

**Final EM&V Report for
Energy Resource and
Education Center Program
(CPUC 1303-04)**

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Energy Resource and Education Center Program
Table of Contents

1. Introduction.....	1
2. Baseline Analysis.....	2
2.1. Previous Measurement and Evaluation Studies	2
2.2. Market Effects Studies	5
2.3. Evaluation Criteria	7
3. Program Specifics	8
4. Program Database or Visitation Data	10
4.1 Workshop Events	12
4.2 Tool-lending Program	12
4.3 Reference - Lending Program	12
4.4 Technical Assistance.....	12
4.5 Evaluation of Visitation Data.....	13
5. Program Outreach Activities	13
6. Program Website.....	14
7. Survey Results	16
7.1 Survey Instrument	16
7.2 Sampling Plan	17
7.3 Survey Implementation	18
7.4 Respondent Characteristics	20
7.5 Awareness	22
7.6 General Visitation	22
7.7 Customer Satisfaction	25
8. Analysis of Workshop Evaluation Forms.....	31
9. Overall Evaluation of the Energy Resource and Education Center Program.....	34
10. References.....	38
Appendix – Survey Instrument	A-1

1. Introduction

The Energy Resource and Education Center is designed to be a central source for energy information and resources for consumers in San Diego. The program is multifaceted with a variety of programmatic goals. The specific goals, as outlined in the Program Implementation Plan (PIP), include conducting 36 onsite training events, 188 offsite training events (160 classroom visits, 28 non-school events), 125 tool lends, the creation and distribution of a variety of marketing/outreach materials, technical assistance, etc.

The primary objectives of the EM&V activity for this program are to provide:

- a baseline analysis;
- on-going feedback, and corrective and constructive guidance regarding the implementation of the program;
- an overall assessment of the performance and success of the program; and,
- an assessment of whether there is a continuing need for the program.

This final report includes a baseline analysis of other similar programs evaluated in California; a complete description of the program; a summary of program progress through December 2006; a process evaluation; and finally the results of a large-scale survey of users of the Energy Resource Center to assess participant satisfaction.

Our general conclusions are that the program satisfied its primary program goals of workshops and training events, and program participants were extremely satisfied. In addition, the ERC tool-lending and resource-lending programs have been successful in that program objectives were exceeded with a high degree of customer satisfaction.

Finally, the SDERC has been very successful in meeting its outreach objectives. In all categories, with the exception of school visits, the SDERC has equaled or exceeded the relevant goal/metric specified in the PIP, often by a wide margin.

There remain at least three major challenges facing the program as one looks to the future. First, even though it achieved its PIP goals, the SDERC must broaden its appeal to attract additional users, especially from the traditionally hard-to-reach population segments (younger, less wealthy, less educated, more ethnically diverse) for the successful program components (training workshops, tool lending, etc.). It should be noted that the SDERC was successful in expanding its influence to two hard-to-reach

groups (seniors, elementary school children). This represents a significant achievement, one that should be improved upon. Second, the SDERC must improve certain program components (website, resource library, hot line/email assistance, etc.) in order to achieve usage and customer satisfaction levels (i.e., consistent with other aspects of the SDERC). This may require additional staffing/funding and/or a larger facility. Third, the SDERC must consider ways to limit potential free riding among program participants, especially in the tool-lending and resource-lending programs.

2. Baseline Analysis

The objective of the baseline analysis is to determine the existence and relevance of previous evaluations of comprehensive energy center programs.¹ Zebedee & Associates conducted a review of the literature, primarily using the California Measurement Advisory Committee website (<http://www.calmac.org/>), the California Energy Commission website (<http://www.energy.ca.gov/>) to determine whether or not baseline data exist for programs similar to SDREO's Energy Resource and Education Center Program. Since the SDREO Energy Resource and Education Center is comparable in form and proposed function to the Pacific Gas & Electric Energy Center (PEC) and Southern California Edison's Customer Technology Application Center (CTAC), we concentrated our literature search on recent studies of these entities. We identified three specific studies, a measurement and evaluation study of the PG&E Pacific Energy Center (Kincaid and Babcock, 2003), as well as two market effects studies -- the PG&E Energy Center Market Effects Study (Reed and Hall, 1998) and the CTAC Market Effect Study (Garber and McElroy, 1998). In addition, we also report on a previous evaluation of the SDREO Energy Resource and Education Center Program (Thayer and Zebedee, 2004).

2.1. Previous Measurement and Evaluation Studies

There have been two measurement and evaluation studies conducted recently. Both of these studies closely match in terms of scope and filing requirements our current evaluation of the SDREO Energy Resource and Education Center. The first study (Kincaid and Babcock, 2003) was concerned with the PG&E Pacific Energy Center whereas the latter addressed the SDREO Energy Resource and Education Center (Thayer

¹ This review of evaluations focused on similar California programs as described in the Research Plan. Future evaluations of the program should consider a more comprehensive market assessment analysis as defined in the CPUC Energy Efficiency Policy Manual. That said, the literature review did provide useful information for this evaluation as further described in this section.

and Zebedee, 2004). Each study focused on both program objectives (rigidly defined measures of program performance) and program performance with respect to long-term goals. The results of these studies are remarkably consistent and point to very similar policy recommendations. For example, both studies find that the respective energy centers meet program objectives, as defined by number of workshops, number of tool lendings, or number of consultations, or other objective measures. However, it is also true that the clientele is generally drawn from narrow segments of the population, defined by socioeconomic characteristics, location, or employment category. Thus, a common recommendation of these studies is expansion of the client base.

In the sections below, we summarize in greater detail the findings of these studies and indicate the relevance for our evaluation of the SDREO Energy Resource and Education Center.

Measurement and Evaluation of the PG&E Energy Center (PEC)

Kincaid and Babcock evaluated three specific programs within the PG&E energy center: workshops, architectural consultations, and the tool-lending program. Their primary findings were that: (1) the Pacific Energy Center easily satisfied all of its quantitative objectives (number of events, number of consultations, number of tools borrowed); and (2) participant surveys indicated an overwhelmingly positive response to all aspects of the energy center programs (quality of events, tool availability, the efficiency of the staff, etc.). The authors also found some program deficiencies and offered the following recommendations for the future: (1) improve outreach to underserved occupational sectors; (2) improve awareness of less well-known program components; (3) encourage use of established outreach networks; (4) continue to expand alternate off-site services to reach potential participants distanced from San Francisco; (5) schedule more workshops during alternate times; (6) improve outreach efforts to attract new users; and (7) consider additional tracking of resource center users (Kincaid and Babcock, 2003). As is evident from the list, all the recommendations are designed to expand the use of the PEC beyond the narrow borders of the existing client base, defined by occupation, time, distance, socio-demographic characteristics, etc.

Measurement, Evaluation Study of the SDREO Energy and Resource Center (ERC)

In 2004, Thayer and Zebedee completed a comprehensive evaluation of the SDREO Energy and Resource Center focusing on the on-site visits and resource (e.g., interactive displays, library) usage, workshop events, energy center tool lending, hotline or on-line assistance, and visits to the center's website from remote locations. The evaluation found that from a quantitative perspective the ERC was a qualified success, easily satisfying the objectives for the tool-lending program and workshop events, but having only minimal use of the hotline or on-line assistance and failing to meet its overall visitation goal, although this may have been set with overly optimistic projections.

In addition, participant surveys indicated that respondents were generally satisfied with the individual elements of the ERC. In almost every category "very satisfied" was the predominant response. Respondents were also asked to evaluate the ERC in total, rather than by specific element. Approximately 59 percent of the respondents indicated they were "very satisfied" with the programs provided by the ERC and 95.3 percent indicated they would participate in ERC programs again. In addition, approximately two-thirds of the respondents have referred others to the center and 86.0 percent have shared ERC information with others. In total, the survey evidence suggested that the ERC was off to a successful start and that it had developed a cadre of devoted, satisfied, repeat customers.

However, the study also found that there were issues associated with the representativeness of the program participants, the difficulty in reaching the traditionally hard-to-reach population groups, and potential free riding, especially in the tool-lending program. Thus, the primary challenge facing the ERC is to broaden its appeal to attract additional users, especially from the traditionally hard-to-reach population segments (younger, less wealthy, less educated, more ethnically diverse, from locations more distant to the physical location of the ERC, etc.). Note, in general, that the findings and recommendations closely parallel those found by Kincaid and Babcock in their evaluation of the PG&E Pacific Energy Center.

Lessons Learned from Measurement and Evaluation Studies

The primary lesson learned from the measurement and evaluation studies is that meeting short-term quantitative objectives or achieving positive participant satisfaction ratings

are not the only measures of success. Rather, one must also examine the client base to determine whether or not longer-term goals related to serving a larger, more diverse population are being satisfied.

2.2. Market Effects Studies

In addition to these monitoring and evaluation studies to meet CPUC filing requirements, two studies were identified that examined market effects of energy centers. Market effects, as defined by Eto, et al. (1996), refer to changes in the structure of a market or the behavior of market players that (1) reflect an increase in the adoption of energy efficiency products, services or practices, and (2) are causally related to a market intervention. Market interventions include such diverse activities as utility demand side management programs and federal and state standards setting, as well as information programs offered from an energy center. Note that in this context the relevant information set would include increasing awareness of products and providing cost, reliability, and efficiency measures. The object of the information provision is to reduce market barriers such as (1) information or search costs; (2) performance uncertainties; (3) asymmetric information and opportunism; (4) transactions and/or hidden costs; and (5) bounded rationality. If the intervention is effective then a market effect is realized.

In the sections below, we summarize the findings of these studies and indicate the relevance for our evaluation of the SDREO Energy Resource and Education Center.

The PG&E Energy Center Market Effects Study

The market effects study of the PG&E Energy Center was designed to answer the following questions concerning the effectiveness of the PG&E energy center for commercial actors such as architects, engineers, etc. (Hall and Reed, 1998):

- What are the key market structures and who are the key actors in the commercial building products and services markets?
- To what extent is the energy center reaching the actors in these markets?
- When the energy center reaches these markets, is it able to effectively communicate its message to actors in ways that induce changes in behavior?
- What are the most important factors that influence market actors to change their behaviors?

- If market actors have changed their behaviors in response to the energy center, what have the effects been?
- Are the changes in behavior and the impacts associated with the behaviors sustainable in the future?
- What lessons for future market transformation studies can be learned from this research?

The four sources used to answer these questions were: (1) participation data (by year, occupation, professional affiliation, years of experience, etc.) from the PEC; (2) Dun & Bradstreet data on firm characteristics and to calculate market penetration; (3) in-depth interviews with market players; and (4) telephone surveys with participants of energy center events. The primary results of the investigation were:

- The PG&E Energy Center reaches its target audiences, both in terms of the number of individual decision makers affected and the number of times each decision maker uses the energy center.
- The PG&E Energy Center influences behavior in that it is responsible for significant changes in market behavior.
- Users continue to employ behaviors learned as a result of exposure to the PG&E Energy Center.
- Altered behaviors influence building design.

The Southern California Edison CTAC Market Effect Study

This research project was designed to determine if CTAC's market interventions helped reduce specific market barriers and, as a result, helped increase long term demand for energy efficient measures (Garber and McElroy, 1998). The research focused on four specific market barriers (information costs, performance uncertainty, information asymmetry, and bounded rationality). The primary CTAC market intervention strategy was the provision of information (convenient, credible, objective, current) through customized, competitive energy solutions such as demonstrations of cutting-edge technologies and on-the-spot technical support. Surveys of lighting and HVAC seminars conducted at the CTAC were the primary research method used to evaluate the effectiveness of the energy center.

The primary results of the study were:

- (1) the CTAC did provide credible, current information to seminar participants;
- (2) this information helped to overcome market barriers;
- (3) market changes resulted from the information provision; and
- (4) the market changes are expected to be long lasting.

The primary market changes were:

- increases in market demand and adoption of energy saving technologies;
- changes in vendor stocking and promotional practices;
- changes in manufacturer production, shipping, and promotional practices;
- increases in the availability and variety of energy efficiency measures; and,
- reductions in the prices of energy efficiency measures.

Lessons Learned from Market Effects Studies

For SDREO's purpose, the important results of these studies are threefold.

- (1) Detailed participation information is needed to determine the success of energy centers in meeting participation goals and SDREO should not exclusively rely on raw total participation numbers to determine the short-term success of the program in meeting these goals.
- (2) The overall success of energy centers should not focus on short-term behavior changes but rather incorporate long-term behavior changes.
- (3) Long-term behavioral changes are inherently difficult to measure as other factors might also transform the market place. Empirical methods for determining the long-term relative influence of the energy centers need to control for other factors.

2.3. Evaluation Criteria

In the sections above, there were several measures of effectiveness identified for reaching/affecting commercial and residential actors such as architects, engineers, etc. (Hall and Reed, 1998). These included:

- What are the key market structures and who are the key actors in the commercial and residential markets?
- To what extent is the energy center reaching the actors in these markets?
- When the energy center reaches these markets, is it able to effectively communicate its message to actors in ways that induce changes in behavior?
- What are the most important factors that influence market actors to change their behaviors?
- If market actors have changed their behaviors in response to the energy center, what have the effects been?
- Are the changes in behavior and the impacts associated with the behaviors sustainable in the future?
- What lessons for future market transformation studies can be learned from this research?

In addition, the measurement and evaluation studies indicate that increased efforts will be required to expand the usage of energy centers beyond the convenient groups.

Our evaluation of the success of the SDREO's Energy Resource Center will be based on the measures listed above and will use program databases and surveys of program participants. In order to examine performance with respect to the first two criteria we utilize the program databases. Communication success and behavioral changes (bulleted criteria 4 – 6) will be examined using (1) a telephone survey of individuals who have used the various ERC facilities and (2) a self-administered evaluation of workshop events conducted by the SDREO. In addition, we will examine a multitude of participant characteristics and compare those to the surrounding population to determine the effectiveness of program outreach efforts.

3. Program Specifics

The SDREO Energy Resource Center is the regional clearinghouse of energy information, and hosts meetings, workshops, and training programs for individuals in the San Diego region. The resource center consists of the following component parts:

- **Learning Center** – a classroom-style forum where expert-facilitated technical workshops and educational programs are held. The learning center can be configured either as a classroom (48 capacity) or as a theater (75 capacity) and contains the standard audio-visual capabilities, with the potential for audio and/or video recording of workshops with conversion to various electronic media.
- **Technology Center** – an exhibit area featuring interactive energy efficient equipment and displays.
- **Resource Library** – a collection of the latest issues of energy publications, references and resources for the energy and non-energy professional alike.
- **Diagnostic Tools Library** – a lending library of tools complete with training. The diagnostic tools are primarily monitors, sensors, and/or meters that are used to detail operational characteristics such temperature, relative humidity, light level, air circulation, flow and velocity, voltage, current, power factors, energy costs, etc.
- **On-line Center** – an internet website that contains a database of energy efficiency resources, including a listing of contractors, suppliers and vendors, who can assist in identifying, evaluating and installing energy efficient technologies.
- **Energy Efficiency Hotline** – a toll free number (1-866-SDENERGY) staffed by energy experts.
- **Project Implementation Support** – a support system that includes both (1) technical design assistance, by appointment or on an as needed basis, and (2) information that allows participants to find and attain funding and financing for specific energy efficiency projects by guiding consumers through local and national public purpose funds, grants and financing programs.
- **Educational Outreach** – education programs conducted at the energy center or at off-site remote locations and directed at both school children and senior citizen groups.

There are essentially four different ways in which individuals can use the Energy Resource Center. First, individuals can visit the site to examine energy exhibits or the energy related literature in the technology center. Second, individuals may participate in a workshop or training event or the educational outreach program. Third, individuals may borrow an energy resource or tool from the respective resource libraries. Fourth, individuals may utilize the project support resources, which could include the receipt of audit information. Alternatively, individuals might utilize the on-line center or the energy efficiency hotline to obtain specific energy information. The success of the Energy Resource Center can therefore be measured by participation (e.g., visits, tools or reference materials borrowed, attendance at workshops and training events, etc.), by information transfer or knowledge disseminated, and/or by short and long-term behavioral changes.

4. Program Database or Visitation Data

As specified above, individuals:

- (1) visit and use resources (e.g., interactive displays, library) on-site;
- (2) attend a workshop or training event;
- (3) borrow an energy center tool or reference resource from the tool-lending or resource-lending libraries; or,
- (4) use in-person, hotline, or on-line technical assistance.

Consider the program progress in each of these areas.

Visit and Use of Resources On-site

With regard to visitation to the San Diego Energy Resource Center (SDERC), Zebedee & Associates have obtained data from January 1, 2004 through December 31, 2005.

During this program period, a total of 5,064 individuals have visited or participated in events at the SDERC (see Table 1). After the opening of the center, there was steady upward growth in visitation (e.g., October 2002 through March 2003). Since then visitation has held firm at approximately 200 visitors per month, although some periods have demonstrated significant variability (summer 2004 on the low side and March/April 2005 on the high side). Also, note that the monthly figures seem to be somewhat dependent of the number of training motivated visits; that is, overall visitation and

visitation related to training events have a simple correlation of 0.79 indicating that more workshop events leads to additional visitors. This overall trend in visitation, which seems to be relatively stable, might indicate that the ERC has reached a type of maximum sustained capacity given its size and corresponding staffing level. Further expansion might require expansion of the facility and/or staffing/funding.

Table 1
Energy Resource Center Usage

Month	Total Attendees	SDERC Training	Technical Assistance	Tool Lending
January 2004	109	0	4	14
February 2004	194	0	0	19
March 2004	215	30	2	11
April 2004	198	29	3	14
May 2004	292	117	12	15
June 2004	168	5	5	19
July 2004	122	65	3	8
August 2004	102	0	6	6
September 2004	216	117	2	6
October 2004	145	45	2	11
November 2004	250	78	2	8
December 2004	159	38	3	4
January 2005	195	106	1	9
February 2005	203	95	4	6
March 2005	304	132	27	12
April 2005	329	114	13	7
May 2005	217	62	4	5
June 2005	291	57	5	10
July 2005	164	54	1	12
August 2005	276	71	0	20
September 2005	392	202	3	7
October 2005	240	89	7	10
November 2005	135	34	5	11
December 2005	148	36	8	11
Total	5,064	1,576	122	255

4.1 Workshop Events

In Table 1, we also display the number of visits associated with training. There have been forty-two SDERC training events held over the January 2004 – December 2005 period, with a total of 1,576 participants.

4.2 Tool-lending Program

The tool-lending program performed exceptionally well. The goal was to have 125 tools loaned out during the program period 2004 - 2005 and the program significantly exceeded the target, with 255 tools lent out. However, there are some concerns. For example, some individuals are repeat customers, either borrowing the same tools again and again or borrowing other tools. In fact, there are only 73 non-SDREO unique individuals who borrowed tools. One individual borrowed a tool on 31 separate occasions, and the top six borrowers accounted for approximately 39 percent of tools borrowed. On the other hand, the repeat business suggests that there is a significant amount of customer satisfaction. Overall, the program needs to expand further, and be marketed towards additional users.

4.3 Reference - Lending Program

The pattern for the reference-lending program mirrors the tool-lending program in that: (1) the number of lends far exceeds expectations as there were 167 lends in 2004 – 2005; (2) the number of non-SDREO unique individuals that borrow resources is significantly less than the number of lends as only 55 individuals borrowed reference materials; and (3) the top few borrowers (top six) account for a significant portion (40.1%) of activity.

4.4 Technical Assistance

Finally, individuals can access the resources of the SDREO via the hotline, on-line, or in-person assistance. The available evidence suggests that these assistance avenues are seldom used. During the January 2004 – December 2005 period, there were only 122 instances (95 individuals) of assistance provided via telephone, e-mail, or in-person. This seems to be a low number for a facility that is supposed to be a central clearinghouse for energy information. This suggests either that (1) inquiries are handled informally by SDREO staff or via the website or (2) potential users of the resource are unaware of existence of the SDERC. This conclusion is not meant to suggest that the

PIP goals were not satisfied; rather, relative to the surrounding population in San Diego County, which is in excess of two million residents, these values seem small.

4.5 Evaluation of Visitation Data

From the table presented above it seems that the SDERC has satisfied most of its programmatic objectives. The workshop/training program has significantly exceeded the objective of thirty-six workshops over a two-year period. In spite of in-roads into the seniors and elementary school children population segments, marketing and accessing the traditional hard-to-reach market segments remain problems. Program advertisements in various languages and more regionalized workshops might improve visibility and attendance. The tool and reference loan programs were quite successful as measured by number of tools/materials loaned out. However, the client base is extremely narrow and efforts should be made to expand the usage group. This conclusion should be viewed as forward-looking since expansion of services to a larger, more diverse group was not a PIP goal in the 2004 – 2005 program period. Use of the hotline, on-line, and in-person technical assistance is below expectations. However, this might reflect excellent service provided elsewhere by the SDREO (e.g., website) but it is more likely that the SDREO is relatively unknown as a regional information clearinghouse. It seems that a closer connection to SDG&E and/or other energy entities in San Diego may be warranted as a means of increasing visibility and usefulness of the SDERC.

5. Program Outreach Activities

As is evident from the visitation data, the SDERC has a core group of dedicated users, who participate in the various elements of the ERC. In fact, the sign-in sheets for the various ERC activities often contain multiple entries of the same names. In order to expand its circle of influence, the SDERC undertook a variety of outreach activities during program period 2004 – 2005. For example, the SDERC staff conducted offsite training, distributed compact fluorescent lights at offsite locations, made presentations to educational groups, created and implemented a seniors initiative, produced advertisements, brochures and assorted program materials, and created a Spanish language version of the primary website pages. In this section, we evaluate the degree to which the SDERC satisfied its program objectives in these categories.

As is illustrated in Table 2, the SDERC has been very successful in meeting its outreach objectives. In all categories, with the exception of school visits, the SDERC has equaled or exceeded the relevant goal/metric, often by a wide margin. In addition, the SDERC exceeded these metrics without expending its entire budget. Thus, the program’s performance in the area of outreach is both superior and cost-efficient.

Table 2
Energy Resource Center Outreach Activities

Program Element	Goal/Metric	2004 – 2005 Goal	2004 – 2005 Actual
Offsite Training	Number of Events	36	42
School Outreach	Class Visits	160	153
Compact Fluorescent Lights	Number of Lights	1,000	1,269
Seniors Initiative	Visits, Seminars, or Collaborative Seminars	50	52
General Outreach	Number of Brochures, Fact Sheets, Magnets, Posters, or Door Prizes	38,240	48,183
Spanish Language	Version for Web Pages	1	1

6. Program Website

In order to evaluate the Energy Resource and Education Center Program website Zebedee & Associates created a scoring system based on the following attributes; (1) ease of locating the internet site; (2) the quantity and quality of the information offered; (3) the description of the timing of ERC events; (4) the description of the ERC’s physical location; (5) guiding users to the ERC location; (6) defining ERC contacts; and (7) the site’s interactive ability. Each attribute was evaluated on a one-to-five scale. In addition, we decided that it would be more valuable to evaluate the ERC website relative to similar websites. Therefore, we also examined and scored the websites for the Pacific Gas and Electric (PG&E) Energy Center, the Southern California Edison’s (SCE) Energy Centers (AGTAC and CTAC), and the Southern California Gas Company’s (SOCAL) Energy Resource Center. The scores for each of the centers are shown in Table 3.

As is illustrated the SDREO website was quite comparable to the SCE and SOCAL Gas websites, but received a significantly lower score than the PG&E website. In terms of specifics, we offer the following conclusions:

- All of the websites are somewhat difficult to locate find on the respective utility's home page. Socalgas has their website associated with energy efficiency, which seems most logical since the programs are funded by energy efficiency dollars. Since SDG&E does not have an energy center, it would seem logical for the SDG&E energy efficiency section to link to the SDREO ERC. However, it has a link to Flex Your Power.
- All websites do an outstanding job of listing their respective resource offerings
- PG&E does an outstanding job of listing the schedule because it has a interactive pull-down/search mechanism for courses offered. The others have a sequential calendar list.
- All websites do a good job of providing the physical location of the energy center.
- In terms of directions, the SDREO has a general map, which is on par with SCE and SOCAL Gas. However, PG&E has a nice bay area map with directions from key locations. It also has a parking map, which is essential in the San Francisco area. The SDREO is the best because of the link to Google Maps, which makes it easy to generate a map and obtain directions from almost anywhere.
- PG&E does a great job of providing a contact person for questions. SCE and SOCAL Gas provide a phone number for the ERC switchboard. SDREO does not list contact information for the ERC. It does however have an 800 number for technical assistance – which is intended for technical questions. For example, under Education and Outreach there is no contact information.
- In terms of the website's interactive ability, the SDREO site is consistent with the sites offered by SCE and SOCAL Gas. It provides information about the resources available. They seem to offer a significant amount of material to download. PG&E's site has the ability to select tools and seminars by category and have the site build a list based on the users criteria.

Table 3
Evaluation of the ERC Website

Website Attribute	SDREO ERC	PG&E Energy Center	SCE Energy Centers	SOCAL Gas Energy Resource Center
Locating WebSite	3	3	3	4
Information	5	5	5	5
Schedule of Events	4	5	4	4
Locator	5	5	5	5
Map to Building	5	5	3	3
Contact Information	2	5	4	4
Interactive Ability	4	5	3	3
Overall Score	28 (80%)	33 (94%)	27 (77%)	28 (80%)

7. Survey Results

Zebedee & Associates, with the assistance of our subcontractor Social Science Research Laboratory (SSRL) at San Diego State University conducted a telephone survey of program participants. The first phase of the survey was conducted in February/March 2005 and was designed to provide early feedback to interested parties on the program. The second survey phase was implemented in February/March 2006 and drew on program participants who entered the program later in the program year to measure any difference in the results from the initial survey phase. In this section, we discuss survey design, the sampling plan, survey implementation, and the survey results.

7.1 Survey Instrument

The study team developed a survey instrument with a focus on the specific program goals, as well as the following general issues:

- (1) participant issues and needs;
- (2) the success of program implementation;
- (3) the level of participation, relative to projections;

- (4) program success in raising awareness and affecting decisions of participants to implement the energy efficiency and demand reduction measures;
- (5) the relative values of the various elements/components of the program;
- (6) any perceived energy/comfort savings; and,
- (7) any unanticipated outcomes/results.

The Energy Resource Center survey, attached in the appendix, is designed to be multi-purpose in that it is applicable to all the various user groups (walk-in visitors, tool borrowers, workshop participants, etc.). There are separate sections of the survey devoted to each of the possible uses of the ERC (walk-in visitation, use of interactive displays, tool and reference borrowing, library and website usage, workshop participation, on-line, hotline, and in-person technical assistance, and educational outreach).

7.2 Sampling Plan

The survey sample was developed from the lists of participants who have visited and utilized the facilities of the Energy Resource Center. The initial step in our sampling procedure was to obtain the lists from ERC -- walk-ins, service tracking, tool and reference borrowing, workshop participation, etc. The lists were merged and duplicate names within a participation group and across programs were deleted, as were individuals with incomplete contact information, thereby leaving 1,326 unique individuals.² We utilized this value to represent the relevant population.

In order to determine the appropriate sample size, we began with the following formula:

$$n = \frac{\{Z_{\alpha/2}\}^2 pq}{E^2}, \text{ where } n \text{ is the sample size, } Z \text{ is the normal distribution Z-score, } 1-\alpha \text{ is}$$

the degree of confidence, p is the population proportion, $q = 1-p$, and E is the margin of error.³ Since the population was not infinite we corrected the formula above by the finite

² Note that we did not account for duplication across survey phases. This was addressed by asking potential respondents if they had ever been surveyed with regard to the Energy Resource Center. Those individuals that answered yes to this screening question were eliminated from further consideration.

³ Our focus is on the proportion of respondents that indicate they were "very satisfied" with the ERC program elements. Hence, our sample size calculation is based on interpreting scaled response questions in a yes/no proportion framework (see Triola, 2001).

correction factor. This produced the following equation:
$$n = \frac{Npq\{Z_{\alpha/2}\}^2}{pq\{Z_{\alpha/2}\}^2 + (N-1)E^2},$$

where N is the population size (1,326) and all other variables are defined above (see Triola, 2001). In addition, we used a 95 - 5 sample model, which exceeds the recommended CALMAC procedures (90 – 10 model), implying $Z = 1.96$ and $E = 0.05$. Finally, since we were most interested in the overall customer satisfaction with entire ERC program, we utilized our earlier work, which found that approximately 59% were “very satisfied.” We used this estimate to provide an *a priori* estimate of p equal to 0.59 (see Thayer and Zebedee, 2004). Thus, our target sample size was 291 individuals. In fact, we surveyed 325 individuals. We randomly sampled from the final list and made 894 telephone calls in order to accomplish our objective of completing 325 surveys.

7.3 Survey Implementation

The first step in the implementation process was to determine the participant’s willingness to participate in the survey. This initial inquiry resulted in one of the following outcomes:

- (1) unknown eligibility (e.g., busy signal, answering machine, left message, unqualified refusal, etc.);
- (2) ineligible (e.g., incorrect contact information);
- (3) unwillingness to participate; and,
- (4) completed survey.

Note that we also filtered out individuals who had been previously interviewed as part of earlier assessments of the ERC (see Thayer and Zebedee, 2004 and the footnote below).

In Table 4, we present the complete attrition analysis, including both sampling and survey implementation. As illustrated in the table, 325 surveys were completed in the survey. These values convert to overall response rates of 36.4 percent of the original list sample (894 individuals called). Alternatively, one can calculate the following rates as:

- Eligibility Rate = $E^* = \text{Eligible}/(\text{Eligible} + \text{Ineligible}) = 342/(342 + 250) = 57.77\%$.

- Response Rate = $R^* = \text{Completes}/(\text{Eligible} + \text{Unknown Eligibility}) = 325/(342 + 302) = 50.47\%$.
- Cooperation Rate = $C^* = \text{Completes}/\text{Eligible} = 325/342 = 95.03\%$.

As is evident, the survey implementation can be characterized as quite successful in both the response rate and the cooperation of the respondents.

Table 4
Attrition Analysis

Sampling/Survey Step	Number of (Potential) Respondents
Initial Survey List	1,326
Attempted Calls	894
Remove Unknown Eligibility	302
Remove Ineligible Records	250
Remove Unwilling to Participate	17
Completed Surveys	325

Another measure of the survey coverage is the percentage of ERC users that are included as survey respondents. For example, survey respondents accounted for 64.7% (165 out of a population of 255) of tools borrowed. Comparable figures are shown in Table 5 for total ERC visits, SDERC workshop attendance, tool and library lending, and on-line/hotline assistance. As is evident, completed surveys account for a large proportion of ERC usage.

Table 5
Survey Participation Relative to ERC Usage

ERC Use Category	Population*	Survey Completions	Percent Coverage
Total Attendees	5,064	1,891	37.3
SDERC Training	1,576	1,235	78.3
Tool Lending	255	165	64.7
Library Lending	167	154	92.7
Technical Assistance	122	73	59.8

* See Table 1.

7.4 Respondent Characteristics

There were 325 completed surveys, divided into the following groups: (1) 277 males and 48 females; and (2) 28 residential and 294 non-residential visitors (3 missing). The socio-demographic characteristics of the residential visitors are presented in Table 6. As is illustrated, the survey respondent values, relative to San Diego County residents, suggest that the residential respondent group is significantly older, less ethnically diverse, more educated, and has smaller household size and much higher income. Also note that 79.3% of all survey respondents (residential and non-residential) had at least a bachelors' degree, another indication that the ERC appeals to a narrow portion of the local population.

Table 6
Summary Characteristics of Residential Visitors

Characteristic	Units of Measure	Survey Value N=28	San Diego County
Age	Percent Greater than 45	89.3	30.8
Household Size	Mean	2.4	2.7
Income	Percent Greater than \$75,000	50.0	27.2
Membership in Environmental Organization	Percent Yes	21.4	NA
Employment Status	Percent Working Full or Part-Time	57.1	74.0
Ethnicity	Percent White, Not Hispanic	57.1	54.9
Education	Percent Bachelor's Degree or Greater	78.6	29.5

With regard to the non-residential visitors, the predominant occupation of respondents was engineer (24.5%) or architect (3.4%).⁴ In addition, a large proportion of respondents were either owners or in management positions (49.3%) and approximately 70.4% make energy related decisions frequently. Finally, the average number of years in one's current position was 7.2 years.⁵

⁴ Note that we did not collect comparable information on residential and non-residential respondents, making direct comparisons between the groups difficult. Future evaluations of the Energy Resource Center should include the element.

⁵ As with the residential visitors, we find that the non-residential visitors are drawn from a narrow slice of the local population. Our expectation was that the relevant decision makers in non-residential entities would mirror the San Diego population. Our conclusions regarding the effectiveness of the program success in reaching its intended target are limited to the extent that this expectation is in error.

7.5 Awareness

In Table 7, we present the proportion of the respondents who are aware of the individual aspects of the Energy Resource Center. Awareness among respondents ranges from a low of 22.4 percent for the outreach programs to a high of 95.4 percent for workshop/training events. Also, the awareness among respondents is greater for well-established ERC components whereas respondents seem relatively unaware of new initiatives. This may indicate that the Energy Resource Center needs to market its new programs to a wider audience.

Table 7
Awareness of ERC Elements

ERC Element	Awareness (%)
Diagnostic Tool Library	58.0
Energy Efficiency Library	58.3
Hotline Assistance	65.9
Interactive Displays	53.0
Website	68.1
Training Workshops	95.4
Individualized Technical Assistance	54.3
Outreach Programs	22.4

7.6 General Visitation

The average respondent to the survey had visited the Energy Resource Center 5.82 times, and not surprisingly, most were repeat visitors (76.9%). Usage per person has increased significantly over time (see Thayer and Zebedee, 2004), which indicates the ERC has created a cadre of loyal participants. More than half of the respondents (59.9%) first heard about the ERC through workplace/trade/professional organizations, whereas very few learned of the ERC through the usual media outlets (flyers, newspapers, and the SDREO website accounted for only 16.2% combined). This may indicate that if the ERC is interested in increasing residential visitors then the SDREO marketing/outreach should be expanded to include more non-work related outlets. The most common reasons for visiting the ERC were to acquire new or upgrade existing energy-related

skills (61.6%). General energy efficiency (39.4%) and lighting (21.1%) were the issues that were most relevant for visitors to the ERC.

In Table 8, we present the various measures of customer satisfaction for the survey respondents who were visitors to the ERC. As is evident the respondents are generally “very satisfied” with the operation of the ERC. It seems that most respondents are able to obtain the information they wanted/needed and they find that the information is useful. Of special note are the ratings that pertain to staff availability, courtesy, and knowledge (at least 67.2% “very satisfied” in each category). On the other hand, these figures are slightly lower than in previous surveys of ERC visitors (see Thayer and Zebedee, 2004). This may indicate that the level of staffing may need to be increased in the future in order to provide the level of service and the hours of operation needed to maintain customer satisfaction.

Table 8
General Visitor Satisfaction

Satisfaction Measure	“Very Satisfied” (%)
Getting Information	70.2
Usefulness of Information	63.3
Availability of ERC Staff	67.6
Courtesy of ERC Staff	89.1
Knowledge Level of Staff	67.2
Hours of Operation	62.9

Interactive Displays

Of the 325 survey respondents, 160 indicated that they had used the interactive displays at the ERC. The average user used the displays 3.20 times and 45.4 percent either used more than one display or used the same display multiple times. The various measures of customer satisfaction for the display users are presented in Table 9. As is evident the respondents are generally “very satisfied” with the interactive displays and there was only one respondent that reported he/she was “very dissatisfied” with any element of the displays (usefulness). Finally, almost one-half of the users (42.5%) indicated that the

displays positively affected their decisions regarding the purchase of energy related products.

Table 9
Interactive Display User Satisfaction

Satisfaction Measure	“Very Satisfied” (%)
Ease of Understanding Purpose of Display	70.0
Ease of Use	71.3
Usefulness of Display	53.8
Affect Purchase of Energy Products (% Yes)	42.5

Tool Lending

There were 30 tool borrowers in the survey sample. Overall, meters and monitors were the tools most often borrowed. The primary reason (76.7%) for borrowing a tool from the ERC was because they cost too much to purchase for one’s frequency of use. This reasoning, combined with the knowledge that many tool borrowers are repeat users, implies that individuals are supplementing their tool supplies through free use of ERC tools. If the objective of the program is to educate individuals regarding tool use, cost, and availability then methods to broaden the program to more individuals and limit the use patterns should be considered. If, on the other hand, energy savings are the goal, then repeated use may be reasonable (of course, one must account for free riders).

7.7 Customer Satisfaction

In Table 10, we present the various measures of customer satisfaction for the tool using survey respondents. As is evident the respondents are generally “very satisfied” with the tool lending program. Although the sample size is small it seems that most respondents are able to obtain the tools they wanted/needed and they found the tools to be useful. This evidence certainly suggests that the program is successful. However, the evidence is also consistent with a set of tool borrowers who are knowledgeable regarding their needs and repeatedly use the ERC’s tools without offering compensation in return.

Table 10
Tool Lending Program Satisfaction

Satisfaction Measure	“Very Satisfied” (%)
Obtaining Tools	80.0
Usefulness of Tools	90.0
Availability of Tool-Lending Staff	80.0
Courtesy of Tool-Lending Staff	96.7
Knowledge Level of Tool-Lending Staff	60
Hours of Operation	76.7

Resource Library

The sample included 43 individuals who had borrowed materials (books, periodicals, videos) from the ERC resource library. Books and periodicals were borrowed much more regularly than videos. The primary reason (32.6%) for borrowing energy efficiency materials from the ERC was to conduct background research on a topic of interest. Thus, the ERC library was seen as an extension of the usual library system, although smaller and offering only very specific holdings.

The various measures of customer satisfaction for library usage are presented in Table 11. As is evident the respondents are generally “very satisfied” with the reference lending program, although these satisfaction values are lower than for other ERC components. This may indicate that the operation of the resource library should be re-examined in order to improve overall usability. For example, the current library is quite small and located in corner of the classroom. Expansion and the creation of an independent space would likely improve overall satisfaction ratings.

Table 11
ERC Library Program Satisfaction

Satisfaction Measure	“Very Satisfied” (%)
Obtaining Information	67.4
Usefulness of Information	67.4
Availability of Tool Staff	60.5
Courtesy of Tool Staff	86.1
Knowledge Level of Staff	58.1
Hours of Operation	60.5

Hot Line/Email Assistance

The survey included 70 individuals who had utilized the hot line/email assistance capabilities of the ERC. The various measures of customer satisfaction are presented in Table 12. As is evident customer satisfaction is somewhat lower for this program component than for other aspects of the ERC. Again, this may indicate inadequate staffing/funding of the ERC.

Table 12
ERC Hot Line/Email Technical Assistance Program Satisfaction

Satisfaction Measure	Very Satisfied”(%)
Obtaining Information	62.9
Usefulness of Information	70.0
Availability of Tool Staff	51.4
Courtesy of Tool Staff	84.3
Knowledge Level of Staff	67.1
Hours of Operation	57.1

Website Use

There were 171 website users in the survey sample and the average number of uses among these individuals was 10.2. The website satisfaction figures are displayed in Table 13. The evidence suggests that, while there are no “very dissatisfied” users, the overall level of satisfaction is significantly below the other elements of the ERC. Specifically, individuals had difficulty obtaining the desired information and only 46.8 percent of users were “very satisfied” with the technical level of the information posted on the website. This suggests that, relative to other aspects of the ERC, continued investment in upgrading the website seems warranted.

Table 13
Website Satisfaction

Satisfaction Measure	“Very Satisfied” (%)
Obtaining Information	48.5
Usefulness of Information	56.1
Technical Level of Information	46.8

Individualized Technical Assistance

Thirty respondents indicated that they had received individualized technical assistance from the SDERC. Overall, as shown in Table 14, the respondents were quite satisfied with the services received. It seems that this service has been very well received; however, there is a real limit on the possible expansion of this service given the current staffing of the SDERC.

Table 14
Individualized Technical Assistance Satisfaction

Satisfaction Measure	Very Satisfied (%)
Efficiency of Assistance	78.1
Staff Knowledge	86.3
Obtaining Information	75.3
Usefulness of Information	72.6
Increased Knowledge of Energy Issues (% Yes)	53.4
Increased Ability to Conduct Energy Efficiency (% Yes)	41.1

Educational Outreach

The survey included only ten individuals who had participated in the educational outreach program. In spite of this small sample size we provide customer satisfaction levels for this ERC program component in Table 15. As is evident, the educational outreach programs had a significant impact on only a few individuals, as only 30% either obtained an increased knowledge of energy issues or an increased ability to conduct energy efficiency.

Table 15
Educational Outreach Satisfaction

Satisfaction Measure	Very Satisfied (%)
Efficiency of Assistance	60.0
Staff Knowledge	70.0
Obtaining Information	60.0
Usefulness of Information	70.0
Increased Knowledge of Energy Issues (% Yes)	30.0
Increased Ability to Conduct Energy Efficiency (% Yes)	30.0

Training Workshops

Respondents were asked to evaluate both the lead workshop presenter and the actual workshop. The satisfaction ratings are reported in Tables 16 and 17, respectively. As illustrated in Table 16, survey respondents were nearly unanimous in viewing the lead workshop presenter as knowledgeable and organized, able to communicate and answer questions effectively, and to be able to create a positive workshop experience. On the other hand, as indicated in Table 17, the workshops were not as well received. Specifically, the amount of time provided, the technical level, and the quality of the written materials were judged “excellent” by less than 54 percent of the respondents. Negative comments suggested that much of the material was too basic, there was a lack of detail, a lack of hands-on training, too much “product pitching,” and there was a need for additional documentation and handouts. In effect, these individuals were indicating that the workshops should be at a higher technical level and that the presentation should remain on point to minimize the time necessary for information transmission. In addition, there were several individuals who complained that the facility was too small and lacked basic creature comforts. The SDREO should consider these evaluations when scheduling and preparing workshops or training events in the future.

On the other hand, it seems that the workshops were effective in improving participants’ knowledge level (significant improvement for 40.2% of respondents) and ability to conduct energy efficiency activities (significant improvement for 31.2% of respondents).

In addition, approximately one-half of the workshop participants implemented energy efficiency measures as a result of their participation.

Table 16
Workshop Presenter Evaluation

Evaluation Category	Yes (%)
Demonstrated Knowledge	97.8
Communicated Clearly	98.1
Organized Effectively	96.3
Provided Sufficient Information	93.7
Answered Questions	91.1
Created Positive Experience	97.4

Table 17
Training Workshop Satisfaction

Satisfaction Measure	“Excellent” (%)
Time Provided	34.2
Technical Level	46.5
Usefulness of Written Materials	30.1
Convenience of Location	53.5
Convenience of Time/Day	40.9
Increased Knowledge of Energy Issues (“Great Amount”)	40.2
Increased Ability to Conduct Energy Efficiency (“Great Amount”)	31.2
Implemented Energy Efficiency Measures (% Yes)	50.2

The survey respondents were also asked if they would be willing to pay to attend the workshop (currently workshops are offered free of charge). Of the 269 workshop participants, 147 respondents (54.6%) indicated a positive willingness to pay, with categorical amount ranges of \$10 - \$50 (51 respondents), \$51 - \$100 (49 respondents), \$101 - \$150 (27 respondents), and greater than \$150 (20 respondents).

7.8 Overall Evaluation from Survey Data

In summary, it seems that the survey respondents are generally satisfied with the individual elements of the ERC. In almost every category “very satisfied” was the predominant response. We also asked respondents to evaluate the ERC in total, rather than by specific element. Approximately 64.7 percent of the respondents indicated they were “very satisfied” with the programs provided by the ERC. This represents an approximate 5 percent improvement from the previous evaluation of the ERC (see Thayer and Zebedee, 2004). Also, 96.1 percent indicated that would participate in ERC programs again. Finally, approximately 60 percent of the respondents have referred others to the center and 85.03 percent have shared ERC information with others.

In total, the survey evidence suggests that the ERC continues to provide a valuable service to the community and that it has developed a cadre of devoted, satisfied, repeat customers. However, there are two large challenges remaining. First, for the successful program components (training workshops, tool lending, etc.) the SDERC must broaden its appeal to attract additional users, especially from the traditionally hard-to-reach population segments (younger, less wealthy, less educated, more ethnically diverse). Second, the SDERC must improve certain program components (website, resource library, hot line/email assistance, etc.) in order to achieve the level of customer satisfaction expected (i.e., consistent with other ERC program elements). This may require additional staffing/funding and/or a larger facility.

8. Analysis of Workshop Evaluation Forms

In this section, we are concerned with the ability of the energy center to effectively communicate its message to the various market actors in a workshop context. We utilize SDREO administered evaluation forms completed by participants in twenty workshops over the period March 24, 2004 through February 23, 2006. These evaluation forms focused on the value of the workshop, the knowledge/expertise of the speaker(s)/trainer(s), the technical level of the workshop, the amount of relatively “new” material, the possibility of applying the knowledge gained, and the overall value of the workshop. A total of 885 evaluation forms were completed.

In Table 18, we present a summary of the workshop evaluation forms for specific workshops. As is illustrated, the results indicate a general level of participant satisfaction. For example, approximately 72 percent of the participants indicate that the

technical level of the workshops was “just right.” In fact, only thirty-four respondents (3.85%) rated the workshops as either “too basic” or “too technical.”

The workshop participants also found the workshops to be valuable – approximately 36% rated the workshops as “excellent” whereas 44% rated the workshops as “very good” (not shown in Table 1). Only three respondents rated any specific workshop as “poor.” In addition, the workshop speakers were generally considered “excellent” (62.8%).

It should also be noted that

- All the overall evaluation percentages that pertain to the value of workshop, the effectiveness of the speaker, the technical level, and the percent of respondents that expect to apply knowledge obtained from the workshop have improved since our last assessments (see Thayer and Zebedee, 2004, 2005).
- The quality and knowledge of the primary workshop speaker seems to be the critical driver of workshop success. This is evidenced in that the simple correlation of 0.56 between “speaker as excellent” and “workshop as excellent.” In addition, if the workshop is graded as excellent then individuals are more likely to apply knowledge obtained (simple correlation of 0.497 between and “workshop as excellent” and “very likely to apply knowledge”).

With regard to specific workshops, those that pertained to lighting (*County Lighting Training*, the *Grand Reopening of the SDREO Lighting Display*, and *Lighting Energy Efficiency*) and green building (especially *Green Building 250* and *Green Building 301*) were highest rated. On the other hand, the *Chilled Water* and *Carel Traveling Product Display Van* workshops had very low respondent ratings, although the sample sizes are small.

Overall Assessment of Workshop Evaluation Data

One of the goals of the Energy Resource Center is to effectively communicate the message of energy efficiency to various market actors in ways that will induce changes in behavior. One avenue of communication to market participants is through formal workshops on energy related topics. Effective communication in the workshop context requires that participants value the workshop experience, feel that the speaker has the relevant knowledge, and that the technical level is correct. Evidence from SDREO

administered evaluation forms for over forty-seven workshops indicates that these requirements are being satisfied.

Table 18
Workshop Evaluation Forms

Workshop	Percent Rating the Workshop as “Excellent”	Percent Rating Speaker as “Excellent”	Percent Rating Technical Level as “Just Right”	Percent Indicating “Very Likely” to Apply Knowledge
Air Distribution (7)	29	43	86	29
Outdoor Lighting (36)	31	53	72	43
Chilled Water (5)	0	20	40	0
Danfoss-Turbocor (13)	62	62	85	62
Load-Responsive Lighting (10)	40	50	50	NA
Energy Management (19)	42	63	79	67
Energy Software (17)	18	59	71	23
Green Building 101 (26)	31	64	62	35
Green Building 150 (11)	18	36	100	10
Green Building 201 (18)	44	83	83	61
Green Building 250 (4)	75	75	100	50
Green Building 301 (21)	48	100	90	67
Harmonics Power (21)	43	76	81	38
Humidity Control (22)	27	77	64	18
Intelligent Building (8)	38	75	75	38
Solid State Lighting (18)	17	56	83	22
Light and Health (4)	25	75	50	0
Lighting Technologies (18)	56	94	78	61
Radiant Cooling (29)	32	54	61	39
Sustainable Building (15)	27	40	60	47
Outdoor Lighting (30)	7	30	30	7
HVAC Optimization (26)	58	73	69	54
2005 Energy Codes for Multi-Family (20)	40	70	80	40
Acceptance Testing (19)	16	16	47	42
Building Commissioning (29)	34	55	79	34
Carel Display Van (6)	0	17	50	17

Chiller Best Practices (22)	36	50	77	36
Lighting Training (14)	57	93	100	64
Energy Audit (26)	35	65	65	46
CHP Applications (17)	35	94	71	6
Lighting Display (14)	71	100	93	71
2005 Hartman Loop (29)	45	69	76	48
2006 Hartman Loop (11)	73	82	45	27
Hartman Air Volume (18)	39	83	89	39
Home EE Design (9)	44	67	67	44
Hunt Fan Wall (25)	24	60	80	28
Intermediate Skylighting (24)	21	63	75	33
Lighting Energy Efficiency (25)	52	84	68	60
Lunch and Learn: UV Lighting (28)	43	50	79	39
Skylighting (13)	23	54	77	46
Chilled Water Distribution (26)	46	80	81	50
Solar Water Heating (37)	43	78	65	51
Refrigerant and Airflow Verification (18)	17	39	78	39
Retro-Commissioning (19)	37	63	84	47
Shading (22)	5	36	59	23
Sidelighting (15)	40	67	60	40
Steam Optimization (20)	45	30	70	40
Total (885)	34	62	70	39

9. Overall Evaluation of the Energy Resource and Education Center Program

In our original scope of work we stated that we would develop a scoring system to be used to evaluate the long-term efficacy of the program. Our scoring system uses a 1-10 scale to evaluate the following components of the program: (1) the program theory and approach; (2) the success of program implementation; (3) the level of participation, relative to projections; (4) program success in raising awareness and affecting decisions of participants to implement the energy efficiency and demand reduction measures; and

(5) any unanticipated outcomes/results. The overall scale value is then used to make conclusions regarding the program future.

The program theory and approach refers to both how the program is to operate in the field (implementation theory) and why the program is expected to lead to specific outcomes (program theory). The Energy Resource and Education Center Program is designed to flow from marketing/outreach, to visitation to the Energy Resource Center (in-person or on website), to use of facility resources (interactive displays, tools and books, training, etc.), and ultimate energy savings. Thus, there are several linkages that affect the overall performance of the program. For example, ultimate program success (i.e., a 10 on our scale) requires that the ERC effort directly lead to participant action and corresponding energy savings. On the contrary, a flawed program theory would have linkages that are poorly designed so that the program does not meet its stated objectives (e.g., difficulty finding potential participants, failure to progress to participation, poorly designed audits, inaction).

Success of implementation refers to the quality of the program materials, the ability of the program to reach the intended audience, and the resulting action taken by participants. Success implies that SDREO effort leads to participation and ultimate action on the part of participants.

Level of participation, relative to projections is simply an analysis of program activity compared to program goals. If the program satisfies its goals we award a value of 8 out of a maximum value of 10, thereby allowing for the program to receive extra credit for surpassing its stated goals.

Program success in raising awareness and affecting decisions is dependent on the program participant's response to program initiatives. For example, for an information only program we would expect that a large majority of program participants felt that the program changed their knowledge of energy issues. A program designed to create energy savings would be evaluated according to the magnitude of actual savings.

Finally, we account for any unexpected developments by evaluating the occurrence of any unusual program results. For example, excessive free-ridership, or action that does not create energy savings would be cause for downgrading the program effectiveness.

Our overall evaluation of the Energy Resource Center is presented in Table 19 below. As is illustrated, we found the program theory to be essentially sound and the implementation was generally successful. In addition, the level of participation, as measured against the CPUC establish programmatic goals, certainly met expectations. However, as identified in the table, there are some remaining issues.

An additional consideration concerns free-ridership, which is somewhat difficult to assess, especially for the information only portions of the ERC. First, as discussed above, free-ridership seems fairly obvious for the tool and library lending components of the program. Second, several portions of our research point to potential free riding behavior in the information-only portions as well. For example, a high percentage of survey respondents learned about the ERC program only through the established work-related networking channels. Also, the survey respondents were highly educated (46% with education beyond a bachelors degree) and the non-residential respondents made energy related decisions frequently (70.4%). These survey elements point to a group of participants, especially in the non-residential sector, that are already engaged in energy efficiency activities and should have knowledge of the benefits and costs of energy efficiency alternatives.

Finally, consider the issue of whether there is a continuing need for the Energy Resource Center. The operation of the ERC is generally successful, fills a market niche, satisfied its program objectives, and altered the awareness and subsequent decisions of the participants. On the other hand, overall participation needs to be increased and there is evidence consistent with free-ridership. Therefore, our overall assessment is positive. In fact, we believe that the CPUC should consider significantly expanding the ERC.

Table 19
Overall Evaluation of the
Energy Resource Center

	Energy Resource Center Value	Comments
Program Theory and Approach	8	Linkages are well designed and the facility resources (exhibits, technical assistance, website, training workshops, etc.) are easy to access and utilize. ERC staff is knowledgeable, experienced, and available. The information provided is detailed and contains substantial information on the types of alternatives that have both energy and financial savings.
Success of Implementation	8	Program resources are informative, the physical location is fairly central, and the hours of operation are acceptable. However, participation limited to relatively known entities (i.e., failure to expand participation to hard-to-reach audiences). The overall satisfaction with the program was acceptable, spillovers (references, information sharing) were significant, and the willingness to participate again was almost unanimous.
Level of Participation	7	Generally satisfied all programmatic goals, although overall visitation, as a proportion of the San Diego County population, seems small.
Change in Awareness, Decisions	7	Program elements quite effective in changing awareness and decisions. For example, the workshops were effective in improving participants' knowledge level (significant improvement for 40.2% of respondents) and ability to conduct energy efficiency activities (significant improvement for 31.2% of respondents). In addition, approximately one-half of the workshop participants implemented energy efficiency measures as a result of their participation.

Unanticipated Outcomes	7	Three challenges remaining: (1) for the successful program components (training workshops, tool lending, etc.) the SDERC must broaden its appeal to attract additional users, especially from the traditionally hard-to-reach population segments (younger, less wealthy, less educated, more ethnically diverse); and (2) the SDERC must improve certain program components (website, resource library, hot line/email assistance, etc.) in order to achieve the level of customer satisfaction expected (i.e., consistent with other ERC program elements); and (3) reduce free-ridership in the tool and library lending programs
Total	37	

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Appendix – Final Survey Instrument

SDERC PROGRAM EVALUATION SURVEY - 2006
(March 2006)

INTRO. Hello, my name is _____. May I speak with...
{INSERT NAME FROM LIST}? [WHEN SPEAKING WITH LISTED PERSON:]
I'm calling from the Social Science Research Lab at San Diego State University.
We're conducting a study to follow up with people who have visited the San
Diego Energy Resource Center, which is sponsored by the San Diego Regional
Energy Office. Do you have a few minutes right now to answer some questions?
[SCHEDULE A CALL BACK IF NEEDED]

VER. **[VERSION OF INTERVIEW:]** 1 - VERSION A 2 - VERSION B*
* = RESPONSE OPTIONS REVERSED ON VERSION B FOR ALL QUESTIONS INDICATED

SCR. To ensure that my work is done honestly and correctly, this call may be monitored by my supervisor.
[ONLY IF ASKED ABOUT MONITORING:] My supervisor randomly listens to interviews to
make sure we're reading the questions exactly as written and not influencing answers in any way.

Have you been surveyed regarding your satisfaction with the San Diego Energy Resource Center in the
last 12 months?

- 1 - YES ----> **CLARIFY FIRST; THANK AND TALLY "NQR-VIS"**
- 2 - NO
- 9 - DK/REF

QUALIFIED RESPONDENT: QUOTAS CHECKED; DATA SAVED

SDREO VISITATION SECTION:

VIS. To start off, about how many times have you visited the San Diego Energy
Resource Center?
_____ TIMES
0 - NONE -----> **GO TO HOTLINE SECTION (Q31)**
99 - DK/REF

Q1. **[IF EVER VISITED CENTER:]** Where did you first hear about the San Diego Energy Resource Center?

[DO NOT READ; RECORD ONLY ONE]

- 1 - FLYERS POSTED IN NEIGHBORHOOD (POST OFFICES, LIBRARIES)
- 2 - NEWSPAPERS
- 3 - SDREO/SDERC'S WEBSITE
- 4 - SDREO/SDERC'S FACILITY (FLYERS AT FACILITY)
- 5 - NEIGHBORHOOD/CITY ORGANIZATION (NEWSLETTERS)
- 6 - FAMILY / FRIENDS / NEIGHBORS
- 7 - WORKPLACE / TRADE/PROFESSIONAL ORGANIZATIONS/CONVENTIONS
- 8 - OTHER, SPECIFY: _____
- 99 - DK/REF

Q2. Which best describes the main reason you visited the Center... **[PROBE ALL "OTHER" RESPONSES OF "TO BORROW A TOOL" OR "TO ATTEND A WORKSHOP" FOR THE MOTIVATION BEHIND THE ACTION TAKEN]**

- 1 - to solve a specific problem,
- 2 - to acquire new skills in an energy-related area,
- 3 - to upgrade your existing energy-related skills,
- 4 - to learn how to save energy and reduce energy bills,
- 5 - to help the environment, or
- 6 - for some other reason? SPECIFY: _____
- 9 - DK/REF

Q3. Specifically, what subject areas were you most interested in learning more about?

[DO NOT READ; RECORD ALL MENTIONED]

- 1) PASSIVE AND/OR ACTIVE SOLAR SYSTEMS
- 2) WINDOWS / GLAZING
- 3) LIGHTING
- 4) CONTROLS
- 5) WATER OR SPACE CONDITIONING / HVAC SYSTEMS
- 6) ENVIRONMENTAL/BUILDING CODE COMPLIANCE
- 7) WATER PUMPING
- 8) BUILDING SYSTEMS DATA
- 9) ELECTRICITY SELF-GENERATION
- 10) BUILDING ENVELOPE (WALL/ROOF/FLOOR ASSEMBLIES)
- 11) ENERGY EFFICIENCY IN GENERAL
- 12) OTHER, SPECIFY: _____
- 13) DK/REF

Q4. There are several different sections of the San Diego Energy Resource Center facility. How many times have you gone to...**

TIMES

DK/REF

- 1) the Learning Center, which is an educational classroom? _____ 99
- 2) the Technology Center, which has exhibits of energy-efficient equipment? _____ 99

3) the Resource Center, which has a collection
of energy publications and references? 99

**** Items on list randomly rotated for all questions indicated**

Q5. Overall, how satisfied were you, in terms of the following aspects of the Center? The first one is...** Would you say very satisfied, somewhat satisfied, somewhat dissatisfied, or very dissatisfied?*

	Very	Smwt	Smwt	Very	
DK/					
	<u>Sat</u>	<u>Sat</u>	<u>Dissat</u>	<u>Dissat</u>	
<u>REF</u>					
1) getting the information that you came to the Center for?.....	1	2	3	4	9
2) the usefulness of the information that you received?.....	1	2	3	4	9
3) the availability of Center staff to assist you?	1	2	3	4	9
4) the courtesy of Center staff?	1	2	3	4	9
5) the level of knowledge of Center staff?.....	1	2	3	4	9
6) the hours of operation of the Center?	1	2	3	4	9

INTERACTIVE DISPLAYS SECTION:

Q6. Have you used any of the interactive displays at the Center?

- 1 - YES
- 2 - NO ----- > **GO TO TOOL LIBRARY SECTION (Q10)**
- 9 - DK/REF ----- > **GO TO TOOL LIBRARY SECTION (Q10)**

Q7. **[IF YES:]** About how many times have you used these displays?

_____ TIMES
99 - DK/REF

Q8. Overall, how satisfied were you, in terms of the following aspects of the interactive displays at the Center? The first one is...** Would you say very satisfied, somewhat satisfied, somewhat dissatisfied, or very dissatisfied?*

	Very	Smwt	Smwt	Very	
DK/					
	<u>Sat</u>	<u>Sat</u>	<u>Dissat</u>	<u>Dissat</u>	
<u>REF</u>					
1) ease of understanding the purposes of the displays?	1	2	3	4	9
2) ease of using the displays?	1	2	3	4	9
3) usefulness of the displays?	1	2	3	4	9

Q9. Do you think your use of the interactive displays had any affect on your decisions regarding the purchase of energy-related products, or not?

- 1 - YES
- 2 - NO
- 9 - DK/REF

TOOL LIBRARY SECTION:

Q10. Are you aware of the Center's Diagnostic Tool lending library?

- 1 - YES
- 2 - NO ----- > **GO TO LIBRARY SECTION (Q14)**
- 9 - DK/REF ----- > **GO TO LIBRARY SECTION (Q14)**

Q11. **[IF YES:]** Have you ever borrowed tools from the Center's Diagnostic Tool lending library?

[IF YES:] How many times have you borrowed the following types of tools from the library...**

[IF NO, ENTER '0' FOR ALL THREE OPTIONS WITHOUT READING TEXT]

<u>DK/REF</u>	<u>TIMES</u>
1) loggers (such as lighting, motor operation)?.....	99
2) monitors (such as temperature, humidity, light level, power cost, air flow, pressure)?	99
3) meters (such as voltage, lighting/luminescence, energy cost, resistance)?.....	99
0 - NO/NONE BORROWED ----- > GO TO LIBRARY SECTION (Q14)	

Q12. **[IF EVER BORROWED LIBRARY TOOLS]** Which would you say best describes the main reason why you borrowed tools from the Center...*

- 1 - they cost too much to purchase for your frequency of use,
- 2 - you're unsure of which tools to purchase,
- 3 - you are unable to locate the tools elsewhere,
- 4 - you needed training regarding how to use the tools, or
- 5 - some other reason? SPECIFY:

9 - DK/REF

Q13. How satisfied were you, in terms of the following aspects of the Diagnostic Tool lending library at the Center? The first one is...** Would you say very satisfied, somewhat satisfied, somewhat dissatisfied, or very dissatisfied?*

<u>DK/</u>	<u>Very</u>	<u>Smwt</u>	<u>Smwt</u>	<u>Very</u>	
<u>REF</u>	<u>Satisfied</u>	<u>Satisfied</u>	<u>Dissat</u>	<u>Dissat</u>	
1) getting the tools that you came to the Center for?	1	2	3	4	9

2) the usefulness of the tools that you received?.....	1	2	3	4	9
3) the availability of tool library staff to assist you?	1	2	3	4	9
4) the courtesy of tool library staff?.....	1	2	3	4	9
5) the level of knowledge of tool library staff?..	1	2	3	4	9
6) the hours of operation of the tool library?	1	2	3	4	9

LIBRARY SECTION:

Q14. Are you aware of the Center's energy efficiency library?

1 - YES

2 - NO ----- > **GO TO WORKSHOPS SECTION (Q18)**

9 - DK/REF ----- > **GO TO WORKSHOPS SECTION (Q18)**

Q15. **[IF YES:]** How many times have you used the following types of items from the library...**

<u>DK/REF</u>	<u>TIMES</u>
1) books?.....	99
2) periodicals?	99
3) videos?.....	99
0 - NO/NONE USED --> [IF ALL OPTIONS=0, GO TO WORKSHOPS SECTION (Q18)]	

Q16. **[IF USED ANY LISTED TOOL ITEMS]** Which would you say best describes the main reason why you used books, videos, or periodicals from the Center...*

- 1 - they cost too much to purchase for your frequency of use,
- 2 - you are conducting background research,
- 3 - you are unable to locate the information elsewhere,
- 4 - the center location is convenient, or
- 5 - some other reason? SPECIFY:

9 - DK/REF

Q17. How satisfied were you, in terms of the following aspects of the energy efficiency library at the Center? The first one is...** Would you say very satisfied, somewhat satisfied, somewhat dissatisfied, or very dissatisfied?*

<u>DK/</u>	Very	Smwt	Smwt	Very
<u>REF</u>	<u>Satisfied</u>	<u>Satisfied</u>	<u>Dissat</u>	<u>Dissat</u>

1) getting the information that you came to the Center for?	1	2	3	4	9
2) the usefulness of the information that you received?.....	1	2	3	4	9
3) the availability of library staff to assist you?	1	2	3	4	9
4) the courtesy of library staff?	1	2	3	4	9
5) the level of knowledge of library staff?.....	1	2	3	4	9
6) the hours of operation of the library?	1	2	3	4	9

WORKSHOPS/TRAINING EVENTS SECTION:

Q18. Are you aware that the Center sponsors workshops and training events?

1 - YES

2 - NO ----- > **GO TO HOTLINE SECTION (Q31)**

9 - DK/REF ----- > **GO TO HOTLINE SECTION (Q31)**

Q19. **[IF YES:]** How many times have you attended a workshop or training event sponsored by the Center?

_____ WORKSHOPS/EVENTS

0 - NONE ----- > **GO TO HOTLINE SECTION (Q31)**

99 - DK/REF

Q20. **[IF EVER ATTENDED A WORKSHOP]** Thinking now about the **[INSERT IF MORE THAN ONE: {most recent}]** workshop or training event that you attended at the Center, please evaluate the workshop presenter or presenters regarding each of the following. Did the presenter or presenters...**

	<u>YES</u>	<u>NO</u>	<u>DK/REF</u>
1) demonstrate knowledge of the subject?	1	2	9
2) communicate information clearly?	1	2	9
3) organize the presentation effectively?	1	2	9
4) give you sufficient information to participate successfully in the workshop?.....	1	2	9
5) answer any questions you had to your satisfaction?	1	2	9
6) make the workshop a positive experience?	1	2	9

Q21. How would you rate the workshop or event in terms of each of the following...
Would you say excellent, good, fair or poor? **

	<u>Excellent</u>	<u>Good</u>	<u>Fair</u>	<u>Poor</u>	
<u>DK/REF</u>					
1) the amount of time provided for the workshop?.....	1	2	3	4	9
2) the technical level of information provided?	1	2	3	4	9
3) the usefulness of the written materials provided (if any)?	1	2	3	4	9
4) the convenience of the location?	1	2	3	4	9
5) the convenience of the day and time it was scheduled?	1	2	3	4	9

[IF "POOR" ON 5:] When would be your preferred day and time for a workshop?

99 - DK/REF

Q22. What one aspect of the workshop was most valuable for you?
[PROBE AND RECORD ONE MAIN ISSUE]

99 - DK/REF

Q23. What one aspect of the workshop was least valuable for you?
[PROBE AND RECORD ONE MAIN ISSUE]

99 - DK/REF

Q24. Do you think that your participation in the workshop has increased your knowledge of energy issues...*

- 1 - a great deal,
- 2 - somewhat, or
- 3 - not at all?
- 9 - DK/REF

Q25. Do you think that your participation in the workshop has increased your ability to conduct energy efficiency activities...*

- 1 - a great deal,
- 2 - somewhat, or
- 3 - not at all?
- 9 - DK/REF

Q26. Have you actually implemented any energy-saving measures as a result of participating in a SDREO workshop?

- 1 - YES
- 2 - NO ----- > **GO TO Q28**
- 9 - DK/REF ----- > **GO TO Q28**

Q27. **[IF YES:]** What energy-saving measures have you implemented?
[DO NOT READ; RECORD ALL MENTIONED]

- 1) HIGHER PERFORMANCE BUILDING ENVELOPE SYSTEM
- 2) REPLACE HVAC EQUIPMENT WITH HIGHER EFFICIENCY EQUIPMENT
- 3) CHANGE ELECTRICITY RATE SCHEDULES
- 4) REPLACE LIGHTS WITH HIGHER EFFICIENCY LIGHTS
- 5) INSTALL ENERGY MANAGEMENT SYSTEM
- 6) ALTER LIGHT USAGE PATTERN

- 7) ALTER HVAC USAGE PATTERN
- 8) OTHER, SPECIFY: _____
- 9) DK/REF

[IF EVER VISITED SDERC:]

Q28. Are there any energy-saving measures that you still plan to implement?

[DO NOT READ; RECORD ALL MENTIONED]

- 1) HIGHER PERFORMANCE BUILDING ENVELOPE SYSTEM
- 2) REPLACE HVAC EQUIPMENT WITH HIGHER EFFICIENCY EQUIPMENT
- 3) CHANGE ELECTRICITY RATE SCHEDULES
- 4) REPLACE LIGHTS WITH HIGHER EFFICIENCY LIGHTS
- 5) INSTALL ENERGY MANAGEMENT SYSTEM
- 6) ALTER LIGHT USAGE PATTERN
- 7) ALTER HVAC USAGE PATTERN
- 8) OTHER, SPECIFY: _____
- 9) NO/DK/REF

Q29. Are there any energy-saving measures you intended to implement that you will not be implementing? **[DO NOT READ; RECORD ALL MENTIONED]**

- 1) HIGHER PERFORMANCE BUILDING ENVELOPE SYSTEM
- 2) REPLACE HVAC EQUIPMENT WITH HIGHER EFFICIENCY EQUIPMENT
- 3) CHANGE ELECTRICITY RATE SCHEDULES
- 4) REPLACE LIGHTS WITH HIGHER EFFICIENCY LIGHTS
- 5) INSTALL ENERGY MANAGEMENT SYSTEM
- 6) ALTER LIGHT USAGE PATTERN
- 7) ALTER HVAC USAGE PATTERN
- 8) OTHER, SPECIFY: _____
- 9) NO/DK/REF

Q30. The workshops offered by the Center are currently provided at no cost to the participants. Would you be willing to pay to attend this workshop?

- 1 - YES
- 2 - NO ----- > **GO TO HOTLINE SECTION (Q31)**
- 9 - DK/REF

Q30a. **[IF YES/DK/REF:]** About how much would you be willing to pay...
[READ EACH OPTION UNTIL A "YES" RESPONSE IS GIVEN]

	<u>YES</u>	<u>NO</u>	<u>DK/REF</u>
1) over \$150?	1	2	9
2) between \$101 and \$150?	1	2	9
3) between \$51 and \$100?	1	2	9
4) between \$10 and \$50?	1	2	9

ASK EVERYONE:

HOTLINE SECTION:

Q31. Are you aware that the Center has a telephone hotline at 866-S-D-E-N-E-R-G-Y or email service at www.sdenergy.org that people can contact for information about energy use?

- 1 - YES
- 2 - NO ----- > **GO TO WEBSITE SECTION (Q35)**
- 9 - DK/REF ----- > **GO TO WEBSITE SECTION (Q35)**

Q32. **[IF YES:]** How many times have you called the Center's hotline or emailed the Center for answers regarding energy usage?

- a) _____ TIMES CALLED
- b) _____ TIMES EMAILED

0 - NONE ----- > **IF NONE ON BOTH, GO TO WEBSITE SECTION (Q35)**
 99 - DK/REF

Q33. **[IF CALLED/E-MAILED CENTER:]** How satisfied were you, in terms of the following aspects of the Center's energy information telephone or email service? The first one is...** Would you say very satisfied, somewhat satisfied, somewhat dissatisfied, or very dissatisfied?*

	Very	Smwt	Smwt	Very	
	<u>Satisfied</u>	<u>Satisfied</u>	<u>Dissat</u>	<u>Dissat</u>	
<u>DK/</u>					
<u>REF</u>					
1) getting the information that you called for?..	1	2	3	4	9
2) the usefulness of the information that you received?.....	1	2	3	4	9
3) the availability of hotline staff to assist you?	1	2	3	4	9
4) the courtesy of SDERC staff?.....	1	2	3	4	9
5) the level of knowledge of staff?	1	2	3	4	9
6) the hours of operation of the service?	1	2	3	4	9

Q34. And when you called the hotline or emailed the Center, were you referred to another resource? **[IF YES:]** Was that referral...* **[REVERSE OPTIONS ON 1-4 ONLY]**

- 1 - very helpful,
- 2 - somewhat helpful,
- 3 - not very helpful,

- 4 - not at all helpful, or
- 5 - did you not follow up this other referral?
- 6 - NO REFERRAL GIVEN
- 9 - DK/REF

WEBSITE SECTION:

Q35. Are you aware that there is a section of San Diego Regional Energy Office's website specifically designed to provide information about the Center, at www.sdenergy.org? **[SAY INDIVIDUAL URL LETTERS]**

- 1 - YES
- 2 - NO ----- > **GO TO TECHNICAL ASSISTANCE SECTION (Q38)**
- 9 - DK/REF ----- > **GO TO TECHNICAL ASSISTANCE SECTION (Q38)**

Q36. **[IF YES:]** How many times have you visited the Center's section of SDREO's website (the section about the San Diego Energy Resource Center)?

- _____ TIMES
- 0 - NONE ----- > **GO TO TECHNICAL ASSISTANCE SECTION (Q38)**
 - 99 - DK/REF

Q37. **[IF VISITED WEBSITE:]** How satisfied were you, in terms of the following aspects of the Center section of this website? The first one is...** Would you say very satisfied, somewhat satisfied, somewhat dissatisfied, or very dissatisfied?*

DK/ <u>REF</u>	Very <u>Satisfied</u>	Smwt <u>Satisfied</u>	Smwt <u>Dissat</u>	Very <u>Dissat</u>	
1) getting the information that you were looking for?	1	2	3	4	9
2) the usefulness of the information that you found?	1	2	3	4	9
3) the technical level of the information that you found?	1	2	3	4	9

TECHNICAL ASSISTANCE SESSION (BY APPOINTMENT):

Q38. Are you aware that you can receive individualized technical assistance by appointment from staff members of the San Diego Regional Energy Office?

- 1 - YES
- 2 - NO ----- > **GO TO OUTREACH SECTION (Q43)**
- 9 - DK/REF ----- > **GO TO OUTREACH SECTION (Q43)**

Q39. **[IF YES:]** How many times have you received individualized technical assistance from San Diego Energy Resource Center staff members?

- _____ TIMES
- 0 - NONE ----- > **GO TO OUTREACH SECTION (Q43)**
 - 99 - DK/REF

Q40. Overall, how satisfied were you, in terms of the following aspects of the technical assistance received? The first one is...** Would you say very satisfied, somewhat satisfied, somewhat dissatisfied, or very dissatisfied?*

	Very	Smwt	Smwt	Very	
DK/					
<u>REF</u>	<u>Satisfied</u>	<u>Satisfied</u>	<u>Dissat</u>	<u>Dissat</u>	
1) the efficiency with which the technical assistance was provided?	1	2	3	4	9
2) the level of knowledge of the staff member(s)?.....	1	2	3	4	9
3) getting the information that you expected to get from the assistance?	1	2	3	4	9
4) the usefulness of the information that you received?.....	1	2	3	4	9

Q41. Do you think that the technical assistance has increased your knowledge of energy issues...*

- 1 - a great deal,
- 2 - somewhat, or
- 3 - not at all?
- 9 - DK/REF

Q42. Do you think that the technical assistance has increased your ability to conduct energy efficiency activities...*

- 1 - a great deal,
- 2 - somewhat, or
- 3 - not at all?
- 9 - DK/REF

EDUCATIONAL OUTREACH PROGRAM SECTION:

Q43. Are you aware that the San Diego Regional Energy Office offers educational outreach programs for both school children and senior citizens onsite at the Center and off-site at remote locations?

- 1 - YES
- 2 - NO ----- > **GO TO PROGRAM SATISFACTION SECTION (Q48)**
- 9 - DK/REF ----- > **GO TO PROGRAM SATISFACTION SECTION (Q48)**

Q44. **[IF YES:]** How many times have you participated in an educational outreach program offered by the San Diego Energy Resource Center, either onsite or off-site?

_____ TIMES
 0 - NONE ----- > GO TO PROGRAM SATISFACTION SECTION
(Q48)
 99 - DK/REF

Q45. **[IF EVER PARTICIPATED:]** Overall, how satisfied were you, in terms of the following aspects of the educational outreach program? The first one is...**
 Would you say very satisfied, somewhat satisfied, somewhat dissatisfied, or very dissatisfied?*

	Very	Smwt	Smwt	Very	
DK/	<u>Satisfied</u>	<u>Satisfied</u>	<u>Dissat</u>	<u>Dissat</u>	
REF					
1) the efficiency with which the program was provided?	1	2	3	4	9
2) the level of knowledge of the staff member(s)?.....	1	2	3	4	9
3) getting the information that you expected to get from the program?	1	2	3	4	9
4) the usefulness of the information that you received?	1	2	3	4	9

Q46. Do you think that the educational outreach has increased your knowledge of energy issues...*

- 1 - a great deal,
- 2 - somewhat, or
- 3 - not at all?
- 9 - DK/REF

Q47. Do you think that the educational outreach has increased your ability to conduct energy efficiency activities...*

- 1 - a great deal,
- 2 - somewhat, or
- 3 - not at all?
- 9 - DK/REF

ASK EVERYONE:
PROGRAM SATISFACTION SECTION:

Q48. Have you referred anyone to the San Diego Energy Resource Center?
[IF YES:] Approximately how many people have you referred?

_____ PEOPLE REFERRED TO SDERC
 0 - NO/NONE

97 - 97 OR MORE
99 - DK/REF

Q49. Have you shared any of the information you obtained from the Center with any other people? **[IF YES:]** Approximately how many people have you shared this information with?

_____ PEOPLE SHARED INFORMATION WITH

- 0 - NO/NONE
- 97 - 97 OR MORE
- 99 - DK/REF

Q50. Do you think that your participation in San Diego Energy Resource Center programs has increased your knowledge of ecological and environmental issues...*

- 1 - a great deal,
- 2 - somewhat, or
- 3 - not at all?
- 9 - DK/REF

Q51. Overall, how satisfied or dissatisfied are you with the programs provided by the Center? Are you...*

- 1 - very satisfied,
- 2 - somewhat satisfied,
- 3 - somewhat dissatisfied, or
- 4 - very dissatisfied?
- 9 - DK/REF

Q52. If you had it to do over again, would you choose to participate in the programs offered by the Center or not?

- 1 - YES
- 2 - NO
- 9 - DK/REF

Q53. What one suggestion would you offer to improve the programs provided by the Center? **[PROBE AND RECORD ONE MAIN RESPONSE]**

99 - DK/REF

SEX. **[RECORD RESPONDENT'S GENDER:]**

- 1 - MALE
- 2 - FEMALE

EDU. In closing, the following questions are for comparison purposes only. What is the highest grade or year of school that you have completed and received credit for...

- 1 - high school or less;
- 2 - at least one year of college, trade or vocational school;
- 3 - graduated college with a bachelor's degree; or
- 4 - at least one year of graduate work beyond a bachelor's?
- 9 - DK/REF

RNR. Would you say that your interaction with the San Diego Energy Resource Center has been...

- 1 - as a residential consumer, or
- 2 - as a member of a commercial, industrial or governmental organization? ----- > **GO TO NON-RESIDENTIAL DEMO SECTION (BUS)**
- 9 - DK/REF

RESIDENTIAL DEMOGRAPHICS SECTION:

RES. How long have you lived in your current residence?

[RECORD CUMULATIVE YEARS IF GAP IN RESIDENCE]

- _____ YEARS
- 0 - LESS THAN 6 MONTHS
 - 99 - DK/REF

HOM. Please describe your current residence. Is your current residence...

- 1 - a single family detached home
- 2 - a multifamily housing complex, apartment, or condominium, or
- 3 - a mobile home?
- 9 - DK/REF/NONE

SIZ. What is the size of your current residence in square feet?

- _____ SQUARE FEET
- 99997 - 99997+
 - 99999 - DK/REF

ENV. Are you a member of any environmental organizations?

[IF YES:] Which one(s)? **[DO NOT READ; RECORD ALL MENTIONED]**

- 1) AUDUBON SOCIETY
- 2) GREENPEACE
- 3) NATURE CONSERVANCY
- 4) SIERRA CLUB
- 5) WORLD WILDLIFE FEDERATION
- 6) OTHER, SPECIFY: _____
- 7) DK/REF/NONE

ADT. How many adults age 18 or older, including yourself, live in your household?

_____ ADULTS
99 - DK/REF

KID. How many children under the age 18 live in your household?

_____ CHILDREN
0 - NO CHILDREN IN HOUSEHOLD
99 - DK/REF

EMP. What is your employment status? Are you...

[CLARIFY AND RECORD ANY COMBINATIONS THAT INCLUDE WORKING AS '1' OR '2', SUCH AS "STUDENT AND WORKING PT"]

- 1 - working full-time, (at least 35 hours per week)
- 2 - working part-time, or
- 3 - not working?
- 9 - DK/REF

AGE. Please tell me when I mention the category that contains your age...

- 1 - 18 to 24,
- 2 - 25 to 34,
- 3 - 35 to 44,
- 4 - 45 to 54,
- 5 - 55 to 64, or
- 6 - 65 or over?
- 9 - DK/REF

ETH. Which of the following best describes your ethnic or racial background...

- 1 - white, not of Hispanic origin,
- 2 - black, not of Hispanic origin,
- 3 - Hispanic or Latino,
- 4 - Asian or Pacific Islander,
- 5 - Native American, or
- 6 - another ethnic group? SPECIFY:

9 - DK/REF

INC. Now, we don't want to know your exact income, but just roughly, could you tell me if your annual household income before taxes is...

- 1 - under \$25,000,
- 2 - \$25,000 up to but not including \$50,000,
- 3 - \$50,000 up to (but not including) \$75,000,

- 4 - \$75,000 up to (but not including) \$100,000, or
- 5 - \$100,000 or more?
- 9 - DK/REF

***** NOW GO TO CLOSING SECTION (PHN) *****

NON-RESIDENTIAL DEMOGRAPHICS SECTION:

BUS. Which of the following best describes the type of business you are in...
[READ ABBREVIATED LIST; CLARIFY FURTHER AS INDICATED]

- 1 - architecture,
- 2 - lighting design,
- 3 - engineering, (electrical)
- 4 - " (HVAC)
- 5 - " (both)
- 6 - contracting, (electrical)
- 7 - " (HVAC)
- 8 - " (both)
- 9 - property management,
- 10 - manufacturing, (related to building equipment)
- 11 - " (other)
- 12 - distribution, (related to building equipment)
- 13 - " (other)
- 14 - or retail? (related to building equipment)
- 15 - " (other)
- 16 - OTHER, SPECIFY: _____
- 99 - DK/REF

FTE. Approximately how many full-time employees in your organization are located in San Diego County?

- _____ TOTAL FULL-TIME EMPLOYEES (OR EQUIVALENT)
 99997 - 100,000 OR MORE
 99999 - DK/REF

POS. Which best describes your position in the organization...

- 1 - owner, partner, or president,
- 2 - management,
- 3 - engineer,
- 4 - architect,
- 5 - designer, or
- 6 - some other position? SPECIFY: _____
- 9 - DK/REF

YRS. How long have you been in your current position?

- _____ YEARS IN POSITION
 0 - LESS THAN 1 YEAR

99 - DK/REF

DEC. In your position, how often do you make energy-related decisions about HVAC systems, architectural designs, lighting or lighting controls, or other energy-related matters? Would you say...*

- 1 - frequently,
- 2 - occasionally,
- 3 - rarely, or
- 4 - never?
- 9 - DK/REF

SUP. How many employees do you directly or indirectly supervise, if any?

_____ TOTAL EMPLOYEES SUPERVISED
99997 - 100,000 OR MORE
99999 - DK/REF

CLOSING SECTION:

PHN. Those are all the questions I have. I'd like to confirm that I reached you at...

[VERIFY AND INSERT TELEPHONE NUMBER:] _____

NAM. And that I'm speaking with...

[VERIFY AND INSERT RESPONDENT'S NAME:] _____

Your name and phone number will be separated from your responses to these questions and destroyed after the data has been processed. **[THANK RESPONDENT; RECORD REMAINING INFORMATION BELOW]**

TIN. **[INTERVIEWER NUMBER:]** _____

LEN. **[LENGTH OF INTERVIEW IN MINUTES:]** _____

DAT. **[DATE OF INTERVIEW:]** _____

REC. **[CATI RECORD NUMBER:]** _____