



A Navigant Consulting Project

Local Energy Efficiency Program Workbook

Appendix C: Pilot Programs

March 2006

Pilots

Six pilot programs were completed as part of the Leep project. These pilots were selected because they represented a range of communities with different attributes and energy efficiency characteristics, including:

- Structural diversity (including pilots in a city, county, JPA, and a water agency)
- Geographic diversity (balance between coastal and inland locations and between Northern and Southern California locations)
- Energy Profile (including different types of energy customers, demographics, and climates)
- Capabilities and previous experience with energy efficiency initiatives.

Pilots

The objective of the pilot programs was to gather information and insight into the realities of community energy efficiency programs and to refine the 5-step process described in the CALeep Workbook. The six pilot programs are described in the following pages.

- Fresno Regional Jobs Initiative; linking creation of jobs with energy efficiency
- Sonoma County:
 - County/city greenhouse gas reduction commitments
 - Redevelopment Agencies – access and mandates to serve hard to reach markets
- City of Oakland: comprehensive plan for addressing EE throughout community (economic development focus)
- Inland Empire Utilities Agency: Water and wastewater process improvements; constituent water use and energy efficiency program linkage
- South Bay Cities Council of Governments: a 15 City joint powers authority (JPA); included public facility EE surveys
- Ventura County Regional Energy Alliance: City, County and Community College District JPA; Residential and nonresidential new construction program

The objective of the San Joaquin Valley Pilot program was to create an aggressive energy efficiency roadmap for business and local government agencies involved with the Fresno Regional Jobs Initiative (RJI), and to establish an infrastructure to facilitate its implementation. This program was implemented through the Great Valley Center (GVC) and its consultant, Strategic Energy Initiatives (SEI), which received funding from CALeep. The intent was for the pilot to use the existing outreach and implementation channels of the RJI – originally set up to facilitate increased employment in targeted sectors – to facilitate energy efficiency in the community.

Background

Located near the geographic center of California, the San Joaquin Valley has been plagued with high unemployment for at least the last two decades. The Fresno Regional Jobs Initiative (RJI), launched in 2002, provides a framework for economic development that CALeep believed could also serve as a community engagement channel for energy efficiency. The RJI is a unique public-private collaborative made up regional industry leaders and local government officials. Its overall goal is to directly stimulate the creation of 30,000 new jobs by 2008, with an average salary of \$29,500. The founding members of the RJI were the mayors of Fresno and Clovis, the President of the Fresno County Board of Supervisors, the Provost of CSU Fresno and over 200 other business, education, civic, and labor leaders. The RJI's mandate is to assist, motivate, and help lead its member organizations to achieve their stated job creation goals.

In total there are over 300 members organizations contributing dues to help sustain the Regional Jobs Initiative, including organizations in nine employment “clusters.” In essence, the RJI is a long-term effort by the private, public, and education sectors of the Fresno region to create a more dynamic local economy able to support more sustainable job growth and to also attract and retain talented companies, entrepreneurs and individuals.

Why Use the RJI As A Local Champion

The RJI provided a tremendous resource for CALeep to tap into for its pilot program. The RJI serves as a local champion able to encourage the implementation of the energy efficiency roadmap's recommendations. Among the other advantages of working with a newly formed and well-known public-private venture to transform the local economy, working with the RJI also provided the CALeep team with:

- A self-sustaining organization that could drive the efficiency initiative.
- Access to private capital (i.e., investments by member firms) during the implementation phase
- Collaborative funding potential from local government
- An existing and well known vehicle to conduct outreach
- A well-connected and supported venture within both the political and business establishment of the Fresno Region.

Objectives

The original objectives of this pilot project were as follows:

- Demonstrate the utility of using the RJI as an energy efficiency community engagement channel.
- Develop a matrix of energy efficiency opportunities for the RJI employment clusters and select a limited number of clusters for further analysis.
- Develop the value proposition for specific employment clusters and obtain buy-in from cluster leadership, promoting the value of energy efficiency in lowering member operating costs, enhancing their competitive positions, and potentially sustaining/building market share.
- Assist each targeted cluster in performing energy audits of its operations and recommending energy efficiency upgrades, as needed, and map available technical and financial resources to high-potential energy efficiency projects.
- Identify opportunities to provide training associated with Title 24 compliance, inspection and practice review (construction cluster). Initiate training program development discussions and gain acceptance from stakeholders.

As the pilot implementation team learned what the community wanted, the pilot objectives shifted to focus more on building a sustainable energy efficiency infrastructure rather than improving the efficiency of a few selected buildings. Respecting this and supporting what was now a community initiative in which the community was taking substantial ownership was consistent with CALeep's overall intent to maximize sustainability.

Organization

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 creation of the energy efficiency roadmap ultimately titled “Clean Energy Roadmap for the Greater Fresno Area” (roadmap), and during this process established the California Partnership for the San Joaquin Valley.

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:

Organization (continued)

- 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

Key Activities

Work was organized along two parallel tracks. One track was to focus on developing an energy efficiency “roadmap” for RJI and its members. This was to include interviews, audits/surveys, and other data collection. The goal of the first track was to recommend to the businesses and policy officials already involved with the RJI a course of action to increase both energy efficiency and employment. It was also to identify funding sources and champions to pilot the implementation of the roadmap recommendations.

The other track was to focus on preparing local government entities to support the adoption of the roadmap's recommendations. The goal of the second track was to prepare a select group of staff within local government agencies to provide resources such as staff support, enabling legislation, code/regulation modifications, grant funding, and/or low-cost financing.

Initial survey efforts with cluster members revealed significant interest in obtaining energy efficiency audits of facilities but found a low level of understanding regarding energy efficiency. Rather than simply map the member companies to existing efficiency programs to identify savings opportunities and possibly achieve energy savings in a few specific buildings, the pilot shifted focus to identify overarching goals and build a sustainable infrastructure that could develop numerous efficiency projects over time. The GVC and SEI worked with key community leaders, including some of the cluster leaders, to develop a roadmap that focused on four primary areas and identified key stakeholders to serve as champions for activities in each area.

Key Activities (continued)

The initial steps involved identifying assets, channels for communication and outreach, and local champions. A steering committee was established to guide the effort and create the framework for the Roadmap. The steering committee helped identify vision statements, goals, and bold steps in four priority areas. The pilot also obtained broader public input through a community meeting. Clean energy stakeholders, community leaders and potential project “champions” throughout the Greater Fresno Area were interviewed. Best practices were further researched.

The Roadmap was drafted and, after a second public meeting, finalized. The final Energy Efficiency Roadmap is briefly summarized below and can be found on the CALeep website under “Pilot Projects → San Joaquin”. Key to the success of the Roadmap has been the incorporation of the interests of multiple stakeholders and the resources of multiple organizations. A strong connection was also forged with an initiative that the Governor established to address air quality, work force development and economic development in the San Joaquin Valley. It is hoped that this connection will accelerate and enhance implementation of some of the recommendations.

Key champions were identified for the activities in each of four priority areas identified in the Roadmap, and their commitments to follow through with the Roadmap’s recommendations were obtained. Significant work is underway in implementing the recommendations.

The Fresno RJI Roadmap

The Roadmap highlights existing projects, new opportunities, and provides next steps for carrying out its recommendations. The focus is on four priority opportunity areas:

- *The Built Environment.* The greatest opportunities: 1) encourage local cities to adopt green building policies, 2) help them make clean energy improvements to their facilities, and 3) “green” planned projects and developments.
- *Power Production.* The greatest opportunities: 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: 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: 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.

Specific 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.
- *Clean Energy Infrastructure.* This includes supporting actions necessary to 1) develop a regional *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.

Lessons Learned

- The pilot project achieved its primary goal of establishing a roadmap (see the CALeep website) 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.
- 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, addressing facility audits and Title 24 training, were not achieved but 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 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.

Background

The Sonoma County Pilot Project served to test two potential community engagement channels for CALeep: community commitment to greenhouse gas (GHG) reduction and regional redevelopment agencies.

Greenhouse Gas (GHG) Reduction Channel

In August 2002, Sonoma County became the first county in the nation where 100 percent of the local governments formally pledged to reduce their GHG emissions. In September 2003, the Sonoma County Climate Protection Campaign completed greenhouse gas emission inventories for eight cities in Sonoma County. Completing the inventory project set a second national precedent; 100 percent of Sonoma County's municipalities now have emission baselines for their operations. CALeep leveraged the existing community organization and commitment to GHG reduction as a community engagement channel to implement community-wide energy efficiency.

Redevelopment Agency Channel

Ninety percent of California's cities and counties have established redevelopment agencies. Under redevelopment agency law, governments must use incremental tax proceeds to revitalize Project Area businesses, enhance protection of the physical environment, improve substandard housing and improve utility services to reduce power outages. Energy efficiency upgrades do all of these things. CALeep tested the redevelopment agency engagement channel as an effective means to implement energy efficiency in the small commercial and low-income residential customer sectors.

Greenhouse Gas (GHG) Reduction Channel

Objectives

The Sonoma County Pilot Projects had a large number of aggressive and specific objectives.

- Objective #1: Significantly increase participation in the Local Government Energy Partnership (LGEP) within Sonoma County. Establish simultaneous engagement of the nine city governments, county government and water agency through collaboration with the regional Climate Protection Campaign (CPC).
- Objective #2: Conduct joint kickoff meetings launching program activities for CALeep, the Local Government Energy Partnership (LGEP) and CPC.
- Objective #3: Establish 1-3 year(s) of baseline energy usage, categorized by usage type and ranked by cost and amount of energy, to support the development of energy assessment reports and ongoing metrics of success regarding the reduction of greenhouse gas emissions over time. Secure authorization from the county jurisdictions to receive PG&E energy billing histories for all accounts. Procure energy accounting software, and then structure and populate a database with county-wide municipal/facility energy data.
- Objective #4: Provide back-up community engagement where necessary to assist LGEP to maintain community participation. Assist at least two cities in this manner to ensure engagement of EE program development activities.

Organization

The Climate Protection Campaign (CPC), administrated by the non-profit corporation, Skymetrics, Inc., provided entrée to the organized city and county agencies, enabled by two previous years of successful collaboration that achieved community commitments to GHG reduction.

The local Government Energy Partnership (LGEP), CPC and CALeep met with each city and county organization to brief the participants on the program process.

During the pilot project period LGEP provided Energy Assessment Reports, EE Action Plans and Recommendations for nine out of ten jurisdictions.

CPC, through CALeep, obtained an energy accounting software/database; and populated same with three years of energy use data for all city and county agency service accounts.

Key Activities

The pilot funded the Climate Protection Campaign to continue its work and to record energy use baselines. The CPC also provided entrees to decisionmakers for the LGEP team to initiate energy assessment work and make its case for energy efficiency. This resulted in:

- 7 municipalities receiving energy assessment reports
- 10 municipalities initiating EE project implementation
- 5.2 GWh in savings from projects committed to or under consideration

Lessons Learned

- The connection between greenhouse gas reduction and energy efficiency is a strong one. This allows energy efficiency to be used as a tool for helping communities attain their greenhouse gas reduction goals, and it allows the greenhouse gas reduction channel to be used as a tool for achieving greater penetration for energy efficiency programs.

Redevelopment Agency (RDA) Channel

Objectives

The redevelopment agency channel was used in two distinct geographic areas: Sonoma Valley (through the Sonoma Valley Regional Advisory Committee) and the Russian River area (through the Russian River Redevelopment Oversight Committee).

Sonoma Valley Regional Advisory Committee:

- Objective #5: Obtain agreement and support from the redevelopment agency project area Regional Advisory Committee (RAC) for a CALeap pilot program targeting its low-income constituency.
- Objective #6: Working through the Sonoma Valley Redevelopment Project, conduct at least 20 residential energy audits.
- Objective #7: Collaborate with “La Luz”, a Latino organization representing a largely renter-occupant population, to engage its non-English speaking constituency. Arrange for La Luz to provide translation services to produce program promotional materials and to organize a corollary land-owner working group to address necessary EE-related dwelling upgrades.
- Objective #8: Within 90 days of the audits, follow-up with at least 90% participants to determine their responses to the audits and document whether audit recommendations had been pursued.

Objectives (continued)

Sonoma Valley Regional Advisory Committee:

- Objective #9: Produce a comprehensive summary report on the results of the 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 #10: Explore the possibility of a mobile home insulation program element. This includes estimating the potential mobile home energy audits and identifying cost-effective providers of insulation.

Russian River Redevelopment Oversight Committee:

- Objective #11: Obtain agreement and support from the redevelopment agency project area Russian River Regional Oversight Committee (ROC) for a CALEEP pilot program targeting their hard-to-reach low-income and small business constituency.
- Objective #12: Working with the ROC Energy and Affordable Housing Ad Hoc Subcommittees, conduct at least 10 energy audits on small business premises.
- Objective #13: Working with the ROC Energy and Affordable Housing Ad Hoc Subcommittees, install a limited number of energy saving materials in at least 50% of businesses that received energy audits.

Objectives (continued)

Russian River Redevelopment Oversight Committee:

- Objective #14: Within 90 days of the audits, follow-up with each participating business to determine their responses to the audits and document whether audit recommendations had been pursued.
- Objective #15: Working with the Russian River Redevelopment Oversight Committee (RRROC) Energy and Affordable Housing Ad Hoc Subcommittees, conduct at least 20 energy audits for eligible low-income households.

Combined Redevelopment Project Area Objectives:

- Objective #16: Obtain agreement and support from the Sonoma County Community Development Commission including its agreement to provide a cash match for the CALeep grant of \$75,000, and use of its facilities and staff time to support community engagement.
- Objective #17: Test a collaborative approach to community engagement wherein volunteer local high school students are trained to perform small business audits. Provide oversight, coaching and mentoring to the students who will produce audit reports in a learning environment for community businesses; train ten students who will conduct the 20 small business energy audits.

Organization

Redevelopment Agency Engagement

The Sonoma County Redevelopment Commission (Commission) passed a resolution approving an energy efficiency initiative whereby CALeep and the Commission would share the cost to provide energy audits and energy efficiency upgrades at small business and low-income residences located in the Sonoma Valley and Russian River Redevelopment Project Areas.

Key Activities

CALeep, The Sonoma County Redevelopment Agency (RDA), Strategic Energy Innovations (SEI) and the Small Business Energy Alliance, working in the Russian River and Sonoma Valley Redevelopment Project Areas performed the following roles:

- RDA staff enrolled low-income residential program participants.
- SEI trained high-school students to perform residential and commercial energy audits.
- SEI and high-school students performed energy audits at 74 low-income residences and 40 small businesses in the two project areas.
- The “La Luz” community based organization assisted with outreach to the Latino population in the Sonoma Valley Redevelopment Project Area to facilitate low-income residential energy audits.
- SEI and high-school students entered residential energy audit information into the Lawrence Berkeley National Laboratory “Home Energy Saver” web based energy audit tool.

Key Activities (continued)

- SEI provided small commercial customer facility audit information to the Small Business Energy Alliance (SBEA).
- SBEA engaged contractors to implement energy efficiency measures at the small commercial customer facilities .
- CALeep selected contractors, via competitive bid, to implement recommended residential energy efficiency upgrades.
- RDA and CALeep shared the costs to install all energy efficiency measures on a 50%/50% basis.

All objectives were achieved. To-date 74 single family dwellings received attic insulation, 18 new Energy Star refrigerators are planned for installation to low-income families, and 29 small businesses received lighting efficiency upgrades.

Lessons Learned

- Redevelopment agencies are also effective community engagement channels, especially for low-income 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.

Lessons Learned (continued)

- 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 EE program and project planning.
- While existing CPUC programs may seem to have an appropriate scope to assist RDAs in supporting their EE 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 and 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.

Background

Oakland is the 3rd largest city in the San Francisco Bay area. Its population of 400,000 is projected to grow only 10 percent by 2020 but employment is projected to grow by 26 percent over the same period. However, Oakland also has a large concentration of low and moderate income households and its poverty rate is nearly 19%, compared with 8.5% for the Bay Area as a whole.

The City of Oakland has been an energy efficiency pioneer, reducing energy consumption in City-owned facilities by 19% since 1990. In 1996, the Oakland City Council pledged to take a leadership role in increasing energy efficiency and reducing greenhouse gas (GhG) emissions. The City also adopted the Sustainable Community Development Initiative in 1998 that contained two key recommendations for reducing greenhouse gas emissions:

- Encourage affordable in-fill housing, mixed use development, and sustainable building practices.
- Make the City of Oakland operations and services a model of sustainable community development practices.

Even though the GhG reduction resolution was passed in 1996, the City did not draft an Action Plan until 1999 and there was no specific articulation of what was required to meet the targets and implement the general measures described in the plan. No system had been put in place to measure and report on progress. (This became a key issue to address in the CALeep pilot program.)

Background (continued)

In the 5 years since the action plan was drafted, the City has continued to make significant progress on energy efficiency in its own facilities but more limited progress community-wide. One reason for this is that, while the City had committed financial resources and dedicated staff to achieving energy efficiency in its own facilities, this had not been done with respect to community-wide programs.

Today, the City 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.

Objectives

The objective of the CALeep Oakland pilot project was to develop a "ten-year energy efficiency action plan." This initiative would use the existing "channel" of the city's Sustainable Economic Development Strategy to facilitate a more comprehensive approach to implementing energy efficiency. The city's existing energy efficiency efforts would be incorporated into a broader framework. The plan would provide a means to prioritize such activities in terms of all energy efficiency projects the city might engage in to promote economic development and reduce its greenhouse gas emissions.

Objectives (continued)

The objectives can be summarized as follows:

- Develop an energy efficiency component for Oakland's Sustainability-oriented Economic Development Plan. The goals for the plan include:
 - increasing economic benefits/economic development for the community
 - reducing greenhouse gas emissions
 - reducing energy usage
- Help the city develop the means to plan, implement and monitor progress of its energy efficiency programs.
- Embrace and support Oakland's existing energy efficiency initiatives by incorporating them within a broader framework.

Organization

The Mayor's Sustainability Director was the program champion, and staff assistance was provided by the public works agency energy efficiency staff.

Since Oakland already had a robust energy efficiency program for its own facilities and had a 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. The most critical barriers were found to be internal to the city government including:

Organization (continued)

- 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.

To address these barriers, an outside consultant was brought in to coordinate the pilot program.

Key Activities

- Develop a Ten Year Energy Action Plan.
- Adapt a proprietary "Non-Energy Benefits" model for use by Oakland to analyze the impact of energy efficiency strategies on the City's adopted policy goals. The model is essentially a means to quantify the non-energy benefits of energy efficiency in terms of the City's policy goals.

Key Activities

- Analyze market sector energy use to prioritize energy efficiency initiatives. 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 is being conducted to better understand the market segments accounting for the majority of energy demand in the City. It was found that 1% of the City's customers account for more than 60% of Oakland's energy load. While City staff focused on evaluating and updating the GhG reduction initiative, outside consultants are synthesizing the energy data to develop an energy efficiency action plan that will prioritize near-term measures. They are also creating a template for reporting and prioritizing of energy efficiency initiatives into the future.
- Review and update Oakland's 1999 GhG reduction plan in the context of the energy action plan

Results

Pilot deliverables are being finalized. The final results are expected to be as follows:

- Identify critical market segments for prioritizing energy efficiency initiatives. This information will be useful to the City in targeting these high-use commercial/industrial customers.

Results (continued)

- Develop the Ten Year Energy Action Plan recommending near-term initiatives and an ongoing process for choosing future initiatives that will both reduce energy use and address Oakland's policy goals. Develop templates to streamline reporting and updating of the energy action plan in the future.
- Adaptation of the non-energy benefits model is expected to provide decision makers a means to holistically value the community impact of energy efficiency strategies. CALeep has helped Oakland obtain the right to use the proprietary model in perpetuity, allowing it to be adopted as a permanent tool for future analysis. Other communities will also be able to afford and adopt this model for their own communities.
- 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.
- Help define better metrics for Oakland's performance-based policy budget, to assist in the allocation of resources to meet the City's sustainable energy policies.
- Develop recommendations for resources needed to maintain ongoing monitoring and implementation of GhG reduction strategies.

Results (continued)

While the energy action plan will provide a roadmap, successful implementation requires that Oakland decision makers allocate new resources to implement the plan. The CALeep pilot program will leave Oakland better able to make pragmatic choices and overcome the barriers that have slowed community-wide energy initiatives in the past.

Lessons Learned

- 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.

Lessons Learned (continued)

- 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.

Background

Inland Empire Utilities Agency (IEUA) is a California water district that provides wholesale water and wastewater services to 700,000 customers within San Bernardino County. Service is provided to the cities of Chino, Chino Hills, Fontana, Montclair, Ontario and Upland; the Cucamonga Valley and Monte Vista Water Districts, and the Water Facilities Authority.

IEUA's mission is:

- To supply imported and recycled water, collect, treat, and dispose of wastewater, and to provide other utility-related services to the agencies it serves.
- To provide these services in a regionally planned, managed, and cost effective manner which protects the public health environment, and maintains a high level of public awareness.

IEUA is an early adopter of best practices and already a fairly sophisticated energy user. 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. A copy of the best practices guide is on the Flex Your Power (www.fypower.com) and CALeep (www.caleep.com) websites.

Background (continued)

Unlike many entities that lost momentum after the power crisis, IEUA took the opportunity to develop, and is presently on track with implementation of, a long term energy action plan. As progressive as IEUA has been, it is facing significant regulatory and supply challenges that will require continual innovation to meet demands for water at reasonable rates. Current projections expect peak demand to increase from 9MW, today, to as much as 25 MW by 2010.

Recently, IEUA was advised that increased costs of natural gas would result in significant increased prices for both gas and electricity. Although IEUA self-produces a substantial amount of its own power requirements, IEUA projects that in fiscal year 2007, its electricity budget will increase 25% and its gas budget will increase as much as 75%. IEUA is highly motivated to quickly reduce its energy consumption and to develop new renewable sources.

As a regional wastewater treatment utility, IEUA has determined that its most effective means of reducing energy consumption is first to reduce energy consumption in IEUA systems and facilities, and then to reduce water consumption by end users in the Chino Basin.

Objectives

- Improve IEUA's existing Energy Plan through more comprehensive adoption of water and energy efficiency best practices.
- Identify opportunities to increase IEUA's energy efficiency best practices using external resources.
- Develop a methodology for identifying the energy and environmental/externality benefits of end-user water conservation.
- Apply the new methodology to document the energy and environmental/externality benefits of IEUA's water conservation program portfolio.

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.

Organization

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.

The IEUA Board approved participation in CALeep at its October 6, 2004 meeting. The conduct of this project required some technical studies to be conducted. These studies were funded 50% by CALeep, and 50% by IEUA. The studies are found on the CALeep website.

Key Activities

The IEUA pilot explored a wide variety of means by which IEUA and its constituents can reduce water-related energy consumption. Activities included conservation and demand side management, as well as energy savings from system, process and operating changes. Opportunities to encourage energy efficient behavior through changed policies and programs were also identified.

The CALeep scope of activities associated with each pilot objective included the following:

Key Activities (continued)

Objective #1 - Improve IEUA's existing Energy Plan through more comprehensive adoption of water and energy efficiency best practices.

- Assisted IEUA in conducting an energy efficiency “best practices” gap assessment:
 - Identified existing policies, programs and practices at IEUA.
 - Identified and discussed “best practices” implemented by other entities (including local government, water and wastewater utilities, and others).
 - Identified gaps between current IEUA practices and industry “best practices.”
- Assisted IEUA in assessing the feasibility and impact (EE benefits, cost, other) of measures and programs that fill the identified gaps.
- Identified barriers or hurdles preventing IEUA from adopting “best practices.”
- Recommended revisions to IEUA's implementation of the energy efficiency component of the Energy plan, incorporating results of the analysis.

Key Activities (continued)

Objective #2 - Identify opportunities to increase IEUA's energy efficiency best practices using external resources.

- Documented the potential resources that can assist water and wastewater agencies in enhancing their energy efficiency.
- Assisted IEUA in identifying and applying for energy efficiency technical and funding support for IEUA projects.

Objective #3 - Develop a methodology for identifying the energy and environmental/ externality benefits of end-user water conservation.

- Estimated the value of energy saved for each unit of water saved at the end-user level.
- Computed the direct and indirect costs of energy embedded in water.
- Developed a methodology that combines these values with related environmental/externality values to compute the total resource value of avoided water consumption.

Objective #4 - Apply the new methodology to document the energy and environmental/ externality benefits of IEUA's water conservation program portfolio. Compute the energy and environmental/externality benefits of each IEUA water conservation program.

- Applied the methodology to compute the energy value of IEUA's water conservation measures.

Results

In summary, participation in CALeep yielded the following benefits:

- IEUA is developing energy efficiency design specifications for its portfolio of capital improvement projects to minimize lost energy efficiency opportunities in new or modified systems design and construction.
- IEUA identified a number of innovative opportunities for increasing the energy efficiency of its systems and operations:
 - Optimization of wastewater treatment processes, including biogas optimization
 - Efficient lighting design
 - Geothermal cooling
 - Reduced friction in pipelines
 - In-conduit hydropower
 - Occupancy lighting sensors
 - Optimization of the recycled water system

Optimizing the recycled water system would reduce electricity projections in IEUA's 2001 Recycled Water Master Plan by about 12.5 million kWh per year. Based on retail electric prices in effect as of December 2005, this one improvement could reduce IEUA's annual energy costs by nearly \$2 million.

Results (continued)

If all of the identified energy efficiency measures are ultimately implemented, IEUA could save as much as 28.5 million kWhrs 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.

Based on rates in effect in December 2005, the estimated economic benefit of all energy efficiency measures identified through CALeep is \$4.5 million. These economic benefits will be considerably higher with the Spring 2006 rate increases in both electric and gas rates.

- IEUA participated in California's policy deliberations about 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.
- IEUA became aware of a wide variety of technical and financial resources to help support its activities. IEUA was already aware of, and participating in, some of the incentive programs offered by its energy utilities. Through CALeep, IEUA identified additional SCE and SCG incentive programs that it is now preparing to access.
- 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

Results (continued)

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 to the program accomplishments mentioned above, throughout this pilot a number of reports and presentations were completed. These documents appear on the CALeep website (www.caleep.com).

Lessons Learned

- 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

Lessons Learned (continued)

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.

Lessons Learned (continued)

Additional materials related to this pilot program can be found on the CALeep website (www.caleep.com) -- see section on "Pilot Projects → Inland Empire Utilities Agency (IEUA)" and section on "Resources → Water and Energy Efficiency".

Background

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. The SBCCOG Board of Directors is composed of elected officials of its member cities. The SBCCOG conducts its business through committees and working groups composed of elected officials, city staff, government partners, and residents. Its Executive Director reports to the SBCCOG Board. Over the past five years, the SBCCOG has secured over \$2.6 million in grants for energy efficiency programs for the South Bay.

The SBCCOG'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. The CALeep pilot program allowed the SBCCOG to perform an additional activity consistent with its mission. Specifically, the pilot program helped SBCCOG 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.

Objectives

The primary goal of the SBCCOG/CALeep Pilot Project was to develop a strategic work plan that demonstrates a coordinated, deliberate and comprehensive process for a collection of local governments to work together to assess, identify, prioritize, and potentially implement energy efficiency projects in public facilities.

- Secondary objectives included:
 - Address the specific energy efficiency needs and opportunities in local government facilities.
 - Aggregate projects identified in the process that have broad member support for future energy efficiency program funding.
 - Provide specific technical resources to city staffs to identify and pursue funding for cost-effective energy efficiency projects in public facilities.
 - Produce a final report.

Organization

The CALeep pilot project undertaken by the SBCCOG was conducted in a phased approach consisting of six distinct tasks. The SBCCOG Executive Director was responsible for the overall program management, while other staff members provided additional project oversight and assistance in conducting member surveys and data collection activities. Approval of the SBCCOG board was sought and received prior to the SBCCOG agreeing to participate as a CALeep pilot project.

Because of the technical nature of the pilot project, a consulting team was engaged by the SBCCOG to perform the technical work (energy savings potential, facility assessment, etc.) associated with the project.

Key Activities

- Completed and organized audit/survey/inventory findings of current energy savings programs and policies of the SBCCOG member cities
- Conducted a review of the past and current local government energy policy planning activities of SBCCOG member cities, and developed strategic planning policies and programs that can be used to integrate sustainable energy savings policies into member cities

Key Activities (continued)

- Developed a three-to-five year Energy Efficiency Strategic Plan, the final report that categorizes/prioritizes projects of SBCCOG. Projects are identified, designed, structured and budgeted so as to be well positioned to receive funding from the California Public Utilities Commission
- Established work groups from among interested cities to identify potential energy savings through projects at local public facilities, projects that target certain community sectors (low income, hard to reach, small commercial, etc.), and projects that may be unique to a particular community
- Assisted in identifying entrepreneurial, regional, federal, and private funding sources for projects for that support long-term SBCCOG energy efficiency programs

Results

Because of its participation in CALeep, the SBCCOG was able to accomplish the following activities:

- Completion of a comprehensive survey of SBCCOG member cities regarding energy efficiency issues
- Sponsorship of a symposium for SBCCOG members that was devoted to energy efficiency matters
- Completion of comprehensive energy efficiency assessments of member cities' governmental facilities, which projected energy and demand savings, annual cost savings, implementation costs and payback periods for a variety of identified opportunities
- Extension of energy efficiency opportunities that were identified in a particular member city to include other cities where similar opportunities were present
- Development of a final report that described the energy efficiency programs that SBCCOG members have identified as candidates for future funding
- Development of template materials suitable for use by other cities, counties, etc., that pursue energy efficiency programs.

Lessons Learned

- 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.)*

Lessons Learned (continued)

- Support to local governments to assess needs prior to applying for project implementation funding will increase opportunities for obtaining such funding.

Background

The Ventura County Regional Energy Alliance (VCREA), in the City of Ventura, California, is a joint powers agency consisting of local governments. It has eight members: County of Ventura; 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. It was formed in 2003 with private sector support to spearhead energy efficiency, renewable resource development, and other sustainable energy efforts in the region. California electric and natural gas ratepayers support the VCREA and its Energy Resource Center (ERC) through public goods charges. The ERC serves as a central clearinghouse for energy information designed to assist public agencies, businesses and find information and appropriate resources to enhance responsible and efficient uses of energy resources.

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.

Objectives

The overarching objective of the VCREA pilot project was to demonstrate the economic value of combining energy efficiency practices with green building policies. Implementation of green and sustainable approaches can significantly increase the potential for future energy savings, including savings resulting from decreased water consumption, in both new and existing residential and commercial construction. Secondary objectives included:

- Solicit stakeholder input from VCREA Advisory Committee and other stakeholders (e.g., design community, utilities, building owners and local governments).
- Develop a focused list of technical measures associated with construction and energy/water use that may be applied to new and existing buildings or operations for the purpose of achieving energy efficiency and sustainable buildings practices.
- Identify and evaluate existing green building policies/programs throughout the region for challenges and best practices; identify administrative and institutional opportunities (include industry organization and their capacity for development); evaluate technical resources and government policies, codes and ordinances to promote green building and energy efficiency in new and existing construction.
- Identify opportunities available to local management and policy makers that encourage use of best technology for building construction and operations to reduce energy use.
- Prepare a final report that serves as a guide for best green building practices.

Organization

The CALeep pilot project undertaken by the VCREA was organized around six tasks. A consulting team was engaged by the VCREA to bring individuals with green building program experience to compliment the expertise of VCREA staff members who were also part of the project team. Three part-time consultants, all having a familiarity with Ventura County issues, brought both technical and community outreach expertise to VCREA's pilot project team.

Key Activities

- Sponsored a green building workshop to update industry and government on project results and how to best incorporate standards into future EE programs
- Conducted an assessment of current and projected energy use and building construction in the county and establish a baseline for energy use for the years 2006-2012.
- Developed specific case studies from the region that evaluate costs versus benefits for business-as-usual versus building to a higher level of energy performance using green building design principles. Include an assessment of the costs versus benefits of typical measures, and project an estimate of cost and payback for each.
- Developed policies, procedures and/or recommendations for offsetting the expected increase in energy consumption if higher performance standards are not implemented.

Results

Because of its participation in CALeep, the VCREA was able to accomplish the following:

- Brought about a greater awareness and appreciation for green building practices among builders and contractors in Ventura County
- Completed comprehensive energy use assessments within Ventura County to serve as baseline usage data against which green building benefits can be compared
- Developed a final report that described the green building energy efficiency measures that the VCREA has identified as best practices
- Developed template materials suitable for use by other agencies that want to encourage green building energy efficiency programs.

Lessons Learned

- *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. It's success in achieving its goals is directly related to its ability to re-focus efficiency efforts on an area with strong support.

Lessons Learned (continued)

- *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.*

Lessons Learned (continued)

- *A central umbrella organization can provide value-added services to its members, especially when the members are smaller entities, facilitating the ability of the members to engage in energy efficiency initiatives. VCREA, as such an umbrella organization, could provide key resources to its constituencies such as understanding the rules for gaining access to various types of assistance programs, securing the attention of local utilities who could not afford to spend the same amount of time with each member, providing technical resources to demonstrate effective strategies, etc.*