit into the overall science curriculum? What elements would be most important? [get them to discuss this amongst themselves, not just to the moderator]

2. How would students welcome this type of information?
3. I'm going to present to you specific messages and themes, and I'd like to get your reaction on how effective they would be. In particular, how would the students react to the specific messages? What could they understand, and what would go over their heads?
4. What do you think of the characters and the roles the characters play? Will they help motivate the students? Or will they distract?
5. Do you think the school district and your school's administration would support adopting a module like this? Please discuss any concerns or good experiences with support you got (or didn't get) from above. [If NO, then what is wrong, how can it be fixed?]
6. How do you envision parents getting involved? What would their reaction be when the students came home with this information? Would you get complaints?
7. [Present the topics of DR and EE again, then ask: What mathematical, scientific or other important concepts would the students learn through this curriculum? Is this consistent with what they should be learning at this grade level?
8. From what you've seen so far, would you change the curriculum? [get very specific with this.] What do you think is missing? What do you think should be taken out?
9. How many times would a student need to be exposed to this type of information for it to stick? Is this something that is important enough that it should be taught at various times throughout the primary and secondary education levels?
10. Are students the right way to get this message of demand response to parents and households?
11. Were certain types of students more or less likely to accept and understand the messages?
12. Do you think it will be worth the time and energy to do this program?

### **Wrap Up**

- Do you have any concerns that were not expressed yet?
- Any other suggestions or comments?

Thank you all for your time and thoughts. This will definitely be a help in future projects for students.

### ***California Rural Water Association and Staples Marketing Outreach***

***Group: Trained reps from CRWA and Staples Marketing who have been out talking with customers.***

#### **Introduction**

Welcome the group. Provide an overview of the purpose of the focus group. Describe what will happen over the course of the 1.5 hours. Talk about outcomes.

Sample intro:

- Thank you all for coming to this discussion about PG&E's program to reduce energy demand during peak periods
- In particular, we will be talking today about your experience with the evolution and future of the program, and your experience with customers.
- You have been selected to participate because you have all been involved with implementing this program and have valuable information for us to learn about.
- In a minute, we'll go around the table and introduce everyone. My name is Bill, and I work as a consultant for PG&E. We are trying to provide PG&E with very honest feedback on their programs so that they can make them better each year. I will be guiding you through a series of questions today, and we really want to hear from each and every one of you. Please tell us what's on your mind. We can't get to the real issues unless you we get the straight scoop.
- Since we want everyone to have a chance to talk, I will occasionally ask some of you to state your opinion about something. On the flip side, I will try to make sure that one or two people don't dominate the conversation so that we can get everyone's opinion.
- Go around and do introductions. Tell us what role you have with CRWA / Staples Marketing, what exposure and knowledge you've had with the DR program, and what role you play in sharing information with customers. [they may all be the same]

#### **Warm Up Questions**

- What are the main activities of your association over the course of the year?
- How did you and your organization come to be involved with this program? Why does CRWA want to participate?
- [For CRWA] Is this a good way for your customers to gain value through their affiliation with your group?
- Do you all understand what Demand Response is and why it's important?

#### **Main Script**

1. Please describe a typical meeting with a customer that goes well, with respect to the EE and DR messages. Please be detailed.
  - a. What do you tell them?
  - b. What questions are asked and answered?
  - c. Do you leave them with information?
  - d. What kind of follow up happens?



2. Now, please describe a meeting that does not go well.
  - e. What makes it go wrong?
  - f. Is the information confusing?
  - g. What do they think of PG&E? Do they trust the utility?
  - h. Is the message coming from you, in the customer's mind, or is coming from PG&E?
  - i. Do customers consider you a credible source of energy information?
3. Do you have the training and information you need to complete your assignment properly? What is missing?
  - j. Is the information provided at the appropriate level?
  - k. Are you motivated? Are you comfortable with the concepts?
4. Do you think you are playing an appropriate and important role in this whole process? Does it make sense that you are talking with customers about energy matters? What should it be, if different from what you see it being presently, that would be more effective?
5. [For CRWA] How does the program fit with your other priorities of your organization?
6. What could PG&E do better from a communications standpoint? What support do you need from PG&E to make this program more successful?
7. What is the best way to influence [CRWA members' / people's] behavior when it comes to energy management, based on your experience with the outreach program? What messages are the strongest motivators? (save money, help the community, ensure the lights stay on, help the environment)
  - l. Do they understand the term 'demand response'?
  - m. If not, what would be a better term to use? What do YOU use?
8. Are there possibilities for excellent demonstration projects? What are they?
  - n. How helpful do you think it would be to have a case study from one of your members, and then educate the rest of the people on that?
9. Let's talk about customers.
  - o. What types of customers are likely to want to participate in this program?
  - p. Will customers actually sign up for demand response programs?
  - q. What will be the biggest motivators?
  - r. Are there leaders that should be contacted so they can become evangelists?

10. Let's step back a little and discuss the Program design. Is it designed well as is? If you designed it from scratch what would be different? What could be improved? Are there some flaws? What strengths do you see and how can those best be utilized?
11. How is the partnership idea working so far? Tell us what's going well and what's not going well. Misunderstandings or miscommunications? Areas where coordination is working well?
12. If you could tell PG&E anything right now about this program, what would that be?

**Close**

That wraps up our questions. Do you have any additional comments?

Thank you very much for your participation and your candid remarks. This will definitely help improve the programs.

### ***SCE Business Solutions (EnerPath Palm) Audits***

#### ***Group: SCE Business Solutions Audit Program Field Representatives***

##### **Introduction**

Welcome the group. Provide an overview of the purpose of the focus group. Describe what will happen over the course of the 1.5 hours. Talk about outcomes.

##### Sample intro:

- Thank you all for coming to this discussion about SCE’s Audit Program
- In particular, we will be talking today about your experience implementing the program.
- You have been selected to participate because you have all been involved with implementing this program and have valuable information for us to learn about.
- In a minute, we’ll go around the table and introduce everyone. My name is Bill, and I work as a consultant for Southern California Edison. We are trying to provide SCE with very honest feedback on their programs so that they can make them better each year. I will be guiding you through a series of questions today, and we really want to hear from each and every one of you. Please tell us what’s on your mind. We can’t get to the real issues unless you we get the straight scoop.
- Since we want everyone to have a chance to talk, I will occasionally ask some of you to state your opinion about something. On the flip side, I will try to make sure that one or two people don’t dominate the conversation so that we can get everyone’s opinion.
- Go around and do introductions. Tell us how much experience you’ve had with this program and how long you’ve been with SCE.

##### **Warm Up Questions**

- Tell us what types of companies typically participate in this program.
- When you do an on site audit, who usually spends time with you or walks around the business with you?
- What types of questions do customers have during the audit process? Especially at the end when the results are in.

##### Main Script

1. How do you prepare for a site visit? What more could you do that would help? What information do you need that you wished you had?
2. Are you able to complete the audits as designed? What constraints are you under? (info, time)
3. Have you all done audits without the palm system? How does the old way compare with the new way? E.g. Comparing the current Enerpath “palm” tool with other energy audit approaches, is the palm tool making you more efficient in conducting the audits and reporting audit recommendations?
4. How much more productive would you say it makes you – Very, Somewhat or a Little more productive? Which aspects help the most?

5. How helpful are the palm systems? What is best about them? What are their limitations? How many more audits they can do per day or week, look to understand what their old and new convert rate (those who do something and participate in a program) is.]
6. Do you see any usability, software or other improvements you think would help? What would those be? What would you change if you redesigned the Palm system?
7. Please describe a site visit that goes very well. What makes it so?
  - Now describe a site visit that goes poorly. What makes it go poorly?
  - What type of interaction do you have with customers on site? Are they helpful? Do they get in the way? Do they have any misconceptions about the Business Solutions Audit program that need to be addressed?
8. What do you think customers are getting out of the site visit? Only information, or are they being sold on EE/DR programs, too? Do they need a stronger pitch – what might that be? Do they need more or different financial information – what might be missing or confusing? How about info to overcome barriers to making changes – what might be useful and would better motivate customers?
9. How many of you have experience in the demand response area using the Palm system?
  - How does that part work compared to the energy efficiency side?
  - Does it provide the right information you need, and the customer needs, to adopt DR?
  - Why are most customers [not interested, less interested] in DR? What are the barriers? Does your audit help overcome the barriers? Does the Palm system help overcome the barriers?
  - Any other ideas about overcoming barriers to adoption of EE or DR?
10. Where in the scheme of your daily work priorities does the Business Solutions Audit program fit? Do you feel you have enough priority to spend the time needed for you to do a good job with the program? What other priorities prevent you doing Business Solutions Audit program work more successfully?
11. Are there any concerns about generating customer leads for the program – have you had any problems there?
12. If you could redesign any part of the process to engage customers in actually implementing EE and DR, what would that be? Think about the pre-audit process, and the Post audit process, as well as the on site visit.
  - Are there tools or information you need to do your job better?

### **Close**

That wraps up our questions. Do you have any additional comments? Thank you very much for your participation and your candid remarks. This will definitely help improve the programs.

### ***SCE Local Community Demand Response Demonstration***

***Group: City of Ontario staff with some exposure to program***

#### **Introduction**

Welcome the group. Provide an overview of the purpose of the focus group. Describe what will happen over the course of the 1.5 hours. Talk about outcomes.

Sample intro:

- Thank you all for coming to this discussion about SCE's Community Demand Response Demonstration Program
- In particular, we will be talking today about your experience with the evolution and future of the program.
- You have been selected to participate because you have all been involved with implementing this program and have valuable information for us to learn about.
- In a minute, we'll go around the table and introduce everyone. My name is Bill, and I work as a consultant for Southern California Edison. We are trying to provide SCE with very honest feedback on their programs so that they can make them better each year. I will be guiding you through a series of questions today, and we really want to hear from each and every one of you. Please tell us what's on your mind. We can't get to the real issues unless you we get the straight scoop.
- Since we want everyone to have a chance to talk, I will occasionally ask some of you to state your opinion about something. On the flip side, I will try to make sure that one or two people don't dominate the conversation so that we can get everyone's opinion.
- Go around and do introductions. Tell us what role you have with the City, what exposure and knowledge you've had with the DR program, and what role you play or will play in the Demonstration.

#### **Warm Up Questions**

- Do you all understand what Demand Response is and why it's important?
- Tell us how this program got started – from the City's perspective? How did Ontario come to be involved? Why does Ontario want to participate?
- How do you think a community needs to participate in the needs of the utility company?
- What can the City do better than SCE? (generally speaking – we'll get more specific in a little while)

#### **Main Script**

1. What benefits will this pilot program bring to the community that didn't exist before?
2. Will customers sign up? Why or why not? What are the barriers to getting them to participate?
3. What advantages or disadvantages does Ontario have in working with residents, businesses and institutions in Ontario compared to SCE – in particular, what strengths does Ontario have that can be utilized to promote demand response programs and actions they recommend?

4. What do you see your role in the program being? What should it be, if different from what you see it being presently, that would be more effective?
5. How does the program fit with your other priorities?
6. Let's step back a little and discuss the Program design. Is it designed well as is? If you designed it from scratch what would be different? What could be improved? Are there some flaws?
7. Do you have the right amount of control (define "control") over the program?
8. How is the partnership idea working? Tell us what's going well and what's not going well. Are there delays? Misunderstandings or miscommunications? Areas where coordination is working well?
9. Has the information provided by SCE been at an appropriate level?
  - s. Has it been motivating?
  - t. Do you feel that you understand how the program works?
10. What could SCE do better from a communications standpoint? What support do you need from SCE to make this program successful?
11. Let's talk about customers...
  - u. What types of customers are likely to want to participate in this program?
  - v. Will customers actually sign up?
  - w. What companies do you already have strong relationships with?
  - x. Are there community leaders that should be involved that aren't already? [OR] Are there leaders in the community that should be contacted so they can become evangelists?
  - y. Are there leaders in the community that would make excellent demonstration projects that others could emulate?
12. What kind of city-based communications vehicles are most influential for the target audience? What other groups should be involved with this project?
13. What marketing messages are likely to work with them? What are key messages? What are their barriers that need to be overcome?

### **Close**

That wraps up our questions. Do you have any additional comments?

Thank you very much for your participation and your candid remarks. This will definitely help improve the programs.

**APPENDIX C:**  
**IN-DEPTH INTERVIEW GUIDES**

## **California Statewide Education and Outreach Program Evaluation**

### **Utility Staff In-depth Interview Guide**

#### Purpose:

Obtain qualitative feedback from utility staff regarding the effectiveness of using selected various channels, the value of information being disseminated, and the theory behind the programs being implemented.

#### Interviewer Instructions:

Utilize the following basic script to introduce and conduct the interview.

“Hello, my name is \_\_\_\_\_. My firm, Summit Blue Consulting, has been hired by [SDG&E, SCE, PG&E] to evaluate your demand response and energy efficiency education, outreach and awareness programs as part of a statewide evaluation effort. Given your central role in facilitating the programs, your feedback is critical to the success of the evaluation. I’d like to ask for about a half hour of your time to discuss some background on the programs, your thoughts on how effective they have been, and ways to improve upon them. Is this a good time, or is there a time in the next few days that would be convenient for you to talk? [Schedule accordingly. If respondent indicates now is a good time, thank them for taking this time and begin the interview.]

#### **Questions for All**

1. [If not available from the contact information provided to make the interview call] First, I’d like to make note of a couple of things to help me to better understand your role at [SDG&E, SCE, PG&E].
  - a. What programs do you manage?
  - b. How long have you been working with these programs for [SCE, SDG&E, PG&E]?
  - c. Were you involved with the design of these programs? Which ones?
  
2. Which of your EE / DR outreach and awareness programs has been most / least successful and why?
  
3. Your outreach and awareness programs rely heavily on partnerships with trade groups, local governments and other affinity partners.
  - a. Why did [SCE, SDG&E, PG&E] chose this program delivery strategy?
  - b. In general, is this structure for program delivery fulfilling the utility’s expectations? What are the greatest strengths and weaknesses of this approach?
  - c. Which partnerships are functioning most effectively and why? What elements are necessary for a successful partnership?
  - d. Is there another way that these partnerships could be structured that would make more sense to customers?



4. Do you think your customers understand the differences between the terms “demand response” and “energy efficiency?”
  - a. How does the level of understanding differ for residential, small and large commercial customers?
  - b. [If not] Why do you think there is confusion between these terms?
  - c. What do you think can be done to minimize confusion?
  
5. Based on your experience, do you get the sense that customers are listening to and acting on the messages delivered through your programs?
  - a. Are they reacting positively or negatively to the information being conveyed?
  - b. Are many or most people confused about what to do?
  - c. Do customers seem to care very much about energy efficiency and peak load reduction?
  - d. What are they saying?
  - e. Do they react to DR issues only in emergency or crisis situations, or is there a real chance to get them to consistent, (year in and year out) participate in peak load reduction programs?
  
6. What do you think are the greatest barriers standing in the way of more customers taking demand response actions? (For example, actions are not financially attractive, scheduling complications, complexity of program, or fear of financial penalties)
  
7. When customers think about and make decisions about energy management do they think about DR, differently than other actions?
  
8. There is a lot of interest within the utility industry to create automated demand response so that customers do not need to act on calls on each peak day.
  - a. Do customers share this interest?
  - b. Do you personally think if DR was automated that customer acceptance would be higher?
  
9. Let’s focus for a moment on energy efficiency, not demand response. We’d like your opinion on the best ways to influence [PG&E, SCE customers| SDGE members] to pursue energy efficiency strategies. ?

- a. On a scale of 1-5, for each of the following items, tell me whether it is “not at all influential (1) to absolutely influential (5)

	Insert Number 1-5
financial incentives	<input type="checkbox"/>
personalized technical support	<input type="checkbox"/>
access to information and tools to assist with energy management	<input type="checkbox"/>
Testimonies and case studies from well-known companies	<input type="checkbox"/>

b. Are there other strategies that you think would be influential?

10. Now let's focus on demand response. We'd like to determine the best ways to influence [PG&E, SCE customers / CRWA members] to pursue demand response?

a. On a scale of 1 to 5, for each of the following items, tell me whether it is "not at all influential (1) to absolutely influential (5)."

	1-5
financial incentives	<input type="checkbox"/>
personalized technical support	<input type="checkbox"/>
access to information and tools to assist with energy management	<input type="checkbox"/>
Testimonies and case studies from well-known companies	<input type="checkbox"/>
You're helping the environment by eliminating the need to build more power plants	<input type="checkbox"/>

b. Are there other strategies that you think would be influential?

**For SCE Staff**

Integrated Audit Program Questions:

1. Please describe the goals and objectives of the integrated audit program and how the program's design helps to achieve intended program outcomes.
  
2. [If they were involved in designing the program] Did you look to other utility audit programs for ideas when designing the program? Were there program elements that were particularly important to you, or that you sought to avoid?
  
3. Do you think the program is meeting end customer expectations?
  - a. What do you think are the program's greatest strengths and weaknesses (from a program design perspective, operationally, etc.)?
  - b. [If not] What are the flaws in program's design and delivery, or in the theory behind the program?

4. Do you think the program is meeting marketing channel partners' expectations?
  - a. What strengths and weaknesses from this perspective do you see?
5. After the initial audit, why do you think certain companies turn down the opportunity for a follow up visit to focus on demand response strategies?
  - a. Do you believe the auditors are effectively communicating the difference between energy efficiency and demand response?
  - b. Do believe the auditors are providing compelling enough reasons to learn about and pursue demand response activities?
6. In general, what improvements should be made to the program in future years?
7. What limitations stand in the way of making the program the best it can be?

### Institutional DR Partnership Demonstration Questions:

1. Please describe the goals and objectives of the Institutional DR Partnership Demonstration program and how the program's design helps to achieve intended program outcomes.
2. I realize that the program is very early in the implementation phase, but do you think activity to this point indicates that the program will meet expectations?
  - a. What do you think are the program's greatest strengths and weaknesses (from a program design perspective, operationally, etc.)?
  - b. [If not] What are the flaws in program's design and delivery, or in the theory behind the program? Would you do it the same way if you could start over?
8. Have SCE's partnerships with the trade organizations been positive or negative so far for the program?
  - a. Which partnerships have been the most successful?
  - b. Are there areas where the partnering has worked particularly well to utilize the organization's strengths? Areas that haven't worked well?
  - c. Missed opportunities to utilize the strengths of these trade groups?
9. To what extent are the trade groups involved in program delivery?
  - a. Does SCE plan and organize the events that are merely hosted by these trade groups, or are the groups involved more heavily in event planning and coordination?
10. How do you think the Institutional DR Partnership Demonstration compares to other potential ways of communicating information about demand response?

11. What trade group contacts do you work most closely with on an ongoing basis (i.e. high level or support staff)?
12. Are the trade groups compensated in any way for their role in delivering SCE's outreach and awareness programs? Should they be and, if so, how?
13. In general, what improvements should be made to the program in future years?
14. What limitations stand in the way of making the program the best it can be?

Local Community Demand Response Partnership Demonstration Questions:

1. Please describe the goals and objectives of the Local Community DR Partnership Demonstration program and how the program's design helps to achieve intended program outcomes.
2. I realize that the program is very early in the implementation phase, but do you think activity to this point indicates that the program will meet expectations?
  - a. What do you think are the program's greatest strengths and weaknesses (from a program design perspective, operationally, etc.)?
  - b. [If not] What are the flaws in program design's and delivery, or in the theory behind the program?
10. [What are you hoping to gain through the City that you couldn't capture directly through SCE's activities?]
3. Has SCE's partnership with the City of Ontario been a positive or negative one so far? Are there areas where the partnering has worked particularly well to utilize the City's strengths? Areas that haven't worked well? Missed opportunities to utilize the City's strengths?
4. To what extent is the City involved in program delivery?
  - a. Does SCE plan and organize the events that are merely hosted by the City, or is the City involved more heavily in event planning and coordination?
5. How do you think the Community Partnership DR Demonstration compares to other potential ways of communicating information demand response?

6. What city department(s) do you work most closely with? Are there other departments or contacts that would be appropriate to work with?
7. Is the City compensated in any way for its role in delivering SCE's outreach and awareness programs? Should it be and, if so, how?
8. In general, what improvements should be made to the program in future years?
9. What limitations stand in the way of making the program the best it can be?

### **For SDG&E Only**

#### Community Partnership Program Questions:

1. Please describe the goals and objectives of the Community Partnership program and how the program's design helps to achieve intended program outcomes.
2. [If they were involved in designing the program] Did you look to other utility outreach and awareness programs for ideas when designing the program? Were there program elements that were particularly important to you, or that you sought to avoid in designing the Community Partnership Program?
3. Do you think the program is meeting expectations?
  - a. What do you think are the program's greatest strengths and weaknesses (from a program design perspective, operationally, etc.)?
  - b. [If not] What are the flaws in the program's design and delivery, or in the theory behind the program?
4. Have SDG&E's partnerships with communities, trade organizations and other affinity groups been positive or negative?
  - a. Are there areas where the partnering has worked particularly well? Areas that haven't worked well?
  - b. Are there missed opportunities to utilize the partners' strengths?
5. To what extent are the partners involved in program delivery?

6. Which program activities do you believe have been most effective at motivating customers and helping them prepare to participate in demand response actions (i.e. presentations, workshops, event displays)?
  - a. What is it about the more effective activities that make them so?
7. How do you think the Community Partnership Program compares to other potential ways of communicating information demand response?
8. Are partner communities and organizations compensated in any way for their role in delivering SDG&E's outreach and awareness programs? Should they be and, if so, how?
9. In general, what improvements should be made to the program in future years?
10. What limitations stand in the way of making the program the best it can be?

Orb Program Questions:

1. Please describe the goals and objectives of the Orb program and how the program's design helps to achieve intended program outcomes.
2. Do you think the program is meeting expectations?
  - a. What do you think are the program's greatest strengths and weaknesses (from a program design perspective, operationally, etc.)?
  - b. [If not] What are the flaws in program design's and delivery, or in the theory behind the program?
3. Please describe the role of the community representative?
  - a. What position/job does he/she typically hold?
  - b. Is this the same person who tends to be present at the site of the Orb display if people have questions?
  - c. Does the community representative (or others who will be present near the site of the Orb display) receive any training that will better prepare them to respond to questions from the public?
4. What type of information / educational material is distributed at the site of the Orb display?
5. To what extent do you monitor the delivery of the program?

- a. Do you ever visit the orb sites to inspect the quality of the displays, or observe how accurately the community representatives are responding to questions from the public?
  
6. Do you think enough people are getting beyond the novelty of the Orb to actually understand the outreach and awareness messages it is intended to convey?
  - a. [If not] What changes should be made to the program to address this problem?
  
7. How do you think the Orb compares to other potential ways of communicating information about energy pricing during peak periods, such as kiosks with videos or other display methods?
  
8. In general, what improvements should be made to the program in future years?
  
9. What limitations stand in the way of making the program the best it can be?

### PEAK Program Questions:

1. Please describe the goals and objectives of the PEAK program and how the program's design helps to achieve intended program outcomes.
  
2. [If they were involved in initial coordination / design of the program] Did you look to other elementary school-level energy education programs for ideas when designing the program? Were there program elements that were particularly important to you, or that you sought to avoid?
  
3. Please describe how program responsibilities are divided between the Energy Coalition and SDG&E?
  - a. Specifically, did SDG&E or the Energy Coalition come up with the basic program design concept?
  - b. What are the strengths and weaknesses of SDG&E's partnership with the Energy Coalition?
  
4. Do you think the program is meeting expectations?
  - a. What do you think are the program's greatest strengths and weaknesses (from a program design perspective, operationally, etc.)?

- b. [If not] What are the flaws in program design, or in the theory behind the program?
  - c. Are the partnerships with school districts, teachers, and program designers functioning effectively?
5. To what extent do you monitor the delivery of the program?
  - a. What can you tell about the effectiveness of the program to date. (Follow up on wanting more creative control comment from internal closeout)
6. What improvements should be made to the program in future years?
7. What limitations stand in the way of making the program the best it can be?

### **For PG&E Staff**

#### Single Event Outreach Questions:

1. Please describe the goals and objectives of the Bakersfield business trade show and other outreach events, and how these events are designed to achieve the intended program outcomes.
2. [If they were involved in designing the program] Did you look to other utility outreach and awareness events for ideas when designing these events? Were there elements that were particularly important to you, or that you sought to avoid?
3. Do you think the events are meeting expectations?
  - a. What do you think are the event's greatest strengths and weaknesses (from a program design perspective, operationally, etc.)?
  - b. [If not] What are the flaws in program design's and delivery, or in the theory behind the program?
4. Have PG&E's partnerships with communities, trade organizations and other affinity groups been positive or negative with respect to the coordination of these outreach events?
  - a. Are there areas where the partnering has worked particularly well to utilize the partners' strengths? Areas that haven't worked well?
  - b. Are there missed opportunities to utilize the partners' strengths?



5. To what extent are the partners involved in event planning and coordination?
6. Which events have been the most successful and why?
7. How do you think these outreach events compare to other potential ways of educating and encouraging customers to pursue demand response actions?
4. What improvements should be made to the program in future years?
5. What limitations stand in the way of making the events the best they can be?

“Community” Based Outreach Questions:

1. Please describe the goals and objectives of PG&E’s efforts to use partners such as the California Rural Watershed Association, Placer County Economic Development, and Staples Marketing Representatives in Santa Maria and Stockton to deliver demand response information. How are these partnerships designed to achieve the intended program outcomes?
2. [If they were involved in designing the program] Did you look to other utility outreach and awareness events for ideas when designing this partnership program approach? Were there elements that were particularly important to you, or that you sought to avoid?
3. How did you select the groups you are currently partnering with?
  - a. Were there other groups you approached to pursue a similar partnering arrangement?
  - b. Are there other groups you are considering partnering with in future years?
4. Do you think the partnerships are meeting expectations?
  - a. What do you think are the partnership’s greatest strengths and weaknesses (from a program design perspective, operationally, etc.)?
  - b. [If not] What are the flaws in program design and delivery, or in the theory behind the program?
5. Have PG&E’s partnerships with the California Rural Watershed Association, Placer County Economic Development, and Staples Marketing Representatives in Santa Maria and Stockton been positive or negative?
  - a. Are there areas where the partnering has worked particularly well to utilize the partners’ strengths? Areas that haven’t worked well?
  - b. Are there missed opportunities to utilize the partners’ strengths?

6. What type of professional or educational background do the CRWA and Placer County Economic Development reps have? What level of training did they receive from PG&E?
7. How does your affinity/partnership delivery approach compares to other potential ways of educating and encouraging customers to pursue demand response actions?
8. What improvements should be made to these partnership initiatives in future years?
9. What limitations stand in the way of making this affinity / partnership delivery program the best it can be?

Thanks for your time and have a good day.

## California Statewide Education and Outreach Program Evaluation

### Trade Channel In-depth Interview Guide

#### Purpose:

Obtain qualitative feedback from those involved with trade channel efforts regarding the effectiveness of using selected trade channels and the value of information being disseminated.

#### Target Market Actors:

- PG&E-territory trade organizations (Paso Robles Chamber, Paso Robles Vintners, Bakersfield Chamber, Bakersfield show presenters)
- selected SCE and SDG&E-territory trade organizations (e.g. BOMA sponsoring group representatives, from general outreach lists)
- Attendees of the Bakersfield event

NOTE: Consider sending pre-notification e-mail to the prospective respondents.

#### Interviewer Instructions:

Utilize the following basic script to introduce and conduct the interview.

#### **Trade Association Reps:**

“Hello, my name is \_\_\_\_\_ and I’m calling on behalf of [PG&E / SCE / SDG&E] to interview you regarding your experience with [PG&E’s / SCE’s / SDG&E’s] their community outreach and education efforts for demand response and energy efficiency. [If pre-notification correspondence sent] This is in conjunction with a letter you may have received letting you know that we hope to interview you as part of our efforts to evaluate the program. I’d like to ask for about a half hour or so of your time to discuss your thoughts on how effective the program has been and ways to further improve it. Is this a good time, or is there a time in the next few days that would be convenient for you to talk? [Schedule accordingly. If respondent indicates now is a good time, thank them for taking this time and begin the interview]

#### **Trade Show Attendees:**

Hello, my name is \_\_\_\_\_ and I’m calling on behalf of [PG&E / SCE / SDG&E] to interview you regarding your experience at the Bakersfield Energy and Air Quality Trade Show. This is in conjunction with a letter you may have received letting you know that we hope to interview you as part of our efforts to evaluate the program. I’d like to ask for about a half hour or so of your time to discuss your thoughts on how effective the trade show was and ways to improve upon it in future years. Is this a good time, or is there a time in the next few days that would be convenient for you to talk? [Schedule accordingly. If respondent indicates now is a good time, thank them for taking this time and begin the interview]

### Interview Introduction

Your judgments and opinions are important to this research effort. Even if you cannot provide specific details in your responses, please offer your best insights and answer each question to the best of your ability. Your responses will remain confidential, so please speak freely and honestly about your opinions.

### **Questions for All Respondents (except Bakersfield Show attendees)**

1. [If not available from the contact information provided to make the interview call] First, I'd like to make note of a couple of things to help me understand your organization and your job there.
  - c. What is your position?
  - d. What is the purpose of the organization you represent?
  
2. Next, just to make sure we're on the same page, do you feel you know what the term "demand response" means in contrast to the term energy efficiency?
  - e. [If Yes to Q2] Would you mind briefly describing to me what it means to you?
    - i. [If their description reflects reasonable understanding] That's correct. [Go to Q3]
    - ii. [If their description doesn't reflect reasonable understanding, ask Q2.b]
  - f. [If No to Q2] Briefly, demand response means temporarily shifting or curtailing energy use to reduce electric system demand during peak periods. That differs from energy efficiency, which involves permanent changes in equipment to increase efficiency and/or permanent usage changes to reduce energy consumption.
  
3. Do you think the terms "demand response" and "energy efficiency" appropriately capture the distinction between the two concepts, or is there a different way utilities should talk about or present these concepts that would make better sense to you or others you know?
  
4. Do you think that [members / people in your organization] you talk to understand the differences between the terms "demand response" and "energy efficiency" or "conservation"?
  - g. [If not] What are the misunderstandings you've noticed?
  - h. Does their level of understanding appear to affect their attitudes or intentions regarding various utility programs? In what ways?
  
5. When you consider and **make decisions** about various energy management actions [you / the organization you represent] might undertake, do you think of demand response differently in any way than energy efficiency? How so?
  
6. Thinking about the utility's information outreach efforts, including various trade show events in which your organization has participated:
  - a. Can you tell me how your organization has benefited from its involvement in these events?

- b. Can you tell me how your organization’s involvement has benefited the **utility**? In what ways has your organization’s participation helped the utility achieve its outreach and education goals in ways that other outreach channels could not?
7. Has the information the utility has provided been understandable to customers with whom you and your organization interact? Why or why not?
    - a. Has it been motivating? In what ways, good or bad?
    - b. What additional, or different information do you need so that your organization and your members can better understand the utility’s demand response message?
    - c. Are there other ways that utility communications could be improved to better support you in delivering the utility’s education and outreach messages?
  8. What barriers do [members / people in your organization] bring up when you talk with them about demand response actions they might take? For example, actions are not financially attractive, scheduling complications, complexity of program, or fear of financial penalties.
  9. What barriers do [members / people in your organization] bring up when you talk with them about energy efficiency actions they might take?
    - a. Do they distinguish those in their minds from the barriers they see for demand response actions?
    - b. Should utilities address barriers to demand response and energy efficiency in an integrated manner, or should they be treated separately? Why do you think that?
  10. We’d like to determine the best ways to influence [members / people in your organization] when it comes to energy management in general?

a. On a scale of 1-5 for each of the following items, tell me whether it is not at all influential, somewhat influential 3 or extremely influential 5.”

	1-5
financial incentives	<input type="checkbox"/>
personalized technical support	<input type="checkbox"/>
access to information and tools to assist with energy management	<input type="checkbox"/>
testimonies and case studies from well-known companies	<input type="checkbox"/>

b. Can you think of other ideas?

11. We’d like to determine what messages would be most effective at motivating [members / people in your organization] to adopt demand response practices?

- a. On a scale from 1-5 for each of the following messages, please tell me whether you think it would be (1) not at all effective to (5) extremely effective.

	Not very effective
You're helping your community- by reducing your power demand, you're helping to keep everyone's lights on.	<input type="checkbox"/>
You're reducing the chances that your building will suffer from loss of power.	<input type="checkbox"/>
You'll benefit financially by paying lower rates during periods of peak demand	<input type="checkbox"/>
You'll benefit financially by receiving incentive payments for reducing your energy usage during peak periods	<input type="checkbox"/>
You're helping the environment by eliminating the need to build more power plants	<input type="checkbox"/>

- b. Can you think of other message ideas?

12. Let's focus on methods of communicating about just energy efficiency for a few minutes. Which kind of information is most effective for reaching organizations like yours?

- c. On a scale of 1-5 for each of the following items, please tell me whether you think it is (1) not at all effective to (5) extremely effective.

	1-5
Presentations at conferences	<input type="checkbox"/>
Trade booths at conferences	<input type="checkbox"/>
Newsletters highlighting success stories and strategies	<input type="checkbox"/>
On-site audits and in-person technical support	<input type="checkbox"/>
In-depth articles and reference materials providing comprehensive information on energy management and demand response strategies	
Energy management software tools	

b. Can you think of other ideas? Are there trade conferences or meetings that utilities should participate in that they don't already? Are there other ways of reaching you that would be appropriate?

14. Now let's focus on just demand response. Which kind of information is most effective for reaching organizations like yours?

d. On a scale of 1-5 for each of the following items, please tell me whether you think it is (1) not at all effective to (5) extremely effective.

	1-5
Presentations at conferences	<input type="checkbox"/>
Trade booths at conferences	<input type="checkbox"/>
Newsletters highlighting success stories and strategies	<input type="checkbox"/>
On-site audits and in-person technical support	<input type="checkbox"/>
In-depth articles and reference materials providing comprehensive information on energy management and demand response strategies	
Energy management software tools	

b. Can you think of other ideas? Are there trade conferences or meetings that utilities should participate in that they don't already? Are there other ways of reaching you that would be appropriate?

15. Can you think of any leaders in the practice of demand response who would be effective spokespeople for demand response or energy efficiency (could be specific individuals, or types of individuals, i.e. energy managers, community leaders, trade association representatives, etc.)?

16. Is there anything else you'd like to comment on regarding your experience with utility information outreach efforts?

## **Questions for Bakersfield Energy & Air Quality Trade Show Attendees**

1. Did you receive the information you need to move ahead with energy efficiency or demand response actions?
  - c. [If No] What was missing for you, or would have been more helpful??
  - d. [If Yes] What was particularly helpful?
  
2. Next, just to make sure we're on the same page, do you feel you know what the term "demand response" means in contrast to the term energy efficiency?
  - a. [If Yes to Q2] Would you mind briefly describing to me what it means to you?
    - i. [If their description reflects reasonable understanding] That's correct. [Go to Q3]
    - ii. [If their description doesn't reflect reasonable understanding, ask Q2.b]
  - b. [If No to Q2] Briefly, demand response means temporarily shifting or curtailing energy use to reduce electric system demand during peak periods. That differs from energy efficiency, which involves permanent changes in equipment to increase efficiency and/or permanent usage changes to reduce energy consumption.
  
3. Are the messages being conveyed in the utility's information clear and credible?
  - a. Which concepts were easy to understand, and which were not? Please explain.
  
4. What actions are you definitely planning to take as a direct result of the information you've received (that is, that you had not planned prior to obtaining it)?
  
5. Has your company pursued demand response activities in the past?
  - a. [If yes] How did the new practice go from the idea phase to actually being implemented?
  - b. [If yes] Why have you chosen to pursue that particular behavior or practice as opposed to other alternatives? (This could get at barriers, precursors to action)
  
6. What key barriers stand in the way of implementing demand response activities at your organization? For example, actions are not financially attractive, scheduling complications, complexity of program, or fear of financial penalties.



7. What are the top three factors that you consider when making a decision about energy use practices in your facility? (i.e. cost, operational impacts, risk mitigation, etc.)

8. Do you need help selling demand response strategies to the internal management of your organization or your organization’s members?

9. When you consider and **make decisions** about various energy management actions [you / the organization you represent] might undertake, do you think of “demand response” differently in any way than “energy efficiency?” How so?

10. We’d like to determine the best ways to influence decision-makers in organizations like yours to pursue demand response and energy efficiency strategies?

e. On a scale of 1-5 for each of the following items, tell me whether it is (1) not at all influential to (5) extremely influential

	1-5
financial incentives	<input type="checkbox"/>
personalized technical support	<input type="checkbox"/>
access to information and tools to assist with energy management	<input type="checkbox"/>
testimonies and case studies from well-known companies	<input type="checkbox"/>

b. Are there other strategies that you think would be influential?

11. We’d like to determine what messages would be most effective at motivating organizations like yours to adopt demand response practices.

a. On a scale of 1-5 for each of the following messages, please tell me whether you think it would be (1) not at all effective to (5) extremely effective.

	1-5
You're helping your community- by reducing your power demand, you're helping to keep everyone's lights on.	<input type="checkbox"/>
You're reducing the chances that your building will suffer from loss of power.	<input type="checkbox"/>
You'll benefit financially by paying lower rates during periods of peak demand	<input type="checkbox"/>
You'll benefit financially by receiving incentive payments for reducing your energy usage during peak periods	<input type="checkbox"/>
You're helping the environment by eliminating the need to build more power plants	<input type="checkbox"/>

b. Do you have other ideas of messages that would be effective and compelling?

12. We'd like to know what methods are most effective at delivering energy and demand response information.

a. On a scale of 1-5 for each of the following items, please tell me whether you think it is (1) not at all effective to (5) extremely effective.

	1-5
Presentations at conferences	<input type="checkbox"/>
Trade booths at conferences	<input type="checkbox"/>
Newsletters highlighting success stories and strategies	<input type="checkbox"/>
On-site audits and in-person technical support	<input type="checkbox"/>
In-depth articles and reference materials providing comprehensive information on energy management and demand response strategies	
Energy management software tools	

b. Do you have any other ideas of effective methods for communicating demand response and energy efficiency information?

13. We'd like to know which sources of energy information organizations like yours believe to be most valuable.

a. On a scale of 1-5 for each of the following items, please tell me whether you think it is (1) not at all valuable, somewhat valuable (3) extremely valuable (5).

	1-5
Trade associations	<input type="checkbox"/>
Utility	<input type="checkbox"/>
Syndicated energy publications	<input type="checkbox"/>
Local government representatives	<input type="checkbox"/>
State energy office	
U.S. Department of Energy	
Energy managers (word of mouth or presentations based on personal experience)	
Contractors, vendors, engineering firms	

b. Can you think of other valuable sources of information?

13. Did you attend the previous show held last fall in Bakersfield?

a. [If yes] In what ways was this year's show more or less valuable than last year's?

14. Is there anything else you'd like to comment on regarding your experience with the Bakersfield trade shows?

Thanks for your time and have a good day.

## **California Statewide Education and Outreach Program Evaluation**

### **Government Channel In-depth Interview Guide**

Purpose:

Obtain qualitative feedback from those involved with government channel efforts regarding the effectiveness of using selected government channels and the value of information being disseminated.

Target Market Actors:

- PEAK teachers, per SDG&E list (outstanding issue of whether teachers were used)
- SDG&E Orb users, per SDG&E list
- City of Ontario staff, per SCE list

NOTE: Consider sending pre-notification letters to the prospective respondents.

Interviewer Instructions:

Utilize the following basic script to introduce and conduct the interview.

“Hello, my name is \_\_\_\_\_ and I’m calling on behalf of [SCE / SDG&E] to interview you regarding your experience with [SCE’s / SDG&E’s education and outreach efforts] [PEAK education program / Energy Orb program / community outreach and education efforts] for demand response and energy efficiency. [If pre-notification correspondence sent] This is in conjunction with a letter you may have received letting you know about this call to help evaluate those outreach efforts. I’d like to ask for about a half hour or so of your time to discuss your thoughts on how effective the program has been, what value it has for you and ways to further improve it. Is this a good time, or is there a time in the next few days that would be convenient for you to talk? [Schedule accordingly]. If respondent indicates now is a good time, thank them for taking this time and begin the interview.]

### **Questions for All Respondents (Except PEAK Teachers)**

1. [If not available from the contact information provided to make the interview call] First, I’d like to make note of a couple of things to help me understand your organization and your job there.
  - a. What is your position?
  - b. In what City Department do you work?
  - c. How long have you been there?

2. Next, just to make sure we're on the same page, do you feel you know what the term "demand response" means in contrast to the term energy efficiency?
  - a. [If Yes to Q2] Would you mind briefly describing to me what it means to you?
    - i. [If their description reflects reasonable understanding] That's correct. [Go to Q3]
    - ii. [If their description doesn't reflect reasonable understanding, ask Q2.b]
  - b. [If No to Q2] Briefly, demand response means temporarily shifting or curtailing energy use to reduce electric system demand during peak periods. That differs from energy efficiency, which involves permanent changes in equipment to increase efficiency and/or permanent usage changes to reduce energy consumption.
  
3. Do you think that [people who have seen the Energy Orb and information / large customers who received outreach information through the City] understand the differences between demand response and energy efficiency or conservation?
  - a. [If not] What are the misunderstandings you've noticed?
  - b. Does their level of understanding appear to affect their attitudes or intentions regarding various utility programs? In what ways?

[BL: How will they answer the prior question? Seems complex. How about something like: Are many or most people confused about what to do? Do customers seem to care very much about energy efficiency and peak load reduction?]
  
4. [For Orb respondents] Operationally, have the Orbs worked reliably? What problems have you experienced, if any?
  
5. [For Orb respondents] Where in your building is the Orb display located? Is this an effective location?
  
6. BL: Describe how a person would first see, and then interact with the orb.
  
7. [For Orb respondents] What is the public's response to the orbs?
  - a. What percentage of passersby would you estimate notice the orb?
  - b. Of those who notice the orb, what percentage read or take the associated informational literature?
  - c. Do the Orbs seem to have potential usefulness beyond being just a novelty? Please explain.
  
8. [For Orb respondents] Do you believe you are prepared to answer the kinds of questions that people ask you about the Orb?
  
9. [For Orb respondents] What in your opinion are the pros and cons of using Energy Orbs as a way to convey information about how energy costs change during periods of peak energy demand.

10. [For Orb respondents] How do you think the Orb compares to other potential ways of communicating information about energy pricing during peak periods, such as kiosks with videos or other display methods?
11. [For Orb respondents] Is the message being conveyed by the Orb display and the associated outreach information appropriate to the audience? Why or why not, in your opinion?
12. [For Orb respondents] What benefits do you see the [Orb displays / SCE-Ontario local community outreach effort to large customers] bringing to the community?
13. Has the information the utility has provided been understandable to the intended audiences? Why or why not?
  - a. Has it been motivating, or not? In what ways, good or bad? [BL: maybe not for Ontario]
  - b. What additional, or different information do you think is needed so that [Orb display visitors / large customers] can better understand the utility's demand response message (and how demand response messages are different than energy efficiency messages)? ditto
  - c. Are there other ways that utility communications could be improved that would better support you on the utility's outreach efforts? ditto
14. [For Ontario respondents ONLY] Based on your experience conducting outreach to large customers, do you get the sense that they are listening to and acting on the messages?
  - a. Are they reacting positively or negatively to the information being conveyed?
  - b. What are they saying?
15. What barriers do [PG&E, SCE customers / CRWA members] bring up when you talk with them about demand response actions they might take? For example, actions are not financially attractive, scheduling complications, complexity of program, or fear of financial penalties.
16. What barriers do [PG&E, SCE customers / CRWA members] bring up when you talk with them about energy efficiency actions they might take?
  - a. Do they distinguish those in their minds from the barriers they see for demand response actions?
  - b. Should utilities address barriers to demand response and energy efficiency in an integrated manner, or should they be treated separately?
17. Do you think your city's involvement with the program is helped or hindered by its own experience with energy management – either demand response or energy efficiency decisions and actions? Please explain.
18. [For Ontario respondents] Does the City have the control it needs to be effective with the program?

19. [For Ontario respondents] Is the link between the City and customers important as a way of promoting demand response and energy efficiency to customers, or would it be just as effective to have the information conveyed directly by the utility?
  
20. [For Ontario respondents] What value do you see in having the City and SCE joining forces for the outreach effort to large customers?
  
21. Has the city’s partnership with [SDG&E / SCE] been a positive or negative one? Are there areas where the partnering has worked particularly well to utilize the city’s strengths? Areas that haven’t worked well? Missed opportunities to utilize the city’s strengths in the [Orb display / large customer outreach effort]?
  
22. What other city departments or organizations in the city should be involved with the [Orbs / large customer outreach effort] at this time? In the future?
  
23. Overall to date, has the [Energy Orb / large customer outreach] program been working as designed? How would you change the program?
  
24. [For Ontario respondents] We think your experience can help us understand the best ways to influence businesses to adopt demand response and energy efficiency practices.
  - a. On a scale of 1-5 fFor each of the following items, tell me whether you think it is “(1) not at all influential, 3 somewhat influential or 5 extremely influential

	Not very influential	Somewhat Influential	Very Influential
financial incentives	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
personalized technical support	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
access to information and tools to assist with energy management	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
testimonies and case studies from well-known companies	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

- a. Can you think of other ideas?

25. [For Ontario respondents] We’d like to determine what messages would be most effective at motivating businesses to adopt demand response practices.

c. On a scale of 1-5 for each of the following messages, please tell me whether you think it would be “not very effective, somewhat effective, or very effective.

	1-5
You’re helping your community- by reducing your power demand, you’re helping to keep everyone’s lights on.	<input type="checkbox"/>
You’re reducing the chances that your building will suffer from loss of power.	<input type="checkbox"/>
You’ll benefit financially by paying lower rates during periods of peak demand	<input type="checkbox"/>
You’ll benefit financially by receiving incentive payments for reducing your energy usage during peak periods	<input type="checkbox"/>
You’re helping the environment by eliminating the need to build more power plants	

d. Can you think of other message ideas?

26. [For Ontario respondents] Let’s focus on demand response. We’d like to know what methods of communicating demand response are most effective for reaching businesses?

e. On a scale of 1-5 for each of the following items, please tell me whether you think it is “not at all effective (1) , somewhat effective, or very effective (5) **then ask same question for EE.**

	1-5 DR	1-5 EE
Presentations at conferences	<input type="checkbox"/>	
Trade booths at conferences	<input type="checkbox"/>	
Newsletters highlighting success stories and strategies	<input type="checkbox"/>	
On-site audits and in-person technical support	<input type="checkbox"/>	
In-depth articles and reference materials providing comprehensive information on energy management and demand response strategies		
Energy management software tools		



b. Can you think of other ideas? Are there trade conferences or meetings that utilities should participate in that they don't already? Are there other ways of reaching you that would be appropriate?

27. Is there anything else you'd like to comment on regarding your experience with the [Energy Orb / large customer information outreach efforts]?

### **Questions for PEAK Teachers (outstanding issue – teachers used? )**

6. Please describe how and when you presented the PEAK program to your class(es)?
  - a. Did you integrate PEAK into your teaching curriculum outside of just presenting the class with the Traffic Jam booklet?
  - b. [If yes] How has that worked out??
  - c. What might you do differently in the future?
  
7. How did students react to the program?
  - a. Did they treat the activities as a project, as games?
  - b. Was it exciting or boring to them?

What concepts presented in the Traffic Jam booklet did students most easily understand ? What concepts were difficult for them to understand?

For those students who had difficulty accepting or understanding the messages, what kinds of questions or complaints did they raise?

- c. What suggestions do you have to help educate those students?

8. In the PEAK program materials, what worked best to get students' attention and helped them learn the lessons being taught?
  - a. What didn't work well, and why was that?
  
9. Did students understand the roles played by the characters Bulbman and Energy Sucker, or were the characters distracting to the message?
  - a. Did the characters motivate students, and in what ways (or not)?

Do you believe the lessons have influenced energy usage behaviors among students and their families?

- a. What parental involvement are you hearing about?

10. Is the PEAK program approach consistent with other scientific concepts being taught to students of this age group at your school?
11. Is the PEAK program effective on its own, or does this curriculum merit some level of continuing education throughout a student's years in school?
  - a. Why do you think that?
12. Are students an appropriate way to get the demand response message to parents and households?
  - a. Why do you think that?
  - b. [If yes] Does the PEAK program effectively capture the opportunity to work with students as a means of changing household energy use behavior?
13. Did you get good support from the school district and your school's administration?
  - a. What concerns or good experiences have you had?
14. What would you suggest, specifically, to improve the program for the future?

Thanks for your time and have a good day.

## California Statewide Education and Outreach Program Evaluation

### Direct Contact Channel In-depth Interview Guide

Revised 2/6/06

#### Purpose:

Obtain qualitative feedback from those involved with direct contact efforts regarding the effectiveness of the contact process and the value of information being disseminated.

#### Target Market Actors:

- SCE field representatives who conduct integrated energy audits for customers under 200 kW
- PG&E Outreach representatives (CRWA, Staples Marketing)
- PG&E representatives in Placer County
- End customers receiving SCE integrated energy audits, particularly the DR audits

#### Interviewer Instructions:

From the contact lists provided, utilize one of the following basic scripts as appropriate to introduce and conduct the interview.

#### **Field Reps:**

“Hello, my name is \_\_\_\_\_ and I’m calling on behalf of [PG&E / SCE] to interview you regarding your experience as a field representative delivering [SCE’s Business Solutions integrated audit / PG&E’s community outreach program] to [SCE customers / CRWA members / PG&E customers (Staples Santa Maria and Stockton reps, PG&E’s Placer County reps)]. [If pre-notification correspondence sent] This is in conjunction with an e-mail you may have received letting you know that we hope to interview you as part of our efforts to evaluate the program. I’d like to ask for about a half hour or so of your time to discuss your thoughts on how effective the program has been and ways to further improve it. Is this a good time, or is there a time in the next few days that would be convenient for you to talk? [Schedule accordingly. If respondent indicates now is a good time, thank them for taking this time and begin the interview]]

#### **Customers:**

“Hello, my name is \_\_\_\_\_ and I’m calling on behalf of [PG&E / SCE] to interview you regarding your experience with SCE’s Business Solutions integrated audit. [If pre-notification correspondence sent] This is in conjunction with an e-mail you may have received letting you know that we hope to interview as part of our efforts to evaluate the program. I’d like to ask for about a half hour or so of your time to discuss your thoughts on how effective the program has been, what value it has for you and ways to further improve it. Is this a good time, or is there a time in the next few days that would be convenient for you to talk? [Schedule accordingly. If respondent indicates now is a good time, thank them for taking this time and begin the interview] **[skip to customer questions on page 6]**

### Interview Introduction

Your judgments and opinions are important to this research effort. Even if you cannot provide specific details in your responses, please offer your best insights and answer each question to the best of your ability. Your responses will remain confidential, so please speak freely and honestly about your opinions.

### **Questions for Field Representatives**

1. Are [PG&E, SCE customers / CRWA members] understanding the terminology and definitions we use?
2. Are the demand response (load curtailment or shifting) actions being recommended in the [marketing materials / integrated audits] perceived as being useful, relevant and important?
  - a. If so, what value (to their company, the utility, and society at large) do customers see in these actions?
  - b. Which suggested actions seem to resonate best with customers and why do you think this is the case?
  - c. Which suggested actions are least useful and why do you think this is the case?
3. Is there information in the demand response outreach and marketing materials that you find of low value or little help, that either isn't needed or should be modified in some way? What would that be and what changes do you recommend?
4. What additional or different information do you think would make more of an impression on [PG&E, SCE customers / CRWA members] with whom you have worked? This could include changes in the format that the content is presented, as well as changes in the content itself.
5. Do you think that [PG&E, SCE customers / CRWA members] you talk to understand the differences between demand response and energy efficiency or conservation?
  - a. If not, what are the misunderstandings you've noticed?
  - b. Does their level of understanding appear to affect their attitudes or intentions regarding various utility programs? In what ways?
6. Are [PG&E, SCE customers / CRWA members] showing more interest in demand response or time-of-use load management actions than in energy efficiency actions, or less interest? Why is this the case, in your opinion?
7. What barriers do [PG&E, SCE customers / CRWA members] bring up when you talk with them about demand response actions they might take? For example, actions are not financially attractive, scheduling complications, complexity of program, or fear of financial penalties.

8. What barriers do [PG&E, SCE customers / CRWA members] bring up when you talk with them about energy efficiency actions they might take?
  - a. Do they distinguish those in their minds from the barriers they see for demand response actions?
  - b. Should utilities address barriers to demand response and energy efficiency in an integrated manner, or should they be treated separately?
  
9. Let's focus for a moment on energy efficiency, not demand response. We'd like to determine the best ways to influence [PG&E, SCE customers / CRWA members] to pursue energy efficiency strategies.
  - a. On a scale of 1-5 for each of the following items, tell me whether it is (1) not at all influential to (3) somewhat influential to (5) extremely effective.

	1-5
financial incentives	<input type="checkbox"/>
personalized technical support	<input type="checkbox"/>
access to information and tools to assist with energy management	<input type="checkbox"/>
Testimonies and case studies from well-known companies	<input type="checkbox"/>

- b. Are there other strategies that you think would be influential?

10. Now let's focus on demand response. We'd like to determine the best ways to influence [PG&E, SCE customers / CRWA members] to pursue demand response?

- a. On a scale of 1-5 for each of the following items, tell me whether it is "not at all influential (1), somewhat influential (3) or extremely influential (5)

	1-5
financial incentives	<input type="checkbox"/>
personalized technical support	<input type="checkbox"/>
access to information and tools to assist with energy management	<input type="checkbox"/>
Testimonies and case studies from well-known companies	<input type="checkbox"/>
You're helping the environment by eliminating the need to build more power plants	

- b. Are there other strategies that you think would be influential?

11. We'd like to determine what messages would be most effective at motivating organizations like yours to adopt demand response practices.

- a. On a scale of 1-5 for each of the following messages, please tell me whether you think it would be "not at all effective extremely effective.

	1-5
You're helping your community- by reducing your power demand, you're helping to keep everyone's lights on.	<input type="checkbox"/>
You're reducing the chances that your building will suffer from loss of power.	<input type="checkbox"/>
You'll benefit financially by paying lower rates during periods of peak demand	<input type="checkbox"/>
You'll benefit financially by receiving incentive payments for reducing your energy usage during peak periods	<input type="checkbox"/>
You're helping the environment by eliminating the need to build more power plants	<input type="checkbox"/>

- b. Do you have other ideas of messages that would be effective and compelling?

12. We'd like to know what methods are most effective at delivering energy and demand response information.

- a. On a scale of 1-5 ach of the following items, please tell me whether you think it is "not at all effective, somewhat effective (3), or extremely effective (5)."

	1-5
Presentations at conferences	<input type="checkbox"/>
Trade booths at conferences	<input type="checkbox"/>
Newsletters highlighting success stories and strategies	<input type="checkbox"/>
On-site audits and in-person technical support	<input type="checkbox"/>
In-depth articles and reference materials providing comprehensive information on energy management and demand response strategies	<input type="checkbox"/>
Energy management software tools	<input type="checkbox"/>

- b. Do you have any other ideas of effective methods for communicating demand response and energy efficiency information?

13. Are there either demand response or energy efficiency opportunities being missed by the field contact activities you have been engaged in?

14. Is there information, logistical or other field support you need to help do your job more efficiently and effectively? What such support would be of greatest help?

15. Are there program process issues – either logistical or bureaucratic – that are getting in the way of you doing your job as effectively as you might otherwise? What are those and what changes do you recommend? [Assure the respondent that their individual responses will be kept confidential, so they should speak freely.]

16. [For SCE integrated audit reps that don't attend focus group ONLY] Comparing the current Enerpath "palm" tool with other energy audit approaches, is the palm tool making you more efficient in conducting the audits and reporting audit recommendations?

- a. How much more productive would you say it makes you – Very, Somewhat or a Little more productive? Which aspects help the most?
- b. How many more audits can you do per day or week, compared to before the system?
- c. Is the conversion rate, e.g. the number of customers who do something and participate in a program different?
- d. Do you see any usability, software or other improvements you think would help? What would those be?

17. [For SCE integrated audit reps that don't attend focus group ONLY] Is the palm tool helping you interact more effectively with customers? If so, how?

18. [For PG&E company / Staples / CRWA reps]

- a. For [customers / members] who received a post-contact audit, did the post-contact audit affect the likelihood of them planning or pursuing EE or DR actions?
- b. For those who chose not to receive a post-contact audit, why do you think they turned down this opportunity?

19. Just a couple of closing questions. If you could start over from scratch, knowing what you do about the needs, interests and challenges faced by the [customers / members] with whom you interact, and what we've been discussing, what do you think would be the most effective methods for communicating messages to businesses, and for convincing them to take DR / EE actions – summarizing your thoughts from our discussion here?

20. Is there anything else you'd like to comment on regarding your experience with [SCE's Business Solutions integrated audit / PG&E Outreach program]?



## **Questions for End Customers Who Received the Integrated Audit**

1. [If not available from the contact information provided to make the interview call] First, I'd like to make note of a couple of things to help me understand your organization and your job there.
  - a. What is your title?
  - b. What is your organization's primary business type SIC or NAIC code, specifically if you know it)?
  - c. What type of facility was it that received the integrated audit?
2. What is your overall impression of the integrated energy audit service you received from SCE?
3. Did you receive the information you needed to move ahead with the recommendations given in the audit report? What was missing or could be improved? What was particularly helpful?
4. Do you understand the terminology and concepts that were presented while the auditor met with you and in the audit report?
5. The integrated audit offered a follow-up visit to help identify and plan demand response (load management) activities you could undertake to help reduce peak demand.
  - a. Did you choose to participate in this follow-up visit?
  - b. [If no] Why?
  - c. [If yes] What did you find useful about this visit?
  - d. [If yes] How could the follow up visit be made more useful to you?
6. Have you had an energy audit before this?
  - a. [If yes] How would you say this audit compares to what you've had before – thinking about all aspects of the service, such as the way SCE marketed the audit, the contact process with the representative who conducted the audit, the audit procedures, the audit report, etc?
7. Did you find the audit results and recommendations appropriate to your situation? Why or why not?
8. Was the information in the audit report clear and credible?
  - a. In what ways was it so, or not so?

9. What actions are you definitely planning to take as a direct result of the audit (that is, that you had not planned prior to having the audit)?
  
10. What barriers stand in the way of you pursuing those or other actions suggested in the audit?
  
11. What could SCE do to make it easier, or more likely that your company would follow through on the recommendations suggested in the audit?
  
12. Do you need help selling to your internal management on actions you think are appropriate to undertake?
  
13. Does your internal management understand the difference between EE and DR? How do you explain it to them?
  
14. We'd like to determine the best ways to influence decision-makers in organizations like yours to pursue demand response and energy efficiency strategies?
  - a. On a scale of 1-5 for each of the following items, tell me whether it is "not at all influential, extremely influential."

	1-5
financial incentives	<input type="checkbox"/>
personalized technical support	<input type="checkbox"/>
access to information and tools to assist with energy management	<input type="checkbox"/>
testimonies and case studies from well-known companies	<input type="checkbox"/>

- b. Are there other strategies that you think would be influential?

15. We'd like to determine what messages would be most effective at motivating organizations like yours to adopt demand response practices in particular.

a. On a scale of 1-5 for each of the following messages, please tell me whether you think it would be “not at all effective (1) or extremely effective (5).

	1-5
You’re helping your community- by reducing your power demand, you’re helping to keep everyone’s lights on.	<input type="checkbox"/>
You’re reducing the chances that your building will suffer from loss of power.	<input type="checkbox"/>
You’ll benefit financially by paying lower rates during periods of peak demand	<input type="checkbox"/>
You’ll benefit financially by receiving incentive payments for reducing your energy usage during peak periods	<input type="checkbox"/>
You’re helping the environment by eliminating the need to build more power plants	<input type="checkbox"/>

b. Do you have other ideas of messages that would be effective and compelling?

16. We’d like to know what methods are most effective at delivering energy and demand response information.

a. On a scale of 1-5 for each of the following items, please tell me whether you think it is “not at all effective, or extremely effective (5)

	1-5
Presentations at conferences	<input type="checkbox"/>
Trade booths at conferences	<input type="checkbox"/>
Newsletters highlighting success stories and strategies	<input type="checkbox"/>
On-site audits and in-person technical support	<input type="checkbox"/>
In-depth articles and reference materials providing comprehensive information on energy management and demand response strategies	
Energy management software tools	

- b. Do you have any other ideas of effective methods for communicating demand response and energy efficiency information?

17. We'd like to know which sources of energy information organizations like yours believe to be most valuable.

- a. On a scale of 1-5 for each of the following items, please tell me whether you think it is not at all valuable, or extremely valuable (5).

	1-5
Trade associations	<input type="checkbox"/>
Utility	<input type="checkbox"/>
Syndicated energy publications	<input type="checkbox"/>
Local government representatives	<input type="checkbox"/>
State energy office	
U.S. Department of Energy	
Energy managers (word of mouth or presentations based on personal experience)	
Vendors, contractors, engineering firms	

- b. Can you think of other valuable sources of information?

18 Please tell me what you liked about the service, and also what you didn't like and think could be improved.

19. Is there anything else you'd like to comment on regarding your experience with SCE's Business Solutions integrated audit?

Thanks for your time and have a good day.

**APPENDIX D:**  
**SURVEY INSTRUMENT**

**California Statewide Education, Awareness & Outreach Programs**

SCE EE/DR Business Solutions (Palm) Audit Program Participant Survey

Revised: 1/30/06

Summit Blue / SCE EE/DR Business Solutions (Palm) Audit Program

Participant Surveys

Business Telephone Survey Instrument

SEA XX-YYY

Revised: 1/30/06 by Summit Blue Consulting

Interviewer Instructions

Sample unit is a facility at a given service address – NOT an entity or individual. Thus, survey cases are to be drawn on a facility/service address basis. There may be more than one facility per customer entity and also one prospective interviewee may be identified as the contact for more than one facility. To avoid respondent alienation, if the sample draw picks two or more facilities at different service addresses of the same entity or individual contact person, use the FIRST instance drawn and replace the remaining draw(s) with other facilities (and associated entities and individuals). The same individual should not be interviewed more than once.

Call is to be placed to end customer contact people – not contractors or other “proxy” respondents. Ask to speak to the individual named in the customer contact information obtained from program records. If that individual no longer works at that facility, terminate and substitute a replacement case. If the respondent is a contractor or other proxy, per the screening questions terminate and substitute a replacement case.

Make at least 6 attempts to each sample element before replacing with a substitute case.

The purpose of the introductory script and associated introductory questions is to identify primary program participant customers who ALSO can speak to questions about the energy audit they received, and about equipment usage that requires knowledge about the facility and the usage of the equipment involved with the energy efficiency improvements recommended in the audit.

Thus, ideally, we are looking for the person who made the program participation decision AND participated in the audit walk through with a Southern California Edison Field Rep AND is familiar with the facility’s operation of the equipment associated with the efficiency measures being surveyed. Most of the contacts listed in the contact information listing should fit these criteria, but there will be some number that do not, particularly contractors, requiring the stated respondent qualification screening.

**CMDI:**

Participant Name (“<ContactName>”) from program contact list and its file-specific parameter as follows:

- Palm Audit Customer Contact Name: <ContactName>, <ContactLast> (Columns H and I in customer list spreadsheet: SCE-EnerpathAudits-DRP Status Report 5-31 to 12-23.xls)

Client Name (“<ClientName>”) from program contact list and its file-specific parameter as follows:

- Palm Audit Facility/Entity Name: <CLIENT NAME> (Column C in customer list spreadsheet)

Facility Service Address (“<ClientAddress>”) from program contact list and its file-specific parameter as follows:

- Palm Audit Facility/Entity Service Address: <CLIENTADDRESS> (Column D in customer list spreadsheet)

Telephone Number(s) from program contact list and its file-specific parameter as follows:

- Palm Audit Customer Contact Phone #: <PHONE>. (Column G in customer list spreadsheet)

<b>INTRODUCTION</b>
---------------------

**INTRO1** Hello, my name is \_\_\_\_\_ and I’m calling on behalf of Southern California Edison to ask your help in evaluating the Business Solutions Energy Audit Program. This is not a sales call.

As part of the program evaluation, we are conducting a short survey about customers’ experience with the program. The survey will help us understand if the program has been successful or not, and will guide future SCE energy programs. The survey will take about 15 minutes and your individual answers will be kept private.

May I speak with <ContactName>, who from the program records is shown as the person who signed the program participation application form?

1 CONTINUE WITH CUSTOMER ONCE THEY ARE ON THE PHONE

**[REREAD INTRO1 IF RESPONDENT IS NOT PERSON ANSWERING CALL]**

**[GOTO SCR6]**

- 2 CUSTOMER NOT AVAILABLE [**SCHEDULE CALLBACK**]
- 3 NOT A GOOD TIME TO CONDUCT SURVEY [**SCHEDULE CALLBACK**]
- 4 <ContactName> NO LONGER WORKS THERE [**SKIPTO SCR6**]
- 9 REFUSED [**TERMINATE**]

<b>SCREENING QUESTIONS</b>
----------------------------

SCR6 To help me qualify respondents for our survey, ideally we are looking for the person who made the audit participation decision AND participated in the audit AND is familiar with the facility's operation of the equipment associated with the efficiency measures being surveyed. Do you believe you fit these criteria well enough to answer the survey questions on behalf of <ClientName> for the facility located at <ClientAddress>?

- 1 YES [**GOTO SCR1**]
- 2 NO [**GOTO SCR5**]
- 9 DON'T KNOW / REFUSED [**SKIPTO THANK8**]

SCR5 Is there someone there who recalls the Business Solutions Energy Audit Program and could talk about <ClientName>'s experience with the program and the energy efficiency measures that were recommended from the energy audit? (This would have been in the last year or so.)

- 1 YES [**ASK TO SPEAK WITH PERSON WHO RECALLS PROGRAM & CONTINUE WITH THAT PERSON**] [**SKIPTO INTRO1**]
- 2 NO [**SKIPTO THANK3**]
- 9 DON'T KNOW / REFUSED [**SKIPTO THANK8**]

SCR1 Are you employed by <ClientName>?

- 1 YES [**GOTO SCR2**]
- 2 NO [**SKIPTO THKPRXY**]
- 3 USED TO WORK THERE [**GOTO SCR2**]



9 DON'T KNOW / REFUSED **[SKIPTO THANK8]**

SCR2 What is your position with <ClientName>? **[IF SCR1 = 3, "What was your position with <ClientName>?"]**

**[DO NOT READ LIST]**

**[SELECT BEST-FIT RESPONSE]**

**[SKIPTO TO SCR7]**

- 1 OWNER
- 2 SENIOR MANAGEMENT: PRESIDENT, CHIEF EXECUTIVE OFFICER, CHIEF OPERATING OFFICER, OTHER SENIOR MANAGER
- 3 FACILITY MANAGER
- 4 BUILDING MAINTENANCE (OTHER THAN FACILITY MANAGER)
- 5 CHIEF ENGINEER OR OTHER LEAD TECHNICAL STAFF
- 6 OTHER **[SPECIFY]**
- 7 OTHER **[SPECIFY]**
- 8 OTHER **[SPECIFY]**
- 9 DON'T KNOW / REFUSED

**[QUALIFIED RESPONDENT – QAL STATEMENT]**

INTRO2 Just to clarify our focus for this interview, the survey questions will focus on the facility at <ClientAddress> and the Business Solutions Audit Program activities and your experience with the program at that facility.

**A. PROGRAM PARTICIPATION DECISION**

Q1 How did <ClientName> find out about the Business Solutions Audit Program?

**[PROBE FOR ADDITIONAL SOURCES – SELECT ALL THAT APPLY]**

- 1 SCE BILL INSERT
- 2 THROUGH OTHER SCE ENERGY PROGRAMS
- 3 COMMUNITY ORGANIZATION
- 4 EQUIPMENT CONTRACTOR OR VENDOR
- 5 WORD OF MOUTH FROM BUSINESS OR PERSONAL ACQUAINTANCE
- 6 SCE WEB SITE
- 7 SCE ACCOUNT REPRESENTATIVE
- 8 OTHER **[SPECIFY]**
- 9 OTHER **[SPECIFY]**
- 10 DON'T KNOW
- 11 REFUSED

Q2 How well did you feel you understand the program, overall, based upon the information you received prior to the actual audit? Please tell us on a scale of 1 to 5, where 5 is that you understood it very well, and 1 is that you didn't not understand it at all.

- 1 DID NOT UNDERSTAND AT ALL
- 2
- 3
- 4
- 5 UNDERSTOOD IT VERY WELL
- 6 UNSURE
- 9 REFUSED

Q3 I am going to read you a list of concerns people sometimes have when deciding whether to request one of these energy audits. Please tell me if you basically agree or disagree with each concern.

Q3A I wasn't convinced or sure about the value of the results we would get

- 1 AGREE
- 2 DISAGREE
- 3 UNSURE
- 9 REFUSED

Q3B There was a lack of detailed information on how the on-site audit would work

Q3C The program information was fine but I didn't read it carefully

Q3D I was not sure about the process for getting the meeting set up

Q3E I did not understand exactly why we would want to participate

Q3F It was difficult to find the time to go through the audit process

Q4 What more or different information would have been useful to help you decide to get the audit?

**[OPEN-END]**

**[RECORD VERBATIM RESPONSE]**

Q5 Organizations participate in energy management programs for many reasons. I'm going to read you a list of reasons we've heard why organizations participate in these programs. For each reason, please tell us how important each of the following factors was for you and your company, where a 5 means "very important" and 1 means "not important"

**[PRESS ANY KEY TO CONTINUE]**

**[ROTATE Q5A – Q5F]**

Q5A Did you participate in the Business Solutions Audit Program in order to...

**Protect the environment**

1 NOT IMPORTANT

2

3

4

5 VERY IMPORTANT

6 UNSURE

9 REFUSED

Q5B to save energy resources for future generations?

Q5C to save money?

Q5D to improve the reliability of the local electric system?

Q5E to increase comfort and productivity?

Q5F to help out SCE?

Q5G because the audit was free?

Q6 Are there any other reasons that influenced your decision to participate in the Business Solutions Audit Program? (What are they?)

**[OPEN-END] [RECORD VERBATIM RESPONSE]**

**[PROBE FOR ADDITIONAL RESPONSES]**

**[CLARIFY AS NECESSARY]**

Q7 In the last 2 years have you participated in energy efficiency programs other than the Business Solutions Audit Program – programs like the Express Efficiency program or the Standard Performance Contracts program?

- 1 YES [**GOTO Q8**]
- 2 NO [**SKIPTO Q10**]
- 9 DON'T KNOW / REFUSED [**SKIPTO Q10**]

Q8 [**ASK IF Q7 = 1**] Which other programs do you recall participating in?

- 1 EXPRESS EFFICIENCY
- 2 STANDARD PERFORMANCE CONTRACTS
- 3 DEMAND RESPONSE / LOAD MANAGEMENT PROGRAM
- 4 ON-LINE BUSINESS ENERGY SURVEY
- 5 ENERGY CENTER TRAINING SEMINAR
- 6 OTHER [**SPECIFY**]
- 7 OTHER [**SPECIFY**]
- 8 DON'T RECALL SPECIFICALLY
- 9 REFUSED

**[DO NOT READ LIST]**

**[SELECT BEST-FIT RESPONSE]**

**[PROBE FOR ADDITIONAL PROGRAMS IN WHICH THEY PARTICIPATED]**

Q9 **[ASK IF Q7 = 1]** Has your experience with other SCE energy programs made you more likely or less likely to participate in additional SCE energy programs in the future?

- 1 MORE LIKELY
- 2 LESS LIKELY
- 3 NOT SURE
- 9 REFUSED

**B. ACTIONS FROM THE AUDIT**

Q10 When the audit was complete, did you have the information needed to take the next steps that you wanted to take?

- 1 YES **[SKIPTO Q11]**
- 2 NO **[GOTO Q10A]**
- 3 DON'T KNOW **[SKIPTO Q11]**
- 9 REFUSED **[SKIPTO Q11]**

Q10A **[ASK IF Q10 = 2]** What information was missing?

**[DO NOT READ LIST]**

**[SELECT BEST-FIT RESPONSE]**

- 1 DID NOT UNDERSTAND THE REPORT
- 2 DID NOT KNOW WHO TO CALL TO TAKE NEXT STEPS
- 3 LEVEL OF SAVINGS INFORMATION WAS NOT CLEAR
- 4 DID NOT UNDERSTAND WHICH PIECES OF EQUIPMENT WERE NEEDED TO CHANGE OUT
- 5 OTHER **[SPECIFY]**

- 6 OTHER **[SPECIFY]**
- 7 UNSURE / DON'T KNOW
- 9 REFUSED

Q10B **[ASK IF Q10 = 2]** Did you contact the utility or the utility's auditor to get clarification or more information?

- 1 YES **[SKIPTO Q10C]**
- 2 NO **[GOTO Q10D]**
- 3 DON'T KNOW **[SKIPTO Q11]**
- 9 REFUSED **[SKIPTO Q11]**

Q10C **[ASK IF Q10B = 1]** Were you satisfied with the response and information?

- 1 YES
- 2 NO
- 3 DON'T KNOW
- 9 REFUSED

Q10D **[ASK IF Q10B = 2]** Why did you not contact the utility for clarification or more information?

**[DO NOT READ LIST]**

**[SELECT BEST-FIT RESPONSE]**

- 1 DID NOT HAVE TIME
- 2 NOT MY JOB TO FOLLOW UP – THAT'S THE UTILITY'S JOB
- 3 WAS ABLE TO DECIDE WITHOUT FOLLOW UP CONTACT

- 4 DECIDED NOT TO DO ANYTHING
- 5 OTHER **[SPECIFY]**
- 6 OTHER **[SPECIFY]**
- 7 UNSURE / DON'T KNOW
- 9 REFUSED

Q11 How useful was it having the report ready immediately after the audit? Please answer on a scale of 1 to 5, where 5 is very useful and 1 is not useful at all.

- 1 NOT USEFUL AT ALL
- 2
- 3
- 4
- 5 VERY USEFUL
- 6 UNSURE
- 9 REFUSED

Q12 **[ASK IF Q11 = 2-5]** Please rate the following statements about the benefits of having the report available quickly. Please answer on a scale of 1 to 5, where 5 is rated very high and 1 is rated very low.

Q12A The first statement is..."I could ask questions of the surveyor right then." How would you rate that on a scale of 1 to 5 where 1 is rated very low and 5 is rated very high?

- 1 RATED VERY LOW
- 2
- 3
- 4



5 RATED VERY HIGHLY

6 UNSURE

9 REFUSED

Q12B I knew the information was input correctly

Q12C I was able to look at results when the walk-through of the building was fresh in my mind

Q12D I could report to my managers about the results right away

Q12E I could see dollar estimates for recommended measures

Q12F I could see estimates on how much energy I would save

Q12G I could see estimates of rebates I could get to make improvements

Q12H I could see how quickly a recommended measure would pay back

Q12I Are there any other benefits you see to having the report quickly available?

**[OPEN-END]**

**[RECORD VERBATIM RESPONSE]**

Q13INT I would like to ask you some questions about the audit representative that came on site.

Q13A On a scale of 1 to 5, where 5 is very professional and 1 is not at all professional, how professionally did the rep present him or herself?

1 NOT AT ALL PROFESSIONAL

2

3

4

5 VERY PROFESSIONAL

6 UNSURE

9 REFUSED

Q13B On a scale of 1 to 5, how knowledgeable was the rep – where 5 is very knowledgeable and 1 is not at all knowledgeable?

1 NOT AT ALL KNOWLEDGEABLE

2

3

4

5 VERY KNOWLEDGEABLE

6 UNSURE

9 REFUSED

Q13C How easy was the rep to speak with and gain answers to your questions? (5 is very easy and 1 is not at all easy)

1 NOT AT ALL EASY

2

3

4

5 VERY EASY

6 UNSURE

9 REFUSED

Q14 Of the following entities that I'll read to you, who do you think the rep worked for?

1 Southern California Edison

2 Independent contractor

3 An energy company that installs energy equipment

4 Other **[SPECIFY]**

Q15 Did anyone follow up with you after the audit?

- 1 YES [GOTO Q16]
- 2 NO [SKIPTO Q17]
- 3 DON'T KNOW [SKIPTO Q17]
- 9 REFUSED [SKIPTO Q17]

Q16 [IF Q15 = 1] Did the person talk to you about any of the following topics during this follow up?

Q16A [IF Q15 = 1] Service quality

- 1 YES
- 2 NO
- 3 DON'T RECALL
- 9 REFUSED]

Q16B [IF Q15 = 1] Participating in a Southern California Edison efficiency program such as the Express Efficiency or Standard Performance Contracts programs?

- 1 YES
- 2 NO
- 3 DON'T RECALL
- 9 REFUSED]

Q16C [IF Q15 = 1] Making sure you understood the report?

- 1 YES
- 2 NO
- 3 DON'T RECALL
- 9 REFUSED]

**Q16D [IF Q15 = 1]** Discuss recommended tariff or rate change?

- 1 YES
- 2 NO
- 3 DON'T RECALL
- 9 REFUSED]

**Q16E [IF Q15 = 1]** Discuss any demand response actions you could take to reduce peak demand?

- 1 YES
- 2 NO
- 3 DON'T RECALL
- 9 REFUSED]

**Q16F** Any other topics that you recall?

**[OPEN-END]**

**[RECORD VERBATIM RESPONSE]**

Q17 The Business Solutions Audit report recommended taking various energy management actions. Off the top of your head, do you recall any of the actions that were recommended in the audit?

- 1 YES [**CONTINUE TO Q17A**]
- 2 NO [**GO TO** ]
- 3 DON'T KNOW [**GO TO** ]
- 9 REFUSED [**GO TO** ]

Q17A Which do you recall being recommended?

**[DO NOT READ LIST]**

**[SELECT ALL THAT APPLY – PROBE FOR ADDITIONAL]**

- 1 LIGHTING FIXTURES OR LAMPS
- 2 LIGHTING CONTROLS
- 3 HEATING, VENTILATING AND COOLING EQUIPMENT (HVAC)
- 4 HVAC CONTROLS
- 5 INDUSTRIAL PROCESS EQUIPMENT
- 6 INDUSTRIAL PROCESS CONTROLS
- 7 OTHER [**SPECIFY**]
- 8 OTHER [**SPECIFY**]
- 9 DON'T RECALL
- 10 REFUSED

Q17B            **[IF Q17A = 1-8]** Did you take any of those actions?

- 1            YES **[GOTO Q17C]**
- 2            NO **[SKIPTO Q17D]**
- 9            DON'T KNOW / REFUSED **[SKIPTO Q17D]**

Q17C            Which of the recommendations you just told me about have you already acted upon?

**[DO NOT READ LIST]**

**[SELECT ALL THAT APPLY – PROBE FOR ADDITIONAL]**

- 1            LIGHTING FIXTURES OR LAMPS
- 2            LIGHTING CONTROLS
- 3            HEATING, VENTILATING AND COOLING EQUIPMENT (HVAC)
- 4            HVAC CONTROLS
- 5            INDUSTRIAL PROCESS EQUIPMENT
- 6            INDUSTRIAL PROCESS CONTROLS
- 7            OTHER **[SPECIFY]**
- 8            OTHER **[SPECIFY]**
- 9            DON'T RECALL
- 10           REFUSED

Q17D            Which recommendations have you budgeted to take action on within the next year?

**[DO NOT READ LIST]**

**[SELECT ALL THAT APPLY – PROBE FOR ADDITIONAL]**

- 1 LIGHTING FIXTURES OR LAMPS
- 2 LIGHTING CONTROLS
- 3 HEATING, VENTILATING AND COOLING EQUIPMENT (HVAC)
- 4 HVAC CONTROLS
- 5 INDUSTRIAL PROCESS EQUIPMENT
- 6 INDUSTRIAL PROCESS CONTROLS
- 7 OTHER [**SPECIFY**]
- 8 OTHER [**SPECIFY**]
- 9 DON'T RECALL
- 10 REFUSED

Q17E Which of the following statements best describes the **status** of your decision on those recommendations you have not yet acted on?

**[READ ALL OPTIONS 1-3]**

**[SELECT ONE BEST RESPONSE]**

- 1 We have budgeted one or more of the recommendations within the next year  
**[SKIPTO Q18]**
- 2 We are still considering one or more of the recommendations but have made no decision at this time **[GOTO Q17F]**
- 3 We do not plan, in the foreseeable future, to act on any of the recommendations made **[GOTO Q17F]**
- 9 DON'T KNOW / REFUSED

Q17F What is the **single most important reason** you have not yet decided not to act on one or more of the audit's recommendations already?

**[DO NOT READ]**

**[SELECT BEST RESPONSE]**

- 1 NO BUDGET
- 2 UP-FRONT COST IS TOO HIGH
- 3 EXISTING EQUIPMENT STILL WORKS OK
- 4 NO PAYBACK / NOT COST-EFFECTIVE
- 5 RECOMMENDED EQUIPMENT CAN'T REPLACE / DOESN'T DO THE JOB LIKE OLD EQUIPMENT
- 6 PLAN TO INSTALL NEXT YEAR
- 7 NOT WORTH DOING AS A STAND ALONE PROJECT BUT PLAN TO INSTALL THESE MEASURES AS PART OF A BROADER REFURBISHMENT PROJECT
- 8 OTHER [**SPECIFY**]
- 9 DON'T KNOW
- 10 REFUSED

**C. BUSINESS ENERGY USAGE CHANGES**

Q18INT Have you been influenced by the Business Solutions Audit Program to take any of the following energy efficiency actions?

**[PRESS ANY KEY TO CONTINUE]**

**[READ EACH OPTION AND WAIT FOR YES OR NO RESPONSE – CHECK IF YES]**

**[SELECT ALL THAT APPLY]**

**[ROTATE Q18A – Q18K]**

Q18A (Have you...)

**[ASK Q9A ONLY IF <ELEMENT> = CTS]** installed one or more energy efficiency measures that were recommended by the Business Solutions Audit Program staff?

- 1 YES



- 2 NO
- 3 NOT APPLICABLE
- 4 DON'T KNOW
- 9 REFUSED

- Q18B increased your equipment maintenance efforts, such as tuning up the heating or air conditioning system?
- Q18C turned off lights more?
- Q18D lowered heating temperature more often?
- Q18E raised the air conditioner temperature more often, or use the air conditioning less altogether?
- Q18F installed building insulation, weather stripping or new energy efficient windows?
- Q18G bought other major equipment that also is high-efficiency, beyond what was recommended or installed by the program?
- Q18H installed more of the same kind of energy efficient equipment for other areas of the facility?
- Q18I added controls or modified existing controls?
- Q18J started participating in a demand response program?
- Q18K changed your electricity rate or tariff?

**D. PROGRAM PROCESS & OVERALL SATISFACTION**

- Q19 We'd like to get a sense of your satisfaction with the Business Solutions Audit Program. For each of the following aspects of the program, please indicate whether you are generally satisfied or unsatisfied with that aspect of the program For parts of the program that you think are not applicable to you, just say "not applicable" or "NA."

**[READ IN ORDER – RESPONSES FOLLOW CHRONOLOGY]**

Q19A We would like to find out how satisfied you are with several of the program aspects. Please respond on a scale of 1 to 5, where 1 is not at all satisfied and 5 is very satisfied.

How satisfied are you With the Program information you received before signing up for the program?

1 NOT AT ALL SATISFIED

2

3

4

5 VERY SATISFIED

3 UNSURE / DON'T KNOW

8 NOT APPLICABLE / NA

9 REFUSED

Q19B With the application process to participate in the program?

Q19C With customer service contacts you had with the Business Solutions Audit Program, when inquiring about the program

Q19D With customer service contacts you had for any follow-up actions that may have been taken?

Q19E With scheduling to visit your facility to assess energy efficiency and demand response opportunities?

Q19F With the expertise of the person who performed the service?

Q19G With the program's recommendations

Q20 On a scale of 1 to 5, where 1 is not at all satisfied and 5 is very satisfied, how satisfied are you overall, with the Business Solutions Audit Program?

- 1 NOT AT ALL SATISFIED
- 2
- 3
- 4
- 5 VERY SATISFIED
- 9 DON'T KNOW / REFUSED

Q21 What is the one most important comment you have that can help us understand why you feel that way?

**[OPEN-END]**

**[RECORD VERBATIM RESPONSE]**

**E. QUESTIONS ON DEMOGRAPHICS**

Q22 I have just a few questions left that I'd like to ask for classification purposes. First, do you own or rent the facility we've been discussing?

- 1 OWN
- 2 RENT
- 3 OTHER **[SPECIFY]**
- 9 DON'T KNOW / REFUSED

Q23 About what year was this facility built, or if the facility has been extensively remodeled since it was built, what year was that?

**[PLEASE USE YOUR BEST ESTIMATE]**

- \_\_\_ ENTER YEAR BUILT / EXTENSIVELY REMODELLED
- 99 DON'T KNOW / REFUSED

Q24 What is the primary use of the facility – is it an office, a manufacturing facility, a restaurant or something else?

**[DO NOT READ LIST]**

**[SELECT BEST-FIT RESPONSE]**

- 1 OFFICE
- 2 PRODUCTION / MANUFACTURING
- 3 RETAIL SALES
- 4 RESTAURANT
- 5 HOTEL / LODGING
- 6 GROCERY / SUPERMARKET
- 7 APARTMENT BUILDING
- 8 HEALTH CARE/HOSPITAL
- 9 SCHOOL
- 10 WAREHOUSE
- 11 OTHER **[SPECIFY]**
- 12 DON'T KNOW / REFUSED

Q25 How many people work full-time in this facility?

\_\_\_ ENTER NUMBER OF PEOPLE

99 DON'T KNOW / REFUSED

**[THANK AND TERMINATE]**

THANK

Thank you for taking time to help with our survey and the helpful information you provided.  
Have a great day/evening!

- THKPRXY Thank you for taking time to help with our survey. However, for this survey we are only interviewing end customers who participated in the Business Solutions Audit Program. Have a great day/evening!
- THANK3 We need to speak with a person who is knowledgeable about the program and <ClientName>'s participation, so will have to select another customer. Thank you for your time. Have a great day/evening!
- THANK8 We cannot continue without that information. Thank you for your time. Have a great day/evening!