

**Evaluation, Measurement, and Verification of the California
Local Energy Efficiency Program**
Programs #1241-04 and #1242-04

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1 Executive Summary

Navigant Consulting, Inc. (NCI) was awarded \$2,754,520 of Public Goods Charge (PGC) funds for program years (PY) 2004 and 2005 to develop a prototypical process to assist local governments in identifying, selecting, and implementing programs and policies to achieve and to promote aggressive energy efficiency improvements. The program, called the California Local Energy Efficiency Program (CALeep), consisted of four primary goals:

1. Stimulate increased community oriented energy efficiency activity.
2. Demonstrate that the energy efficiency decision-making process template designed through this program can be replicated in different jurisdictions.
3. Establish projects with three local governments *each* in the service territories of Pacific Gas & Electric (PG&E) and Southern California Edison (SCE).
4. Demonstrate that the pilot projects are capable of delivering cost-effective energy savings.

To achieve these four objectives, CALeep planned to carry out four tasks. First, CALeep planned to convene a summit of a broad group of stakeholders, including local government organizations, state and federal energy agencies, and utility companies to identify the universe of energy efficiency programs and policies available to local California governments, the associated mechanisms for implementing those programs/policies, and ways to overcome barriers. Second, working with a smaller group of stakeholders, including selected community agencies, CALeep planned to convene a screening workshop to develop a process for screening available programs and policies that are the most attractive and “doable” for a particular local jurisdiction. Third, CALeep planned to conduct year-long pilot projects with three diverse local governments, assisting them with selection and implementation of energy efficiency programs and policies and studying the results. Finally, CALeep planned to incorporate lessons learned from the pilots, produce a “template” contained in a workbook for establishing local government energy efficiency programs, and develop a comprehensive, multiyear marketing strategy to reach all of California cities, counties, and special districts.

The belief on the part of CALeep staff was that engaging in the activities for each of the six projects will achieve certain objectives. Based on these activities, certain lessons can be learned that will eventually be included in the template as basic recommendations about what to do or not to do in certain situations. Of course, it was critical that the CALeep staff must make a good faith effort to implement the planned activities and learn from both their successes and failures. If the program staff did not make a good faith effort, then there would be few, if any, lessons learned. Even if the CALeep staff made a good faith effort but, in the end, was fairly disorganized, then, again, there would be few, if any, lessons learned. An evaluation of the implementation of each of the six projects attempted to verify whether the program engaged in activities from which useful lessons could be gleaned and whether these lessons were eventually transferred into the template.

1.1 Methods

The evaluation of CALeep met all of the CPUC-stipulated items and EM&V components contained in the Energy Efficiency Policy Manual. This evaluation of CALeep, a very innovative and complex program, also required the development of a program theory and logic model followed by the collection of a wide variety of Program-level and project-level data which were subjected to both qualitative and quantitative analyses. The main sources of data were:

- Program records and documents
- In-depth interviews with both implementers and participants
- Surveys administered to participants both in-person and over the Internet

Given the limited number of pilot participants, much of the analysis was conducted within a case study context (Patton, 1980; Yin, 1994), with much of the collected data analyzed qualitatively. Other data collected from participants at the time of the outreach workshops and web-casts and approximately 6 months after the outreach events via an Internet survey were analyzed quantitatively. At the completion of the Program, the team collected and reviewed, whenever possible, the energy savings estimates associated with completed energy efficient installations or expected savings from such activities as energy audits. The performance of the six pilot projects were first analyzed followed by an assessment of overall Program-level performance.

1.2 Results

The results for the key CALeep activities are presented in the order in which they occurred.

1.2.1 Summit

Based on a review of the workshop documentation and the eventual Program process structure that was clarified based on the information obtained at the Summits, the Evaluation Team concluded that the Summit workshops were successful at achieving the objective of gathering information from a diverse group of relevant stakeholders with the end results of clarifying the program process structure.

The Summit workshops were used to gather preliminary information, and this information was further refined in the Screening workshop by a smaller group of participants selected from the Summit workshops. The assessment of this Screening workshop is presented next.

1.2.2 Screening Workshop

Using the assessment criteria, and based on a review of the findings and results of the Screening workshop, the Evaluation Team concluded that NCI was able to achieve the objectives of the Screening workshop. Although NCI did not produce a draft prototype workbook to test through the pilot studies, they did develop an alternative plan for producing the workbook as a result of feedback from the Screening workshop. That is, the plan was changed such that NCI would use the pilot studies to gather data and lessons

learned that would eventually be used to refine the process structure and also be included in the decision-making process template, or workbook.

1.2.3 Pilot Projects

The following six pilot projects were conducted:

- City of Oakland
- Inland Empire Utility Agency (IEUA)
- San Joaquin Valley Project
- Sonoma County Community Engagement Project
- South Bay Cities Council of Governments (SBCCOG)
- Ventura County Regional Energy Alliance (VCREA)

Because each of the sites selected as pilot projects presented unique opportunities and challenges, the goals and activities of each pilot project were appropriately unique. The basic question addressed by the Evaluation Team was whether those managing the various pilot projects made a good faith effort to achieve their respective objectives and in so doing were able to extract important lessons that were codified in the Workbook.

To answer this basic question, the Evaluation Team employed a number of approaches. First, the Evaluation Team conducted in-depth interviews with CALeep staff, CALeep subcontractors, and key participants involved in implementing the pilot projects. Next, program documents, such as monthly reports, CALeep staff diaries, and various outputs such as the Clean Energy Roadmap and audits completed in the (SBCCOG) were reviewed. In the end, the Evaluation Team concluded that every project engaged in activities that produced some tangible results from which lessons were learned. *Thus, the answer to the basic question posed earlier is that a good faith effort was made, although some projects encountered more challenges than others, and, as a result, some were ultimately less successful than others.* The reader is encouraged to read the details of each pilot project to gain a fuller understanding of the challenges posed and the various strategies employed to produce useful results.

1.2.4 Workbook Development

The workbook is addressed to the “Energy Efficiency Champion – someone with the drive, time, energy, creativity, and persistence to make [energy efficiency] happen in places and ways that it has not previously happened.” (Workbook, p 21) The user may be an employee of some form of local government, an energy consulting firm that will assist local governments in pursuing energy efficiency, or simply a member of the community, interested in implementing energy efficiency programs.

The workbook guides this energy efficiency champion through the process of conceiving, designing, and implementing local energy efficiency programs, assuming no experience with project management, government programs, or energy efficiency (EE) on the part of the user. Types of EE programs covered include: lighting retrofits in specific facilities, procurement policies requiring agencies to purchase Energy-Star rated products, free

energy audits to the residential or commercial sector, raising energy efficiency standards in building codes, and programs improving access to energy efficiency resources for low-income communities, to name a few. The workbook provides thorough and detailed warning of all the potential obstacles that one might encounter, both political and technical, that could impede the implementation of energy efficiency programs, and it also provides strategies to overcome these obstacles.

The goal of the workbook is to help communities identify energy efficiency opportunities, match their ambitions realistically with their capabilities, and access existing resources and stores of experience that are crucial to success.

The workbook is 117 pages long, with 214 pages of appendices. The body of the workbook is written in narrative format, guiding the user through the entire process of energy efficiency program creation, from start to finish. The appendices provide additional worksheets and exercises, examples and resources, narratives of six pilot programs, historical background, and supporting technical materials. The CALeep Web site provides additional resources that were too complex or expansive to include in the workbook itself.

The structure of the workbook makes it adaptable to user needs, as each chapter can be taken as a distinct entity, tailored to specific stages of the process, with associated worksheets and exercises in the appendices.

The structure of the workbook follows the structure of the CALeep process. The workbook is delineated into five chapters, corresponding to the five steps (Initiate, Plan, Organize, Implement, and Assess). Since many of the steps of the process are overlapping and iterative, Navigant used several mechanisms to allow easy reference back and forth between chapters. Some of these mechanisms are:

1. graphic page headers associated with each step and sub-step,
2. checklist-style table of contents preceding each chapter, and
3. tables and diagrams within each chapter for accessibility of information.

Important points or insights, additional resources, relevant Web sites/databases, supporting examples, and flow diagrams are also provided in boxes in the margins, and footnotes indicate the existence of supporting materials, including exercises and worksheets, in the appendices.

1.2.5 Marketing Outreach

CALeep used both indirect and direct marketing strategies to engage their target audience and encourage potential users to review and use the CALeep materials. CALeep staff organized two conferences that focused on broader topics with strong ties to energy efficiency work. In addition, CALeep participated in several other conferences and held more directed information sessions in online Web casts. The Evaluation Team attended several of the marketing events and provided feedback to CALeep regarding the effectiveness of the various workshops, conferences, and Web casts. While CALeep

clearly made a good faith effort to introduce the materials, the Evaluation Team felt that the marketing activities with respect to the Workbook could have been more focused.

1.2.6 Use of CALeep Materials

The CALeep workbook was intended as the primary deliverable of the Program. Later, additional resources were added to complement the information provided in the workbook. Accordingly, evaluating the effectiveness of the Program requires assessing the effectiveness of the workbook and the other CALeep materials. Two sources of data were relied upon: 1) an Internet survey of members of the target audience, and 2) interviews with CALeep staff regarding more recent request for CALeep materials. First, we present the highlights of the Internet survey.

- Of the 160 respondents, 36 (22.5 percent) had obtained or viewed at least *some* of the materials and were given the opportunity to complete the survey.
- Of the 36 respondents who obtained or downloaded some of the CALeep materials, 24 individuals, or 66.7 percent, obtained or viewed the workbook. Far more respondents actually viewed the workbook than any other of the resources made available through CALeep. The materials on water, EE, and the case studies were obtained or reviewed by the largest percentage of respondents other than the workbook, by 52.8 percent and 38.9 percent, respectively. The information on working with ESCOs, the additional EE guides, and the materials on EE procurement were reviewed by the least number of participants, each by 8.3 percent of the respondents.
- Those who downloaded or received the workbook reviewed it, but not too thoroughly. The extent to which they reviewed the other materials is similar.
- The extent of actual *use* of the CALeep workbook was fairly low. So, while participants reviewed the workbook to some degree, ultimately, they did not use the workbook to any large degree. The use of the other CALeep materials was also somewhat low.
- Of those respondents who indicated that their organization was, in some way, in a position to implement energy efficiency actions directly, 73.7 percent, indicated that they had taken energy efficiency actions since reviewing the CALeep materials, with 42.8 percent of these respondents indicating that the CALeep materials either assisted or accelerated their decision to take these actions.
- Of those respondents who indicated that their organization was, in some way, in a position to implement energy efficiency actions directly, 63.2 percent indicated that they plan to take energy efficiency actions in the next 18 months, and half of these suggested that exposure to the CALeep materials assisted or accelerated their plans to take some energy efficiency actions.
- When the 19 respondents who, in some way, could implement energy efficiency measures were asked whether they have participated in any utility, state, or federal energy efficiency programs since reviewing the CALeep materials, 13 respondents, or 68.4 percent, indicated that they had participated, but only 2 of

these 13 respondents, or 15.38 percent, indicated that reviewing the CALeep materials assisted or accelerated their decisions. These 19 respondents also were asked whether they plan to participate in any utility, state, or federal energy efficiency programs within the next 18 months, and 11 respondents, or 57.9 percent, indicated that they do plan to participate. But, of these 11, only 3, or 27.3 percent, indicated that reviewing the CALeep materials assisted or accelerated their plans to participate in an EE program.

- Of those respondents whose organizations primarily assisted others with implementing energy efficiency, 61.8 percent indicated that the CALeep materials would help them assist others in implementing energy efficiency actions.
- Of those who obtained and reviewed the workbook, 44.4 percent, indicated that they had shared it with others either inside or outside of their organization. The average number of colleagues (inside or outside the workplace) with whom respondents shared the workbook was 2.75.
- Recommendations for improving the workbook included:
 - Simplifying and reducing the size of the workbook
 - Incorporating the workbook into a class or workshop to make it less intimidating and more accessible.

More recent interviews with CALeep staff suggest that the demand for the CALeep workbook is continuing. The CALeep Program and Web site were recently highlighted in the Flex Your Power newsletter. The workbook and Web site are described as tools “for the novice and seasoned professional.” The article explains that the updated workbook “contains a new technical addendum that answers fundamental questions about local government energy efficiency implementation, an appendix with the results from six pilots, and additional links and documents.”

In addition, entities outside of California have heard about the CALeep Program and have expressed interest in the workbook. The National Association of Counties is working with Navigant to put a link to the CALeep Web site on their Web site, and a representative of Utah Clean Energy has also requested hard copies of the workbook.

1.3 Conclusions and Recommendations

Each of the 32 linkages in the logic model (see [Figure 2](#) and [Figure 3](#)) was examined by the Evaluation Team to determine whether the evidence based on the indicator data for these relationships were strong, moderate, or weak. We found that for 34 percent of the linkages the evidence was strong, for 38 percent of the linkages the evidence was moderate, and for 28 percent of the linkages the evidence was weak.

From this analysis, there also emerged a number of overarching conclusions. First, it is clear that the CALeep staff underestimated both the complexity, time, and cost of conducting the pilot projects. One CALeep staff member suggested that they had only about 20 percent of the budget actually needed to carry out the original plan. Staff changes, unanticipated problems such as the overlap with the LGEP Program, bureaucratic delays, organizational barriers, and a failure to fully appreciate the

complexities of city governments, organizations, and baseline conditions all combined to shorten the amount of time to achieve significant progress in some projects such as the VCREA Pilot Project and to consume greater resources than originally planned. However, it must be noted that the CALeep staff remained flexible in attempting to address a large number of such challenges as they arose. *That is, they made a good faith effort to take on these complex projects and extract useful lessons that could be incorporated into the Workbook and other materials.*

Evaluation team concluded that the Workbook and other materials assembled and produced by NCI represent an attempt to provide the target audience with a set of best practices for those wishing to serve the energy services needs of local governments and their constituents. While a best practices study had been recently developed by Quantum Consulting, Inc. (2004) and includes the 2002-2003 Business Energy Services team Program implemented by KEMA-XENERGY in the City of Oakland, a set of best practices does not appear to exist that is based on a larger number of cities. *The CALeep Program represented the first effort to partially address this gap.*

Finally, we have three recommendations:

1. While there appears to be a clear need for a local government best practices document, the Evaluation team has concluded that another CALeep-like effort is not recommended. The CALeep Program demonstrated the unique conditions that shape decisions in local governments and developed a framework to organize future efforts. That base effort was beneficial, but, at this point, a more traditional best practice study would very likely be more useful. Such a study can now be done based on completed evaluations of local government programs, including CALeep, and the future evaluations of the 52 local government partnership programs that have been funded for the period 2006 through 2008 by PG&E, SCE, SoCal Gas, and SDG&E. Such a best practices study could be posted on the CALMAC.ORG website and made available to local governments through a variety of other avenues such as local government workshops, the Flex Your Power Web site (www.fypower.org), and the California Chapter of the American Planning Association (www.calapa.org).
2. A review of the utility program-tracking databases should be carried out to obtain a more accurate picture of the historical rates of participation in energy efficiency programs by local governments and the communities they represent.
3. If the CPUC believes that funds for project grants need to be reviewed and approved by the Energy Division for any future programs, then the ED should take steps to streamline the approval process. While we understand that the ED staff were overcommitted, such delays meant the original schedule for completing some of the projects was seriously shortened, making it difficult to carry out all planned activities.

1.4 Organization of Remainder of Report

The remainder of this report includes five chapters which are listed below along with a brief description of each.

Chapter 2: Introduction

This chapter discusses the original program as proposed and the challenges that arose during the early phases of implementation of this innovative program. This is followed by a description of how the program staff modified the program design and how the Evaluation team, in turn, modified its approach.

Chapter 3: Methods

This chapter begins with a description of the evaluation objectives specifically outlined by the CPUC in the Energy Efficiency Policy Manual (EPPM)¹. These eight EPPM objectives and EM&V components are presented first in order to make it clear at the outset how the evaluation will address each of them. Next, we show how the five objectives of this evaluation incorporate all of the CPUC EM&V requirements described earlier and generally can be placed in a traditional process and impact evaluation framework. Finally, we describe the various approaches to achieving each of these five evaluation objectives.

Chapter 4: Program Overview

Most of the CALeep budget was consumed by the six pilot projects that were designed to carry out a wide variety of activities to achieve a wide variety of objectives all aimed at producing a number of materials such as the Workbook, case studies, and sample energy assessments. Adequate descriptions of the activities are critical in order to demonstrate a good faith effort to achieve the objectives and produce useful user documentation.

Chapter 5: Results

This chapter presents the extent to which each of the six pilot projects met its unique objectives. We then describe the various CALeep materials that were produced including:

- The CALeep Workbook
- Case studies
- Water and Energy Efficiency
- Green Buildings
- Sources for Working with Energy Services Companies (ESCOs)
- Energy Efficiency Policies
- Other Energy Efficiency Guides
- Financing Energy Efficiency

¹ California Public Utilities Commission. (2001) *“Energy Efficiency Policy Manual.”* Prepared by the Energy Division of the California Public Utilities Commission.

- Energy Efficiency Procurement
- Comprehensive Plans Involving Energy Efficiency
- Sample Energy Assessments

We also address the extent to which these materials were obtained or viewed and used to influence a variety of energy efficiency activities. This section is based on results of an Internet survey of 500 individuals who had been targeted by CALeep. We conclude this chapter by describing, for each of the pilot projects, the lessons learned that were eventually incorporated in the CALeep Workbook.

Chapter 6: Conclusions and Recommendations

This chapter presents conclusions and recommendations regarding the success of CALeep and whether there is a continuing need for such a program.

2 Introduction

Innovative projects often encounter a number of anticipated challenges, a situation that puts a premium on program staff as well as the evaluators to respond in ways that ensure that the program produces valuable results that can be adequately evaluated. CALeep is a case in point. Because CALeep took a number of somewhat unexpected turns since its beginning in January of 2004, a brief review of the early history of CALeep is presented first since these changes affected the original program plan and, in turn, the original evaluation plan in some rather important ways.

2.1 Program History

2.1.1 The Program as Proposed

The original Program sought to first develop and then test the Prototype Community Energy Efficiency Program Workbook for local governments² to use in making decisions about implementing energy efficiency activities and programs. The CALeep targeted the barriers specific to local governments that minimize their participation in existing energy efficiency programs (e.g., those of the investor-owned utilities) and other activities that can help to reduce the energy costs of local governments and their constituents³.

More specifically, there were four primary goals of the CALeep:

1. Stimulate increased community oriented energy efficiency activity.
2. Demonstrate that the energy efficiency decision-making process template designed through this program can be replicated in different jurisdictions.
3. Establish projects with three local governments *each* in the service territories of Pacific Gas & Electric (PG&E) and Southern California Edison (SCE).
4. Demonstrate that the pilot projects are capable of delivering cost-effective energy savings.

To achieve these four objectives, CALeep was designed to carry out the following four tasks:

- **Task 1:** Working in consultation with a broad group of stakeholders, the Program will identify the universe of energy efficiency programs and policies available to local California governments, the associated mechanisms for implementing those programs/policies, and ways to overcome barriers. To facilitate communication

² The definition of the target audience eventually expanded beyond champions with local governments to include those who can impact what a local government does, which includes champions within the private sector such as individual advocates and energy consulting firms.

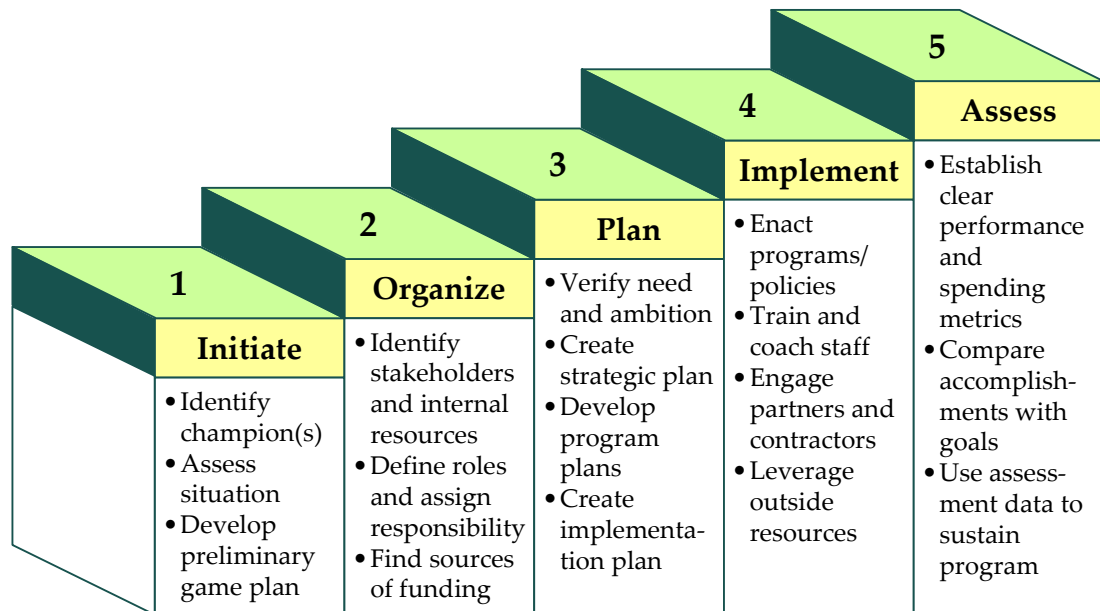
³ A basic assumption of the CALeep was that local governments were under-represented among the participants in utility-sponsored, energy efficiency programs. The CALeep staff had a general sense that local governments were under-represented, a perception that was generally supported by the experience of those who attended the Summit. However, the utilities claimed that their programs were always *over-subscribed* in the local government area. Review of the program-tracking databases should be carried out to obtain a more accurate picture of local government participation in energy efficiency programs.

with and among the key stakeholders, the Program will propose to hold a “scoping” workshop to confirm and to expand our understanding of available programs/policies and to identify and discuss barriers to their implementation.

The Program will also seek input from cities that already have robust community energy efficiency programs to get the benefit of their input as to lessons learned.

- Task 2:** The Program will convene a Screening Workshop with a smaller group of stakeholders to develop a process for 1) screening available programs and policies to select those most attractive and “doable” for a particular local jurisdiction to develop, and 2) making decisions about how to implement energy efficiency at the local government level. The stakeholders will participate in refining the CALeep process template that is replicable across multiple local governments. Finally, the workshop participants will be invited to assist in identifying potential candidates. After the workshop, CALeep staff will prepare a draft Prototype Community Energy Efficiency Program Workbook (the CALeep process template), which will be used to guide selection and implementation of programs and policies under the six proposed pilot projects. The CALeep process involves 5 basic steps, illustrated in Figure 1.

Figure 1
The CALeep Five-Step Process



Each of these five steps is repeated below along with some additional detail.

1. Initiate
 - a. Identify champion(s)

- b. Assess situation
 - i. Diagnostic review (e.g., identifying energy use & demand, current levels of efficiency, appropriate benchmarks, staff resources, and budget constraints)
 - c. Develop preliminary game plan ranging from the simple to the complex.
2. Organize
 - a. Identify stakeholders and internal resources
 - b. Define roles and assign responsibility
 - c. Find sources of funding
3. Plan
 - a. Verify need and ambition
 - b. Create strategic plan
 - c. Develop program plans
 - d. Create implementation plan
4. Implement
 - a. Enact programs/policies
 - b. Train and coach staff
 - c. Engage partners and contractors
 - d. Leverage outside resources
5. Assess
 - a. Establish clear performance and spending metrics
 - b. Compare accomplishments with goals
 - c. Use assessment data to sustain program

Program staff will also identify candidate local jurisdictions for the pilots, conduct interviews and select six participants.

- **Task 3:** Six Pilot Projects will be carried out 1) to test the effectiveness of the five-step CALeep process template in helping local governments to increase their level of energy efficiency activity and 2) to update the process template as a result of lessons learned. The Program will conduct yearlong pilot projects in six diverse local jurisdictions, assisting the local government entity with selection and implementation of energy efficiency programs and policies and studying the results. The Program will assign a senior engagement manager to work side-by-side with local governments and also provide access to a broad range of internal professional expertise. To start each project, the Program's dedicated liaison will meet with local officials and other community leaders and engage them in various strategic energy planning exercises. Together, they will use the Task 1 database and Task 2 Prototype Community Energy Efficiency Program Workbook to choose an appropriate portfolio of programs and policies. After adopting a suitable energy efficiency plan, our liaison will help administrators roll out the selected programs and policies. Examples or programs that might be implemented include:
 - incorporating advanced EE features in local building code and training inspectors,

- adopting appliance efficiency procurement standards for public housing and other facilities,
- training purchasing officers to consider life-cycle costs in making procurement decisions,
- inviting energy savings performance contract (ESPC) proposals for all public buildings and possibly local industry, and
- creating a revolving residential energy efficiency project loan fund.

Task 4: As the pilot projects unfold, the Program will begin to incorporate lessons learned into the CALeep process template and to develop a comprehensive plan for marketing the template to local governmental jurisdictions throughout the state. The Prototype Community Energy Efficiency Program Workbook (the CALeep process template) will be provided in electronic (PDF) form to all target entities and anyone who requests it.

- NCI will conduct 3 workshops in each in PG&E's and SCE,'s service territories, staggered over a 3-month period to allow for resolution of schedule conflicts, to present the findings of this process. Printed copies of the Workbook will be provided to all workshop attendees. It is expected that staff from both CEC and DOE will be able participate in these workshops.
- NCI will establish a Web site at which a master copy of the Workbook will reside. It may be accessible through NCI's own Web site, another organization's Web site (e.g., Local Government Commission), or an entirely separate site. The Master Workbook (e.g., updates to the Workbook, databases supporting the Workbook, Workshop program materials, etc.) will be maintained at this designated site. In addition, this site will provide links to other authoritative sites maintained by the CEC, DOE, the three IOUs, and other energy agencies and sustainability organizations. In particular, links will be established to programs that provide technical support and/or funding to local governmental entities and/or their constituents.
- The Program will request each of the targeted membership, energy agency and other organizations participating in the outreach process to establish a link to the Master Workbook site on their own Web site.
- The Program will assist each of the targeted organizations in emailing invitations to their members to attend workshops. In addition, the Program will develop an e-mail notice advising all members of these organizations how to obtain copies of the Workbook (e.g., a list of Web sites and a number to call for more information).

The Program also planned to offer an unlimited number of fee-based Web casts to walk through the findings and content of the Workbook, and to provide support to any entity

that requests assistance in applying the template in the Workbook to their own specific needs.

NCI will develop the proposed template for establishing local government energy efficiency programs in an 18-to-24 month, 4-task process, starting with determining the scope of options and developing a screening process, then conducting pilot projects, incorporating lessons learned in a final workbook, and developing a statewide market outreach program to disseminate the results.

2.1.2 Challenges to the Proposed Program

However, once the Summit was completed, it became clear to the CALeep staff that the organizational environment of local governments and others such as water agencies was far more complex than originally thought, making the development of draft Prototype Community Energy Efficiency Program Workbook (the CALeep process template), which was to be used to guide selection and implementation of programs and policies under the six proposed pilot projects, far more challenging than originally thought. Thus, while the original plan was to develop a *Prototype Community Energy Efficiency Program Workbook*, the efficacy of which could be tested in each of the six pilot projects, it became clear during the summit and screening workshops that this approach would have to be substantially modified. Interviews with CALeep staff indicated that they felt that to approach each pilot with such a workbook that was too specific would have been too restrictive. They felt that it would be better to learn what they could learn starting from a more general framework, represented by the five step process described earlier.

The CALeep staff admitted that, while not particularly innovative, the five step process did provide a very useful framework within which to carry out the CALeep activities. More could be learned from the pilots by observing what things actually did work in different circumstances while providing support whenever necessary. Choosing a variety of pilots would allow for lessons to be learned that could apply to a wide variety of situations. The real content of the workbook would be developed using lessons learned from each of the pilots and organized according to the five step process.

In addition, the identification of the six sites and the initiation of project activities were also more challenging than originally envisioned and required far more time than expected to launch. Approximately 25 prospective project sites were reviewed before the final set of six were selected. Some sites required some negotiations with utilities before being given the authority to implement a project while one other project had to negotiate its role with another third-party program operating in the same jurisdiction, which resulted in the CALeep role being significantly redefined. Finally, there were further delays in initiating the pilot projects since each had to receive the final approval of the CPUC, a process that consumed far more time than expected.

Once the pilot projects were launched, the initiation and organize stages presented some unexpected challenges. In some projects, the initial set of goals, channels, and strategies changed as new information was gathered and new barriers and opportunities emerged. A

situation in which project designs and goals change unexpectedly is not unusual, especially for innovative programs. However, such changes do pose significant challenges for evaluators. In some cases, the Evaluation Team made significant investments in understanding the objectives and assessing the relevant baseline conditions, only to discover that the objectives had changed.

Because of delays due to unanticipated challenges, the very definition of a successful project was forced to change. The CALeep staff began by noting that the Program is an information-only program that will develop and package an easy-to-use process that will assist local governments and their constituents in realizing the full potential of available energy efficiency programs and policy options. As such, the Program, in and of itself, should not be expected to affect the installation of energy efficiency measures. As a result, no measure costs, cost commitments, or related energy savings need to be reported. They concluded that having arrived at the point where the community is organized to do a project, in a tangible way, would constitute success. From this perspective, establishing an energy infrastructure or policy that will produce energy savings in the future is the program goal. This means a community would establish a firm plan and adopt energy efficiency goals and project plans. In the end, both *achieved* and *potential* energy and demand savings were reported for some projects.

In addition, there appeared to be some confusion among the CALeep staff and the Evaluation team regarding the basic nature of the Program. Was the point of the pilot projects to provide funds to communities or agencies experienced in energy efficiency and then observe and document what are in effect “best practices?” Or, was the point of the pilot projects to provide funds to communities or agencies with little experience in energy efficiency and then observe and document their struggles to design and implement an energy efficiency project? Ultimately, it appears to the Evaluation team that it was a mix of both. The sites that were selected varied in terms of their history, motivation, and knowledge with respect to energy efficiency. Some sites, which were themselves third-party programs funded by utilities, were highly motivated with a history of involvement in energy efficiency resulting in a fair amount of accumulated knowledge. For such sites, there were no barriers other than a shortage of funds to carry out already planned energy efficiency projects. In other cases, CALeep appears to have provided funds and guidance to already highly motivated organizations to carry out projects that had not been planned. Finally, CALeep provided funds and substantial guidance to less motivated, organized, and knowledgeable organizations to carry out projects that had not been planned.

Lessons can be learned from all three basic project types. In the first two cases, the lessons are learned by observing and recording best practices. In the third case, the lessons are learned by observing the trials and errors of those being coached by CALeep as the former attempted to implement energy efficiency projects.

Another important change that occurred was the importance of the workbook as an output. Initially, both the Evaluation team and the CALeep staff considered the development, dissemination, and perceived usefulness of this Workbook to be the primary indicators of the Program’s effectiveness. Over time, members of target audience

began requesting additional materials such as samples of energy policies and assessments. These requests suggested that the dissemination of these materials were equally import and deserving of the Evaluation team's attention.

Yet another challenge was posed by the very organization of the Evaluation Team. Rather than signing a single contract to evaluate CALeep, NCI chose to sign two separate contracts, one with Ridge & Associates and one with Brown, Vence & Associates. The former was responsible for the process evaluation while the latter was responsible for engineering analysis. We recognized that the two evaluation activities needed to be integrated into a single evaluation plan and eventually a single evaluation report that would be filed with the CPUC.

Finally, program-level and project-level changes in goals and objectives and strategies also meant that numerous drafts of the logic model and indicators were prepared. The first draft was produced on 7/9/2004 while the final version of the logic model was prepared on 8/20/2006.

2.1.3 Program and Evaluation Response

These challenges had four primary effects. First, rather than testing the Prototype Community Energy Efficiency Program Workbook, the goal of the Program shifted to begin with the six-step process and, over time, develop the more detailed and comprehensive Workbook based on additional lessons learned while implementing the six pilot projects. The belief on the part of CALeep staff was that engaging in the activities for each of the six projects will achieve certain objectives. Based on these activities, certain lessons can be learned that will eventually be included in the template as basic recommendations about what to do or not to do in certain situations. Of course, it was critical that the CALeep staff make a good faith effort to implement the planned activities and learn from both their successes and failures. If the program staff did not make a good faith effort, then there would be few if any lessons to be learned. Even if the CALeep staff made a good faith but, in the end, was fairly disorganized, then, again, there would be few if any lessons learned. An evaluation of the implementation of each of the six projects attempted to verify whether the program engaged in activities from which useful lessons could be gleaned and whether these lessons were eventually transferred into the template.

Also note that because of finite evaluation resources to cover both project-level *and* program-level objectives (e.g., workbook development and marketing outreach), the evaluation of each pilot could not be as rigorous as if it were the only project being evaluated. We only had to be convinced that a good faith effort had been made by the CALeep staff and its subcontractors.

The second effect was that because of the delays in selecting projects and obtaining CPUC approval and changes in the objectives of some projects, it became less likely that some projects would, over the course of the program period, make much progress with respect to energy efficiency (e.g., apply for funding from the state or utilities, install energy efficient equipment, design and implement energy efficiency policies, etc.)

Clearly the scope of work for BVA needed to change to reflect this fact. As a result, BVA tasks were modified to focus more on process evaluation activities rather than engineering-based impact evaluation activities.

Third, in response to NCI's organization of the evaluation, the Evaluation team had to systematically integrate the activities of the two teams into a single evaluation plan to be reviewed and approved by the Energy Division of the CPUC. In addition, numerous planning meetings were held to ensure consistency in evaluation approaches across the two teams, make mid-course corrections in the evaluation activities, plan and execute the analysis, and prepare the final integrated evaluation report.

Fourth, there were important numerous changes in both program-level and project-level goals and objectives as well as their operationalization⁴. The Evaluation team concluded that to measure baseline conditions in the face of such changes was imprudent. Thus, rather than measuring baseline conditions at the beginning of each project and measuring the magnitude of any changes at the end of each project, we worked with CALeep staff to quantify the final set of project-level performance objectives along with their respective success criteria. For example, if the objective is to conduct a number of 40 residential audits, then one can simply count the number of audits completed and determine whether the number is equal to, less than or greater than 40. Establishing such goals and objectives was especially important for projects that lasted only five to eight months rather than the originally planned 12 months. For such short projects, one could not reasonably expect significant changes in such baseline conditions as participation in utility-sponsored energy efficiency programs. Instead one must focus on discrete short-term objectives such as establishing green building case study sites for the VCREA Project.

2.2 Program Expenditures

Table 1 presents the CALeep expenditures as of 6/30/2006, by budgeted versus expended. CALeep expenditures are 94 percent of the original budget. This discrepancy is almost totally due to the fact that, while all M&V funds are expected to be expended by the end of September 30, 2006, all the EM&V funds had not as of 6/30/2006 been expended. Assuming the full \$200,000 will be expended, the expended will be 99 percent of the budgeted. The under-spending for Project Grants was due to the fact that the Oakland Project was only able to spend 66 percent of the \$75,000 grant.

⁴ These changes also meant that numerous drafts of the logic model and indicators were prepared. The first draft of the logic model was prepared on 7/9/2004 but not finalized until 8/20/2006.

Table 1
Program Expenditures for Primary Tasks: Budgeted Versus Expended

Budget Category	Budgeted	Expended	Percent of Budgeted
Marketing	\$2,035,120	\$2,035,038	100%
Travel & Conference	\$69,400	\$68,832	99%
EM&V	\$200,000	\$70,452	35%
Project Grants	\$450,000	\$424,628	94%
Grand Total	\$2,754,520	\$2,598,951	94%

The four key CALeep tasks described above are embedded within the Marketing budget category. Table 2 presents the expenditures for each of these four tasks, by budgeted versus expended.

Table 2
Program Expenditures for Primary Tasks: Budgeted Versus Expended

Tasks	Budgeted	Expended	Percent of Budgeted
Task 1. Scoping Workshop	\$272,672	\$348,710	128%
Task 2. Screening Workshop	\$184,832	\$90,141	49%
Task 3. Pilot Projects	\$1,318,408	\$1,170,638	89%
Task 4. Workbook Development and Marketing Outreach	\$241,208	\$408,025	169%
Total	\$2,035,120	\$2,035,038	100%

As one can see, while the expended is essentially 100 percent of the budgeted, there was some variation across tasks. The Scoping Workshop, Task 1, was 128 percent of the original budget and the workshop development and marketing outreach, Task 4, was 169 percent of the budgeted amount. Note that NCI did not include the costs for the pilot grants as part of the Task 3 cost. When one includes this cost, the budgeted amount for Task 3 is \$1,768,408 and the expended amount is 90 percent of the budgeted or \$1,595,267.

2.3 Program and Pilot Project Duration

CALeep began in January 2004 and was scheduled to be completed 18 months later in June 2005. On October 21, 2005, Navigant Consulting requested a no-cost extension of three calendar months for CALeep to March 31, 2006. On November 11, 2005, the CPUC agreed to extend the implementation period by three months with corresponding schedule changes for reporting, EM&V, and invoicing activities. The actual Program ended, with the approval of the CPUC, one year later in June 2006. The pilot projects were originally scheduled to be conducted for a period of 12 months, beginning in June of 2004 and concluding in May of 2005. However, as one can see in Table 3, the pilot projects began somewhat later than anticipated but ended 9 to 12 months later than planned, lasting an average of 21 months from the project initiation to the actual end date and an average of 13 months from grant funding approval to the actual end date.

**Table 3
Duration of Pilot Projects, and Key Dates**

Project	Project Initiation	Approval Request to CPUC¹	Grant Funding Approved	Cease-Work Date	Project Duration (Initiation to Cease-Work Date in Months)	Project Duration (Funding Approval to Cease-Work Date in Months)
Sonoma County	7/1/2004	1/11/2005	2/9/2005	5/24/2006	22.8	15.4
San Joaquin Valley	7/1/2004	9/29/2004	10/18/2004	3/31/2006	21.0	17.4
City of Oakland	7/1/2004	4/7/2005	11/3/2005	6/30/2006	24.0	7.9
IEUA	9/1/2004	2/24/2005	3/1/2005	5/9/2006	19.3	14.3
SBCCOG	9/1/2004	1/26/2005	2/24/2005	10/31/2005	13.0	8.1
VCREA	7/1/2004	2/11/2005	5/20/2005	10/31/2005	16.0	5.3

¹As part of the Navigant contract, the CPUC had to approve the proposed grant funds before any of the funds could be spent on any particular pilot project.

The average period of time between the request for the approval of grant funding to the CPUC approval of grant funding was approximately two months. With the exception of two pilot projects, which required approximately two weeks to gain CPUC approval of grant funding, the remaining four pilot projects required anywhere from one to seven months. These delays translated directly into delaying important work on these pilot projects. Some of these delays were due to CALeep's well intended effort to honor the CPUC's rightful oversight of Program budget by requiring prior CPUC approval before any proposed grant funding could be expended. Since the CPUC staff was somewhat overwhelmed with its current workload, the process for approval of pilot project grant funding proved burdensome to CALeep during January 2005.

3 Methods

For all evaluations, the CPUC requires that a set of eight overall objectives, as well as specific EM&V components, be addressed. There were items specifically outlined by the CPUC in the Energy Efficiency Policy Manual (EPPM)⁵. These eight EPPM objectives and EM&V components are presented first in order to make it clear at the outset how the evaluation will address each of them. Next, we will provide a detailed description of our evaluation plan.

3.1 CPUC Stipulated Items and EM&V Components

The CPUC requires that a set of eight overall objectives as well as specific EM&V components be addressed in each evaluation. These eight objectives are listed in Table 4 along with a description of the Evaluation Team’s (the team) response to each.

Table 4
CPUC Evaluation Objectives and Proposed Evaluation Activities

CPUC Objective	<i>How Evaluation Will Meet This Objective</i>
Measuring level of energy and peak demand savings achieved.	<i>While the program’s status as an information only program exempts it for estimating and claiming energy and peak demand savings, the team originally planned to review the savings estimates developed by/for the pilot communities and confirm that these savings estimates are reasonable. There was much less of this activity for reasons discussed in the Section 2.</i>
Measuring cost-effectiveness (except information-only)	<i>Not required for information-only programs.</i>
Providing up-front market assessments and baseline analysis, especially for new programs	<i>As part of the planning stage for each pilot community effort, the team established a baseline of energy efficiency activity. (One of Program’s goals is to increase the level of energy efficiency activity.) However, as noted above for CPUC Objective #1, the team also conducted, whenever a possible, a reasonableness review of energy and peak demand savings estimates that included estimates of baseline energy use.</i>
Providing ongoing feedback and corrective and constructive guidance regarding the implementation of programs.	<i>The team also provided both written and oral feedback on a regular basis regarding the findings of both process and impact issues.</i>
Measuring indicators of the effectiveness of	<i>A program theory and logic model was developed by the team to assist in identifying testable hypotheses and</i>

⁵ California Public Utilities Commission. (2001) “Energy Efficiency Policy Manual.” Prepared by the Energy Division of the California Public Utilities Commission.

CPUC Objective	<i>How Evaluation Will Meet This Objective</i>
specific programs, including testing of the assumptions that underlie the program theory and approach.	<i>possible indicators of immediate, intermediate, and long-range outcomes.</i>
Assessing the overall levels of performance and success of programs.	<i>The team assessed the extent to which the Program achieved its stated objectives through the various process and impact evaluation activities.</i>
Informing decisions regarding compensation and final payments. (except information-only)	<i>Not required for information-only programs.</i>
Helping to assess whether there is a continuing need for the program.	<i>The team used all the information gathered during this evaluation to help assess the need for this Program in the future.</i>

The CALeep Program used the results of six pilot projects upon which to learn a variety of lessons that could be built into a number of documents and made available to a larger audience. While each project was unique and deserving of its own full-scale evaluation, the Evaluation team chose to verify that the CALeep staff made a good faith effort to engage in a set of energy efficiency-related activities from which one could reasonably glean useful lessons. We made this decision based on the following:

- limited EM&V resources,
- the projects were never intended to be ends in themselves but only as a way to learn valuable lessons that could be shared with others,
- the need for the Evaluation Team to focus on the process by which these lessons were learned and codified, and
- the need to focus on the outreach effort once the materials were available on CALeep Web site(www.caleep.com).

3.2 Evaluation Objectives

The five objectives of this evaluation incorporate all of the CPUC EM&V requirements described earlier and generally can be placed in a traditional process and impact evaluation framework.

1. Conduct an evaluability assessment (EA), which is a diagnostic and prescriptive tool for improving programs and making evaluations more useful. It is a systematic process for describing the structure of a program (i.e., the objectives, logic, activities, and indicators of successful performance); and analyzing the plausibility and feasibility for achieving objectives, their suitability for in-depth

- evaluation, and their acceptability to program managers, policymakers, and program operators (Smith, 1989).
2. Conduct process evaluation activities that focus on the effectiveness of program and pilot project design and delivery.
 3. Provide interim assessments at key points in the program, to allow for mid-course corrections.
 4. Assess the effectiveness of the Program's market outreach plan, once lessons learned from the pilot programs have been incorporated into the final process template. The primary focus of this evaluation is on the development of the template rather than on changes in baseline conditions within each project.
 5. Conduct an impact evaluation that focuses on the extent to which the Program and each pilot project met their respective objectives.

Each evaluation task is discussed below.

3.2.1 Evaluability Assessment

In this step, the objective was to clarify the assumed relationships among the program resources, program activities, and expected outcomes from the perspectives of the manager and staff. The team documented program goals and objectives, causal assumptions, as well as the information needs and priorities of key stakeholders. This step also clarified the performance indicators, or types of evidence, by which the program was assessed. This step relied on two primary sources of information. The first is program documentation, including the program's implementation plan, documents subsequently created by CALeep, and any documents from the CPUC. The second source was meetings with the CALeep managers and staff. The meetings focused on program priorities, expected program accomplishments, issues facing the program and information needs. Below is a sample of the kinds of questions that guided the interactions in the meetings:

- What are the objectives of the program and what are the available resources?
- What are the major project activities?
- Why would these program activities be expected to achieve these objectives?
- What evidence is necessary to determine whether objectives are met?
- What kinds of information do you get on the program's performance and results?
- How often are these data collected?
- How are these data or records maintained?
- How do you (how would you) use this information?
- What results have been produced to date?
- What accomplishments are likely in the next year?
- Who are the relevant stakeholders (e.g., other state agencies, state and utility efficiency programs, community-based organizations)?

3.2.1.1 Clarification of Objectives

Evaluators need to know when a goal has been met, a job made easier when the objectives are as specific and measurable as possible. However, the objectives for the six

pilot projects were not always sufficiently specific and measurable. For example, to state that audits will be done in residential dwellings is not sufficient. Evaluators need to know the number and quality of the audits that were planned to be completed by the end of the program period. Thus, a considerable effort was made to make these objectives more measurable, an effort that was only partially successful.

3.2.1.2 Logic Model

Based on this review of the Program documents and interviews with Program staff, the team developed a logic model that: 1) outlines the key program activities and how they interrelate to produce the desired outputs and outcomes, 2) describes the underlying program theory, and 3) identifies performance indicators associated with each program activity and linkage (Chen, 1990; Weiss, 1997). The model focuses the attention of managers and evaluators on: 1) the types of assessments that might be useful, 2) the occurrence of expected program results that can be tracked to a performance monitoring system or management information system, and 3) the assumed causal connections that can be tested.

The logic model, developed in close collaboration with the CALeep staff, is separated into two figures: 1) [Figure 2](#) describes the Program leading up to the pilot projects and 2) [Figure 3](#) describes the Program beginning with the pilot projects. Activities, outputs, and outcomes are linked with arrows that are numbered 1 through 31. These links represent the logical flow of program activities, the flow of information, and, in some cases, cause and effect relationships. When addressing questions about whether certain activities took place, whether certain outputs or outcomes were produced, whether information created in one step flowed into the next, and whether the expected causal relationships were verified can be discussed more easily by referring to the numbers and letters in this logic model.

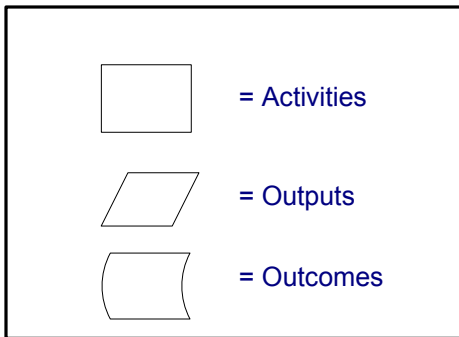
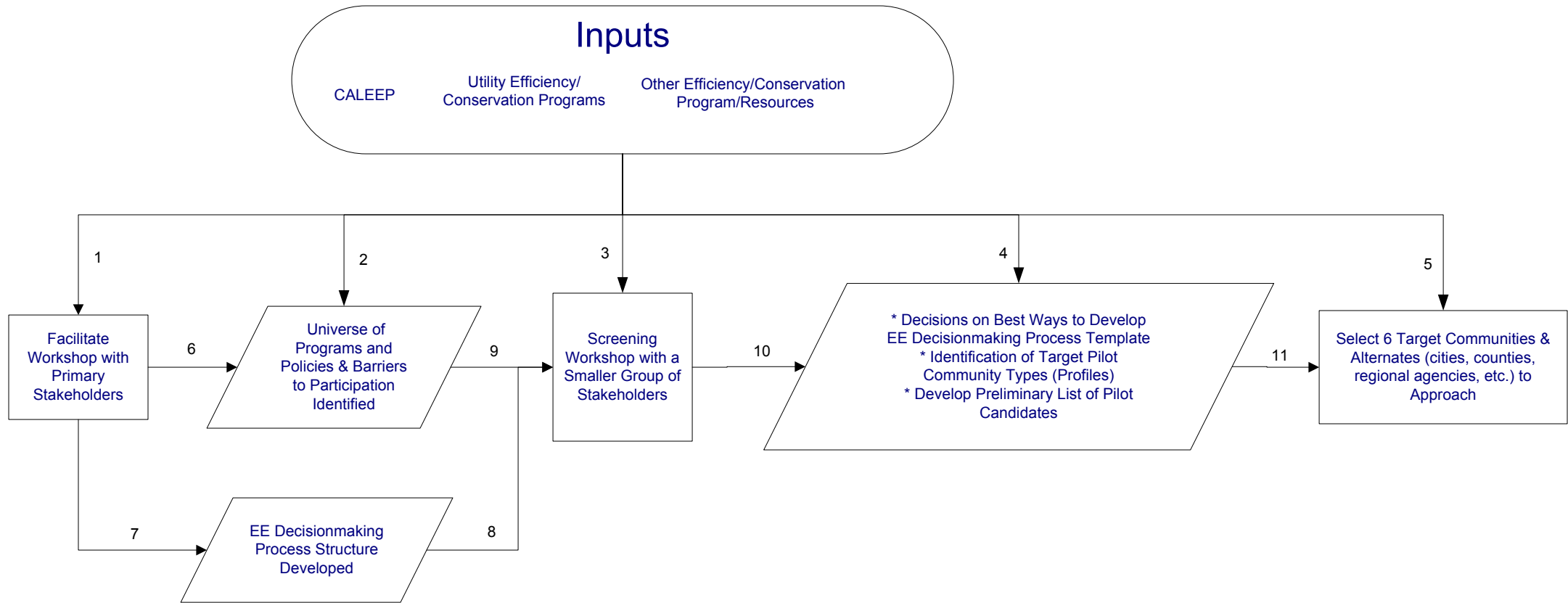
There are five main assumptions that underlie the CALeep Program:

1. The five step process is the correct one around which to build the framework for the workbook.
2. The barriers identified in the two energy summits are the correct ones.
3. If the barriers can be overcome, then there will be an increase in the uptake in energy efficiency programs.
4. By engaging in a variety of energy efficiency activities within each project, important lessons can be learned about both effective and ineffective strategies in overcoming these barriers.
5. The barriers can be more effectively overcome if the best practices gleaned from the literature, the summits, and the pilot projects are translated into the workbook in terms and examples that can be easily understood by practitioners, thus increasing the likelihood that members of the target audience use the workbook.

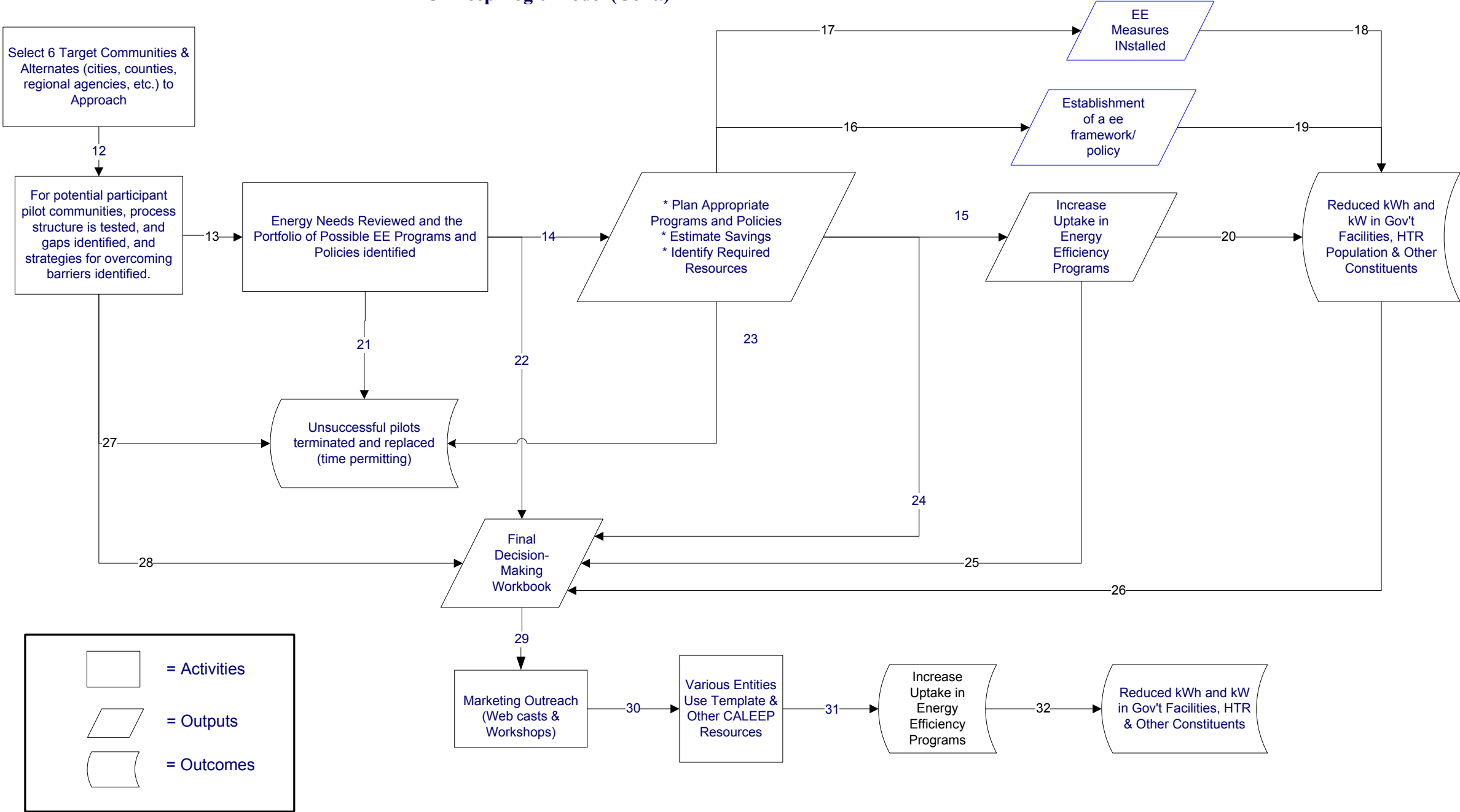
This logic model and its underlying assumptions, along with the established Program and Pilot Project objectives, focused the process and impact evaluation activities and shaped the data collection plan. This model operates at the program level but also at the project-

level in that it includes links that are associated with one or more of the pilot projects. Rows that are shaded refer to program-level links while those that are un-shaded refer to project-level links. It must be emphasized that, for a variety of reasons, only some of the six projects will have, at their conclusion, engaged in all the activities depicted in [Figure 3](#). Those project-level links that describe only some of the projects have an asterisk (*) next to the number of the link. For example, some projects might not have actually installed energy efficient measures that produce energy and demand impacts. Some projects, such as the San Joaquin Valley Project, have put in place an important framework, plan or policy (e.g., the *Clean Energy Roadmap*) that is expected *eventually* to lead to energy and demand impacts as well as a number of non-energy benefits. Other projects such as the Sonoma County Project have installed energy efficient measures (e.g., efficiency refrigerators in low-income households) that have immediate measurable energy and demand impacts. The performance of each of the 32 links will be evaluated with special emphasis on the links that lead to the final decision-making Workbook and to the outreach effort. [Table 5](#) presents each of the linkages, its description, and the indicators used to assess the performance of the linkage.

**Figure 2
CALeep Logic Model**



**Figure 3
CALeep Logic Model (Cont.)**



External Influences, e.g., American Planning Associate's Energy Policy, energy prices, regulatory framework, efficiency standards, other energy educational programs, cross-fertilization from other local government energy initiatives
Ridge & Associates/Brown, Vence & Associates

**Table 5
Logic Model Links, Description, and Indicators**

Links	Description	Indicators
1, 2, 3, 4, 5	Adequate resources are made available	<ul style="list-style-type: none"> • Budget • CALeep staff (# of FTEs) • Potential in-kind contributions • Utility-sponsored energy efficiency programs • Energy efficiency programs sponsored by others
6	The Summit will identify the universe of programs, policies and barriers to participation.	<ul style="list-style-type: none"> • Number of attendees • Diverse types of organizations/agencies • Correct barriers identified • Comprehensive list of resources identified
7	The Summit will result in the clarification of a basic decision-making process structure.	<ul style="list-style-type: none"> • Template structure developed
8, 9	The identification of programs, policies and barriers as well as a decision-making structure will facilitate a workshop with a smaller group of stakeholders.	<ul style="list-style-type: none"> • # of attendees • Diversity of organizations and agencies
10	Successful screening workshop will identify best ways to develop EE decision-making workbook, pilot community types and preliminary list of pilot candidates.	<ul style="list-style-type: none"> • A refined generic process developed • Pilot selection criteria developed • Preliminary list of candidate pilot projects identified • Target pilot community types identified • Best ways to develop decision-making process template identified
11	The outputs of the successful screening workshop facilitate the selection of pilot projects	<ul style="list-style-type: none"> • Six pilot projects selection • Alternate pilot project identified
12	Once pilots selected, process tested, gaps identified, and appropriate strategies are developed.	<ul style="list-style-type: none"> • Gaps identified • Strategies for overcoming barriers developed
13	Once gaps and strategies are identified, energy needs are reviewed and possible programs and policies identified.	<ul style="list-style-type: none"> • Patterns of energy use described • Possible programs identified • Possible policies identified
14	Once needs and possible programs and policies identified, effective plans are developed for programs and policies, reasonable estimates of savings are produced, and resources are identified.	<ul style="list-style-type: none"> • Plans developed for program & policies • Savings estimates produced • Required resources identified

Links	Description	Indicators
15*	Once planning is completed, participation in energy efficiency programs increases.	<ul style="list-style-type: none"> • Participation in energy efficiency programs • Plans to participate in energy efficiency programs
16*	Once planning is completed, effective energy efficiency policies established.	<ul style="list-style-type: none"> • EE framework documents • EE policy documents • EE channels established
17*	Once planning is completed, energy efficient equipment is installed.	<ul style="list-style-type: none"> • Number and types of energy efficiency measures installed
18*	Installation of energy efficient measures leads to a reduction in energy and demand in government/agency buildings and the hard-to-reach population.	<ul style="list-style-type: none"> • Energy and demand impacts • Potential energy and demand impacts
19*	Energy efficient frameworks & policies lead to a reduction in energy and demand in government buildings and the hard-to-reach population.	<ul style="list-style-type: none"> • Energy and demand impacts • Potential energy and demand impacts
20*	Increased participation in energy efficiency programs leads to a reduction in energy and demand in government buildings and the hard-to-reach population.	<ul style="list-style-type: none"> • Energy and demand impacts • Potential energy and demand impacts
21, 23, 27	Unsuccessful candidate projects terminated and replaced	<ul style="list-style-type: none"> • # of prospective pilot projects rejected
22, 24, 25, 26, 28	Lessons are effectively incorporated into Workbook	<ul style="list-style-type: none"> • Observation of a systematic process for transferring lessons learned at various stages into the Workbook.
29	Once workbook is completed, a credible marketing outreach effort is conducted.	<ul style="list-style-type: none"> • # of workshops & attendees • #Web casts & attendees • # of conferences & attendees
30	Marketing outreach cause members of target audience to obtain/view CALeep materials.	<ul style="list-style-type: none"> • Percent of target audience who download/view the workbook & related materials • Percent of target audience who read the workbook & related materials • Percent of target audience who used the workbook & related materials • Percent of target audience who plan to use the workbook & related materials
31	Those who read and use the Workbook and related materials will participate in energy efficiency programs.	<ul style="list-style-type: none"> • Percent of target audience who participate in energy efficiency programs • Percent of target audience who plan to participate in energy efficiency programs

Links	Description	Indicators
32	Reading and using the Workbook will lead to increased participation in energy efficiency programs and to energy and demand impacts for government facilities and constituents, especially the HTR population.	<ul style="list-style-type: none"> • Longer-term energy and demand impacts • Longer-term potential energy and demand impacts

A review of the literature provided significant support of two key elements of theories that underlie the CALeep logic model: 1) identification and use of champions, 2) the CALeep five-step process.

Certainly, the need for a champion or change agent has been well documented as a best practice in the organizational development literature (Carter, Giber and Goldsmith, 2001; Rothwell, Sullivan and McLean, 1995; Frahm, Galvin, Gensler, Savina, and Moser, 1996; Schein, 1992). These authors agree that a few people in a group will typically adopt innovative ideas and behaviors first, and spread them through the group. It is critical to find these people who can play the role of change agent. Within energy efficiency, the importance of champions or change agents has been recognized for some time (Eng and Dixon, 2003). They point out that they have found many examples of effective energy managing organizations – public, private, industrial, institutional. They note that, among other characteristics, they provide leadership for energy management through a champion or group of committed staff.

Finally, the CALeep staff readily admitted that, while the five-step process provided a very useful framework for project activities, this process is not particularly innovative. All the elements and their variants have been tried, tested, and described for years (Weiss and Wysocki, 1992; Cleland and King, 1975).

The process and impact evaluation activities are presented next.

3.2.2 Process Evaluation Activities

The process evaluation addressed the development and refinement of the process by which local government pilot participants identified appropriate energy efficiency activities to undertake as part of the Program and were assisted in implementing them, as well as the final codification into a replicable process template (or templates), i.e., the workbook. At the most basic level, the process evaluation activities documented and verified all activities and outputs associated with the implementation of the Program. The following four program components were addressed:

1. elicitation of stakeholder input,
2. identification of participants and core needs,
3. the pilot project planning process, and
4. the creation of the CALeep energy-efficiency Decision-Making Workbook

Each component and its assessment are briefly described below.

3.2.2.1 Assessment of Stakeholder Input

The team assessed the characteristics of the various stakeholders participating in the broad-based Scoping Workshops and the Screening Workshops, relative to:

- the selection criteria that were developed to guide workshop participant selection,
- the range of issues that must be addressed by local governments in implementing energy efficiency programs, and
- the extent to which the resulting process template framework addresses key concerns/issues raised by Workshop participants.

For those participants in the Screening Workshop, the team also described the Program's efforts to hone the template and to identify possible pilot participants.

Data to support this evaluation activity included:

- the workshop participant selection criteria,
- data on who actually participated in the Workshops,
- information presented at the workshops,
- documents summarizing the results of the Workshops, and
- in-depth interviews with CALeep staff regarding the effectiveness of these workshops.

3.2.2.2 Assessment of Participant Identification

The Evaluation team reviewed and described the efforts of the CALeep staff to make final pilot participant selections. This included documentation of any unanticipated obstacles encountered, and strategies to overcome these obstacles. We also documented the key needs of the selected participants and as well as the characteristics of those projects that were considered for participation but eventually were not selected.

Data to support this evaluation activity included:

- in-depth interviews with CALeep Program staff,
- Program documents, and
- Project diaries.

3.2.2.3 Assessment of the Planning Process and Implementation

The team also evaluated the effectiveness with which the CALeep planning process was implemented within each pilot local community with respect to initiation and implementation of a planning process that will lead to increased energy efficiency activity.

Data to support this evaluation activity included:

- in-depth interviews with CALeep Program staff and Project Managers,

- in-depth interviews, conducted in near the conclusion of each project, with 25 key participants to determine the extent to which they found the Program process to be effective for their particular situation,
- documentation regarding who was involved and the materials and activities that were a part of the planning process, and
- any Program documentation that were produced regarding barriers encountered and if and how these were overcome.

3.2.2.4 Assessment of the Process for Creating the Decision-Making Workbook

It is important that the process for identifying lessons based on pilot project activities and translating them into the Workbook is both accurate and systematic. Data to support this evaluation activity included:

- in-depth interviews with key senior CALeep staff,
- project diaries, and
- interviews with the six Project Managers.

3.2.2.5 Assessment of Market Outreach Plan

The Evaluation team also evaluated the market outreach activities, which are designed to promote and make available the energy-efficiency Decision-Making Workbook to communities and stakeholders throughout the service territories of the two investor-owned utilities (PG&E and SCE). A series of educational workshops was held throughout the state, along with Web site promotion and other marketing activities (e.g., free Web casts).

First, we evaluated the CALeep marketing outreach effort in terms of such things as the quality of the workshop and Web cast presentations, the number of organizations/people reached and quality and amount of information disseminated. The team also reviewed the Program's Market Outreach Plan and the Web site and any other marketing efforts. The team also administered a brief survey after each workshop to determine whether participants found the information to be both clear and potentially useful. Finally, the team coordinated with the Navigant staff to ensure that the full range of marketing activities are assessed when attending a workshop or evaluating the information provided in a Web cast presentation.

3.2.3 Impact Evaluation Activities

The fourth area for evaluation was testing the effectiveness of the CALeep process through the Task 3 pilot programs – implementation of the CALeep process with three pilot local government participants in each of the two investor-owned utility service territories (PG&E and SCE). Through these six pilots, the CALeep process template was finalized based on actual pilot program experiences. Whenever possible, the impact evaluation focused on determining whether the pilot projects resulted in increased energy efficiency activity among the pilot local government participants and assessing the validity of the projected energy savings estimates likely to result from the increased energy efficiency activity. However, most of the impact effort was spent determining the extent to which each of the stated objectives of each of the six pilot projects was met.

3.2.3.1 Assessment of Project-Level Effectiveness

The team assessed changes in baseline conditions by determining previous, current, and planned energy efficiency activities that were/are/will be undertaken by each pilot participant and by their constituents, assessing the primary drivers behind these activities. The purpose of this research was to establish a baseline against which the pilot project's impacts can be assessed, taking into consideration the particular circumstances under which the decisions to undertake previous, current, and planned energy efficiency activities were made. First and foremost, the baselines were tied to the specific objectives of each pilot program, whether they are couched in terms of initiating specific energy-savings projects or policies, or to creating an infrastructure to be able to implement specific energy savings projects or policies. The team also attempted to verify that reasonable progress had been made beyond the baseline since only from such reasonable progress could important lessons be learned.

Two approaches were used to measure the extent to which the project-specific objectives were met. First, we conducted post interviews with CALeep project managers (see Appendix A for interview guide) and key participants (see Appendix B for interview guide) in each of the six pilot projects to determine the extent to which each objective was achieved. They were asked to respond on a seven-point scale (1="Not At All Achieved" to 7="Fully Achieved"). This approach was most useful for those objectives that, despite our efforts to make them more measurable, were still somewhat ambiguous. The second approach involved collecting, whenever possible, all relevant program documentation to verify that the stated objectives were met. For example, if an objective was to complete a certain number of residential energy audits, then we requested the relevant documentation from the project manager (e.g., names and addresses and dates when audits were conducted).

Data to support this evaluation activity included:

- telephone interviews, conducted in the spring and summer of 2006, with key participants in the pilot projects to assess, among other things, how much progress in terms of the specific project objectives they had made *during* the pilot project and how much progress they have made *since the project ended* with respect the specific project objectives,
- project diaries⁶ and other documents,
- pre- and post-project interviews with CALeep Project Managers.

3.2.3.2 Assessment of Program-Level Effectiveness

The primary output for the Program is the Decision-Making Workbook. The most fundamental question regarding the Workbook is whether the intended audience and potential champions consider it to be a valuable resource when pursuing energy efficient options. Data to support this evaluation activity included:

⁶ While providing some useful information, the diaries eventually proved too burdensome for CALeep staff and were discontinued.

- follow-up telephone interviews, conducted in July 2006, with 25 key participants in the six pilot projects, to assess how the Workbook and other materials available on the CALeep.org Web site have assisted them in the absence of any support from the Navigant project managers. In these interviews, we investigated:
 1. whether they find the Workbook clearly written,
 2. whether they think that the Workbook is useful for structuring and organizing internal processes,
 3. whether and how they have used the Workbook or plan to use the Workbook,
 4. barriers to using it, and
 5. what could be done to make it more useful.

The questionnaire for these participant interviews is provided in Appendix A.

- a follow-up Internet survey⁷, conducted in July and August of 2006, with all 512 people who attended the Summit and the various outreach workshops or Web casts conducted in September and received the Decision-Making Workbook and others who had been targeted as part of the CALeep outreach effort. In this survey, we addressed such issues as:
 1. whether they had download or viewed any of the materials,
 2. how they obtained these materials,
 3. whether they reviewed any of these materials,
 4. whether they used these materials.
 5. whether the CALeep materials caused them to take or plan to take any energy efficiency actions,
 6. whether the CALeep materials caused them to participate in or plan to participate in any utility, state, or federal energy efficiency programs,

Specifically with respect to the Workbook, we also investigated why some respondents who had obtained or viewed the Workbook did not read it. Of those who had read it, we assessed the extent to which they found it useful, whether they had shared it with any of their colleagues, and what recommendations they had to make it more useful. Finally, we asked whether one could promote energy efficiency within an organization by relying only on internal resources along with the CALeep Workbook or must one *also* hire outside experts or rely on a different source of information.

The questionnaire for these interviews is provided in Appendix B and was designed to take no more than 10 minutes to complete.

⁷ For more information regarding Internet surveys, see Nesbary (2000) and Dillman (2000).

The CALeep staff provided a list of 512 e-mail addresses⁸. Although requested by the Evaluation team, a complete list of names, postal addresses, or telephone numbers could not be provided by the CALeep staff. This made an Internet survey the only feasible way to contact *all* 512 subjects using the services of Infosurv (see www.infosurv.com). This also meant that we could not personalize our communications in any way, which might have increased our response rate. In addition, because we only received e-mail addresses, we know virtually nothing about the population frame other than they self-selected into the pool of potential interviewees based on their general interest in energy efficiency opportunities for local governments. As a result, we have no way of assessing the extent to which there might be non-response and making the appropriate adjustments.

Three basic strategies to increase the response rate were employed. First, we designed the survey to require no more than 10 minutes to complete. Second, those completing the survey were entered into a drawing for a \$250 American Express Gift Cheque, which is accepted just like cash at almost any retail store or restaurant. Finally, following the survey launch on 7/31/2006, three follow-up e-mail reminders were sent to all non-respondents on 8/3, 8/9, and 8/16.

Of the 512 individuals who received the e-mail invitation, 27 could not be delivered because the e-mail addresses were no longer valid. Another 41 responded with an “out-of-office” reply, many of which were very likely the result of the respondent being on vacation. In addition, in an attempt to focus only on the targeted end-users, 13 e-mail addresses that were known to be those of CALeep staff and their subcontractors were eliminated. Adjusting for invalid addresses, out-of-office replies, and ineligible respondents reduced the initial pool of eligible respondents to 431.

For every survey, there are various possible sources of error: 1) sample error, 2) non-response bias, and 3) measurement error. Conducting a census of all 431 members of the CALeep target audience means that there is no sample error. The extent to which there are non-respondents means that there is potentially some non-response bias that, as we discussed below, we have no way of assessing. We attempted to deal with measurement error by carefully crafting each question and carefully reviewing and pre-testing the questionnaire.

Table 6 presents a summary of the various interviews that provided much of the data to both the process and impact objectives described above.

⁸ Navigant Consulting was unable to provide a way to either count the number of downloads for CALeep materials available at www.CALeep.org or to provide for a secure site that would retain the e-mail addresses of those who were willing to provide them. E-mail addresses were provided by those who participated in the Summit, the screening workshop or the various CALeep outreach events and Web casts.

Table 6
Completed Pre and Post In-Depth Interviews

Subjects	In-Depth Interviews		Internet Survey
	Pre	Post	Post
Senior CALeep Staff	8	4	
Project Managers	6	6	
Key Participants			
Sonoma County		4	
San Joaquin Valley		4	
City of Oakland		2	
IEUA		2	
SBCCOG		3	
VCREA		5	
Workshop/Seminar/Web cast attendees & Others			36
Total	14	30	36

3.3 Data Analysis

Given the limited number of pilot participants, much of the project-level and program-level analyses were conducted within a case study context (Patton, 1980; Yin, 1994). Case studies attempt to describe the decisions made by all stakeholders and why, what program activities occurred and what were the outputs, how the program was experienced by the participants, what changes have occurred in the baseline indicators over time, and what lessons were learned that could inform the construction of the template. Both qualitative and quantitative data were collected to support the case study approach. The general process of constructing case studies followed the approach outlined by Patton (1980):

Step one: Assemble the raw case data

These data consist of all the information collected about the person or program for which a case study is to be written.

Step two: Construct a case record

This is a condensation of the raw case data organizing, classifying, and editing the raw case data into a manageable and accessible package.

Step three: Write a case study narrative

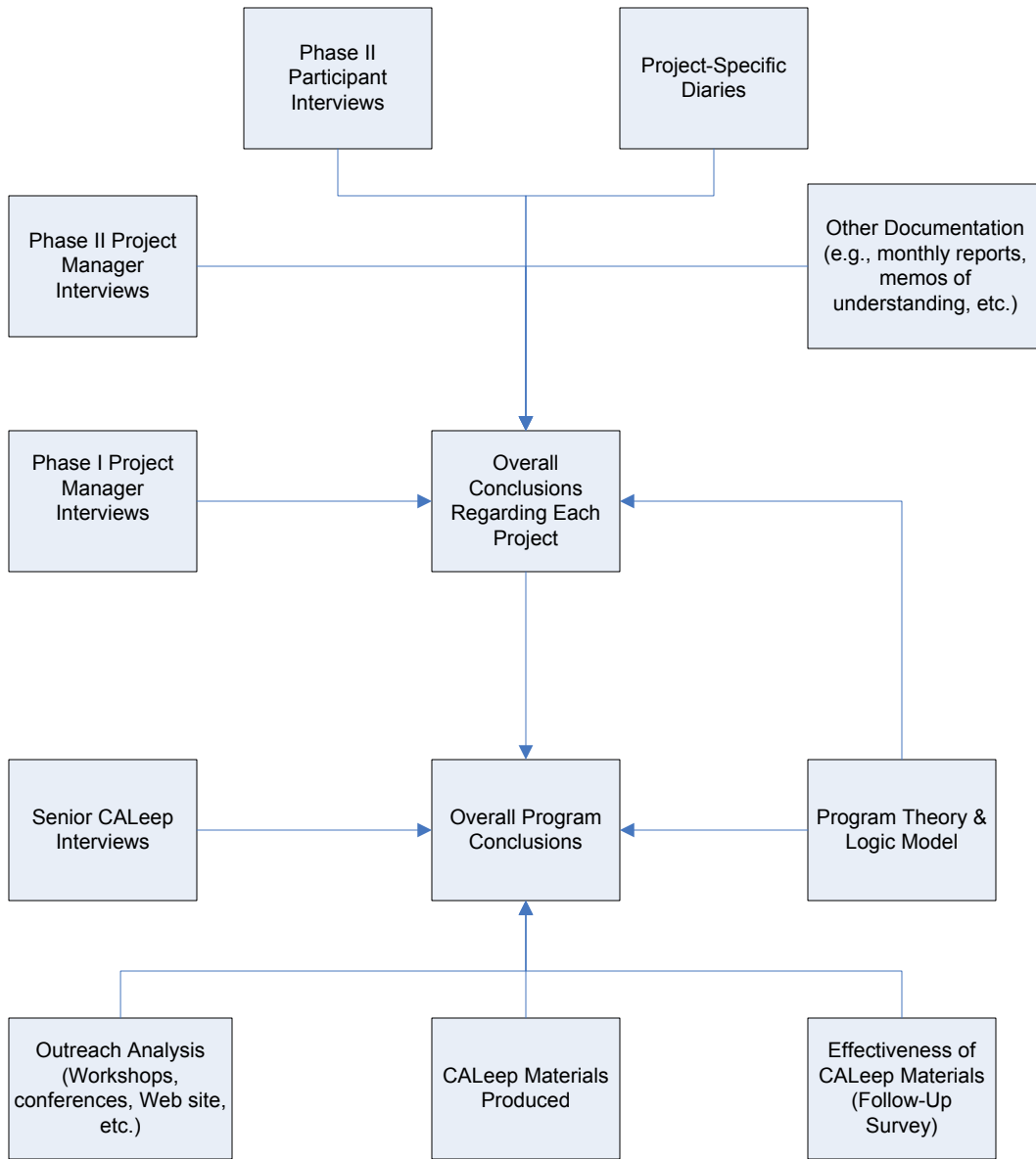
The case study is a readable, descriptive picture of a person or program making accessible to the reader all the information necessary to understand that person or program. The case study is presented either chronologically or thematically (sometimes both). The case study presents a holistic portrayal of a person or program. (p. 304)

As part of this analysis, at the completion of the program, the Evaluation team collected and reviewed, whenever possible, the energy savings estimates associated with completed energy efficient installations or expected savings from such activities as energy audits.

Figure 4 presents the analysis structure. The Phase I and Phase II project manager interviews, the Phase II participant interviews, the project specific diaries, and other documentation (e.g., names and addresses of those receiving a home energy audit and the date of the audit) were used to assess the extent to which each project met its objectives and whether lessons learned were eventually codified in the workbook.

These project-level results were eventually used along with other information to assess the extent to which CALeep met its program-level objectives. This program-level assessment was guided by the logic model and included interviews with senior CALeep staff and an assessment of the outreach effort as well as an evaluation of the quality and effectiveness of the materials produced.

**Figure 4
Analysis Structure**



4 Program Overview

In this section, we present the key activities that were designed to achieve the CALeep objectives. We begin with the description of the initial workshops that were designed to elicit stakeholder input. Next, we describe the smaller screening workshop. Finally, we then describe the key activities for each of the six pilot projects.

4.1 Workshops to Elicit Stakeholder Input

The goal of the CALeep program was to develop tools and techniques for leveraging local government's influence, authorities and resources to improve deployment of energy efficient programs and practices. Through this project, NCI worked to develop a prototypical process (the CALeep workbook) to assist local governments in identifying, selecting, and implementing programs and policies to achieve and to promote aggressive energy efficiency improvements. The first step involved obtaining stakeholder input in order to gain the most comprehensive view of local government issues prior to beginning the pilot studies and to ensure that the prototypical process developed for the program was relevant given the current needs of and issues faced by cities.

NCI held two summits to elicit stakeholder input. The first workshop was held on April 30, 2004 in northern California (Sacramento), and the second workshop was held on May 4, 2004 in southern California (Los Angeles). The summits provided a baseline understanding of available energy efficiency programs and policies, and the types of barriers California local governments encounter in trying to access and implement these programs and policies. Summit participants represented a broad range of interests and perspectives of key stakeholder groups in the California energy efficiency market, as well as the needs and challenges of local government in that market.

The summits incorporated both a main, plenary session and a period where stakeholders broke into smaller working groups to address the details of specific issues. During the main sessions, participants offered their observations as to energy efficiency programs and policies. In particular, participants shared their experience and observations as to principal success factors, and things that should be done differently in the future. In the plenary sessions, participants investigated the following areas:

- Types and characteristics of effective energy efficiency programs
- Types and characteristics of effective energy efficiency policies

Thereafter, participants broke out into smaller working groups that tackled three issue areas:

- Community Action Approaches that Work and Why
- How to Select the Best Programs and Policies
- Overcoming Barriers to Implementation.

Based on the information gathered in the summit workshops, and with the assistance of key stakeholders, NCI developed a process for screening available programs and policies to select those that appear to offer the "best fit" for the needs and characteristics of any particular local jurisdiction.

The Screening Workshop was held June 16, 2004, shortly after the two summit meetings, with a select group of stakeholders from among those who had attended the summit

meetings. The purpose of this workshop was to refine the program framework developed at the summit meetings. In addition, Screening Workshop participants discussed the pilot selection process and assisted the program team in reviewing potential candidates for the pilot projects. A complete summary of the results of the Summit and Screening Workshops can be found on the CALeep Web site (www.caleep.org).

In the sections below, we review the effectiveness of the two Summit meetings and Screening workshop at achieving the goals of clarifying an effective program framework for the pilot studies, and at developing criteria for selecting potential pilot communities and narrowing down the group of potential cities that would participate in the pilots.

4.1.1 Assessment Criteria

The criteria used to assess the effectiveness of the Summit meetings and Screening workshop are found in Table 7, which is excerpted from the main table of indicators as shown in Table 5. The table shows the relevant indicators that, if observed, would point to the fact that NCI was successful at achieving the program objectives as it relates to the Summit and Screening workshops. For the purposes of our assessment, there are five main objectives, covering six logic model links to review in order to assess the achievement of the objectives relating to the Stakeholder input workshops. The discussion below considers each area separately.

Table 7
Logic Model Links, Description, and Indicators: Stakeholder Input Meetings

Link	Description	Indicators
6	The Summit will identify the universe of programs, policies and barriers to participation.	<ul style="list-style-type: none"> • Number of attendees • Diverse types of organizations/agencies • Correct barriers identified • Comprehensive list of resources identified
7	The Summit will result in the clarification of a basic decision-making process structure.	<ul style="list-style-type: none"> • Template structure developed
8, 9	The identification of programs, policies and barriers as well as a decision-making structure will facilitate a workshop with a smaller group of stakeholders.	<ul style="list-style-type: none"> • # of attendees • Diversity of organizations and agencies
10	Successful screening workshop will identify best ways to develop EE decision-making template, pilot community types and preliminary list of pilot candidates.	<ul style="list-style-type: none"> • A refined generic process developed • Pilot selection criteria developed • Preliminary list of candidate pilot projects identified • Target pilot community types identified • Best ways to develop decision-making process template identified

Link	Description	Indicators
11	The outputs of the successful screening workshop facilitate the selection of pilot projects	<ul style="list-style-type: none"> • Six pilot projects selected • Alternate pilot project identified

4.1.2 Summit Workshops

NCI held two summits or scoping workshops to elicit stakeholder input. The first workshop was held on April 30, 2004 in northern California (Sacramento), and the second workshop was held on May 4, 2004 in southern California (Los Angeles). The summits provided a baseline understanding of available energy efficiency programs and policies, and the types of barriers California local governments encounter in trying to access and implement these programs and policies. Summit participants represented a broad range of interests and perspectives of key stakeholder groups in the California energy efficiency market, and were able to speak to the needs and challenges of local government, particularly as it related to energy efficiency.

The summits incorporated both a main, plenary session and a period where stakeholders broke into smaller working groups to address the details of specific issues. During the main sessions, participants offered their observations as to energy efficiency programs and policies. In particular, participants shared their experience and observations as to principal success factors, and things that should be done differently in the future. In the plenary sessions, participants investigated the following areas:

- Types and characteristics of effective energy efficiency programs
- Types and characteristics of effective energy efficiency policies

Thereafter, participants broke out into smaller working groups that tackled three issue areas:

- Community Action Approaches that Work and Why
- How to Select the Best Programs and Policies
- Overcoming Barriers to Implementation.

Based on the information gathered in the summit workshops, and with the assistance of key stakeholders, NCI developed a process for screening available programs and policies to select those that appear to offer the “best fit” for the needs and characteristics of any particular local jurisdiction. See Section 5.1.1 for information regarding the results of these scoping workshops. Later, NCI refined the program process structure and its criteria for selecting pilot studies in the Screening Workshop, which is described below.

4.1.3 Screening Workshop

The Screening Workshop was held June 16, 2004, at the NCI offices in Rancho Cordova near Sacramento. This workshop was held with a small group of stakeholders selected from among those who had attended the summit meetings. The purposes of this workshop were to refine the program process framework discussed at the summit meetings, and refine the criteria for selecting potential communities for the pilot studies. Further, Screening Workshop participants discussed the pilot selection process and assisted the Program team

in reviewing potential candidates for the pilot projects. Specifically, selected participants were asked to provide input in two narrowly focused topic areas:

- The energy efficiency initiative development process, and
- The pilot project community selection criteria.

In this regard, participants provided comments on key areas of the program process structure and made important suggestions regarding how cities should be recruited for the pilot studies. Participants also made recommendations about how the selection criteria should be developed and used to identify potential pilot communities. Given the recommendations made regarding pilot community selection, the workshop participants also made suggestions as to the best way to develop the decision-making template or workbook. The results of this workshop are presented in Section 5.1.2.

4.2 Pilot Projects

Before describing the objectives of each pilot project, recall that the primary purpose of the pilot projects was to engage in energy efficiency activities from which lessons could be gleaned that could be incorporated into the Workbook. Each of the projects, while having unique objectives and strategies to achieve these objectives were all aimed at producing valuable lessons. The extent to which valuable lessons could be gleaned was directly correlated with the extent to which the objectives of each pilot project were achieved.

4.3 City of Oakland

4.3.1 Objectives

The stated overarching goal of the CALeep Oakland pilot was to help the city to set up the institutional infrastructure to define, prioritize, and guide energy efficiency efforts, and ensure program sustainability in future years. The proposed channel for this effort was Oakland’s Sustainability-oriented Economic Development Strategy, including a citywide action plan to define and implement the energy efficiency component. The CALeep program planned to incorporate the city’s existing energy efficiency efforts into the broader framework and help to prioritize energy efficiency activities by a set of objectives defined by the City. To achieve this goal the CALeep program identified three objectives.

Objective #1. Develop an energy efficiency component for Oakland’s Sustainability-oriented Economic Development Plan. Use this existing “channel” to facilitate a more comprehensive approach to implementing energy efficiency. This approach will also help the city prioritize programs to meet specific goals being defined by the city. The goals include:

- increasing economic benefits/economic development for the community
- reducing greenhouse gas emissions
- reducing energy usage

In order to achieve this objective, Navigant planned to:

- Evaluate additional benefit of a more comprehensive approach to implementing energy efficiency. (Show how EE will achieve benefits using key indicators for the

- political drivers such as increased local economic activity, jobs, and GhG reduction.)
- Identify current related city goals.
 - Analyze how the new EE component will help prioritize programs in respect to the goals.

Objective #2. Help the city develop the means to plan, implement and monitor energy efficiency programs.

In order to achieve this objective, Navigant planned to:

- Define energy baseline and indicators to track energy use and impacts important to the city.
- Define and prioritize short-term and long-term objectives.
- Define and prioritize energy efficiency initiatives to meet objectives, including leveraging outside partnerships, programs, and funds.
- Identify and address internal and external barriers that have stalled past initiatives. Identify barriers that require external assistance (e.g., local energy data for all local governments provided by IOUs, CEC).
- Develop a monitoring plan or mechanism to guide energy efficiency efforts

Objective #3. Embrace and support Oakland’s existing energy efficiency initiatives by incorporating them within a broader framework (Objectives 1 and 2).

4.3.2 Project Activities

Pilot Description

Founded in 1852, Oakland is the third largest city in the San Francisco Bay area. . The neighboring communities include Berkeley to the north, San Francisco across the Bay



Bridge to the west, the island city of Alameda, located southeast of Oakland and separated from the Oakland mainland by an estuary, and San Leandro which borders Oakland to the south. In the center of Oakland, in fact completely surrounded by it like a “doughnut hole”, is the wealthy city of Piedmont. The hills which run northwest to southwest contain five of the East Bay Regional Parks.

Oakland’s building stock consists of a varied portfolio of residential, commercial, institutional, and industrial buildings. Its population of 400,000 is projected to grow by 10 percent by 2020.

The population is housed in approximately 150,000 residences. Less than half of the buildings are owner occupied (60% are rentals). Oakland also has a large concentration of

low and moderate income households and its poverty rate is significantly higher (19 percent) than the rest of the Bay Area (8.5 percent). Thus, Oakland has focused on economic development to improve employment opportunities and the long-term projections predict employment growth by 26 percent by 2020.

Within the commercial-institutional sector, Oakland hosts buildings for a number of federal, state, county and municipal functions, as well as agencies such as BART and EBMUD. Oakland is home of the Port of Oakland, one of three major shipping ports on the West Coast. Oakland also hosts Oakland International Airport, which specializes in discount air travel. Major employers in Oakland include the local, state and federal governments, United States Postal Service, the Port of Oakland, regional transportation and utility authorities, and several large commercial businesses.

Prior Energy Practices

The City of Oakland has a long history of energy efficiency leadership, reducing energy consumption in City-owned facilities by 19 percent since 1990. In 1996, the Oakland City Council pledged to increase energy efficiency and reduce greenhouse gas (GHG) emissions. The GHG policy goal was reinforced when the Sustainable Community Development Initiative was passed 1998. The initiative contained two key recommendations for reducing greenhouse gas emissions: (1) encourage affordable in-fill housing, mixed-use development, and sustainable building practices; and (2) make the City of Oakland operations and services a model of sustainable community development practices. In 1999, Oakland developed an Action Plan for GHG reduction to guide the implementation of initiatives to meet the 1996 GHG goals. Unfortunately, the Action Plan did not define what was required to meet the targets and implement the general measures described in the plan. In addition, without a measurement and verification process it was not possible to document progress, identify problems and note milestones. Recently, Oakland has demonstrated renewed commitment to meeting its GhG target and sustainability goals. Oakland's Mayor Jerry Brown elevated the sustainability initiative staffing from within one City department to the Mayor's Office and added a new Sustainability Director position tasked with developing and implementing a pragmatic action plan.

In the 5 years since the original action plan was drafted, the City has made significant progress on improving energy efficiency, especially in municipal facilities.

In 2003, Oakland's mayor Jerry Brown announced the start of the Oakland Energy Partnership. The \$6 million Partnership, designed with assistance from Lawrence Berkeley National Laboratory (LBNL), Quantum Consulting and other experts, set up six programs to aid Oakland businesses and residents improve their energy efficiency. The program was funded by the California Public Utilities Commission and implemented by Quantum Consulting. This grant was the largest CPUC grant given to any city in California for energy efficiency programs.

LBNL helped by providing technical assistance in the area of commercial building system tune-ups and street lighting. LBNL was able to apply new procedures, tools, and

technologies from their research programs in Oakland. The Partnership funded the Large Commercial Building Tune-Up Program, which provided energy audits and adjusted building systems for maximum energy efficiency. The tune-ups ensured that all the systems were operating at their rated efficiencies. The Commercial Tune-Up Program targeted both public and private commercial buildings, including schools, hospitals, offices, and retail space. LBNL also used the information gathered in the program to inform their research on continuous performance monitoring.

Another program, the Street Area and Lighting Demonstration, was a collaborative effort between City of Oakland, private outdoor lighting system operators, and Berkeley Lab researchers to test more efficient municipal street-lighting systems. The program installed highly efficient electronic ballasts in outdoor lights with 100, 150, or 200 watt lamps.

The Energy Efficiency Design Assistance Program was another program under the Oakland Energy Partnership program. Energy Efficiency Design Assistance gave designers, property owners, and developers free design expertise and energy audits to improve building efficiency. The program provided experts to analyze the energy use of businesses and suggest cost-effective energy efficiency improvements. The consulting services, plus 75 percent of the total project cost, were covered by CPUC funding. In addition, the Partnership Program funded two programs that provided small commercial and residential buildings with air conditioning tune-up and duct sealing.

Most of the programs offered under the Oakland Energy Partnership were supported under the East Bay Energy Partnership, which was introduced in 2004. The East Bay Energy Partnership received \$5.2 million in funding from the CPUC during the 2004-2005 funding round. The Partnership included both the City of Berkeley and the City of Oakland in partnership with PG&E and outside consultants (Quantum and Energy Solutions).

The East Bay Partnership included several different programs, including BEST, Smart Lights, Building Tune-Up, Senior Energy Services, Energy Efficiency Design Assistance, and Single Family Direct Install. The Business Energy Services Team (BEST) program was designed to help medium-sized businesses save energy and money by providing: a no-cost business energy use assessment, a detailed proposal including a list of energy-saving recommendations and rebate offerings to reduce equipment costs, and installation of approved energy-saving equipment. The Smart Lights Program was specially designed to help small businesses upgrade to energy-efficient lighting. The program offered free, start-to-finish technical assistance and substantial subsidies towards installation and equipment costs. Small businesses, small institutional facilities, and common areas of multi-family buildings were eligible. The Building Tune-Up Program was similar to the tune-up program offered under the Oakland Energy Partnership. The energy analysis experts performed a free evaluation tailored to help business customers with larger, complex buildings optimize their building's control, heating, ventilation, air conditioning, and lighting systems. The participants were also given written guidelines to help facilities managers ensure that energy savings were achieved, and funding to help cover the cost to "recommission" their building's systems. The Senior Energy Services Program used a combination of energy audits, financial incentives, and energy-efficiency equipment

installations to deliver gas and electric savings to assisted living and convalescent facilities occupied primarily by senior citizens. The Energy-Efficiency Design Assistance Program provided free, customized, energy-efficiency design assistance to property owners, developers, and building designers who were constructing new or renovating existing commercial, industrial, or multi-family buildings. Additionally, the program provided free energy audits of existing commercial and industrial buildings to help owners identify cost-effective energy-efficiency upgrade opportunities. The Single Family Home Direct Install Program provided funding and assistance so that energy-efficiency experts could identify single-family homes in designated neighborhoods in Berkeley and Oakland that qualified for the installation of a variety of free Energy Star® measures such as: interior hardwired fluorescent lighting fixtures, compact fluorescent lamps, and programmable thermostats. Funding for the East Bay Energy Partnership was on a first-come, first-served basis, and the program was funded through December 31, 2005.

Oakland also has access to all of the programs offered by PG&E including Express Efficiency, Standard Performance Contracts, Savings By Design, Non-Residential Audit Program, the Food Service Technology Center, and the Building Operator Certification Program offered by PG&E. Oakland also had access to programs offered through other funding agencies, including

- Energy Star Courthouse Campaign (Energy Star)
- Energy Partnership Program which provides up to \$10,000 of approved energy consultant fees supported by the California Energy Commission.
- Lightwash, which provides rebates for energy and water efficient washing machines. (services provided by Energy Solutions)
- Bay Area Build it Green
- CA Wastewater Process Optimization
- Educational Programming on Local Cable – “Doin’ the Green Thing”

Oakland has also taken a progressive stance on renewable energy and food production and passed a Green Building Ordinance in 2005 which encourages LEED (Silver) with rebates and permit fast-tracking. Oakland’s progressive GHG goals are also driving increased energy efficiency. Oakland plans to reduce their GHG impact to 15% below 1990 emissions by 2010.

Oakland’s Sustainable Development Initiative, adopted by City Council Resolution 74678-98 in 1998, contained the following five fundamental policy recommendations.

- Recommendation 1: Implement a sustainability development strategy as an overarching principle guiding Oakland’s economic development program.
- Recommendation 2: Link the sustainable development strategy to a comprehensive approach to job training and continuing education
 - 2A. Maximize socially and environmentally sustainable economic growth
 - 2B. Facilitate the development of housing

- 2C. Implement programs that protect and conserve natural resources
 - 2D. Attract new residents to Oakland
 - 2E. Encourage and support social equity for all Oakland residents
- Recommendation 3: Encourage affordable in-fill housing, mixed-use development, and sustainable building practices
 - Recommendation 4: Make the City of Oakland’s operations and services a model of sustainable community development practices.
 - Recommendation 5: Establish an ongoing process of community participation in sustainable development initiatives by community organizations, businesses, unions, and education.

Oakland has worked on developing initiatives for Recommendation 2A. There are several proposed initiatives to *maximize socially and environmentally sustainable economic growth*. The initiatives relevant to increased energy efficiency uptake include an initiative to transform Oakland dry cleaners into energy efficient green cleaner and collaboration with the City of Berkeley on a Solar/Clean Energy Bond, which would promote installation of clean on-site energy and energy efficiency. Each of the proposed initiatives identified required staff time and potential funding (usually Duke Settlement Funds).

4.3.3 Project Schedule and Tasks

After working with the Department of Public Works in the City of Oakland for over a year on the potential for participation in the Community Choice Aggregation Project, Navigant staff became aware of the GHG Emission Reduction Goals and the pending development of the Sustainability Plan. Due to Oakland’s unique historical involvement in energy efficiency and the potential engagement channels, the Navigant staff recommended that Oakland would be a good pilot project for the CALeep Program.

The Mayor’s Sustainability Director, Randy Hayes, was the original program champion, and staff assistance was provided by the public works agency energy efficiency staff. Thus Oakland was involved from the beginning of the project. Randy Hayes attended the CALeep Scoping Workshop in late April 2004. Following the screening workshop, Randy Hayes, Carol Misseldine and CALeep staff met for the first time to discuss how to focus the pilot project. In the subsequent weeks, the group worked on a month to month timeline for project implementation. In September 2004, Oakland management and Navigant staff reviewed and reconsidered the timeline and objectives, identified the need for an outside consultant to manage the project, and hired a project coordinator. After the project coordinator was hired, the pilot project experienced some delays due to the November election period.

In December 2004, Randy Hayes, Oakland staff, and CALeep staff reviewed the framework and deliverables for the pilot again and discussed how Portland’s sustainability indicators work. Portland has an annual reporting system set up to report on progress using targets and indicators. In early 2005, the project coordinator identified a potential hire to

work on data gathering and the GHG assessment. Additional temporary staff members also aided with this task.

Since Oakland already had a robust energy efficiency program for its own facilities and had demonstrated policy commitment to sustainability, the pilot program first focused on identifying the key barriers to implementing an aggressive and sustainable community-wide energy efficiency initiative. CALeep staff felt that the most critical barriers were found to be internal to the city government including:

- Lack of appreciation for the value of energy efficiency initiatives in meeting the City's adopted policy goals
- Insufficient direction to staff and budgeted resources to effectively pursue not only energy efficiency initiatives, but the technical assistance and funding available for such initiatives
- Lack of market sector energy use data to be able to identify and prioritize initiatives to do the most good both in reducing energy use and in meeting the economic, equity, and environmental goals of the City.

The pilot also worked on obtaining information and metrics for benchmarking progress and setting goals. Oakland hired a temporary staff member to help them with the GHG assessment. This analysis proved difficult and the original baseline was abandoned. The CALeep program also worked with Oakland to get electricity and natural gas usage data so that more detailed surveys of large commercial users could be performed. This process caused a significant delay in additional analysis for the baseline or metrics. The substantive work for the benchmarking progress was not completed until June 2006, the final month of the CALeep program. Skumatz Energy Research Associates (SERA) performed the commercial energy use survey. The final report is included in Appendix H. In addition, the CALeep program convinced the Oakland staff that it was important for marketing and for performance based policy to include non-energy benefits in addition to energy savings. CALeep assisted Oakland's purchase of SERA's Non-Energy Benefit model. The non-energy benefit model was modified to fit Oakland's unique energy economics.

4.4 Inland Empire Utilities Agency (IEUA)

IEUA is the municipal water district in San Bernardino County that distributes water from the Metropolitan Water District of Southern California and provides municipal and industrial wastewater and collection and treatment services.

According to the CALeep site, IEUA was chosen as a pilot for the CALeep project in order to increase energy efficiency uptake in California public utilities. "There are hundreds of water agencies and purveyors in the state of California that require energy for pumping, water extraction, and water and wastewater treatment. In addition, all California water agencies are charged with implementing water conservation programs. The primary energy users that will benefit from this pilot are California water distributors and purveyors, both public and private that treat and/or deliver water or wastewater. However, other entities, such as private industry, also own and operate water and wastewater

treatment systems. In addition, current and future owners of desalination plants will also benefit.”

In the following sections, we first present the objectives of the IEUA pilot project and then describe the project activities that were carried out in an attempt to achieve these objectives.

4.4.1.1 Objectives

While CALeep realized that IEUA was a sophisticated energy user, CALeep pursued the pilot project because they believed that IEUA still had significant untapped potential. The CALeep program also initiated the pilot under the assumption that IEUA under-invested in cost-effective (from society’s point of view) water conservation because they did not consider both the resource value of energy and water in their decisions. The CALeep program anticipated that significant energy savings are associated with improved water management and conservation. In addition, CALeep identified the need for energy efficiency design specifications and guidelines in order to minimize lost opportunities in the implementation of IEUA’s energy policy.

Navigant identified four separate objectives to guide the IEUA Pilot implementation.

Objective #1. Benchmark IEUA’s existing policies, programs, and practices against best practices in the industry:

- Based on best practices implemented by other entities (including local government, water and wastewater utilities, and others) and a gap assessment, develop policy recommendations that have mid- to high-potential for attaining IEUA’s energy efficiency goals.
- Develop a strategy with IEUA champion(s) for formal adoption of recommendations.

Objective #2. Map technical and financial resources to the IEUA programs and projects:

- Develop a library of potential resources that can assist water agencies in enhancing their energy efficiency activity.
- Work with IEUA staff and management to identify options for determining program or project characteristics needed to qualify for each type of potential assistance (e.g., bundling IEUA programs and projects into logical groups with common characteristics, and matching technical resource and funding options to each type of program or project).

Objective #3. Incorporate water and energy benefit/cost variables into a methodology for assessing the resource value of a water conservation program:

- Estimate the value of energy saved for each unit of water saved under a number of end-user scenarios.
- Develop a methodology for computing the total resource value of avoided water and/or energy consumption that includes consideration of externalities, peak period costs, and the marginal costs of IEUA’s water and energy supplies.

Objective #4. Apply the new valuation approach to existing programs and make recommendations regarding program areas having high resource value.

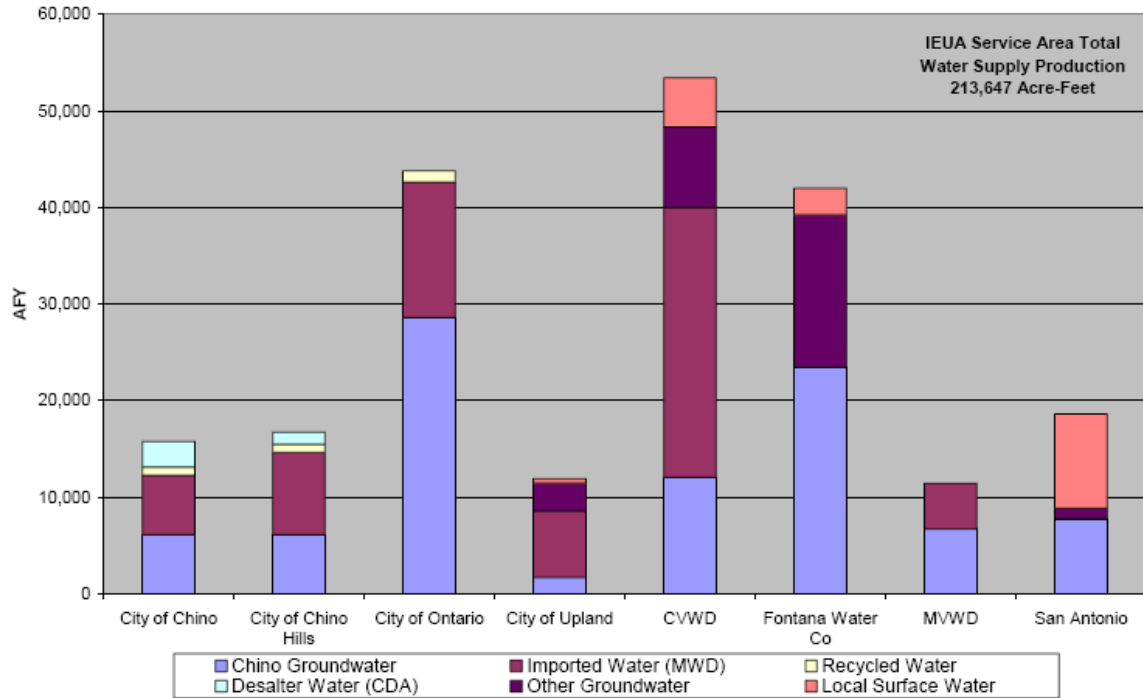
4.4.1.2 Project Activities

IEUA has 300 employees and four regional wastewater treatment plants, two non-reclaimable wastewater sewer systems, one reverse osmosis desalination plant (joint authority), biosolids/organics (including the state's first completely-enclosed composting facility (under construction), a recycled water program, and a water conservation program. In FY 2004-2005, the total water produced to meet urban water demand was approximately 214,000 acre-feet (see [Figure 5 for IEUA Service Area Water Production for FY 2004-05 by Customer and Source](#)). Water use was reduced by 8 percent even though the IEUA service area population has grown by 80,000 people during the same time period. Water use in general has not increased during the past five years. The expansion of the regional water conservation programs over the last five years has reduced per capita water use while the region is growing. The mix of water supplies produced within the Agency's service area has diversified over the past five years, with the Chino Basin desalter projects and recycled water representing a significant new supply for the area. The development of these local sources of supply has helped retail agencies to stay within the Tier 1 imported water purchases in 2004 and likely in 2005.⁹ While IEUA has been able to hold water supply levels steady over the last five years, the region is expected to experience even more growth. Population is projected to increase at a rate of 3% per year reaching 1.0 million by 2020. In addition, the conversion of land from agriculture land to urban uses will increase the demand for water.

⁹ Annual Water Production Summary Report for IEUA Service Area FY 2004-05 Retail Agency Monthly Water Production and Five-Year History

Figure 5

Total IEUA Service Area Water Production for FY 2004-05 by Customer and Source



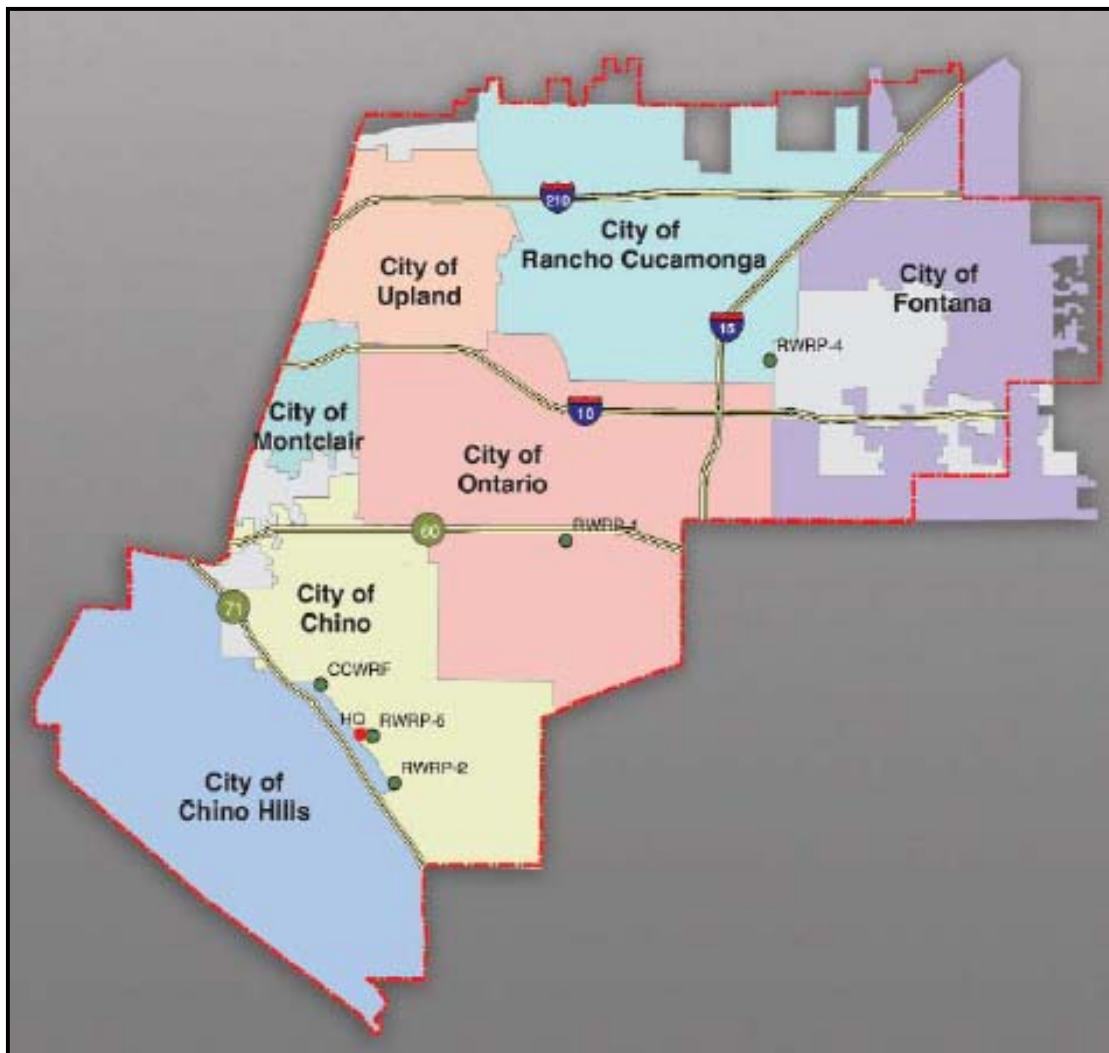
The IEUA, originally named the Chino Basin Municipal Water District (CBMWD), was formed in 1950. The CBMWD was originally designed to supply supplemental water to the region. Over the years the Agency has expanded its areas of responsibility from providing supplemental water supply to a regional agency with domestic and industrial wastewater treatment and disposal systems and energy recovery/production facilities. CBMWD officially changed its name to reflect its broader mission in July 1998. The IEUA’s mission “. . . is to supply imported and recycled water; collect, treat, and dispose of wastewater; and provide other utility-related (renewable electrical energy, compost) services to the communities it serves. The Agency strives to provide these services in a regionally planned, managed, and cost-effective manner.”

IEUA has also become a leader in environmental management associated with water services including innovative recycled water programs, treatment for biosolids/organics, and water supply salt management. These services are used to protect the region’s groundwater supplies, which are increasingly valuable as demand for freshwater increases in the region and water supply sources (such as the Colorado River) become constrained.

IEUA works to balance the demands of providing reliable water/wastewater services, while protecting the environment. The IEUA’s 242 square mile service mile area is located in the southwest corner of San Bernardino County, approximately 35 miles east of Los Angeles (see Figure 6), and provides regional wastewater service and imported water deliveries to eight contracting agencies. These contracting agencies include the City of Chino, City of

Chino Hills, Cucamonga Valley Water District, City of Fontana, City of Montclair, City of Ontario, City of Upland and Monte Vista Water District. A five member board is elected to represent IEUA's 700,000 residents. Each board member is elected by Division to serve a four year term.

Figure 6
IEUA Service Territory



Prior Energy Practices

The 2000/01 California Power Crisis created significant risks, both to public health and safety, and to water ratepayers. IEUA has been more acutely aware of the energy requirements due to their location in southern California and their experience in the electricity crisis in 2001. Energy is a significant component of the cost of IEUA's water

supplies. IEUA estimates that the energy use associated with water supply ranges from 400 kWh/AF (local wells) to 3,200 kWh per AF (MWD imported water).

During the California power crisis, IEUA participated in a project managed by Flex Your Power to identify near term opportunities for energy and peak demand reductions to alleviate California's power supply shortage. The project resulted in publication of a seven-step "best practices" guide for California water and wastewater utilities.

IEUA's practices were highlighted to illustrate some "best practices" behavior. The first step for identified in this study was to gather data to identify energy conservation measures and self-generation options. The report describes how IEUA gathered data using two consultants to identify projects that could be implemented by 2001. The consultants collaborated with staff, analyzing and evaluating each plant and process (primary, secondary, and tertiary) on a case-by-case basis, so that the consultants, operators, and engineers could determine how much energy each plant and process consumed and which could be run at off-peak hours. Operators examined how to better operate plants; and the engineering department helped operators determine where data could be collected and helped design new projects.

The report also used IEUA as an example of best practices for energy planning. IEUA management developed a Seven Point Emergency Energy Action Plan, identifying the following efficiency and conservation targets:

- Maximize efficiency of existing office and plant operations;
- Minimize external energy, natural gas, and other fuel cost;
- Maximize operational flexibility of plants to "roll off" electric grid and natural gas sources, particularly during peak usage periods;
- Maximize "self-sufficient" operations;
- Generate new local sources of energy for plant operations, support of related facilities, and ultimately sale into the grid
- Promote regional energy and water conservation programs; and
- Promote development of local water supply options.

The Seven-Point Emergency Energy Plan maximized the efficiency of IEUA's operations and identified new generation sources using local energy supplies. Through the energy plan, IEUA implemented projects including the installation of 53 new generators (including microturbines), negotiated new energy contracts, increased biogas production, improved operations to reduce load, and implemented conservation measures. The combined IEUA programs saved 3.2 MW of electricity during the 2001 electricity crisis.

For example, the RP-5 Renewable Energy Efficient Project, involved several full scale demonstration projects, that included innovative combinations of primary and secondary generation systems using methane gas derived from local processing of biosolids, dairy manure, and other organic materials. The generation system included internal combustion engines, Organic Rankine Cycle (ORC), a stirling engine generator system, a thermal energy storage system, and an innovative, reliable, and flexible heat recovery system to

optimize performance. In addition, IEUA installed state-of-the-art micro-turbines and other energy-saving equipment at their wastewater treatment plants. IEUA was particularly interested in becoming self-reliant for electricity production. IEUA purchased and installed three natural gas/methane-fueled internal combustion engines, which enabled the agency to reduce grid load by 100 percent during peak periods.

Install and maximize use of alternative energy sources such as landfill, methane gas, generators, and solar power. To meet its goal of being self-sufficient in 2001, IEUA installed generation equipment at all of its wastewater treatment facilities. The generators produced electricity at costs that were economically preferable to those available from SCE.

IEUA purchased and installed: 20 microturbines that provide 4,200 MWh annually; three natural gas/methane fueled internal combustion engines that provide 2,260 MWh of generation for IEUA's plants; two natural gas/methane consuming internal combustion engines, with a capacity of generating 1.915 MW; and 11 diesel generators to back up wells, with combined capability of generating 1.4 MW.

IEUA staff negotiated with various natural gas providers, including British Petroleum Gas (BP), for the best price possible for long-term natural gas contracts. IEUA wanted to run generators more often to reduce on-peak demand at its water recycling plants. IEUA was looking for cheaper and cleaner air technologies; diesel generation operations have long-term air quality issues and are only allowed to operate 200 hours/year by the Southern California Air Quality Management District (SCAQMD), and are generally considered emergency generation. IEUA's contract with BP saved the agency more than a dollar/therm: Average power costs during first quarter 2001/02 were 16.25¢ per kilowatt-hour (kWh) and 7¢ per kWh during the second quarter 2001/02. In addition, IEUA estimated the cost to design, construct, and install the new generation equipment to be \$1 million per megawatt (MW) of electricity generated, with a return on investment of five to seven years. IEUA also received incentives from BP and Southern California Edison (SCE) for micro-turbine installation upgrade projects.

IEUA also implemented energy conservation programs, which included altering schedules and turning off or bypassing inefficient equipment. For example, IEUA shut down non-essential pumps in various wastewater treatment plants and decreased aeration during peak energy use. IEUA bypassed and completely shut down one of its four sewage treatment plants from June 4 to October 7 in favor of a more energy-efficient plant. The bypassed plant consumed significant amounts of energy for its UV disinfection process. The by-pass required significant changes in staff work schedules and locations. IEUA raised temperatures to 78 degrees and turned off 50 percent of the lighting in its headquarters, administration, and plant operations buildings, leaving lights on only in areas critical for operation and maintenance. IEUA performed maintenance on the UV lamps at one of its four plants and reduced power consumption by 80,285 kWh compared with the previous year. IEUA retrofitted pump drives, replacing 14 eddy current clutches with high efficiency direct drive motors. IEUA achieved a 10 percent reduction in energy demand, saving 475,000 kWh annually.

IEUA also designed a system to capture biogas and use it to generate electricity. IEUA increased its methane gas production to reduce natural gas demand, including the development of the innovative 1-MW renewable energy project using cow manure.

Increasing the use of reservoirs and reducing long-distance water pumping also helped to reduce the associated energy consumed per gallon of water consumed. IEUA, in coordination with Chino Basin Watermaster, Santa Ana Watershed Project Authority (SAWPA) (and its other member agencies), and Metropolitan Water District (MWD), promoted the development of local water supply options by encouraging everyone to capture storm water where available.

IEUA provided leadership during the energy crisis and continued to make energy improvements after the crisis. At the dedication of the RP-5 Renewable Energy Facility (which uses cow manure to generate 1 MW of electricity), Secretary of Resources, Mary Nichols, said, “Chino will be a place that people from around the world will be visiting to see how you can take waste and turn it into a resource.” Built in partnership with the Milk Producers Council, Synagro Technologies, Inc., California Energy Commission, and the U.S. Department of Agriculture/Natural Resources Conservation Service, the RP-5 Renewable Energy Facility is one of the largest commercial systems in the United States to convert dairy cow manure into renewable energy.

In 2003, the IEUA showed its continued commitment to resource conservation when it opened the doors to its new, environmentally efficient headquarters facility. The IEUA’s board of directors approved the use of the United States Green Building Council’s Leadership in Energy and Environmental Design (LEED™) criteria for the headquarters to showcase how an integrated, sustainable-designed building can conserve energy, improve productivity, and contribute to the restoration of native landscapes.

Through a combination of energy conservation—power generated by solar panels (photovoltaics) located on the facility’s roof and methane gas generated by the anaerobic digestion process at the wastewater treatment facility located adjacent to the headquarters—IEUA expects the buildings to be 100 percent energy self-sufficient within two years.

While the headquarter complex’s two 33,000 square-foot buildings are equivalent in size to 40 average-sized homes, the energy consumption equals that of approximately three-to-four average sized homes. IEUA expects to save more than \$800,000 per year in energy costs alone. Notably, the construction cost for IEUA’s two tilt-up headquarter buildings was less than \$154 per square foot—far below the industry standard of \$180 to \$294 per square foot for comparable buildings. IEUA is working with cities, other agencies, and the private sector to share the lessons learned from this outstanding project and to showcase how a well-designed “green building” can attain sustainable economic and environmental benefits for decades to come.

In 2003, IEUA was also honored by the United States Environmental Protection Agency (EPA) as a Green Power Partner for generating more than 30 percent of its electricity needs from renewable sources.

The power crisis proved to be a catalyst for action for many businesses and agencies. IEUA has differentiated itself by continuing to work on its long-term energy action plan even after the crisis subsided. IEUA realized that its operations were placing important public needs at risk. While IEUA has made substantial progress and continue to provide energy management leadership for other utilities, the future regulatory, and supply challenges will force IEUA to innovate and improve. IEUA expects their future electricity needs to grow due to increased wastewater treatment and increased recycled water pumping. Therefore, IEUA was interested in the CALeep program to advance their objectives and mission and learn how to improve their current energy management and implementation processes.

Project Schedule and Tasks

The CALeep project found the IEUA management had a strong interest in participation. IEUA was a progressive organization that was interested in expanding the energy efficiency opportunities. IEUA had developed their energy policy and goals and had a organizational culture that supported seeking opportunities and innovation in resource efficient design when implementing capital improvement projects. IEUA was an “easy sell” into the CALeep Project. The CALeep grant was used to pay for 50% of IEUA’s cost to support and participate in the pilot and pay for the technical studies required.

The IEUA Board approved participation in CALeep at its October 6, 2004 meeting. The technical studies were funded 50 percent by CALeep, and 50 percent by IEUA. In late October, the pilot kickoff meeting was held. This meeting allowed Navigant staff and IEUA program managers and engineers to collaborate and discuss potential projects to increase energy efficiency. As a result of this meeting the initial scope of the project was redefined. The projects identified included: a lighting study, use of hydro turbines to produce electricity, geothermal cooling for some of the pump stations and facilities at the treatment plan, optimization of the recycled water by decreasing pumping costs, and optimization of process and equipment in the treatment plants. The CALeep program helped finance feasibility and impact reports (EE benefits, costs, other) for the projects identified. The reports were completed by several different consultants.

In December 2004, Navigant staff began work on the “best practices” gap assessment, which focused on customer programs concentrating on resource (both water and energy) efficiency for water/wasterwater agencies.

Throughout 2005, CALeep provided 50 percent funding for the projects identified in the initial scoping meeting. For the Waste Water Treatment Plant (WWTP) Energy Efficiency Evaluation, CALeep found opportunities for increased energy efficiency and optimization of the cogeneration system. The report suggested additional analysis of the IEUA gas data and suggested pursuing SCE funding for sludge system optimization during the future WWTP expansions. In addition, the lighting evaluation identified efficiency improvements for outdoor lighting at the WWTP. The Geothermal Cooling Evaluation analyzed use of

geothermal cooling for building HVAC systems. The analysis suggested that IEUA should look into using utility water heating/cooling at buildings near WWTP and using geothermal cooling for water heating/cooling. The Recycled Water Energy Analysis reviewed the potential for savings. The evaluation recommended that IEUA consider the energy impact in their project selection process and review the benefits of pipe oversizing to reduce friction. Modifications were estimated to save 12,546,000 kWh and \$1,520,000. The Hydro Turbine Analysis evaluated the installation of hydro turbines inside gravity and pressure pipelines. The report suggested that IEUA should install turbines in recycled water pipes instead of pressure reducing valves. Specifically, the report suggested that IEUA install turbines at RP-1 and Prado Lake throttling stations. The CALeep project also identified lighting opportunities at IEUA headquarters and suggested installing occupancy sensors and light switch retrofits.

CALeep also developed an energy checklist for IEUA project managers. The checklist lists energy efficient design standards, building materials, and design considerations. CALeep recommended that IEUA develop energy efficient design standards and use the energy checklist for all engineering projects.

By November 2005, IEUA had applied for several grants and rebates from statewide programs including three projects for the Self Generation Incentive Program and 50% of the active engineering projects for Savings by Design review. CALeep staff continued to work with IEUA to find and apply for funding opportunities and connected IEUA staff with CEC staff members to involve them in statewide energy and water planning decisions. In addition, staff at the IEUA applied for a grant through the Sustainable Communities Program (submitted to SCE and Sempra) and applied for another grant through the California New Homes Program (submitted to SCE).

4.4.2 San Joaquin Valley

We begin by repeating that the ultimate goal of the CALeep is to *refine* the decision-making template that will help local governments more effectively learn about, choose among, overcome barriers to, and implement energy efficiency programs and policies. Achieving the specific objectives established for the San Joaquin Valley Project will during will contribute to the eventual achievement of this overarching goal.

Next, we first present the specific objectives of the San Joaquin Valley project and then describe the project activities that were carried out in an attempt to achieve these objectives.

4.4.2.1 Goals and Objectives

The primary objective of this pilot program is to test the regional jobs initiative community engagement channel as a vehicle for assisting local governments in achieving energy efficiency, and to determine the extent to which related modifications to the CALeep decision-making template should be made. Achieving the following seven objectives will lead to the achievement of this primary objective.

Objective 1. To gain the support of the RJI Executive Director to use the RJI as a CALeep pilot project community engagement channel. The achievement of this objective will depend on increasing the understanding of the RJI Executive Director regarding the linkage between energy efficiency and employment.

Objective 2. Develop a matrix of energy efficiency opportunities for specific RJI employment clusters, engagement cluster leaders, and individual companies within the targeted clusters. This will involve assessing energy efficient end-use technology targets of opportunity within the clusters and narrowing future engagement.

Objective 3. To increase the understanding of cluster leaders regarding the linkage between lowering member operating costs, their competitive positions, and potentially sustaining and building market share.

Objective 4. To produce an energy-efficiency roadmap that helps the various industries, trades, and public policy institutions involved with the various employment clusters to recognize the overall economic value of increased energy efficiency.

Objective 5. Conduct five to ten energy audits of the operations of individual cluster members and recommend energy efficiency upgrades.

Objective 6. To increase the extent to which the members of the employment clusters will be engaged in pursuing funding to implement the recommendations of the report, specific to their work.

Objective 7. To increase the understanding of the members of the employment clusters of how to implement energy-efficiency programs within their industry.

4.4.2.2 Project Activities

For most of the twentieth century, the San Joaquin Valley's¹⁰ economy was intrinsically linked to the region's agricultural base. The eight counties that comprise the San Joaquin Valley, illustrated in [Figure 7](#), are located in the geographic center of California, where the seasonal agriculture labor demands were identified as the cause for high unemployment statistics. Agriculture now represents only 20 percent of the area's jobs, however, and double-digit unemployment persists even at the peak season of the agricultural harvest. The Fresno Metropolitan Statistical Area in particular has been plagued with extremely high unemployment for the last 20 years, with Fresno's unemployment rate 2.5 times higher than any other California city of its size.

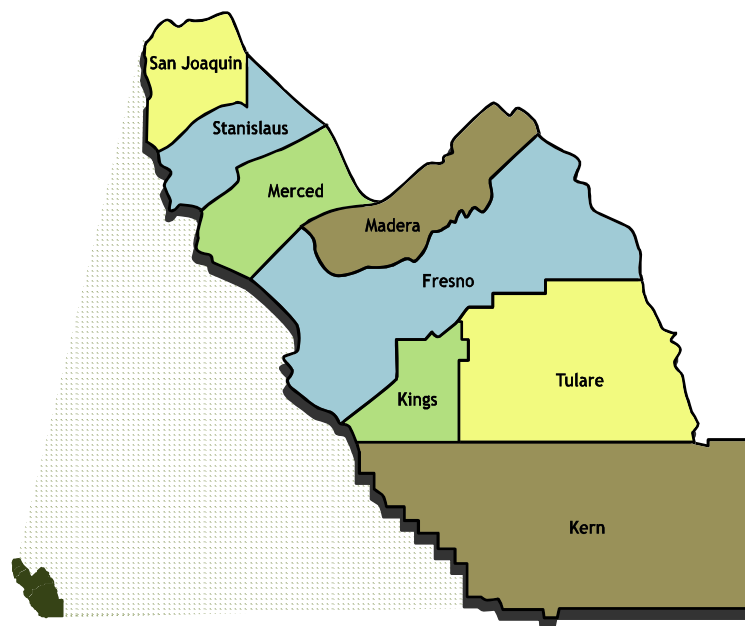
¹⁰ The San Joaquin Valley refers to the area of the Central Valley of California that lies south of the Sacramento-San Joaquin Delta in Stockton. Although most of the valley is rural, it does contain major urban cities such as Stockton, Fresno, Modesto, Bakersfield, and Visalia.

To address this issue, the Fresno Regional Jobs Initiative (RJI) was launched in late 2003. The RJI provides a framework for developing a short and long-term actionable community-wide strategy aimed at creating 25,000 to 30,000 net new jobs within five years and generating long-term, sustainable economic development. The initiative's implementation plan encompasses all of *Fresno County* and portions of *Madera, Kings and Tulare Counties*, and is roughly divided among the following ten industry clusters¹¹.

Advanced Manufacturing. Advanced Manufacturing refers to highly flexible, short-to-medium run production, as opposed to high-run assembly line production. The San Joaquin Valley is poised for growth in its manufacturing sector.

Construction. The Construction Cluster is comprised of designers, contractors, suppliers, building trade organizations, apprenticeship programs, home builders, industry associations and educators, all representing both public and private aspects of the Construction industry.

Figure 7
Eight Counties Comprising the San Joaquin Valley



¹¹ The phrase "industry cluster" refers to the grouping of related industries that naturally develop in a given geographic region. The "cluster" includes the businesses that export goods and services from or across the region and all the businesses that support those primary exporting businesses. It also includes industry sectors that need to be in close physical proximity to the markets being served, such as the tourism, logistics, and distribution industries. "Cluster-based" economic development involves targeting the industries that naturally exist in a local economy and focusing available resources on developing the things most needed to grow those industries, such as customized training programs, physical infrastructure requirements, and specialized research programs at local universities. The RJI uses the term "industry cluster" to refer not only to related industry groupings but also to occupational clusters, such as "information processing", which includes jobs that span a wide range of industries that require information processing capabilities.

Food Processing. The "food technology" industry cluster encompasses the public and private organizations in the region that are engaged in research, development, manufacture, and/or delivery of goods and services related to the production, sales, marketing, and distribution of food.

Healthcare. This cluster consists of a network of hospitals, training centers, clinics and other health-related service providers.

Info Processing: Call Centers. "Information Processing" represents a group of interrelated occupations that share similar training and skill requirements that cut across several industries, namely back office operations, call centers, third party administrators, and information technology.

Innovative Energy. The Innovative Energy project is the first initiative undertaken in the creation of a local Renewable Energy/Clean Tech cluster. It is designed to help reduce energy consumption and generate clean, renewable power where possible in order to improve the local economy and benefit the environment.

Logistics & Distribution. Advanced Logistics and Distribution refers to the transportation, storage, and allocation of products. The Logistics Cluster focuses on the industry that provides these services.

Software Development. The Software Development Cluster consists of businesses or divisions of businesses whose primary function is software development, as well as educators whose goal is the training of software developers.

Tourism. The Tourism Cluster consists of all businesses, such as hotels and motels, tour operations, and restaurants, related to the various aspects of tourism that can be found in the Fresno Region. Agri-tourism, amusement parks, gardens, historical sites, casinos, museums, nature tours, three national parks, performing arts, outdoor recreation, parks, planetarium, shopping, sports venues, golf, snow skiing, water sports, and zoos are among the many tourist attractions in the Fresno Region.

Water Technology. The International Center for Water Technology is an industry-university partnership housed at California State University, Fresno that focuses on the manufacturing and deployment of technology that enables water reuse, conservation, energy efficiency, lower cost innovations, improved water quality, and water exploration.

Each sector is tasked with directly creating a prescribed number of jobs per year, which will, through a multiplier effect, reach the goal of creating 30,000 jobs within five years. In the future, the same structured planning process will be expanded and adapted to the needs and circumstances of additional central valley communities, thereby demonstrating that the process is transportable.

CALeep appeared to have been well positioned to augment the efforts of the RJI by helping the regions' businesses reduce their operational costs through improved energy efficiency. The RJI's sector-based approach to improving the region's economy and related employment problems has created a structure that aligned well with energy efficiency program development and implementation. Through a partnership with the Great Valley Center and Strategic Energy Innovations, CALeep worked with selected industry clusters within the RJI with the aim of affecting improvements in energy efficiency.

Initially, there was a significant amount of engagement that took place at the cluster level. There was quite a bit of work setting up the RJI, and then pursuing the private sector cluster members. Over the course of the pilot project, the Great Valley Center (GVC) and Strategic Energy Innovations (SEI) worked with CALeep to initiate, organize, and plan the creation of the energy efficiency roadmap that mapped the needs and opportunities of cluster members to available energy efficiency resources. Under the Initiate phase of the CALeep pilot project, the GVC and its partner, SEI, (1) identified leaders within both the clusters of the RJI and relevant local government agencies to work as champions for the completion of the roadmap, and (2) identified resources available within the RJI clusters and local government to aid in developing the objectives and game plan. This included the documentation of:

- Trends regarding energy efficiency programs and awareness in the region
- Future plans for energy efficiency programs and initiatives in the region
- Barriers to implementation and wide-scale adoption of recommended actions from the energy efficiency roadmap.

GVC and SEI assigned roles and responsibilities of those contributing to the roadmap and inventoried assets and resources internal to the identified clusters of the RJI and local government agencies. GVC served as the lead outside agency in aiding the CALeep team. The determination of resources included taking an inventory of the following:

- Financial resources
- Established partnerships
- Communication channels within region
- Infrastructure hurdles to implementing recommendations

During the Organize phase, meetings and conference calls with the RJI and local government participants were conducted. In the Planning phase of the pilot project, GVC and SEI assembled stakeholders to:

- Clarify their needs, ambitions, goals, and motivation
- Determine roles, as they were being identified within the first drafts of the report
- Share the preliminary vision and strategy, based on the initial findings from the Initiate and Organize phases.

This included analysis from the CALeep team on:

- Program opportunities
- Cluster technology targets
- Implementation strategy and organization participation to accomplish recommendations rapidly
- Collection and processing of feedback from meetings held with stakeholders

Early on, the Great Valley Center conducted two surveys of industry clusters to better understand their needs and wants. One focused on just the construction cluster and resulted in 37 completed surveys. The highlights of this survey are presented below.

Trade Unions Perspective

- 80 percent of the union members are somewhat aware of green building approaches;
- All of the union members wanted to learn more;
- 80 percent of the union members thought green buildings approaches had the potential to grow quality jobs;

Builder/Developer Perspective

- 60 percent of the builders/developers see the green building markets as limited; 30 percent as growing;
- 60 percent of the builders/developers see green building approaches adding between 5 and 10 percent to the cost;
- Most builders/developers have not had green building training;
- 60 percent believe that customers would pay more for green building;

Local Government Perspective

- Half of the communities surveyed are aware of green building ordinances;
- Two thirds of the local government members see the benefits of the ordinances;
- Over 50 percent of the local government members have not considered or passed green building codes or ordinances. None of the local officials are aware of green building incentives used by other communities;
- Fewer than half of the local government members are aware of specific utility incentive programs;
- None of the local officials are aware of green building incentives used by other communities; and
- Fewer than half of the local government officials are aware of specific utility incentive programs.

The other survey attempted to cut across the various industry clusters but resulted in only 10 responses covering Advanced Manufacturing, Logistics and Distribution, and Water Technology industry clusters.

- Within the past 18 months, 50 percent of the respondents had looked at adopting/deploying energy efficiency measures
- Within the past 18 months, 38 percent had looked at adopting/deploying any energy on-site energy generation technology such as CHP or renewable energy.
- Within the past 18 months, 43 percent had installed/implemented energy efficiency measures.
- Within the past 18 months, 43 percent had been actively solicited for energy efficiency and/or energy generation products and services.
- Eighty-six percent indicated that, if they were to expand their business, they would plan to incorporate energy efficiency building features energy saving process/operational improvements and/or energy generation.
- Respondents felt that the biggest barrier to adopting more energy efficiency measures and renewable technologies is the lack of understandable information. Cost and the lack of qualified experts were also mentioned as important barriers.
- Finally, respondents were asked whether they were aware of various utility and non-utility-sponsored energy efficiency and self-generation programs. **Table 8** presents these results.

Table 8
Awareness of Energy Efficiency and Self-Generation Programs

Energy Efficiency/Self-Generation Program	Percent Aware
PG&E's Express Efficiency Program (Equipment rebates)	57%
PG&E's 500 Plus-Peak Program (Equipment Rebates)	43%
PG&E's Standard Performance Contracts	29%
PG&E's Energy Savings by Design	29%
PG&E's Self-Generation Incentive Program	29%
PG&E's Targeted Energy Audits	43%
PG&E's On-Site Energy Audit	43%
PG&E's Phone Energy Survey	29%
Fresno Energy Savings Alliance - Small & Med. Business Direct Install Program	14%
Fresno Energy Savings Alliance - Codes and Standard Support	14%
Fresno Energy Savings Alliance - Education & Information Programs	14%
KEMA-Xenergy - Enhanced Automation Initiative Program	14%

These results from these two surveys suggested to the CALeep staff that the cluster members already knew a fair amount about energy efficiency and were ready for more, a point underscored in all of the in-depth interviews. Unfortunately, the demand for energy efficiency on the part of the various clusters exceeded CALeep's resources to conduct energy audits of the operations of individual cluster members and recommend energy efficiency upgrades. Efforts to conduct audits for cluster members were further hampered by the loss of a key staff member at the Great Valley Center. In addition, a new initiative, the California Partnership for the San Joaquin Valley, created by Governor Schwarzenegger, provided an opportunity to move beyond the individual needs of cluster members and create a broader framework or roadmap that would address the needs of a larger population of businesses in a more sustainable manner.

The Partnership brings state agency secretaries and Central Valley representatives together to make recommendations to the Governor regarding changes that would improve the economic well-being of the Valley and the quality of life of its residents. The full 26 Partnership Board Members were appointed in September and the first Board Meeting was held on September 16, 2006 in Stockton at the University of the Pacific. At the first meeting, the Board adopted a Work Plan and established ten Work Groups to focus on:

1. Economic Development
2. Higher Education and Workforce Development
3. K-12 Education
4. Transportation
5. Land Use, Agriculture, and Housing
6. Air Quality
7. Water
8. Energy
9. Health and Human Services, and
10. Advanced Telecommunications and Information Technology.

More than 300 civic leaders from the San Joaquin Valley are participating in the Partnership Work Groups, which are convened by Board Members including the Great Valley Center and the Regional Jobs Initiative which is serving as an advocate for state and Federal initiatives, including implementation of the California Partnership for the San Joaquin Valley strategic action proposal, advancing air quality initiatives, and locating a medical school in the Valley.

Given the experience of the survey results, staff turnover, and the opportunity provided by the California Partnership, the CALeep staff, in August of 2005, decided that rather than simply map the member organizations to existing efficiency programs to identify savings opportunities and possibly achieve energy savings in a few specific buildings, it was better to shift the focus of the remaining resources on identifying overarching goals and build a broader, more sustainable infrastructure or roadmap that could support and develop a far larger number of efficiency projects over time.

4.4.3 Sonoma County Community Engagement

We begin by repeating that the ultimate goal of the CALeep is to *refine* the decision-making template that will help local governments more effectively learn about, choose among, overcome barriers to, and implement energy efficiency programs and policies. Achieving the specific objectives established for the San Joaquin Valley Project will contribute to the eventual achievement of this overarching goal.

Next, we first present the specific objectives of the San Joaquin Valley project and then describe the project activities that were carried out in an attempt to achieve these objectives.

4.4.3.1 Objectives

The primary objective of this pilot project is to test the following three engagement channels as a vehicle for assisting local governments in achieving energy efficiency: 1) the Climate Protection Campaign, 2) the Sonoma County Redevelopment Agency, and 3) California Local Government Energy Partnership. Achieving the following 12 objectives will lead to the achievement of this primary objective.

Objective 1. To observe the implementation of the LGEP Program in order to learn lessons that can perhaps be codified in the decision-making template.

Objective 2. Significantly increase participation in the Local Government Energy Partnership (LGEP) within Sonoma County. This objective will be achieved by establishing simultaneous engagement of the nine city governments, county government, and water agency through collaboration with the regional Climate Protection Campaign (CVP).

Objective 3. Establish 1-3 year(s) baseline energy usage, categorized by usage type and ranked by cost and amount of energy to support LGEP jurisdiction-specific energy assessment reports.

Objective 4. Provide back-up community engagement for up to two cities to assist LGEP in maintaining community participation in order to ensure engagement of EE program development activities.

Objective 5. Consultant staff will produce a comprehensive summary report on the results of Energy Days audits, emphasizing lessons learned that will benefit other implementations of the CALeep concept and, possibly, serve as the basis for design of adjunct/follow-on programs to assist participants with the implementation of the audits' recommendations.

Objective 6. Explore the possibility of a mobile home insulation program element. This includes estimating the market potential for mobile home energy audits and identifying cost-effective providers of insulation.

Objective 7. Train ten students who will conduct the 20 small business energy audits and 40 residential audits.

Objective 8. Working with the ROC Russian River and Sonoma Valley Redevelopment Agencies, conduct at least 10 energy audits on small business premises in each RDA.

Objective 9. Working with the Russian River and Sonoma Valley Redevelopment Agencies, install a limited number of energy saving materials in at least 30% of the small businesses that received energy audits in each RDA.

Objective 10. Working through the Sonoma Valley Redevelopment Agency and Russian River Redevelopment Agency, conduct at least 20 energy audits for eligible low-income households in each RDA.

Objective 11. Working with the Russian River and Sonoma Valley Redevelopment Agencies, install a limited number of energy saving materials in at least 30% of the low-income households that received energy audits in each RDA.

Objective 12. Produce a comprehensive summary report on all CALeep activities in Sonoma County, emphasizing lessons learned that are suitable for inclusion in the Template.

4.4.3.2 Project Activities

Widely known for its world class wineries, Sonoma County (see Figure 8) is nestled among California’s coastal mountains to the immediate north of the San Francisco Bay.

Figure 8
Map of Sonoma County



Home to nearly 500,000 residents, Sonoma County is one of the fastest growing counties in Northern California. This diverse county is in the midst of an extended period of economic and industrial growth, and local government officials have demonstrated an active interest in progressive environmental and energy initiatives. For example, Sonoma County and all nine of its cities have passed resolutions committing themselves to a five-step process for reducing their greenhouse gas emissions¹². Despite the overall economic prosperity, community leaders are aware that there are some environmental degradation issues as well as hard-to-reach residents with core infrastructure and energy needs that must be addressed.

The CALeep initiative in Sonoma County is working through three existing community outreach channels: 1) a CPUC-funded program that takes advantage of an existing Council of Governments to provide a wide range of energy information services to local governments in the region, 2) the Climate Protection Campaign (CPC) an initiative to reduce greenhouse gas emissions, and 3) the Sonoma County Redevelopment Agency, which attempts to meet the energy affordability needs of low-income residents and those living in mobile homes. Descriptions of the activities of each of these three engagement channels follows.

LGEP

In February of 2004, the Northern California Local Government Energy Partnership (LGEP) was awarded a contract by the CPUC to provide technical assistance and information services throughout 2004 and 2005. The LGEP is tasked to assist small to medium sized cities, counties and special districts within the Association of Bay Area Governments (ABAG)¹³ and Association of Monterey Bay Area Governments membership areas (excluding Marin County) to complete energy efficiency projects in public facilities, and to promote energy efficiency within their communities. While some of the larger cities in this region have been very active in energy efficiency, it is posited that most small and medium sized local governments do not have the in-house capability to tap into existing state and utility energy efficiency programs. Program outreach efforts included targeting local governments in rural locations and/or that have large concentrations of hard to reach populations, as well as those located within transmission constrained areas.

The Program has two major elements. The first element, *Energy Efficient Local Government Facilities*, will provide technical assistance services not offered by other parties (e.g. energy use assessments, project development, and sustained technical

¹² All nine Sonoma cities and the County have pledged to reduce their greenhouse gas emissions as part of a worldwide effort led by the International Council for Local Environmental Initiatives - ICLEI. (see www.ICLEI.org)

¹³ ABAG is the official comprehensive planning agency for the San Francisco Bay region. ABAG's mission is to strengthen cooperation and coordination among local governments. In doing so, ABAG addresses social, environmental, and economic issues that transcend local borders. The Bay Area is defined as the nine counties of Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, and Sonoma. All nine counties and 99 of the 101 cities within the Bay Area are voluntary members of ABAG, representing nearly all of the region's population.

assistance) and will dovetail with resources from the California Energy Commission (CEC), PG&E, and other PGC programs available for this sector. These services will help local governments through the entire process of completing energy retrofit projects, and channel developed projects into state sponsored incentive programs. The second element, *Community Energy Efficiency* will help local governments to develop energy efficiency policy and program initiatives to promote energy efficiency among local businesses and residents. An additional component of this element will include a combination of peer forums, local government-focused workshops, and a Web based clearinghouse that will provide specific energy efficiency information and resources.

One of the first issues to arise was the potential for overlap between CALeep and LGEP. The two programs share target markets in the provision of different types of energy efficiency services. On September 15, 2004, staff traveled to San Francisco for a program coordination meeting hosted by PG&E. Meeting participants confirmed that there is no overlap between the two programs and that it would be appropriate for them to coordinate their efforts. Since the main objective of CALeep was to develop the process by which local governments identify and access resources that in-part can be provided by the ABAG program (LGEP), it made sense that CALeep would identify and recommend the ABAG program as a means to affect efficiency upgrades in county and city facilities located within Sonoma County. An agreement was reached in July 2004 that NCI and ABAG would communicate on an ongoing basis regarding points of contact, opportunities, and challenges. These communications were documented in a Program Coordination Memo that was distributed every two weeks. However, LGEP elected in some cases to allow CALeep to work directly with certain cities (Healdsburg and Petaluma) with little involvement or input from LGEP.

Climate Protection Campaign

The CPC's mission is to create a positive future for children by inspiring action in response to the climate crisis. The CPC advances practical, science-based solutions for significant greenhouse gas reductions. The CPC was a strong motivating force in assisting Sonoma County and all nine of its cities in passing resolutions committing themselves to a five-step process for reducing their greenhouse gas emissions¹⁴. A large part of CALeep's role in the Sonoma County initiative has been to fund and direct the CPC to continue to:

- support these municipalities in setting targets for reducing their emissions,
- plan and implement programs to achieve their targets,
- purchase energy accounting software and populate it with energy-use data for all the municipalities, and
- use its existing contacts and relationship-building skills to facilitate LGEP's survey, audit, assessment and other activities.

CALeep staff were also directly involved in providing technical support for CPC's activities, as needed, presenting the overall framework for the multi-organizational effort to

¹⁴ All nine Sonoma cities and the County have pledged to reduce their greenhouse gas emissions as part of a worldwide effort led by the International Council for Local Environmental Initiatives - ICLEI. (see www.ICLEI.org)

the municipalities, and filling any gaps identified in the services being provided to participating municipalities, as needed, especially in the policy area. Consistent with CPUC direction, the LGEP used the CALeep-tested CPC engagement channel and CALeep assumed a monitoring role.

Redevelopment Agency

The Sonoma County Community Development Commission (CDC)¹⁵ is a separate outreach channel through which CALeep worked. CALeep worked with James Burchill & Associates in an attempt to create a culture of energy efficiency in two redevelopment agencies (Russian River and Sonoma Valley) and develop ongoing energy efficiency programs targeting hard-to-reach customers (low- to moderate-income households living in mobile homes, as well as small businesses). Mr. Burchill served as an “patron” for the energy efficiency effort, (1) providing an entrée to talk with a Sonoma County Supervisor, the manager of the Sonoma County Redevelopment Agency, and the redevelopment advisory committees for the Sonoma Valley Redevelopment Project and the Russian River Redevelopment Project, and (2) helping to define and present CALeep’s energy efficiency proposition to each of these groups and individuals. The basic approach of leveraging RDA funds and resources to reach hard-to-reach populations of low-income families and small businesses included conducting energy audits and follow-up contacts, along with measure implementation efforts as time permitted.

How to leverage CALeep funds was informed by two key discoveries. First, while Redevelopment Agencies (RDA) must set aside 20% of their incremental tax revenue for Affordable Housing, they have found it difficult to spend all of these funds leaving open the possibility that the State may choose to retrieve the unspent portion. Second, CALeep energy efficiency upgrades qualify as a viable use of the funds. This meant that CALeep could use its \$75K grant to fund information, outreach, and measure purchase and installation, a cost that could be shared with the RDAs Affordable Housing. CALeep felt that this approach could be demonstrated in hard-to-reach markets within the project period. That is, CALeep staff viewed RDAs as a potential “community engagement channel” that could help to overcome the normal barriers preventing local communities from implementing energy efficiency measures. Moreover, redevelopment agencies with similar needs may exist throughout the state – and the nation – making the potential for such energy efficiency savings using this approach quite large.

Detailed agreements describing the scope of the pilot program and the responsibilities of the participants were eventually drafted and submitted to the Sonoma Valley and Russian River Redevelopment Advisory Committees, each of which enthusiastically recommended their approval by the Board of Commissioners of the CDC (dual-hatted members of the Board of Supervisors). The CDC approved both CALeep pilot projects and authorized

¹⁵ The Sonoma County Community Development Commission (CDC) is governed by the Sonoma County Board of Supervisors, acting as the Commissioners of the CDC. The Community Development Committee (Committee) acts as an advisory group to the Commissioners. The Committee reviews and makes recommendations on policy and funding matters to come before the Commission.

redevelopment funds from each project area to match California Public Utility Commission (CPUC) funds made available for the pilot project.

Initial discussions revealed an opportunity to involve La Luz, an organization providing representation and services to the Latino population living within the catchment area of the Sonoma Valley Redevelopment Project. La Luz was eventually used to provide door-to-door outreach to the Hispanic community within the catchment area for the Sonoma Valley Redevelopment Project. Outreach to the households in the Russian River Redevelopment Project was done via 7,000 direct mailers.

The energy survey posed unexpected challenges. Early efforts to involve an energy audit program contractor were abandoned due to the contractor's inability to scale down the scope of the audit. The solution was to train local high school students to perform the energy audits of homes and small businesses. Further discussions led to using the Awareness for Communities about Energy (ACE) Program¹⁶ to support the energy audit activity. This program involves training high school students to conduct energy audits under the assumption that residential and small business customers would be more receptive to such an approach, compared to recruitment done through a private business.

In addition, using high school and college-age students as mentors was viewed by both staff and its pilot partners as a very positive innovation that could have significant value as a template for implementing similar programs in other jurisdictions. To be tested was the concept that residential and especially small business customers might be more receptive to both an energy audit and installation of energy efficiency measures if these activities were initiated through the efforts of local students.

Follow-ups were then conducted with all audit participants. In the follow-up efforts, the program sought to identify which home owners and business owners were interested in having measures installed by qualified vendors and paid for by the program's grant and matching fund allocations. While the follow-up activities with survey participants required more time and resources than originally anticipated, these efforts ultimately led to discussions with interested participants and the scheduling of measure installations.

But why use high school students to conduct the audits rather than simply funneling customers in the California Low Income Program, the Home Energy Efficiency Survey Program, the Express Efficiency Program, or the Non-Residential Audit Program? In-depth interviews revealed that the main reason was that, because this was a pilot project, it

¹⁶ Under a grant from Marin Community Foundation and other sources, Strategic Energy Innovations (SEI) is implementing the Awareness for Communities about Energy (ACE) Program to promote energy conservation and efficiency in communities by creating partnerships among three populations: students, senior citizens, and small business owners. Elementary and high school students learn energy efficiency measures and auditing techniques, which they then impart to small business owners and senior citizens to help them improve their energy management. In this program, energy efficiency is the focal point around which stronger community relationships are forged.

represented a good opportunity for the Sonoma County Community Development Commission (CDC) to collect *a much greater variety of information* than is typically collected by these statewide programs in order to identify all feasible energy saving opportunities. However, in the end, the major energy-saving opportunities were predictable: CFLs, refrigerators, insulation, and T-8 lamps. If they had it to do over, the interviewees suggested collecting much less information thus freeing up both time and money to serve a greater number of households.

The decision to use high school students did necessitate some changes in the overall approach. While CALeep partnered with an existing program, ACE, to gain access to the student surveyors, educating the students on energy efficiency, in particular, and survey etiquette, in general, also presented unexpected challenges. Since there were numerous potential opportunities for improved energy efficiency in the targeted residential homes, but limited funds and a limit to what students could be expected to learn quickly and effectively put into practice, the audit approach and survey instrument had to be re-thought and carefully constructed through a number of iterations.

The installation process began with identifying potential vendors for each of the desired measures (i.e., insulation and refrigerator upgrades in the residential homes and lighting retrofits at small businesses) and soliciting bids from each. After soliciting and reviewing bids, the program notified the selected contractors. Installations began shortly thereafter and continued beyond the program's March 31, 2006, deadline. The vendors reported to the program some challenges incurred in providing their services to the survey participants, including some resulting from the student audit activity. In-depth interviews revealed that many of the auditors were recommending attic insulation without first confirming that there was an attic in the home. Insulation installers arrived only to discover that installing insulation was not feasible. With this one exception, the measure installations for the most part proceeded according to plan. Refrigerators and insulation, where feasible, were installed, in all participating homes. In addition, participating small businesses received lighting upgrades. Refrigerator installation is now underway in some of the participating homes, per the wishes of the respective redevelopment advisory committees. The program's \$75,000 grant allocation was fully expended or committed to expenditure.

Efforts are continuing at the Sonoma County Community Development Commission to spend the remainder of its matching \$75,000 in a manner that is consistent with the activities completed through the official end of the program. The manager of the Sonoma County Community Development Committee indicated in an in-depth interview that he recommended to the Russian River Redevelopment Oversight Committee doing a refrigerator exchange. He estimated that with the funds available, they could swap out perhaps 50 old refrigerators and replace them with brand new energy star units.

Of these three channels, it was agreed on 12/7/2004, that the RDA community engagement channel should get *80 percent of the available CALeep time and resources*.

4.4.4 South Bay Cities Council of Governments (SBCCOG)

4.4.4.1 Objectives

The overall pilot project objective for the SBCCOG/ESC was to develop a strategic work plan that demonstrates a coordinated, deliberate, and comprehensive process that enables a collection of local governments to work together to assess, identify, prioritize, and potentially implement energy efficiency projects in public facilities. The project focus was to reduce electricity and natural gas use in local government facilities within the cities that are members of the South Bay Cities Council of Governments. A complementary goal was to aggregate projects that were identified in the process for future funding (in 2005 and beyond).

Program Assumptions: The following assumptions about the pilot program were developed:

- SBCCOG/ESC activities to facilitate implementation of specific energy efficiency projects among members' internal facilities would not have occurred without the support of CALeep.
- SBCCOG/ESC will increase its opportunities for obtaining additional funding assistance as a result of identifying, prioritizing, and packaging candidate projects, as a direct result of participating in CALeep.
- SBCCOG/ESC's knowledge of opportunities for EE projects within the governmental sector will be advanced as a result of participating in CALeep.
- CALeep can help SBCCOG/ESC to take advantage of these opportunities now because, without additional financial support, SBCCOG/ESC could not take on additional responsibility to conduct this program.

Overarching Goal (Cuts across all six pilot projects)

The ultimate purpose of the CALeep is to develop a comprehensive decision-making template that will help local governments more effectively learn about, choose among, overcome barriers to, and implement energy efficiency programs and policies. The following five (5) objectives for the SBCCOG/ESC pilot project were designed to lead to the eventual achievement of this overarching goal.

Objective 1. To observe the implementation of the SBCCOG/ESC pilot program, to learn lessons that can perhaps be codified in the CALeep decision-making template (workbook).

Objective 2. Provide funding for SBCCOG to assemble a team of individuals to identify and screen potential governmental energy efficiency (EE) projects within the SBCCOG membership jurisdictions.

Objective 3. Assist the SBCCOG/ESC team in developing and implementing a framework for categorizing and selecting candidate governmental sector EE projects, according to their ability to best meet SBCCOG/ESC goals and attract funding.

Objective 4. Based on the projects identified by the team, develop a template for a report (Energy Action Plan) to assist SBCCOG in pursuing and obtaining funding to implement identified projects.

Objective 5. Assist SBCCOG in identifying potential funding sources to whom to submit requests for funding.

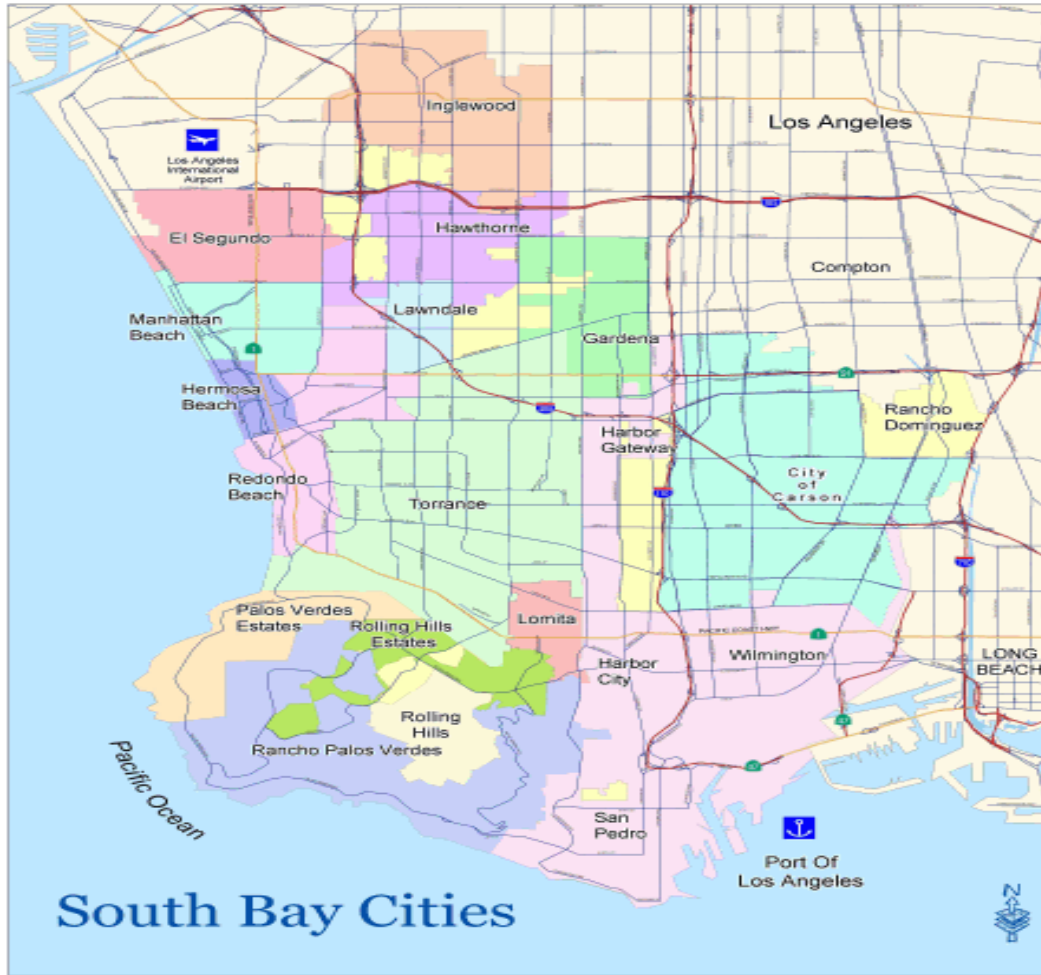
Expected Outcomes: The following outcomes were expected as a result of the achievement of the objectives listed above.

- **For SBCCOG:**
 - Deliver added value to member cities of SBCCOG through joint project participation.
 - Achieve recognition for EE and conservation activities.
 - Identify new EE projects that have internal support and a strong economic basis to go forward.
 - Develop a Strategic Work Plan to position SBCCOG for future funding grants and/or other financial assistance.
- **For CALeep/NCI:**
 - Identify opportunities and barriers
 - Was interest in the CALeep initiative sustainable throughout the process?
 - What barriers were encountered and how were they overcome?
 - Identify “lessons learned” for possible inclusion in the CALeep workbook.

4.4.4.2 Project Activities

The South Bay Cities Council of Governments (SBCCOG) is a joint powers agency consisting of 15 cities (Carson, El Segundo, Gardena, Hawthorne, Hermosa Beach, Inglewood, Lawndale, Lomita, Manhattan Beach, Palos Verdes Estates, Rancho Palos Verdes, Redondo Beach, Rolling Hills, Rolling Hills Estates, and Torrance), and the San Pedro and Harbor City communities of the City of Los Angeles (See Figure 9 below). The SBCCOG Board of Directors is composed of elected officials from its member cities. The SBCCOG conducts its business through committees and working groups composed of elected officials, city staff, government partners, and residents; and, its Executive Director reports to the SBCCOG Board.

Figure 9
Map of South Bay Cities Area



In December 2003, the CPUC provided funding for the South Bay Cities Energy Savings Center (ESC), initially, for two years. The Center received additional funding for the 2006-2008 program year. The project is a joint project by the SBCCOG, Southern California Edison Company, and Southern California Gas Company. Together with SCE and SCG, the SBCCOG is working to deliver an energy efficiency message to the South Bay cities. By working together, the partnership has established a resource center designed to provide information, training, and energy savings tips specifically for the South Bay.

The ESC believes that by reducing the demand for additional electricity and natural gas, they can:

- Reduce the load on existing energy infrastructure of wires and pipes;
- Reduce consumption of our natural resources;
- Reduce individual monthly utility bills, starting with the first compact fluorescent bulb installed; and,
- Preserve resources for our children's future.

Thus, through intelligent conservation, and by using the best energy efficiency practices available, they can

- Reduce the need to build power plants;
- Minimize the need to invest in new gas infrastructure;
- Preserve our natural resources for future generations;
- Lower our utility bills starting today; and
- Save Energy / Save Money!

The implementation of the CALeep energy efficiency programs supported these goals and objectives. Consistent with CALeep's intent, the SBCCOG community engagement channel was viewed as being capable of leveraging its access to and knowledge of governmental facilities to identify candidate projects for energy efficiency improvements. In particular, the SBCCOG provides a central point of contact for reaching over a dozen cities, both large and small, that are actively addressing community issues of common interest including energy-related topics. NCI felt that another benefit of having SBCCOG as a pilot program participant was that it is a mature organization that has already begun addressing energy efficiency improvements.

While the ESC's current scope of activity is to conduct an assessment of the energy savings potential across all sectors (commercial, industrial, residential, public) within the South Bay, care was exercised to avoid any overlap of this effort with CALeep pilot program activity. Rather, the CALeep pilot program allowed the ESC to perform an additional activity that is consistent with its mission. Specifically, the pilot program was intended to help the ESC develop an infrastructure and process for identifying and screening potential energy efficiency projects within member facilities, prioritizing these projects, and then packaging them in order to solicit implementation funding support.

Prior Energy Practices

One of the SBCCOG's existing energy activities is the staffing and operation of the South Bay Cities Energy Savings Center. The ESC conducts free home and small business energy efficiency classes, Title 24 training classes (energy efficiency compliance in buildings) as well as provides "information-based" outreach programs relating to energy efficiency. The ESC also has a lending library of tools and books and publishes a quarterly electronic newsletter, which provides rebate information and energy tips. At the time the CALeep project was initiated, two people staffed the ESC, including the ESC Executive Director, and the ESC liaison to the various member cities. Both possess a fundamental knowledge of the workings of the electric utility industry, its regulatory environment, and energy efficiency measures. In addition, the ESC receives expert technical support, primarily, by contracting with a local energy consultant.

In conjunction with SCE, the ESC currently has a program underway to assess the potential penetration of energy efficiency program measures across sectors within the South Bay community. The South Bay Energy Efficiency Assessment is an element of the overall scope of work included in the Program Implementation Plan for the ESC. The objective of the assessment is to determine the total energy efficiency potential for the South Bay region for all sectors, including commercial, residential, existing construction as well as new construction. The assessment is being accomplished first through a comprehensive review of a number of statewide energy efficiency studies, reports and energy efficiency program

assessments. In addition, specific energy data from the region is being collected from the utilities, the California Energy Commission, and from local sources to support an analysis that will better define this overall potential.

The expected outcome is to provide a better understanding of the energy efficiency potential for the South Bay region, and thus, to provide feedback to various energy efficiency programs (current and future) to improve their local applicability. In addition, the effort may provide a model for providing feedback to existing utility integrated resource planning efforts.

Project Schedule and Tasks

Work on this pilot began on October 20, 2004, when NCI met with SBCCOG personnel to develop a Strategic Work Plan and Project Schedule that was completed on October 31, 2005. The CALeep SBCCOG Energy Efficiency Pilot Project activities were centered on conducting comprehensive energy audits of governmental facilities that are located within its member city boundaries. These audits were to serve as a conduit for identifying candidate projects and to document existing retrofit programs in order to create a “baseline” from which new EE measures identified in the energy audits can build upon.

In the planning stage, NCI met with SBCCOG staff on three occasions in late 2004: September 1st, October 20th, and November 30th. The first meeting had a multiple purpose: (a) informing the ESC about CALeep and its efforts to identify quality pilot program candidates, (b) to ascertain the interest of the SBCCOG in becoming one of the six pilot project participants in the state, and (c) for NCI to learn about the activities performed by the ESC for its members. At the conclusion of the meeting, NCI concluded that because the ESC already had ample experience in energy efficiency outreach on behalf of its 15 member cities and two communities in the City of Los Angeles, it was an organization that could develop a successful pilot project.

The October 20th meeting served as a kick-off meeting or workshop in the sense that it served as the occasion for developing the Work Plan and Project Schedule. At the conclusion of the meeting, the ESC Executive Director indicated that she was ready to recommend to the SBCCOG Board that the ESC formally become a CALeep pilot project. It was on this day that the pilot project began in earnest. At the November 30th meeting, the Work Plan was reviewed and a schedule adopted. Pilot Project team members also agreed that the CALeep pilot would target for energy efficiency projects only governmental facilities located within the member cities.

SBCCOG pilot program activities were designed to develop and demonstrate a coordinated process that enables a collection of local municipal governments to work together to assess, identify, prioritize, and eventually implement energy efficiency projects in their public facilities. This differed from other activities undertaken by the ESC in that those programs focus on broad-based energy information and educational outreach.

CALeep also aimed to work with SBCCOG to develop a strategic EE Action Plan. The intent of the Plan was to identify, screen, and categorize or rank EE improvement projects that can be undertaken by member agencies and will be used to position the SBCCOG to apply for future energy efficiency funding from the CPUC, CEC, or other sources.

The following are the specific activities that were to be undertaken in the SBCCOG/ESC CALeep pilot program:

1. **Develop Pilot Project Goals and Timetables.** Develop SBCCOG pilot goals that could be transformed into specific elements of a Work Plan.
2. **Data Gathering and Member Survey.** Conduct a comprehensive survey of member agency staff to: a) determine what programs and energy efficiency measures member cities have implemented through FY2004 to reduce electricity and natural gas use within public facilities; b) to establish a baseline of electricity and natural gas consumption based on 2003 levels; c) to assess the success of past programs; d) to assess prospects for future energy efficiency opportunities; and, e) to determine interest in participating in a program designed to assist them in identifying, designing and costing projects to improve energy efficiency of facilities.
3. **Complete Baseline Assessment.** Use data from the member survey to determine Pilot Project baseline.
4. **Develop Strategic Plan.** Create a public agency strategic energy efficiency action plan for implementing high-impact energy efficiency projects based on findings from earlier Phases. As part of this plan, all opportunities identified during the data collection/survey were to be tabulated, including costs, potential measures/strategies, and estimated energy savings. Also, objective criteria were to be applied to opportunities being considered to prioritize their completion (e.g. cost per kilowatt-hour saved, return on investment). The intent was to concentrate program development on projects that will attract participation by all SBCCOG members or serve specific needs of individual communities. Lastly, potential resources were to be identified to assist in project completion, including existing and potential new funding, project management and/or innovative financing strategies, and EE projects were to be prioritized for funding submission as opportunities arise during 2005 and by anticipated EE programs for PY 2006-2008.
5. **Develop Preliminary Report.** Compile a preliminary report that describes the results of work completed, including recommendations.
6. **Final Report and Template Development.** Finalize preliminary report and prepare appropriate template for use by other municipalities.

4.4.5 Ventura County Regional Energy Alliance (VCREA)

4.4.5.1 Objectives

The overarching goal of the VCREA pilot program is to develop and demonstrate a coordinated process that enables local government entities and businesses to work together to assess, identify, prioritize, and prepare for funding green building projects. By implementing this process, the chances for obtaining funding for project implementation should be greatly enhanced. CALeep aimed to work with VCREA to develop a funding plan for identified projects in order to best ensure that the projects get completed. A follow-up goal of VCREA (as distinct from CALeep) is to see that the projects are advanced from the planning stage to the construction stage.

The intent for this pilot was to demonstrate the economic value of combining energy efficiency practices with green building policies. Building development and energy savings from water consumption will be the focus of the pilot in that the VCREA and the project

team believe that the implementation of green and sustainable approaches will significantly increase the potential for future energy savings in both new and existing residential and commercial construction.

Program Assumptions: The following assumptions about the program have been developed:

- There would be no other green building activity being undertaken by VCREA at this time other than VCREA’s Energy Resource Center, which serves as a “central clearinghouse” for energy information and educational outreach.
- CALeep funding assistance makes it possible for VCREA to establish a green building initiative as a logical extension of energy efficiency and supported by the public and private sector. Without this financial assistance VCREA’s green building initiative would not exist at this time.
- VCREA will increase its chances of obtaining future funding assistance for green building programs as result of identifying and screening candidate EE projects through participating in CALeep.

The ultimate purpose of the CALeep is to develop a comprehensive decision-making template that will help local governments more effectively learn about, choose among, overcome barriers to, and implement energy efficiency programs and policies. The following four (4) objectives for the VCREA pilot project were designed to lead to the eventual achievement of this overarching goal.

Objective 1. Observe the implementation of the VCREA pilot program to learn lessons that can perhaps be codified in the CALeep decision-making template (workbook).

Objective 2. Provide funding for VCREA to assemble a team of individuals to develop a process for identifying and screening potential green building projects in the county.

Objective 3. Assist the green building team in developing a framework for identifying, categorizing, and selecting candidate green building projects

Objective 4. Assist VCREA in identifying potential funding sources to whom to submit requests for funding, supported by the green building initiatives report described above.

Expected Outcomes: The following outcomes were expected as a result of the achievement of the objectives listed above.

- For VCREA:
 - Develop a practical document that identifies EE green building strategies that can be implemented with emphasis on local downtown redevelopment multi-use buildings and new multi-family (farm worker) housing projects that have potential sponsor support and a strong economic basis to go forward.
 - Demonstrate an ability to make EE happen through green building practices associated with both retrofits and new construction.
- For CALeep/NCI:
 - Identify opportunities and barriers
 - Was interest in the CALeep initiative sustainable throughout the process?

- What barriers were encountered and how were they overcome?
- Identify “lessons learned” for possible inclusion in CALeep workbook.

4.4.5.2 Project Activities

The Ventura County Regional Energy Alliance is a joint powers agency made up of local governments and special districts. It currently has eight members: County of Ventura; the cities of Oxnard, Thousand Oaks, San Buenaventura and Santa Paula; the Ventura County Community College District, the Casitas Municipal Water District, and the Ventura Regional Sanitation District (See Figure 10). It was formed in 2003 with strong private sector support to spearhead energy efficiency, renewable resource development, and other sustainable energy efforts in the region.¹⁷

Figure 10
Ventura County Map



The VCREA Board of Directors is composed of locally elected public officials from each of the VCREA member entities; its Executive Director reports to the VCREA Board. An Advisory Committee with both private and public sector representatives meets regularly to maintain the involvement of private businesses and residents interested in advancing energy efficiency and sustainable energy practices in Ventura County.

¹⁷ Ventura County includes 10 incorporated cities, including Camarillo, Fillmore, Moorpark, Ojai, Oxnard, Port Hueneme, San Buenaventura, Santa Paula, Simi Valley, and Thousand Oaks with a combined population of 696,000. In addition, there are approximately 95,000 county residents in the unincorporated area.

Through a partnership with Southern California Edison Company and Southern California Gas Company, the VCREA established the Ventura County Energy Resource Center (VCERC or ERC). The VCERC is funded by California electric and natural gas ratepayers through public goods charges under the auspices of the California Public Utilities Commission.

NCI believed that VCREA would be an exceptional match for participating in a CALeep Energy Efficiency Pilot Project because it is a mature organization with business and agricultural contacts that are actively addressing energy-related topics. In addition, its mission statement parallels CALeep's pilot program objectives.

Care is being exercised to avoid any overlap of these efforts with CALeep pilot program activity. Rather, CALeep pilot program participation provides an additional opportunity for VCREA to perform other activities that are consistent with its mission. Specifically, the CALeep initiative will help VCREA to establish an infrastructure for identifying and screening potential green building projects associated with both retrofit and new construction and then package these projects in order to solicit implementation funding support through a variety of sources, including utility energy efficiency programs.

Prior Energy Practices

The VCREA in partnership with Southern California Edison and Southern California Gas maintains the ERC. The Center was established in July 2004 as a central clearinghouse for energy information designed to assist public agencies, businesses, and individuals in their quest to find information and appropriate resources to enhance responsible and efficient uses of energy resources. The partnership also provides incentive funds to public member agencies for energy efficiency retrofits.

The VCERC provides training and educational opportunities, particularly on energy efficiency, as well as information on statewide utility rebate programs. Specifically, the Center offers a library with free resource materials on energy efficiency and utility rebate programs, as well as a tool truck with various diagnostic tools that can be borrowed. In addition, the VCERC hosts regular training sessions related to energy efficiency and sponsors a hotline for businesses and residents to call for information on ways to reduce energy. Additionally, the VCREA through its partnership with the utilities provides the Ventura County Public Sector Comprehensive Program to:

- (a) Provide technical support for local government energy projects
- (b) Assist member agencies in the implementation of energy projects
- (c) Educate local governments about energy efficiency options
- (d) Determine needs for other measures to facilitate public agency energy projects
- (e) Conduct energy audits of public facilities
- (f) Implement no-cost operational procedures that reduce energy consumption.

When the CALeep project was initiated, two people staffed the VCREA/ERC, including the Executive Director and the Energy Projects Manager. Both possess a fundamental knowledge of the workings of the electric utility industry, its regulatory environment and energy efficiency measures. In addition, the ERC receives expert technical support from local energy consultants and other contractors.

The mission of the VCREA is:

“To establish Ventura county, its communities and neighboring regions as the leader in developing and implementing durable, sustainable energy initiatives that support sensible growth, healthy environment and economy, enhanced quality of life, and greater self-reliance for the region by:

1. Reducing energy demand and increasing energy efficiency, and
2. Advancing the use of clean, efficient, and renewable local resources.”

Through its Energy Resource Center, the VCREA currently has as its goals the following:

- Conduct at least four EE training sessions for the public sector, six sessions for businesses, and at least four training sessions for residential customers
- Provide energy efficiency information at a minimum of 20 community events
- Respond to every customer inquiry within 48 business hours
- Achieve an 80% overall customer satisfaction level of Excellent (based on follow-up surveys).

In 2005, the VCREA ERC continued its partnership with SCE and SCG resulting in energy savings of 3.1 million kilowatt-hours per year; added more than \$1 million to the region and generated energy savings of more than 800,000 kWh and almost 23,000 therms through special projects that benefited small business; and, expanded its training and outreach to public agencies, businesses, and the general public. Further the ERC positioned itself for further funding and will continue operating through the 2006-2008 program year.

Project Schedule and Tasks

Originally the VCREA concentrated on energy efficiency improvements within the agricultural sector, however as it later learned from its member agencies, there was significant interest in developing a regional approach to “greenbuilding” as a means of achieving sustainable energy efficiency savings. Between July 19, 2004 and January 14, 2005, NCI had various meetings and conversations with the VCREA, during which time the emphasis on greenbuilding emerged as a topic of interest for the pilot program. The meetings and discussions had multiple purposes: (a) informing the VCREA about CALeep and its efforts to identify quality pilot program candidates, (b) to ascertain the interest of the VCREA in becoming one of the six pilot project participants in the state, and (c) for NCI to learn about the activities performed by the VCREA within Ventura County.

Shortly into the process, both parties concluded that even though the VCREA had ample experience in energy efficiency outreach, it was not the best time for it to take on the additional responsibility of participating as pilot project. Later, when NCI was screening and assessing several other pilot candidates to fill the one remaining pilot slot, it became apparent that the VCREA still had much to offer as a CALeep pilot program participant, if it could be re-established as a pilot. A subsequent contact and discussion with the Executive Director of VCREA indicated that there was an opportunity to explore that possibility. Subsequent meetings and discussions led to reconsideration of VCREA becoming a CALeep pilot participant with an inclusion of the green building element. On January 14th, the pilot project began in earnest, and the final work plan was approved on May 20, 2005. Work on the pilot project was completed on October 31, 2005.

NCI believed that CALeep could successfully intersect with on-going efforts by the VCREA to address certain community core needs. During its short history working on energy efficiency issues, the ERC has managed to demonstrate success in conducting an energy efficiency outreach program that includes both training and the loaning of electricity diagnostic tools. However, the ERC is now ready to move toward the identification and eventual funding of energy efficiency programs for its business and agricultural sectors. The implementation of CALeep energy efficiency programs supports this mission.

Implementation of green and sustainable approaches will significantly increase the potential for future energy savings in both new and existing residential and commercial construction. The project will not duplicate efforts to date, but build on existing initiatives, including the utilities' New Construction Energy Efficiency and Emerging Technologies Program; the Governor's Greenbuilding Initiatives; industry efforts such as the U.S. Greenbuilding Council's LEED Program; and the commitment of several local governments toward sustainable design and construction practices.

In particular, the project aimed to quantify potential electricity and natural gas savings that could be achieved through a business-as-usual approach, then compare the potential savings gained from higher levels of innovative design and construction (including new and existing buildings) through a collaborative and regional green-building approach. The following are the specific activities that were to be undertaken in the VCREA/ERC CALeep pilot program:

- **Develop Pilot Project Goals, Work Plan, and Schedule.** Develop project goals and specific tasks for the Work Plan, soliciting stakeholder input from the VCREA Advisory Committee and other stakeholder, and preparing a detailed budget and task list.
- **Identify Existing Conditions and Develop Best Practices.** Identify and evaluate existing green building policies/programs throughout the region for challenges and best practices and prepare best practices report, and recommend opportunities for development of new capabilities to deliver higher levels of energy efficiency through specific measures associated with residential construction and water use or operations.
- **Establish Business-As-Usual Baseline and Identify Candidate Projects to Establish High-Performance Greenbuilding Scenario.**
- **Community Outreach and Technology Transfer.** Conduct stakeholder meetings to solicit input on project progress and to adjust project approach to meet the needs of local constituents and a Greenbuilding Workshop to update industry stakeholders on project results and how to best incorporate findings into future energy efficiency programs that approach LEED standards to harness the highest level of energy savings in the 2006 through 2012 timeframe.
- **Develop Preliminary Report.**
- **Final Report and Template Development.**

4.5 Development of CALeep Materials

Ultimately, the CALeep Program was designed to produce and promote a workbook template to increase energy efficiency in local governments. In addition, stakeholders also requested a number of other materials. Section 5.5.1 describes the results of these efforts.

4.6 Marketing Outreach

Navigant staff organized and participated in several marketing events from March 30, 2005 through February 17, 2006 in order to market the CALeep materials discussed above. Details of the results of this effort are presented in Section 5.5.2.

5 Results

5.1 Assessment of Stakeholder Input

Two key activities were undertaken to elicit stakeholder. The first, described as the summit or scoping workshops, consisted of two workshops, to identify the universe of energy efficiency programs and policies available to local California governments, the associated mechanisms for implementing those programs/policies, and ways to overcome barriers. The second activity, the screening workshop consisted of a smaller group of stakeholders to develop a process for 1) screening available programs and policies to select those most attractive and “doable” for a particular local jurisdiction to develop, and 2) making decisions about how to implement energy efficiency at the local government level. The stakeholders will participate in refining the CALeep process template that is replicable across multiple local governments. Finally, the workshop participants were invited to assist in identifying potential candidates.

5.1.1 Scoping Workshop

5.1.1.1 Barriers and Universe of Programs Identified

One objective of the Summit workshops was to build upon the wealth of information and sources already available, and identify the universe of energy efficiency programs and policies available to local California governments, the associated mechanisms for implementing those programs and policies, and ways to overcome barriers. NCI developed a list of available programs for review at the Summit workshops and, later, provided this list of energy efficiency programs to pilot programs. Participants noted that the list was not comprehensive and offered information on additional programs to include as well as suggested that NCI make use of other existing sources with information on energy efficiency programs to develop their list. The comprehensive list of programs developed by NCI can be found on the CALeep Web site at www.caleep.org.

As part of the workshop process, stakeholders also identified barriers that prevent local governments from taking energy efficiency actions. Interestingly, participants at both workshops identified the same top three barriers although they differed with respect to which barrier was the most important. The participants in Sacramento felt that “Lack of a Current Energy Crisis” was the primary barrier meaning that local governments did not see a pressing need to do energy efficiency, while the Los Angeles workshop participants felt that “Lack of a Champion” was the primary barrier preventing local governments. The following list provides the top 10 barriers identified by workshop participants:

1. **Lack of a crisis.** Many believe that EE is not necessary because the energy crisis is over. To create a sense of urgency, some participants suggested repackaging EE as a budget crisis (i.e., by reducing energy consumption and energy bills, dollars become available to avoid layoffs of essential public health and safety workers, such as police and fire.)
2. **Lack of one or more champions.** Even if EE infrastructure is in place, champions are needed to open doors. Participants suggested several approaches to “supporting the champion(s)” -- from providing mentoring support, to nurturing, training, and recognizing (e.g., via awards) champions.
3. **EE not tied to goals & objectives.** Many times, programs and policies are developed

without the participation of key stakeholders, resulting in lack of buy-in. One suggestion for assuring that EE programs and policies are consistent with stakeholders' goals and objectives is to designate a Resource Conservation Manager that first identifies needs, matches them to available programs and funding, develops a plan, and links that plan to the public goods charge and economic development (i.e., to "Bring the benefits home!").

4. ***EE is not well positioned to compete for funding priority.*** EE must compete with essential services, such as public health and safety (e.g., police and fire), for limited resources. EE is also often in competition with critical infrastructure for capital budget dollars. One means of repositioning EE to a higher priority is to link EE with higher public purposes goals that are known to be a priority (such as economic development, which tends to have political clout).
5. ***EE is not well understood.*** In addition to generally lackluster interest, there is confusion as to just what "EE" means. Many believe that they have already done most of what is necessary and important ("been there, done that"). There is lack of good data as to what is available and accessible, and a general lack of constituent support. In addition, the costs and benefits of EE are often difficult to evaluate. Solutions include using credible external resources to educate decision makers (on the basis that they are more likely to listen to outside experts than to staff); utilizing local media to get the story out; developing and issuing case studies which describe EE value and benefits; and encouraging local communities to assume an EE advocacy role.
6. ***EE benefits are difficult to measure, capture, and retain.*** As a result, it is difficult to demonstrate the benefits and value of EE.
 - a. It is difficult to measure "megawatts." In addition, it is very difficult to validate benefits of non-quantitative program elements.
 - b. The party that pays the bills may not be the party who realizes the benefits. For example, energy costs are significant operating costs of many governmental departments and agencies, but these departments and agencies cannot appreciate the collective economic benefits since they only see their own bills.
 - c. There is a disincentive in many local governments, wherein a department that reduces its operating costs by saving energy will have its budget reduced in the next budget year (i.e., does not get to keep the benefits).
 - d. There is a historical tendency to look at increasing energy supply before looking to decrease loads. The solution to this problem is to re-educate policymakers, managers, staff, and constituents to look at EE as a resource. In addition, measurement and accountability (metrics) need to be improved.
7. ***EE implementation and program management is administratively complex and often not compatible with local governmental processes and procedures.***
 - a. The annual budget planning process for local governments does not support the longer term funding cycle needed to establish sustainable (multi-year) EE programs.
 - b. The entire concept of multi-year planning is not in sync with the short-term (typically, one year) focus of political leaders, policy makers, and governmental financial and other managers. This circumstance is further exacerbated by term limits that discourage elected officials from considering programs that extend beyond their term in office.
 - c. Decision-making by governmental entities is typically slow and rigid, making it

- sometimes difficult for departments to access ad hoc funding opportunities that require agility.
- d. Cumbersome and costly procurement practices and procedures result in higher project costs and risks.
 - e. The short-term focus of local governments' planning cycles creates an emphasis on lowest first cost instead of lifecycle costs, increasing the difficulty of competing for funds.
 - f. Within a local governmental entity, decisions are often not coordinated. For example, a City department may independently proceed with design of a system and even equipment procurement without consideration of EE, even though its sister department may have an EE program designed to provide both technical and financial support, and the City's policymakers may have adopted an EE goal.
 - g. Third party financing is often difficult, requiring extensive application forms and requirements, and cumbersome administration and reporting of projects funded via these third party sources.
8. **Program risks make policymakers uneasy.** In addition to basic technology, operating and ownership risks, cumbersome local governmental approval processes often create additional project and program risks. For example, funds that were available at the time approval was received to proceed with a project or program may become unavailable by the time the local governmental entity is finally ready to act. In fact, this has happened to a number of local governments trying to access PGC funded programs managed by California IOUs that had a break in program eligibility over the course of multiple years (i.e., programs started and stopped within a local government's approval cycle). A solution to this problem is to obtain policy and political commitment for consistent multi-year funding of EE programs.
9. **Local governments lack both technical and financial resources.** The inability of local governments to meet first costs is a significant deterrent to EE program success. In addition, difficulties of hiring staff are an obstacle to hiring project staffing. One means of addressing this problem is to aggregate procurement through existing organizations (e.g., community organizations or joint powers authorities). In addition, some participants suggested that the economic development department be requested to act as champion to obtain access to resources on behalf of EE.
10. **EE is not the job of local government.** Many believe that the local utility should be the provider of EE services.

In addition, several Summit participants observed that there is sometimes reluctance by local governmental entities to assume third party debt. Others believe that the problem was not so much an unwillingness to assume debt, as concern about the administrative burdens of these funding sources. Some participants pointed to successful California Energy Commission (CEC) programs that provide local governments ready access to low interest, tax-exempt revenue bonds to support EE and other qualified projects and programs.

Although these barriers are couched in terms relevant to local city governments, they boil down to the typical barriers to energy efficiency such as lack of information and awareness, first cost, asymmetric information, and lack of financing.

Given a review of the list of energy efficiency programs discussed at the Summit workshops and that were made available to local governments, as well as the list of barriers

that was developed in the Summits, the Evaluation team concludes that the workshops were successful in developing a comprehensive list of energy efficiency programs and identifying the relevant barriers to local governments.

5.1.1.2 Scoping Workshop Participant Selection

A key criterion for the success of the workshop, and whether the information developed in the workshop is relevant, rests on the whether the workshop attendees represented a diverse group of agencies and stakeholders sufficient to provide a comprehensive and accurate view of best practices and local government experiences. This achievement of this goal is considered next.

Summit meeting and Screening workshop participants were targeted from among the ranks of experienced policymakers and implementers who could share real life experiences or “lessons learned” that are fundamental to their perspectives as to “best practices”. The selection process involved identifying a diverse group of targeted attendees, where participants were selected from a group of more than 300 individuals and organizations. NCI aimed to identify a certain number of attendees from each of the 13 categories listed in Table 9. As a result, they were able to achieve a significant level of diversity. Both the Summit workshops and the Screening workshop were invitation only events because NCI hoped to bring in a broad spectrum of those they felt represented the best knowledge and experience regarding energy efficiency, especially as it related to local governments in California.

**Table 9
Target Categories for Workshop Participants**

	REPRESENTED AREA
1	DOE
2	CEC/CPUC
3	Other Government
4	Local Government Organizations
5	Local Government
6	Community Organizations/ Associations
7	IOU and Municipal Utilities
8	PGC Third Party Programs (Past & Present)
9	Energy Service Contractors
10	Municipal Finance Experts
11	Academia/ R&D
12	Energy Efficiency Consultants
13	Other Community Programs

More than 80 participants representing over 70 agencies, local governments, and organizations attended the two workshops, and included program managers, city staff, energy consultants, CPUC staff, utility staff, and staff from other community organizations.

Based upon a review of the selection process for participants and the list of workshop attendees, the Evaluation team concludes that the workshop was successful at identifying a

diverse group of stakeholders and participants, sufficient to obtain a comprehensive and accurate view of issues facing local governments.

5.1.1.3 Decision Making Process Structure

Besides identifying barriers and confirming the universe of available energy efficiency programs, the goals of the Summit workshops included identifying energy policies and best practices and, ultimately, clarifying the CALeep Program process template. Accordingly, the Summit discussions covered the following topic areas:

1. Types and characteristics of effective energy efficiency programs
2. Types and characteristics of effective energy efficiency policies
3. Community action approaches that work and why
4. How to select the best programs and policies
5. Overcoming barriers to implementation

For the purposes of the workshops, an energy-efficiency program was described as a collective system of projects and resources to attain specified energy efficiency goals and objectives for a particular group of stakeholders. An energy efficiency policy was described as a specific goal, whether or not codified, that is formally adopted to support one or more energy efficiency objectives. Further, it was determined that a policy can stand alone (i.e., may not be accompanied by a program); but typically, a program integrates one or more policies.

During these discussions, Summit participants sought to answer the following general questions regarding energy programs and policies:

1. What is available?
2. What is missing?
3. What has worked, and why?
4. What are the key barriers to success?
5. What does a “best practice” process look like?

With regard to programs, Summit participants noted that the list of 2004/2005 Third-Party Implementers of CPUC approved energy efficiency programs was not comprehensive; and, participants provided information on additional programs to NCI. Further, participants pointed to several existing resources that maintain lists of available energy programs, and suggested that the Project team build on those resources rather than reinventing the wheel. The complete list of programs assembled by NCI can be found on the CALeep Web site (www.caleep.org).

With regard to policies, participants suggested the following approaches for the CALeep Program:

1. Having the state require communities to develop an energy plan and update it periodically;
2. Develop a policy development tool kit for local governments that employ standard metrics and processes; and,
3. Emphasize the benefits of local control of public goods funds.

5.1.1.4 Additional Scoping Workshop Findings

NCI reported that Scoping workshop participants noted challenges to sustainable EE programs ranging from lack of comprehension, lack of resources, and lack of interest, to simple competition with essential public services (such as fire and police) for scarce resources. They reported that the following common themes emerged from the discussions:

- **The benefits of EE are generally not well understood.** Concepts are supported but seldom elevated to a priority.
- **EE is difficult to implement.** Typical governmental bureaucracies lack adequate technical, analytical and financial planning staff as well as flexible hiring, contracting and funding processes.
- **EE success depends on support for multiple parties with diverse interests.** There is no “one size fits all” and most successful programs and policies are tailored to specific community needs.

Ultimately, the primary recommendations flowing from all of the discussions relating to the topic areas were distilled and incorporated into a simple framework that represented the collective thinking as to essential strategies, organization, resources and processes needed to support an effective EE program. Again, there were strong similarities between the conclusions drawn by the two groups of Summit workshop participants. The general conclusions are summarized below:

1. **Strategies for success** require establishing goals that are aligned with the targeted sectors’ interests and objectives, finding and nurturing one or more champions, and tailoring programs to the needs and characteristics of the sponsoring organization, whether a community or a governmental entity.
2. **Organizational factors** principally addressed workarounds to the inherent rigidity of governmental processes. In this respect, participants in both summits offered solutions outside of local government. These options included working through one or more existing community-based organizations and joint powers authorities.
3. **Adequate technical and financial resources** are always a challenge for local governments, and particularly so for energy efficiency initiatives which, while important, are not seen by local governments as critical. In fact, many participants expressed the fact that energy is not a priority for most local governments except during times of severe shortage and very high prices.
4. **The processes by which these elements are integrated** into a comprehensive, functioning program are many and varied. Optimally, the processes should support the unique needs and characteristics of all major program participants. Summit participants stressed that in implementation, “Simple is better!”

Also, the information and recommendations obtained from the Summit meetings were used to refine the CALeep five-step program process structure. An illustration of the Program process structure is presented in [Figure 1](#). The details of this structure are summarized below:

1. Initiate
 - Determine what to do
 - Find core need and possible engagement channels

- Define an initial scope for your initiative
 - Make the case for decision-makers
2. Plan
 - Select a planning strategy
 - Identify EE program and policy options
 - Assess their “doability”
 - Develop and use program selection criteria
 - Develop evaluation metrics and the program plan
 3. Organize
 - Identify resource needs
 - Locate available resources
 - Fill gaps with external resources
 - Pull the team together
 4. Implement
 - Prepare program and policy implementation plans
 - Execute basic program management elements
 - Get help for implementation activities
 - Communicate with stakeholders throughout the implementation process
 5. Assess
 - Determine the scope of your assessment
 - Develop program monitoring approach
 - Develop program evaluation approach
 - Learn from the experience

Based on a review of the workshop documentation and the eventual Program process structure that was clarified based on the information obtained at the Summits, the Evaluation Team concluded that the Summit workshops were successful at achieving the objective of gathering information from a diverse group of relevant stakeholders with the end results of clarifying the program process structure.

The Summit workshops were used to gather preliminary information, and this information was further refined in the Screening workshop by a smaller group of participants selected from the Summit workshops. The assessment of this Screening workshop is presented next.

5.1.2 Screening Workshop

5.1.2.1 Screening Workshop Participant Selection

Six individuals attended the meeting and NCI followed up with the remaining contributors to obtain their input. The following organizations were represented:

- Strategic Energy Innovations
- CPUC
- Rebuild America
- Rita Norton & Associates
- HMW International
- San Francisco, City & County of
- ABAG
- Southern California Edison Company
- Yolo Energy Efficiency Program (YEPP)
- ConSol Inc.
- Local Government Commission

The participants were selected from among those attending the Summit workshops held earlier. Again, the participants who were selected to provide input represented diverse organizations and stakeholders and include consultants that, later, would become part of the Program team. A member of the Evaluation team also was present for this workshop.

The Evaluation team concludes that the Summit workshop was successful as it relates to identifying a diverse group of participants for the Screening workshop, and providing sufficient information for review in the Screening workshop. The assessment of whether the objectives for the Screening workshop were achieved is presented next.

5.1.2.2 Screening Workshop Results

Pilot Selection Criteria

One of the objectives of the Screening workshop was for participants to assist NCI by refining the criteria they had developed for selecting pilot communities. The program team aimed to identify key variables and assumptions and interested communities, and then match the interested communities with the selection criteria and check for gaps. The pilot selection variables NCI developed prior to the workshops included:

- Jurisdiction (city, county, JPA, water district)
- CPUC priorities (potential to increase electric reliability, alleviate congestion, displace new infrastructure, increase and achieve energy efficiency)
- Demographics of community and constituents (population density, income level, hard to reach ratepayers, population diversity)
- Energy profile: consumer sector (e.g., residential, commercial. Industrial), climate zone, IOU territory
- Capability and experience: Community interest and ability to commit to sustainable implementation; ability to provide cost share contribution or in-kind services, and; an identifiable champion.

However, as a result of the scoping and screening workshops, NCI learned that it would be necessary to tailor program approaches to each community's unique needs and circumstances. Based on this participant feedback, NCI decided against using screening criteria to select pilot communities; and, instead, decided to use a "community profile" to

choose potential pilot candidates. Further, since California's local governments are so diverse, NCI determined that using these community profiles would allow CALeep to achieve a broader representation of this diverse set of local governments.

Accordingly, the basic five-step program process was adjusted as required to suit the unique needs of each pilot community. Within this new structure, the six targeted jurisdiction types were:

1. Central Valley Community (agricultural base, low income high unemployment)
2. Northern County (small to medium cities – environmental focus)
3. Large Metropolitan Area (major city)
4. Southern California City (large industrial loads)
5. Southern California City (fast growth – commuter population)
6. Regional Organization of Coastal Cities

Workshop participants suggested that targeting potential pilot communities should involve targeting a specific area and then a given profile type within that area (e.g., small town or larger city). Further, participants felt that once an area was targeted based on the community profile, the candidate community's core needs must be evaluated. Then, based upon those needs, community organizations or "channels", to which EE is to be aligned, must be identified. They felt that community interest would be achieved to the extent that engagement of the energy efficiency initiatives were aligned with the community's core needs. The upshot of making this change is that the pilot selection was essentially integrated into the program process structure.

Workbook Development

Workshop participants were also tasked with recommending the best way to develop the decision-making template, or CALeep workbook. Participants felt that the process structure could be readily adapted to serve the dual purposes of pilot selection and process template development. In the final CALeep process template work product, the process would identify and direct next steps based upon a user's profile selection. The "Identify Target Area" step would be removed and community core needs would be identified and linked to typical channeling organizations. Methodological approaches would then be tailored based upon community needs, available channels, and associated energy efficiency gains.

Based on the original program plan, NCI was to prepare a draft prototype of the Community Energy Efficiency Program workbook to guide selection and implementation of programs and policies under the proposed pilot projects. The pilot programs were then going to be used to test the effectiveness of the prototype and to gain further insights. However, based on the information gathered in the Summit and Screening workshops, NCI determined that this was not going to be the most effective method for selecting and implementing the pilot programs. Rather, they would select the pilot communities and gather information and data by studying each of the pilots and include these lessons learned in the workbook. Specifically, the pilot project would provide details on applying the program process structure under different situations and in different settings, and gather real world data that could be used to enhance the process structure and make it more useful.

Note that the Summit workshop pointed to the fact that initiating energy programs is one of the most difficult barriers to overcome with local governments. NCI reported that they found this to be the case as they began their process for recruiting communities for the pilot

studies. As such, NCI felt that the pilot recruitment process would be a major source of information for lessons that eventually could be included in the CALeep workbook.

Using the assessment criteria, and based on a review of the findings and results of the Screening workshop, the Evaluation Team concluded that NCI was able to achieve the objectives of the Screening workshop. Although NCI did not produce a draft prototype workbook to test through the pilot studies, they did develop an alternative plan for producing the workbook as a result of feedback from the Screening workshop. That is, the plan was changed such that NCI would use the pilot studies to gather data and lessons learned that would eventually be used to refine the process structure and also be included in the decision-making process template, or workbook.

5.2 Pilot Projects

In this section, we present the extent to which each of the projects made progress towards their respective objectives. Reasonably significant progress represents a good faith effort in carrying out energy efficiency activities from which important lessons could be learned and eventually incorporated into the Workbook.

5.2.1 City of Oakland: Progress Towards Objectives

Recall that the Oakland Pilot had three objectives. In Table 10, we present the mean of the scores assigned to each of the objectives by the interviewees.¹⁸ Note that some interviewees were not able to assign a score to those objectives in which they were not involved.

Table 10
Mean Achievement Scores, by Objective

Objective	Average
1. Develop an energy efficiency component for Oakland’s Sustainability Plan	6
2. Help the City develop the means to plan, implement and monitor energy efficiency programs.	5
3. Embrace and support Oakland’s existing energy efficiency initiatives by incorporating them within the broader framework developed from Objective 1 and Objective 2.	6.5

Whenever possible, other information, including the in-depth interviews and program documents such as the monthly reports, diaries, and audit results were used to support the scores for some of the objectives.

The CALeep program experienced some delays in Oakland that prevented them from achieving their full vision. The pilot planned “to develop an energy efficiency component

¹⁸ A “0” meaning “Not At All Achieved” and a “7” meaning “Fully Achieved.”

to the City's Sustainability Plan". Unfortunately, due to internal barriers, lack of staff resources and timing, the program was unable to advance the policy initiatives. Instead, the program identified the changes that would be required to achieve this objective after the CALeep project was complete. CALeep staff determined that one barrier was related to Oakland's staff's unfamiliarity with the new performance based budgeting. In order for performance based policy to be successful, CALeep recommended that Oakland develop a transparent method of accounting (including sustainability metrics) and provide education on the benefits of performance based policy (in order to overcome the fear of punishment for poor performance). In addition, CALeep felt that throughout the implementation of the project, it was clear that Oakland staff were overcommitted and it was imperative to hire a full-time energy manager position. The energy manager position was proposed in 2001 but the council did not fund the position. The CALeep pilot identified the institutional barriers and the staffing needs to help decision makers understand the benefits of an energy manager position. This is the major accomplishment under this first objective. Thus, while the policy component was not developed, the CALeep staff received high ratings as the Oakland staff perceived that the progress made would allow them to improve their energy policy.

CALeep's second objective in the Oakland pilot was to help the city develop the means to plan, implement, and monitor efficiency programs. In order to achieve this objective CALeep staff tried to define a baseline. The project had difficulty obtaining aggregate data on the local level that was detailed enough for the analysis. The data that is readily available is at a utility service level or part of statewide reporting. After many direct requests to PG&E, CALeep was able to get electricity bill information and customer addresses for their commercial energy use survey from the City. The survey identified the key users to target for programs and their interest in energy efficiency and other associated benefits. After defining a baseline, CALeep staff planned to define and prioritize objectives and the energy efficiency initiatives to meet the objectives. After identifying the institutional barriers and the key areas to concentrate on to increase energy efficiency, the project had run out of time and resources but the project manager provided an action plan which outlined the recommendations from the studies, including initiatives to prioritize such as concentrating the efforts on existing housing 90% of which was built before stringent Title 24 rules were passed. Therefore, the action plan recommends prioritizing programs such as time of sale efficiency retrofits and education. In addition, the action plan described how Oakland would receive multiple benefits with increased energy efficiency opportunities for low-income residential housing. In addition, CALeep explained that a funded energy manager position would be necessary to make progress in community energy efficiency programs. This person could be an advocate for change and work with PG&E to provide the best services to Oakland. In addition, under their second objective, CALeep planned to monitor and guide energy efficiency efforts. The action plan for the Oakland staff recommends a monitoring program to ensure the implemented system is operating correctly. The Oakland staff seemed to be confident that the tools provided would allow them to achieve the second objective.

The third objective was to tie the city's energy efficiency efforts into the broader community wide efforts. While the pilot did not get this far along in implementation,

Oakland staff may be able to use the community effort to set up the infrastructure for the internal energy efficiency initiatives. The community efforts were prioritized as the potential for increased opportunities was greater for community initiatives than it was for the already robust internal energy management practices. The Oakland staff were optimistic that the funded energy manager position would allow for coordination between city and community energy efficiency efforts.

5.2.1.1 Pilot Deliverables

The Oakland Pilot had three major deliverables, a commercial/industrial energy efficiency survey, a non-energy benefits model, and an energy action plan.

The commercial/industrial survey identified critical market segments for prioritizing energy efficiency initiatives. This information will be useful to the City in targeting these high-use commercial/industrial customers. Through the commercial/industrial survey, the project will provide the city with a better understanding of how these sectors perceive the need for energy efficiency, how they have implemented energy efficiency in their own facilities, and how well the City and energy efficiency program providers have served them. The City worked with PG&E to obtain adequate market sector energy data. Based on the preliminary analysis of these data, a commercial/industrial customer survey was conducted to better understand the market segments accounting for the majority of energy demand in the City. It was found that 1 percent of the City's customers account for more than 60 percent of Oakland's energy load. This information helped CALeep develop recommendations for energy initiatives in Oakland.

CALeep also helped Oakland obtain the right to use a proprietary non-energy benefits model in perpetuity, allowing it to be adopted as a permanent tool for future analysis. While Oakland has received the adapted non-energy benefits model, the Evaluation team cannot comment on its effectiveness in promoting holistic valuation of the community impact of energy efficiency strategies, because the assumptions and calculations in the models are proprietary. If other communities wish to include non-energy benefits, they could use this model or they could try to find a more transparent method that would allow dialogue and easily accommodate any needed improvements. The goal of the Non-Energy benefits model was to help define better metrics for Oakland's performance-based policy budget and assist in the allocation of resources to meet the City's sustainable energy policies. Without being able to review the model, the Evaluation Team cannot comment on the reliability and validity of these metrics.

CALeep developed a Ten-Year Energy Action Plan that identified barriers and recommended near-term initiatives and an ongoing process for choosing future initiatives to reduce energy use and address Oakland's policy goals. The Action Plan identified key internal and external barriers to effective implementation of energy efficiency and other sustainability initiatives. The Action Plan also recommends changes within the City, proposed a process and brought in tools that could address the barriers. The Action Plan identified that making a commitment to staff and resources for community-wide energy efficiency is key to capitalizing on funding opportunities and influencing external programs serving Oakland. The action plan calls for a dedicated job position as critical to ensuring

Oakland's community needs and opportunities are met and increase Oakland's ability to leverage outside programs and funds. CALeep hoped to reduce barriers and change knowledge and attitudes of key decision makers in Oakland. The participant interviews reflected the benefit for Oakland in identifying the institutional barriers and finding the right channel to promote energy efficiency. The program also hoped to have new policies, programs and/or initiatives for energy efficiency both internal and community wide. Unfortunately, due to the extent of institutional barriers and delays in the process, the project did not reach this stage. The action plan provides recommendations for community energy efficiency programs and initiatives. Thus, new policies and programs could form as a result of CALeep, but it is too early to determine the impact. While no new policies have been implemented, some progress was made on stalled initiatives such as the GHG reduction implementation. During the project, the City joined the Chicago Climate Exchange and committed the City to annual targets for reducing GHG emissions resulting from internal activities. In addition, the City convened a data stakeholders meeting (with representatives from agencies both internal and external to the City) to discuss the issues concerning data availability and reporting, and joined a newly formed regional collaboration of East Bay governments and ICLEI to develop a joint GHG reduction plan. The GHG work has recently been prioritized as a result of regional recognition of the issue, ICLEI, pressure from public opinion and the press, the governor's statewide initiatives and the CALeep project. So while CALeep is not fully responsible, this outcome has been achieved. Within the pilot timeline, it is not possible to see whether or not the City will adopt the recommendations in the Energy Action Plan or if the tools provided will prove effective. However, participants in the Oakland pilot are optimistic about the potential for increased energy efficiency.

The overarching goal of the pilot was to promote a sustainable process for planning, implementing, and monitoring energy efficiency initiatives within the context of the City's overall purpose and objectives. This goal has yet to be realized, although both Oakland participants and CALeep staff hope that it will be achieved with the knowledge gained through the program. The action plan lays out the foundational steps to start a performance based system using energy efficiency monitoring (if the energy manager is successful in procuring data from PG&E) and the Non-Energy Benefits model (which is supposed to provide information on the relationship between energy efficiency and the identified areas of interest for large energy users in Oakland).

5.2.1.2 Future Work

Fortunately, much of the work begun by CALeep will be continued through the East Bay Energy Watch (EBEWP). The EBEWP is a continuation of an existing PG&E Local Government Partnership. This partnership builds on the most successful elements of the 2004-2005 program and creates a more integrated portfolio through the addition of new program elements, increased coordination with PG&E's core and third party energy efficiency existing programs, and more aggressive leveraging of municipal resources. In addition to Contra Costa and Alameda Counties, the EBEWP has secured participation commitments from the City of Vallejo, expanding EBEWP to include the County of Solano. With the addition of fast growing Solano County, the EBEWP will be providing

services to a total population of 2,874,502, or over 20 percent of PG&E’s residential customers. EBEWP programs will access over 65,000 nonagricultural businesses in coordination with existing PG&E’s core and third party energy efficiency programs to assure complete coverage of all business types.

Along with successful past program offerings, EBEWP expects to include the East Bay Municipal Utilities District (water and wastewater) as a partner, offer assistance with City conservation ordinances, and use the Berkeley/Oakland Clean Energy Fund (a \$50-100M privately placed capital loan program aimed at efficiency and demand response) to cost-share energy efficiency improvements. EBEWP will include a cross program component to assure demand response, self-generation, and longer term efficiency plans are supported as part of the EBEWP customer commitment.

5.2.2 IEUA: Progress Towards Objectives

Recall that the IEUA Pilot had four objectives. In Table 11, we present the mean of the scores assigned to each of the objectives by the interviewees.¹⁹ Note that some interviewees were not able to assign a score to those objectives in which they were not involved.

Table 11
Mean Achievement Scores, by Objective

Objective	Average
1. Benchmark IEUA’s existing policies, programs and practices against best practices in the industry and develop policy recommendations that have mid-high potential for obtaining IEUA’s energy efficiency goals.	5.5
2. Map technical and financial resources to IEUA programs and projects.	6
3. Incorporate water and energy benefit/cost variables into a methodology for assessing the resource value of a water conservation program	6
4. Apply the new valuation approach to existing programs and make recommendations regarding program areas having high resource value	6

Whenever possible, other information, including the in-depth interviews and program documents such as the monthly reports, diaries, and audit results were used to support the scores for some of the objectives.

The IEUA Pilot Project was led by IEUA’s Executive Manager of Policy Development and supported by various IEUA senior staff and managers. These included IEUA’s Manager of Energy Production and Maintenance, Manager of Engineering, Deputy Manager of Engineering, and other key staff. In addition, IEUA’s General Manager participated in key decisions.

¹⁹ A “0” meaning “Not At All Achieved” and a “7” meaning “Fully Achieved.”

The final report on water/wastewater “best practice” illuminated the leadership role that IEUA has established since the 2001 electricity crisis. IEUA has helped define “best practices” for water agencies, especially in terms of policy. The best practice report did help identify the remaining projects that are consistent with the policy mission and objectives but had not been implemented or were potential demonstration projects that could lead to new “best practices” in the water/wastewater industry. Specifically, the best practice report helped IEUA identify the need for energy efficiency specifications written into their portfolio of capital improvement projects in order to ensure implementation of their energy policy goals.

While IEUA proved to be an extremely sophisticated energy user, it did not have strong knowledge of programs offered by its utility (SCE), and in fact has not seen its SCE rep for more than 6 months. Thus, CALeep’s role in identifying technical and financial resources was a critical service to aid IEUA in implementation of its energy efficiency projects. CALeep helped IEUA understand the potential for collaboration with the two southern California utilities (SCE & SCG). In addition, CALeep helped identify specific opportunities in the statewide Savings by Design program and helped IEUA work through the procurement process. CALeep documented the potential resources that can assist water and wastewater agencies in enhancing their energy efficiency. These resources are available on the CALeep Web site.

Through participation in the CALeep program, IEUA management and engineers identified a number of innovative opportunities for increasing the energy efficiency of its systems and operations including the optimization of wastewater treatment processes, efficient lighting design, geothermal cooling, reduced friction in pipelines, in-conduit hydropower, occupancy lighting sensors, optimization of the recycled water system. Some of these projects were examples of how low cost projects (such as lighting) were overlooked due to the lack of structured implementation and energy efficiency specifications. Some of the other projects were demonstration projects that will help IEUA maintain its leadership role in best practice resource efficient design.

CALeep staff estimated that if IEUA implemented all of the identified energy efficiency measures, IEUA could save as much as 28.5 million kWh per year. These savings could be even larger, if the identified energy efficiency principles, measures and technologies are extended to other portions of IEUA's systems.

5.2.2.1 Future Work

Through the CALeep program, IEUA has become more actively involved in statewide policy decision making in the emerging area of "water-energy". IEUA's leadership in this area will continue to provide a wealth of information about creative energy opportunities to multiple stakeholders as this new area of water-energy evolves in California and throughout the U.S. In addition, IEUA became a member of the California Sustainability Alliance, a coalition of public and private entities dedicated to holistic sustainability planning and development that includes energy and water use efficiency. IEUA's role will

be to help promulgate the body of energy best practices to other water and wastewater agencies throughout California, while helping to constantly develop new and emerging best practices.

In addition, due to the information gathered in the project feasibility reports, IEUA is including capital costs for the next fiscal year budget cycle. In this budget, IEUA has allocated funding for improved lighting, hydro turbines and some of the recycled water pipelines.

5.2.3 San Joaquin Valley: Progress Towards Objectives

Recall that the San Joaquin Valley Project had 7 objectives. In Table 12, we present the mean of the scores assigned to each of the 7 objectives by the interviewees.²⁰ Note that some interviewees were not able to assign a score to those objectives in which they were not involved.

Table 12
Mean Achievement for San Joaquin Valley Project Objectives

Objective	Average
1. To gain the support of the RJI Executive Director to use the RJI as a CALeep pilot project community engagement channel. The achievement of this objective will depend on increasing the understanding of the RJI Executive Director regarding the linkage between energy efficiency and employment.	7.0
2. Develop a matrix of energy efficiency opportunities for specific RJI employment clusters, engagement cluster leaders and individual companies within the targeted clusters. This will involve assessing energy efficient end-use technology targets of opportunity within the clusters and narrowing future engagement.	5.6
3. To increase the understanding of cluster leaders regarding the linkage between lowering member operating costs, their competitive positions and potentially sustaining/building market share.	6.1
4. To produce an energy-efficiency roadmap that helps the various industries, trades, and public policy institutions involved with the various employment clusters to recognize the overall economic value of increased energy efficiency.	6.5
5. Conduct 5 to 10 energy audits of the operations of individual cluster members and recommend energy efficiency upgrades.	0.0

²⁰ A “0” meaning “Not At All Achieved” and a “7” meaning “Fully Achieved.”

Objective	Average
6. To increase the extent to which the members of the employment clusters will be engaged in pursuing funding to implement the recommendations of the report, specific to their work.	0.0
7. To increase the understanding of the members of the employment clusters of how to implement energy-efficiency programs within their industry.	5.0

Some of these results merit further discussion. First, the pilot project achieved its primary goal of establishing a roadmap whereby the community is expected to achieve significantly expanded implementation of energy efficiency within the region. The roadmap produced by the Great Valley Center and Strategic Energy Innovations called “A Clean Energy Roadmap for the Greater Fresno Area” explored how increased investments in clean energy can grow the local economy and improve environmental quality in the Greater Fresno Area. The goal was to create, develop support for, and implement a plan that uses clean energy investments to create new jobs and a new Clean Technology Sector within the local economy. This Roadmap highlights existing projects, new opportunities, and provides next steps for carrying out its recommendations. The Roadmap focused on four priority opportunity areas:

- **The Built Environment:** The greatest opportunities are to: 1) encourage cities to adopt green building policies; 2) help cities make clean energy improvements to their facilities; and 3) “green” planned projects and developments.
- **Power Production:** The greatest opportunities are to: 1) increase development of the entire range of biomass-to-energy projects; 2) encourage cities to adopt clean-energy policies; 3) increase solar installations; and 4) demonstrate the value of community choice aggregation.
- **Water Use:** The greatest opportunities are to: 1) conserve water use or promote water efficiency; 2) improve the efficiency of energy use in the pumping or treatment of water; and 3) increase use of solar energy in water pumping and treatment.
- **Workforce Development:** The greatest opportunities are to: 1) expand existing workforce development training or educational programs to include clean energy topics; 2) educate builders and developers about clean energy and its benefits; and 3) train planning and permitting staff about clean energy.

In-depth interviews suggest that perhaps 75 percent of the Roadmap is devoted to energy efficiency and 25 percent to renewables. Finally, it is important to note that while there were local government energy efficiency partnerships in Fresno that were targeting particular niches or market sectors, no one else was providing the comprehensive energy planning assistance represented by the Roadmap.

Specific Roadmap recommendations include:

- **Clean Energy Projects.** This includes: 1) providing support to existing projects identified in the Roadmap; 2) developing and nurturing new projects in the priority areas identified above; and 3) developing broad clean energy partnerships; and
- **Clean Energy Infrastructure.** This includes supporting actions necessary to 1) develop a Clean Energy Collaborative; 2) increase funding available for clean energy activities in the Greater Fresno Area; 3) develop an Education and Awareness Campaign; and, 4) develop a Clean Technology Sector.

The Roadmap recommended that the Regional Jobs Initiative and Great Valley Center have lead responsibility for coordinating the follow-up to this report and recommended that several other organizations coordinate the follow-up in the priority opportunity areas. The Roadmap expected that much of this work would be conducted through the work groups of the California Partnership for the San Joaquin Valley. The Roadmap's claim that "... most of the findings and recommendations are applicable to the San Joaquin Valley" was underscored by several in-depth interviewees. By associating with the California Partnership, the framework provided by the Roadmap could provide guidance not only to the greater Fresno Area but also to the eight counties that comprise the San Joaquin Valley.

The implementation strategies for moving forward are:

- Funding will be pursued to implement the recommendations in the report.
- The RJI and GVC will take the responsibility to serve as the overall coordinator and catalyst for proceeding with the implementation of this Roadmap, including coordinating efforts with the California Partnership for the San Joaquin Valley and the Federal Interagency Task Force.
- Organizations ((1) *The Built Environment*: Fresno Green Building Council and Strategic Energy Innovations, 2) *Power Production*: Kings River Conservation District, 3) *Water Use*: International Center for Water Technology, and 4) *Workforce Development*: Relational Culture Institute and Fresno County Workforce Investment Board) will make a good faith effort to develop and carry out a plan to support activities in their sectors.

At least one meeting between the RJI and Under Secretary for Energy Affairs in the California Resources Agency regarding possible funding have already taken place.

Objectives 5 and 6 were not achieved since by the time a fair amount of work with the various cluster members had been done, the decision was made to use the remaining resources to develop what eventually became the Clean Energy Roadmap. As pointed out in Section 4.4.2.2 , this seems like a reasonable response to a number of factors. Also, while Objectives 4 and 5 were not achieved, the effort nevertheless provided valuable lessons: When a community *is* successfully accessed through a functional engagement channel, the demand for technical and programmatic support can be enormous.

Unfortunately, such a high demand far exceeded CALeep’s limited capacity to provide, or even map, resources to the need.

5.2.3.1 Future Work

Fortunately, much of the work begun by CALeep will be continued through the 2006-08 San Joaquin Energy Watch and the Fresno Energy Watch Programs (FEW). The San Joaquin Energy Watch is a partnership between PG&E, San Joaquin County, Cities of Tracy, Manteca, Lathrop and Ripon. The 2004-2005 San Joaquin Comprehensive Energy Efficiency Program was a successful partnership between San Joaquin County, City of Manteca, City of Tracy, the Tracy/Manteca/Lathrop Chambers of Commerce, and Intergy and was known as the San Joaquin Energy IQ Program (SJEIQ). For 2006-08, the SJEIQ was proposed as the San Joaquin Energy Watch.

With respect to FEW, the City of Fresno and Richard Heath and Associates (RHA), proposes to continue this successful partnership for 2006-2008 to provide energy audits and direct install of energy saving measures to mass market customers, enhanced incentives to municipal facilities, and a targeted information/education program. The partnership will promote reduced energy use by providing energy efficiency information and direct installation of energy efficient equipment free of charge to eligible PG&E customers who include residential and small- and medium-size business customers.

5.2.4 Sonoma County Community Engagement Project: Progress Towards Objectives

Recall that the Sonoma Valley had 12 objectives. In Table 13, we present the mean of the scores assigned to each of the 12 objectives by the interviewees.²¹ Note that some interviewees were not able to assign a score to those objectives in which they were not involved.

**Table 13
Mean Achievement Scores, by Objective**

Objective	Average
1. To observe the implementation of the LGEP Program in order to learn lessons that can perhaps be codified in the decision-making template.	7
2. Significantly increase participation in the Local Government Energy Partnership (LGEP) within Sonoma County. This objective will be achieved by establishing simultaneous engagement of the nine city governments, county government and water agency through collaboration with the regional Climate Protection Campaign (CVP).	7
3. Establish 1-3 year(s) baseline energy usage, categorized by usage type and ranked by cost and amount of energy to support LGEP jurisdiction-specific energy assessment reports.	7

²¹ A “0” meaning “Not At All Achieved” and a ”7” meaning “Fully Achieved.”

Objective	Average
4. Provide back-up community engagement for up to two cities to assist LGEP in maintaining community participation in order to ensure engagement of EE program development activities.	5.25
5. Consultant staff will produce a comprehensive summary report on the results of Energy Days audits, emphasizing lessons learned that will benefit other implementations of the CALeep concept and, possibly, serve as the basis for design of adjunct/follow-on programs to assist participants with the implementation of the audits' recommendations.	7
6. Explore the possibility of a mobile home insulation program element. This includes estimating the market potential for mobile home energy audits and identifying cost-effective providers of insulation.	5
7. Train ten students who will conduct the 20 small business energy audits and 40 residential audits.	7
8. Working with the ROC Russian River and Sonoma Valley Redevelopment Agencies, conduct at least 10 energy audits on small business premises in each RDA.	7
9. Working with the Russian River and Sonoma Valley Redevelopment Agencies, install a limited number of energy saving materials in at least 30% of the small businesses that received energy audits in each RDA.	7
10. Working through the Sonoma Valley Redevelopment Agency and Russian River Redevelopment Agency, conduct at least 20 energy audits for eligible low-income households in each RDA.	7
11. Working with the Russian River and Sonoma Valley Redevelopment Agencies, install a limited number of energy saving materials in at least 30% of the low-income households that received energy audits in each RDA.	7
12. Produce a comprehensive summary report on all CALeep activities in Sonoma County, emphasizing lessons learned that are suitable for inclusion in the Template.	7

Whenever possible, other information, including the in-depth interviews and program documents such as the monthly reports, diaries, and audit results were used to support the scores for some of the objectives. Except for objectives 1, 2, 4, and 7, such documentation was available and provided to the Evaluation Team. Each is briefly described below.

With respect to the second objective, in-depth interviews indicated that CALeep, via the CPC channel, was able to facilitate the participation of 11 entities in Sonoma County in the LGEP program, which had a total of 35 slots for the local governments throughout the 9-county Bay Area plus the Monterey area. That eleven of those 35 occurred in Sonoma County reflects the effectiveness of using the CPC channel.

With respect to the third objective, the CPC scored it a seven. Using CALeep funds, the CPC purchased Utility Manager Pro, software that can access, track, view, and graph monthly billing information in itemized detail. It is designed to help organizations of all sizes control their utility costs. The CPC, with CALeep's assistance, was able to obtain from PG&E historical monthly kWh and therm data for all municipal facilities within the following 9 cities in Sonoma County:

1. Cloverdale
2. Cotati
3. Healdsburg
4. Petaluma
5. Rohnert Park
6. Santa Rosa
7. Sebastopol
8. Sonoma
9. Windsor

In addition, data for Sonoma County and the various water agencies were also obtained. In all, data for 2,300 accounts were obtained representing approximately 600 sites²² in 9 cities as well as Sonoma County and various water agencies. In addition, based upon these data, four municipal climate action plans were developed by the LGEP in 2004 and 2005. Most recently, on July 14 2006, this database was used to produce reports shown to over 200 local government and business attendees at the conference, *Climate Protection: Everybody Profits II*. Estimated energy reductions were then translated into reductions in greenhouse gas emissions.

After the conclusion of the CALeep Program, the CPC has continued to support this tracking effort using its own funds. Going forward through 2008, the CPC, as a part of the Association of Bay Area Governments (ABAG) Energy Watch Program funded with money from the Public Goods Charge, will continue and expand this effort. As part of this effort, in the last several months, the CPC has issued private action reports for the building sector for Santa Rosa, Healdsburg, Cotati, and eventually for Windsor and Rohnert Park. Clearly, the CPC, with CALeep support, has demonstrated the value of procuring energy usage data from local utilities and tracking one's efforts to reduce energy use over time and comparing energy use across buildings within a given city.

Concerning the residential and small commercial audits (Objectives 8, 9, 10, and 11) documentation was provided that substantiated the numbers in [Table 14](#) and [Table 15](#) reported by the CALeep team in a memo to the Director of the Sonoma County Community Redevelopment Commission.

²² While the consumption data for 2000 through 2004 have been obtained from the Healdsburg municipal utility, the CPC is awaiting funding to conduct the analysis.

Table 14
Residential and Small Business Audits and Follow-ups, by Redevelopment Area

Redevelopment Project Area	Residential		Small Business	
	Audits	Follow-Ups	Audits	Follow-Ups*
Sonoma Valley	19	19	20	20
Russian River	55	55	20	20
Total	74	74	40	40

* Conducted by Strategic Energy Innovations

As one can see, follow-ups were conducted with all audit participants to determine their interest in installing efficient measures. Examples of the residential and small commercial audit reports are presented in Appendix G.

Table 15
Residential and Small Business Installations, by Redevelopment Area²³

Redevelopment Project Area	Residential		Small Business
	Insulation	Refrigerators	Efficient Lighting
Sonoma Valley	7	18	16
Russian River	20	0*	13
Total	27	18	29

* Refrigerator replacement was not available at the time to Russian River residents. However, a refrigerator replacement effort is underway using matching funds from the Sonoma County Community Development Committee.

Ultimately, insulation and refrigerators in the residential sector and lighting measures in the small business sector were deemed to be the most cost-effective solutions for this constituency.

Table 15 demonstrates that 36 percent of the residential audit participants in the Russian River Project installed insulation, 95 percent of the residential audit participants in the Sonoma Valley Project installed refrigerator and, in some cases, insulation as well. Table 9 also demonstrates that 65 percent of the small commercial audit participants in the Russian River Project installed efficient lighting and 80 percent of the small commercial audit participants in the Sonoma Valley Project installed efficient lighting. Objectives 9 and 11 were clearly met²⁴.

²³ The kWh savings estimates were not reviewed by the Evaluation Team

²⁴ Energy savings were estimated using LBL’s ‘Home Energy Saver’ tool, which provides more specific feedback on certain appliances using a modification of the Energy Star appliance calculators. The Home Energy Saver is designed to help consumers identify the best ways to save energy in their homes, and find the

Concerning Objective 5, a report, in the form of a memo dated 5/31/2006, was prepared that summarized the results of Energy Days audits. The memo also contained lessons learned that will benefit other implementations of the CALeep concept, and possibly serve as the basis for design of adjunct/follow-on programs to assist participants with the implementation of the audits' recommendations.

With respect to Objective 6, they overestimated the number of mobile homes in the redevelopment project. When they looked at only the mobile homes inside the project area, both the CALeep staff and the Manager of the Sonoma County Community Development Committee agreed that, because there were so few, it just wasn't cost-effective to address mobile homes, even though they had found contractors who could do the work. To have launched a mobile home effort would have distracted the CALeep team from activities that were likely to produce greater savings. A report summarizing the mobile home analysis was never prepared.

Finally, while Objective 7 could not be confirmed, enough students were trained to conduct 74 residential audits and 40 small business audits. In-depth interviews also indicated that the use of student auditors will very likely continue to be used in Sonoma County.

5.2.4.1 Future Work

It is important to note that much of the work begun by CALeep will continue through two programs that have been funded by PG&E for 2006 through 2008: The Association of Bay Area Government's (ABAG) Local Government Energy Partnership Program and the Sonoma County Energy Partnership Program.

The LGEP program may include a number of innovative program elements. The Facility Services element provides comprehensive, sustained technical services to help make improvements in public facilities. The approach is designed to leverage other funding sources and avoid duplicating services offered by other programs. The LGEP program will provide those services and then funnel the project into the appropriate PG&E incentive program. For the 2006-08 program cycle, ABAG proposes to add a new service for recommissioning using data tracking to monitor savings and ensure persistence to allow participant and program managers the ability to track and validate the effectiveness and persistence of all LGEP Facility Services. The Community Energy Services element will continue to help local governments develop energy policies and programs to generate

resources to make the savings happen. The Home Energy Saver was the first Internet-based tool for calculating energy use in residential buildings. The project is sponsored by the U.S. Department of Energy (DOE), as part of the national ENERGY STAR Program for improving energy efficiency in homes, with previous support from the U.S. Environmental Protection Agency (EPA), the US Department of Housing and Urban Development's PATH program, and the California Energy Commission's Public Interest Energy Research (PIER) program. About 750,000 people visit the HES site each year. The Home Energy Saver quickly computes a home's energy use on-line based on methods developed at Lawrence Berkeley National Laboratory. Users can estimate how much energy and money can be saved and how much emissions can be reduced by implementing energy-efficiency improvements. All end uses (heating, cooling, major appliances, lighting, and miscellaneous uses) are included. (Source: <http://hes.lbl.gov/hes/testimonials.html>).

community-wide energy savings, for Mass Markets and other Market Program Sectors. LGEP will also provide workshops on energy topics relevant to local government decision-makers and facility staff. Additionally, the program promotes relevant workshops and seminars conducted by utilities and other groups.

The Sonoma Energy Partnership (SEP) is an innovative PG&E local government partnership. SEPP provides the opportunity to realize significant energy savings by leveraging a whole community's public commitment to reduce greenhouse gas emissions consistent with the Commission policy objectives on energy efficiency: "The Governor's and the state's policies also seek to reduce the environmental impact (including the greenhouse gas emissions) associated with the state's energy consumption, to protect the public's health and safety." Inspired by the Climate Protection Campaign (CPC) in August 2002, Sonoma became the first county in the nation where 100 percent of its municipalities—the county and all nine cities—signed a resolution to measure and reduce their greenhouse gas (GHG) emissions. Energy efficiency is the first and most cost-effective source for such reductions, reflecting this community's strong motivation and the unique opportunity for PG&E. Working closely with the Climate Protection Campaign, the Partnership will focus first on emissions from internal operations such as buildings and secondarily on emissions from all sectors in their jurisdictions.

5.2.5 South Bay Cities Council of Regional Governments: Progress Towards Objectives

The intent was that the infrastructure and process put in place as a result of the pilot project could be used as a tool in the future for identifying additional types of energy efficiency efforts, such as additional rounds of public sector projects, projects in other public sectors or different initiatives (new construction, policy changes, etc.), leading to sustainable energy efficiencies. Similarly, the intent was that the effort would result in defining EE programs that are "transferable" to other public sector agencies.

The CALeep made specific assumptions about the SBCCOG to justify its inclusion as one of the six Pilot Programs. Participants who were interviewed were asked whether they believed that the assumptions (see Section 4.4.4.1) were confirmed. In general, respondents agreed that without CALeep funding, they currently would have been unable to complete the work that was done as part of the pilot. Similarly, they felt that by conducting the pilot work, they would be better positioned to obtain future funding. However, respondents did not agree that their knowledge of energy efficiency or funding options was increased as a result of participating in the pilot. Given that the SBCCOG has been conducting energy efficiency activities for some time, this result is not surprising.

The Pilot Project team was able to complete nearly all of the planned activities. While time did not allow for them to complete a formal Strategic Plan, they did complete a baseline energy survey and high-level energy assessments in 14 of the 15 eligible member cities,²⁵

²⁵ Note that there are 16 member cities in the SBCCOG, of these only 15 cities were eligible for this project. The City of Los Angeles was not included because the city is not an SCE customer. Although interviews were conducted for the City of Redondo Beach, no final assessment was completed because the interviews did not

as well as a final report, which detailed potential energy conservation opportunities (ECOs) identified through the energy audits. The SBCCOG noted that given budget constraints, the detail of these audits is not the same as you would find in a full investment-grade audit, but they were sufficient to identify potential energy opportunities that could be pursued through existing energy programs and through their existing partnership with SCE and SCG. Another focus of the pilot project was to identify options that could be pursued through joint procurement arrangements between the SBCCOG member cities.

Recall that the SBCCOG had 4 objectives. In Table 16, we present the mean assessment scores regarding the achievement of the 4 objectives as assigned by the interviewees.²⁶ Note that some interviewees were not able to assign a score to those objectives in which they were not directly involved.

Table 16
Mean Achievement Scores, by Objective: SBCCOG

Objective	Average
Objective 1. Provide funding for SBCCOG to assemble a team of individuals to identify and screen potential governmental energy efficiency (EE) projects within the SBCCOG membership jurisdictions.	6.50
Objective 2. Assist the SBCCOG team in developing and implementing a framework for categorizing and selecting candidate governmental sector EE projects, according to their ability to best meet SBCCOG/ESC goals and attract funding.	4.75
Objective 3. Based on the projects identified by the team, develop a template for a report (Energy Action Plan) to assist SBCCOG in pursuing and obtaining funding to implement identified projects.	2.67
Objective 4. Assist SBCCOG in identifying potential funding sources to whom to submit requests for funding.	2.88

Whenever possible, other information, including the in-depth interviews and program documents such as the monthly reports, diaries, and audit results were used to support the scores for some of the objectives.

While most of the objectives were achieved to some extent, some were not met. Also, in some cases, there was a good deal of disagreement as to the degree to which specific objectives were achieved (see Table 16). For example, the Evaluation Team observed that the CALeep Web site indicated that the SBCCOG completed a Strategic Plan as a result of the pilot study. However, based on a review of all available pilot project data, the Evaluation Team concluded that the final report and individual energy assessments fell a bit short of what would constitute a formal Strategic Work Plan. Note that we make this distinction merely to indicate which specific objectives and project activities were not fully

identify any noteworthy opportunities in that the city already had completed significant energy efficiency improvements.

²⁶ A “0” meaning “Not At All Achieved” and a “7” meaning “Fully Achieved.”

completed; it is not to point to any deficiencies in the work completed through the pilot project.

In particular, the Evaluation Team would expect that a formal strategic plan would be based on investment grade audits so that the energy efficiency recommendations could be justified by more accurate savings estimates. This is not to suggest that the savings estimates provided in the assessments were inaccurate (see assessment of energy audit data below in Section 5.2.5.1), rather just that a full-investment grade audit would have allowed for a more rigorous substantiation of the energy recommendations made to the cities.

In fact, the SBCCOG indicated that the pilot study budget did not allow for full investment-grade audits, so this could not be carried out in this project. Additionally, the SBCCOG notes that the energy assessments were high-level assessments that pointed to potential energy opportunities, and the cost and savings estimates provided are preliminary and are intended only to provide an “order-of-magnitude” assessment of a specific project’s viability. Indeed, the SBCCOG goes on to recommend that a more detailed analysis be conducted prior to implementing the recommended measures in order to determine more accurate cost and savings estimates.

Further, the Evaluation Team would have expected that a formal strategic plan would have contained a detailed plan outlining potential funding sources and how the energy recommendations and objectives would be implemented or completed. However, this was not completed as part of the pilot deliverables. Nevertheless, based on the available resources and time for this pilot study, the Evaluation Team believes that the Project team did a great deal of work to identify future energy conservation opportunities that the SBCCOG could pursue through their existing relationship with the utilities and by taking advantage of existing energy incentive programs. In fact, this was an intentional focus of the pilot project.

Actually, among the interviewees, there was some disagreement regarding the degree to which this objective (completing a Strategic Work Plan) was accomplished. While most did not feel that this objective was fully achieved, interviewees indicated that a lack of time seemed to be a crucial factor in this regard. Time constraints (recall that there was only 8.1 months between the approval of the grant funding by the CPUC Energy Division and the time work ceased on this pilot) seemed to be the principal factor for why some of the project activities were not completed or could not be completed in full. Given there was some delay in getting project approvals and beginning the pilots, there was not sufficient time to complete all the tasks that were originally planned for the pilot project. Budgetary limitations were a secondary factor preventing the full completion of some of the project activities and objectives.

5.2.5.1 Assessment of Energy Audit Data

Recall that there are 16 member cities in the SBCCOG and, of these, 15 cities were eligible to participate in the CALeep project.²⁷ Through the pilot study, the SBCCOG conducted energy assessments for 14 of the 15 eligible cities. Although interviews were conducted for the City of Redondo Beach, no final energy assessment was completed because the

²⁷The City of Los Angeles was not included because it is not an SCE customer.

interviews did not identify any noteworthy opportunities in that the city already had completed significant energy efficiency improvements.

The assessment reports were designed not only to provide the end-user with recommended energy efficiency measures and retrofits, but also basic information on the performance of the recommended measures and general energy efficiency terminology. As such, the end-users, in this case, the city staff members or city officials, were provided with basic tools and information to aid future decisions regarding energy efficiency decisions. For the most part, the assessments were performed to identify potential energy-efficiency measures that could be considered for implementation within various city facilities and provide energy information on those ECOs that were found to be most significant.

As noted previously, the SBCCOG points out that the cost and savings estimates provided in these reports are preliminary and are intended only to provide an “order-of-magnitude” assessment of a specific project’s viability. The SBCCOG goes on to recommend that a more detailed analysis be conducted prior to implementing the recommended measures in order to determine more accurate cost and savings estimates. It is expected that the progress made by the SBCCOG with the assistance from CALeep will continue with support of the South Bay Partnership funded by both Southern California Edison and the Southern California Gas Company for 2006 through 2008. The South Bay Partnership provides an energy resource center, the South Bay Energy Savings Center (SBESC) and supports fifteen local governments of the South Bay and their communities. The programs provide energy information, workshops and community outreach. The new EE+ element of the program provides technical assistance to cities and businesses to help identify energy efficiency opportunities and access statewide and local energy efficiency rebates.

Specifically, the different assessment reports summarize the ECOs that were identified through the interviews conducted with city staff during the pilot study, and provide background and performance information for each recommended measure. The background information includes details such as existing conditions and measures that are currently in place, current energy consumption, the specific retrofit recommendation, expected energy use after the retrofit, and both energy and non-energy benefits of installing the measures. The report also provides additional information regarding the recommended ECOs. This information includes details on implementation costs, measure performance data, simple payback and return on investment data, as well as pictures to familiarize the reader with the recommended measures. Last, the report includes a glossary of energy efficiency terminology so that readers can familiarize themselves with common energy efficiency jargon and understand the terms used in the report.

For the evaluation, we conducted an engineering review of available documentation for a random sample of four of the 14 city assessment reports. The intent was to determine whether the pilot studies provided reasonable savings estimates since these are the basis for the recommended ECOs. The energy assessments reviewed for the evaluation included those conducted for the Cities of Lomita, Hermosa Beach, Lawndale, and Carson.

While the reports suggest that the energy savings and cost data is preliminary, our review did not reveal significant errors in terms of the rebate and energy and demand savings estimates that were provided. In some cases, errors we noted seemed to be typographical in nature in that there were inconsistencies in terms of estimates presented in one area of a

report versus another. Also, our review determined that, in some cases, reported costs, savings, and/or rebate information was either slightly underestimated or very slightly overestimated. In general, we concluded that the savings estimates provided were reasonable. We also concur with the SBCCOG's recommendation to follow up with investment grade audits where possible to provide more rigorous data regarding cost and savings estimates for all of the participating cities.

5.2.5.2 Future Work

Fortunately, the work begun by CALeep will continue through the South Bay Partnership. The South Bay Partnership provides an energy resource center, the South Bay Energy Savings Center (SBESC) and supports fifteen local governments of the South Bay and their communities. The programs provide energy information, workshops and community outreach. The new EE+ element of the program provides technical assistance to cities and businesses to help identify energy efficiency opportunities and access statewide and local energy efficiency rebates. As such, the SBCCOG was able to move beyond simply providing energy information to actually assisting their members with taking energy efficiency actions.

5.2.6 Ventura County Regional Energy Alliance (VCREA): Progress Towards Objectives

The goal of the VCREA pilot project was to develop and demonstrate a coordinated process that enables local government entities and businesses to work together to assess, identify, prioritize and prepare for funding green building projects. By implementing this process, NCI believed that VCREA's chances for obtaining funding for project implementation would be greatly enhanced.

CALeep made specific assumptions about VCREA to justify its inclusion as one of the six Pilot Programs. Interviewees were asked whether they believed that the assumptions (see Section 4.4.5.1) were confirmed. Similar to the SBCCOG, respondents agreed that without CALeep funding, they currently would not have been able to complete the work that was done as part of the pilot, and that the funding made it possible to establish a green building initiative as a logical extension of energy efficiency and supported by the public and private sector. However, respondents did not agree that as a result of participating in CALeep, they increased their chances of obtaining future funding assistance for green building programs. Again, as with the SBCCOG, this result is not surprising given the VCREA's prior experience in doing energy efficiency work.

The Pilot Project team was able to complete nearly all of the planned activities. While time did not allow for them to complete a formal "Business-as-Usual" baseline or estimated energy savings for a list of identified energy efficiency opportunities, they did identify case study sites that allowed them to identify opportunities to pursue additional energy efficiency measures in existing projects. Also, as part of the project, they provided a list of energy efficiency measures as examples of what could be installed as part of a green building project, in general, and provided savings estimates for each measure. However, these measures and savings estimates were not tied to or based on any specific green building project. In addition, the Project team was able to conduct an outreach workshop

with member agencies in order to gauge business and community interest and solicit input from the VCREA Advisory Committee, member agencies, and the public.

Recall that the VCREA pilot project had 3 objectives. In Table 17, we present the mean assessment scores regarding whether each of the 3 objectives were achieved as assigned by the interviewees.²⁸ Note that some interviewees were not able to assign a score to those objectives in which they were not directly involved.

Table 17
Mean Achievement Scores, by Objective: VCREA

Objective	Average
Objective 1. Provide funding for VCREA to assemble a team of individuals to develop a process for identifying and screening potential green building projects in the county.	5.88
Objective 2. Assist the green building team in developing a framework for identifying, categorizing and selecting candidate green building projects.	2.25
Objective 3. Assist VCREA in identifying potential funding sources to whom to submit requests for funding, supported by the green building initiatives report described above.	1.75

Whenever possible, other information, including the in-depth interviews and program documents such as the monthly reports, diaries, and audit results were used to support the scores for some of the objectives.

As with the SBCCOG, the VCREA project accomplished a great deal of work given the constraints of both time and budget. There were significant delays in getting this project finalized and approved, so ultimately, the team had only a little more than 5 months to complete the project. As a result of the project, VCREA was able to identify several opportunities for existing green building projects to incorporate additional energy measures into the design. Also, as a result of completing the project work, VCREA was able to identify existing energy incentive programs in which green building projects could participate when incorporating the energy efficiency measures into the initial design.

5.2.6.1 Future Work

Fortunately, the work begun by CALeep will continue through the Ventura County Partnership Program funded by both the Southern California Edison Company and the Southern California Gas Company. The Ventura County Partnership is an alliance between the Ventura County Regional Energy Alliance (VCREA), SCE and SCG to create the Ventura County Energy Resource Center (VCERC). The VCERC serves as a local clearinghouse of energy information (non-resource) including energy efficiency trainings, demand response, self-generation, CEC, DOE, EPA, and low-income and CARE programs.

²⁸ A “0” meaning “Not At All Achieved” and a “7” meaning “Fully Achieved.”

In addition, the VCERC provides a Comprehensive Public Sector Program (resource) of technical assistance and project management to public facilities and ‘community asset’ organizations, including schools, hospitals, museums and community centers throughout the region. The VCERC will funnel customers to statewide IOU energy efficiency programs to support the policy set forth in CPUC Decision 05-01-055 which notes that “current or future partnerships between IOUs and local governments can take advantage of the unique strengths that both parties bring to the table to deliver cost-effective energy efficiency services.”

5.2.7 Lessons Learned

Recall that the pilot projects were not ends in themselves but rather a means to an end, the development of the Workbook and other materials to assist members of the target audience in pursuing energy efficiency. Below, we present the important lessons learned as a result of each pilot project that were included the Workbook.

5.2.7.1 Sonoma County Project

The lessons learned from the Sonoma County Project were posted on www.caleep.org/pilot/sonoma.htm and are presented below.

- When using a “patron” to gain access to the RDA, keep in mind that the patron’s reputation is on the line. You must deliver what you say you will deliver.
- Redevelopment agencies are effective community engagement channels, especially for low income residential and small commercial hard-to-reach customer sectors.
- RDA cost-share capabilities produce energy efficiency program cost-effectiveness on par with traditional commercial/industrial retrofit programs.
- Energy efficiency program implementation contractors can be engaged using the Redevelopment Agency “channel” with more flexibility and more quickly than traditional city/county contracting processes.
- Based upon survey results, small commercial and low-income residential energy efficiency markets have not been adequately served by traditional energy efficiency programmatic outreach.
- When working with students, attention must be given not only to training them in the technical aspects of their work but also in how to interact with customers. Many students have never worked before and, therefore, lack basic job skills.
- The energy efficiency decision-making processes for different RDAs are likely to vary. This must be taken into consideration in energy efficiency program and project planning.
- While existing CPUC programs may seem to have an appropriate scope to assist RDAs in supporting their energy efficiency implementation efforts, some may not

be flexible enough to meet RDA needs. This is a broad issue in enabling local governments generally to take advantage of existing CPUC-funded programs – they are not necessarily designed with the priorities of local governments in mind. This mismatch led to delays and required workarounds in the RDA pilot program.

- Care must be exercised in setting expectations about exactly what services will be provided to the targeted community. For example, some families were expecting an “additional” refrigerator rather than a replacement refrigerator. While this was a minor issue, the issue can be avoided with clearer communications.

5.2.7.2 San Joaquin Valley

The lessons learned from the San Joaquin Valley Project were posted on www.caleep.org/pilot/sanjoaquin.htm and are presented below.

- The pilot project achieved its primary goal of establishing a roadmap whereby the community would achieve significantly expanded implementation of energy efficiency within the region. As the community made the roadmap development process, its own *energy efficiency* became embedded in the larger drive for regional economic and ecological sustainability, and; through the development process a community-based organization was established, the California Partnership for the San Joaquin Valley (<http://www.bth.ca.gov/capartnership/sanjoaquinvalley.asp>).
- From CALeep’s perspective, the project achieved three out of five objectives for the RJI with regard to engaging private sector companies within targeted employment clusters. Objectives 4 and 5, cited below, while not achieved, nevertheless provided valuable lessons:
 - When a community *is* successfully accessed through a functional engagement channel, the demand for technical and programmatic support is vast. As such, it far exceeded CALeep’s limited capacity to provide, or even map, resources to the need.
 - While performing audits and assisting individual firms in implementing energy efficiency measures can be certainly be laudable objectives of an energy efficiency initiative, the community may perceive greater value in assistance in developing an infrastructure to promote energy efficiency from within the community. Such efforts, if accomplished properly, are also likely to be more sustainable.

5.2.7.3 Oakland

The lessons learned from the City of Oakland Project were posted on www.caleep.org/pilot/oakland.htm and are presented below.

- Decision makers must not simply adopt policies but allocate adequate resources to implement the policies, and monitor and evaluate their progress. While considerable funding and technical assistance is generally available for energy efficiency

initiatives, the opportunities change constantly and cannot be adequately accessed without dedicated staff time. Staff, in turn, must provide decision makers with realistic estimates of the resources required to implement energy efficiency.

- Decision makers will only adequately value, prioritize and fund community-wide energy efficiency initiatives if they understand the value of these initiatives to the community's core needs. Oakland adequately funded energy initiatives for city facilities because the financial benefits can be readily demonstrated. However, community-wide initiatives lagged due to lack of the ability to value them in the same manner.
- A strategic or action plan is only relevant if it accounts for institutional barriers and resource constraints. Additionally, if a local government lacks adequate performance metrics for new initiatives, it must define these performance metrics and identify the resources required for monitoring and reporting.
- Few communities have adequately grasped the level of effort required to implement a GHG reduction plan and integrate it with existing activities. The long-term success of GhG reduction initiatives, as well as energy efficiency initiatives, will depend on how well they are integrated into the existing business and culture of local government institutions.
- Community market sector energy data at the level of detail needed for prioritizing effective energy efficiency initiatives is far too difficult to obtain and presents a formidable barrier for California local governments. State agencies must work to make community energy data readily available from investor-owned utilities on an ongoing basis if local governments are to be able to effectively leverage their resources.

5.2.7.4 IEUA

The lessons learned from the IEUA Project were posted on www.caleep.org/pilot/ieua.htm and are presented below.

- Although IEUA has already made remarkable progress towards its goal of energy self-sufficiency, IEUA learned during CALeep that it needs to provide staff with more guidance, tools and follow-up to help attain these goals. For example, although IEUA requires energy efficient design in its projects, lack of energy efficient design specifications resulted in spotty implementation.
- All water and wastewater utilities have large capital programs that present great opportunities for incorporating energy efficient design and system characteristics at little or no incremental cost. However, few are aware that electric utilities have tariff provisions known as "Standard Performance Contracts" that can be negotiated to cover all or a portion of the incremental costs of energy efficient features.

- For example, it is well known that oversizing pipelines reduces friction, thereby reducing the amount of energy needed to transport water. It is little known that customized incentives can be negotiated with electric utilities for SPCs that subsidize the incremental cost of oversizing such pipelines to attain the energy benefits.
- Many people in California think that all the low hanging energy efficiency fruit has already been harvested. In fact, IEUA identified a number of interesting opportunities for additional energy benefits. These included efficient site lighting, additional opportunities for wastewater treatment process optimization that reduce energy consumption and increase digester gas production, and recovery of energy from in-conduit hydropower.
- As a lead agency in MWD's "California Friendly Homes" Program, IEUA builds strong relationships with builders, real estate investors and developers, community planners and leaders that can be leveraged to incorporate resource (water and energy) efficient appliances and designs into new communities.
- IEUA's existing energy policy and management infrastructure can be leveraged to do even more. For example:
 - IEUA's water conservation program builds relationships with key constituents and partners to promote water efficiency throughout the Chino Basin. Those channels provide excellent conduits for also promoting energy efficiency.
 - All water and wastewater agencies have large capital programs that present opportunities for incorporating energy efficient design and operations.

5.2.7.5 South Bay Cities

The lessons learned from the South Bay Cities Pilot Project were posted on www.caleep.org/pilot/sbccog.htm and are presented below.

- Being able to initiate an energy efficiency program through an existing "engagement channel" such as the SBCCOG made it much easier to bring resources together to carry out the program. (Always try to utilize an existing organizational structure rather than building one up from scratch.)
- By networking with other organizations and consultants that were active in the energy efficiency field and committed to energy efficiency, the SBCCOG was able to accelerate its learning process and quickly develop a work program that fit the needs of its member agencies. (Another example of the old adage about not having to reinvent the wheel.)
- By knowing what levels of approval were required within its own organization as well as from CALeep and others, the SBCCOG was able to ensure that the approval process did not present barriers to either the startup or completion of its pilot

project. (In order to ensure that a project has the best chance of success, it is not only necessary to have a clear understanding of one's own approval process, but also knowledge of the approval process of other parties involved in a project. One may only be able to control the pace of activity in one's own organization. However, by "pushing" for the timely approval of key milestone events in partner organizations, one can improve the chance of completing a project on time and within budget.)

- SBCCOG's knowledge of opportunities for EE projects within the governmental sector will be advanced as a result of participating in CALeep. (Many of the savings opportunities identified in an energy efficiency assessment of specific governmental facilities are readily transferable to other local governments.) Support to local governments to assess needs prior to applying for project implementation funding will increase opportunities for obtaining such funding.

5.2.7.6 VCREA

The lessons learned from the South Bay Cities Pilot Project were posted on www.caleep.org/pilot/vcrea.htm and are presented below:

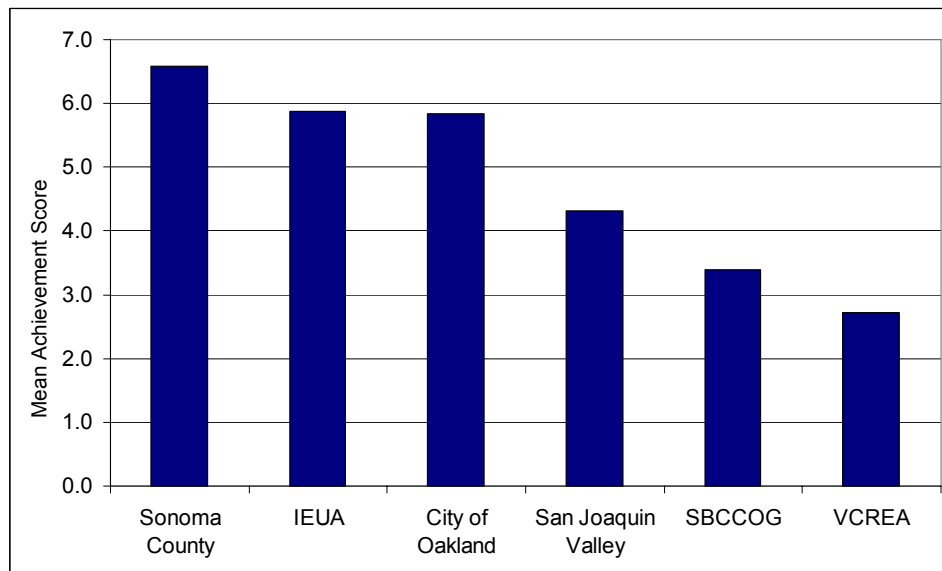
- Not all organizations are able to participate at all times; receptivity to energy efficiency efforts can change over time. Shortly into the process of identifying pilot program candidates, both the VCREA and CALeep concluded that even though the VCREA had ample experience in energy efficiency outreach, it was not the best time for it to take on the additional responsibility of participating as a pilot community. Later on, when CALeep was narrowing its list of potential pilot candidates, it became apparent that the VCREA still had much to offer and was in a better position to meet the demands of participation as a CALeep pilot program participant. Subsequent meetings and discussions led to the inclusion of VCREA as a CALeep pilot participant.
- Maintain flexibility when working with an organization; don't hesitate to redirect your efforts toward an area where you note stronger support and greater interest. Initially, VCREA concentrated its pilot program on energy efficiency improvements in the agricultural sector, but it soon learned that there was more community interest in green building initiatives. Its success in achieving its goals is directly related to its ability to re-focus efficiency efforts on an area with strong support.
- Utilizing an existing organizational structure for a new program rather than building one up from scratch is almost always a more effective and faster strategy for achieving efficiency goals. Being able to initiate this particular energy efficiency green building program through an existing engagement channel, the VCREA, made it much easier to bring resources together to carryout the program. Similarly, by engaging other organizations and consultants that were active in the green building field, the VCREA was able to accelerate its learning process and quickly develop a work program.

- Existing utility program structures can create barriers to participation because they segregate activities according to energy source or type of energy, while local governments seek comprehensive efforts that address all energy needs. VCREA members, like most local government organizations, need help addressing their resource needs, broadly defined. Their need is for energy efficiency, renewable energy, energy procurement, etc., across all energy types. However, existing programs tend to focus solely on electricity, gas, renewable energy, procurement, etc., multiplying the level of effort required by the local governments to utilize the assistance and making integrated resource planning more difficult.

5.2.8 Pilot Project Performance Summary

Overall, how did the six pilot projects do in terms of achieving their respective objectives thus providing ample opportunities for learning valuable lessons? This is a simple question with a rather complex answer. First, Figure 11 presents the mean goal achievement score for each of the six pilot projects. The Sonoma County Pilot Project had the highest mean goal achievement score. The mean scores for IEUA and the City of Oakland were also quite good, approaching 6.0. While the San Joaquin Valley Project is only slightly greater than 4.0, one must remember that the goals of this project changed and placed less emphasis on diagnosing and meeting the needs of members of the various employment clusters and a greater emphasis on the development of the Clean Energy Roadmap. Also, the score for the City of Oakland Project is overstated given that it had not, for very good reasons, produced a draft of a comprehensive energy policy. The remaining two pilot projects have means hovering around 3.0.

Figure 11
Mean Goal Achievement Score, by Pilot Project



The mean across all six pilot projects was 4.8, a score which must be interpreted in light of the extenuating circumstances in all six pilots but particularly in the San Joaquin Valley,

SBCCOG, and VCREA pilot projects. An examination of this information, presented in Section 5.2, will yield a more complete, accurate, and fair assessment.

General Pilot Project Observations

Based on interviews with the different pilot participants, the Evaluation team made a few additional important observations. Regarding the overarching objective of identifying lessons for inclusion in the CALeep workbook, certainly lessons were identified and are included in the workbook; however, some participants indicated that lessons relating to conducting the actual pilot work were not always captured in that CALeep did not, in all cases, ask the pilot participants to list lessons that would be considered for inclusion in the Workbook. The Evaluation team believes that this was a lost opportunity for capturing best practices for inclusion in the Workbook.

In addition, some pilot participants expressed that CALeep did not assist them in either developing a framework for categorizing and selecting energy efficiency opportunities or in learning about or identifying possible funding opportunities. While most did agree that some of this was accomplished as a part of the pilot project, they did not feel that the CALeep assisted them in this regard. Rather, they felt that the CALeep staff did more to simply observe the pilot process rather than provide assistance with the project.

With regard to learning about funding opportunities, CALeep did provide the participants with the general list of existing energy programs that was refined during the Summit workshops. However, interviewees indicated they were not given assistance, directly, with learning about or identifying funding sources that were specifically relevant for the energy opportunities identified through the pilot work. This may have been a result of time constraints, in that some of the planned tasks could not be completed; however, some participants indicated that, based on what occurred, they felt that the CALeep staff's responsibility was simply to observe the pilot process, i.e., providing such assistance was not a part of the project scope.

Again, the Evaluation team feels that this represents a lost opportunity to impact the knowledge, awareness and ability of local governments to implement energy efficiency projects in the future. In this case, the general observation made has to do with the degree to which the CALeep provided significant added value for the different pilot project participants. While the pilot activities were, in most cases, substantive and led to positive results, the Evaluation team does not feel that the CALeep added much value to the knowledge base of many of the pilot participants.

The question was posed early in this report as to whether CALeep made a good faith effort to engage in energy efficiency activities from which useful lessons could be learned that could be incorporated into a workbook. The preponderance of the evidence suggests that important lessons could be learned from the activities engaged in by those implementing the pilot projects despite a number of unforeseen challenges. The question is: what lessons were learned and were they faithfully transferred into the Workbook? This is the topic of the next section of this report.

5.3 Development of Materials and Market Outreach

The assessment of the CALeep market outreach effort begins with a discussion of the CALeep materials promoted by the outreach effort. This is followed by a discussion of the

various efforts such as workshops, conferences, and Web casts designed to introduce the target audience to these materials.

5.3.1 CALeep Materials

The CALeep Program was designed to produce and promote a workbook template to increase energy efficiency in local governments. The Local Energy Efficiency Workbook and other resources are available at www.caleep.com. The following sections provide a brief description of the documents and resources that have been produced or collected for the CALeep Web site.

5.3.1.1 Workbook

Intended Audience

The workbook is addressed to the “Energy Efficiency Champion – someone with the drive, time, energy, creativity, and persistence to make [energy efficiency] happen in places and ways that it has not previously happened.” (Workbook, p 21). The user may be an employee of local government, an energy consulting firm that will assist local governments in pursuing energy efficiency, or simply a member of the community, interested in implementing energy efficiency programs.

The workbook guides this energy efficiency champion through the process of conceiving, designing, and implementing local energy efficiency programs, assuming no experience with project management, government programs, or energy efficiency (EE) on the part of the user. Types of EE programs covered include: lighting retrofits in specific facilities, procurement policies requiring agencies to purchase Energy-Star rated products, free energy audits to the residential or commercial sector, raising energy efficiency standards in building codes, and programs improving access to energy efficiency resources for low-income communities, to name a few. The workbook provides thorough and detailed warning of all the potential obstacles that one might encounter, both political and technical, that impede the implementation of energy efficiency programs, and it also provides strategies to overcome these obstacles.

The goal of the workbook is to help communities identify energy efficiency opportunities, match their ambitions realistically with their capabilities, and access existing resources and stores of experience that are crucial to success.

Length and Format

The workbook is 117 pages long, with 214 pages of appendices. The body of the workbook is written in narrative format, guiding the user through the entire process of energy efficiency program creation, from start to finish. The appendices provide additional worksheets and exercises, examples and resources, narratives of six pilot programs, historical background, and supporting technical materials. The CALeep Web site provides additional resources that were too complex or expansive to include in the workbook itself.

The structure of the workbook makes it adaptable to user needs, as each chapter can be taken as a distinct entity, tailored to specific stages of the process, with associated

worksheets and exercises in the appendices. For example, a user that already has a specific program, policy, or project in mind can bypass some of the early program definition steps, and go straight to the later sections that focus on identifying program resources and implementation. Every chapter has graphical icons representing the chapter sections, and the icon indicating chapter section is displayed in every page header, for easy navigation and reference.

Organization

The structure of the workbook follows the structure of the CALeep process. The workbook is delineated into 5 chapters, corresponding to the 5 steps (Initiate, Plan, Organize, Implement, Assess). Because many of the steps of the process are overlapping and iterative, Navigant uses several mechanisms to allow easy reference back and forth between chapters. Some of these mechanisms are:

1. graphic page headers associated with each step and sub-step
2. checklist-style table of contents preceding each chapter
3. tables and diagrams within each chapter for accessibility of information.

Important points or insights, additional resources, relevant Web sites/databases, supporting examples, and flow diagrams are also provided in boxes in the margins, and footnotes indicate the existence of supporting materials, including exercises and worksheets, in the appendices.

Main Process/Table of Contents

The California Local Energy Efficiency Program process is delineated into five steps:

1. Initiate
2. Plan
3. Organize
4. Implement
5. Assess

The chapters each contain detailed information on how to successfully perform the tasks associated with each step in the process.

The first chapter, initiate, walks the user through the important first steps of creating energy efficiency programs. This chapter, which outlines the groundwork on which to build successful programs, can be skipped by users who have already progressed beyond this stage. The groundwork includes finding a champion who will drive the process, and take responsibility for addressing challenges and setbacks throughout the process. Other important first steps include conceptually tying the efficiency program to a core community need, one that is widely recognized and embraced by the community, such as reducing government costs, creating jobs, or addressing the needs of low-income constituents. The user will learn how to choose a realistic program scope (targeted or comprehensive), how to take advantage of existing community engagement channels such as existing advocacy organizations, programs, or government processes, and how to make the case for energy efficiency programs to key decision-makers in this chapter.

The second chapter outlines the planning phase of creating and implementing energy efficiency programs. This chapter assumes the user has obtained some form of approval from decision-makers to move forward with creating an energy efficiency program, and it outlines the necessary forethought regarding the program itself. The planning steps include: defining criteria by which to select the most appropriate energy efficiency program, brainstorming types of programs, developing an implementation plan for the program, and defining metrics by which success will be measured along the way.

In the third chapter, “Organize”, the user finds guidance on how to identify resource needs (such as office space, staff/volunteers, computers, printers, telephones, funding, etc), how to locate available resources through allies and existing infrastructure, and how to identify gaps and fill them with external resources. The narrative in this section is substantiated with case studies, in order to provide examples for replication.

The “Implement” chapter can be used in conjunction with the “Organize” chapter, as many of the steps in the two chapters occur simultaneously. The “Implement” chapter assumes no previous experience in program management, and it provides the skills and resources necessary for effective program management, from communication with stakeholders and meeting facilitation, to preparing program and policy implementation plans, schedules, milestones, and strategies. This chapter emphasizes collaboration and taking advantage of existing resources, and it also outlines many of the most common pitfalls and setbacks during the implementation stage, and how to overcome these.

The fifth chapter, and final step in the LEEP process, is titled “Assess”. This chapter encourages the user to continually evaluate the progress and impact of the initiative, and it provides the tools necessary to do so. It provides some example questions to ask during program implementation, regarding timeline, budget, and stakeholder satisfaction. It also provides guidelines for program evaluation, once the program is complete or far enough underway to have had some impact; for example tracking progress toward program goals, estimating a baseline, tracking deviations from the baseline, and estimating the effect of the program on these changes. This chapter also encourages the user to learn from the assessment for future undertakings.

Other Tools

If at any point in the process, the user does not know how to perform the activities outlined, several options are provided, in the form of examples from existing policies or programs, narratives from the experiences of the six pilot programs, worksheets with specific questions to help structure the user’s approach, and links to online databases and existing programs.

5.3.1.2 Writing the Workbook

During the initial project planning phase, CALeep reviewed the literature and sought expert experience and determined that lack of information was the main barrier. At that point, CALeep concluded that producing a comprehensive workbook would be the best way to help local governments overcome this information barrier. Originally, the CALeep

intended to have a workbook draft to test in the six pilot projects. However, after the scoping and screening workshops, CALeep staff felt that in order to develop a workbook they needed real-world experience to inform the workbook. Therefore, instead of going into the communities with a written document in hand, the project managers had only the initial framework (the five step process) and input on the known barriers to energy efficiency in local government. As the program progressed and work began with the pilot programs, CALeep identified an additional information barrier – champions needed to understand civics as well as energy efficiency in order to promote policies and programs. Therefore, the CALeep writers started incorporating civics lessons into the workbook.

While some CALeep project managers focused on the objectives and activities in their pilot, other members of the CALeep staff were working on incorporating the valuable lessons learned from the implementation of the five-step process (initiate, organize, plan, implement, assess). With different staff members focused on the pilots and writing the workbook, the challenge was relaying the lessons learned to the workbook writers and making sure that the pilot experiences were accurately captured in the final document. For the first few months of pilot project work, the project managers periodically updated Web-based diaries, which prompted the managers to document the lessons learned within the five-step framework. The staff preparing the workbook could ask directed questions in response to entries. These diaries proved very useful for the workbook writers and documentation for the EMV team. Unfortunately, the diaries proved too cumbersome and labor-intensive for the project managers. Thus, the CALeep workbook writers began using the weekly update calls and individual debriefing calls with each of the project managers to ensure they continued to relay the valuable lessons learned. In addition, the entire CALeep team met to review the workbook draft in an all day review meeting. Staff from the EMV team also participated in the meeting and provided mid-project feedback.

The CALeep staff also used other references such as the RMI workbook on energy efficiency and Energy Star guidelines for commercial customers. The RMI workbook “outlines a comprehensive, step-by-step process for achieving sustainable community-wide energy savings.” CALeep staff reviewed the RMI workbook and noted what worked and what didn’t work. CALeep staff also reviewed Web-based formats such as EE Best Practices (www.eebestpractices.com). In the end, the CALeep staff found that most of the resources available explained what communities “should” do, but few resources were available to tell communities/organizations “how” to initiate and implement energy efficiency. This was seen as a major information gap, a point underscored by the pilot experiences in which some communities knew they “should” increase their energy efficiency but they did not understand “why” or “how”.

The CALeep staff also discussed different formats for the workbook and contemplated producing a Web-based document that would allow easy navigation to the material of most interest to the specific user. In the end, CALeep decided that they could develop a product that was easy to navigate independent of its format (Web-based or PDF). The team saw an advantage of a physical workbook because the users would be able to fill out worksheets related to issues specific to their community or organization, thus increasing the likelihood that the workbook would get used.

After developing a draft of the workbook, CALeep sent the draft to energy efficiency experts and members of local government to get initial reactions and feedback on the workbook. The one-page survey prompted the reviewer to discuss what they like best about the workbook, what they like least about the workbook, get their feedback on the workbook's flow, content and usability. In addition, the survey requested the reviewers to identify up to five issues that CALeep should consider before finalizing the workbook draft.

5.3.1.3 Other Resources

In addition to the CALeep workbook, NCI produced a number of online resources designed to assist local governments or other energy “champions” with implementing energy efficiency projects. NCI made these resources available, in part, to respond to requests from participants and users for additional information regarding specific types of energy actions and policies that were not generalized in the workbook. The resources are categorized into 10 areas as detailed below, but the bulk of the information across these categories is in the form of case studies of relevant energy projects, and actions and policies implemented in California, the US, and Canada. Projects relevant to local government are the central focus although there are resources that are also applicable to businesses and facilities. The range of topics covered encompasses a variety of areas from water to green building to procurement. There are both links to sites with case studies and best practice manuals and tips and PDF documents of the same that are available for downloading. Details on the different types of resources available are given below; and, the complete set of resources can be accessed on the CALeep Web site (www.caleep.org).

Case studies

While the bulk of the information provided is in the form of case studies, the resources in this area include PDF documents and links to other energy Web sites that have links and documents relating to case studies and best practices information on public sector energy efficiency initiatives. There is also information on existing energy programs. Information from seven different sites is highlighted within this area including:

- CEC Energy Partnership Program information
- Flex Your Power case studies and best practices guides
- NYSERDA new construction case studies
- Northwest Energy Efficiency Alliance case studies (commercial and agriculture)
- US Conference of Mayors Best Practices Report (2001)
- Community Energy Association (Victoria, BC) Web-based tool kit
- Alliance to Save Energy Guidebook for K-12 School System administrators (2004)

Water and Energy Efficiency

The information contained in this area primarily addresses the link between water and energy, and includes links to other Web site with related information and PDF documents that can be downloaded. The resources highlighted in this area include information from²⁹:

- CEC: 2005 Integrated Energy Policy Report that addresses the water and energy link and a November 2005 report on the relationship between water and energy
- Flex Your Power: Link to a water and wastewater guide and a link to the California Urban Water Conservation Council Web site containing various Best Management Practices.
- American Water Works Association Research Foundation: Link to order a report on water and energy
- US EPA: Link to information on the EPA's Water & Wastewater Focus
- US DOE: Link to information about Energy Efficiency & Renewable Energy Best Management Practices
- Family of Southern California Water Agencies (Bewaterwise.com): Link to an urban water use calculator.

Green Buildings

This includes several links to information and other Web sites with information about green building. There are at least 15 separate links highlighted that provide reports showing the benefits of green building, sample green building ordinances, sustainable building technical manuals, sourcebooks, and other resources, as well as information about the Green Communities Program/Initiative. There are also several links to agencies with ties to green building. These include links to:

- Alameda County Waste Management Authority/Alameda County Source Reduction & Recycling Board
- National Association of Home Builders
- US Green Building Council
- American Institute of Architects
- New Buildings Institute

There were also links to a CPUC report to the Governor on energy efficiency programs in support of the green building initiative and a link to the Advanced Buildings Benchmark Web site with software that provides "high performance" criteria for a wide range of building systems.

Sources for Working with Energy Services Companies (ESCOs)

There were a few sources relating to working with energy service companies. These include the following links and PDF documents:

- CEC report on How to Hire an ESCO (January 2000)
- Technical Resource Documents from Rebuild Colorado
- Florida's Energy Performance Contracting Manual.

²⁹ There was also a link to "Watergy" Software, but the link was not operable at the time of this review, so we were unable to obtain further information about this link.

Energy Efficiency Policies

The resources on energy efficiency policies included documents that provide examples of energy policies that were instituted in various cities throughout the US. These include:

- General Plan Policy Options for Energy Efficiency in New & Existing Development, a 2002 document prepared for Pacific Gas and Electric Company by Energy Solutions and the Local Government Commission
- City of Portland 1990 Energy Efficiency Policy and 2000 Update
- San Jose Sustainable Energy Policy 2003-2004 Action Plan (March 2003)

A table of illustrative energy efficiency policy options also is included in this group of resources.

Other Energy Efficiency Guides

There are a few guides relating to energy efficiency in this area. These include information on energy efficiency initiatives, other energy resources and best practices guides. The links include information from:

- US EPA
- Energy Star
- Flex Your Power
- The South Carolina Energy Office and The Office of Regional Development

Financing Energy Efficiency

The resources provided here augment the resources provided in Appendix B of the CALeep workbook. They include two PDF documents from the CEC:

- How to Finance Public Sector Energy Efficiency Projects (2000)
- Renewable Energy Assistance Packet: A Compendium of Resources for Local Governments, 3rd Ed. (2003)

Energy Efficiency Procurement

There are several resources provided relating to energy efficiency procurement. These include documents with information on options for energy efficiency purchasing, procurement policies, case studies on energy efficiency procurement issues, and recommended language for vendor contracts. There are also a number of links to sites with information on energy efficiency products and equipment. Resources include information from:

- City of Portland
- City of San Diego
- Energy Star
- State of NY
- US EPA
- Consortium for Energy Efficiency
- ACEEE

Comprehensive Plans Involving Energy Efficiency

The resources here provide information on energy efficiency plans and policies in other cities. They include:

- City & County of Denver Action Plan (2000-2010): A list of programs and policies that support the city's participation and membership in Cities for Climate Change. The document lists current programs and projects goals to be reach by 2010 with regard to each program identified.
- Contra Costa County Strategic Plan (2004): A list of recommended strategies for the purposes of developing a comprehensive energy management plan for Contra Costa County to reduce energy and operating costs throughout the county.
- Link to the City of San Francisco's Electricity Resource Plan and Energy Resource Investment Strategy (PDF documents for downloading).

Sample Energy Assessments

The resources here include a link to a PDF document that contains a sample energy assessment conducted as part of the current CALeep program.³⁰

5.4 Marketing Outreach Efforts

Navigant staff organized and participated in several marketing events from March 30, 2005 through February 17, 2006 in order to market the CALeep materials discussed above. Specifically, the CALeep program organized two conferences on issues of interest to potential users of CALeep materials. One of these conferences focused on green building policy and opportunities in California and one conference focused on local government climate change initiatives. In addition, the CALeep Program participated in conferences that focused on other engagement channels or provided access to the proposed audience of potential champions. The CALeep Program also offered several online workshops to promote CALeep materials and provide lessons learned from the pilot programs. Two workshops were offered. The first workshop focused on the CALeep workbook and online tools and the second workshop focused on the lessons learned in the IEUA pilot and the water-energy nexus. The online workshops were offered in November and December 2005 and January and February 2006, respectively. [Table 18](#) outlines all the events associated with the CALeep marketing efforts.

³⁰ This link was not operational at the time of this review so no additional information about this document could be provided. (See Section 5.2.5.1 for the Evaluation Team's review of a sample of the energy audits conducted by the SBCCOG as part of their CALeep pilot study. The sample energy assessment included here is one of several energy audits conducted by the SBCCOG).

Table 18
CALeep Outreach Events, Dates, Host Organization, Locations and number of Attendees

Date	Event	Host Organization	Location	# of Attendees
March 30 – April 1, 2005	California League of Cities: Public Works Officers Institute and Expo	California League of Cities	Monterey, CA	Not Available
April 13 2005	California League of Cities: Planners Institute and Expo	California League of Cities	Pasadena, CA	Not Available
May 3-5, 2005	Association of California Water Agencies Spring 2005 Conference	Association of California Water Agencies	San Jose, CA	20
May 4-6	25 th Utility Energy Forum	Utility Energy Forum	Lake Tahoe, CA	Not Available
September 8, 2005	California Green Buildings Workshop	CALeep	Sacramento, CA	75
October 6-7, 2005	California League of Cities Annual Conference	California League of Cities	San Francisco, CA	Not Available
November 22, 2005	CALeep Workshop for City of Colusa Stakeholders	Colusa Economic Development Corporation	Colusa, CA	11
November 30, 2005	CALeep Energy Efficiency Workbook and Tools Web cast	CALeep	Online	15
December 8, 2005	CALeep Energy Efficiency Workbook and Tools Web cast	CALeep	Online	13
January 17, 2006	California Local Climate Action Workshop	CALeep	Sacramento, CA	25 registered
February 16, 2006	CALeep Water/Energy Web casts	CALeep	Online	22
February 17, 2006	CALeep Water/Energy Web casts	CALeep	Online	28

The EMV team was able to attend or participate in most of the marketing events. The following is a description of the main marketing events and the results of the participant surveys administered when available.

On May 3-5, 2005, CALeep representatives participated in the Association of California Water Agencies (ACWA) Spring 2005 Conference in San Jose, California. The conference

was attended by more than a thousand delegates and exhibitors representing various interests in water agency management. Roughly 20 delegates attended the presentation given by CALeep staff. A CALeep staff member and the Inland Empire Utilities Agency's Executive Manager of Policy Development provided attendees with an overview of the CALeep program and shared some of the lessons learned that are captured in the final workbook.

In addition, throughout the three-day conference, representatives of CALeep staffed a booth in the exhibition hall to share information and answer questions about the CALeep. Several conference attendees expressed interest in the Program and asked to be included on distribution of the CALeep workbook.

A member of the EMV team attended the ACWA conference presentation and provided feedback on the content of the presentation and provided constructive feedback on potential organizational changes for the subsequent presentations. In general, the feedback suggested focusing in on the interests of the specific audience and suggested feedback/evaluation forms be distributed at the marketing events.

The next major marketing effort was held in Sacramento on September 8, 2005. This CALeep sponsored effort was focused on a discussion of what state agencies, local governments, and other stakeholders are doing to implement and accelerate the Green Buildings Initiative. The three hour workshop had roughly 75 attendees. CALeep invited several speakers from state agencies, utilities local governments, and commercial real estate property managers. The Special Consultant from the California Environmental Protection Agency presented an update on the Governor's Green Building Initiative. A CEC Commissioner presented information on the CEC's Green Building Action Plan. A PG&E representative discussed PG&E's Savings by Design program. A representative of a building operations management company discussed opportunities to "Green your Bottom Line" and gave a tour which illustrated the innovative building strategies. A representative of the California Distributed Generation Services, discussed government adoption of green building policy. A representative of the Sacramento Municipal Utility District (SMUD) discussed energy efficiency and green building incentives at SMUD. Another representative from the CEC discussed the PIER Buildings Program support of Executive Order S-20-04. A representative from Build It Green provided information on resources for local governments. Another representative from the CEC discussed programs to help maximize energy saving opportunities in public agencies. Finally, a representative of CALeep discussed the California Local Energy Efficiency Program as well as the workbook and available tools.

EMV staff attended this conference and provided feedback to the CALeep team. In addition, CALeep provided an evaluation form and approximately 25 percent of the participants provided feedback. The form asked participants to provide a rating between 1 and 5 (1=strongly disagree 3=agree 5=strongly agree). The table below lists the 5 questions and the average score. The results of the survey are presented below [Table 19](#).

Table 19
Average Evaluation Scores for Sacramento Workshop Held on September 8, 2005

Question	Average Score
1. The Workshop delivered on its stated objectives	3.6
2. I found the workshop's content valuable to my interests	3.6
3. The workshop's length of time was appropriate	3.7
4. I understand the objective of the CALeep Program	4.0
5. I believe the CALeep Workbook will provide value to my interests	3.8

The next marketing event was the CALeep Workshop for City of Colusa Stakeholders hosted by the Colusa Economic Development Corporation on November 22, 2005. The EMV team was not able to participate but Navigant did administer an evaluation survey. The results of the survey are presented below in Table 20.

Table 20
Average Evaluation Scores for City of Colusa Workshop Held on November 22, 2005

Question	Average Score
1. The Workshop delivered on its stated objectives	3.6
2. I found the workshop's content valuable to my interests	3.6
3. The workshop's length of time was appropriate	3.8
4. I understand the objective of the CALeep Program	3.6
5. I believe the CALeep Workbook will provide value to my interests	2.9

On January 17th, 2006, CALeep hosted a three hour workshop to learn about and discuss what the state, local governments, utilities, and other stakeholders are doing to reach the statewide greenhouse gas emission reduction targets. The CALeep workbook and other tools were marketed to the audience of approximately 20 people. The Assistant Secretary for Climate Change Activities at Cal/EPA presented on the State's plans. The Director of Strategic Planning, ICLEI, discussed local government efforts. The Director of the Climate Protection Campaign, discussed efforts in Sonoma County and the associated CALeep pilot. The CALeep staff distributed an evaluation survey. Approximately 50% of the workshop attendees completed a survey. The average scores are presented below in Table 21.

Table 21
Average Evaluation Scores for Sacramento Workshop Held on September 8, 2005

Question	Average Score
1. The Workshop delivered on its stated objectives	4.2
2. I found the workshop's content valuable to my interests	4.8
3. The workshop's length of time was appropriate	4.2
4. I understand the objective of the CALeep Program	4.2
5. I believe the CALeep Workbook will provide value to my interests	3.9

CALeep Web casts

In addition to these outreach activities, CALeep hosted two free Web casts in late fall of 2005 to discuss effective methods for accelerating adoption and overcoming barriers in efforts to successfully manage community energy efficiency initiatives. Many local government representatives participated in these informative sessions.

CALeep also had a separate set of Web casts in January and February 2006. These Web casts, hosted by CALeep, were focused on discussing the California Water/Energy Nexus. The Web casts reviewed the findings and recommendations of the California Energy Commission's 2005 Integrated Energy Policy Report (IEPR), and how one of the CALeep pilot projects met the 2005 IEPR goals and objectives. The IEPR computation of upstream and downstream energy benefits attributable to water savings was also presented and discussed.

The Web cast consisted of three presentations and a question and answer period. The three presentations were a discussion of the CALeep Pilot Projects – Workbook and Tools which focused on the Water-Energy community engagement channel, a presentation on California's Water-Energy relationship specifically discussing water and energy planning efforts in the Inland Empire Utilities Agency, and a CEC presentation discussing current efforts to understand California's Water-Energy relationship at a statewide level.

5.5 Use of CALeep Materials

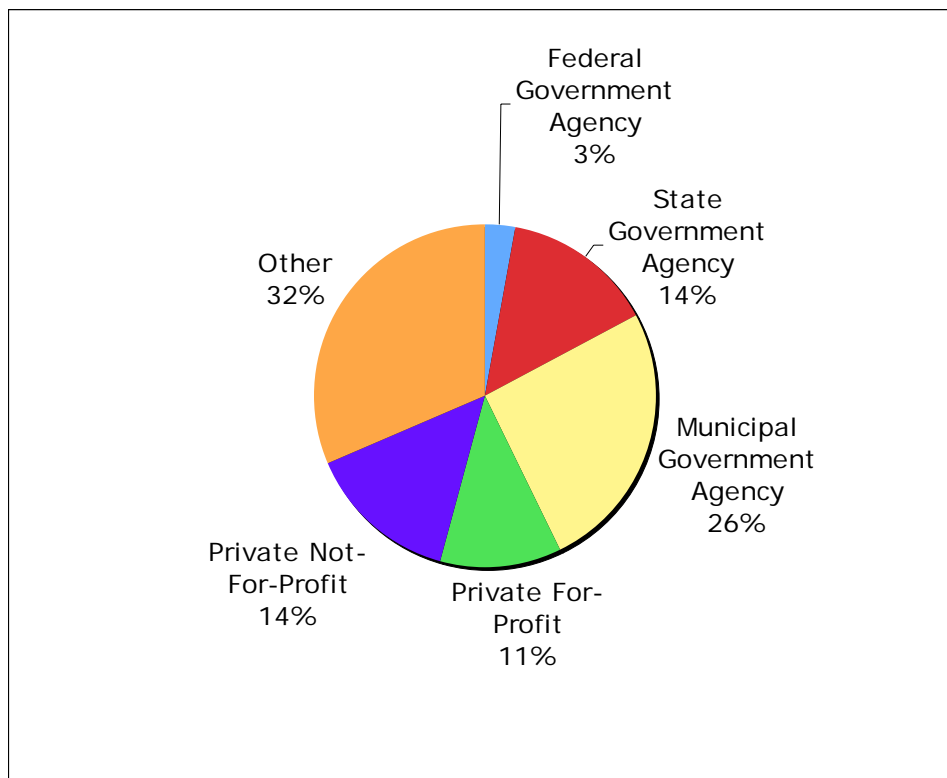
The CALeep workbook was intended as the primary deliverable of the CALeep Program. Later, additional resources were added to complement the information provided in the workbook. Accordingly, evaluating the effectiveness of the Program requires assessing the effectiveness of the workbook as well as the other CALeep materials. To augment our general review of the materials, we conducted a survey of participants who had opportunity to review and/or use any of the CALeep materials. The intent was to determine the degree to which the materials were used and the degree to which users found the materials to be useful. In order to assess the impact of the materials, we also asked whether users had shared the materials with anyone inside or outside of their organization. The results of the survey are discussed below, with the detailed results given in Appendix F.

As explained in Section 3.2.3.2, there were a total of 431 valid participants, who were administered the survey. Of these, 160 clicked on the link to the survey, for a response rate of 37.1 percent. Of these 160, 36 (22.5 percent) had obtained or viewed at least some of the materials and were given the opportunity to complete the survey.

5.5.1 Profile of Survey Respondents

The survey respondents were members of several types of organizations including private, for-profit organizations, state government agencies, private not-for-profit organizations, and federal agencies. Figure 12 shows the distribution of the types of organizations represented in our survey.

Figure 12
Types of Organizations Represented



Most of the participants, 25.7 percent represented a municipal government agency. A little more than 14 percent were in both state government agencies and private non-profit organizations. Another 11.4 percent represented private for-profit organizations, while 2.9 percent represented Federal government agencies. Thirty-one percent of the respondents indicated that they represented some “other” type of organization. Most (five) of these, or 45.5 percent, worked for some type of public agency including public non-profit organizations and joint powers agencies. Three, or 27.3 percent, were either consultants or contractors, and two, or 18.2 percent, worked for an IOU or utility. One other respondent indicated that they worked for a non-profit organization.

We also asked respondents to categorize their organization by function. These results are depicted below in Figure 13. About 49 percent of respondents represent organizations that assist others with implementation of energy efficiency programs, while 8 percent work in implementing energy efficiency actions directly (i.e. installing energy efficient equipment, adopting energy efficient behaviors, or developing energy efficient policies). A little more than 43 percent represent organizations that both assist others and implement energy efficiency actions directly.

Figure 13
Function of Organization

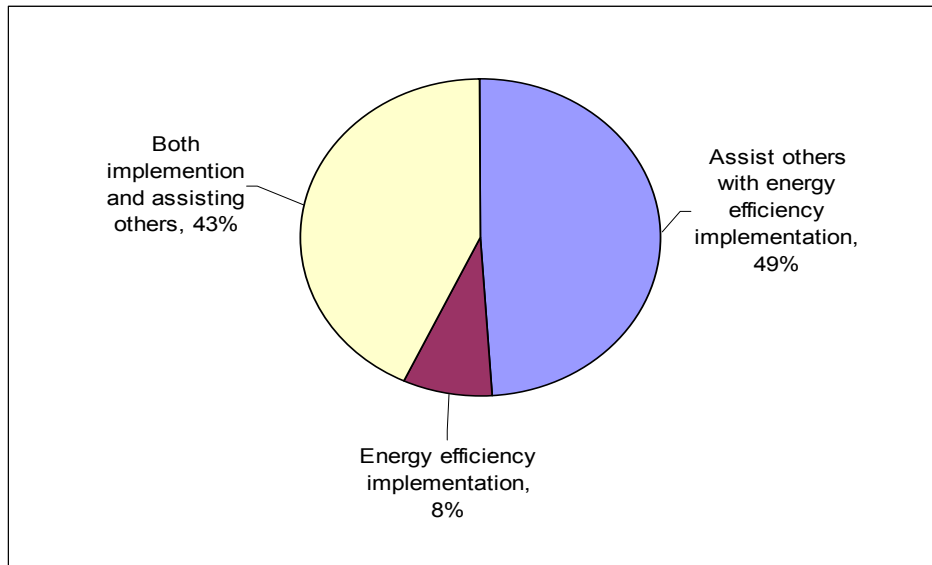
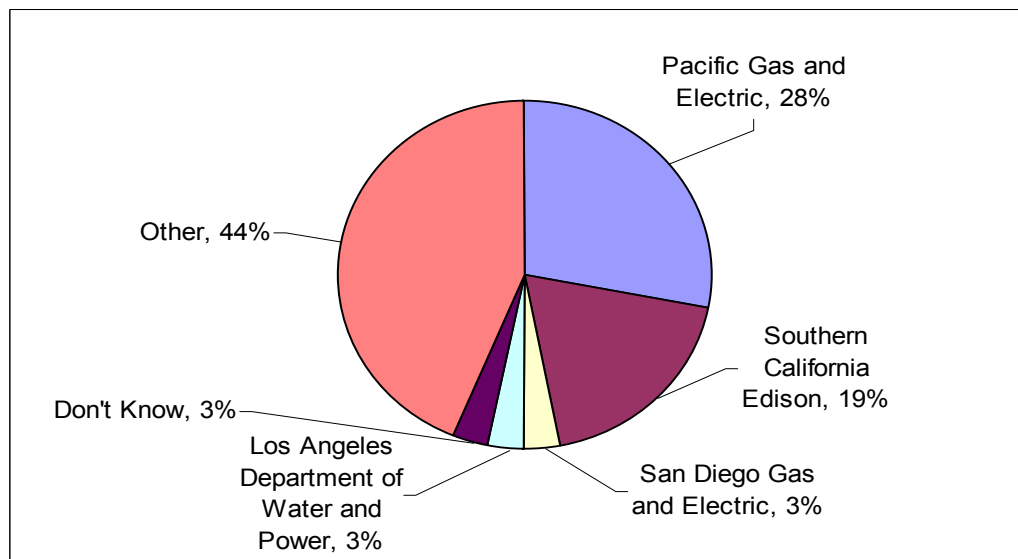


Figure 14 shows the survey respondents' utility service areas. A good proportion of the respondents' organizations, 27.8 percent, are located in the PG&E utility service area. Another 19.4 percent are located in the SCE service area, and 2.8 percent are located in the SDG&E service area and in the LADWP service area. Forty-four percent of the respondents indicated their organization is served by some "other" utility. Of these, more than half, or 56.3 percent were served by a municipal utility, the most common reported being SMUD. Another 31.3 percent worked for organizations that had a reach in more than one utility service area. The remaining respondents, or 12.5 percent did not specify their utility service area.

Figure 14
Utility Service Area



5.5.2 Use of the CALeep Materials

The primary task was to assess the use of the CALeep materials and, in particular, the CALeep workbook. First, respondents were asked to indicate which of the CALeep materials they either obtained or downloaded from the CALeep Web site. Table 22 shows these results.

Table 22
Type of CALeep Materials Reviewed

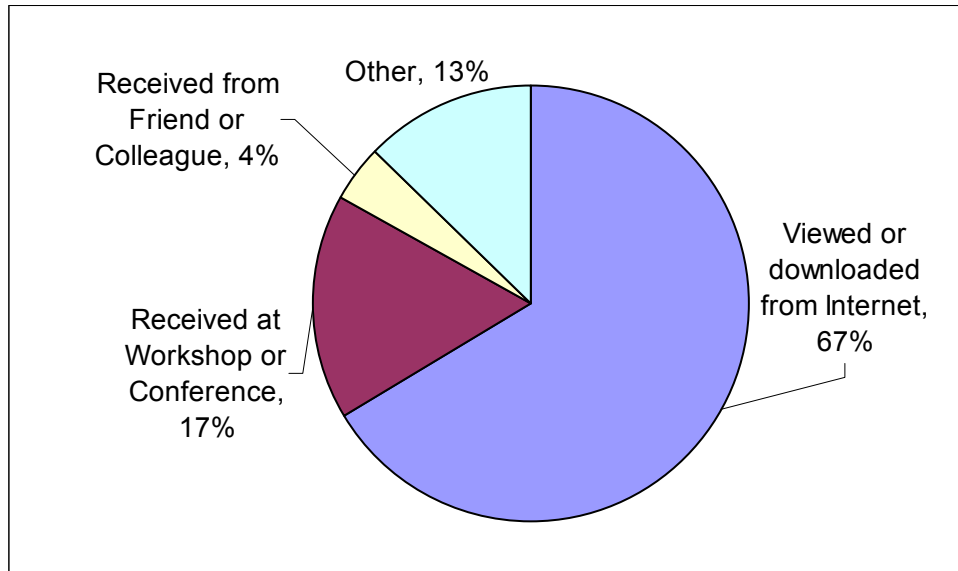
MATERIAL	N OBSERVATIONS	% OF RESPONDENTS
CALeep Workbook	24	66.7
Case Studies	14	38.9
Water and EE materials	19	52.8
Green Building Materials	7	19.4
Materials on Working with ESCO's	3	8.3
Materials on EE Policies	8	22.2
Additional EE Guides	3	8.3
Materials on Financing EE	5	13.9
Materials on EE Procurement	3	8.3
Examples of EE Strategic Plans	4	11.1
Sample Energy Assessments	4	11.1

*Multiple Responses Allowed

Of the 36 respondents who obtained or downloaded some of the CALeep materials, 24 individuals, or 66.7 percent, obtained or viewed the workbook. It seems that, far more respondents actually viewed the workbook than any other of the resources made available through CALeep. This is probably reasonable given the primary Program deliverable was the workbook, and the other resources were supplementary to the workbook. The materials on water and EE and the case studies were obtained or reviewed by the largest percentage of respondents other than the workbook, by 52.8 percent and 38.9 percent, respectively. The information on working with ESCOs, the additional EE guides, and the materials on EE procurement were reviewed by the least number of participants, each by 8.3 percent of the respondents.

We asked these respondents how they obtained the different CALeep materials, whether by downloading or viewing on the Internet, while at a workshop or conference, or from a friend or colleague. Figure 15 shows these results. Of the 24 people who indicated they had viewed or obtained the CALeep workbook, the majority, or 66.7 percent viewed or obtained the workbook online. Another 16.7 percent received the information at a workshop or conference, while only 4.2 percent received the information from a colleague. Nearly 13 percent of respondents indicated that they received the information some other way; however, these “other” methods were not specified.

**Figure 15
Means of Obtaining the Workbook**



For most of the other CALeep resources, respondents indicated that they downloaded or viewed the resource online. In a few cases, the materials were received at a workshop or conference. For the respondents who received or obtained the information on green building and financing EE as well as the sample EE assessments, the majority indicated they obtained the information at a workshop or conference. For those respondents who received or obtained the information on EE policies, an equal percentage of respondents indicated they obtained the material at a workshop or conference as downloaded or viewed the material online. For only two types of information, the case studies and the information on EE policies, some respondents indicated that they received the information from a friend or colleague.

5.5.3 Usefulness of the CALeep Materials

Using a 10-point scale, where a “1” indicated “Did Not Review At All” and a “10” indicated “A Thorough Review”, we asked respondents who had either downloaded or obtained the CALeep materials to rate the extent to which they reviewed the materials, including the workbook. The results are presented in Table 23 below.

**Table 23
Extent of Review of CALeep Materials**

NO .	QUESTION	MEAN RESPONSE	N OBSERVATIONS	STANDARD DEVIATION
3A	CALeep Workbook	5.3	24	2.6
3B	Case Studies	6.5	15	2.0
3C	Water and EE materials	6.3	20	2.7
3D	Green Building Materials	7.0	7	2.0
3E	Materials on working with	4.5	2	0.7

NO .	QUESTION	MEAN RESPONSE	N OBSERVATIONS	STANDARD DEVIATION
	ESCOs			
3F	Materials on EE Policies	7.3	10	1.8
3G	Additional EE Guides	4.5	4	1.3
3H	Materials on Financing EE	5.3	3	3.2
3I	Materials on EE Procurement	5.0	3	1.0
3J	Examples of EE Strategic Plans	5.0	4	1.4
3K	Sample Energy Assessments	4.8	4	2.5

The average rating of the degree to which the participants reviewed the CALeep workbook is 5.3, which suggests that those who downloaded or received the workbook reviewed it, but not too thoroughly. The ratings for the extent to which they reviewed the other materials are similar. The materials on EE policies and the Green Building materials were the most thoroughly reviewed with an average rating of 7.3 and 7.0, respectively, followed by the Case Studies and Water and EE materials with an average rating of 6.5 and 6.3, respectively. The materials on working with ESCOs and the additional EE guides were reviewed to the least degree, each with average ratings of 4.5.

Respondents were also asked to rate the extent to which they used the CALeep materials using a similar 10 point scale, where a “1” indicated “Did Not Use at All” and a “10” indicated “Used-In-Depth”. These results are presented in Table 24.

Table 24
Extent of Use of CALeep Materials

NO.	QUESTION	MEAN RESPONSE	N OBSERVATIONS	STANDARD DEVIATION
4A	CALeep Workbook	2.4	23	2.2
4B	Case Studies	3.7	15	2.7
4C	Water and EE materials	4.6	20	2.7
4D	Green Building Materials	5.7	7	3.6
4E	Materials on using ESCOs	3.0	3	3.5
4F	Materials on EE Policies	5.4	8	3.0
4G	Additional EE Guides	3.0	5	2.0
4H	Materials on Financing EE	2.3	6	2.3
4I	Materials on EE Procurement	3.0	4	2.8
4J	Examples of EE Strategic Plans	3.4	5	3.3
4K	Sample Energy Assessments	3.2	5	3.8
21	Usefulness of the CALeep Workbook	5.1	23	2.9

The extent of use of the CALeep workbook was fairly low with an average rating of 2.4. So, while participants reviewed the workbook to some degree, ultimately, they did not use the workbook. As for the other CALeep materials, the Green Building materials and materials on EE policies were used the most, but still not in depth, with an average rating of 5.7 and 5.4, respectively. The materials on financing EE were used the least, with an average rating of 2.3.

In general, the average rating for the extent to which participants reviewed any of the CALeep materials, including the workbook is 5.58, suggesting that participants reviewed the material, just not thoroughly. However, after reviewing the materials, participants did not use them to the same degree. The average rating of the extent of use of any of the CALeep materials, including the workbook is 3.61.

Lastly, respondents who had reviewed the workbook were asked to rate the extent to which they found the workbook useful. The mean rating for the usefulness of the workbook was 5.1, with a standard deviation of 2.9. Although respondents indicated that they found the workbook somewhat useful even though the extent to which they actually used the workbook was relatively low.

With regard to usefulness, respondents also were asked to describe the most useful aspect of the CALeep materials, or if they did not find the materials useful, to provide an explanation. Responses to this question varied widely. Some respondents indicated that the workbook provided a comprehensive source of information and had useful examples, and some indicated that the case studies were useful, well organized and interesting. Still others remarked that the materials were too broad and dense, not user-friendly, repetitive and impractical for use in city government.

5.5.4 Impact of the CALeep Materials

Also, we assessed the extent to which the CALeep materials influenced respondents' actions. In particular, respondents who indicated that their organization was, in some way, in a position to implement energy efficiency actions directly were asked whether they had taken or planned to take any energy efficiency actions since reviewing the CALeep materials, and whether reviewing the materials influenced these actions. Participants were also asked whether they had participated or planned to participate in any EE programs since reviewing the CALeep materials, and whether reviewing the materials influenced these actions. There were a total of 19 respondents who could implement energy efficiency measures directly and, thus, could answer these questions.

Of the 19 respondents who could answer this question, 14 respondents, or 73.7 percent, indicated that they had taken energy efficiency actions since reviewing the CALeep materials, with 6 of these 14 respondents, or 42.8 percent, indicating that the CALeep materials either assisted or accelerated their decision to take these actions. Respondents also were asked about their future plans regarding taking any energy efficiency actions. Twelve of the 19 respondents who could answer this question, or 63.2 percent, indicated they plan to take energy efficiency actions in the next 18 months, and half of these (six respondents) suggested that exposure to the CALeep materials assisted or accelerated their plans to take some energy efficiency actions.

When the 19 respondents who, in some way, could implement energy efficiency measures were asked whether they have participated in any utility, state, or federal energy efficiency programs since reviewing the CALeep materials, 13 respondents, or 68.4 percent, indicated that they had participated, but only 2 of these 13 respondents, or 15.38 percent, indicated that reviewing the CALeep materials assisted or accelerated their decisions. The 19 respondents also were asked whether they plan to participate in any utility, state, or federal energy efficiency programs within the next 18 months, and 11 respondents, or 57.9 percent, indicated that they do plan to participate. But, of these 11, only 3, or 27.3 percent, indicated that reviewing the CALeep materials assisted or accelerated their plans to participate in an EE program.

5.5.5 Promoting Energy Efficiency

The CALeep workbook is designed not only to enable energy efficiency actions on the part of the user, but also on the part of the user's constituents or clients. Therefore, we asked those respondents whose organizations primarily or, in some way, assisted others with implementing energy efficiency whether they thought the CALeep materials have helped or would help them assist others in implementing energy efficiency actions. There were 34 respondents who met this criterion. Of the 34 respondents who could answer this question, 21 respondents, or 61.8 percent, indicated that the CALeep materials would help them in this regard.

Also, we asked all respondents who had obtained or viewed the workbook whether they had shared the workbook with others inside or outside of their organization. Of those who obtained and reviewed the workbook, 12 respondents, or 50 percent, indicated that they had shared it with others either inside or outside of their organization. Most respondents indicated that they shared the workbook with relatively few colleagues, whether inside or outside of the organization. In fact, the average number of colleagues (inside or outside the workplace) with whom respondents shared the workbook was approximately three.

Further, respondents were asked whether they could promote energy efficiency within their organization by relying only on the workbook, along with other internal resources, or whether one must hire outside experts or rely on other information. With regard to promoting energy efficiency when relying only on the workbook and internal sources, 3 of the 26 respondents who answered this question, or 11.5 percent, indicated that this could be done. Most, however, indicated that one would need to either hire outside experts or rely on other information. This is not surprising given the complexity involved in understanding, promoting, and funding energy efficiency initiatives. Specifically, 11 of the 26 respondents, or 42.3 percent, suggested one had to hire outside experts, and another 12, or 46.2 percent, indicated that one must rely on other information besides the workbook.

When asked to explain their answers, respondents again expressed a wide variety of opinions. Several respondents mentioned the constantly changing nature of the field, and expressed the need for outside experts and sources of information to keep them informed. Others noted the value of authority, status, experience, and fresh perspective that outside experts bring.

5.5.6 Suggestions for Improvement

We also aimed to gather feedback from participants on how to make the CALeep workbook more useful. Participants had a wide variety of recommendations including that the workbook be simplified, and condensed into more digestible components, and possibly incorporated into a class or workshop to make it less intimidating and more accessible. Respondents appreciated the information contained in the workbook, and some suggested that more California and world examples be included, and also suggested that more quantitative industry studies and surveys would be useful. One respondent suggested that other mediums may be more effective than a workbook for propagating energy efficiency, and recommended that efforts be guided by more research into innovation diffusion theory.

5.6 Achievement of Primary CALeep Goals

The final issue that must be addressed is the extent to which CALeep achieved its four primary goals that are repeated below for convenience:

1. Stimulate increased community oriented energy efficiency activity.
2. Demonstrate that the energy efficiency decision-making process template designed through this program can be replicated in different jurisdictions.
3. Establish projects with three local governments *each* in the service territories of Pacific Gas & Electric (PG&E) and Southern California Edison (SCE).
4. Demonstrate that the pilot projects are capable of delivering cost-effective energy savings.

Our assessment is based on the preponderance of evidence presented in Sections 4 and 5.

With respect to the first objective, clearly a combination of CALeep grants and expert assistance stimulated increased community-oriented energy efficiency or set up a framework for doing so in the longer-run. Below, we list relevant CALeep outputs and the associated pilot project.

- energy audits with recommendations (SBCCOG Project),
- the Clean Energy Roadmap (San Joaquin Valley Project),
- Energy Efficiency Best Practices Gap Assessment and Exterior Lighting Energy Retrofit Recommendations (IEUA Project)
- the Green Building and Energy Efficiency CALeep “Best Practices” Pilot Project (VCREA Project), and
- the Non-Energy Benefits and Sustainability Estimation Model (City of Oakland Project).

Regarding the second objective, while a workbook was not prepared in advance and tested in each of the six pilot projects (the original plan), CALeep did develop a Workbook (as well as other materials) based on the experience in these projects. Whether the Workbook will allow the transfer of knowledge to other jurisdictions is unclear. This conclusion is based on the results of the Internet survey of members of the target audience. This survey suggested at least in the relative short-run that a significant number of potential users have not obtained or viewed the Workbook, read the Workbook, used the Workbook, or plan to use the Workbook. Moreover, those who have used it and have implemented or plan to

implement some energy efficient measures and/or practices, give little credit to the Workbook. Perhaps if members have more time to read and use the workbook, more energy savings can eventually be indirectly attributed to the Workbook.

The third objective was clearly met with the completion of 6 pilot projects, three in the SCE service territory and three in the PG&E service territory.

Finally, the fourth objective was met since one project actually delivered actual energy savings (The Sonoma County Project) and the other projects demonstrated the “*capability*” of delivering cost-effective energy savings by producing such things as energy audits with recommendations (SBCCOG Project), a Clean Energy Roadmap (San Joaquin Valley Project), Energy Efficiency Best Practices Gap Assessment and IEUA Exterior Lighting Energy Retrofit Recommendations (IEUA Project), the Green Building and Energy Efficiency CALeap “Best Practices” Pilot Project (VCREA Project), and a Non-Energy Benefits and Sustainability Estimation Model (City of Oakland Project).

6 Conclusions and Recommendations

6.1 Conclusions

The conclusions and recommendations at the *program* level are organized around the logic model in Figure 2 and Figure 3. In Table 25, each of the 32 links is assessed in terms of whether there is weak, moderate, or strong support for its effectiveness, based on the preponderance of both the quantitative and qualitative evidence. When examining this table, recall that this model operates at the program level but also at the project-level in that it includes links that are associated with one or more of the pilot projects. Rows that are shaded refer to program-level links while those that are un-shaded refer to project-level links. It must be emphasized that, for a variety of reasons, only some of the six projects will have, at their conclusion, engaged in all the activities depicted in Figure 3. Those project-level links that describe only some of the projects have an asterisk (*) next to the number of the link. For example, some projects might not have actually installed energy efficient measures that produce energy and demand impacts. Some projects, such as the San Joaquin Valley Project, have put in place an important framework, plan or policy (e.g., the *Clean Energy Roadmap*) that is expected *eventually* to lead to energy and demand impacts as well as a number of non-energy benefits. Other projects such as the Sonoma County Project have installed energy efficient measures (e.g., efficiency refrigerators in low-income households) that have immediate measurable energy and demand impacts.

Table 25
Degree of Confirmation for Each Link in Logic Model

Links	Description	Degree of Agreement		
		Weak	Moderate	Strong
1, 2, 3, 4, 5	Adequate resources are made available		X	
6	The Summit will identify the universe of programs, policies and barriers to participation.			X
7	The Summit will result in the clarification of a basic decision-making process structure.			X
8, 9	The identification of programs, policies and barriers as well as a decision-making structure will facilitate a workshop with a smaller group of stakeholders.			X
10	Successful screening workshop will identify best ways to develop EE decision-making workbook, pilot community types and preliminary list of pilot candidates.			X
11	The outputs of the successful screening workshop facilitate the selection of pilot projects		X	
12	Once pilots selected, process tested, gaps identified, and appropriate strategies are developed.		X	
13	Once gaps and strategies are identified, energy needs are reviewed and possible programs and policies identified.			X

Links	Description	Degree of Agreement		
		Weak	Moderate	Strong
14	Once needs and possible programs and policies identified, effective plans are developed for programs and policies, reasonable estimates of savings are produced, and resources are identified.		X	
15*	Once planning is completed, participation in energy efficiency programs increases.		X	
16*	Once planning is completed, effective energy efficiency policies established.	X		
17*	Once planning is completed, energy efficient equipment is installed.			X
18*	Installation of energy efficient measures leads to a reduction in energy and demand in government/agency buildings and the hard-to-reach population.			X
19*	Energy efficient frameworks & policies lead to a reduction in energy and demand in government buildings and the hard-to-reach population.	X		
20*	Increased participation in energy efficiency programs leads to a reduction in energy and demand in government buildings and the hard-to-reach population.		X	
21, 23, 27	Unsuccessful candidate projects terminated and replaced			X
22, 24, 25, 26, 28	Lessons are effectively incorporated into Workbook		X	
29	Once workbook is completed, a credible marketing outreach effort is conducted.		X	
30	Marketing outreach cause members of target audience to obtain/view CALeep materials.		X	
31	Those who read and use the Workbook and related materials will participate in energy efficiency programs.	X		
32	Reading and using the Workbook will lead to increased participation in energy efficiency programs and to energy and demand impacts for government facilities and constituents, especially the HTR population.	X		

* Not all pilot projects contributed

From this analysis, there also emerged a number of overarching conclusions. First, it is clear that the CALeep staff underestimated both the complexity, time and the cost of conducting the pilot projects³¹. One CALeep staff member suggested that the original

³¹ A greater familiarity with current research on organizational development in the public sector (Carnevale, 2003) would have been useful in developing project-specific strategies for achieving project objectives.

scope of CALeep was well beyond the budgeted resources. In addition, the budgeted resources were strained due to staff changes, unanticipated problems such as the overlap with the LGEP Program, bureaucratic delays, organizational barriers, and a failure to fully appreciate the complexities of city governments and organizations and baseline conditions. These changes combined to broaden the scope and reduce the amount of time available for implementation in some projects, such as the VCREA Pilot Project, and, therefore, the activities used more resources than originally planned. However, it must be noted that the CALeep staff remained flexible in attempting to address a large number of such challenges as they arose. That is, they made a good faith effort to take on these complex projects and extract useful lessons that could be incorporated into the Workbook and other materials.

It seems to the Evaluation Team that the Workbook and other materials assembled and produced by CALeep represent an attempt to provide the target audience with a set of best practices for those wishing to serve the energy services needs of local governments and their constituents. While a best practices study had been recently developed by Quantum Consulting, Inc. (2004) and includes the 2002-2003 Business Energy Services team Program implemented by KEMA-XENERGY in the City of Oakland, a set of best practices does not appear to exist that is based on a larger number of cities. The CALeep Program represented the first effort to at least partially address this gap by conducting the Summit to quickly identify barriers as well as best practices, conducting projects that attempted to refine through experience the findings of the Summit, and transferring these lessons into the workbook.

Finally, for the most part, the four primary goals of the CALeep Program were achieved.

6.2 Recommendations

One could imagine the CALeep program continuing to expand and refine the workbook using additional pilot projects covering a larger number and types of projects, making the workbook potentially more useful to a larger audience. However, is there is a continuing need for CALeep? First, the fundamental motivation of the CALeep was that local governments were under-represented among the participants in utility-sponsored, energy efficiency programs. The CALeep staff had a general sense that local governments were under-represented, a perception that was generally supported by the experience of those who attended the Summit. However, the utilities claimed that their programs were always *over-subscribed* in the local government area. A review of the utility program-tracking databases should be carried out to obtain a more accurate picture of the historical rates of participation by local governments in energy efficiency programs.

The Evaluation team has concluded that another CALeep-like effort is not recommended. CALeep demonstrated the unique conditions that can shape decisions in local governments and developed a framework to organize future efforts. That preliminary effort was beneficial, but, at this point, a more traditional best practice study will be more useful. The results of the Internet survey of the target audience and the additional interest that has been expressed by others both inside and outside of California suggest a need for such a local government best practices document. Such a study can now be done based on

completed evaluations of local government programs, including CALeep, and the future evaluations of the 52 local government partnership programs that have been funded for the period 2006 through 2008 by PG&E, SCE, SoCal Gas, and SDG&E. Such a best practices study could be posted on the CALMAC.ORG website and made available to local governments through a variety of other avenues such as local government workshops, the Flex Your Power Web site (www.fypower.org)³², and the California Chapter of the American Planning Association (www.calapa.org).

These partnerships offer a range of energy efficiency options for commercial, small business, and residential customers, as well as municipal facilities. The utilities work with local contractors, builders, building departments, and others to install energy-efficient equipment to reduce energy use. Locally based energy efficiency seminars may also be offered, to minimize travel time and expand the audience for energy efficiency education.

These partnerships also focus on local energy policies that promote energy efficiency practices, codes, and standards. They also can offer additional technical assistance for those cities and counties that are most interested in promoting energy efficiency. This approach facilitates:

- Adoption of new energy practices by cities and counties
- Support for environmentally friendly ("green") buildings
- Local energy efficiency codes and standards

The belief is that partnerships can achieve more than either cities, counties, agencies or the utilities can do alone. Since these partnerships should be very interested in the CALeep materials, particularly the creative use of engagement channels and the link of energy savings to reducing the community's operating costs, contributing to job growth, enhancing regional economic development and competitiveness, and improving environmental management, we recommend that the key members of these partnerships be informed immediately about the CALeep materials.

Such a best practices study would be able to cover a wider range of program designs and strategies and be applicable to a much larger audience.

We have one remaining recommendation. If the CPUC believes that funds for project grants need to be reviewed and approved by the Energy Division for any future programs, then the ED should take steps to streamline the approval process. While we understand that the ED staff were overcommitted, such delays meant the original schedule for completing some of the projects was seriously shortened making it difficult to carry out all planned activities.

³² CALeep staff reported that Flex Your Power is considering including the CALeep Workbook in its "Government Solutions" page on its website.

Appendix A

Senior CALeep Staff Interview

California Local Energy Efficiency Program Evaluation Phase 1 Senior Navigant Staff Interview Guide

Date: _____

Start Time: _____

Interviewer: _____

Interviewee: _____

Introduction

Ridge & Associates and Brown, Vence & Associates have been contracted to provide Evaluation Monitoring and Verification (EMV) for the CPUC for the California Local Energy Efficiency Program. The overall objective of the EMV process is to help improve the overall delivery and effectiveness of the CALeep Program. The goal of this meeting is to discuss the motivation and design of the Program, and the selection of pilot projects and marketing

First, please describe your role in this Program.

We will touch on a number of topics including:

- program motivation, design and target audience
- baseline characteristics (major program assumptions)
- The selection of pilot programs
- the workbook process and development

The focus of this interview is on the larger Program issues of planning and implementation and the distillation of all the information from the six projects into the final decision-making template or workbook.

PROGRAM MOTIVATION AND DESIGN

1. Please describe the CALeep Program and the overall goals/objectives of the program.

DO THE STATED GOALS MATCH THE FOLLOWING?

IF THE GOALS ARE DIFFERENT ASK HOW/WHY HAVE THEY CHANGED.

IF YES GO TO Q2, IF NOT ASK INTERVIEWEE WHETHER THEY AGREE WITH THESE GOALS.

There are four primary goals of the CALeep:

1. *Stimulate increased community oriented energy efficiency activity.*
2. *Demonstrate that the energy efficiency decision-making process template designed through this program can be replicated in different jurisdictions.*
3. *Establish projects with three local governments each in the service territories of Pacific Gas & Electric (PG&E) and Southern California Edison (SCE).*
4. *Demonstrate that the pilot projects are capable of delivering cost-effective energy savings.*

2. Please describe the overall CALeep program assumptions

The following assumptions have been identified by the EMV team. DO THEY MATCH? IF SO GO TO Q4. IF NOT ASK INTERVIEWEE WHETHER THEY AGREE WITH ASSUMPTIONS

There are five main assumptions that underlie the CALeep Program:

1. *The five step process is the correct one around which to build the framework for the workbook.*
2. *The barriers identified in the two energy summits are the correct ones.*
3. *If the barriers can be overcome, then there will be an increase in the uptake in energy efficiency programs.*
4. *By engaging in a variety of energy efficiency activities within each project, important lessons can be learned about both effective and ineffective strategies in overcoming these barriers.*
5. *The barriers can be more effectively overcome if the best practices gleaned from the literature and the summits are translated into the workbook in terms and examples that can be easily understood by practitioners, thus increasing the likelihood that members of the target audience use the workbook and become more self-reliant.*

3. Please describe those whom you consider to be the target audience(s) of this Program?
4. Do the pilot projects represent the full range of the potential target audience?
5. The Scoping Workshop identified barriers to energy efficiency. Were all of those barriers evident in the pilot communities? If not, which ones were evident.
6. Has the program encountered any unanticipated barriers? If so, what are these, and were additional lessons learned about overcoming these barriers?

PILOT PROGRAM SELECTION AND COORDINATION

READ: In CALeep literature, it states: “With the assistance of key stakeholders, NCI will develop a process for screening available programs and policies to select those that appear to offer the “best fit” for the needs and characteristics of any particular local jurisdiction.”

7. Please describe the pilot project selection process. How, why were projects chosen or not chosen?
8. Were the chosen pilot projects considered “best practice” models for the CALeep 5-step process?
9. Please explain why each of the pilot projects was considered a “best fit” for its specific jurisdiction/local area.
10. How did the CALeep program coordinate with other energy efficiency programs?
11. What changes were made in the pilot programs? Did the overall CALeep program and/or workbook change due to changes in the implementation of the pilot projects? ?
12. Why were these changes made?
13. What are the major remaining tasks and deliverables, if any, for the remainder of the Program?
14. Given your experience thus far, was the five step path the right organizational tool?

WORKBOOK PROCESS AND DEVELOPMENT

15. Please describe the development of the early workbook template.
16. Please describe any additional sources you have used to inform the writing of the workbook. For example literature that discusses how to write a “successful” workbook.
17. Please describe how information/lessons learned in the pilot projects were incorporated into the workbook.
18. How has the workbook process deviated from the initial plan? Why?
19. What are the unanticipated barriers/problems/challenges associated with writing this workbook?
20. What would you do differently if you had a chance?

Thanks for your time and helpful insights!

End Time: _____

Appendix B
Participant Questionnaire

California Local Energy Efficiency Program Evaluation Participant End-of-Project Interview Guide

Date:
Start Time:
Interviewer:
Project Name:
Date of CPUC Approval: _____
Interviewee:

Introduction

Ridge & Associates and Brown, Vence & Associates are conducting an evaluation of the California Local Energy Efficiency Program (hereafter referred to as the Program). The overall objective of this study is to help improve the overall delivery and effectiveness of this Program. The goal of this (conference call/meeting) is to discuss the motivation and design of the (insert name of Project) (hereafter referred to as the Project) as well as any issues regarding its implementation.

We will touch on a number of topics including:

- Changes in baseline conditions
- Project implementation
- Project objectives
- Coordination with other energy efficiency programs
- Relationships with existing agencies and organizations
- Project resources
- Participation in energy efficiency programs
- CALeep Materials

To ensure confidentiality we will not identify any of your comments individually. Any references ascribing interview findings will be done at the aggregate level.

1. It is our understanding that you are [insert description of function], is that correct?

___ Yes (GO TO Q. 4)
___ No (Continue)

2. Is there someone who does [insert description of function]?

___ Yes (Continue)
___ No (Thank and terminate)

3. If yes, ask to speak to that person, but the person is not there, get the person's name, title, and phone number:

What are your responsibilities within this organization?

Change in Baseline Conditions

Please tell me what, if anything, has *changed* as a result of your participation in the CALeep Program. In your answer consider, as appropriate, the following:

- The number of FTEs in your [local government/agency/organization] having some sort of responsibility for reducing the energy use of your (members/member organizations/constituents)?
- The extent to which it is difficult for your [local government/agency/organization] to obtain information on energy efficiency.
- Where your [local government/agency/organization] obtains information on energy conservation and/or energy efficiency possibilities.
- What you receive from the organizations.
- The ability of your [local government/agency/organization] to identify energy efficiency opportunities.
- The knowledge of your staff regarding energy efficiency measures/projects.
- How your [local government/agency/organization] provides information to your (members/member organizations/constituents) regarding the benefits of energy efficiency
- How often your [local government/agency/organization] provides this information to your (members/member organizations/constituents) regarding the benefits of energy efficiency.
- Your [local government's/agency's/organization's] overall awareness of conservation and energy efficiency.
- The priority your [local government/agency/organization] gives to reducing their use of energy such as electricity, natural gas, fuel oil, propane, etc.
- The overall level of interest in energy efficiency among cities/businesses/residents within the community(s) served by your [local government/agency/organization].
- Your [local government/agency/organization] promotion of Public Goods Charge funded programs to cities, organizations, or residents in your jurisdiction.
- How are these programs promoted (i.e. how did the word get out?)
- How aggressively your [local government's/agency's/organization's] promotes Public Goods Charge funded programs to cities, organizations or residents in your jurisdiction.
- Any written policies that specifically addresses energy efficiency.

IF POLICIES EXIST AS A RESULT OF CALeep PROGRAM, ASK: May we obtain that policy(ies)?

- Yes
- No
- Don't Know

Project Objectives

5. On a scale of 0 to 7, with a “0” meaning “Not At All Achieved” and a “7” meaning “Fully Achieved”, please describe the extent to which you believe that the following objectives were achieved: (COPY AND PASTE IN OBJECTIVES)

FOR EACH OBJECTIVE RECEIVING LESS THAN A “5”, ASK:

6. What, in your opinion, were the greatest barriers to achieving this objective?
7. What features could the program incorporate that might encourage greater achievement of this objective?

Underlying Assumptions

8. A number of assumptions about this project have been developed. On a scale of 0 to 7, with a “0” meaning “Has Not Been Confirmed” and a “7” meaning “Has Been Confirmed”, please describe the extent to which you believe that each of the following assumptions has been confirmed through your experience with this CALeep project:

(COPY AND PASTE IN ASSUMPTIONS)

Project Implementation

9. If known, briefly describe the original design, implementation plan, and schedule for this Project.
10. Although the CPUC approved the Project on (INSERT CPUC APPROVAL DATE), when did the Program begin working in a substantive way with key stakeholders such as yourself, in this Project?
11. Were there delays in obtaining CPUC approval for your Project?
 Yes (Please explain)
 No [GO TO Q. 15]
12. How long was the delay?

13. Do you think the delay jeopardized the ability to achieve any of the Project's objectives?

- Yes
 No (GO TO Q.15)

14. Specifically, which objectives?

15. Over the course of the CALeep Program, have there been any important changes in the original design and/or implementation of the (Pilot Name) pilot project?

- Yes
 No (GO TO Q. 19)

16. What changes were made to the design and delivery of the Project?

17. What were the reasons for these changes?

18. Were these changes successful? Why/not?

19. What areas do you feel could have been improved?

20. Overall, what is your assessment of the work done by CALeep in your [local government/agency/organization]?

21. Could this project have been done without the assistance of the CALeep Program?

- Yes (GO TO Q. 23)
 No
 Don't Know (GO TO Q. 23)

22. Discuss how the CALeep Program made this project possible and explain what was the value added by the CALeep Program.

Coordination With Other Programs

23. Do you know of other energy efficiency programs (not previously identified) operating in the same area as CALeep?

Yes

No (GO TO Q 33).

24. Which programs?

25. Which of these programs do you consider to be offering the same services to the same population as CALeep?

26. How are the other programs different than CALeep with respect their objectives, implementation, and target audiences?

27. Did your (local government/agency/organization) participate in any of these other programs?

Yes

No (GO TO Q 29).

28. Which ones?

29. (local government/agency/organization) get from participating in these other programs?

30. Did any conflicts arise between the CALeep Project and this (these) other program(s)?

Yes

No (GO TO Q 32).

31. How were these conflicts resolved?

32. Were they resolved in a satisfactory manner?

Relationship With Existing Agencies/Organizations

33. Relative to the CALeep project, has your [local government/agency/organization] worked with any existing agencies and organizations in pursuing energy efficiency?

Yes

No (GO TO Q 43).

34. What do you think are the strengths and weaknesses of these different agencies and organizations?

35. What are the responsibilities of these agencies and organizations?

36. Were there any formal or informal agreements between your [local government/agency/organization] and these agencies and organizations?

Yes

No (GO TO Q.37)

IF INFORMAL: Can you briefly describe the nature of these agreements?

OR

IF FORMAL: Can we obtain a copy of these agreements?

37. How were these agencies and organizations used to achieve your energy efficiency objectives?

38. Did you feel that the use of these agencies and organizations was effective?

Yes (GO TO Q. 41)

No

39. Specifically, what did these agencies and organizations not do that they were supposed to do?

40. Why didn't these agencies and organizations perform as expected?

41. Not counting the existing agencies and organizations, mentioned earlier, are there any other important stakeholders with whom your [local government/agency/organization] worked?

Yes

No (GO TO Q 43)

42. What were their roles and responsibilities?

Project Resources

43. Were the resources available for this CALeep Project sufficient?

Yes (GO TO Q. 46)

No (Please explain)

44. Should resources have been reallocated to other activities?

Yes

No (GO TO Q. 46)

45. Where do you think these program resources should have been placed?

46. Was the time available for this Project sufficient? (why/why not?)

Yes

No (Please explain)

Participation in Energy Efficiency Programs

47. As a result of the CALeep Project intervention, has your (local government/agency/organization) participated in any utility, state, or federal energy efficiency programs that you otherwise would not have participated in?

Yes

No (GO TO Q. 49)

48. Specifically, in which utility, state, or federal energy efficiency programs has your [local government/agency/organization] chosen to participate?

49. As a result of the CALeep Project intervention, is your [local government/agency/organization] **planning** to participate in any utility, state, or federal energy efficiency programs that it otherwise was not planning to participate in?

Yes

No (GO TO Q.51)

50. Specifically, in which utility, state, or federal energy efficiency programs is your [local government/agency/organization] **planning** to participate?

51. in any utility, state, or federal energy efficiency programs that they otherwise would not have participated in?

Yes

No (GO TO Q. 53)

52. Specifically, in which utility, state, or federal energy efficiency programs have your [members/constituents] chosen to participate?

53. Do you have a copy of the Local Energy Efficiency Program Workbook that was produced by the CALeep Program?

Yes

No (GO TO Q. 63)

Don't Know (GO TO Q. 63)

54. How much of the workbook have you had a chance to review?

55. Specifically, which sections of the workbook have you reviewed?

56. Have you had a chance to actually use the workbook?

Yes

No (Skip to Q. 58)

57. How have you used the workbook?

58. Do you plan to use the workbook at sometime over the next 12 months?

Yes (Please explain how and then skip to Q. 60)

No (Continue)

59. IF NOT: Ask: "Why not?"

60. Have you shared the workbook with colleagues either inside or outside your (local government/agency/organization)?

Yes

No (GO TO 62)

61. How many colleagues?

Inside

Outside

62. In your opinion, can one promote energy efficiency within your [local government/agency/organization] by relying only on internal resources along with the workbook or must one *also* hire outside experts? Please explain your answer.

63. Have you downloaded any other materials from the CALeep Web site?

Yes

No (Skip to Q. 67)

Don't Know (Skip to Q. 67)

64. Which materials?

FOR EACH MATERIAL LISTED, ASK THE FOLLOWING QUESTIONS:

65. On a scale of 1 to 10, with a "1" indicating "Did Not Review At All" and a "10" indicating a "Thorough Review", to what extent did you review these materials?

Response:

Don't Know

66. On a scale of 1 to 10, with a "1" indicating "Not At All Useful" and a "10" indicating a "Extremely Useful", to what extent did you find these materials useful?

Response:

Don't Know

67. In addition to the benefits that we've already described of participating in the CALeep Program, are there any other benefits?

Yes

No (GO TO END)

Don't Know (GO TO END)

68. Please describe.

END: Thanks for your time and helpful insights!

End Time: _____

Appendix C

Phase I Project Manager Questionnaire

California Local Energy Efficiency Program Evaluation Phase 1 Project Manager Interview Guide

Date: _____
Start Time: _____
Interviewer: _____

Project Name: _____
Date of CPUC Approval: _____

Interviewee: _____

Introduction

Ridge & Associates and Brown, Vence & Associates are conducting an evaluation of the California Local Energy Efficiency Program (hereafter referred to as the Program). The overall objective of this study is to help improve the overall delivery and effectiveness of this Program. The goal of this (conference call/meeting) is to discuss the motivation and design of the (insert name of Project) (hereafter referred to as the Project) as well as any issues regarding its implementation.

First, please describe your role in this Project.

We will touch on a number of topics including:

- project motivation
- target audience, and
- baseline characteristics

The focus of this interview is on the Project with which you are involved. Larger Program issues of planning and implementation and distilling all the information from the six projects into the final decision-making template or workbook will be discussed in interviews with Navigant staff involved in these activities.

21. Please describe those whom you consider to be the target audience(s) of this Project? (e.g., city, county, region and sector such as residential, commercial, industrial, agricultural).
22. **READ:** In CALeep literature, it states: “With the assistance of key stakeholders, NCI will develop a process for screening available programs and policies to select those that appear to offer the “best fit” for the needs and characteristics of any particular local jurisdiction.”

The first question is concerned with the specific needs and baseline characteristics (i.e., conditions existing prior to CALeep intervention) of this target audience(s) that lead you to select this particular project? Please answer this question with respect to each of the key members of the target audience. Because I want to cover a number of important topics, I’ll just mention them each so that you can focus your comments. As you address each topic, please mention your source(s) of your information and how this Project addresses these issues.

NOTE TO INTERVIEWER: USING THE MATRIX ON THE FOLLOWING PAGE WRITE IN THE NAME OF EACH MEMBER OF THE TARGET AUDIENCE ACROSS THE TOP. DOWN THE LEFT SIDE, WE HAVE LISTED THE TOPICS THAT YOU SHOULD COVER. AS EACH TOPIC IS COVERED FOR EACH MEMBER OF THE TARGET AUDIENCE, PLACE A CHECK IN THE APPROPRIATE CELL TO REMIND YOURSELF THAT THE TOPIC HAS BEEN COVERED FOR THAT MEMBER OF THE TAREGET AUDIENCE.

NOTE: IF SPECIFIC DATA, REPORTS, AND OTHER MATERIALS MENTIONED, ASK IF WE CAN OBTAIN COPIES OF THESE MATERIALS

	Stakeholders						
Cities and Other Organizations							
Their level of awareness of conservation and energy efficiency							
Their overall level of interest in energy efficiency.							
The number of FTEs who have some sort of responsibility for managing energy use.							
The extent to which these employees are concerned with adopting energy efficient equipment.							
Their ability to identify energy efficient opportunities.							
Barriers to identifying energy efficiency opportunities.							
How advanced they are with respect to experience in assessing energy efficiency projects, knowledge about energy efficiency measures/projects, and confidence in assessing energy efficiency projects.							
The presence of policies regarding energy efficiency							
Barriers to the adoption of policies regarding energy efficiency							
Level of belief that such policies are a good way to effect change							
How they obtained information on energy efficient possibilities							
Where they obtained help for identifying energy efficiency opportunities/projects							
The kind of support did they obtained							
Their level of participation in utility, state, or federal energy efficiency programs (which programs?)							
Barriers to participation in utility, state, or federal energy efficiency programs							
How aggressively they promoted Public Good Charge funded programs							
Their awareness of conservation and energy efficiency within the community(s) served by the city or organization.							
Cities							
How often were the municipal facilities reviewed to assess a need for energy retrofits.							
Their ability to scope and financially assess energy efficiency opportunities to the point where they could present proposals for approval by the City Council/Mayor							
What limited their ability to obtain such approvals							
What could have increased their approval rate for proposals							
The extent to which they promoted Public Goods Charge funded programs to organizations or residents							

23. While the CPUC approved the Project on (INSERT CPUC APPROVAL DATE FROM ABOVE), when did you begin to work in a substantive way with key stakeholders in this Project?

24. Were there delays in obtaining CPUC approval for your Project?

Yes (Please explain: _____)
 No (GO TO Q 8)

25. How long was the delay?

26. Is this delay likely to jeopardize achieving any of the Project's objectives?

Yes
 No (GO TO Q.8)

27. Specifically, which objectives?

28. What are the major remaining tasks and deliverables, if any, for the remainder of the pilot project period?

Thanks for your time and helpful insights!

End Time: _____

Appendix D

Phase II Project Management Questionnaire

California Local Energy Efficiency Program Evaluation End-Of-Project Project Manager Interview Guide

Date: 4/7/06

Start Time: 9:00 AM

Interviewer: Richard Ridge

Project Name: San Joaquin Valley RJI

Date of CPUC Approval: _____

Interviewee: Tom Crooks

Introduction

Ridge & Associates and Brown, Vence & Associates are conducting an evaluation of the California Local Energy Efficiency Program (hereafter referred to as the Program). The overall objective of this study is to help improve the overall delivery and effectiveness of this Program. The goal of this (conference call/meeting) is to discuss the motivation and design of the (insert name of Project) (hereafter referred to as the Project) as well as any issues regarding its implementation.

We will touch on a number of topics including:

- Project objectives
- Project process, recent enhancements and prospective changes
- Project coordination with other efficiency programs
- Relationships with other stakeholders
- Project Process, recent enhancements, and prospective changes
- Energy Efficiency Program Uptake
- Lessons learned and incorporated or plan to be incorporated into the workbook

The focus of this interview is on the Project with which you are involved. Larger Program issues of planning and implementation and distilling all the information from the six projects into the final decision-making template or workbook will be discussed in interviews with Navigant staff involved in these activities.

To ensure confidentiality we will not identify any of your comments individually. Any references ascribing interview findings will be done at the organizational level.

Project Objectives

29. On a scale of 0 to 7, with a “0” meaning “Not At All Achieved” and a “7” meaning “Fully Achieved”, please describe the extent to which you believe that the following objectives were achieved:
(COPY AND PASTE IN OBJECTIVES)

FOR EACH OBJECTIVE RECEIVING LESS THAN A “5”, ASK:

30. What, in your opinion, were the greatest barriers to achieving this objective?
31. What features could the program have incorporated that might have encouraged greater achievement of this objective?

Underlying Assumptions

32. A number of assumptions about the program have been developed regarding this project. On a scale of 0 to 7, with a “0” meaning “Not At All Achieved” and a “7” meaning “Fully Achieved”, please describe the extent to which you believe that the following assumptions were achieved:
(COPY AND PASTE IN ASSUMPTIONS)

Program Process, Recent Enhancements and Prospective Changes

33. Briefly describe the original design, implementation plan, and schedule for this Project?
34. Were there any important changes in the original design and/or implementation of this Project?
 Yes
 No (GO TO Q. 11)

- 35. What changes were made to the design and delivery of the Project?
- 36. What were the reasons for these changes?
- 37. Were these changes successful? Why/not?
- 38. What areas do you feel could be (could have been?) improved?

Coordination with Other Efficiency Programs

- 39. Did you encounter other energy efficiency programs (not previously identified) operating in the same area as your Project?
 Yes
 No (GO TO Q 22).
- 40. Which programs?
- 41. Which of these programs do you consider to be offering the same services to the same population as your Project?
- 42. How were these other programs different than your Project with respect their objectives, implementation, and target audiences?
- 43. Did you coordinate your efforts with these other programs?
 Yes
 No (GO TO Q 19).
- 44. In what areas?
- 45. How did the coordination occur?
- 46. How often did it occur?
- 47. Did any conflicts arise between your Project and this (these) other program(s)?
 Yes
 No (GO TO Q 22).
- 48. How were these conflicts resolved?
- 49. Were they resolved in a satisfactory manner?

Relationship with Existing Agencies/Organizations

50. Has this Project worked with any existing agencies and organizations?

Yes

No (GO TO Q 31).

51. What are the strengths and weaknesses of these different agencies and organizations?

52. What were the responsibilities of these agencies and organizations?

53. Were there any formal or informal agreements between Navigant and these agencies and organizations?

Yes

No (GO TO Q.26)

54. **IF INFORMAL:** Can you briefly describe the nature of these agreements?

OR

IF FORMAL: Can we obtain a copy of these agreements?

55. How were these agencies and organizations used to achieve the objectives for this Project?

56. Did you feel that the use of these agencies and organizations was effective?

Yes (GO TO Q 30)

No

57. Specifically, what did these agencies and organizations not do that they were supposed to do?

58. Why didn't these agencies and organizations perform as expected?

Relationships with Other Stakeholders

59. Not counting the existing agencies and organizations, mentioned earlier, are there any other important stakeholders with whom your Project worked?

- Yes
 No (GO TO Q 33)

60. What were their roles and responsibilities?

Project Resources

61. Were the staff resources available for this Project sufficient?

- Yes (GO TO Q. 36)
 No (Please explain)

62. Should resources have been reallocated to other activities?

- Yes
 No (GO TO Q. 36)

63. Where do you think these program resources should have been placed?

64. Was the budget available for this Project sufficient? (why/why not?)

- Yes
 No (Please explain)

65. Was the time available for this Project sufficient? (why/why not?)

- Yes
 No (Please explain)

Recent Marketing Efforts, Improvements and Prospective Changes

66. *In marketing the Project, what messages were you trying to communicate to the target audience?*

67. What were the promotion and marketing activities conducted during the Project?

68. How effective were these marketing efforts? What do you feel worked well?
What didn't work?

Energy Efficiency Program Uptake

69. Since the Navigant intervention, did any members of the target audience participate in any utility, state, or federal energy efficiency programs?
 Yes
 No (GO TO Q. 44)
70. Which members of the target audience?
71. Specifically, in which utility, state, or federal energy efficiency programs did the Project participants choose to participate?
72. Since the Navigant intervention, are any members of the target audience *planning* to participate in any utility, state, or federal energy efficiency programs?
 Yes
 No (GO TO Q. 47)
73. Which members of the target audience?
74. Specifically, in which utility, state, or federal energy efficiency programs are the Project participants *planning* to participate?

Lessons Learned and Incorporated or Plan to Incorporate into Workbook

75. Navigant engaged in a number of activities designed to achieve the stated objectives for this project. It was planned that from these activities value lessons could be learned that could eventually be incorporated into the workbook. Were the levels and types of activities carried out in this Project sufficient to learn valuable lessons? Why or why not?
76. What was the process by which these key lessons get translated into the workbook?

77. Was this process effective?

Yes
 No (Please explain)

78. Was this process carried out on a regular basis?

Yes
 No (GO TO Q. 52)

79. Was it daily, weekly, monthly, or quarterly over what period of time (mmyy through mmyy)?

80. What do you feel were the **key** lessons learned from this Project?

81. Have or will these lessons be incorporated into the workbook? (why/why not?)

Thanks for your time and helpful insights!

End Time: _____

Appendix E

Target Audience Follow-Up Survey

California Local Energy Efficiency Program Evaluation Target Audience Follow-Up Interview Guide

Ridge & Associates and HDR/Brown Vence & Associates are conducting an evaluation of the California Local Energy Efficiency Program (hereafter referred to as CALeep). This evaluation is required by the California Public Utilities Commission. The overall objective of this evaluation is to help improve the overall delivery and effectiveness of CALeep. To ensure confidentiality, we will not identify any of your comments individually. Any references ascribing interview findings will be done at the aggregate level.

One of the important deliverables/outcomes of CALeep was a number of products that have been made available to the public through a variety of channels, including the Internet (www.caleep.org or www.caleep.com), public workshops, and conferences. The materials include:

- The CALeep Workbook which lays out a process and resources for overcoming practical barriers to developing and implementing local energy efficiency programs
- Case studies of public sector energy efficiency initiatives
- Other materials related to CALeep, including information about:
 - **Water and Energy Efficiency** – achieving energy efficiency through water efficiency
 - **Green Buildings** – sample ordinances, program and building design manuals
 - **Sources for Working with Energy Services Companies (ESCOs)** – guidelines, sample RFPs and contracts
 - **Energy Efficiency Policies** – listings of policy options and sample policies
 - **Other Energy Efficiency Guides** – similar to the CALeep workbook
 - **Financing Energy Efficiency** – options for financing energy efficiency
 - **Energy Efficiency Procurement** – product listings, procurement approach options, sample policies and policy language
 - **Comprehensive Plans Involving Energy Efficiency** -- examples
 - **Sample Energy Assessments** – sample energy efficiency assessment for a city

We would like to obtain your feedback on these materials. Updated versions appear on the CALeep Web site (www.caleep.com).

1. Please select each of the CALeep materials that you have obtained or viewed.
(Check all that apply)

Resource	Have Obtained/ Viewed
1a. The CALeep Workbook	
1b. Case studies	
1c. Water and Energy Efficiency	
1d. Green Buildings	
1e. Sources for Working with Energy Services Companies (ESCOs)	
1f. Energy Efficiency Policies	
1g. Other Energy Efficiency Guides	
1h. Financing Energy Efficiency	
1i. Energy Efficiency Procurement	
1j. Comprehensive Plans Involving Energy Efficiency	
1k. Sample Energy Assessments	
None of the above → THANK AND TERMINATE	

2. For only those materials that, in your response to Question #1 above, you indicated you have obtained or viewed, please indicate how you obtained these CALeep materials.

Resource	Viewed or Down- loaded from Internet	Received at Workshop or Conference	Received from Friend or Colleague	Other
2a. The CALeep Workbook				
2b. Case studies				
2c. Water and Energy Efficiency				
2d. Green Buildings				
2e. Sources for Working with Energy Services Companies (ESCOs)				
2f. Energy Efficiency Policies				
2g. Other Energy Efficiency Guides				
2h. Financing Energy Efficiency				
2i. Energy Efficiency Procurement				
2j. Comprehensive Plans Involving Energy Efficiency				
2k. Sample Energy Assessments				

3. For only those materials that, in your response to Question #1 above, you indicated you have obtained or viewed, please indicate on a scale of 1 to 10 (with a “1” indicating “Did Not Review At All” and a “10” indicating a “Thorough Review”) the extent to which you reviewed these materials.

Resource	Score	Don't Know
3a. The CALeep Workbook (If “1” enable Q20, “2” or more enable Q21)		
3b. Case studies		
3c. Water and Energy Efficiency		
3d. Green Buildings		
3e. Sources for Working with Energy Services Companies (ESCOs)		
3f. Energy Efficiency Policies		
3g. Other Energy Efficiency Guides		
3h. Financing Energy Efficiency		
3i. Energy Efficiency Procurement		
3j. Comprehensive Plans Involving Energy Efficiency		
3k. Sample Energy Assessments		

4. For only those materials that, in your response to Question #1 above, you indicated you have obtained or viewed, please indicate on a scale of 1 to 10 (with a “1” indicating “Did Not Use At All” and a “10” indicating a “Used In-Depth”) the extent to which you have used these materials.

Resource	Score	Don't Know
4a. The CALeep Workbook		
4b. Case studies		
4c. Water and Energy Efficiency		
4d. Green Buildings		
4e. Sources for Working with Energy Services Companies (ESCOs)		
4f. Energy Efficiency Policies		
4g. Other Energy Efficiency Guides		
4h. Financing Energy Efficiency		
4i. Energy Efficiency Procurement		
4j. Comprehensive Plans Involving Energy Efficiency		
4k. Sample Energy Assessments		

5. In general, what did you find most useful about the CALeep materials? If you did not find the materials at all useful, please explain.

6. Do you represent an organization that might . . .
1. ___ *implement* energy efficiency actions (i.e., ***installation of energy efficient equipment, adoption of energy efficient behaviors, or development of energy efficient policies***) (CONTINUE)
 2. ___ *assist* others (including one's constituents if you represent a local government) in implementing energy efficiency actions (SKIP TO QUESTION 19)
 3. ___ *both implement and assist* others (CONTINUE)
7. Since reviewing the CALeep materials, has your organization taken any energy efficient actions?
1. ___ Yes (CONTINUE)
 2. ___ No (SKIP TO QUESTION #10)
 88. ___ Don't Know
8. What type(s) of energy efficient action(s) has your organization taken?
9. Do you think that your review of the CALeep materials has assisted and/or accelerated your decision to take energy efficiency actions?
1. ___ Yes (Please explain how: _____)
 2. ___ No
 88. ___ Don't Know
10. Since reviewing the CALeep materials, does your organization plan to take any energy efficient actions over the next 18 months?
1. ___ Yes (CONTINUE)
 2. ___ No (SKIP TO QUESTION #13)
 88. ___ Don't Know
11. What type(s) of energy efficient action(s) does your organization plan to take over the next 18 months?

12. Do you think that your review of the CALeep materials has assisted and/or accelerated your plans to take energy efficiency actions?

1. ___ Yes (Please explain how: _____)

2. ___ No

88. ___ Don't Know

13. Since reviewing the CALeep materials, has your organization participated in any utility, state, or federal energy efficiency programs?

1. ___ Yes (CONTINUE)

2. ___ No (SKIP TO QUESTION #16)

88. ___ Don't Know (SKIP TO QUESTION #16)

14. In which specific utility, state, or federal energy efficiency programs or types of programs has your organization participated?

Programs: _____

88. Don't Know

15. Do you think that your review of the CALeep materials has assisted and/or accelerated your decision to participate in these programs?

1. ___ Yes (Please explain how: _____)

2. ___ No

88. ___ Don't Know

16. Since reviewing the CALeep materials, does your organization *plan* to participate in any utility, state, or federal energy efficiency programs over the next 18 months?

1. ___ Yes (CONTINUE)

2. ___ No (SKIP TO QUESTION #19)

88. ___ Don't Know (SKIP TO QUESTION #19)

17. In which specific utility, state, or federal energy efficiency programs or types of programs does your organization *plan* to participate in over the next 18 months?

Programs: _____

88. Don't Know

18. Do you think that your review of the CALeep materials has assisted and/or accelerated your *plans* to participate in these programs?

1. ___ Yes (Please explain how: _____)

2. ___ No

88. ___ Don't Know

IF ANSWERED "BOTH IMPLEMENT AND ASSIST" TO QUESTION #6, CONTINUE)

IF ANSWERED "IMPLEMENT" TO QUESTION #6, SKIP TO QUESTION #20 or #21.

19. Do you think the CALeep materials have helped or will help you to assist other organizations (including one's constituents if you represent a local government) in implementing energy efficiency actions in any way?

1. ___ Yes (GO TO QUESTION 19a)

2. ___ No

88. ___ Don't Know

Q19a. Please explain in what way CALeep materials have helped or might help you to assist other organizations in implementing energy efficiency initiatives.

NEXT, YOU WILL BE ASKED A SERIES OF QUESTIONS ABOUT THE CALeep WORKBOOK

20. Earlier you indicated that you had obtained or viewed the CALeep Workbook but had not read any of it. Please explain why you didn't read any of the CALeep Workbook. (ANSWER THEN SKIP TO QUESTION #22)

21. Earlier you indicated that you had obtained or viewed the CALeep Workbook and had *read at least some* of the CALeep Workbook. Using a scale of 1-10 with a “1” being “Not very useful” and a “10” being “Very Useful”, please rate the extent to which you found the information in the CALeep Workbook useful.

___ Rating (Indicate a number 1-10)
88 ___ Don't Know

22. If you have obtained or viewed the CALeep Workbook, have you shared the workbook with colleagues either inside or outside your organization?

1. ___ Yes (CONTINUE)
2. ___ No (SKIPTO QUESTION #24)

23. Approximately how many colleagues?

___ Inside
___ Outside

24. Earlier you indicated that you had obtained or viewed the CALeep Workbook and had *read at least some* of the CALeep Workbook. What recommendations do you have about how to make it more useful?

25. In your opinion, can one promote energy efficiency within your organization by relying only on internal resources along with the CALeep Workbook or must one *also* hire outside experts or rely on a different source of information? Please explain your answer.

- ___ Rely only on internal resources
- ___ Need to hire outside experts
- ___ Rely on different source of information
- ___ Don't Know

NEXT, YOU WILL BE ASKED A FEW QUESTIONS ABOUT YOUR ORGANIZATION

26. Which electric utility company serves your organization?

1. ___ Pacific Gas & Electric
2. ___ Southern California Edison
3. ___ San Diego Gas & Electric
4. ___ Los Angeles Department of Water & Power
4. ___ Other (specify)
88. ___ Don't know

27. In what type of organization do you work?

1. ___ Federal government agency
2. ___ State government agency
3. ___ Municipal government agency
4. ___ Private for-profit organization
5. ___ Private not-for-profit organization
6. ___ Other (Please be specific: _____)

28. If you have additional comments or observations regarding CALeep or the CALeep materials and resources, please use the space below.

END: Thanks for your time and helpful insights!

End Time: _____

Appendix F

Results of Target Audience Follow-Up Survey

RR2 Count and Percent -- OVERALL

2006 CALeep Evaluation Survey

	Count	Percent
[1]Please select each of the CALeep materials that you have obtained or viewed. (Check all that apply)		
The CALeep Workbook	24	25.53 %
Case studies	14	14.89 %
Water and Energy Efficiency	19	20.21 %
Green Buildings	7	7.45 %
Sources for Working with Energy Services Companies (ESCOs)	3	3.19 %
Energy Efficiency Policies	8	8.51 %
Other Energy Efficiency Guides	3	3.19 %
Financing Energy Efficiency	5	5.32 %
Energy Efficiency Procurement	3	3.19 %
Comprehensive Plans Involving Energy Efficiency	4	4.26 %
Sample Energy Assessments	4	4.26 %
Total Responses	94	100%
For only those materials that, in your response to Question #1 above, you indicated you have obtained or viewed, please indicate how you obtained these CALeep materials.[2a]The CALeep Workbook		
Viewed or Down-loaded from Internet	16	66.67 %
Received at Workshop or Conference	4	16.67 %
Received from Friend or Colleague	1	4.17 %
Other	3	12.50 %
Total Responses	24	100%
[2b]Case studies		
Viewed or Down-loaded from Internet	8	53.33 %
Received at Workshop or Conference	5	33.33 %
Received from Friend or Colleague	2	13.33 %
Total Responses	15	100%
[2c]Water and Energy Efficiency		
Viewed or Down-loaded from Internet	15	71.43 %
Received at Workshop or Conference	5	23.81 %
Other	1	4.76 %
Total Responses	21	100%
[2d]Green Buildings		
Viewed or Down-loaded from Internet	2	28.57 %
Received at Workshop or Conference	5	71.43 %
Total Responses	7	100%
[2e]Sources for Working with Energy Services Companies (ESCOs)		
Viewed or Down-loaded from Internet	3	100.00 %
Total Responses	3	100%

RR2 Count and Percent -- OVERALL

2006 CALeep Evaluation Survey

	Count	Percent
[2f]Energy Efficiency Policies		
Viewed or Down-loaded from Internet	3	42.86 %
Received at Workshop or Conference	3	42.86 %
Received from Friend or Colleague	1	14.29 %
Total Responses	7	100%
[2g]Other Energy Efficiency Guides		
Viewed or Down-loaded from Internet	2	66.67 %
Received from Friend or Colleague	1	33.33 %
Total Responses	3	100%
[2h]Financing Energy Efficiency		
Viewed or Down-loaded from Internet	2	40.00 %
Received at Workshop or Conference	3	60.00 %
Total Responses	5	100%
[2i]Energy Efficiency Procurement		
Viewed or Down-loaded from Internet	2	66.67 %
Received at Workshop or Conference	1	33.33 %
Total Responses	3	100%
[2j]Comprehensive Plans Involving Energy Efficiency		
Viewed or Down-loaded from Internet	3	100.00 %
Total Responses	3	100%
[2k]Sample Energy Assessments		
Viewed or Down-loaded from Internet	1	33.33 %
Received at Workshop or Conference	2	66.67 %
Total Responses	3	100%
For only those materials that, in your response to Question #1 above, you indicated you have obtained or viewed, please indicate on a scale of 1 to 10 (with a "1" indicating "Did Not Review At All" and a "10" indicating a "Thorough Review") the extent...		
10	3	12.50 %
9	1	4.17 %
8	1	4.17 %
7	1	4.17 %
6	4	16.67 %
5	5	20.83 %
4	3	12.50 %
3	2	8.33 %
2	3	12.50 %
1	1	4.17 %
Total Responses	24	100%

RR2 Count and Percent -- OVERALL

2006 CALeep Evaluation Survey

	Count	Percent
[3b]Case studies		
10	2	13.33 %
9	1	6.67 %
8	1	6.67 %
7	2	13.33 %
6	3	20.00 %
5	4	26.67 %
4	2	13.33 %

Total Responses	15	100%
------------------------	-----------	-------------

[3c]Water and Energy Efficiency

10	3	15.00 %
9	2	10.00 %
8	3	15.00 %
7	2	10.00 %
6	1	5.00 %
5	3	15.00 %
4	2	10.00 %
3	2	10.00 %
2	2	10.00 %

Total Responses	20	100%
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[3d]Green Buildings

10	1	14.29 %
8	2	28.57 %
7	2	28.57 %
5	1	14.29 %
4	1	14.29 %

Total Responses	7	100%
------------------------	----------	-------------

[3e]Sources for Working with Energy Services Companies (ESCOs)

5	1	50.00 %
4	1	50.00 %

Total Responses	2	100%
------------------------	----------	-------------

[3f]Energy Efficiency Policies

10	1	10.00 %
9	2	20.00 %
8	2	20.00 %
7	1	10.00 %
6	2	20.00 %
5	2	20.00 %

Total Responses	10	100%
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RR2 Count and Percent -- OVERALL

2006 CALeep Evaluation Survey

	Count	Percent
[3g]Other Energy Efficiency Guides		
6	1	25.00 %
5	1	25.00 %
4	1	25.00 %
3	1	25.00 %
Total Responses	4	100%

[3h]Financing Energy Efficiency		
9	1	33.33 %
4	1	33.33 %
3	1	33.33 %
Total Responses	3	100%

[3i]Energy Efficiency Procurement		
6	1	33.33 %
5	1	33.33 %
4	1	33.33 %
Total Responses	3	100%

[3j]Comprehensive Plans Involving Energy Efficiency		
6	2	50.00 %
5	1	25.00 %
3	1	25.00 %
Total Responses	4	100%

[3k]Sample Energy Assessments		
8	1	25.00 %
5	1	25.00 %
4	1	25.00 %
2	1	25.00 %
Total Responses	4	100%

For only those materials that, in your response to Question #1 above, you indicated you have obtained or viewed, please indicate on a scale of 1 to 10 (with a "1" indicating "Did Not Use At All" and a "10" indicating a "Used In-Depth") the extent to...

8	2	8.70 %
5	2	8.70 %
4	1	4.35 %
3	2	8.70 %
2	5	21.74 %
1	10	43.48 %
Don't Know	1	4.35 %
Total Responses	23	100%

RR2 Count and Percent -- OVERALL

2006 CALeep Evaluation Survey

	Count	Percent
[4b]Case studies		
10	1	6.67 %
8	1	6.67 %
5	3	20.00 %
4	2	13.33 %
3	2	13.33 %
2	3	20.00 %
1	2	13.33 %
Don't Know	1	6.67 %

Total Responses 15 100%

[4c]Water and Energy Efficiency		
9	1	5.00 %
8	4	20.00 %
7	1	5.00 %
6	1	5.00 %
5	4	20.00 %
4	1	5.00 %
3	1	5.00 %
2	4	20.00 %
1	3	15.00 %

Total Responses 20 100%

[4d]Green Buildings		
10	1	14.29 %
9	1	14.29 %
8	1	14.29 %
6	1	14.29 %
5	1	14.29 %
1	2	28.57 %

Total Responses 7 100%

[4e]Sources for Working with Energy Services Companies (ESCOs)		
7	1	33.33 %
1	2	66.67 %

Total Responses 3 100%

[4f]Energy Efficiency Policies		
9	1	12.50 %
8	1	12.50 %
7	1	12.50 %
6	2	25.00 %
5	1	12.50 %
1	2	25.00 %

Total Responses 8 100%

RR2 Count and Percent -- OVERALL

2006 CALeep Evaluation Survey

	Count	Percent
[4g]Other Energy Efficiency Guides		
5	2	40.00 %
3	1	20.00 %
1	2	40.00 %
Total Responses	5	100%

[4h]Financing Energy Efficiency		
7	1	16.67 %
2	2	33.33 %
1	3	50.00 %
Total Responses	6	100%

[4i]Energy Efficiency Procurement		
7	1	25.00 %
3	1	25.00 %
1	2	50.00 %
Total Responses	4	100%

[4j]Comprehensive Plans Involving Energy Efficiency		
7	2	40.00 %
1	3	60.00 %
Total Responses	5	100%

[4k]Sample Energy Assessments		
10	1	20.00 %
2	2	40.00 %
1	2	40.00 %
Total Responses	5	100%

[6]Do you represent an organization that might...		
implement energy efficiency actions (i.e., installation of energy efficient equipment, adoption of energy efficient behaviors, or development of energy efficient policies)	3	8.11 %
assist others (including one's constituents if you represent a local government) in implementing energy efficiency actions	18	48.65 %
both implement and assist others	16	43.24 %
Total Responses	37	100%

[7]Since reviewing the CALeep materials, has your organization taken any energy efficient actions?		
Yes	14	73.68 %
No	1	5.26 %
Don't Know	4	21.05 %
Total Responses	19	100%

RR2 Count and Percent -- OVERALL

2006 CALeep Evaluation Survey

	Count	Percent
[9]Do you think that your review of the CALeep materials has assisted and/or accelerated your decision to take energy efficiency actions?		
Yes	6	33.33 %
No	10	55.56 %
Don't Know	2	11.11 %
Total Responses	18	100%
[10]Since reviewing the CALeep materials, does your organization plan to take any energy efficient actions over the next 18 months?		
Yes	12	63.16 %
No	1	5.26 %
Don't Know	6	31.58 %
Total Responses	19	100%
[12]Do you think that your review of the CALeep materials has assisted and/or accelerated your plans to take energy efficiency actions?		
Yes	6	33.33 %
No	6	33.33 %
Don't Know	6	33.33 %
Total Responses	18	100%
[13]Since reviewing the CALeep materials, has your organization participated in any utility, state, or federal energy efficiency programs?		
Yes	13	68.42 %
No	3	15.79 %
Don't Know	3	15.79 %
Total Responses	19	100%
[14a]I don't know which specific utility, state, or federal energy efficiency programs or types of programs my organization participated in.		
[14a]I don't know which specific utility, state, or federal energy efficiency programs or types of programs my organization participated in.	1	100.00 %
Total Responses	1	100%
[15]Do you think that your review of the CALeep materials has assisted and/or accelerated your decision to participate in these programs?		
Yes	2	15.38 %
No	7	53.85 %
Don't Know	4	30.77 %
Total Responses	13	100%

RR2 Count and Percent -- OVERALL

2006 CALeep Evaluation Survey

	Count	Percent
[16]Since reviewing the CALeep materials, does your organization plan to participate in any utility, state, or federal energy efficiency programs over the next 18 months?		
Yes	11	57.89 %
Don't Know	8	42.11 %
Total Responses	19	100%
[18]Do you think that your review of the CALeep materials has assisted and/or accelerated your plans to participate in these programs?		
Yes	3	27.27 %
No	6	54.55 %
Don't Know	2	18.18 %
Total Responses	11	100%
[19]Do you think the CALeep materials have helped or will help you to assist other organizations (including one's constituents if you represent a local government) in implementing energy efficiency actions in any way?		
Yes	21	61.76 %
No	7	20.59 %
Don't Know	6	17.65 %
Total Responses	34	100%
[21]Earlier you indicated that you had obtained or viewed the CALeep Workbook and had read at least some of the CALeep Workbook. Using a scale of 1-10 with a "1" being "Not very useful" and a "10" being "Very Useful", please rate the extent to which...		
10	1	4.35 %
9	1	4.35 %
8	5	21.74 %
7	2	8.70 %
6	1	4.35 %
5	3	13.04 %
4	2	8.70 %
3	3	13.04 %
2	2	8.70 %
1	2	8.70 %
Don't Know	1	4.35 %
Total Responses	23	100%
[22]If you have obtained or viewed the CALeep Workbook, have you shared the workbook with colleagues either inside or outside your organization?		
Yes	16	43.24 %
No	15	40.54 %
I did not obtain/view the CALeep Workbook	6	16.22 %
Total Responses	37	100%

RR2 Count and Percent -- OVERALL

2006 CALeep Evaluation Survey

Count Percent

[25a] In your opinion, can one promote energy efficiency within your organization by relying only on internal resources along with the CALeep Workbook or must one also hire outside experts or rely on a different source of information?

Rely only on internal resources	3	8.33 %
Need to hire outside experts	11	30.56 %
Rely on different source of information	12	33.33 %
Don't Know	10	27.78 %

Total Responses	36	100 %
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[26] Which electric utility company serves your organization?

Pacific Gas & Electric	10	27.78 %
Southern California Edison	7	19.44 %
San Diego Gas & Electric	1	2.78 %
Los Angeles Department of Water & Power	1	2.78 %
Don't know	1	2.78 %
Other (please specify):	16	44.44 %

Total Responses	36	100 %
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[27] In what type of organization do you work?

Federal government agency	1	2.86 %
State government agency	5	14.29 %
Municipal government agency	9	25.71 %
Private for-profit organization	4	11.43 %
Private not-for-profit organization	5	14.29 %
Other (please specify):	11	31.43 %

Total Responses	35	100 %
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Appendix G

Sample Energy Audit Reports for the Residential and Small Commercial Customers in the Sonoma Valley Project

August 26, 2005

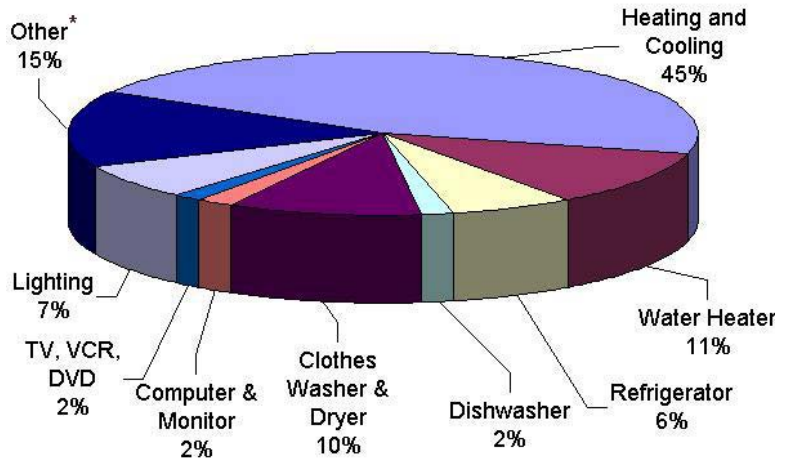
Ms. XXXX
Street Address
Guerneville, CA 95446

Dear Ms. XXXX,

As part of the *Sonoma County Energy Survey Project*, Strategic Energy Innovations recently conducted an energy survey of your home to help you identify ways of saving money on your monthly utilities. Taking the low to no cost actions to reduce your energy consumption listed within this summary report will help to save you money while conserving our limited energy resources.

Where Does Your Energy Go?

Heating and cooling comprise almost half of the total energy used in an average household. Home appliances account for the remaining portion.



Source: Energy Star Website

* "Other" represents an array of household products, including stoves, ovens, microwaves, and small appliances. Individually, these products account for no more than about 2% of a household's energy bills.

Results of the Survey

Based on the survey we conducted in your home, we've prepared this summary report using the Lawrence Berkeley Laboratory's Home Energy Saver found on their Web site. You can access your full report or change the imputed data by going to (<http://hes.lbl.gov/>) and entering your session ID: 398411

The suggested EnergyStar upgrades are based on the EnergyStar appliance calculators. More information on upgrading your appliances to energy-efficient EnergyStar recommended appliances can be found at www.energystar.gov.

Annual Energy Use

	<i>Currently Energy Star model?</i>	<i>Annual energy costs</i>	<i>Average monthly bill</i>	<i>Annual Savings w/Energy Star Upgrade</i>	<i>Payback (years)</i>
Space Heating	<i>no</i>	\$2,588	\$216	*	*
Water Heating	<i>n/a</i>	\$541	\$45	\$371.03	1.4
Major Appliances		\$1,215	\$101		
Refrigerator 1	<i>yes</i>	\$64	\$5	\$5.70	193.1
Refrigerator 2	<i>no</i>	\$0	\$0	<i>n/a</i>	<i>n/a</i>
Freezer	<i>yes</i>	\$91	\$8	\$21.20	17.1
Stove	**	\$11	\$1	**	**
Oven	**	\$7	\$1	**	**
Clothes dryer	**	\$100	\$8	**	**
Clothes washer	<i>no</i>	\$588	\$49	\$574.23	1.3
Dishwasher	<i>yes</i>	\$354	\$30	\$11.84	42.2
Lighting	<i>no</i>	\$69	\$6	*	*
Miscellaneous (small appliances)	<i>n/a</i>	\$157	\$13	*	*
Household TOTAL		\$4,570	\$381	\$983.99	

* Not calculated with this tool. See “Additional Energy Saving Tips” below.

**Not available in Energy Star® models.

Note: These figures are estimated based on information collected at your home and typical energy use in your area. They do not relate to the specific make and model of your appliances. In general, appliances older than 10 years should be replaced with energy efficient models.

Financing

- Based upon your household income a limited number of rebates are available through the County of Sonoma. These rebates are up towards 100% of the cost of the upgrade. For more information contact the **Sonoma County Redevelopment Agency** at (707) 565-7523. Para Español (707) 938-5131.
- **Pacific Gas and Electric Company (PG&E)** also offers rebates to help you make energy efficient upgrades for appliances, home improvements and lighting. The following Web site contains more information on rebate programs for energy-efficient lighting (<http://www.pge.com/res/rebates/>). There are PG&E offices at 14040 Church Street in Guerneville, at 111 Stony Circle in Santa Rosa, and at 210 Corona Way in Petaluma.
- **Flex Your Power** (<http://www.fypower.com/res/tools/rgl.html>) also has information on residential energy rebates in California.

Taking Action

Saving money through a reduction in energy consumption begins by replacing current lighting and appliances with more efficient ones. Below we have listed some resources that can assist you in purchasing and installing energy efficient lighting and appliances. This is not an endorsement of any one retailer, but rather some contacts to help get you started.

Retailers Who Carry energy Star Appliances:	
HOME DEPOT Napa (707) 251-0162 Rohnert Park (707) 585-9200	COSTCO - Santa Rosa (707) 578-1281
ASIEN'S APPLIANCE Santa Rosa (707) 546-3749	MCPHAIL'S Petaluma (707) 762-3528 Rohnert Park (707) 588-3227

Local Electrical Contractors		Local Suppliers	
Antony's Electric, Inc. – Petaluma	(707) 778-7067	Ron Dorris Electric, Inc. – Santa Rosa	(707) 578-0678
Baur Electric – Petaluma	(707) 795-7007	James Electric – Santa Rosa	(707) 579-4386
Center Construction & Electric -- Petaluma	(707) 778-8514	Ament Electric – Sebastopol	(707) 823-3933
Lunardi Electric – Santa Rosa	(707) 545-4755	Wiggins Electric Inc. – Santa Rosa	(707) 545-7869

Additional Energy Saving Tips to Consider for Around Your Home

- Replace incandescent light bulbs with **compact fluorescent lamps** (CFLs). Although CFLs cost a little bit more up front, they last up to 10 times longer and use about one quarter the amount of electricity as an equivalent incandescent bulb. For instance, replacing a 100-watt incandescent with an equivalent 32-watt CFL can save you at least \$30 in energy costs over the life of the bulb. CFLs are also safer than typical bulbs. CFLs are cool to the touch and help your home stay cooler in the summer time.
- Look for ENERGY STAR labels when purchasing new appliances, especially washers, refrigerators and lighting. Check out their Web site (<http://www.energystar.gov/>) and click on “Home Improvement” for more information and specific appliance recommendations.
- Use a hot water insulator, available at most hardware stores, to wrap your water heater and save on water heating costs.

- Ensure that your whole system (i.e., furnace) is energy efficient. If your furnace is older than ten years, consider replacing it with a more energy-efficient model. Upgrading from a conventional *gas* furnace to an ENERGY STAR qualified model can provide approximately \$446 savings annually, and replacing a conventional *oil* furnace with an ENERGY STAR unit can show savings of \$665 annually. Leaky ducts can also decrease the overall energy efficiency of your heating and cooling system by as much as 20%. Duct sealing increases efficiency and lowers your utility bills.
- Run your washer, dryer, and dishwasher only with a full load.
- Seal and insulate your home to improve comfort and reduce heating and cooling costs. The U.S. EPA recommends Home Sealing to improve your home's "envelope" or the outer walls, ceiling, windows and floors. To improve the envelope of your home: Add insulation, seal air-leaks, and choose an ENERGY STAR labeled windows if you're in the market for new windows.
- Use an ENERGY STAR qualified programmable thermostat that can automatically adjust the temperature of your home at night and while you are away.
- If you are replacing your windows, consider double-pane windows, which provide excellent insulation, instead of single-pane windows.

Here are some inexpensive things that you can do to lower your energy bills:

- Seal and caulk major air leaks around windows, doors, electrical outlets, plumbing fixtures, and outside architectural features (i.e. chimneys).
- Shade south and west glass with deciduous plants to keep out heat during the summer.

We urge you to take advantage of the energy and money saving opportunities provided by the Redevelopment Agency and available rebates. Thank you for your time and your interest in an energy efficient home, for the benefit of our environment.

Respectfully,

Carly Fedor
Project Intern

Joseph Dowd
Project Intern

May 7, 2005

Mr. XXXX
 Business Name
 Street Address
 Sonoma, CA

Greetings Sir,

As part of the *Sonoma County Energy Survey Project*, Strategic Energy Innovations recently conducted a lighting survey of your facility to help you identify ways of *saving money on your energy expenses*. Taking the low to no cost actions to reduce your energy consumption listed within this letter saves you money and helps to protect the environment.

Results of the Survey

The survey revealed that the lighting technology your business is currently using costs you approximately \$724 per year. By replacing the less efficient lamps with more efficient ones, **you will improve the quality of light, increase the lamp’s lifetime and reduce your annual costs by 19% or \$134.93 per year**. The chart below expresses the potential savings of retrofitting the lamps. Typically projects of this nature tend to have a payback of one to two years.

# of Existing Lamps & Cost	Proposed Lamps & Cost	Estimated Annual Savings*	PG & E Rebate
(7) 50w Incandescent lamps = \$0/yr.	(7) 13w Compact Fluorescent lamps = \$0/yr	\$0	\$10.50
(29) T12 4ft Fluorescent 4 lamps/fix. = \$351/yr.	(29) T8 4ft Fluorescent 4 lamps/fix. = \$280/yr.	\$71	\$153
(4) T12 4ft Fluorescent 1 lamp/fix. = \$47/yr.	(4) T8 4ft Fluorescent 1 lamp/fix. = \$35/yr.	\$12	\$17
(2) T12 2ft Fluorescent 2 lamps/fix. = \$15/yr.	(2) T8 2ft Fluorescent 2 lamps/fix. = \$8/yr.	\$7	\$7
(12) T12 8ft Fluorescent 2 lamps/fix. = \$173/yr.	(12) T8 8ft Fluorescent 2 lamps/fix. = \$147/yr.	\$26	\$90
(8) T12 8ft Fluorescent 4 lamps/fix. = \$138/yr.	(8) T8 8ft Fluorescent 4 lamps/fix. = \$118/yr.	\$20	\$60
TOTALS:		\$136	\$337.50

Financing

- The Small Business Energy Alliance, a Sonoma based energy conservation firm offers financing packages of up to 75% of the installed cost of new lighting. They operate through the California Public Utilities Commission, and can help both with design and installation of a new lighting system

(www.sbeaonline.com or (800) 881-7232). A representative from SBEA will follow-up to review their subsidy details.

- Pacific Gas and Electric Company (PG&E) also offers rebates to help you make the upgrade. The following Web site contains more information on rebate programs for energy-efficient or new construction projects (www.pge.com/biz/rebates/).
- Safe-BIDCO offers low interest loans for retrofit projects, 1-800-273-8637 (www.safe-bidco.com).
- CEC's Low Interest Loan Program offers low interest loans for energy-efficient retrofit projects (www.energy.ca.gov).

Taking Action

Saving money through a reduction in energy consumption begins by replacing current lighting with more efficient lighting. Below we have listed some resources that can assist you in purchasing and installing energy efficient lighting. This is not an endorsement of any one contractor, but simply some contacts to help get you started.

Local Electrical Contractors		Local Suppliers	
Antony's Electric, Inc. – Petaluma	(707) 788-7067	Ron Dorris Electric, Inc. – Santa Rosa	(707) 578-0678
Baur Electric – Petaluma	(707) 795-7007	James Electric – Santa Rosa	(707) 579-4386
Lunardi Electric – Santa Rosa	(707) 545-4755	Ament Electric – Sebastopol	(707) 823-3933
Center Construction & Electric – Petaluma	(707) 778-8514	Wiggins Electric Inc. – Santa Rosa	(707) 545-7869

More Energy Savings Tips

Additional measures to reduce your energy expenses that we identified during our audit included.

- Use the heater/air-conditioner only when needed.
- Utilize daylight from windows as much as possible - this enables you to turn off unnecessary lights.
- Turn off lights that are not in use, including the restroom – posted reminders are helpful in changing habits.

We urge you to take advantage of the energy and money saving opportunity of retrofitting your lighting fixtures. Thank you again for your time and interest in operating your business efficiently, for the benefit of your bottom line and our environment.

Respectfully,

Carly Fedor
Project Intern

Jerica Tercero
Project Intern

Appendix H

Oakland Non-Energy Benefit Study



CITY OF OAKLAND

NON-ENERGY BENEFITS AND SUSTAINABILITY ESTIMATION MODEL – “NEBS-It”©

Draft Manual

Conducted under contract to Navigant Consulting
Project Contact: Tim Rosenfeld

Prepared for the City of Oakland

Prepared by:
Skumatz Economic Research Associates, Inc. (SERA)
Lisa A. Skumatz, Ph.D.

June 29, 2006

ORGANIZATION OF THE REPORT

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1 Executive Summary

1.1 Background and Objectives

The City of Oakland is developing an energy efficiency action plan as an element of the City's new sustainability oriented economic development strategy. The Oakland pilot project, funded as part of the CALeep (California local Energy Efficiency Program) program, includes several activities:

- Helping the city set up an institutional infrastructure to define and prioritize objectives
- Incorporating input from key stakeholders
- Monitoring and guiding energy efficiency efforts in future years.

Oakland has already conducted considerable work on energy efficiency and sustainability, including energy efficiency in public facilities (since 1990), passing a greenhouse gas (GhG) reduction goal resolution in 1996 and implementation plan in 1999, and other activities. Although the GhG goals and implementation plan were adopted, only limited further action has occurred.

A multidisciplinary / multi-department community-wide "sustainable economic development" (incorporating GhG) initiative is being undertaken, under the auspices of the Mayor's Sustainability Director and council members. One element of this initiative is identifying and establishing meaningful metrics that will reflect progress impacts in energy efficiency (EE) and renewable energy (RE) for local officials and stakeholders. An important element is recognizing that EE and RE programs have important elements beyond energy savings.

To help guide development and assessment of program / intervention alternatives, the City and Navigant hired Skumatz Economic Research Associates, Inc. (SERA) from Superior, Colorado, to adapt its non-energy benefits model ("NEB-It"©) to meet Oakland's sustainability program needs.

1.2 Background on NEBs – Identification and Measurement

A considerable amount of literature has grown around non-energy benefits (NEBs) – measuring a wide array of impacts beyond energy savings that arise from EE and RE programs.³³

While energy savings³⁴ and other metrics provide direct indicators of program effects, a significant body of work has developed around recognizing and measuring net non-energy benefits (NEBs). This includes any and all impacts that are not directly the energy and bill savings resulting from the program. Previous work shows that these

³³ Skumatz, Lisa A., "Evaluating Attribution, Causality, NEBs, and Cost Effectiveness in Multifamily Programs: Enhanced Techniques", Proceedings of the EEDAL Conference, London, England, 2006.

³⁴ And, depending on the scope of the evaluation, awareness, market share, and other metrics.

benefits are significant in relation to the energy savings, and are highly valued by participants. In some cases, the analysis suggests that the primary value from the program was non-energy benefits, rather than energy-related bill savings. Previous work also indicates that market actors – specifiers like builders, architects, engineers, contractors – also recognize these benefits and use them in “selling” energy efficiency.

NEBs include a variety of impacts that result from the program. Although the literature calls them non-energy benefits, they include the “net” of both positive and negative effects that may be attributable to the program. The convention has been established to separate these benefits into three “perspectives” [8]:

- **Agency/Utility NEBs:** These include utility/ratepayer-type benefits result in reduced revenue requirements, including savings in a variety of administrative and carrying costs related to arrearages, service terminations, and related changes, as well as reductions in T&D losses when fewer kWh are distributed through the system. The changes attributable to these impacts are mostly valued at utility avoided costs for the relevant labor category, etc.
- **Societal /Public NEBs:** Societal benefits include the value of reductions in emissions, economic stimulus, public health, tax benefits from the economic development effects, and similar public benefits. The values associated with these program-caused changes vary with the type of impact.
- **Participant NEBs:** Participant impacts include effects above and beyond energy savings, and include improvements in comfort, lighting quality, resident satisfaction, equipment maintenance benefits, safety issues, and a wide variety of other NEBs. While many of these indirect benefits may be difficult to measure, they can ultimately be translated into dollar terms, and incorporated as net program benefits accruing to participants.

Typical categories of benefits based on past work follow in Table 1 below. This list is not comprehensive, as it varies based on the program design and measures, and obviously some benefits can cross categories. We tend not to include tertiary type benefits like tax –related impacts, as we prefer to be more conservative. Whether specific benefits are included or excluded from the analysis tends to depend on which measures are included in the program, and the use intended for the NEB analysis. The list of benefits to be included in the program attribution analysis is usually refined in collaboration with the program staff.

Table 1. Net Non-Energy Benefits (NEBs) and Sustainability Categories included in “NEBS-It”© Model

Utility Benefits	
<ul style="list-style-type: none"> • Reduced carrying cost on arrearages (interest) • Bad debt written off • Shutoffs • Reconnects • Notices • Customer calls / bill or emergency-related • Other bill collection costs 	<ul style="list-style-type: none"> • Emergency gas service calls (for gas flex connector and other programs) • Insurance savings • Transmission and distribution savings (usually distribution only) • Fewer substations, etc. • Power quality / reliability • Reduced subsidy payments (low income) • Other
Societal Benefits	
<ul style="list-style-type: none"> • Economic benefits – direct and indirect multipliers – national, state, and local level • Tax benefits from direct and induced expenditures • Emissions / environmental (trading values and/or health / hazard benefits) 	<ul style="list-style-type: none"> • Water and waste water treatment or supply plants • Value of extension of landfill • GhG reductions from recycling • Other

<ul style="list-style-type: none"> Health and safety equipment, public health impacts 		
Participant Benefits ³⁵		
Single Family Participants	Multifamily Building Participants	Commercial/Industrial Participants
<ul style="list-style-type: none"> Net program rebate (if relevant) Water / wastewater and other utility / service bill savings Equipment maintenance (labor and cost) Equipment performance / features Equipment lifetime Shutoffs Reconnects Property value benefits (Bill-related) calls to utility Aesthetics / appearance Fires / insurance damage (from gas-related audits/fix) Indoor air quality Moving costs / mobility Illnesses and lost days from work / school Transactions costs (complicated, not critical) Comfort Noise Safety Lighting / quality of light Feeling of greater control over bill (if relevant) Improved understanding of energy use / (if relevant) Feeling others "care" (low income only) NEGATIVES: Installation hassles / mess from installers – rest are mostly negative values for other factors above. 	<ul style="list-style-type: none"> Water / wastewater bill savings Operating costs (non-energy)³⁶ Equipment maintenance Equipment performance (push air better, etc.) Equipment lifetime Tenant satisfaction / fewer tenant complaints Comfort Aesthetics / appearance Lighting / quality of light Noise Safety, insurance Health issues Ease of selling / leasing Labor requirements (separate from equipment O&M) Indoor air quality Doing good for environment Reliability of service / power quality Savings in other fuels or services water, garbage, etc. (as relevant) Feeling of greater control over bill / understanding of energy use (residents if relevant) NEGATIVES (usually incorporated into above) some may have worse maintenance, parts may be harder to get, greater training needs for maintenance staff, etc. 	<ul style="list-style-type: none"> Water / wastewater and other utility bill savings (e.g. garbage) Operating costs (non-energy)³⁷ Equipment maintenance Equipment performance (push air better, etc.) Equipment lifetime Productivity Tenant satisfaction / fewer tenant complaints Comfort Aesthetics / appearance Lighting / quality of light Noise Safety Ease of selling / leasing Product losses (mostly refrigeration at grocery) Labor requirements Indoor air quality Health / lost days at work Doing good for environment Reliability of service / power quality Savings in other fuels or services (as relevant) NEGATIVES include: Production disruption during installation. Others are included above (some may have worse maintenance, etc.)

Note that several benefits arise in multiple categories. For example, having fewer bill-related calls to the utility benefits both the utility / ratepayers AND the households making or receiving those calls. This is not double-counting benefits – rather, it recognizes that some effects have multiple beneficiaries and each is valued at the appropriate tailored valuation method. For example, this saved time from calls may be valued at the marginal labor cost for customer service staff for the utility’s benefit, and at the minimum wage rate for low income households. Benefits are recognized and realized by both groups; whether they are included in specific computations depends on their appropriateness to the application.

Attribution of utility and societal NEBs can be measured using a combination of primary and secondary data. There is an extensive literature measuring the arrearage impacts of programs (particularly low income programs), as well as many others of these impacts. Detailed examination of the program impacts – or the literature– may be needed to estimate the impacts on reconnections and other factors that may be affected by the program (Reference [8] provides a discussion of these methods).

³⁵ Positive and negative impacts, estimated using participant surveys for many of the NEBs.

³⁶ Sometimes omit if likely to double count with the next two categories

³⁷ Sometimes omit if likely to double count with the next two categories

Societal impacts also have a significant literature and indeed, the two key components, environmental and economic impacts – have a very high degree of volatility depending on the data sources and valuation methods used. Impacts on greenhouse gases (GHG) are increasing in importance and have been estimated in the literature. These impacts are a "slippery slope" – they can be estimated in a simplistic way, or if health impacts are to be measured in detail, then issues related to specific microclimates and time of day and zones are important. For some programs, average generation mix should be used to assess emissions; for others (e.g. a peak load reduction program, residential air conditioning programs, etc.) emissions from marginal peak load plants should be used to estimate changes in emissions from the energy savings. Valuations are the source of considerable debate in the literature as well.³⁸ There exists a literature estimating economic impacts from energy efficiency programs. Some of the literature are flawed in that they estimate the job creation and economic multipliers of a *gross* expenditure on the economy when instead they should be measuring the net impact of a switch from, say, the sectors included in electricity generation, into the economic sectors affected by the weatherization or other program [3].

The most challenging portion of non-energy benefits work is assessing the participant portion of the benefits. This has been an area of considerable research in the last decade. As a result, several credible methods of estimating these "hard to measure" (HTM) impacts have been developed and applied to a variety of residential and commercial programs [7][9][10]. The performance of these alternative approaches have been evaluated with respect to: ease of response by respondent / comprehension of the question by respondents; reliability of the results / volatility; conservative / consistent results; and computation clarity, among other criteria. More than one dozen state-of-the-art variations of five basic approaches have been assessed including:

- Willingness to pay (WTP) / willingness to accept (WTA) / contingent valuation (CV)
- Alternative methods of comparative, scaling, or relative valuations
- Direct computations of value to owner,
- Discrete choices or ordered logit, and
- Other revealed and stated preference and other approaches.

These measurement methods can be complex to implement, and much work has been conducted to refine techniques. The model incorporates results derived based on the NEBs results from more than 50 residential, multifamily, commercial/industrial, renewables, and demand response programs across the US and internationally. These results have been used to provide "default" estimates or proxies where dedicated surveys are not available.^{39, 40}

As one more component of "best practices", to provide credible estimates of the NEBs actually attributable to the program, the results must be "net" in several key ways.

³⁸ For some clients, there are values that have been agreed upon by the regulators. For others, we used specific values included in the literature, or averages of valuations from many sources. Which valuations are most appropriate depends on not only the location, but also the use to which the work will be applied.

³⁹ Methods pioneered and adapted by the authors, based on the academic literature; see descriptions in Reference [9] [10] and others, and numerous evaluation and NEB workshops delivered by author..

⁴⁰ For an analysis of comparative, willingness to pay, and labeled magnitude scaling methods, see Reference [3][7][9][10].

- **Net positive and negative:** Despite the historical name for these impacts (non-energy benefits), both positive and negative impacts must be incorporated.⁴¹
- **Compare efficient to standard equipment:** To attribute the impact due to the program, the respondents need to be asked about the NEBs for the new efficient equipment relative to the base non-efficient equipment that would otherwise have been purchased. The appropriate comparison is generally not the new efficient equipment but the old equipment that was in place.⁴²
- **Net of free riders:** Similarly, if there are free riders that would have purchased the same equipment without the program, then the NEBs associated with that equipment should not be attributed to the program.

Where appropriate, these concepts are incorporated into the model.

1.3 Uses of NEBs

One application for the NEBs analysis is benefit cost analysis. While perhaps not the primary use of NEB work, these measurement efforts assess (and value) another set of impacts of the programs above and beyond what would have been realized without the program. The individual categories of NEBs for a variety of types of programs were listed in Table 1. The results of the dollar NEBs valuations for each of these individual NEB categories varies based on the program's design, measures included, sectors, targets, area of the country, and other factors. Estimated properly, these represent attributable impacts; however, only a subset of these impacts may be appropriate for inclusion into a benefit cost analysis or into specific regulatory tests. For example, some of the societal benefits may belong in societal tests, and a number of the participant benefits may be appropriate for inclusion in tests for low income programs, because these programs often have reductions in hardship and bill-payment improvements as specific program goals.

Identifying the particular subset of NEBs to be included in a particular computation for a program depends on the application / use of the computation. NEBs that should be included for various applications are not appropriate for other computations, and rarely is it appropriate to include all the NEBs in a computation. On the other hand, perhaps it should be equally rare to include none of the NEBs in a computation of program effects.

Early applications of NEBs research applied to estimating savings to utilities (e.g. bill payment improvements, etc.). This expanded to the use of NEBs for improving benefit cost analysis. However, NEBs are not only useful in assessing value from the program, but we have also found that this analysis provides a more sophisticated method of analyzing benefits and barriers.⁴³ Further, NEBs provide exceptional guidance for

⁴¹ The term we use is "net non-energy benefits" (NNEBs) but we will refer to them as "NEBs" in this paper. Over a 10 year period, we have developed effective (proprietary) methods of asking these questions and valuing the responses. In addition, a model "NEB-It"© is used to compute values. For additional information contact www.serainc.com.

⁴² However, some caveats are needed, depending on how the work is to be used. It may be that in the case of residents that would not have purchased new equipment at all without the program, a case may be made that for participant NNEBs, they recognize all the change from old equipment to the new efficient equipment. Also, if the measures would not have been installed for a period of time, the full NNEBs may be appropriately credited (as should the savings) during the interim. However, these are fine points on the principles discussed above.

⁴³ Dollar values of importance are a much more useful way of assessing barriers than a 1-5 "importance" scale.

program targeting, marketing, and design. We find assessment of these net non-energy benefits is critical to understanding the full range of benefits provided by programs.

They have a variety of uses:

- Benefit cost analysis (using subsets or pieces of the NEB analysis⁴⁴)
- Measuring barriers to adoption of programs. Although many process evaluation studies conclude that the program has reduced barriers from a score of 5.3 to 5.1, this information does not provide information useful in crafting a method of assign the importance of that barrier, or in addressing the barrier. Reviewing the value associated with “negative NEBs” (also interpretable as “barriers”) provides the dollar barrier – and provides a method of identifying the investment that the program may need to undertake (through rebates, “buying up” warranties, or other methods) to get potential participants – or some predictable share thereof – past the barrier and on to purchasing more efficient equipment.
- Program design: Selecting measures and selecting target groups for participants that will maximize the program impact to one or more audiences / perspectives (utilities, participants, etc.), potentially based on program goals. This can maximize the program “bang” given a fixed budget.
- Marketing / targeting programs to provide maximum benefits or target groups receiving high benefits and designing programs to achieve greatest total value related to program goals. Proctor & Gamble doesn’t sell households Tide laundry detergent based on “buy this because it gives us greatest profits”, and the implication of the NEB results has shown that selling efficiency programs on energy efficiency / conservation which is important to program design is a poor approach – these are often not the highest valued benefits participants derive from programs, and energy efficiency may not be the most appealing to advertise. The NEB results also indicate that it may not be the most important feature people want to buy. The single most common quote we get in our interviews is “well, we may have gotten some energy savings from the program, but what we really noticed is...”. People are skeptical about the savings, and they “wash out” for commercial buildings in the midst of all the other things that change year to year.
- Marketing programs to appeal to participants based on the types of benefits that they actually value to improve the “bang for the buck” in outreach expenditures.
- Compare programs or initiatives to see which provide priority benefits and select the optimal mix of programs to meet City goals..

⁴⁴ For example, the authors were involved in identifying those categories of net NEBs most appropriate to be included in a revised public purpose test for low income programs in California, and our NEB work was used to establish NEB “adders” in states in New England, etc.

2 Organization of the Model

There are three key estimation approaches applied for different benefit categories:

- **Incremental Impact:** the analytical approach is based a two step process to estimate benefits: multiplying (1) the potential *value* of a non-energy benefit times (2) the expected *change in incidence* or occurrence in the factor based on program participation. In some cases, these computations are fueled with program-specific data; in other cases, default or proxy information from other programs is used in the computation.
- **Direct computation:** An example of this computation might be computing the value of water savings from a program that replaces toilets with lower gallon models. In this case, we might estimate number of toilets retrofitted times gallons per toilet saved times number of flushes per household per year times water rates.
- **Survey based:** The literature indicates that the information on a number of the “hard to measure” (HTM) NEBs (comfort, productivity, etc.) can best be gathered using survey interview approaches. The estimation method was discussed in the previous section.
- **Other.** Other tailored approaches are used where appropriate.

These approaches allow incorporation of quantitative information from the literature, as well as allowing us to insert tailored or initiative-specific information or information from closely-related programs where it was available. This inventory of calculation approaches also allowed us to create a flexible tool that could be easily adjusted and adapted for scenario analysis. Parameters related to number of participants, anticipated impacts of program design or target audience changes, or other alternatives can be readily changed in the model and the impacts on non-energy benefits from each of three separate perspectives can be analyzed and evaluated.

2.1 Data Sources

The computations of NEBs are based on several sources of data:

- **Direct Information on the Initiative:** Background information on the proposed program design(s) for the initiative, including participant characteristics, measures included / encouraged, number of participants, etc.
- **Agency Costs and Information (“Value”):** Agency (utility or other) -specific information on costs and benefits for a variety of important categories; for instance, carrying costs on arrearages, costs per call, fees for shutoffs, etc.
- **Estimates of Impacts/Reductions (“Incidence”):** Information on the expected changes in incidence of occurrence of the benefits category for program participants. That is, after program participation, what level of reduction in number of calls to the utility could we expect because bill payment difficulties would be reduced (due to the program)? This factor, scaled by the number of participants and the marginal cost per call can be used to compute the reduction in utility costs for calls from this particular benefits category. These impact

estimates were derived from sources we assessed to be the most appropriate for the specific initiative.

- **Primary Data Collection:** For several categories of benefits, useful information is often not available from the literature or other programs. The project's schedule and budget, and the array of initiatives being considered by the City make it difficult to develop tailored "incidence" figures; therefore, we use the literature to address many of these estimates.

Note that most of the spreadsheets comprising the model allow the user to select program-specific information, or to select any of a number of related studies identified in the literature. This background information can be useful when program-specific research is not available. These figures are based on quantitative information gleaned from a review of more than 400 technical, academic, conference, and research reports. In addition, the factors embedded in the model reflect findings from the analysis of NEBs for more than 50 programs around the US and internationally.

The non-energy savings are treated in "per participant per year" terms in all cases. This makes it easiest to scale the benefits up and down based on alternative program scenarios. However, the benefits can be translated into other terms (including total program terms or percentage "adders"), depending on the analytical application. In some cases, the environmental or "green" initiatives the City has in mind will be control and command. It will be important to estimate the number of buildings or participants affected by the program – either using ranges or other estimates. The program's non-energy benefits can then be assessed and compared based on payback, benefit-cost ratio, present value, and a variety of other criteria.

Some of the particular benefits of the "NEBS-It"© model are:

- Measures benefits based on multiple media – energy, water, waste, and air/emissions
- Measures societal benefits including direct and induced economic multipliers, tax impacts,
- Computes the impacts specifically due to the program
- Easily modified to add new benefit categories
- Computes current benefits and net present value, and also aggregates benefits by subcategories

2.2 Structure and Conventions of the Model

The model consists of a number of worksheets, each performing a function or estimating a benefit category. There are several customs in how the model is written:

- White cells represent places the user enters data, information, or settings;
- Yellow or grey or red cells are computed by the model and the user does not adjust these;
- Yellow and orange cells on individual sheets represent data selections made by the user; then the model transfers the proper coefficient or value, and uses it in the remainder of the computation of NEBs.
- Red cells represent final results for individual NEBs, and the contents are transferred to the "results" sheet 3A.

- The model is internally documented, with instructions on each individual sheet, and coding to highlight data entry (white cells).

Each relevant sheet of the model has a function.

- Sheet 0 – data entry by user for up to 20 programs or initiatives. This very important sheet is displayed below. Where user data cannot be supplied, default data are input to support the computations.
- Sheet 1 – summary benefit/cost results for 1 program
- Sheet 2 – Summary of model assumptions (from data entry sheet)
- Sheet 3A – Results of NEB computations for one program – in units of per participant per year, for all participants in a year, and then discounted to form a Net present value figure for the time horizon input by the user.
- Sheet 3B – Per participant per year results for up to 20 programs, stored by the user for scenario analysis and comparison.
- Sheets 7A – 7K – benefits to utility / agency and ratepayers, by individual category
- Sheets 8A – 8J – Societal / public non-energy benefits calculations, by individual NEB category
- Sheets 9A – 9N – Residential NEBs calculations, by individual NEB category
- Sheets 10A – 10M – Commercial NEB calculations, by individual NEB category.

The model will support data entry for up to 20 programs or initiatives. The model presents the results for any one program (Sheet 3A); however, results from up to 20 scenarios or initiatives may be saved on a scenario sheet (3B) and the results compared across programs.

The computations derived in Sheets 7A-7K, 8A – 8J, 9A-9N, and 10A-10M are self-documented. The data and sources for each step of the computation is clearly laid out on the sheet.

A sample of the types of initiatives that Oakland may want to be able to model include the following. The priorities are CECO and RECO for the early round. For convenience, these headings have been added to the data entry sheet.

- California Youth Energy Services
- Realtor Energy Checkup program
- Smart Lights
- BEST
- Quantum Consulting Building tune up program
- Municipal energy management program
- Green building ordinance
- RECO – Residential EE Required at time of sale
- CECO – Commercial EE required at time of sale
- Energy Efficient mortgages
- Residential beyond T-24 performance standards
- Equity express
- Alameda Green Building program
- Green building initiatives or resource center
- PG&E savings by design

- Green architecture and sustainable construction initiatives

Sheet 0 – Data Entry (Image)

This sheet is the source of the bulk of the program- and agency-specific data used to compute the NEBs. Where these entries are missing, default data from other programs and research may be used. The image of this sheet follows.

SERA "NEBS-It"® Model - Oakland Sustainability Edition - Sheet 0 - Data Entry			
<u>PROGRAM DATA INPUT SHEET FOR NON-ENERGY BENEFITS -- FOR UP TO 20 PROGRAMS</u>			
Select ONE program to Model using a "1"==>		0	1
<i>Colored groupings are choices -- pick ONE for a "1" Grey cells are used in model==></i>	<i>Realtor EZ Checkup</i>	<i>Calif Youth Energy Svcs</i>	<i>Realtor EZ Checkup</i>
Needed Data Entries -- Estimated or Stand-ins	2	1	2
PROGRAM BASICS			
L Sector: Residential program OR	1	0	1
Low Income focus program OR	0	0	0
y Comm'l program OR	0	0	0
y Other program	0	1	0
Percent of res participants assumed to be low income	0%	0%	0%
Energy Affected: Baseload program OR	1	1	1
Peaking program	0	0	0
Program type: Incentives for EE OR	1	0	1
Codes & standards for EE OR	0	0	0
Other 1 OR	0	1	0
Other 2	0	0	0
L Program Year (Labeling purposes)	2007	2007	2007
Program Horizon assumption, years (e.g. 10)	10	10	10
Percent of SF hhs assumed to participate	10%	10%	10%
Percent of MF hhs assumed to participate	10%	10%	10%
Percent of comm'l buildings assumed to participate	0%	0%	0%
y Number of Participants	3975	3,000	3,975
Program costs - incentives (per participant)	1000	1,000	1,000
Program costs - Measure costs (per partic)	1000	1,000	1,000
Program costs - installation, etc. (per partic)	1000	1,000	1,000
Program costs - administrative (total)	1000	1,000	1,000
Program costs - remaining (total)	1000	1,000	1,000

Incremental cost for participants (per participant)	1000	1,000	1,000
Total Program cost for Agency (avg per participant)	1000	1,000	1,000
ENERGY & OTHER SAVINGS INFO			
Energy Net to gross ratio	0	n/a	n/a
Electricity savings per customer participant (kwh/yr)	531.85	532	532
Therm savings per customer participant (thm/yr)	11.84	12	12
<i>Oil savings per participant (gal/yr)</i>	33093	33,093	33,093
Rate per kWh (in dollars)	\$0.10	\$0.10	\$0.10
Rate per Therm (in dollars)	\$1.15	\$1.15	\$1.15
<i>Oil rate per gal (in dollars)</i>	\$5.24	\$5.24	\$5.24
KW saved per average participant	\$0.00	\$0.00	\$0.00
kW rate	\$0.00	\$0.00	\$0.00
Rate subsidy percentage for Low income participants	35.0%	35.0%	35.0%
Garbage tons reduction per participant	0	0	0
Recycling tonnage diversion incr. per participant	0	0	0
Yard waste / organics ton diverted increase/partic	0	0	0
Percent of participants receiving solid waste interventions	0	0	0
Proxy for per-ton value of LF lifetime extension (per ton)	0	0	0
Water savings per participant	0	calc	calc
Water rate \$ per gallon	\$0.01	\$0.01	\$0.01
Sewer rate per gallon	\$0.00	\$0.00	\$0.00
DISCOUNT / INTEREST RATES			
Discount rate for agency benefits	8.1%	8.1%	8.1%
Discount rate for societal benefits	3.0%	3.0%	3.0%
Discount rate for participant benefits	18.0%	18.0%	18.0%
Interest rate charged on arrearages	8.1%	8.1%	8.1%
Minimum wage per hour (\$6.75 default)	\$6.75	\$6.75	\$6.75
TAXES AND ECONOMIC MULTIPLIERS			
Tax rate 1 - on the direct economic expenditures	0.01	1.00%	1.00%
Tax rate 2 - on the induced economic expend's	0.01	1.00%	1.00%
Use NATIONAL economic multipliers OR	0	0	0
Use STATE economic multipliers OR	1	1	1
Use COUNTY economic multipliers	0	0	0
Net econ multiplier type - Weatherization type OR	1	1	1
Net econ multiplier type - Other(eqpt based)	0	0	0
GENERATION FUEL MIX - BASELOAD			
NG combustion --- group must add to 100%	6.0%	6.0%	6.0%
Coal	0.0%	0.0%	0.0%
Nuclear	0.0%	0.0%	0.0%
Oil	0.0%	0.0%	0.0%
ICLI Hydro	53.0%	53.0%	53.0%
Biofuels	41.0%	41.0%	41.0%
GENERATION FUEL MIX - PEAKING			
NG combustion --- group must add to 100%	6.0%	6.0%	6.0%
Coal	0.0%	0.0%	0.0%
Nuclear	0.0%	0.0%	0.0%

Oil	0.0%	0.0%	0.0%
Hydro	53.0%	53.0%	53.0%
Biofuels	41.0%	41.0%	41.0%
RESIDENTIAL MEASURES - % WITH MEASURE			
<i>Cost of household repairs per average participant</i>	\$100.00	\$100.00	\$100.00
<i>Percent with gas checks (of ALL participants)</i>	0.0%	0.0%	0.0%
<i>Percent with aerators</i>	0.0%	0.0%	0.0%
<i>Percent with low flow showerheads</i>	0.0%	0.0%	0.0%
<i>Percent with CO monitors</i>	0.0%	0.0%	0.0%
<i>Percent with household repairs</i>	0.0%	0.0%	0.0%
<i>Percent with "education"</i>	0.0%	0.0%	0.0%
<i>Percent with audit</i>	0.0%	0.0%	0.0%
<i>Percent with CFLs</i>	0.0%	0.0%	0.0%
<i>Average number of CFLs installed / participant</i>	1.5	1.5	1.5
<i>Percent with H&S measures</i>	0.0%	0.0%	0.0%
<i>Percent with fire-related measures</i>	5.1%	5.1%	5.1%
<i>Percent with refrigerators</i>	16.7%	16.7%	16.7%
<i>Percent with Insulation</i>	4.7%	4.7%	4.7%
<i>Percent with furnace measures</i>	2.3%	2.3%	2.3%
<i>Percent with caulking&weatherstripping</i>	100.0%	100.0%	100.0%
<i>Percent with E* washers installed</i>	8.5%	8.5%	8.5%
<i>Percent with other water devices replaced</i>	10.0%	10.0%	10.0%
<i>Average water savings per participant (gal/yr)</i>	100	100	100
Other1	0.0%	0.0%	0.0%
Other 2	0.0%	0.0%	0.0%
COMMERCIAL BUSINESS TYPES - % OF PARTICIPANTS			
Grocery	10%	10%	10%
Hotel / Motel	10%	10%	10%
Manufacturing	0%		
Medical	0%		
Office	60%	60%	60%
Prison	0%		
Public space	0%		
Residential / MF	0%		
Restaurant	0%		
Schools	20%	20%	20%
Transport/Shipping	0%		
Warehouse	0%		
Wholesale/Retail	0%		
Other	0%		
PCT PARTICIPANTS INSTALLING MEASURE			
Air Compressor	100%	100%	100%
Audit	0%	0%	0%
Commissioning	0%	0%	0%
Controls	0%	0%	0%
HVAC	100%	100%	100%
Lighting	100%	100%	100%
Motors	100%	100%	100%
Process Eqpt	100%	100%	100%
Refrigeration	100%	100%	100%

Water	100%	100%	100%
Daylighting	100%	100%	100%
Training	0%	0%	0%
Other	0%	0%	0%
Other	0%	0%	0%

Sheet 1 – Benefit Cost Summary

This sheet uses information from the other sheets to compute benefit cost ratios including various combinations of the NEBs. There are no user inputs on this sheet.

Sheet 2 – Summary Assumptions

This sheet summarizes and reorganizes the data input in Sheet 0.

Sheet 3A – NEBs List

The list of benefits for which the model is able to estimate NEBs is depicted in the following image. For any particular model run, the user may select “in” or “out” any one of the NEB categories. These selections are made on this sheet by checking or unchecking a box. In some cases, particular NEBs may not be relevant; in others, it may be that the user only needs one perspective, or there may be NEBs that are more speculative than the user or their audience desires. The number associated with the NEB category links back to the worksheet that computes the value of that NEB.

NEB Categories Available: From Sheet 3A – NEB Results for 1 program

AGENCY / UTILITY NEBS

- 7A Reduced Carrying Cost on Arrearages (interest)
- 7B Lower Bad Debt Written Off
- 7C Fewer Shutoffs
- 7D Fewer Reconnects
- 7E Fewer Notices
- 7F Fewer Customer Calls
- 7G Lower Collection Costs
- 7H Red'n in emergency gas service calls
- 7I Utility Health & Safety - Insurance savings only
- 7J Transmission and/or distribution savings (distribution only)
- 7K Utility Rate Subsidy Avoided (CARE) payments
- Space for other entries
- Space for other entries

SOCIETAL / PUBLIC NEBS

- 8A Economic impact (direct and indirect employment) – National
- 8B Economic impact (direct and indirect employment) - State
- 8C Economic impact (direct and indirect employment) – County
- 8D Tax impacts on County economic impacts
- 8E Emissions / Environmental

- 8F Health and Safety Equipment (CO and Other H&S)
- 8G Public health (asthma, etc.)
- 8H Water and wastewater (avoided)
- 8I Solid Waste - landfill extension
- 8J Solid waste - emissions reductions

RESIDENTIAL PARTICIPANT NEBS

- 9A Program rebate (directly from assumptions above)
- 9B Water/sewer savings
- 9C Fewer shutoffs
- 9D Fewer Calls to the utility
- 9E Fewer reconnects
- 9F Property value benefits
- 9G Fewer fires
- 9H Indoor Air quality (CO-related)
- 9I Moving costs / mobility
- 9J Fewer Illnesses and lost days from work/school
- 9K Reduced transactions costs (limited measures)
- 9L Net Household Benefits from Comfort, Noise, net of negatives
- 9M Net Household Benefits from Additional Hardship Benefits
- 9N Other Participant NEBs / Direct entry Participant Survey Analysis

COMMERCIAL PARTICIPANT NEBS

- 10A Better light, space
- 10B Comfort
- 10C Aesthetics
- 10D Productivity
- 10E Fewer complaints
- 10F Safety
- 10G Water savings
- 10H Equipment life, maint
- 10I Control of equip
- 10J Environmental
- 10K Lower product loss
- 10L Other Direct Entry from Participant Survey Analysis
- 10M Easier to lease / rent building; building value
- Other
- Other

The user works through each sheet, selecting the most appropriate “impacts” for the particular intervention, with selection achieved by “checking” the box associated with the most relevant data. The model then applies those values to the computations, and the model transfers the results onto the summary page, sheet 3A. The source of each proxy value is provided, as is the number and any relevant notes affecting its selection by the

user. These values reflect the data culled from more than 400 technical studies in NEBs. .

Sheet 3B – Scenario analysis

After running each scenario, the user may copy the last column of results, and paste the information into Sheet 3B- scenario analysis to compare and tweak programs and initiatives to better achieve goals.

Sheet 4 – Graphs of results

Key results automatically print onto pie and bar charts, with one graph for each perspective.

Sheets 7, 8, 9, and 10

Sheets 7A – 10M - Individual sheets for individual NEB categories

These sheets describe the benefit and computational method or methods. In some cases, two competing computation methods are provided in the sheet; the user may select the one that uses the data from sources they find more reliable.

2.3 Agency / Utility Benefits Description

7A. CARRYING COSTS ON ARREARAGES.

Utilities realize financial savings when customer bills are paid on time. EE programs help reduce customer bills, improving the chances that customers will be able to keep up with payments.

7B. BAD DEBT WRITE-OFF

Annual write-offs of non-collectibles by utilities represents a very real cost to utilities and their "bottom lines". Programs can help make energy bills more manageable for program participants, potentially reducing the bad debt for these customers.

7C. FEWER SHUTOFFS AND RECONNECTS.

Programs can lead to an improvement in customer's abilities to pay their bills, and as mentioned before, to lower arrearage and write-off balances. As a corollary, we anticipate a similar reduction in the number of customers with service disconnected for non-payment. This saves additional utility costs, reflected in ratepayer savings.

7D. FEWER NOTICES AND CUSTOMER CALLS.

Greater energy bill affordability and improved energy education resulting from the combined weatherization and education efforts of the program is expected to reduce not only the arrearages and payment problems, but the also lead to auxiliary benefits in the form of fewer customer notices of non-payments, and fewer customer calls to the utility. Both of these benefits result in real savings in staff time and materials to the utility, ultimately reflected in ratepayer savings.

7E. COLLECTION COSTS.

To the extent that a utility expends efforts in attempting to collect late or non-payments (e.g., hiring a collection agency, or assigning additional staff), the utility also realizes some financial savings related to improved payment patterns resulting from low income weatherization programs. If fewer accounts are in arrears or written off, then collection activities and costs are also reduced. To the extent that the utilities go to outside firms to conduct collections work, many of these firms charge on the basis of a percentage of the monies recovered. Internal utility costs for collection activities are included above; in this item we estimate savings from reductions in need for outside collection activities.

7F. SAFETY AND HEALTH BENEFITS: EMERGENCY GAS CALLS, FLEX CONNECTOR REPLACEMENTS AND INSURANCE SAVINGS

On-site visits can help reduce safety and health problems in several ways. To the extent that an EE program checks and replaces gas appliances when needed and checks gas connectors on appliances, benefits accrue to both the utilities and the customer in the form of pro-active replacement of poor gas connections before they become problematic. This reduces costs from immediate response (or emergency) calls by the utility.

7G. TRANSMISSION AND DISTRIBUTION SAVINGS

DSM programs also lead to savings in the form of transmission and distribution losses that do not occur because the power does not have to be delivered. Of course, this needs to be tempered by the level of “take back” by the program participants, but the NEB computations assume this has already been accounted for in the estimates of savings.

7H. SUBSIDIES AVOIDED.

EE programs reduce energy bills which leads to a direct reduction in the burden on the Utility's low income rate subsidy program should low income customers be beneficiaries. The value of the latter savings would be based on the specific design of a Utility's assistance program, and on the amount of the program's anticipated energy savings. For example, PG&E's program provides a 15 percent discount off rates for qualified customers subsidized by ratepayer funds. *To the extent that these dollars are not simply freed up to be provided to other low income ratepayers*, reductions in the purchase of kWh by low income customers leads to reductions in demand for these ratepayer funds.

2.4 Societal / Public NEBs Description

8A-8D. ECONOMIC BENEFITS AND TAX IMPACTS

Additional benefits accrue as secondary benefits to the economy from the program. These benefits include increased employment, earnings, and generated tax revenues; increased economic output, and decreased unemployment payments. We estimate multipliers at the local, state, and national level. In addition, tax revenues are computed

for the local economic benefits. The multipliers derive from input output analysis, and are “net”, assuming the funds are transferred from generation.

8E. ENVIRONMENTAL BENEFITS.

DSM programs can provide environmental benefits to the region and to society, particularly due to their role as a pollution abatement strategy. These include assisting in meeting Clean Air Act goals, reduction in acid rain, and a variety of other environmental benefits. The emissions are valued based on one of 15 options available in the model, or other data input by the user.

8F. HEALTH AND SAFETY.

One inherent risk that may be reduced through weatherization programs derive from carbon monoxide exposure. This may occur if 1) CO monitors are installed, or 2) equipment is inspected during the site visit. In addition, EE and sustainability programs are often geared toward helping improve public health through reductions in asthma outbreaks, etc. This sheet estimates these NEBs.

8G. WATER AND WASTEWATER SAVINGS

Water is a precious resource in California, and development of new supply is costly. To the extent that the weatherization program includes measures that save energy for hot water and secondarily save water, society benefits. The volume of avoided water and waste water use can be valued at the avoided water cost or cost of the next water supply source. Deferring development of a dam or next water source has significant benefits to communities in keeping rates low.

Landfill and landfill GHG to be written

2.5 Participant NEBs Descriptions

The following section describes the NEBs in terms of residential benefits. Benefits accrue in parallel terms for other participant groups.

1. Fewer Bill-Related Calls to the Utility

As participants realize energy savings from the program, their bills decrease and they are presumably better able to pay their bills. Without bill crises, participants may reduce the number of calls they make to the utility to address bill payment issues. On the utility side, we developed estimates of the utility labor and other savings ensuing from this decrease in calls. However participants also save time making the calls. These are the benefits estimated here.

2. Fewer service terminations.

Providing customers with weatherization services and education on reducing energy use helps customers reduce bills and presumably improves their payment record. Customers experience fewer arrearages and fewer would be expected to reach the position of service terminations (TONP).

3. Fewer Bill payment Concerns/ Hassles

One of the ways in which efficiency programs provide assistance is through the lower energy bills. High bills and arrearages lead to notices and dunning calls potentially from the utility, but probably also from other creditors. Lower bills are easier for residents to pay, and residents may be able to more easily pay not only the energy bill, but other bills as well. This may provide significant improvements to residents in terms of lower bill payment hassles, and actual psychic benefits from not feeling under the gun on their energy bills.

4. Reduced Homelessness and Mobility.

High energy costs can make it difficult for residential customers to keep up with their bills, and this may include rent or mortgage payments. There are several costs associated with this phenomenon – some direct, and some less direct.

5. Feeling of Control Over Bills / Energy Use

Similar to the bill payment / hassle benefits, the education participants receive may help them feel more in control of their energy use. This may be an important benefits to customers, helping them avoid getting into bill payment difficulties in the future – to a degree beyond what they would get simply through more efficient equipment.

6. Reduced Transactions Costs.

Customers gain benefits from not having to educate themselves about conservation measures, not having to locate the items in the marketplace for purchase, and the reduction in transaction costs from having efficient products more widely available. The ideal data elements and sources are described below, as well as weaknesses in the data available for use for this study.

7. Property Values, and Aesthetics/Appearance

EE programs often provide a number of services that improve the dwelling's value and longevity. These services include some shell-related measures that may improve aesthetics and value. In addition, some upgrades and measures may decrease maintenance requirements.

8. Comfort, Health, and Safety.

Comfort and noise: Weatherization programs improve household comfort by making the house warmer (and making it more affordable to keep warm), reducing draftiness, reducing noise, and other improvements. Limited work on quantification of comfort benefits has occurred, mostly addressing storm windows or storm doors retrofits. Skumatz (1996) cites one program that attributes only 25 percent of the overall benefits from storm windows to the energy portion, and only 10 percent of the overall benefits

from storm doors to energy savings. Noise, comfort, and other non-energy benefits make up the majority of overall benefits from the installation of these two measures. These estimates assumed that duct, caulking and similar measures had no significant non-energy benefits; and the energy savings were assumed to fully represent the measure's benefits. Other utilities note customer willingness to pay for storm window-type measures as strong evidence of customer non-energy benefits from these measures. Noise is another important component of the benefits mentioned from weatherization programs. Customer willingness to pay surveys provide an opportunity to quantify both comfort and noise benefits.

9. Performance Improvement

The new equipment installed in the home provides another source of benefits that participants receive from the program. These benefits include reduced equipment maintenance, improved service from the equipment (better options and features), quieter operation, aesthetics, and other potential benefits. Of course, we are interested in positive or negative benefits – it may be that the new equipment does not have the same features as the old machine, and the net benefit may not be positive from this change.

10. Water and Sewer Savings.

One additional area of significant benefits to customers from weatherization programs can be the value of the water savings from reduced usage because of showerhead and faucet aerator retrofits – especially given high water / wastewater rates in California.

11. Value of benefits to the environment

Over and over in customers surveys, they note that one key benefits (mentioned not long after the bill savings) was their feeling of helping the environment. The willingness to pay survey provides a chance for the participants to assign a value and importance to that benefits. This particular benefit, being largely psychic (the strict environmental benefits are categorized under the societal section), has relevance to an assessment of what participants get out of participating in the program.

12. Other Participant NEBs.

A number of other non-energy benefits from weatherization and education programs could presumably be attributed to customers, but were not incorporated into the estimate of savings at this time. We believe they are small, hard to estimate, or too indirect. These include:

- Other medical and doctor-related savings;
- Job progression / promotion benefits and some school attendance benefits
- Value of having more usable square feet in the dwelling at all times (from improved ability to heat the dwelling), among other benefits;
- Value of other items the participants can buy with their bill savings (assumed to double count with the bill savings).

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Appendix I

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