

Southern California Edison's  
**2006-2008 Energy Efficiency Program Plans**

Dated: June 1, 2005



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# **I. Nonresidential Program**



# Business Incentive Program

<b>1. Projected Program Budget</b>	<b>\$</b>	<b>105,923,305</b>
<b>2. Projected Program Impacts</b>		
MWh		1,043,035
MW (CEC Factor)		192.32
<b>3. Program Cost Effectiveness</b>		
TRC		3.74
PAC		5.87

## 4. Program Descriptors

Market Sector: Nonresidential (Commercial, Industrial, Agriculture)  
 Program Classification: Statewide  
 Program Status: Revised Existing Programs

SCE's Business Incentive Program (BIP) integrates several previously stand-alone programs:

1. **Express Efficiency program.** The itemized (prescriptive) measures from this statewide program will be an element of the BIP.
2. **Standard Performance Contract program.** The calculated and custom rebates from this statewide program will be an element of BIP.
3. **Savings By Design.** The systems approach measures and the Checkpoint measures from this statewide program will be an element of BIP. Design assistance service will also be offered in the Business Incentive Program. Note that Savings By Design will remain a separate nonresidential energy efficiency program and will concentrate on providing the Whole Building Approach and design assistance.
4. **Nonresidential Audits.** The on-site audit activities associated with the Nonresidential Audits program will be an element of the Business Incentive Program. The remote audit activities will become an element of SCE's Education, Training & Outreach program.

**What's New for 2006-08?**

- Innovation
  - Improved customer experience through consolidated application process
- Integration
  - Audits, design assistance
  - Demand response incentives
- Other Program Improvements
  - Simplified application process, coordinated among several existing programs.

The Business Incentive Program will target all nonresidential customers regardless of size in terms of monthly kW demand. This innovative, integrated program design will offer a full range of solutions, including audits, design assistance, and incentives for

qualifying measures to all nonresidential customers, from the smallest GS-1 customer to the largest TOU commercial or industrial customer.

The goal of the program is to provide a centralized source for business customers to evolve through a simplified process of identifying energy savings opportunities, installing energy efficient equipment, and applying for rebates and incentives. Incentives are designed to offset a portion of the installed incremental cost of higher efficiency equipment and do so through a straightforward, no-hassle application process. The Business Incentive Program seeks to involve customers, vendors, SCE account representatives, community-based organizations (CBOs), and faith-based organizations (FBOs) in a cooperative environment that promotes energy efficiency education, energy audits, and the adoption of energy efficient technologies.

## **5. Program Statement**

The Business Incentive Program (BIP) integrates information, design assistance, and financial incentives to help nonresidential customers adopt energy efficient practices and equipment by addressing informational, financial, performance uncertainty, and transactional cost barriers. As such, the Business Incentive Program will be a stand-alone

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program approach for many nonresidential customer segments. In addition, the BIP provides a standardized incentive payment application process and structure for other segment or end-use specific program strategies, including SCE's Agricultural Energy Efficiency Program, Integrated Industrial Energy Efficiency Program and Partnership programs, as well as other third-party implemented strategies.

## **6. Program Rationale**

The Business Incentive Program provides a solid foundation to serve the many needs of nonresidential customers and energy efficiency service providers. It will provide energy audits, design assistance, project implementation consulting, financial incentives, and measurement and verification assistance to address the many barriers existing in the market. By combining existing energy audits and design assistance with Express Efficiency, SPC, and Savings By Design program processes, gaps and overlaps that existed between programs can be resolved, resulting in a much more effective approach. Program administrative costs can also be reduced by combining systems and staff functions.

Each element of the program has a track record of success in providing superior customer service and substantial energy savings and demand reductions, generally at a low cost per kWh and kW. By offering the Business Incentive Program to all nonresidential customers, the integrated program will build on the best elements of SCE's award-



winning programs of Express Efficiency (Itemized Measures Element), Standard Performance Contract (Calculated/Customized Measures element), Nonresidential Audits (Audit Services element), and Savings By Design (Systems Approach Measures element), to increase market penetration of energy efficiency, improve current net-to-gross ratios, and drive additional comprehensive retrofit projects. Energy efficiency opportunities and the knowledge to implement those opportunities will be provided through the Audit Services element and design assistance services. Itemized and Calculated/Custom Measure incentives will be used, where necessary, to offset a portion of the incremental cost of energy efficiency measures for retrofit and new construction projects to help meet the customer's investment criteria.

Lost opportunities are minimized through a full-cycle approach which offers an initial whole-facility/whole system assessment of a customer's needs and opportunities - a proven design that encourages implementation of many different types of measures in one project - and a rebate/incentive structure providing financial incentives for resultant energy savings.

SCE will further reduce administrative costs and continue the tradition of low cost per kWh savings and kW demand reduction through administrative efficiencies. The Program will provide customers with an uncomplicated and quick method to apply for and receive rebates for common energy-efficient measures as well as more complex engineered solutions.

### **6.1 Rationale for Itemized Measures element**

The itemized rebate feature directly addresses key market factors that lead to higher energy costs for California businesses. Offering a simplified process for customers to apply for and receive a 'per-widget' rebate to reduce capital investment costs of retrofitting outdated and inefficient lighting, HVAC, refrigeration, and foodservice equipment makes it attractive for firms to spend money in the short term in order to lower energy costs in the long term. Itemized measures make it quick and easy for nonresidential customers to participate in saving energy and reducing peak demand.

The use of itemized measures in the Express Efficiency program has led to many successes over the years, including:

1. Substantial energy savings and demand reduction at a low cost per kWh and kW;
2. Continuous refinement of eligible measures to ensure that the most common energy efficient applications are included in the program at reasonable rebate levels;
3. Inclusion of other organizations into program delivery. Outreach has been, and will continue to be, expanded to include coordination with CBOs, FBOs and other stakeholders; and
4. Earned several national energy efficiency awards by virtue of its track record in delivering great demand reduction in a relatively brief time as occurred in 2001, for example.<sup>1</sup>

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<sup>1</sup> American Council for an Energy Efficient Economy, Energy Efficiency Award and Exemplary Award

The Program will continue to ensure that all target customers, statewide, have equitable access to energy efficiency alternatives, regardless of their geographic location, business size or

primary language. Express Efficiency itemized measures

**The Program will continue to ensure that all target customers, statewide, have equitable access to energy efficiency alternatives, regardless of their geographic location, business size or primary language.**

have become a necessity for customer groups that could easily be overlooked by other programs.

The use of itemized energy efficiency measures is intended to overcome barriers that prevent many nonresidential customer segments from adopting energy efficiency alternatives. More specifically:

1. Lack of information about energy efficiency measures is mitigated by the prescriptive, itemized design of Express Efficiency. Customers and vendors are provided with specific measure descriptions to make product selection easier.
2. Energy efficiency products also become more readily available due to vendors and manufacturers knowing exactly which qualifying products to stock by following the itemized measure specifications.
3. Higher start up expense for high-efficiency measures, a major barrier for small and medium sized customers, are offset by itemized rebates.
4. Lack of financing is addressed. The itemized rebate is frequently used as the down payment for the purchase and installation of energy efficient equipment.
5. The split incentives barrier is overcome by the Payment Release Form that allows either the customer or building owner to receive the rebate.

The itemized measure concept is popular with customers and vendors due to its familiar, user-friendly design, as well its ability to generate substantial cost-effective energy savings that result in lower energy bills. Over the years, previous participants have used itemized rebates to increase energy efficiency as well as to reduce energy costs within their facilities. Typically, projects are completed in phases. As customer financial resources permit, customers will undertake additional phases in a project. In addition, vendors have also consistently used the itemized approach to sell energy efficient equipment. In many cases, the customer's assurance of receiving a rebate actually helps to make the sale and the rebate is often signed over to the vendor who lists the rebate amount as a credit on the customer's invoice.

## **6.2 Rationale for Calculated/Customized Measures element**

The calculated/customized measure incentive feature pays customized incentives based on project performance. As part of both the Commercial and Industrial Hardware Incentive Programs described in SCE's Long-Term Resource Plan Testimony,<sup>1</sup> this

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<sup>1</sup> Dated April 15, 2003, Appendix II.4.

aspect fulfills an important role in the portfolio of nonresidential energy efficiency programs. Recognizing that a multitude of processes exist across agricultural, manufacturing, and commercial facilities, offering incentives for the utilization of non-itemized energy efficient measures encourages and supports comprehensive projects that go beyond single measures and common efficiency practices. As indicated by Quantum Consulting's, *National Nonresidential Best Practices Study*, "The availability of custom efficiency measures and projects that do not lend themselves well to a prescriptive rebate approach are important features in meeting the diverse characteristics of the nonresidential market."<sup>2</sup>

The nonresidential service accounts throughout SCE service area territory have diverse energy needs given the vast range of equipment and systems needed to meet customer expectations and demands. This program addresses potential gaps in incentive availability by offering performance-based contracts that enable customers to apply for specific retrofits or replacements not covered under traditional incentive programs.

Based on continued evaluation, the statewide SPC program, using calculated/customized measures, is a primary motivator in the customer decision-making process related to energy efficiency. Demand for the program remains high and participation levels have doubled annually since the initiation of the program in 1998, with a combined 3,800 nonresidential projects producing a combined 1.4 million megawatt-hours of annual energy savings. The program has continually exceeded annual kilowatt and kilowatt hour savings goals with incentive budgets from 1998 to 2003 being fully subscribed during the program year.

As a customized program, SPC is an influential program not only in offsetting the incremental equipment cost, but in encouraging energy efficiency beyond the initial installation and investment. Past participants have confirmed that participation in the SPC program did lead to changes in their decision-making process related to energy efficiency<sup>3</sup>.

### **6.3 Rationale for Audit Services element**

Customers often lack knowledge about identifying energy efficiency opportunities and assessing potential energy and cost savings. The offering of energy audits assists in filling this void. Over the years, the Audit Services program has shown to be an effective method for delivering energy efficiency information and awareness to customers, and leading to participation in energy efficiency projects. An analysis of participants in SCE's 2004 Express Efficiency program indicated that over 11% of the onsite energy audits performed for small and medium customers resulted in the installation of hardware retrofits during the program year.

Integrating the Audit Services program into the Business Incentive Program will provide several advantages. The process of referring audit recommendations to the Business Incentive Program's delivery system greatly enhances the current process. Since the vast

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<sup>2</sup> Quantum Consulting, December 2004.

<sup>3</sup> Xenergy 2001 SPC Statewide Evaluation Study

majority of audit recommendations will be related to measures or process improvements covered under the Business Incentive Program, it will be effective and efficient to congregate all the recommendations and then sort and parcel them out to the appropriate delivery channel. This process will also lead to tracking efficiencies. Linking the audit database with the BIP database will result in improving the tracking of the audit process through the stages of recommendation, lead generation, project implementation and results, and follow-up of non-participation.

#### **6.4 Rationale for Systems Approach Measures element**

As an adjunct to audit services, SCE or third-party program implementers will provide additional assistance to help a customer or vendor identify and carry out an energy saving project. Assistance may include providing equipment/system design, specifications and/or manufacturer information, contractor/vendor referrals, and detailed project design

**The Business Incentive Program will be the flagship for nonresidential rebate programs. Since a large percentage of nonresidential energy efficiency projects will involve measures and design applications of a general nature, the bulk of nonresidential energy efficiency projects in SCE's service territory will fall under this program offering.**

consultations. If a project can be implemented at this stage without the need for financial incentives, energy savings will be logged into the program tracking system, and claimed toward program goals.

#### **7. Program Outcomes**

The Business Incentive Program will be the flagship for nonresidential rebate programs. Since a large percentage of nonresidential energy efficiency projects will involve measures and design applications of a general nature, the bulk of nonresidential energy efficiency projects in SCE's service territory will fall under this program offering. For projects relating to a specific market segment or technology, several customer-specific (e.g. Industrial Processes, Agriculture, Small Business Direct Install) or technology-specific (HVAC, Retro-commissioning) programs in SCE's energy efficiency portfolio addressing these targeted niches will complement the Business Incentive Program.

The overarching goal of the Business Incentive Program is to encourage customers to undertake innovative energy efficiency and demand response projects that will result in cost-effective, long-term energy savings and peak demand reductions. This program will go way beyond simply paying an incentive, by bringing technical expertise and design assistance to projects at their earliest stage of inception. In many cases, this early involvement alone will cause adoption of a higher efficiency alternative, and incentives may not even be needed in these cases. All types of energy efficiency projects will be covered, including retrofits; as well as installation of new, more efficient load to accommodate process improvements or expanded production; and high efficiency replacements of existing equipment or systems. Emerging technologies are also

encouraged through the measured savings approach to motivate adoption of new technologies by providing a real-world and real-time application to monitor and measure effectiveness of these technologies.

The Business Incentive Program strives to address the following:

1. Bridge the gap between the investment in minimum standard equipment and the expense for high-efficiency measures.
2. Offset the capital investment of new, more efficient systems or equipment to provide quicker paybacks on investment.
3. Reduce free ridership (customers who would have invested in energy efficiency regardless of the financial incentive).
4. Provide a simplified application process to reduce customer confusion and frustration

Indicators of program success include meeting or exceeding projected kWh and kW goals through successful installation of energy efficiency systems.

## **8. Program Strategy**

### **8.1 Program Strategy -- Energy Efficiency Information**

For large and medium customers, facility surveys and audits will be conducted by SCE or third-party program implementer staff to make the customer aware of opportunities that may exist to implement energy efficiency projects. These surveys and audits can be initiated through a customer or vendor request to SCE, through SCE's account management staff, or third-party program staff. Detailed information will be recorded in a tracking system, including equipment inventories and project recommendations. Recommendations will be followed up periodically to determine implementation status and whether additional assistance will be required to cause a project to be implemented. If a project resulting from a survey or audit is implemented without design or financial assistance, energy savings will be logged into the tracking system, and claimed toward program goals.

For smaller customers, onsite audits may be conducted, or information may be provided through direct mail, email, telephone or other means through the Education, Training and Outreach program. Detailed information will be recorded in a tracking system, including equipment inventories and project recommendations. Recommendations will be followed up periodically to determine implementation status, and whether additional assistance will be required to cause a project to be implemented. If a project resulting from a survey or audit is implemented without design or financial assistance, energy savings will be logged into the tracking system, and claimed toward program goals.

### **8.2 Program Strategy -- Energy Efficiency Design Assistance**

If appropriate, SCE or third-party program implementers will provide additional assistance to help a customer or vendor identify and carry out an energy saving project. Assistance may include providing equipment/system design, specifications and/or manufacturer information, contractor/vendor referrals and detailed project design consultations. If a project can be implemented at this stage without the need for financial

incentives, energy savings will be logged into the program tracking system and claimed toward program goals.

### **8.3 Program Strategy -- Financial Incentives**

Incentives are available to customers or their consultants and contractors with the customers' approval. It is not mandatory that audits or design assistance be provided through the program prior to application for incentives. Other programs offering incentives will use the Business Incentive Program incentive application and processing system also. The application process for Business Incentive Program will reduce customer confusion and paperwork. Measures will be categorized into one of three classifications on the application forms: itemized, calculated, or customized.

a. Itemized measures. If the proposed measure is a designated prescribed measure, a fixed incentive amount per unit/measure is offered. Each measure has a prescribed energy savings and a corresponding prescribed incentive amount. The applicant indicates the quantity proposed, and the resultant total incentive, on the form. Upon approval by the utility, the applicant is permitted to proceed with the project. Upon verification of project completion, the rebate is paid to the customer. For small projects, lower dollar value applications, pre-installation approval may not be required, and post-installation inspection may be done on a sample basis.

The itemized measure design makes customer participation easy because:

1. The program lists specific energy saving measures, so the customer does not need to take the time to search out energy efficient technologies;
2. The Terms and Conditions clearly state the eligible product specifications and rebate levels;
3. The customer purchases and installs the product from whomever they choose; and
4. The customer simply sends in the rebate form along with the itemized paid invoice.

b. Calculated measures. Many measures whose energy savings are dependent on the variables of the specific project (e.g. operating hours, loading factor, building type) are listed as calculated measures. For these measures, the applicant will input characteristics of the proposed project into an algorithm model, and the model will calculate the estimated energy savings and corresponding rebate. The models use current minimum standards as the baseline and calculate the energy usage utilizing the proposed project; the difference is the resultant energy savings, which provides the basis for the financial incentive. As with the itemized approach, the project proceeds to installation upon approval by SCE, and incentive payment is made upon SCE's verification of project completion.

All calculations use minimum standards or Title 24 standards as the existing baseline for all end-use systems. Verifiable savings include those achieved beyond the minimum or Title 24 standards. Estimating software tools are available to assist customers with energy savings calculations or the applicant may provide engineering calculations to justify savings. Only direct savings apply in determining a project's energy savings. For

example, savings accumulated from collateral effects like reduced air conditioning load as a result of efficient lighting installations, do not qualify for incentive payments.

Pre-and post installation inspections are conducted to verify equipment operation and application submittals. Upon verification of the energy savings calculations, the approved incentive is paid to the customer.

c. Customized measures. Measures and processes with limited results history cannot be assigned deemed savings nor can a model to appropriately calculate savings be devised. These measures and processes are not specifically listed as itemized or calculated, and are consequently considered customized. Additional, specific information about the project will be required of the applicant, and based on the information, an engineering analysis and evaluation of the savings potential will be completed. A performance contract between SCE and the customer will be issued; in most cases, subsequent measurement activity will be required to verify the actual savings.

Customized projects may require additional measurements to verify savings, and customers would receive an additional 10% of the incentive to offset the measurement cost. The program strives to inspect, review calculations, and provide a project status of approval, decline, or suspension no later than 30 days of receiving a completed application. The expeditious processing of applications and meeting the 30 day turnaround is a key indicator of success.

Calculated and customized measures fall into the following categories and are paid under the corresponding incentive rates:

<b>Measure Category</b>	<b>Incentive Rate</b>
<u>Lighting</u> Includes indoor and outdoor fluorescent, HID, LED replacements, lighting controls, and other lighting projects.	\$0.05 per kWh saved
<u>Air conditioning and refrigeration</u> Includes system and major subsystem replacements	\$0.14 per kWh saved
<u>Controls and other equipment</u> Includes fans, motors, VFDs, air compressors, EMS systems and other equipment not covered under the previous two categories.	\$0.08 per kWh saved

SCE major account managers and SCE engineers work directly with customers to identify projects, provide calculations, and assist in measurements to meet the application requirements of the program. Additionally, vendors, contractors and energy service companies are provided with materials and resources to market and use the SPC program as a resource in their selling process.

## **9. Program Objectives**

The program will be a major factor in the development and implementation of thousands of energy efficiency projects and measures in SCE's service territory. Providing a straight-forward, easy-to-understand, and easy-to-use vehicle for nonresidential customers to determine energy-saving opportunities and receive financial incentives for

taking actions to achieve energy savings is the objective of the Business Incentive Program. The improvements and enhancements of the BIP over previous offerings will have a significant positive effect of reducing confusion and paperwork for potential rebate applicants; resulting in decreasing lost opportunities (non-participation due to the confusion and paperwork factors).

#### Itemized Measures

The two primary objectives of the Business Incentive Program itemized measures are to provide:

1. energy efficiency education and access to energy efficiency options; and
2. a cost-effective means for all nonresidential customers, regardless of size, to install new energy efficient equipment.

The program's outreach in 2006 and beyond will be focused on all nonresidential customer segments.

Furthermore, to ensure equity to all nonresidential customer segments, the Business Incentive Program will continue to offer statewide-consistent, cost-offsetting itemized rebates to help customers with the installation cost of new energy efficient equipment, with the goal of:

1. Decreasing customer utility bills;
2. Reducing statewide electric demand;
3. Saving energy

An objective of the Business Incentive Program is to pay itemized rebates on a minimum of 6,000 projects each year across all nonresidential customer segments and all customer sizes. As new energy efficient measures are identified, measure costs change, or marketing opportunities or failures are identified, additions, or adjustments to, the itemized measure list or rebate amounts will be made. This will ensure that the program remains robust; opportunities to overachieve its goals are not missed; and customers benefit from a flexible program design. To stay abreast of new, proven technologies and to better meet the needs of all nonresidential customers, input from industry experts, vendors, and customers regarding new equipment or technologies or how the program could be improved, will be actively solicited.

#### Calculated and Customized Measure Activity

The program expects to meet or exceed projected kWh and kW savings goals through the implementation of a variety of high efficiency installations.

#### Audit Activity

For large and medium customers, facility surveys and audits will be conducted by SCE or third-party program implementer staff to make the customer aware of opportunities that may exist to implement energy efficiency projects.



### Integration with Demand Response

Demand Response programs provide tariff-based benefits to customers implementing demand response activities. For demand response initiatives involving the purchase and installation of equipment by SCE business customers, a plan to provide a financial incentive for the energy savings resulting from the equipment through the Business Incentive Program will be developed.

### **10. Program Implementation**

The Business Incentive program is primarily delivered directly to customers by vendors, SCE account representatives, direct mail, or the internet. The intent of dividing the program in terms of itemized, calculated, and customized rebates is to make it easier for customers to participate in energy efficiency activities and to receive acknowledgement in the form of a financial incentive.

The application process is relatively simple. Applications are available in hard-copy form, on-line, through a toll-free number, and through a complimentary program CD. The applicant identifies on the application form which classification (itemized, calculated, customized) the proposed measure, or process, falls under. Depending on which classification it falls under, the applicant fills out specific sections of the application form. Upon receipt of the application, SCE conducts a review of the information, the extent of which depends on the classification of the measure and/or the complexity of the project.

Upon approval of the application, the applicant is permitted to proceed with the project. When the project is installed and operational, the applicant notifies SCE with an Installation Report. Verification of the purchase and installation is conducted either through an on-site inspection or is based on the information provided by an invoice. Upon successful verification of project completion, the rebate is paid to the customer. Payments are made based on the final verification of the installation and energy savings verification. For itemized and calculated projects, 100% of the payment will be issued upon verification. For customized projects requiring measurement of savings, 60% of the payment will be made upon approval of the Installation Report and the remainder of the earned incentive after approval of an Operating Report, documenting the results of the measurement activity. Projects requiring monitoring will receive 10% additional incentive to cover the cost of measurement and are eligible to receive up to an additional 10% based on savings achievement.

Coordination with other entities has been and will remain a commitment of the Business Incentive Program.

1. Coordination with vendors, particularly local ones, has been a key driver in the success of delivering itemized energy efficiency measures. Vendors bring eligible products directly to the customer and make energy efficient equipment purchases convenient. They know and rely on SCE to educate and assist customers with the purchase of time-proven energy efficient products.

2. Working with local government agencies is crucial to meeting the needs of each unique community. SCE will continue to actively partner with local governments to explore opportunities to increase program outreach at the local level.

**The SCE local community involvement approach will continue to ensure program equity in regard to program access and help overcome market barriers such as language, geographic location, business size, and opportunity to invest in new energy efficient equipment.**

3. SCE representatives will continue to actively partner with local organizations, including networks of community based organizations (CBOs), faith based organizations (FBOs), ethnic business associations, chambers of commerce, and customer trade associations to coordinate increased program outreach efforts at the local level.

The Business Incentive Program will coordinate its efforts with the SCE Business Solutions Team and Business Customer Division account executives, a diverse group of utility professionals that generally reside in the communities in which they work and belong to organizations that cater to their customer segment. They have a sense of community needs, know the customers well, and are well positioned to assist locally and help individual businesses and members of business organizations and customer groups to identify energy efficiency opportunities and overcome the market barriers related to the achievement of their full energy efficiency potential.

The SCE local community involvement approach will continue to ensure program equity in regard to program access and help overcome market barriers such as language, geographic location, business size, and opportunity to invest in new energy efficient equipment. The Business Incentive Program will also provide training, educational materials and technical support targeted specifically to meet the needs of all nonresidential customers by industry segment.

## **11. Customer Description**

SCE's Business Incentive Program will be open to all SCE nonresidential customers. There is no minimum or maximum customer size. The program will in some way serve all nonresidential customers, from the smallest GS-1 customer to the largest TOU commercial or industrial customer with a full range of rebates for energy efficiency measures. Customers will receive a comprehensive energy efficiency services package, including energy surveys, training and information, rebates, and technical consulting. The Business Incentive program will augment customer or end-use specific programs, such as the Integrated Industrial Process Program and Agricultural Energy Efficiency Program.

The program will have a module to help customers comply with the specific requirements of the Governor's Green Building Executive Order for state-owned buildings, and will

encourage and provide assistance to cities, counties, and private businesses to adopt the requirements of the Executive Order on a voluntary basis.

The Business Incentive Program targets facility engineers, energy managers or property managers, business owners, and maintenance staff responsible for the oversight of energy efficiency improvements at their facility or building. Organizations such as property

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management companies, consulting engineers, HVAC contractors, lighting vendors and energy service companies who sponsor energy efficiency retrofit projects at utility customer facilities are eligible to participate.

## **12. Customer Interface**

The program will be delivered through various channels such as SCE's customer representatives, contractors, energy service companies, partnerships, and consultants. Past program experience with such a diverse nonresidential sector indicates that a variety of approaches to encouraging customers to engage in energy efficiency is ideal.

## **13. Energy Measures and Program Activities**

### **13.1. Measures Information**

The Business Incentive Program includes more than 50 carefully-selected, cost effective itemized measures that are organized into five general end use categories. For these measures, eligibility requirements are clearly defined, energy savings (kWh and kW) are prescribed, and the rebate is a standard per-unit amount. The five end-use categories are:

- Lighting
- Refrigeration
- Heating, ventilation and air conditioning (HVAC)
- Agriculture
- Food Service

Itemized measure information is provided in the corresponding program workbook. Energy savings assumptions are based on historical data of previous Express Efficiency program years and 2004 DEER data.

Similarly, many commonly-implemented energy efficiency measures are classified as calculated measures. The opportunities for energy efficiency improvement are vast, and the commercial market represents two-thirds of the demand potential in California. The

largest opportunities for energy efficiency include refrigeration, compressor and motor upgrades, high efficiency chillers, lighting and occupancy sensors.<sup>4</sup>

For these measures, an energy-savings calculation model will be utilized to estimate energy savings and corresponding incentive, based on an annual per-kWh saved rate. Calculated measures include:

- Lighting replacement and controls (those measures not itemized)
- AC units (those not covered by SCE's Comprehensive AC program)
- Early retirement incentive for AC units
- Early retirement incentive for motors
- Package and custom-built chillers
- Cool roofs
- A/C economizers
- Variable speed drives for centrifugal chillers, cooling tower fans and HVAC fans
- Variable speed drives for processing applications
- Variable speed drives for dairy vacuum pumps
- Demand control ventilation
- Carbon monoxide sensors
- Air compressor system upgrades
- Profession wet cleaning
- Injection molding machines
- Pulse cooling for injection molders
- Rapid close doors
- Refrigerated tank insulation
- Tape drip irrigation
- Pump off controllers for oil wells
- Wastewater retro-commissioning

In response to a recommendation from PAG, a calculated incentive for converting from dry cleaning equipment to wet cleaning equipment will be offered.

Measures and processes not identified as itemized or calculated are categorized as customized. Those measures will undergo a comprehensive engineering analysis to determine energy savings and the appropriate incentive amount. This process permits emerging technologies and new entrants in the marketplace the opportunity to make their way into the marketplace. In general, projects involving these measures and processes will require subsequent monitoring and measurement to verify the estimated savings. As sufficient operating and savings history is gained on specific customized measures, a standardized calculation model may be developed and the measure added to the list of calculated measures.

Additionally, the program recognizes the importance of integrating energy efficiency and demand response. Through the integration of certain technologies like energy

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<sup>4</sup> Xenergy, "California's Secret Energy Surplus, The Potential for Energy Efficiency," 2002

management systems or other control equipment, both initiatives can be met. BIP provides incentives for many types of control systems that would allow demand reduction and permanent control of lighting, HVAC, and refrigeration systems.

### **13.2. Energy Savings and Demand Reduction Level Data**

Energy savings and demand reduction information is provided in a corresponding cost-effectiveness calculator and portfolio workbook.

### **13.3. Non-energy Activities**

The program will also host several training classes to educate end-users and contractors on specific end-use equipment. For example, SCE will host Compressed Air Challenge level 1 and 2 workshops targeted at end users, operations staff, and vendors. These workshops are designed to educate participants on performance issues and energy savings opportunities through assessment and improvement of facility compressed air systems. Other training activities may include refrigeration systems, including cooler case and large end-use storage and refrigeration facilities. Separate contractor/customer seminars will also be planned.

Additionally, program representatives will staff, attend, and host exhibits at appropriate industry trade shows and local seminars such as NAESCO, Association for Energy Engineers, ACEEE, and the Facility Management Show.

### **13.4. Subcontractor Activities**

SCE will serve as administrator of the Business Incentive Program. SCE staff will manage daily program requirements, process applications, work closely with third-party reviewers to conduct pre-and post-inspections, provide customer support, manage the program database, and prepare and file required internal and Commission reports.

Third parties will be utilized extensively to perform application reviews, on-site inspections, and measurement and savings verification activities.

### **13.5. Quality Assurance and Evaluation Activities**

The BIP has several quality assurance evaluations in place to ensure the program runs efficiently and cost-effectively. Projects are reviewed and verified using outside consultants as unbiased participants in the program. A complete review and assessment of their recommendations are reviewed and quality-checked by SCE program administrators. Program staff will accompany inspectors on approximately 5 to 10% of application inspections to ensure the program is represented appropriately and the information disseminated is correct.

The primary measurement of program success will be verification of measures installed and tabulation of the ex-ante energy and demand savings, versus baseline measures. Estimates will be based on an onsite verification of a selected sample of installations (across all utilities) on an ongoing basis to ensure that the rebated measures were installed correctly. An assessment of the verification process will be undertaken at the end of the year to ensure sampling validity. For measurement of energy savings, a detailed EM&V

plan will be developed by an independent consultant that will select methods that are consistent with the currently adopted set of measurement rules at the time the detailed plan is developed. Either in this evaluation or in an over-arching statewide study, the ex ante energy and demand savings estimates will be reviewed, and new ex post estimates will be developed where there is found to be a need for additional measurement to assure accurate savings estimates. Changes in manufacturer and distributor stocking practices of energy efficiency equipment will also be assessed, if needed. Savings estimates will be updated to reflect the best available information, as needed.

To comply with the objectives of the Commission for ongoing assessment and improvement of programs, the EM&V plan will also focus on:

1. analysis of program accomplishments;
2. comparisons of SCE's program with best practices for the program design, delivery and implementation;
3. assessment of program targeting and customer satisfaction including upstream market actors, if needed;
4. incentive levels and customer satisfaction; and
5. additional market assessment and evaluation as needed.

The EM&V plan will address process issues such as statewide integration between the investor-owned utilities, and with other California programs including financing options:

- *Process Evaluation:* This task will include evaluation of program delivery mechanisms, marketing and delivery channels, timelines and customer satisfaction. The research will provide ongoing feedback and corrective guidance regarding program implementation through a customer behavior study, and it will measure indicators of the program effectiveness. Surveys undertaken as part of the process evaluation are likely to include participating and non-participating customers and trade allies.
- *Market Assessment and Customer Behavior Analysis:* These tasks will assist in assessing customer awareness, behaviors and practices given their participation in the Business Rebate program. The data used will be drawn from the process evaluation survey of customers and from the verification data collection. The market saturation/market share/potential data from statewide studies currently underway will be another primary source of information for market assessment and baseline analysis

### **13.5.1. Expected Number/Percent of Inspections (planned percent of projects)**

The Business Incentive program will adopt a rigorous inspection plan that will ensure that itemized measures are installed and operational. The overall level of inspection for itemized measures will be 20% of the total number of itemized projects. The estimated number of inspections is 1,200 each year for a population of about 6,000 projects.

Out of a forecast 1,000 annual calculated and customized applications, about 800 - 80% - will be pre-installation inspected, and about 98% of completed and installed projects will undergo a post-installation inspection.

### **13.6. Marketing Activities**

The Business Incentive Program will include effective outreach and marketing to small business, commercial, retail, hospital, and institutional customers. Other SCE segment approaches will market to those segments with BIP as a supporting program process.

Customers will receive application information and program updates through websites, service representatives, ESPs, trade organizations, industry associations, at industry trade shows, and special events. The Education and Training Services program will market the program and provide outreach through special events, trade shows, website communication, and other training and education venues.

The Business Incentive Program will include effective outreach and marketing to nonresidential agricultural, manufacturing, commercial, and industrial customers with comprehensive, complex projects not normally eligible under a standard prescriptive program.

Education, outreach and marketing activities will target all nonresidential SCE service accounts. These include the top 5,000 assigned customers with more than 1,000,000 kWh in annual usage who work directly with assigned SCE account executives, and the remaining unassigned customers which may have high levels of awareness of SCE programs, but need more direct information and better assistance on how to participate in a rebate program. Specific marketing strategies will be developed for the unassigned market to generate interest, encourage participation, and strengthen relationships with customers.

Additionally, education and marketing outreach will include coordination with energy service providers (ESPs), trade associations, other local business groups and government entities to generate interest and participation. An effort will include the development and design of marketing materials, application forms, updated program CDs, giveaways, direct mailers, bill inserts, website information, and other appropriate program literature as needed.

The Business Incentive Program will also coordinate with other third-party administered programs to encourage participation and leverage on-going, non-utility energy efficiency programs, activities and events. Additionally, the program will proactively coordinate with local government, trade associations, industry groups, Chambers of Commerce, government agencies, and other local businesses to increase program reach and participation levels. To the extent possible, promotions and information will be fully integrated with other SCE programs, such as the Building Operator Certification program, which offers informational classes to building engineers and facility managers for the purpose of increasing their knowledge in large commercial facilities.





# Comprehensive Packaged Air Conditioning Systems

## Comprehensive HVAC - Nonresidential and Residential

<b>1. Projected Program Budget</b>	<b>\$</b>	<b>60,647,645</b>
<b>2. Projected Program Impacts</b>		
MWh		162,510
MW (CEC Factor)		34.8
<b>3. Program Cost Effectiveness</b>		
TRC		1.04
PAC		2.47

### 4. Program Descriptors

Market Sector: Residential, Nonresidential  
 Program Classification: Local (with statewide coordination)  
 Program Status: Revised Existing

### 5. Program Statement

Residential and commercial air conditioning is responsible for the largest share of peak demand in California, contributing approximately 33% of peak demand.<sup>5</sup> In addition, it is a large overall consumer of energy. Within SCE's territory, commercial air conditioning

#### What's New for 2006-2008?

- Innovation -- First integrated market-based program in California coordinating upstream through downstream market barriers in the packaged air conditioning market
- Focus on packaged air conditioning contractor opportunities -- operational improvements in refrigerant charge, air flow, duct seal, and economizer functions
- *California Cool* -- Cooperative promotions to provide SCE targeted packaged air conditioning energy savings
- Program structure that allows for adaptive management

consumes about 5,580 GWh per year and residential systems use 1,800 GWh per year.<sup>6</sup> Estimates suggest that 10 to 20% savings<sup>7</sup> are possible through packaged air conditioning (split systems and packaged units) related energy efficiency activities.

<sup>5</sup> Brown and Koomey, 2002

<sup>6</sup> Kema-Xenergy, "California Statewide Residential Sector Energy Efficiency Potential Study," April 2003, and Kema-Xenergy, "California Commercial Sector Energy Efficiency Potential Study," July 2002. Base information is factored by 0.367 to get SCE portion of savings.

<sup>7</sup> This range includes savings from high efficiency purchases and/or proper installation and maintenance. On the low end, purchases of High Efficiency 14 and 15 SEER units save 5 – 13% compared to 13 SEER. When combined with proper installation and maintenance, savings rise to 20%. The "Summary Report on Packaged Rooftop Unit Problems and Diagnostic Tools: Recommendations for Tools & Protocols." Report

To capture these energy savings, SCE proposes a comprehensive portfolio of packaged air conditioning activities to address opportunities in the upstream, midstream, and downstream markets in a coordinated program that encompasses new construction, replacements, and services in the commercial and residential sectors.

Up to now, packaged air conditioning efficiency programs have focused on encouraging the purchase of high efficiency equipment. However, the purchase of high efficiency equipment only captures a small portion of the potential savings. Research shows that there are significant savings opportunities in installation and operation of packaged air conditioning units.<sup>8</sup> Specifically, there are potential savings in:

**Proper Sizing.** Supporting proper sizing in residential and commercial units can yield savings. Contractors frequently install oversized systems to avoid potential comfort and call back risks.

Research shows that there are significant savings opportunities in installation and operation of packaged air conditioning units.

**Refrigerant Charge and Airflow.** Between half and three-quarters of all packaged air conditioning units suffer from incorrect charge and low airflow. For both new and existing equipment, ensuring the proper refrigerant charge and airflow can increase efficiency.<sup>9</sup>

**Duct Sealing.** Ensuring tight ducts in residential and commercial installations yields 10-18% energy savings.<sup>10</sup> The peak load reduction can be higher, yielding a demand savings of 25%.<sup>11</sup>

**Economizers.** Research shows that the majority of economizers do not function as intended.<sup>12</sup> Use of the Whole Building Diagnostician tool in new and existing buildings in California has confirmed that problems with outside air economizers are endemic.<sup>13</sup> The potential savings from fixing a malfunctioning economizer are approximately 10 –

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to Northwest Energy Efficiency Alliance, prepared by PECEI, 2002, notes that typical small rooftop units waste at least 20% of cooling energy due to low refrigeration efficiency, nonfunctioning economizers, duct leakage, and other control and distribution problems.

<sup>8</sup> CEE Briefing on Improving Infield Performance refers to Nadel, 1999, and PIER 2003

<sup>9</sup> Chris Neme, *National Energy Savings Potential from Addressing HVAC Installation Problems*, prepared for US Environmental Protection Agency, March 1998.

<sup>10</sup> Robert Mowris & Associates, Statewide Residential and Commercial Upstream HVAC Verification Service Provider Program, HVAC PAG Presentation, March 29, 2005

<sup>11</sup> John Proctor, PE, Residential and Small Commercial HVAC Potential, Program Advisory Group, March 29, 2005

<sup>12</sup> Harris, J. et al. 2002. "A Business-Venture Approach to Premium O&M Service for Commercial Packaged HVAC Systems" ACEEE Summer Study 2002

<sup>13</sup> Energy Efficient and Affordable Commercial and Residential Buildings, Final Report. P500-03-096, prepared for the California Energy Commission, PIER by Architectural Energy Associates, October 2003 p. 31

15% of total packaged air conditioning load. In addition, enabling damper function is a pre-requisite for further savings from demand controlled ventilation.

**Controls.** Appropriate controls which enable variable heating and cooling conditions based on occupancy are also critical. With a comprehensive program to address all of these opportunities, the savings per packaged air conditioning unit easily approach 20 percent.



**Figure 1: Packaged Air Conditioning Efficiency Opportunities**

Figure 1 shows the synthesis of savings opportunities in the context of existing buildings, new construction and equipment replacement. As this figure illustrates, packaged air conditioning efficiency opportunities exist well beyond equipment selection.

- For existing buildings, the primary opportunities are in tuning of refrigerant charge, air flow, duct sealing and economizers as well as in the implementation of minor retrofits primarily involving system controls.
- For equipment replacement, the opportunities are in the selection of premium equipment, better control technologies, the proper sizing and quality installation of the unit and in duct sealing. In addition, the new equipment must work within the existing building operating conditions.
- New construction addresses the same issues as equipment replacement, but adds complexity and opportunity. Design decisions such as those regarding the building envelope, including windows, insulation, and duct design affect cooling and heating load and the resultant packaged air conditioning sizing requirements.

Efficiency opportunities arise at the purchase, installation and service of units. Capturing these opportunities efficiently and cost effectively requires greater integration of these functions as they occur over the system's lifecycle elements, which in more detail

include: design, sizing, selection, installation, operation, service and repair, and eventual replacement.

### **5.1.a Public Process Recommendations**

The Comprehensive Packaged Air Conditioning Systems Program (CPACS) significantly addresses recommendations of participants taking part in the public process review of SCE's 2006-08 Energy Efficiency program design and implementation.

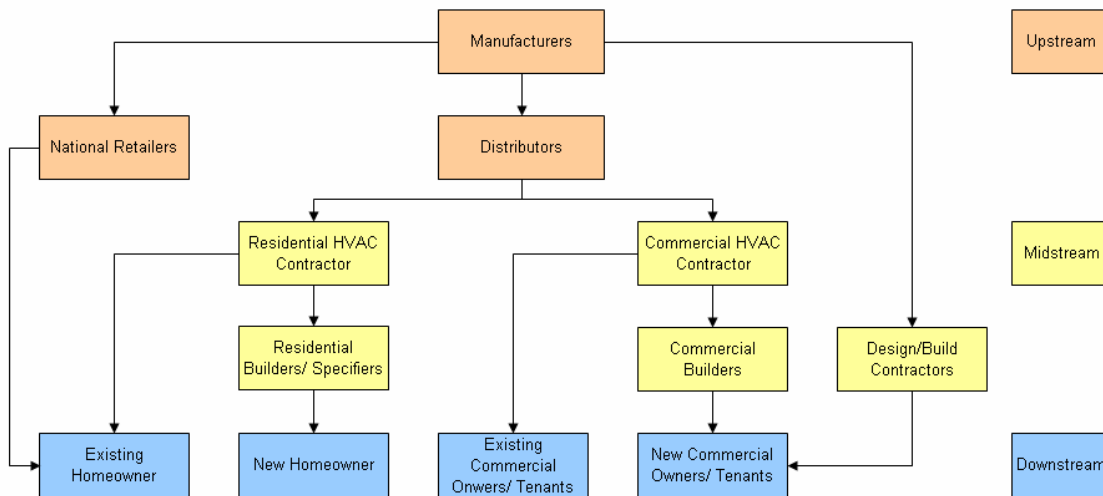
- Comprehensive portfolio of packaged air conditioning activities targets upstream, midstream, and downstream markets
- Residential air conditioning units are included in the upstream strategy
- Stocking incentives for premium efficiency products
- Appropriate equipment controls and proper control function
- Linking equipment selection and purchase activities with quality installation practices and maintenance
- Quality installation strategy for residential and commercial air conditioning units that considers proper sizing, refrigerant charge and airflow, TXV, duct sealing, and comfort

**Efficiency opportunities arise at the purchase, installation and service of units. Capturing these opportunities efficiently and cost effectively requires greater integration of these functions as they occur over the system's lifecycle elements...**

- A service platform to include verification of installed equipment and technician-performed services such as refrigerant charge, air flow, and duct sealing
- Technician training on quality services protocols and specifications, certification
- Portfolio of activities that balance short and long term strategies including incorporating emerging technologies
- Awareness, promotion, and marketing with a combination of targeted activities and customer education, facilitating decisions and understanding on comfort, quality installation, and energy savings
- Implementation of major elements will be competitively bid to third parties
- EM&V activities that includes customer surveys.

### **5.2 Market Structure**

Understanding the market structure for packaged air conditioning and existing barriers to the adoption of efficiency provides the context for SCE's strategy for securing the cost effective potential for energy and demand savings. Figure 2, Typical Packaged Air Conditioning Market Channels, shows the basic relationships between manufacturers, distributors, providers and purchasers for the packaged air conditioning market.



**Figure 2. Typical Packaged Air Conditioning Market Channels**

Broadly, the packaged air conditioning market can be divided into three functional segments:

- Upstream market consists of manufacturers and distributors who make decisions regarding which units to develop, produce and stock.
- Midstream market consists of builders and contractors, both commercial and residential, who make purchasing decisions and perform installation.
- Downstream market consists of residential, commercial, and possibly industrial customers who purchase equipment and/or services from the contractors.

The packaged air conditioning market is mature, stable and very price competitive. It is characterized by many participants that often serve specific channels within the functional market segments described above, and these channels function relatively independently from each other. Fragmented markets such as this are slow to respond to issues (like the integration of packaged air conditioning lifecycle elements) that are largely external to current operations. In fact, there is significant inertia - market barriers - tending to keep such issues externalized in order to promote stability and predictability in the market.

### 5.3 Market Barriers

Each market segment has unique specific barriers that prevent realization of the full energy savings potential of packaged air conditioning systems.

#### *Overall*

Over the last year, there has been increasing attention to the full range of energy saving opportunities from purchasing to servicing packaged air conditioning equipment. There is little understanding of the linkages between high efficiency equipment and the efficiency opportunities in installation and ongoing service. Piecemeal programs have resulted in lost opportunities and reduced cost-effectiveness.

### *Upstream Market*

Only 12 to 15% of equipment stocked by distributors is above code.<sup>14</sup> This suggests a need to stimulate demand for premium efficiency products and educate customers about their value. It is also important to ensure that the products are available when requested, particularly for replacements that are driven by failures that require immediate fulfillment.

### *Midstream*

The purchase of high efficiency equipment does not inherently lead to ‘high efficiency *system*’ installation. Some contractors lack the training and understanding of how to install a system to optimize energy efficiency, while others lack the basic tools for appropriate tuning and calibration. Although Title 24 specifies installation protocols that yield energy savings, interviews with contractors and trade associations suggest that there could be limited<sup>15</sup> compliance.

Furthermore, contractors who service and maintain existing equipment rarely include energy efficiency in their scope of services. Even when contractors understand the value of efficiency tuning, they struggle to convey that message to customers who think, “If the air is cool, the system is working.” The service business is highly competitive and oriented towards the lowest bid, which often excludes the provision of services to maintain maximum system energy efficiency.

### *Downstream*

When customers buy high efficiency packaged air conditioning equipment, they assume that the installed system will perform at peak efficiency. However, equipment performance is affected by the quality of the installation as well as maintenance practices. Most residential and many commercial customers do not purchase ongoing service contracts. For those customers that have service contracts, the scope is usually limited to the minimum maintenance needed to keep the system functional, and optimizing energy efficiency is not considered.

## **6. Program Rationale**

Integration across all aspects of the packaged air conditioning market is necessary to deliver the full potential for efficiency and demand savings in the packaged air conditioning market. Program results and interviews with contractors, distributors, customers, and consultants suggest that both upstream and downstream programs are achieving the desired results. However, midstream activities are mitigating the ultimate energy efficiency benefits of those efforts. Poorly installed equipment and lack of current operating information and servicing options results in efficient equipment significantly underperforming. Consequently, it is important to continue the upstream and downstream efforts and augment them with an aggressive midstream agenda that integrates efforts across all aspects of the delivery channel.

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<sup>14</sup> Anecdotal information from Energy Solutions, third-party implementer of the Upstream program

<sup>15</sup> Between 5 to 10% at the high end.

The CPACS is designed to address all aspects of the market with an approach that utilizes several market channels and reaches across market sectors to increase impact. By systematically working on all aspects, SCE gains leverage in the market and creates synergies that will yield higher cost-effectiveness than a piecemeal program. In addition, this approach will prevent loss of savings potential through “weaknesses” in the delivery system.

**The CPACS is designed to address all aspects of the market with an approach that utilizes several market channels and reaches across market sectors to increase impact.**

Key elements of the comprehensive approach include:

- Linking equipment selection and purchase activities with quality installation practices.
- Integrating new construction design activities with quality installation services.
- Motivating service providers through incentives to deliver enhanced services within existing service contract relationships.
- Delivering targeted packaged air conditioning tune up services to markets that don’t commonly utilize service contracts.
- Developing consistent requirements for installation and service protocols for new and existing equipment in residential and commercial settings
- Providing training, technical assistance and quality assurance assistance to ensure SCE customers receive a consistently high level of packaged air conditioning services from participating program vendors.
- Developing long term relationships with market participants to cooperate on the timing of promotional opportunities and leverage marketing and incentive dollars.
- Incorporating emerging technologies and better controls technologies upon commercial availability.

**For each of these elements it is critical that each be connected with and leverages others for maximum effectiveness. For example, new equipment sales need to be linked to quality installation services, which are delivered by a different segment of the market.**

- Offering promotions that take advantage of seasonal variations in sales and service market cycles.
- Targeting high value market opportunities for extra marketing and outreach based on savings potential, pace of development, climate, etc.

For each of these elements it is critical that each be connected with and leverages others for maximum effectiveness. For example, new equipment sales need to be linked to quality installation services, which are delivered by a different segment of the market. With the CPACS, SCE addresses the interconnected nature of the packaged air conditioning market by providing a single point of contact with the market. SCE will

cultivate ongoing long term relationships in order to participate in the market in the most effective way. SCE will periodically conduct targeted focus groups and interviews with market participants to thoroughly understand their needs and positions in the market and to test promotion concepts. These sessions will also tend to foster stronger relationships within the market.

This crosscutting approach will include integration with other SCE and non SCE energy efficiency and demand response programs, and will develop ongoing working relationships with a variety of market participants including manufacturer/distributors, dealers, builders and service companies.

## **7. Program Outcomes**

The goals for the Comprehensive Packaged Air Conditioning Systems Program are to:

- Deliver cost-effective energy savings and peak demand reduction with an integrated portfolio of activities that balances short and long term strategies.
- Promote selection and proper installation of premium efficiency equipment.
- Increase the proficiency of contractors to deliver high quality, energy efficiency services.
- Increase efficiency in existing packaged air conditioning systems.
- Incorporate emerging technologies.
- Set conditions for long-term change.

## **8. Program Strategy**

The CPACS will be delivered through several coordinated program strategies that address both market barriers and technical opportunities. The program strategies are:

1. An upstream strategy to stimulate sales of premium efficiency packaged air conditioning equipment for the commercial and residential markets.
2. A midstream strategy aimed at contractors for new equipment installation and servicing existing systems. As well, the strategy would establish a new delivery infrastructure for proper selection, installation and maintenance.
3. A downstream strategy based on customer education to create demand for higher efficiency, also early retirement of less efficient units, and cooperative promotions to take advantage of joint marketing opportunities and seasonal selling and service cycles.

These program strategies address critical market barriers that exist in the packaged air conditioning market. The upstream strategy helps facilitate sales of premium efficiency equipment. The midstream contractor strategy ensures that the units are installed properly and existing building servicing captures the opportunities from years of improperly installed and serviced equipment. The downstream strategy continues existing efforts to ensure demand for premium efficiency products and services.



## 8.1 Upstream Packaged Air Conditioning Strategy

The upstream packaged air conditioning strategy will enroll distributors to stock new high efficiency equipment, create informative material to encourage sales, and provide incentives.

The upstream strategy includes the following modifications to the existing program:

- Baseline for residential and commercial units will reflect the requirements of the 2005 Title 24 and Title 20 codes. Therefore the definition of premium efficiency will be changed to reflect the new higher baseline. Tiered rebates and qualified products will be changed accordingly.
- Residential units will be included in the program to get the incentive dollar leverage that has been demonstrated on the commercial side.
- SCE will work with California utilities and agencies to better integrate EER as well as SEER performance into the evaluation and selection of packaged air conditioning equipment, as EER is often a better measure of installed energy efficiency performance in many locations.

## 8.2 Midstream Strategy

The midstream contractor market includes residential and commercial packaged air conditioning installation and service contractors. Current program experience shows that 80 percent of contractors specialize in either residential or commercial. Generally, residential contractors focus on installation and repairs, while commercial contractors provide installation and ongoing service and maintenance. The midstream contractor strategy taps into the potential for high quality installation and servicing. These savings can be realized from all new packaged air conditioning units, not just higher efficiency units.

### *Installation*

Current interest in the packaged air conditioning market presents a relatively unique opportunity to eliminate installation barriers to air conditioning efficiency. The Consortium for Energy Efficiency (CEE), ENERGY STAR®, Air Conditioning Contractors of America (ACCA), and the California IOU's are defining what constitutes a quality packaged air conditioning installation. SCE intends to leverage these efforts as much as possible, so that these initiatives may influence the final program design. To facilitate proper installation of equipment, SCE proposes developing a consistent service platform that would include training on proper installation procedures, equipment to implement proper installations, establish verification protocols, and provide incentives where necessary.

### *Service and Retrofit*

The sheer volume of units – 10 times more than the new sales – shows that there is substantial opportunity to capture energy savings from existing units. Most were never installed properly and are highly inefficient. For these units, savings of 1,000 kWh/year may be realized.<sup>16</sup>

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<sup>16</sup> PECEI, measured and estimated savings from small commercial tune-up and retrofit program, 2002-2004.

The service market can be segmented into those units that are regularly serviced and those with no service contract. This straightforward market reality implies a simple two-pronged approach:

*Units with Maintenance Contracts.* Maintenance contracts are more common in the commercial market where it is essential for effective business operations that the units are functioning and that there is a plan for emergencies.

Maintenance contracts typically cover cleaning and changing of filters, tightening electrical connections, checking belts for proper tension, and ensuring general working order. Although these contracts do not cover optimization for energy efficiency, they provide an opportunity for the program to take advantage of the business relationship between customer and contractor.

*Units without Maintenance Contracts.* The majority of packaged air conditioning systems do not have maintenance contracts. While service contracts are becoming more common on the residential side, most residential and many small commercial

units are not regularly serviced. The program will develop a

**The CPACS seeks to significantly raise the bar for the selection of high efficiency equipment and its subsequent installation and service.**

‘direct install’ approach to reach this market. These services will be offered in a sweep fashion in targeted geographic areas to increase the cost effectiveness of implementation.

#### *Training and Technical Assistance*

The CPACS seeks to significantly raise the bar for the selection of high efficiency equipment and its subsequent installation and service. At this point, many dealers and contractors are not prepared to deliver these services because they lack information and tools. The program will address this through training and developing proper tools. As the curriculum and tools are developed and enter the market, SCE will coordinate their distribution and use with associated technical organizations in the industry. There are many possibilities including working with North American Technician Excellence (NATE), which has been developing an energy efficiency certification. They are interested in leveraging utility efforts and may contribute to the overall understanding of energy efficiency in packaged air conditioning units.

### **8.3 Downstream Strategy**

The downstream (end-user) strategy is focused primarily on customer education and would employ periodic custom offers to reinforce efficient equipment purchase and use. The strategy has two main elements:

- Packaged air conditioning cooperative promotion
- Customer education programs

### *Packaged Air Conditioning Cooperative Promotions -- California Cool<sup>17</sup>*

The CPACS will work with market participants to take advantage of seasonal air conditioning selling and service cycles. SCE expects to use periodic custom offers with key market participants to deliver coordinated marketing and sales promotions throughout the year. These cooperative promotions would combine and leverage program equipment and service incentives, manufacturer rebates and dealer marketing to create attractive promotions at peak times in the market. These cooperative promotions, under the *California Cool* theme, would be used to present a consistent theme to the market. Promotional programs are used to create enough buyer interest that the various elements in the distribution channels see the benefits of participation.

### *Customer Education*

Interviews with distributors, contractors, builders and customers consistently confirm the value of customer education. The program would compile information that describes energy saving opportunities and reinforce program specific messages. The information should convey the benefits in terms that customers understand, including non-energy and community benefits.

## **8.4 Program Management**

SCE's objective is to competitively bid all program goals for each market element (upstream, midstream and downstream).

### Upstream Equipment Goals

1. Ensure production of premium efficiency air conditioning products for the CA market.
2. Ensure stocking and availability of premium efficiency products at the Distributor level.
3. Promote sales of premium efficiency equipment through development of up-selling tools.

### Midstream System Performance Goals

1. Promote service/maintenance Contracts
2. Motivate service providers, through incentives, to deliver enhanced air conditioning system maintenance services within existing service contract relationships.
3. Deliver consistent quality installation protocols for new systems.
4. Develop consistent service protocols for existing systems.
5. Develop consistent requirements for quality installation and service protocols for new and existing equipment in residential and commercial settings
6. Provide training, technical assistance and quality assurance so that SCE customers receive a consistently high level of services from participating program vendors.
7. Develop relationships with market participants to employ cross-promotional opportunities and leverage marketing and incentive dollars.

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<sup>17</sup> These promotional opportunities will use a unique promotional name, *California Cool* is an example.

### Downstream Customer Education Goals

1. Customer Education
2. Offer promotions that take advantage of seasonal variations in sales and service market cycles, including cooperative promotion such as “California Cool.”
3. Target high-value market opportunities for extra marketing and promotion based on savings potential, pace of development, season and climate.

SCE’s bid strategy is based on the generally un-integrated character of the packaged air conditioning systems market. Given the lack of integration, it is reasonable to assume that single sources of expertise, that spans all aspects of the market, do not provide a competitive market for support. Consequently, any comprehensive bid is likely to be from a generalist who, in turn, would hire discrete expertise from each of the three market elements.

### Approach

SCE will distribute a general RFP, including all of the elements described above, and request proposals to take on some or all of the elements identified. SCE will make the decision on which elements and how much should be managed by a single entity based on market responses to the solicitations. Each bid will be evaluated on the technical merits, process merits, experience and price. Based on its analysis and the scope of the bids received, SCE will determine how to best structure management and administrative plans for the program.

In general, the management and administration structure is defined by a continuum. At one end, SCE would award the entire management and implementation of the program to a single bidder. On the other extreme, SCE would retain all management and administrative responsibilities, but contract with delivery channel experts to design and deliver discrete elements of the program. In the middle would be a structure in which SCE retained responsibility to strategic management of the program, but would award the design and implementation of each delivery channel’s strategy to specialized third-party bidders. Nevertheless, even under the condition of SCE retaining all administrative and management responsibility, a significant majority of the program costs would be competitively bid to third parties who would provide both innovative design and implementation services.

### **9. Program Objectives**

The overall goals for the CPACS are:

- Move approximately 40,000 premium efficiency systems.
- Move approximately 153,000 high efficiency commercial retrofit units.
- Provide efficiency services to 55,000 residential units.
- Provide efficiency services to 40,000 commercial units.
- Increase the number of trained quality installation and service contractors (train 180 technicians).

- Increase consumer awareness of air conditioning energy efficiency opportunities and build recognition of the *California Cool*<sup>18</sup> identity.
- Coordinate packaged air conditioning energy efficiency activities with other programs and IOUs.

## **10. Program Implementation**

The Comprehensive Packaged Air Conditioning Systems Program will be implemented through multiple coordinated program channels that address market barriers and technical opportunities.

### **10.1 Upstream Implementation**

The upstream program incentives are designed to increase distributor stocking of premium energy efficient equipment and allow distributors to sell the equipment at compelling prices near the price of standard equipment. The program will offer incentives for packaged and split air conditioners and heat pumps, evaporative coolers and economizers.

For 2006-08, SCE proposes to expand the upstream efforts to include incentives on residential equipment. Examples of residential equipment that could be included are:

- Above Title 24 – SEER 14 and above
- Evaporative cooled systems
- Systems that include economizer functions
- Multi-zone systems

This activity will include modifications to the current equipment database to include residential products; enhancements to the electronic rebate applications; design and development of the information database and continuation of existing strategies to leverage resources. SCE will coordinate upstream incentives with other California utilities' upstream programs for statewide consistency.

#### *Recruit distributors*

The program will continue to recruit new distributors to create an environment of competition that creates a cascading effect of incentive impacts. Eligible distributors are businesses that purchase packaged air conditioning equipment directly from the manufacturer and sell it to vendors/contractors or directly to the customer. Participating distributors will be asked to sign a Distributor Participant Agreement and supply adequate customer data to verify the customer site.

#### *Create incentives*

The Program includes incentives to distributors for stocking and selling premium efficiency packaged air conditioning equipment to commercial and residential customers. The equipment must be installed on the premises of a qualifying SCE customer before the incentive will be paid.

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<sup>18</sup> These promotional opportunities will use a unique promotional name, *California Cool* is an example.

### *Develop marketing materials*

Marketing materials will be developed to provide comparison data on premium efficiency packaged air conditioning equipment and the associated quality installation services. These materials will make it easy for distributors to present and explain the benefits of premium efficiency equipment to their customers.

## **10.2 Midstream (Contractor) Implementation**

The midstream market has multiple products and services to address various needs. Appropriate installation of new packaged air conditioning equipment is critical to realizing the potential energy savings. On the service side, significant opportunities exist to go back to the installed base of equipment and find high-gain opportunities. To be cost-effective, these incentives and services will be delivered as a targeted retrofit and service opportunity.

The program will target efficiency services for all packaged air conditioning split and packaged systems. Large custom systems require individualized diagnostics and tune-ups, thus they are not cost-effectively addressed by a standardized efficiency service.

### *Create Incentives*

Efficiency services include tune-ups and retrofits such as:

- Refrigerant charge and air flow testing and adjustment
- Duct sealing
- Economizer function
- Proper control function
- Demand control ventilation

For each item listed above, the incentive may be tiered based on size or complexity of the associated service. The program will support a standard service platform to facilitate consistent results. Most existing program designs include the ability to capture pre and post-activity performance information so that energy savings can be calculated on a per unit basis.

### *Establish installation and service protocols*

The program service platform will combine training and technical support with innovative tools and technology to enable technicians to diagnose problems, troubleshoot system flaws and identify and implement necessary corrections. The program service platform will utilize a comprehensive suite of tools and protocols that dovetail with current market practices to streamline the process of diagnosing and solving packaged air conditioning problems. Standard testing procedures and protocols will ensure consistency in realizing energy savings.

### *Create program materials*

The program will develop supporting materials including rebate application, participation agreement, and licensing agreement.

### *Enroll contractors*

It is essential to program success to have qualified and committed contractors. The program will develop a list of potential contractors, using references, local contractor's association websites, the yellow pages, and, where applicable, any trade allies already participating in SCE programs. The program will screen participants for program viability and enroll qualified contractors and technicians into the training. Experience has shown that involving multiple technicians per service provider facilitates information sharing and results in long-term participation.

### *Develop tools*

Packaged air conditioning units are complex systems with many variables that affect the efficiency of their operation. Specialized tools are often required to address each major component of the packaged air conditioning system:

- Refrigerant cycle
- Evaporator air flow
- Economizer efficiency
- Duct sealing
- Thermostat optimization

The program will provide incentives to qualified providers to purchase any specialized tools necessary to perform program services

### *Implement technician training*

Program success depends on well-trained technicians who use the protocols to provide quality services. Training issues that must be addressed include understanding and working with the manufacturers' equipment application and installation protocols and issues related to system warranties. The training curriculum will include basic principles of packaged air conditioning and energy efficiency implementation protocols, and details about the latest equipment. The training may build on other efforts such as basic curriculum developed by NATE. Training will include both in-house and hands-on field application. Follow-ups by program personnel will be used to establish program certification.

### *Provide follow-up technical support*

The program will provide on-site post-training follow up support to make sure that the contractors and technicians are comfortable and capable of implementing the program. The program will provide on-call technical support during typical hours of contractor operations to help technicians work through problems and answer questions while they are in the field. This technical support function will also ensure quality control, prepare the technical analyses, and provide feedback and communication to the technicians. This will be an ongoing program role.

### *Analyze savings and ensure quality control*

The program will analyze data from the jobs in the field to analyze energy savings and verify that the technician has performed the services accurately. Experience shows that the quality of the data is a good indicator of whether the protocols are being implemented

well. Incentives will only be processed if the information shows that the services have been completed appropriately.

### **10.2.1 Quality Installation Services**

Successful installation involves incorporating energy efficiency as part of each step in the traditional installation process. This service must address existing barriers including tools, training, and compensation (time).

#### *Recruit installation contractor*

The availability of upstream and midstream incentives and services will be coordinated so that premium efficiency units are installed properly. The coordination effort will be targeted at equipment that qualifies for a program incentive. In addition, the program will encourage quality installation of code level equipment also, with possibly a smaller incentive.

#### *Develop installation marketing materials*

Marketing materials will be developed and used by builders and contractors to document and explain the benefits of quality installation. Particularly in residential installations, proper installation offers significant value in reduced costs and extended equipment life, since these installations generally are not serviced on a regular basis.

### **10.2.2 Servicing and Retrofit Opportunities**

The service market can be segmented into those units that are regularly serviced and those where there is no service contract. The market dynamics, specifically which contractors have access to these units and how they can be cost-effectively addressed, suggest that these services can be delivered with a two-pronged approach.

*Units with Maintenance Contracts.* Maintenance contracts are more common in the commercial market where it is essential for effective business operations that the units are functioning and that there is a plan for emergencies. Maintenance contracts typically cover cleaning and changing of filters, tightening electrical connections, checking belts for proper tension, and ensuring general working order. Although these contracts do not cover optimization for energy efficiency, they provide an opportunity for the program to take advantage of the business relationship between customer and contractor:

- Technicians are on-site on a periodic and predictable basis.
- They have a responsibility to provide customers with feedback about their systems.
- They have agreements that provide authorization to service units, provide structure about when to get customer involved, and cover liability issues.

The program will target providers working under maintenance contracts and supplement this existing structure by providing:

*Units without Maintenance Contracts.* The majority of units probably do not have maintenance contracts. While service contracts are slowly becoming more common on the residential side, most residential and many small commercial units are not regularly



serviced. Owners of these units need to be recruited and attracted with a different service delivery approach.

*Develop packaged air conditioning service marketing materials*

The marketing materials will be used by contractors to show customers the service benefits and encourage participation.

*Enroll a new customer base*

Customers must be contacted and need to understand what services will be provided. To obtain the most energy savings, these services will likely produce the most savings by focusing on the hot weather climate zones, where there are the greatest runtime hours for the compressor. Since residential customers generally do not have service contracts, a program that is targeted at them will not disrupt existing ongoing service relationships making it practical to serve them on a direct install basis. In fact, there is potential for participating contractors to enroll these residential customers into ongoing service contracts following the service.

*Mobilize tune-ups and retrofits*

A turnkey approach will be developed and implemented. Tune-ups and duct sealing will be grouped by location to reduce travel (and hence unproductive) time. The tune-up and duct sealing services will capture before and after system performance data to determine actual energy savings.

### **10.3 Downstream (Customer) Implementation**

The CPACS offers the opportunity to have a coordinated marketing campaign that addresses multiple aspects of energy savings from packaged air conditioning from selection through service.

*Customer incentives*

Interviews with contractors and distributors show that customer incentives can be a powerful selling tool for upgrading to higher efficiency equipment, ensuring proper selection and taking advantage of quality assurance services. Customer incentives will be offered to take advantage of this opportunity.

*Create aggressive customer outreach*

Interviews also show that contractors and distributors believe that a strong end-user campaign will help facilitate the decision making that SCE desires. Tactics to get the word out may include information on the SCE website, bill stuffers, radio announcements, home audits, brochures, cross promotion with or of other SCE programs, for example, the demand response program, Summer Discount Plan.

*Coordinate with statewide efforts*

Flex Your Power has been a very successful statewide program. Since all IOUs will be addressing packaged air conditioning efficiency, it may make sense to collaborate on high level messaging.

*Packaged Air Conditioning Cooperative Promotions - California Cool<sup>19</sup>*

The CPACS will work with market participants to take advantage of seasonal sales and service cycles that currently exist in the market. Periodic cooperative promotions will create a coordinated market response and include consistent marketing messages from all levels of the market under the *California Cool* theme. They will build market participant involvement in the program and create retail recognition of *California Cool* events.

*California Cool – summer offerings*

In the summer season the program will focus on residential packaged air conditioning promotional opportunities, particularly in hot climate zones. These will include:

*Coordinate promotions for new equipment and quality installation*

The program will seek to combine program and manufacturer's product incentives to increase in the stocking and installation of premium efficiency equipment.

This special promotion will occur from March through July, to achieve maximum visibility and program participation.

*Mobilize direct install tune-ups for residential customers*

These promotions will be geographically targeted to promote direct install system tune ups and duct sealing special offers available for limited times. The sweeps will focus on hot climate zones.

Residential customers will be offered a system tune up and duct sealing service coupled with a system maintenance contract to maintain performance and cleanliness.

It might be effective to work with local government and community organizations to get involved in increasing visibility of the value of this service. General mailers would be produced and distributed several times over a 6-week period.

These 'sweep' campaigns would be run during the summer when people are acutely aware of their air conditioning bills.

*California Cool – winter offering*

In the winter season the program will focus on commercial packaged air conditioning promotional opportunities, particularly around commercial servicing and retrofits. These will include:

*Create and implement economizer retrofit promotions*

Most economizers function improperly, yielding little savings and in some cases increasing energy use. Enabling or restoring proper economizer function can yield significant savings, particularly in climate zones with moderate evening and shoulder season temperatures. These opportunities include economizers on commercial packaged air conditioning systems and the use of night cooling on certain residential systems.

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<sup>19</sup> These promotional opportunities will use a unique promotional name, *California Cool* is an example.

The program will define the opportunities for economizer retrofit including the installation of an enabling control package with associated repairs of existing equipment if necessary or, in extreme cases, retrofit of a new economizer. Residential installations will be targeted to retrofit a night cooling system. These packages will be developed with manufacturers/distributors to reduce system costs. The program will enroll participating contractors, seeking to leverage existing sales personnel or trained technicians who will market to their customer base the great value of economizers – particularly in the winter months. This timing will also take advantage of the slack season for packaged air conditioning contractors.

*Early retirement of package terminal air conditioning units*

Sector specific promotions will also be considered. An example is to promote early replacement of package terminal air conditioning units in the hospitality market. Many existing hotel room units have poor efficiency, while commonly supplied replacement models exceed current standards. A cooperative promotion joining SCE with distributors and hospitality associations could effectively accelerate the replacement of large numbers of inefficient units.

#### **10.4 Manage Packaged Air Conditioning Program Elements**

SCE and/or successful bidder will provide ongoing management of the program elements. As new information arises, changes in program design will be implemented. Focus will be on delivering cost-effective packaged air conditioning savings, capitalizing on new opportunities as they arise.

The program will coordinate implementation of all program elements to provide consistency and optimize performance for all market players. This includes development of terms and conditions that will guide eligibility, participation and availability of various program benefits. These terms and conditions will define the payment of program incentives and the development of ongoing promotional activities.

The CPACS will require extensive management systems to coordinate efforts on a variety of fronts upstream, midstream and downstream. All program elements and initiatives will utilize a common data and customer tracking system developed for this effort.

*Coordinate with other SCE programs*

SCE programs will include a “portal” element that provides easy program entry and helps manage the participation of individual customers in all relevant program offerings to maximize the energy savings from each customer opportunity.

In particular, it is essential to coordinate closely with new construction programs since in new buildings packaged air conditioning efficiency is part of a whole building system. Opportunities to go above and beyond Title 20/24 in terms of packaged air conditioning efficiency will be encouraged. These include the mundane, such as proper sizing and duct design, to the innovative use of emerging technologies. The program will coordinate training efforts to incorporate these packaged air conditioning issues into general training and helps assure that new construction is HERs and CHEERs certified.

*Continuously improve energy savings information*

Current information on energy savings for the various packaged air conditioning components varies widely. Given the importance of determining accurate savings information, the program will make measurement and feedback an integral part of all program elements. The program will coordinate with statewide programs to ensure consistency in equipment standards, technical issues surrounding SEER/EER ratings, quality installation, and energy savings estimates. By working with targeted statewide efforts and by capturing pre- and post-measurement data, the program will enhance existing energy savings information. This information will be used in later years to revise projected energy savings and to adjust program elements.

*Coordinate with California utilities and national initiatives*

This will include coordination on these initiatives with other California utility programs and the CPUC to develop statewide consistency in incentives and in marketing messaging. SCE will also continue its participation with CEE and manufacturers on equipment standards and research. Finally, SCE will coordinate this effort with national initiatives like ENERGY STAR®.

*Convene statewide advisory committee*

The packaged air conditioning industry in California involves many participants at several levels in the market (previous illustrations). The Comprehensive Packaged Air Conditioning Systems Program seeks both to leverage the capabilities of these participants and also to transform and bring added value and efficiency to the market. SCE anticipates a Statewide Advisory Committee including manufacturers, distributors, dealers, contractors, installers and service providers to assist in the ongoing development of the CPACS. We expect the program and SCE's position in the packaged air conditioning market to evolve as the program grows. The Advisory Committee will provide invaluable review, practical advice, and market intelligence that will help ensure long-term program success.

## **11. Customer Description**

All SCE customers will be eligible for the program. Since the program focuses primarily on small packaged air conditioning units, the customers are residential and commercial. As the program moves into implementation, there may be some opportunity for industrial customers. This type of opportunity would be analyzed and the appropriate implementation program would be employed to achieve the best results.

Residential customers will have savings opportunities through:

- Education on packaged air conditioning saving opportunities
- Buying new homes with state-of-the-art packaged air conditioning equipment
- Participation in the servicing of existing packaged air conditioning equipment
- Selection and proper installation for system replacement

Commercial customers will be addressed by:

- Service opportunities
- Equipment replacement
- System specifications and design of new buildings with state-of-the-art packaged air conditioning equipment

## **12. Customer Interface**

SCE will ensure that customers receive a consistent and coherent message about energy efficiency opportunities, and, in particular, opportunities related to air conditioning. Depending on the results of the competitive bidding process, the message may be delivered by SCE, by a third-party(s), or a combination. In addition, customers will have an interface with the midstream delivery channel. SCE will coordinate to ensure that the midstream interface is consistent with the direct interface.

## **13. Energy Measures and Program Activities**

The cost-effectiveness calculator and Portfolio workbook list the proposed measures for this program. This list may be supplemented during the strategy refinement, as additional information is obtained, through responses to Requests for Proposals and as emerging technologies become commercially available.

### **13.1 Measures Information**

The program intends to use prescriptive measures to simplify application processing and tracking. Measure information is provided in the corresponding cost effectiveness calculator and portfolio workbook.

### **13.2 Energy Savings and Demand Reduction Level Data**

For the June 1, 2005 submittal, cost effectiveness calculator and portfolio workbook contains the best available information compiled from a variety of sources. For the quality installation program element, which includes refrigerant charge, airflow and duct sealing, the baseline for energy savings is generally existing industry practices. At this time, there is significant effort focused on determining the appropriate energy savings for packaged air conditioning-related measures. Further analysis may yield more accurate energy savings and demand reduction information. SCE intends to revise program measures and energy savings as new information warrants. The intention is not to change the ex ante numbers based on extenuating circumstances, but to capitalize upon the best available information.

### **13.3 Non-energy Activities**

The program will have a combination of energy and non-energy activities. Non-energy activities include:

- Interview and focus groups to refine program design (manufacturer, distributor, contractor, trade associations)
- Meetings of advisory committee – quarterly
- Dealer and contractor training on sizing, specification, installation and servicing
- Seminars on best practices for new buildings targeted at designers and builders (coordinated with new construction programs)

- Marketing materials

### **13.4 Subcontractor Activities**

Not Applicable

### **13.5 Quality Assurance and Evaluation Activities**

Quality assurance is critical to ensuring that the program actually delivers the planned energy savings and for ongoing program modifications over time. The program incorporates quality assurance at multiple points.

Upstream program – Approximately 10 percent of installations will be checked to ensure that the right units were installed.

Linking purchase through installation -- The program will match units sold through the upstream program with contractor participation in the installation component to determine if the units are truly being installed correctly. Gaps will be identified and corrective actions taken to realize full integration.

Midstream activities – Close attention is needed for the midstream activities including installation and servicing of refrigerant charge, air flow, duct sealing, and economizers -- as they represent new and evolving practices in the market. There needs to be strong quality assurance as well as evaluation to ensure that energy savings are realized.

- Quality tools, protocols, and training. Most contractors today do not have the tools to accurately perform tune-ups and adjustments. The program will require a defined tool set, which provides consistency for measurements and for accurate adjustments. In addition, defined methodologies and protocols will provide consistency in what constitutes quality installation and servicing.
- Pre and post-data acquisition. Available market tools can take pre and post activity measurements. This information will be uploaded into a database for analysis. The analysis will enable the program to:
  - identify technicians who need assistance in applying the protocols
  - highlight anomalies that suggest inappropriate application
  - establish energy savings estimates
- Verification of savings. It is important to have dedicated program support to provide both technical support and verification of savings. The automated data acquisition is a critical tool, but it must be supplemented with regular spot checks on 10-15 percent of units to make sure that everything is being done to program protocols.

Evaluation activities – The Program will include rigorous data logging studies on air flow, duct sealing and refrigerant charge impacts to calibrate program design.

### **13.5.1. Expected Number/Percent of Inspections (planned percent of projects)**

Upstream element: 10% of units installed

Midstream element: 10% of the quality installation services to ensure compliance with program protocols and specifications. Sampling will be conducted on the measures and contractors.

### **13.6 Marketing Activities**

Marketing the Comprehensive Packaged Air Conditioning Systems Program will require a combination of targeted activities and customer education. From previous program experience, program marketing efforts should be primarily targeted toward educating the end user. It may be possible to leverage the Flex Your Power resources to develop statewide messaging regarding packaged air conditioning efficiency. These messages can be supplemented by program specifics.

The upstream and midstream market participants need limited recruitment due to their awareness of existing SCE programs and the utility's credibility. The upstream market needs to be informed about the program opportunities which can be accomplished through existing relationships and targeted outreach. Recruitment of the midstream market would be similar, and could use tools to help sell the value proposition to their customers.

The end user, which can be a residential customer, a builder or a commercial building tenant, needs to be informed about the features and benefits of the equipment or service. Although they might not in every case receive an incentive for a measure, to help achieve market transformation it is critical they understand the benefit.

#### *Upstream*

Distributors can be enrolled to participate in the program as a means to have a competitive advantage when offering high efficiency equipment. To support contractors, materials can be developed that support contractors in working with customers on the selection process for new equipment. Issues such as coil matching and appropriate sizing can be explained. The advantages of high efficiency equipment and the value of ongoing servicing should be included.

#### *Midstream*

Contractors will enroll in the program to give them a value-added service for their customers. In addition, technicians want to enhance their skill set. Being part of a leading edge program with innovative tools is attractive to them. Contractors need materials as well to support activities. Summary results of servicing and proper installations that discuss improved indoor air quality, higher levels of comfort, and reduced emergency replacements reinforce the value of these activities.

#### *Downstream*

Interviews show that contractors and distributors believe that a strong end-user campaign will help facilitate the decision making that SCE desires. Tactics to get the word out may include:

- Information on the SCE website
- Radio announcements
- Brochures

End customers messages may include, but not limited to:

- Comfort
- Cleanliness
- Quality installation
- Extended life of equipment
- Early retirement of less efficient equipment
- Lower cost of ownership
- “Green” message



# Industrial Energy Efficiency Program

<b>1. Projected Program Budget</b>	<b>\$</b>	<b>40,535,116</b>
<b>2. Projected Program Impacts</b>		
MWh		194,474
MW (CEC Factor)		42.20
<b>3. Program Cost Effectiveness</b>		
TRC		2.97
PAC		4.66

## 4. Program Descriptors

Market Sector: Nonresidential  
 Program Classification: Local  
 Program Status: New

## 5. Program Statement

The Industrial Energy Efficiency program is structured to reflect the process industry's reluctance to alter elements of a working production system for reasons other than product output or quality. These

customers do not think of their business as a series of end-use pieces of equipment, but rather as a process that takes in commodity inputs and turns out finished products. As industrial customers think in terms of processes, so should utilities in order to maximize the industrial process customers' awareness and uptake of inter-related and complementary energy efficiency, demand response, and/or renewable self-generation opportunities. The program is a blend of both innovative and proven tactics.

**What's New for 2006-08?**

- Innovation
  - New program in 2006
  - Focuses on developing customer commitment to sustain energy efficiency in Industrial segment
- Integration
  - Combining elements of SPC, Upstream Motors and Audits
  - Focus on end-use technology and industrial process improvements to yield optimum energy savings

This approach does not replace other energy efficiency programs that focus on key end-uses such as

motors and VSDs. The Business Incentive program will offer both

**The Industrial Energy Efficiency program is not about new measures. It is about looking for energy efficiency potential in a systemic, holistic way, integrating resources to overcome customer barriers to action and capturing energy efficiency opportunities...**

itemized and calculated/custom incentive offerings to industrial customers, portions of

which will also be part of the tool kit that this Industrial Energy Efficiency program will offer as part of a more integrated review of energy efficiency options.

The Industrial Energy Efficiency program is not about new measures. It is about looking for energy efficiency potential in a systemic, holistic way, integrating resources to overcome customer barriers to action and capturing energy efficiency opportunities:

- Across an industrial process customers' operational and business objectives;
- Across energy-related program categories (energy efficiency, demand response, renewable distributed generation, etc.);
- Across marketing and delivery channels (SCE customer representatives and their network; third-party providers with geographic, industry-specific, or other avenues through which to gain entry to industrial process customers; trade associations; upstream process equipment supply chains, including respected sales representatives who can leverage the holistic approach being pursued by the project; registries of environmentally sensitive customers who would be likely more attuned to energy efficiency goals; etc.);
- Across enabling partners (financial institutions, trade associations, service providers, etc.); and
- Across value propositions from the customers' perspective (energy, water, materials management, recyclables, corporate citizenry, etc.).

## **6. Program Rationale**

In addition to the barriers that limit adoption rates of energy efficiency measures across all customer groups, there are additional barriers that affect the decisions of process industries' management. This program is designed to mitigate those barriers through a systems approach to identifying potential and by means of presenting those opportunities within a comprehensive business context.

Recent evaluations of the California SPC (Standard Performance Contract) programs provide significant insight into the key barriers associated with installing energy efficiency measures within industrial process facilities. The key barriers identified include<sup>20</sup>:

1. Costs associated with increasing energy efficiency;
2. Uncertainty over project savings;
3. Time commitment required to get informed about energy-efficiency opportunities and projects;
4. Time and cost associated with selecting implementation contractors for projects; and
5. Uncertainty about the savings information provided by energy-efficiency firms.

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<sup>20</sup> "Large Customer Needs and Wants Study – Executive Summary" Quantum Consulting Inc. Berkeley, California. January 2001.

Most energy efficiency programs are designed around direct (investment) costs and are aimed at reducing simple payback (SPB), or increasing return on investment (ROI) for projects that may be just above a company's threshold for investment. Given that time a) has economic value, b) is required to become informed about efficiency options, c) is linked to the cost associated with bringing in "experts," and d) is spent managing the uncertainty associated with efficiency claims and information. Therefore, energy efficiency programs for industrial customers need to incorporate elements to reduce the cost and time commitment associated with energy efficiency decisions.

## **7 Program Outcomes**

The primary focus of the program will be to offer integrated industry and process-specific customer assistance in implementing projects from inception to completion, overcoming barriers at every phase and nurturing the customer relationship such that future savings opportunities occur within each facility on an ongoing, sustainable basis. This will be structured around the role of a Project Champion, whose job it will be to bring their industrial expertise overlaid with energy and related attributes to the table in order to maximize the industrial process customers' value derived from participation. SCE or a third-party contractor will provide program implementation information and training to the customer champion. The champion will be equipped with knowledge and support tools to undertake analysis of opportunities and communicate the value of actions throughout the customer's company.

For example, audits would be undertaken to identify opportunities not just at the equipment level (one-for-one replacement), but also at the system and process level. The challenge will be obtaining a higher level of commitment from the participant if systematic process changes are proposed.

Beyond these more quantifiable goals, it is expected that financial strategies and vendor supply mechanisms will continue to be valued inputs for customers and that unique opportunities that are implemented will become less unique and more widely accepted. SCE foresees that the complementary and coordinated delivery channel approach will gain its footing and continue to provide ongoing impetus to pursue energy efficiency opportunities in the industrial process sector, as well as beyond. The desired long-term effect is a subtle but persistent market transformation and business culture shift that will place a greater emphasis on energy cost reductions by looking at systems rather than components, and customers rather than "program participants."

## **8. Program Strategy**

The overall program strategy is to increase industrial customer participation in the full menu of existing and proposed energy efficiency programs by reducing market barriers through coordinated multi-channel program delivery mechanisms for traditional and non-traditional incentive structures. This will be accomplished by focusing on the customers' business needs, while continuing to zero in on the energy component of the business model.

The program strategy is based on integration:

- Across industrial customers' systems and overall business model – from a business model perspective, energy consumption and demand impacts (as well as benefits) can be optimized through consideration of a complementary suite of program offerings that include; O&M operational improvements (Retro-commissioning, Building Operator Certification Training, etc.), corporate energy planning (Industrial Energy MBA consulting, etc.), process system enhancements, etc.);
- Across energy-related program categories – along with the business model enhancements, energy impacts can be derived by looking across energy program categories that historically have been marketed as distinct offerings (energy efficiency, demand response, renewable distributed generation, etc.). From a process customer's perspective, they may well be complementary. The classic anecdotal example involves providing incentives for an enhanced automation energy management system, which delivers kWh savings on a 24/7 basis. It concurrently can increase the customer's discrete capabilities relative to being demand responsive on the few critical days when demand savings are highly valued.
- Across program sponsors – in looking at the industrial customer's integrated needs, the program will identify opportunities that may be best addressed through resources being made available via other program sponsors, such as the Metropolitan Water District of Southern California, Southern California Gas Company (SCG), the California Energy Commission, or other entities. While the emphasis will be on identifying and implementing energy-related energy efficiency projects, our holistic perspective will include keeping our eyes open for additional benefits that may be brought to bear on behalf of the industrial process customers.
- Across marketing and delivery channels – while SCE's customer representatives and their network are an invaluable resource in marketing and delivering such an integrated program, the program strategy calls for building upon their linkages with the industrial customer base through the extensive use of additional stakeholders. These will include: providers with geographic, industry-specific, civic or other avenues through which to gain entry to industrial customers; trade associations; upstream industrial equipment supply chains, including respected sales teams as identified, especially in the case of the motors end-use; and registries of environmentally sensitive customers (e.g., Climate Change Registry).
- Across enabling partners – in many cases, industrial improvements require financial resources and technical acumen not readily available to many customers. The program will orchestrate, where necessary and appropriate, bringing those skill sets and resources to bear through financial institutions, trade associations,

service providers, etc., though consummating the contractual relationship will remain within the customer’s purview.

- Across value propositions from the customers’ perspective – here we are referring to offering various traditional and non-traditional incentive mechanisms to better reflect the spectrum of options that are enticing to a given process customer (e.g., financial, equipment leaseback, corporate citizenry accolades, etc.).
- Across the time continuum - pursuing this approach will require consistent, regular, and relatively frequent interactions with the participating customers over time. The role of the champion will grow over time as that individual is viewed as a regular resource that has the customer’s interest in mind across the business model drivers embraced at the site. For this reason, we envision a five-year program cycle, though this filing is limited to the first three years only.

## 9. Program Objectives

In 2004, SCE’s industrial customers collectively used over 13,000 GWh of electricity. Recent studies suggest that “Advanced Efficiency” savings from energy efficiency programs are about 3.4% while “Business-as-Usual” savings are on the order of 0.5% to 2.0%.<sup>5</sup> The Industrial Energy Efficiency program is designed to approach SCE’s industrial process customer base in a more holistic and encompassing way. Using two-thirds of the “Advanced Efficiency” potential savings as a program goal is achievable and yields a target of 2.5% to be achieved over the proposed five-year schedule<sup>21</sup>. Table 1 shows the savings available from projects identified during the *three years* of the proposed program.

**Table 1: Savings Targets**

Year	% Savings	Energy Savings, GWh	Demand Savings, MW	Number of Projects
2006	0.3%	41.4	8.3	79
2007	0.5%	68.9	13.8	131
2008	0.7%	96.6	19.3	184
<b>Total</b>	<b>1.5%</b>	<b>206.9</b>	<b>41.4</b>	<b>394</b>

The projected savings assumes that each project saves 500 MWh and 100 kW on average. This indicates that large industrial process customers (> 500 kW) must be targeted in order to identify and achieve a composite of at least 100kW of savings per customer. To achieve these program goals while focusing on smaller projects would require

<sup>5</sup> Rufo, M., Coito, F. “California’s Secret Energy Surplus: The Potential for Energy Efficiency” Xenergy Inc. Oakland, CA. Sept 2002, page 29.

<sup>21</sup> A five-year term was chosen arbitrarily to indicate SCE’s intent to establish and maintain a long-term plan for the sector.

significantly more transactional interfaces with customers for each MW harvested, thereby driving up the costs substantially.

As noted in Section 7, the qualitative objectives are to foster a shift in thinking about the importance of demand-side management projects, promote a holistic and integrated approach to industrial energy efficiency initiatives, and encourage market transformation among equipment vendors, service providers, financiers, and other stakeholders in the SCE's service territory.

## **10. Program Implementation**

The program will provide a broad spectrum of services including information, training, technical investigations, measure quantification, implementation support, financial incentives, and linkages to existing programs to achieve sustainable energy and demand reductions.

### **10.1 Program Design Details**

Marketing Strategy – the marketing strategy will center on coordinating with SCE's customer representatives, third parties active in the market, including product and service vendors, trade associations, Chambers of Commerce, civic organizations, regional government entities, etc. All avenues will be considered and managed in terms of maximizing the awareness and marketing push associated with presenting the program to the targeted customer base.

Incentive Structures – here again, the program will offer the industrial participants access to a variety of incentive structures in order to best meet their needs, interests, business constraints, opportunities, and corporate culture. The incentive structures envisioned include, but are not limited to:

- aligning the participants with more traditional energy efficiency program offerings (and their applicable incentive mechanisms),
- matching up participants with financial entities who have expressed an interest (and understanding) of capital-intensive process system improvement projects,
- educating program participants about the implementation role that could be played by one of the reputable service providers serving the southern California marketplace,
- exploring creative incentives; for example, an “Energy Savings Bank” that would track savings “credits” that could be redeemed by customers for additional energy efficiency equipment, and
- providing vehicles for “good corporate citizenry” recognition and education opportunities through energy forums or other avenues.

Third Party Roles and Responsibilities – because of the specialized industrial focus of the program, it is clear that knowledgeable and well-connected third-party implementers/experts should have a significant role to play in implementing this program. Their roles could include, but are not necessarily limited to:

- Providing program management oversight and interface with customer representatives.
- Utilizing a well-established and trusted network interfacing with industrial customers to market the attributes of the offerings.
- Providing a vehicle to identify and contract with Project Champions that reflect the Third Parties area of industry and technical expertise.
- Developing and managing the linkages with the service provider and financial institution communities.
- Developing and managing the “Energy Savings Bank” incentive structure model.
- Developing and providing educational and marketing presentations to industry specific trade associations, geographic chambers or other business related entities, or civic organizations, etc.

Project Champion – once the marketing activities have been successful in securing a customer’s interest in participation, the crucial implementation role falls to the Project Champion. This individual will be a well-respected expert on the participant’s particular industry, in terms of its business aspects and drivers, its energy consumption patterns and nuances, its systems and processes, as well as its energy efficiency potential and emerging technologies.

In order to ensure that appropriately qualified individuals are selected, the Program will include a Project Champion certification requirement. Fortunately, this will come at little to no cost as the U.S. Department of Energy already has a certification methodology and process in place for industry-specific “Qualified Specialists”[8].

The Project Champion will provide the breadth and depth of consulting expertise for the participating customer, and will be charged with the in-depth assessment of the participant’s business norms, energy policies, process systems, and complementary enhancements that could be packaged for the participant’s consideration. In most cases, the expectation is that the menu of complementary initiatives will lead to process system efficiency improvements, but equally important, to sustainable demand side management business practices within the participant’s organization.

## **10.2 Program – Stakeholders**

### **Southern California Edison**

SCE’s customer representatives and experienced field engineers will be the ‘front line’ of implementation. Based on their knowledge of customer issues and established relationships, customer representatives are in the best position to communicate program benefits to their customers as well as provide feedback to the program managers. Their primary industrial contacts are expected to be at the corporate and management level, i.e., the financial decision-makers. Specific actions they will need to take include:

- Identifying large industrial users who may benefit from the program.
- Communicating how the program works to those customers.
- Inviting them to marketing and technical training seminars.
- Conducting follow-up activities to encourage participation.

- Listening to their concerns and perceived financial and organizational barriers.
- Remaining involved with participating customers.

### **Trade Associations**

This program will use trade organizations as a source of industry-specific information, a marketing channel, and as a clearinghouse for future success case studies which can then be shared back with the association membership as well as via other venues. Within any industry sector, trade organizations are perceived as having high credibility relative to demand-side management information.

A key component of the outreach for this industrial process program, is focused trade organization presentations. The presentations will be tailored to a specific industrial sector audience and be provided by a recognized industry leader within that sector. These presentations will be provided to trade organizations representing the top industrial process sectors within SCE's service territory that account for nearly 80% of the industrial electric consumption. Targeted trade organizations include the California Oil Producers Electrical Cooperative, California Independent Petroleum Association, Society of Petroleum Engineers, California League of Food Processors, California Manufacturers & Technology Association (CMTA) and others. These trade presentations may be provided at SCE's Customer Technology Application Center (CTAC) and regional locations to increase participation.

### **Civic/Issue Organizations**

Organizations and state agencies that have an interest in energy and air quality issues would make good candidates for alliances and marketing efforts. (Air quality in the public mind is linked to energy even though there are few generation assets within SCE service territory.) Such organizations may include, but not limited to:

- The California Climate Action Registry
- The California Air Resources Board (CARB)
- The South Coast Air Quality Management District (SCAQMD)
- A proposed regional energy forum for industrial customers and involved stakeholder groups (akin to the Silicon Valley Leadership Council, though with a SCE sponsorship)
- Chambers of Commerce
- Civic organizations (i.e., Kiwanis, Rotary, Lions, etc.)

### **Upstream Vendors**

This program will build upon the current Statewide Upstream Motors and Air Conditioning program. The current program is a prescriptive rebate program that provides incentives to distributors to stock and sell qualifying high efficiency products. To date, over 80% of SCE's large distributors of motors and HVAC equipment have signed up to participate in the 2004-2005 upstream program.

### **Financial Resources**

Some customers may require support in securing financing for projects. Engaging financiers and service providers to underwrite and implement the more technically and

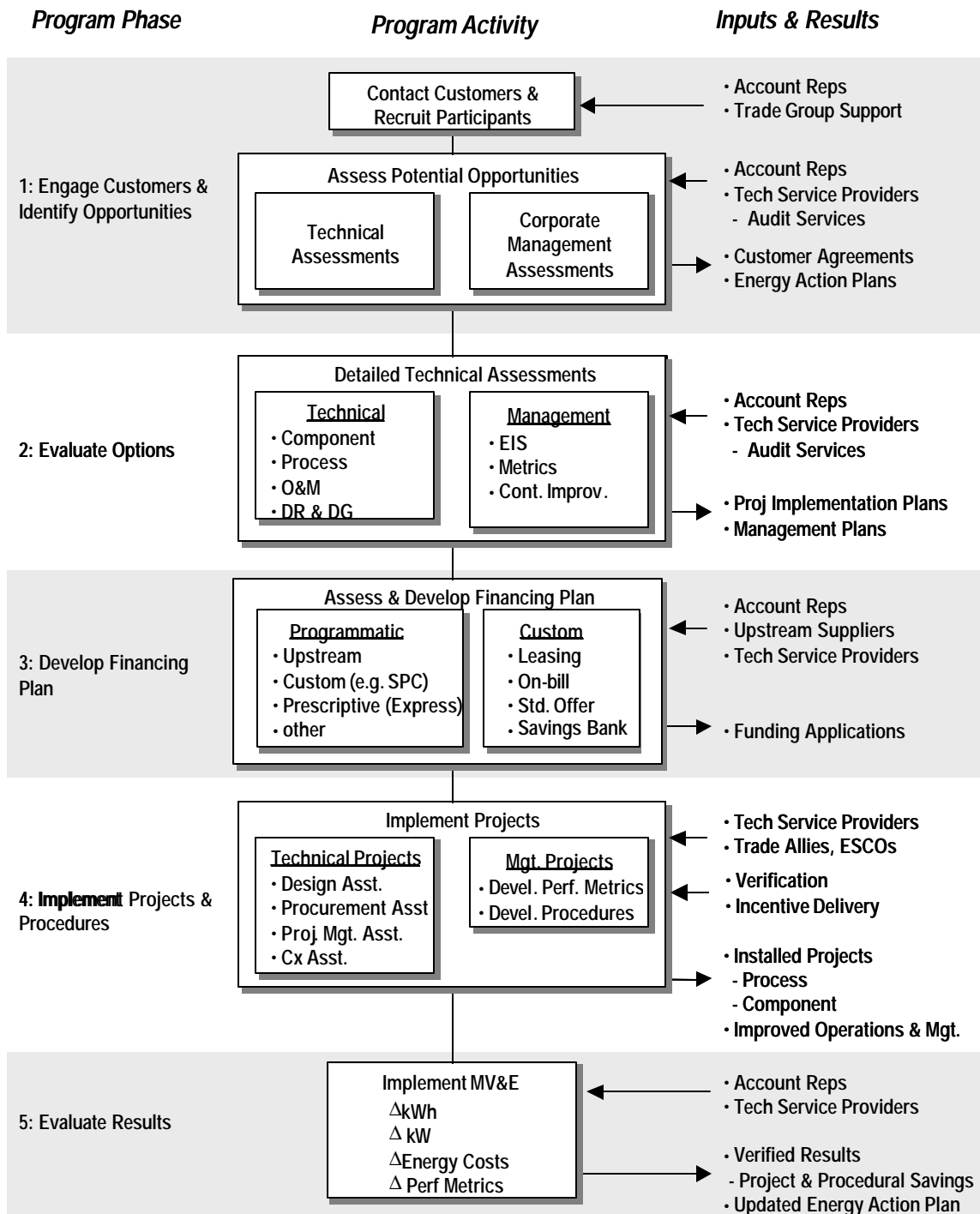


financially challenging projects will increase overall penetration and success of the program. The assigned Project Champion/Manager will work with the customer to determine if special financing is required.

### **10.3 Program – Process and Linkage Chart**

Figure 1 illustrates how SCE envisions the different stakeholders working together to reinforce one another, facilitate industrial customer participation, integrate assessments across both O&M as well as capital-focused initiatives, and ensure project completion.

**Figure 1: Integrated Industrial Energy Efficiency Program  
Implementation Linkages**



## 11. Customer Description

This program is open to all industrial customers, though we are targeting those with SIC classifications from 13 to 39, as well as water/wastewater customers. Emphasis will be on process-related operations that show demand-side management opportunities related to process improvement or reconfiguration. Examples include oil & gas extraction (13), food processing (20), chemicals (28), stone / clay / glass / concrete (32), and paper (26). Initial marketing efforts will be directed at larger customers in the most energy-intensive sectors. Electricity use for 2004 among SCE's industrial customers was ranked according to use in order to identify opportunities for the greatest savings.

**Figure 2: Electricity Use by Industrial Sector**

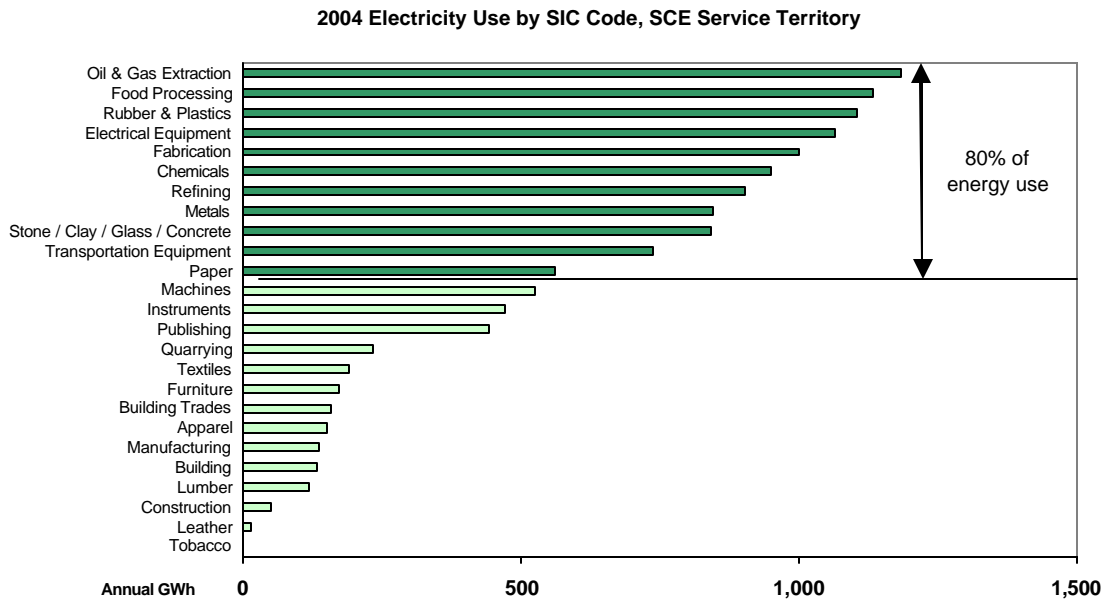


Figure 2 shows that eleven industries account for 80% of SCE's industrial customer electrical use with the top three being oil & gas extraction, food processing, as well as rubber & plastics. Table 2 lists the annual electricity use by two-digit SIC code along with the number of accounts and the fraction of use that goes to the three major end-use categories. Over two-thirds of industrial electrical use goes to non-HVAC motor systems, (e.g. non-thermal process loads).

**Table 2: 2004 Industrial Electricity Use by Sector (sorted by use)**

Industry	SIC	2004 GWh	# of Accounts	MWh / Acct	% Lighting	% HVAC	% Motors
Oil & Gas Extraction	13	1,184	1,066	1,110			<b>90%*</b>
Food Processing	20	1,132	1,716	660	13%	11%	<b>76%</b>
Rubber & Plastics	30	1,106	1,511	732	13%	8%	<b>79%</b>
Electrical Equipment	36	1,065	2,089	510	26%	27%	<b>47%</b>
Fabrication	34	999	4,337	230	18%	18%	<b>64%</b>
Chemicals	28	951	1,463	650	8%	3%	<b>89%</b>
Refining	29	902	200	4,512	3%	2%	<b>95%</b>
Metals	33	846	686	1,233	14%	9%	<b>77%</b>
Stone / Clay / Glass	32	841	1,207	697	8%	5%	<b>87%</b>
/ Concrete							
Transportation Equipment	37	739	2,716	272	29%	36%	35%
Paper	26	561	655	857	13%	14%	<b>73%</b>
Machines	35	526	5,310	99	26%	15%	59%
Instruments	38	473	1,291	366	35%	16%	49%
Publishing	27	443	3,166	140	17%	30%	53%
Quarrying	14	236	323	729			<b>90%*</b>
Textiles	22	193	308	627	15%	12%	73%
Furniture	25	173	1,353	128	23%	22%	54%
Building Trades	17	159	7,804	20			
Apparel	23	152	2,335	65	23%	38%	39%
Manufacturing	39	136	1,526	89	25%	33%	42%
Building	15	132	7,732	17			<b>70%*</b>
Lumber	24	119	901	132	15%	11%	73%
Construction	16	51	722	70			
Leather	31	17	99	173	0%	0%	100%
Tobacco	21	0	1	5			
<b>Total</b>		<b>13,136</b>	<b>50,517</b>		<b>14%</b>	<b>13%</b>	<b>68%</b>

\*Assumed value, not cited in original reference

Energy savings potential by end-use category was derived from a separate study<sup>22</sup> that did not include several industrial categories. As oil and gas extraction is mostly pumping and drilling, motors dominate the electrical use and an allocation of 90% was assumed.

### TARGET MARKETS

In order to focus the efforts, several high-consumption, high potential sub-segment markets have been selected for initiating the implementation efforts. We are looking to have a reasonably high rate of success to produce demonstrable case studies that, along

<sup>22</sup> “Large Customer Needs and Wants Study – Executive Summary” Quantum Consulting Inc. Berkeley, California. January 2001.

with other example-oriented information, will be effective marketing tools when approaching the other sectors within the industrial arena.

### **Oil and Gas Extraction**

The oil/gas extraction industry consists of three subcategories: crude petroleum and natural gas (SIC 131), natural gas liquid (SIC 132), and oil and gas field services (SIC 138). In the SCE territory, crude petroleum extraction is most prevalent and involves extracting heavy petroleum from fairly depleted oil wells. Activities may include exploration; drilling, completing and equipping wells; steam injection; pumping; separation; and storage.

Petroleum extraction is an extremely energy intensive process, which uses about 3,700 GWh of electricity annually within the State of California (about 1.5% of all electricity consumed). Within this industry, oil well pumps are the biggest consumer for electrical energy.

#### *Market Barriers*

The industry focuses on increasing the output of the oil fields and rate of return of the investments, while also decreasing the environmental impact and energy consumption associated with the extraction. One of the market barriers for energy efficiency in this industry has been the cutback in activity. Domestic extraction has shown a declining trend since 1986, though is likely to increase with the jump in oil prices of late. Traditionally, the industry has resisted participating in energy efficiency practices because oil producers have first access to the fuels produced, and in some cases can deduct fuel costs as an operating expense. However, as the cost of electricity as well as electrical energy consumption increases due to increasingly depleted wells, energy efficiency is becoming a more important issue. The lack of advanced EE technologies specific to the industry and high demand for crude oil has also diverted financing opportunities to increasing output and “selective” exploration instead of energy efficiency.

#### *Significant Target Industrial Processes*

- Well pumps – most of the pumps deployed in the oil fields are beam-type pumps, which are overground drives for submersible pumps in boreholes.
- Steam generation and injection systems consume a fair share of electrical energy and significant non-electrical energy such as natural gas.

#### *Integration Opportunities*

Several programs will be explored. They include:

- Well pump controls (pump-off controllers) that can be integrated with demand response programs. This approach should be focused on wells with low extraction rates.
- Additional well pump demand response potential could be garnered when linked to the steam injection system so that blowers and pumps associated with steam injection could be slowed down (say with VFD controls).

- Integration with extraction-enhancing technologies such as use of diluent (lighter oils, diesel or naphtha) and microbes to reduce heavy oil viscosity and increase productivity, directional drilling to increase formation-wellbore exposure and reduce pressure drawdown, and acoustic and/or pressure impulses to increase flow from the formation to the wellbore.
- On-site generation using locally produced methane instead of methane re-injection. On-site generation could either be baseload or demand-responsive depending on what controls are installed and the quantity of methane available.
- Cogeneration with the steam being used in down-hole steam-injection systems.
- Possibly concentrating solar thermal collectors for additional steam production.

### **Food Processing**

The Food Processing category (SIC Code 20) consists of several sub-segment industries, including;

- 201: Meat Products
- 202: Dairy Products
- 203: Canned, Frozen, And Preserved Fruits, Vegetables
- 204: Grain Mill Products
- 205: Bakery Products
- 206: Sugar And Confectionery Products
- 207: Fats And Oils
- 208: Beverages
- 209: Miscellaneous Food Preparations And Kindred

### *Market Barriers*

Several market barriers have been identified in the Food Processing industry. These include:

- Payback considerations – food processors usually run on a fairly tight margin leaving little flexibility for longer term payback opportunities
- Primarily concerned with product quality; low tolerance for risk
- Energy cost as % of gross is small (but energy as % of net is much bigger)
- The industry is built on trust and relationships; these take a long time to build

### *Significant Target Industrial Processes*

- Refrigeration
- Cogeneration
- Steam generation
- Product transport

### *Integration Opportunities*

- There is *strong* potential for a combination of measures; management awareness and energy planning; O&M solutions; energy efficiency upgrades; demand response programs; renewable self-generation.

- In the industry, are there other significant capital investment streams that dictate how to best package an energy efficiency project as a positive offshoot of the larger project
- For food processing, thermal (cool) recovery represents an opportunity to reduce process-cooling loads.
- Integrate the energy program perspective with MWD's water conservation programs, including their Industrial Process Improvement Program [6].

### **Rubber and Plastics**

This category generally consists of industries focused on plastic products, rubber products, and in SCE's service territory, plastic extrusion plants. These facilities are typically smaller in size; a recent EPA report stated that 70% of the SIC Code 308 (Miscellaneous Plastic Products e.g., plastic films and sheet, plates, pipes, bottles, foam products and plumbing fixtures) have less than 50 employees.

#### *Market Barriers*

- The industry typically feels that it is a very specialized operation and does not respond well to people that don't understand the processes.
- Another potential market barrier may be the smaller size of typical facilities – capital costs of new equipment would be difficult to absorb.
- Product quality is a very big issue – a general goal of the industry is to minimize waste, so any new technology must not compromise quality.
- Rebates that are paid after an extended M&V period may impact program participation due to unwillingness to cover the up-front capital costs.

#### *Significant Target Industrial Processes*

- In this industry, the extruders, which are used to heat and inject the raw materials for shaping, are the largest energy consumers
- The cooling/refrigeration system also consumes a large amount of energy, as the products must be cooled quickly once they have been shaped.
- Another big energy user is the facility HVAC system – a lot of heat is generated when molding the plastic, therefore, climate control is a big issue.
- Humidity control is also important, as some polymers are sensitive to the amount of moisture in the air.

#### *Integration Opportunities*

- According to a recent study, up to 40% of energy consumed in this industry occurs during times of no production; therefore, management and scheduling could reduce energy use (survey estimated approximately 15% energy reduction).
- It appears that many plastics plants were expanded in stages and consist mostly of modular equipment. Therefore, equipment integration could lead to energy savings through more efficient operations and possibly the elimination of some equipment when the process is streamlined.
- Demand response or time-of-use pricing is an option for this industry, although product demand sometimes fluctuates seasonally, so they may be more inflexible during peak seasons.

- The SPC program has measures for high efficiency (VSD) injection molders and pulse cooling for injection molders, as well as high efficiency motors and VSDs. Portions of the overall process improvement may be eligible for other rebates with the SPC program.
- An example full facility assessment of a plastics compounding facility in Texas - the facility assessment cost \$242,000, but the savings that resulted totaled 115,000 MMBtu and 14 million kWh annually.

### **Electrical Equipment**

The electrical equipment industrial sector consists of manufacturers of machinery, apparatus, and supplies for the generation, storage, transmission, transformation, and utilization of energy. In addition, it includes motors, generators, relays, as well as lighting and wiring equipment, along with electronic components and accessories (e.g., printed circuit boards, semiconductors, capacitors, resistors, etc.)

#### *Market Barriers*

- Some products developed in this sector are for specialized or technical applications, with specific procedures developed for their production. In addition, product quality is very important and implementing process changes would be more involved than in other industries (extensive testing, QA).
- Trade secrets, proprietary information, and classified procedures associated with the production of some products limit the ability of an outside auditor to completely evaluate the operations and recommend improvements.
- In addition, plant engineering staffs typically feel that the facility's operations are very specialized and don't respond well to people who don't understand the processes.
- According to an EPA industry paper, the primary reason semiconductors fail is because of contamination, therefore a clean environment is essential, so changes in procedure or processes must meet strict cleanliness and quality standards.
- NW Energy Efficiency Alliance study noted that because of the competitive nature of the microelectronics industry, companies are very risk averse and emphasize cost control. Also, production stops or downtime can be very costly.
- Plant engineering staffs have been stretched thin, so they spend all their time maintaining the facility and do not have the time for exploring energy efficiency projects. (NW EE Alliance)
- Based on their risk aversion, program incentive rebates or payments that are dependent upon extended M&V periods may exceed the length of time a facility manager is willing to wait for their ROI on a capital expense project.

#### *Significant Target Industrial Processes*

- Clean room facilities, including: air flow optimization, improved fan efficiency, exhaust systems
- Chilled water plants – improving efficiency, VSD pumps, free cooling



### *Integration Opportunities*

- Integration opportunities exist through evaluating the entire manufacturing process, from raw material substitutions to process and equipment modifications. Substitute materials may require less mixing or heat, which could lead to equipment modifications or the elimination of some equipment. Installation of automated timers and temperature gauges would help in optimizing the amount of energy required in product development.
- Analysis of all the systems involved in clean room facilities, from HVAC fans and filters to cooled water systems, to scheduling that may enable off-peak production.
- If a facility has an environmental corporate culture, waste minimization and process improvements may include energy efficiency measures.

### **Refineries**

Petroleum refining (SIC 291) is a strong contributor to the economic health of the United States. This industry is primarily engaged in producing gasoline, kerosene, distillate fuel oils, residual fuel oils, and lubricants. The petroleum industry has been dramatically affected over the last three decades by geopolitical disruptions and volatile world oil prices. Today, refiners must deal with volatile crude prices, crude quality variability, low marketing and transport profit margins, and the increasing capital and operating costs of environmental compliance.

In 1997, the industry consumed 7,266 million kWh of electricity and 1,061 million therms of natural gas. This consumption amounted to 15 and 28 percent of California's total manufacturing sector's electrical and natural gas consumption respectively.

### *Market Barriers*

- Process priorities: Refineries consider reliability, safety, production, and environmental compliance as high priorities. Energy efficiency projects must be tied with one or more of the top priorities for consideration. In northern California, refinery efficiency projects were mostly installed for reliability and process control benefits instead of energy savings.
- Timing: Refineries operate continuously and have scheduled major maintenance at extended intervals of 1 to 3 years. In addition, the scheduled plant down period (say 3 weeks) may not give enough time for a complex energy efficiency project to be installed. Efficiency projects that interrupt the process would have to wait for an opportunity for installation. This market barrier has been a major deterrent for customers who considered but backed out from participating in SPC programs, which only allow a one-year window for installation.
- Finding a champion: When an opportunity for installation arises, plant personnel are busy with preventive maintenance and overhauls. It is not uncommon to find a shortage of onsite assistance to ensure that projects are installed or scheduled for installation. Northern California efficiency project experiences with two refineries showed dynamic changes in personnel and struggles to find the "right person" for taking on the installation of the planned projects.

- Communication: often, the facility engineers do not have effective communication channels with plant or corporate financial decision makers.
- Financial issue: EE projects in the refineries are often expensive due to stringent and custom design requirements and size of the equipment.

#### *Significant Target Industrial Processes*

- Transferring (pumping) the petroleum product to various refining processes is the primary use of electrical energy used by petroleum refineries. Many of the process pumps are 500 HP or larger and at medium voltage. However, most of the pumps were oversized by design due to safety concerns; this presents opportunities for pumping rerate and/or variable frequency drives.
- Process heating requirements of the various distillation and cracking processes consume significant non-electrical energy.

#### *Integration Opportunities*

- Measures that tie together reliability and O&M: Power Recovery Turbine (PRT) – pressure reduction valves require more frequent services than PRT; pump modifications – improper sized (usually over-sized) impellers cause O&M issues;
- Measures that are tied to process control – for example, control software or algorithmic upgrades, VFDs;
- Combined heat and power applications: co-generation technologies with steam or process heat applications.

### **Water/Waste Water**

The water/waste water segment includes both water supply and sewage system submarkets.

#### *Market Barriers [7]*

- Energy efficiency is a low priority relative to meeting permit requirements. The penalties and management sensitivities to permit compliance make reliability the primary concern, which in turn encourages redundancy and increased energy consumption.
- Water systems are constrained by their need to handle increased flow through the facility to meet peak needs and long term growth.
- Operators in small and medium facilities lack the necessary resources for training and education – which has forced design firms to focus on designing “operator friendly” systems, which increases the energy consumption. Equipment capable of saving energy is in some facilities although is not currently being used.
- Operators noted that they have control and monitoring systems that are shut down due to a lack of the technical expertise necessary to maintain and operate the equipment.
- Many smaller facilities are aging and are capital constrained.
- Operators do not evaluate various treatment options when problems arise. There is a tendency to implement the first potential solution as long as the benefits of treatment outweigh the costs.

### *Significant Target Industrial Processes*

- In water treatment, over 60% of the energy is used for finished water pumping.
- In an activated sludge wastewater treatment plant, ~50% of the energy serves aeration (blowers), the next highest user is the primary clarifier (pumps) at ~10%.

### *Integration Opportunities*

- Water and wastewater treatment plants generally have flexibility within their operation to be demand responsive. In addition, they are good candidates for energy efficiency, time-of-use management, and cogeneration (the latter, specifically, wastewater plants). A compelling, cost effective offering can be developed by integrating these measures into a single project package.
- Integrate the energy program perspective with MWD's water conservation programs, including their Industrial Process Improvement Program [6].
- Integrate program marketing and delivery with technology and/or segment specific educational programs.
- Provide funding for new technology demonstration projects and subsequent case studies.

## **12. Customer Interface**

Very simply, the intent of this program is for SCE and its companion delivery channel partners to go to the customer and be engaged at every step of the process. SCE will sponsor audits, perform economic analyses, identify service providers, arrange financing, and act as an 'owner's representative' along the way. 'Hassle factor' is one of the significant barriers that this program is trying to reduce. Specific steps to communicate program benefits to potential participants and to implement projects include the use of:

- Customer Representatives and Field Engineers (sales, education, marketing)
- One-on-one meetings with customer representatives (sales, education, motivation to participate)
- Seminars to industry representatives (getting the word out)
- Engineering support interface (doing walk-through audits)
- Management support interface (conducting organizational diagnostics and energy action planning)
- Industry-specific engineering specialists (doing detailed audits if needed)
- Project owner's representatives (Project Champion/Manager to be primary interface and support for a particular participant).

## **13. Energy Measures and Program Activities**

Using the same format as seen in Section 11 above (Customer Description), below is a list of likely program measures to be explored in relation to each of the targeted sub-segments of the market.

### **Oil and Gas Extraction**

- Prior northern California experience at two such facilities points to VFDs that were installed on the steam generator blower, saving about 50,000 to 100,000

kWh per steam generator. VFDs can also be programmed for demand response applications.

- Flue gas recirculation (FGR) and inlet modification on steam generators can reduce fuel consumption, and electrical power in pumps and blowers. These measures (and VFD) can also help meeting EPA emission requirements.
- Drag reducing agent (DRA) and diluent can be added into the pipelines (mixed with the crude oil) to reduce pumping energy. A DRA injection project installed in northern California for a main pipeline from Bakersfield to Bay Area saves as much as 3 million kWh annually.
- Well pump modifications. A case study from the Motor Challenge Program indicates 12% energy savings from making electrical and mechanical modifications for beam-type oil well pumps.
- Gas lift for areas with available gas production and high off-take wells.
- Hydraulic pumps for lower off-take wells
- Progressive cavity pumps for oil and sand production
- Electric submersible pumps for high volume, light oil gravity, low gas, and high water cut production.

### **Food Processing**

- Refrigeration systems modifications
  - Floating head pressure
  - Economizers
  - Separate DX and liquid overfeed systems
  - Replace compressors
  - Upsize condensers
  - Replace air cooled condensers with water cooled units
  - Adjust flow rate on evaporator fans
  - Thermosiphon cooling
- Replace industrial fan wheels with more efficient units
- Fast closing doors on conditioned spaces
- Adjust process (for example, optimize blanch time v. temperature)
- Efficient motors
- Heat recovery
- Cogeneration
- Premium motors
- VFDs
  - For fans, product transport and pumps
  - Often in conjunction with process systems changes such as replacing 3-way valves with 2-way valves, etc.
- Lighting
- Compressed air
  - Fix compressed air leaks
  - Reduce pressure
  - Reassess inefficient end uses
  - More efficient staging / controls

- Replace compressors
- Better part load control / automation
- Distribution system optimization
- Heat recovery
- Premium motors
- General HVAC RxCx and upgrades (Min OSA, pressurization control, economizers, new AC/chillers, swamp cooling)
- Steam trap programs
- Boiler efficiency improvements
- Water reuse
- Boiler stack economizers
- Gas-turbine cogeneration inlet air cooling
- Envelope upgrades
- Enhanced heat-transfer surfaces for batch processing of product
- Nighttime forklift battery charging
- Biogas digester for product waste streams

### **Rubber & Plastics**

- Motor VSDs (on mixers, extruders, injection molders)
- Equipment integration
- Scheduling to minimize equipment idle time
- New drying technologies (microwave, radio frequency)
- High-efficiency HVAC equipment
- Dehumidification heat pump
- DR may be an option with proper scheduling
- Integration and system optimization may help minimize waste (very important within the industry)

### **Electrical Equipment**

- Reducing clean room air flow
- Installing high performance air filters
- Improvements to clean room HVAC and chilled water systems. One RMI case study noted that savings of 30-50% were identified in clean room audits at fabrication facilities in the US and Europe. At one facility, 17% savings were realized after one year.
- DR may be an option with proper scheduling
- Integration and system optimization may help minimize waste (very important within the industry)

### **Refineries**

- At a northern California refinery, nearly 23 million kWh savings were achieved from the installation of nine projects. Most installed projects also improved process control and reliability. Projects included power recovery turbine (PRT) installations, which saved 1 million kWh to upward of 7 million kWh annually.

- Variable frequency drives provided more precise control and reduced energy demand, while maintaining the pump's maximum capacity.
- Pump internal (impeller) aerate reduces pumping energy for oversized pumps.
- There were also gas turbine redesign projects identified in northern California, with a potential savings of 25 million kWh savings; not completed due to various reasons.
- Combined heat and power (CHP) projects have tremendous potential in refineries since two of the essential CHP requirements (the need for process heat and electrical energy) can be satisfied.
- Process optimization through advanced controls can lead to significant energy savings. At a northern California refinery, a control software upgrade on a cracking process generated as much as 5 million kWh in annual energy savings.
- Heat recovery: Extensive use of process steam in the refineries presents opportunities in recovering the waste heat.

### **Water/Wastewater**

- *Water* Treatment measures include:
  - Energy Efficiency
    - Energy efficient motors
    - Variable Speed Drives
    - Pump Testing and efficiency improvement
  - Time-of-use management
    - Reschedule backwash pumps
  - Demand Response
    - Reduce water treatment and pumping during a critical peak event utilizing storage as a buffer
  - Systems Approach
    - Water distribution system modeling
    - Pump systems benchmarking and optimization
- *Wastewater* Treatment measures include:
  - Energy Efficiency
    - VFDs on pumps
    - Energy efficient motors
    - SCADA systems and enhancements
    - Pump Testing and efficiency improvement
    - Aeration system improvements
      - Fine bubble aeration
      - Blower efficiency improvement
      - Dissolved oxygen monitoring and control
    - UV disinfection
    - Lighting retrofits
  - Time-of-use management
    - Reschedule pumping
  - Demand Response
    - Reduce wastewater treatment and pumping during a critical peak event utilizing storage as a buffer

- Suspend wash down and other uses of #2 water during a critical peak event
- Cogeneration
  - Use engine drive equipment for large and continuously operating equipment
  - Install a digester and cogeneration system

### 13.1. Prescriptive Measures

This program will not independently develop prescriptive measures. However, it may take advantage of existing prescriptive measures from other SCE programs as part of a project or portfolio of projects.

### 13.2. kWh Level Data

Customer and end use characteristics in the industrial market segment are quite heterogeneous in nature. Accordingly, it is difficult to characterize end use- and measure-specific data. For illustrative purposes only, Table 3 lists estimated impact targets by end use.

**Table 3: End-Use Level Impact Estimates (illustrative purposes only)**

End Use	Annual kWh savings		
	2006	2007	2008
Ind. Motors	4,728,899	7,881,499	11,034,098
Ind. Adj. Speed Drive	4,728,899	7,881,499	11,034,098
Ind. Pump System Controls	4,728,899	7,881,499	11,034,098
Ind. Customized - Process	15,762,998	26,271,663	36,780,328
Industrial Lighting	4,728,899	7,881,499	11,034,098
Industrial HVAC	4,728,899	7,881,499	11,034,098
Institutionalized Maintenance	1,975,000	3,275,000	4,600,000
Total	41,384,500	68,956,164	96,552,827

### 13.3. Non-energy Activities (Audits, Training, etc.)

As noted in Section 10, the Program's implementation is centered on providing an integrated perspective on the process customers' energy wants and needs. That being said, integrated audits that look across the various energy efficiency program offerings, as well as complementary options available through other entities (such as the Metropolitan Water District of Southern California) will be the cornerstone for identifying the opportunities to be recommended to the specific industrial customer. In addition, and as noted in Section 10 as well, the program will also increase its visibility and likely uptake, while simultaneously offering energy efficiency services and education, through offering energy efficiency training at SCE's CTAC facility in Irwindale. Other more regional training locales may also be explored.

#### 13.3.1. End Use Load (if applicable)

As this program is built around integration across processes, we will be focusing on processes and systems, rather than restricting our efforts to a given end-use load. This

integrated industrial program will look beyond the motors and consider the loads that are being driven. Specifically, process piping reconfiguration, piping diameter & layout (especially for new construction), necessary pumping pressures, and pump (impeller) efficiencies are areas of opportunity to be explored.

That being said, electric motors represent the largest single consumer of industrial process electricity. While focusing on the overall process improvements that can be made, increasing the efficiency of installed motors through replacement, better management practices, and improved motor rewinding methods will continue to be incorporated within the program purview. This will be accomplished by building upon SCE's Upstream Motors program whose primary effect has been to ensure that vendors have on their shelves commonly used motors with NEMA Premium™ efficiency ratings ready for immediate sale and installation.

During the marketing and outreach phase of program, industrial customers will be encouraged to develop a motor management plan that will identify candidates for replacement with efficient and properly-sized motors, either immediately or upon failure. A motor management plan will also improve the rewind / replace decision process by giving customers the information and tools they need to make sound economic choices. This will be accomplished by directing interested customers to SCE's Motor Systems Management training classes held at the Customer Technology Application Center (CTAC) in Irwindale. Through the approach that will involve more intensive and repetitive customer interactions, it is expected that more industrial customers will participate in these training sessions and develop motor management plans. Some subset of the attendees will actually implement improvement projects.

During the project implementation phase, customers and service providers will be directed to vendors participating in the upstream motors portion of the program. This will improve the availability of efficient motors needed for replacement or improvement projects, as well as promote the program itself, and reward participating vendors with increased business.

In addition, opportunities in mechanical and electrical drive systems will be investigated. Synchronous and cog belts offer slight improvements over V belt drive systems. Variable-speed drives offer significant potential where variable loads are being driven. However, their benefits are highly dependant upon their application and must be evaluated individually.

#### *Market Barriers*

- Lack of efficient motors on vendor's shelves for immediate replacement represents lost opportunity. SCE's Upstream Motors program will improve the rapid availability of efficient motors.
- Industrial customers may not have specific motor management plans in place, preferring instead to rewind motors rather than replace them. Rewinding often degrades a motor's performance, compounding the lost opportunity. Through



marketing, education, and plan development, customers can identify motors that should be replaced with efficient and properly sized models.

#### *Program Integration Opportunities*

- Marketing of this program will involve customer outreach and education. It would be a logical step to use existing training programs such as those offered through SCE's Energy Center.
- Motor management practices leading to the replacement (rather than a rewind) tie in to the Upstream Motors program.
- Where an audit and evaluation has concluded that the customer would benefit from motor replacement and/or variable speed drives but little or no other opportunity exists, the customer may be directed to the SPC or Express Efficiency program for implementation. However, this program is not intended to be used as a marketing tool for existing programs.
- Where fuel savings opportunities are identified that are linked to electrical savings opportunities, potentially incentives from SCG may be applied towards a project in an effort to capture all potential savings and maximize the economic benefits to the customer.

#### **13.3.2. Targeted Sector**

This program targets the industrial sector with SIC classifications between 13 and 39, with the addition of water/wastewater customers. Initial marketing activities will be targeted at customers >500 kW in order to identify projects with the greatest savings potential.

#### **13.3.3. Activity Description**

Significant marketing by SCE's customer representatives and its partnering marketing channels will be needed in order to achieve program goals. Both senior management and facility operators will need to be engaged at this level.

The program will work directly with industrial customers to identify and implement all cost-effective energy efficiency applications. The program will also promote demand response and distributed generation programs to the customer. This will be accomplished by influencing and working with both corporate and facility industrial process system operations staff to secure their commitment to the undertaking, both from a financial as well as technical level. The following steps delineate how the program implementation will flow, thereby facilitating a successful program implementation.

- a) Retain an accepted and credible U.S. DOE certified industry professional for each of the targeted industrial process sectors. The selected professional should have instant credibility with customers, be able to address sector specific concerns, talk in terms familiar to the sector, and be willing to find ways to solve production,

- quality, and other seemingly unrelated issues with top quality and complementary energy efficiency projects.
- b) The retained industry specific professional will hold “Town Hall” meetings through various professional channels to explain and demonstrate the benefits of the industrial process energy efficiency program. These meetings will both increase program visibility and participation.
  - c) Once they have expressed an interest in pursuing the program, industrial process customers will be provided with a project manager who will act as their champion and oversee the process energy efficiency initiative(s) from concept through implementation. The project manager will arrange for the certified industry specialist to visit the site and perform a preliminary walk-through inspection to identify potential areas where savings can be attained.
  - d) Following the preliminary walk-through inspection, the project manager will discuss the findings with the customer and chart a course for further exploration of energy cost savings measures that meet the customer’s interest, financial, and performance criteria. These could run the gamut from management practices through O&M initiatives, to efficiency improvements and/or DR enabling technologies, to renewable self-generation opportunities.
  - e) The customer will execute a Corporate Letter of Intent to demonstrate commitment to the identified projects and to the process.
  - f) The industry specialist will then thoroughly study each identified project and others that are found during the investigation phase. A focused report will be prepared by the specialist, detailing the proposed project(s), project costs and project savings, and potential incentives, whether available from SCE or other sources of funding.
  - g) The focused report will then be delivered to the customer. Subsequently, the Champion will schedule an in-person meeting with the customer, and the industry specialist. Projects will be reviewed and an implementation action plan will be prepared to chart the specific actions associated with each identified and complementary project.
  - h) For projects scheduled to be implemented, the assigned project manager will be available to assist the customer in preparing the appropriate incentive applications and provide the necessary implementation support to ensure the projects’ success. This may include coordinating measure specifications, contractor walks, bid review, and other activities as warranted.
  - i) The assigned project manager works with the customer to pursue initiatives selected for implementation.
  - j) The project manager will perform a post installation inspection to ensure that the project was completed as designed and assess the accuracy of the original savings estimates are valid. The project manager will also ensure that all post-installation requirements and documentation have been provided to the specific incentive program utilized.
  - k) Project Close-out – The project manager will ensure the incentive checks are delivered and close-out the project.

#### 13.3.4. Quantitative Activity Goals

Table 4 lists the activities that need to be performed to reach the required number of projects necessary to meet savings goals. The assumption is that each successive step reduces the number of potential projects by half. To implement an annual average of 120 projects of 500 MWh and 100 kW each will require contacting over 3,600 organizations that have loads over 500 kW.

**Table 4: Annual Activity Goals**

Activity	Annual Goal
Marketing contacts and impressions made	2,000
Attendees of presentations describing program	1,000
Preliminary audits conducted	360
Economically -feasible projects identified	240
Projects implemented	120
Average savings per project	500 MWh, 100 kW

#### 13.4. Subcontractor Activities

As noted in Sections 8 and 9, there are myriad roles that subcontractors and other third parties will likely play, such as:

- assisting with marketing (in the form of maximizing the linkages to the appropriate facility and decision-making staff at the targeted industrial process plants),
- offering the O&M-focused energy management planning (i.e., Industrial MBA concept) consulting;
- providing the industry expert assessment services;
- participant-specific Project Manager services; and
- process evaluation services as the program is rolled out and evolves.

Clearly the list above should not be viewed as definitive, but rather illustrative of the types of services that may be provided through subcontractor resources.

#### 13.5. Quality Assurance and Evaluation Activities

Integrated project (i.e., one or more energy efficiency initiative per customer site) savings evaluation will be a necessary component of this program, not only for reporting results to SCE and the Commission, but also to learn from and build on program successes. Additionally, energy savings and project benefits will also be evaluated not only from SCE's and the Commission's perspective (energy and demand savings, free ridership), but also from the customer's perspective. Providing energy and cost savings information (as well as ancillary benefits) will help the customer evaluate the integrated project's benefits and promote future implementation and participation.

M&V procedures will be consistent with the CPUC's *Energy Efficiency Policy Manual* v.3 (EE Policy Manual) – and the EM&V Protocols being developed in this proceeding. This will require determining historical baseline energy use as well as the factors that drive energy use, which is primarily expected to be unit production over time.

### **13.5.1 Integrated Project-level Savings Determination**

Each project begins with an integrated audit to identify all possible opportunities and economic benefits. In addition to the standard information captured during an industrial audit (e.g., motor kW and operating hours, monthly site energy use), information on production rates will be obtained in an effort to capture the energy intensity of the process. Given that this program will foster process modifications and changes, simple M&V techniques predicated on small efficiency increases may not be applicable in many cases.

In the post-retrofit period, both energy use and production rates will be measured or obtained. Depending on the project implemented, energy use measurements will take place at the component, system, or facility level depending on the M&V strategy chosen. Baseline and post-retrofit energy use may need to be adjusted to account for variations in production rates in order to accurately and fairly assess energy savings. Where process improvements result in increased production, better quality control, or better quality products, such benefits will be recorded and reported to the extent that they can be quantified.

For purposes of reporting to SCE and the Commission, energy and demand savings as seen at the customer's meter will be determined based on selected measurements and at typical production rates. Every effort will be made to quantify the savings as soon as reasonably possible to avoid delays in processing any financial incentives.

### **13.5.2 Customer Cost-savings Determination**

The energy and demand savings will be translated to cost savings at the current rate schedule and typical production rates. This will allow the customer to see the integrated project's benefit in terms that they can understand and use. In addition, the cost savings per unit of production will also be reported. This metric is extremely useful to the customer to quantify benefits for future projects and for estimating a project's effect on net profits. For high-volume / low-margin businesses (e.g. food processing), small changes in unit cost of production can have large effects on the bottom line.

### **13.5.3 Program Evaluation Activities**

With respect to outside evaluation, this program is predicated on the assumption that these industrial customers are hard-to-reach and would not participate in the breadth of energy efficiency program without the extensive support that will be provided. While it is not SCE's role to evaluate its own programs, enough information on each integrated project will be retained to demonstrate that virtually no participant would be considered a free-rider.

### **13.5.4 Expected number/percent of inspections**

Since the program intent is to work closely with the facility throughout a project's development and implementation, each and every site will be inspected more than once.

### **13.6. Marketing Activities**

As noted in Section 5 (Program Statement), Section 8 (Program Strategy) and Section 10 (Program Implementation), the holistic approach to the Program's value proposition will hinge on our ability to network SCE's marketing resources with those equally respected by the industrial process customer community. These will include: third-party providers with geographic, industry-specific, civic or other avenues through which to gain entry to industrial process customers; trade associations; upstream industrial process equipment supply chains, including respected sales teams as identified, especially in the case of the motors end-use; and registries of environmentally sensitive customers (e.g. Climate Change Registry).

## **14. Appendices**

### **14.1 Studies**

1. "California Industrial Energy Efficiency Market Characterization Study"  
XENERGY Inc., Oakland, California, December 2001
2. Joseph Eto, Ralph Prah, and Jeff Schlegel, "A Scoping Study on Energy-Efficiency Market Transformation by California Utility DSM Programs"  
Lawrence Berkeley National Laboratory, Berkeley, California. July 1996
3. "Large Customer Needs and Wants Study – Executive Summary"  
Quantum Consulting Inc. Berkeley, California. January 2001
4. "Energy FinAnswer® Market Assessment for PacifiCorp's California Service Territory – Preliminary Findings" Nexant Inc. San Francisco, CA. Sept 2004
5. Rufo, M., Coito, F. "California's Secret Energy Surplus: The Potential for Energy Efficiency" Xenergy Inc. Oakland, CA. Sept 2002
6. For more information on the Metropolitan Water District of Southern California's efficiency programs, go to [www.mwdh2o.com](http://www.mwdh2o.com).
7. A Strategic Plan for Market Transformation in the Industrial Sector of the Pacific Northwest 2004-2009; July 12, 2004; Northwest Energy Efficiency Alliance
8. Department of Energy, Office of Industrial Technology (OIT).  
[http://www.oit.doe.gov/bestpractices/qualified\\_specialists.html](http://www.oit.doe.gov/bestpractices/qualified_specialists.html)



# Agricultural Energy Efficiency Program

<b>1. Projected Program Budget</b>	<b>\$</b>	<b>38,062,834</b>
<b>2. Projected Program Impacts</b>		
MWh		129,368
MW (CEC Factor)		28.07
<b>3. Program Cost Effectiveness</b>		
TRC		1.51
PAC		3.02

## 4. Program Descriptors

Market Sector: Agriculture  
 Program Classification: Statewide and Local  
 Program Status: Revised Existing

## 5. Program Statement

Agricultural production and water supply customers have not adopted energy efficiency technologies and practices to nearly the extent that customers in other sectors have. There are essentially two reasons for this. One is that these customers see energy costs as relatively small among their concerns; larger concerns are overall cost (mostly labor) and issues related to the environment, i.e., water use and water, soil, air, and wastewater quality. The other reason is that efforts to encourage energy efficiency have almost exclusively focused on water pump improvements, so agricultural customers remain largely unaware of potential savings in other energy-using parts of their activities.

The *Agricultural Energy Efficiency Program* for 2006-2008 is a portfolio of products and services designed to enhance adoption of energy efficient equipment and practices among agricultural customers, and help SCE realize the vision of DSM as a reliable and robust resource. This program addresses two characteristics of

### What's New for 2006-08?

- Innovation
  - Active promotion of full-facility audits and integrated reporting of results from audits and pump tests
  - On-site design assistance to optimize water and energy use
  - On-site design assistance for agricultural food processing
  - Active outreach through Agricultural Commissioners to jointly promote AEEP
  - Special initiative to evaluate and facilitate the introduction of additional measures
- Integration
  - Outreach and marketing that promotes participation with other programs, including upstream motors and demand reduction offerings
  - Partnering with Agricultural Commissioners to jointly promote program with other agencies
  - Active discussion with PG&E and Sempra to create a statewide agricultural program offering

the sector that have historically been a stumbling block to adoption of energy efficiency throughout all regions of the country, and California in particular: diversity of the customer base and the relatively small role of electricity in their costs.

The program has been designed with a number of considerations in mind, all aimed enhancing the energy efficiency of the agriculture sector. The program is responsive to criteria<sup>23</sup> outlined by the Peer Review Group (PRG) by including the following:

- Near-term activities within a framework that has a long-term vision. A number of services, including several having demonstrated success at SCE, will be offered in 2006. Measures to address the different customer segments will be introduced, so that the entire market can be reached.
- A diverse portfolio of program components and specific products and services to accommodate the diverse needs and interests of agricultural customers. In the near term, this means focusing on adoption of key products within a few segments and developing delivery mechanisms that leverage their supply chain. In the longer term, all customer groups, products and services, and delivery channels with promise can be incorporated into the offering. Feasibility and pilot studies will be used to determine this evolution.
- Diversification within the program portfolio through the bundling of “tried and true” measures, such as SCE’s nationally recognized pump testing services, with innovative measures.
- Innovation in both the types of measures offered and the way they will be delivered.
- Flexibility to modify the portfolio in response to feedback provided by ongoing process evaluation and integrated participant contact and activity tracking.
- Integration with demand response programs and other energy efficiency programs within SCE, such as Express Efficiency, statewide activities, and beyond.
- Leveraging of the energy efficiency infrastructure at SCE to conduct outreach and deliver program services
- Implementation that utilizes a broad array of competitively procured resources. Proven resources, including contractors with specific technical expertise and capabilities to deliver measures in the program design will be engaged to supplement in-house staff.
- Compliance with directives and commitments to use cost-effective energy efficiency as reliable means of resource acquisition.

**What’s New for 2006-08? (continued)**

- Other Program Improvements
  - Market expansion of pump testing – inclusion of water treatment pumps.
  - Use of competitively bid procured resources to reach underserved markets
  - Training of contracted resources to ensure consistency with testing protocols and standards to maintain integrity of tests
  - Expansion of AgTAC and CTAC services to include demonstration units, enhancing farming practices

<sup>23</sup> Memo to Utility Energy Efficiency Portfolio Managers from the PRG, April 14, 2005.



- Responsiveness to Green Building Initiative Executive Order. While relatively few agricultural facilities are affected by this initiative, State-run fish hatcheries are within the targeted market.
- Attraction of customers' interest in energy efficiency by offering products and services within the portfolio that also address non-energy issues important to agricultural customers. These important non-energy issues include water usage; productivity; and water, air, and soil quality. Addressing these considerations increases opportunities to recruit participation in the immediate future and opens the door to introducing new technologies as they emerge in the longer term.
- Continual assessment and annual introduction of new services. New initiatives will be introduced as certain parts of the market are transformed by the early initiatives, as feasibility studies identify new opportunities, and the market's readiness for innovation increases.

Additionally, the program incorporates recommendations made through Program Advisory Group (PAG) and Public Workshops and submitted papers. These relevant recommendations and responses include the following:

- To recommendation that the program should capture lost opportunities,<sup>24</sup> the program design adequately captures lost opportunities by providing for a hands-on approach taken by agricultural account managers and ensuring that design assistance features are built into the implementation process.
- To the recommendation that the program should recognize the embedded energy cost of water use,<sup>25</sup> the program addresses issues related to water use efficiency practices by providing education and assistance that helps customers design irrigation systems that facilitate efficient pumping practices and providing education on efficient farming practices that, among other things, lead to reduced water consumption.
- To the recommendation that the program should include a pump test to be conducted while the diesel engine is still operational, determine the proper size of the electric motor to be installed, ensure the motor is new premium efficiency, and these customers be encouraged to stay within the Time-of-Use schedule,<sup>26</sup> the program provides recommendations and incentives for high efficiency motors, including proper sizing to meet the pumping needs and will recommend Time-of-Use schedule operation, where appropriate.

**In order to better inform customers about their potential energy savings, SCE will expand the information provided as part of the pump test and/or energy audit to give customers a more comprehensive understanding of the measures and actions that they might take to save energy.**

<sup>24</sup> PAG workshop

<sup>25</sup> NRDC Energy Efficiency Program Ideas, March 29, 2005

<sup>26</sup> California Energy Commission, March 18, 2005

Response to other public comments:

- While the proposed program does not currently offer different rebate levels for different areas in response to different avoided costs, SCE will address this issue in its first round of process evaluation studies for this program, and if appropriate, incorporate these recommendations into the resulting program modifications.
- SCE is planning to work with irrigation districts other water agencies to attract their participation in the program, particularly for potable water systems design.
- SCE already takes advantage of the opportunities to promote a variety of energy efficiency options to the agricultural customers through the current activities associated with the hydraulic pump test and account representatives. In the expanded portfolio, SCE intends to rely heavily on this vehicle for promoting the program.
- In order to better inform customers about their potential energy savings, SCE will expand the information provided as part of the pump test and/or energy audit to give customers a more comprehensive understanding of the measures and actions that they might take to save energy. These will be provided in a single report to each participant. Furthermore, as part of this expanded reporting mechanism, information will be included about other measures within this program and other SCE energy efficiency programs that are relevant and how they can be utilized.
- To ensure that customers are satisfied with the program design, SCE intends to explicitly address satisfaction during the first round of process evaluations for this program.
- The proposed program incorporates design assistance as a critical component for ensuring comprehensive and customized savings opportunities.
- A Pilots and Feasibility Assessment initiative has been included to ensure the inflow of new measures and their cost-effective viability prior to implementation; five measures are already slated for this initiative in 2006-2008.
- To encourage the installation of additional and appropriate energy-saving equipment, financing in partnership with the Farm Credit Bureau is incorporated as part of the Pilots and Feasibility Assessments initiative.
- As part of an expansion of activities for energy centers, SCE is proposing to increase funding for AgTAC and CTAC to enable more workshops and demonstrations and is considering the addition of a mobile agricultural technologies unit as a potential measure to be included in the program.
- As part of its efforts to incorporate the Governor's Green Building Initiative for state facilities, SCE plans to include state-owned fish hatcheries for pump testing and efficiency improvements.
- SCE has incorporated provisions in the program for enabling new measures to be proposed and implemented by viable third-party contractors through the Pilots and Feasibility Assessments initiative. It is expected that the entire program service expansion for 2008 will come through these competitively procured resources.

The proposed portfolio incorporates all of these considerations within a program designed for implementation in coordination with other demand response activities within SCE, at the statewide level, and/or by other parties. This coordination, including opportunities for the participation of third parties in the delivery of energy efficiency

products and services, will start immediately and evolve over the three-year program horizon.

## 6. Program Rationale

There is a large untapped energy efficiency potential in the agriculture and water pumping sector.

Agriculture is a key economic sector in SCE's service

**The size and makeup of the agricultural customer sector provides SCE with an opportunity to fulfill its vision of realizing DSM as a reliable and robust resource while preserving and enhancing the economic health of the agricultural sector.**

territory, contributing about \$13 billion of agricultural products sold in the US and using about 3% of electricity sold by SCE annually. In addition to being large, the agriculture sector is extremely diverse. While farms average about 350 acres, more than half are smaller than 50 acres and about 3% are greater than 2000 acres. And 10% of the farms generate almost 90% of the product sales. The characteristics of the agricultural market are described more fully in the work paper "A Concept for Agricultural Energy Efficiency," Attachment A filed with this plan.

The size and makeup of the agricultural customer sector provides SCE with an opportunity to fulfill its vision of realizing DSM as a reliable and robust resource while preserving and enhancing the economic health of the agricultural sector. The *Agricultural Energy Efficiency Program* is good for agricultural customers and good for California. In particular,

- Agricultural customers have specialized needs but also have needs common to other nonresidential customers. They can benefit from adopting energy efficiency in the same way that other customers have from SCE's programs.
- The products and services of the program address water use and air quality concerns, as well as energy reduction and cost savings.
- The size of the agricultural market offers considerable potential for SCE to achieve its resource acquisition goals and, simultaneously, support the economic health of the agricultural sector.
- Assisting agricultural customers keep their business' energy efficient can have direct impact on keeping them cost-competitive, retain their operations in California, and will have positive impacts on those market support players to the Agricultural industry.

This particular program is appropriate because it

- Expands activities beyond the historical focus on potable water pumping to address the full set of end uses and activities, including wastewater pump testing, other farm-related and agricultural product processing equipment, and non-specialized equipment (e.g., lighting, envelope and HVAC).

- Expands the types of customers targeted for services beyond crop and animal farms to include nurseries and greenhouses, wastewater sites, and facilities covered under the Green Building Initiative Executive Order.
- Incorporates the flexibility of phasing in additional services that promise additional cost-effective savings and monitoring the proposed activities to modify them even within the first program year.
- Provides a balance between SCE’s “tried and true” activities, such as water pump testing and innovative new activities from design assistance to financing through agricultural trade allies.
- Leverages the infrastructure and experience of other programs offered by SCE to the nonresidential customer segment.
- Incorporates opportunities for implementation as a statewide initiative and through the use of third-party providers procured by a competitive bid procurement process.

## 7. Program Outcomes

The *Agricultural Energy Efficiency Program* will encourage agricultural production and water supply customers to improve the energy efficiency of their facilities, including electricity used for water pumping and for non-pumping activities.

**The program will comprise a comprehensive set of strategies and tactics to produce energy, water, environmental, and economic benefits in all agricultural production customer segments.**

To achieve energy efficiency in the

agricultural sector, the program design incorporates:

- Short-term focus and long-term view for achieving energy efficiency
- Internal/external integration with other SCE and statewide efforts
- Diverse portfolio of products and services
- Opportunity for a vibrant and diverse network of third-party energy efficiency providers to participate in delivering program services
- Reliable resource acquisition through cost-effective energy savings

The program will comprise a comprehensive set of strategies and tactics to produce energy, water, environmental, and economic benefits in all agricultural production customer segments. It will encourage and facilitate the following customer actions:

- Repair and/or replacement of water pumps to improve water flow and reduce energy use
- Installation of pump system controls
- Improvements to water system design to facilitate more accurate pump testing
- Installation of higher efficiency motors for water pumping, dairy operations, and agricultural product processing
- Conversion of sprinklers to micro-irrigation technology
- Installation of low-pressure sprinkler nozzles
- Installation of more efficient lighting and lighting controls, fans, chillers, and packaged AC units

## **8. Program Strategy**

A broad array of methods will be deployed under the *Agricultural Energy Efficiency Program* to achieve the program's energy efficiency goals. Since there has not been a comprehensive program to increase the awareness, modify the attitudes, and encourage the adoption of energy efficiency in this sector before now, all these phases of program maturity are incorporated in the program. The 2006-2008 activities, especially the earlier activities prepare the groundwork for investment in energy efficiency by the customers. The different initiatives, delivery channels, and technologies are outlined below. The particular activities are described in Section 13.

### **A. Initiatives**

- Tests & Audits—includes all components of SCE's well-established water pump testing service plus full-facility audits akin to the audit activities offered to small/medium nonresidential customers; purpose is to identify energy efficiency opportunities and provide this information to customers
- Education & Assistance—seminars, customer segment-specific meetings, and AgTAC and CTAC exhibits/demonstrations to educate customers and trade allies about energy efficiency technologies, practices, resources, and program offerings; also includes on-site design assistance
- Financing & Incentives—mechanisms to encourage customers to act on recommendations and information provided about energy efficiency opportunities at their facilities
- Load Management—mechanism to facilitate participation in SCE's demand response and/or self-generation activities
- Pilots & Feasibility Assessments—means of exploring the viability, cost-effectiveness, and suitable delivery channels for innovative options as the program matures

### **B. New Delivery Channels**

These will supplement existing channels: SCE agricultural customer service reps, PTHS testers, and AgTAC/CTAC staff, as well as other nonresidential program implementation resources.

- Coordinated program promotion with Agricultural Commissioners at the USDA Extension Service
- Trade association partnerships for education (e.g., dairy farmer association, Agricultural Energy Consumers Association, American Water Works Association, and Hydraulic Institute)
- Trade ally relationships for facilitation and installation of energy efficiency improvements (e.g., irrigation contractor training, farm credit bureau loan support)
- Implementation resources procured through the IDEEAS Initiative and other competitive bidding

C. Use and Promotion of Proven Technologies

A number of technologies will be promoted to address the needs and interests of specific customer segments. The following is an illustrative list of these technologies and applicable customer segments:

- Moisture monitors for crop and nursery irrigation
- High-efficiency fans and pumps for crop, livestock, and dairy farms
- Variable speed drive (VSD) motors
- Compressor heat recovery for dairy and agricultural processing
- Anaerobic digesters for waste treatment and pump fuel

The program will also make use of several technologies that have proven capabilities to aid in the capture and dissemination of information in implementing the program.

Among these are:

- Handheld information storage devices for use in pump testing and audits
- Pumping system analysis tool for agricultural processing pump testing

**Table 8.1. Agricultural Energy Efficiency Program Delivery Strategy**

Expenditure Type	Agricultural Energy Efficiency Program Delivery Strategy
Program Administration	15.95 FTE SCE staff + 2.75 FTE contract
Direct Services: SCE Field Reps  Contracted Resources  Rebate Processing  Miscellaneous	13 FTE to perform 4'500 pump tests in 2006; increase by 1 FTE in 2007 to increase tests 4%/year in 2007 and 2008  Perform 500 pump tests, 350 audits in 2006; escalate 10% annually Conduct training and seminars Certification for pump testers Provide design assistance Conduct 5 feasibility assessments; design and implement 3 pilots; assess and implement full scale, as appropriate  Process 1,100+ rebates in 2006; escalate number of rebates by 10% annually  Equipment for pump testing, including separate equipment to include testing of non-potable water pumps Procurement and software modification to handheld test/audit recording devices Interval meters for Demand Response participants @ \$350/meter Materials for AgTAC technology demonstrations and training
Marketing, Outreach, and Advertising	Develop 1 brochure folder and multiple inserts for different initiatives/measures/customer segments; print 100K brochures @ <\$2 ea.; revise and reprint annually, as needed to reflect portfolio Develop website for the program Distribute 100,000 brochures via Field Reps, AgTAC, contractors, and trade shows

	<p>Relationships with trade allies and associations to promote program</p> <p>Direct mail/e-mail to pump test and audit participants follow up on recommendation reports</p> <p>Ads in trade association and water agency newsletters (3 ads in 4 different customer segment newsletters)</p>
Incentives	<p>500 pump test repair rebates @ \$3350 ea., cover 25-30% incremental cost in 2006; increase rebated repairs by 10% per year</p> <p>175 fan and dairy equip. rebates @ \$3628 ea.; increase 10% per year</p> <p>379 rebates for lighting, HVAC, refrig. compressors, motors not covered in pump tests, low-pressure sprinkler nozzles, and micro-irrigation conversion @ average \$1,000 ea.; increase 10% per year</p> <p>Curtailment incentives @ \$70/kW in 2006-2008, increase total incentives with participation rates: four-fold in 2007 because of awareness, 10% more in 2008</p>

## 9. Program Objectives

The planned accomplishments for the *Agricultural Energy Efficiency Program* include:

- Perform 10% more pump tests and at a greater diversity of sites each year
- Assess feasibility to extend testing to wastewater systems (need separate equipment for health considerations)
- Expand repair services and rebates to non-farm pump users (e.g., water districts) beyond the 2004/5 Pumping Efficiency Program
- Provide design assistance to customers/contractors/irrigation system to design irrigation systems that facilitate pump testing and assessment of how effectively pumped water is being used
- Provide design assistance to agricultural processing customers to install energy-efficient technologies for pumping, refrigeration, water treatment
- Financial incentives to install proven technologies, including: moisture monitors for crop and nursery irrigation; high-efficiency fans and pumps for crop, livestock, and dairy farms; variable speed drive (VSD) motors for dairy and agricultural processing pumps; anaerobic digesters for waste treatment; compressor heat recovery for dairy and agricultural processing
- Ensure that agricultural and water supply customers are targeted for outreach to participate in other nonresidential programs (e.g., audits and incentives to install lighting)
- Expand offerings by AgTAC (e.g., seminars for water system contractors, consider mobile demonstration units)
- Conduct feasibility studies in new technologies and trade ally relationships to introduce additional cost-effective measures within and beyond this program cycle
- The combination of informational and incentive measures will educate farmers, water suppliers, and agricultural product processors on the benefits of modifying their energy consumption behavior and making wise energy-efficient modifications to their operations. This will lead to sustainable energy savings and

peak demand reductions. The details of these objectives are provided in Section 13.

## **10. Program Implementation**

The Agricultural Energy Efficiency Program will engage a combination of historically successful and innovative new mechanisms for implementing the program. These were

**The *Agricultural Energy Efficiency Program* will engage a combination of historically successful and innovative new mechanisms for implementing the program. These were developed to meet the aggressive energy savings goals, while maintaining the high standards of integrity that SCE has established for the delivery of services to its customers.**

developed to meet the aggressive energy savings goals, while maintaining the high standards of integrity that SCE has established for the delivery of services to its customers.

In designing the mechanisms, heed is paid to additional goals for the program, including integration with other SCE and non-SCE energy efficiency and demand response programs, leveraging SCE and non-SCE resources to manage costs and not duplicate efforts, development of relationships with agencies and associations with ties to the agricultural community, and inclusion of opportunities for third parties to participate in the implementation of the program.

Key elements of the implementation system include:

- Supplement SCE reps with and other proven resources to address increase in pump tests and facility audits
- Provide water pump repair and rebate services using third parties procured via competitive bid
- Provide certification to contractors to ensure use of SCE standards for testing and improvements
- Provide design assistance by using specialized contractors familiar with optimal water system and other pumping design
- Leverage other nonresidential energy efficiency program resources (e.g., Audits, SPC, Express Efficiency, Upstream HVAC) and also demand response and self-generation resources to ensure that agricultural customers are actively included in participation recruitment
- Engage cooperation of USDA Agricultural Commissioners to promote the program



The program implementation components are described below.

### **A. Program Development and Startup**

#### Develop Certification and Verification Process

This program will rely heavily upon the use of subcontracts with qualified professionals to expand the number and type of pump tests, to provide design assistance for pumping systems and for agricultural processing improvements, and to provide training on efficient and energy-efficient farming practices. To ensure that these contractors maintain the same standards SCE uses for its testing and training, SCE will consider instituting a certification process for contractors and will require contractors to perform verification activities to ensure and document savings claims.

#### Coordinate with Existing Utility and National Programs

Establish a matrix of relevant SCE, statewide, regional, (e.g., Western Area Power Administration), and national (e.g., EPA) energy efficiency programs that apply to the *Agricultural Energy Efficiency Program* participants for energy efficiency measures to be implemented under this program. For other SCE programs, this includes working proactively to ensure that agricultural accounts are included in outreach and participation in far greater numbers than in the past, by assisting with that outreach and recruitment.

#### Develop Outreach Plan

Outreach will be key to the implementation of the broad expansion of measures for this sector over previous years' activities. The diversity of the agricultural sector is recognized and addressed in all aspects of the program design, from the program statement and rationale, through strategy and marketing. The program recognizes at least eight distinct customer segments, from farms to water suppliers, to agricultural product processors. The initiatives will be implemented with specific segments of the agricultural customer base in mind. Efforts will include identification and prioritization of key customer action opportunities.

#### Customer Awareness and Marketing

Agricultural customers, many of whom are quite familiar with the pump testing activities SCE has conducted for many years, need to be made aware of the broad array of services that this new program provides. A marketing plan will be developed that ensures all eligible customers are aware of the opportunities for education, on-site assistance, and financial support that have been developed specifically to meet their needs and interests.

The key channels for marketing the program will be SCE's agricultural account managers and pump testers, who have gained the trust of these customers, as well as a new set of resources, including Agricultural Commissioners, trade associations (such as the California State Grange, California Farm Bureau, Agricultural Energy Consumers Association, and Community Alliance with Family Farmers), and trade allies (such as pump system designers and equipment distributors).

## **B. Delivery of Informational and Education Initiatives**

### Outreach and Education of Prospects and Participants

Contact customers in the target segments and provide information on energy efficiency and the program to them.

- Select customers for pump tests and full-facility audits, perform the services, and report back to customer (see below)
- Recruit farming customers for participation in educational workshops on efficient farming practices and energy efficiency opportunities
- Leverage agricultural trade associations to educate specific customer segments on technologies and/or practices of particular relevance to the m
- Identify candidates and provide design assistance as outlined in the initiative

At each point provide mechanism for customer to take the next step in making the relevant improvements (e.g., during a workshop for crop and nursery farmers on efficient water use, provide rebate application and contact number for installation of moisture monitors)

### Report Opportunity Results to Customers

The results of pump tests and full-facility audits performed will be provided to the customer, along with an assessment of opportunities for improvement, including estimates of energy savings estimated to results from making the improvements. The following items could be included in the report for the customer:

- Measures' descriptions
- Equipment specifications
- Estimated energy savings resulting from project
- Cost-effectiveness analysis
- Cash flow/payback
- Guidelines for available financing
- Steps needed to be taken to implement project and obtain rebate,
- Delivery of Technical and Financial Assistance to Participants

### Identify Customers with Opportunities

From the outreach and education activities, SCE will be able to identify customers with know opportunities to make energy efficiency improvements at their facilities. The financing and incentive measures will be directed to these customers.

### Provide Financing and Incentives for Qualified Actions

Rebate offers will be issued by SCE staff and contracted resources to encourage action on recommendations and information from pump tests, audits, and educational measures. The rebates will be processed by the SCE processing center already established and used by other energy efficiency programs.

## **C. Customer Contact and Activity Tracking**

Successfully identifying opportunities for energy efficiency improvement and then converting those opportunities to realize savings will hinge on the development and

continuous use of a system that tracks all contacts with customers in this sector. It is through this tracking that SCE will be able to document and demonstrate savings claims beyond those measured by the trail of cash incentives. It must cover customer participation in all the available initiatives, including Tests & Audits and Education & Assistance, as well as Financing & Incentives and Load Management.

These contacts include:

- awareness and recruitment outreach,
- pump test or audit scheduling, on-site visits (e.g., for pump test, audit, or design assistance),
- information on specific recommendations provided,
- customer participation in workshops, customer use of financing and rebates,
- follow-up calls to learn about actions taken without financing and rebates, and
- results of on-site visits to verify (selected) improvements.

A similar database could be developed to track services provided to and actions then taken by pump system designers, equipment vendors/contractors, and specialized facility contractors which also result in energy savings.

#### **D. Measurement and Evaluation**

##### Process Evaluation and Market Assessment

- Ongoing assessment of measures and implementation, including customer satisfaction

##### Tracking and Documentation of Savings

- Verification of installations made by implementation contractors
- Integrated system for tracking customer action to recommendations and for documentation of savings

#### **11. Customer Description**

The *Agricultural Energy Efficiency Program* is targeted to customers that engage in farming, agricultural product processing, and water supply and treatment. There are many customer segments within this group, reflecting the diversity of activities and facilities therein. The following customer segments are included in the target group:

- Crop Farms—includes cultivation of grains, cotton, sugar crops, irish potatoes, other non-grain field crops, vegetables and melons, berries, grapes, fruits, and nut trees
- Greenhouses and Nurseries—includes cultivation of crops grown under cover and ornamental nursery products
- Animal Farms—includes facilities for beef cattle, hogs, sheep, goats, other livestock, poultry and eggs, horses, animal aquaculture, other animal specialties, and fish hatcheries and preserves; the latter includes State facilities covered by the Green Building Initiative Executive Order
- Dairy Farms—includes the maintenance of livestock for dairy production and on-site dairy product manufacture integrated with livestock care

- Agricultural Processing—includes crop preparation services, cotton ginning, and fluid milk processing
- Refrigerated Warehousing and Storage—includes warehousing of any products needing refrigeration; this is not strictly agricultural production but includes some accounts currently serviced by SCE’s agricultural account managers
- Water Supply and Irrigation Systems—includes all potable water supplies for agricultural and non-agricultural uses, e.g., municipal water districts
- Wastewater Systems—includes sewerage treatment; these customers will only be targeted for participation in water pump-related and fully generic end-use measures (e.g., lighting), not wastewater treatment; their inclusion in pump testing is a new addition that will require separate testing tools (for health reasons) and will be phased in over time.

## 12. Customer Interface

Considerable attention will be given to making program services easy to use.

- Integrated reporting of test and audit results with recommendations and information on additional program services to facilitate making the improvements
- Integrated delivery of all relevant energy efficiency programs and measures by assigned account managers
- Program brochure with links to all other related SCE programs
- Portion of SCE website devoted to providing information on and assistance with the *Agricultural Energy Efficiency Program*

## 13. Energy Measures and Program Activities

Five initiatives house a broad array of measures designed to address the diverse set of customer segments. Table 13.1 summarizes the measure/segment mix.

**Table 13.1. Measures by Customer Segment**

Measures		Crop Farms	Greenhouses & Nurseries	Animal Farms	Dairy Farms	Agricultural Processing	Refrig. Warehouse & Storage	Water Supply & Irrigation Systems	Wastewater Systems
Tests & Audits	Pump Test Expansion	•	•	•	•			•	•
	Agricultural Facility Audits	•	•	•	•	•	•	•	
Education & Assistance	Design Assistance for Potable Water Systems	•	•					•	
	Design Assistance for Agricultural Processing					•			
	Education on Effic. Farming & EE	•	•	•	•	•			
Financing	Full-service Pump Efficiency Improvement	•	•	•	•			•	•

	Farm Equipment EE Improvement	●	●	●	●	●			
	Non-specialized Equipment EE Improvement	●	●	●	●	●	●	●	
Load Mgt.	Voluntary Demand Response Bidding	●	●	●	●	●	●	●	●
Pilots & Feasibility	Sustainable Fuels								
	Loans for EE Improve.				To	Be	Determined		
	On-Bill Financing								
	PQ Assurance								
	Mobile AgTAC								

### 13.1. Measures Information

Measures within each of the five initiatives are described below. Some will start immediately in 2006. Some will be phased in over the three-year period. And others require feasibility assessments to determine their viability, cost-effectiveness, and timing.

■ <b>Measure Description</b>	■ ■ <b>Target Segments and Technologies</b>
<ul style="list-style-type: none"> <li>■ <u>Tests &amp; Audits</u></li> </ul> <p>Pump Test Market Expansion</p> <ul style="list-style-type: none"> <li>■ Continue testing at current levels plus additions below</li> <li>■ Extend testing to additional water users that are currently underserved (e.g., golf courses, cemeteries, entertainment facilities)</li> <li>■ Extend testing to sewerage systems (Phase II implementation; need separate equipment for health considerations)</li> <li>■ Maintain SCE standards and methods; leverage the success of renowned Pump Test and Hydraulic Services Program</li> </ul> <p>Agricultural Facility Audits</p> <ul style="list-style-type: none"> <li>■ Audit full facility, not just pumps, for energy efficiency opportunities in building envelope and equipment</li> <li>■ Adapt software in handheld devices already used by SCE to perform audits at small/medium customer facilities to also accommodate specialized agricultural equipment and pump testing</li> <li>■ Provide customers with recommendations and incentives to implement them</li> <li>■ Phase I: leverage existing nonres. audit program; Phase II leverage pump tests for full-facility audits</li> </ul>	<p>Segments: water supply and irrigation systems; sewerage systems (test feasibility)</p> <p>Technologies: handheld devices by auditors to provide immediate recommendations to customer</p> <p>Segments: water supply and irrigation systems</p> <p>Technologies: handheld devices by auditors to provide immediate recommendations to customer</p>

<ul style="list-style-type: none"> <li>▪ <b>Measure Description</b></li> </ul>	<ul style="list-style-type: none"> <li>▪ ▪ <b>Target Segments and Technologies</b></li> </ul>
<ul style="list-style-type: none"> <li>▪ <u>Education &amp; Assistance</u></li> <li>Design Assistance for Potable Water Systems               <ul style="list-style-type: none"> <li>▪ Help customers/contractors/irrigation system designers to design irrigation systems that facilitate pump testing and assessment of how effectively pumped water is being used</li> <li>▪ Incentives to pump vendors/contractors to increase efficiency beyond SCE-set standards (Phase II)</li> <li>▪ Must be practical and within capabilities of available SCE and contract resources—ramp up services over time</li> <li>▪ Address non-energy considerations (e.g., water and air quality, water usage)</li> <li>▪ Expand offerings by AgTAC (e.g., seminars for water system contractors)</li> <li>▪ Identify segment/measure combinations for maximum effect</li> </ul> </li> </ul>	<p>Segments: water supply and irrigation systems, crop farms, nurseries (ramp up)</p> <p>Technologies: on-site application of efficient design</p>
<ul style="list-style-type: none"> <li>Design Assistance for Agricultural Processing Operations               <ul style="list-style-type: none"> <li>▪ Help ag processing customers adopt energy-efficient technologies for pumping, refrigeration, water treatment to assess potential for efficiency increase</li> <li>▪ Use of pumping system analysis tool for ag processing customers</li> </ul> </li> </ul>	<p>Segments: Agricultural processing (non-potable water users)</p> <p>Technologies: pumping system analysis tool</p>
<ul style="list-style-type: none"> <li>Education on Efficient Farming and Energy-Efficient Technologies and Practices               <ul style="list-style-type: none"> <li>▪ Capture interest by disseminating information on how to improve productivity, reduce costs, and address environmental concerns</li> <li>▪ Also supply education focused on energy efficiency (i.e., a packaged offering that addresses their known interests with SCE goal of promoting energy efficiency)</li> <li>▪ Help farmers understand how energy efficiency is part of what really concerns them or, at least, gain trust so they will consider energy efficiency measures</li> <li>▪ Reach more of the ag customer market with help of industry associations (e.g., EFA, CCOF, crop coops, dairy farmers association, California State Grange, Agricultural Energy Consumers Association (AECA), Electrical Apparatus Service Association, Inc.</li> </ul> </li> </ul>	<p>Segments: all agricultural production accounts eventually eligible; start with one/few segments and build over time as third-party and trade association relationships evolve</p> <p>Technologies: TBD</p>

<ul style="list-style-type: none"> <li>▪ <b>Measure Description</b></li> </ul>	<ul style="list-style-type: none"> <li>▪ ▪ <b>Target Segments and Technologies</b></li> </ul>
<p>(EASA)); some of these already perform education and training</p> <ul style="list-style-type: none"> <li>▪ Need to determine what to deliver (e.g., workshops, handbooks) and how (e.g., via AgTAC, third-party service, farm association meetings or partnership)</li> </ul>	
<ul style="list-style-type: none"> <li>▪ <u>Financing &amp; Incentives</u></li> </ul> <p>Full-service Pump Efficiency Improvement</p> <ul style="list-style-type: none"> <li>▪ Pump component replacement and rewind, repair, and full replacement</li> <li>▪ Expand repair services and rebates to non-farm pump users (e.g., water districts) beyond the 2004/5 Pumping Efficiency Program</li> <li>▪ Improves energy efficiency while reducing water use</li> <li>▪ Opportunities to coordinate Express Efficiency since new pumps and components can be on the measure list</li> <li>▪ Provide repair and rebate services using third parties procured via competitive bid</li> <li>▪ Supplement SCE reps with contract specialists to make repairs/improvements</li> <li>▪ Provide certification to contractors to ensure use of SCE standards for testing and improvements</li> </ul>	<p>Segments: water supply and irrigation systems</p> <p>Technologies: efficient motors for water pumps, low-pressure sprinkler nozzles, moisture monitors, drip irrigation</p>
<p>Farm Equipment Energy Efficiency Improvement</p> <ul style="list-style-type: none"> <li>▪ Address the efficiency of equipment for particular needs on farms beyond irrigation, including: fans, coolers, dairy and product processing motors</li> <li>▪ Successful parts of the 2004/5 California Dairy Farms Multi-Measure Farm Program and the Agricultural Ventilation Fan Efficiency Program could be incorporated here</li> <li>▪ Promote proven technologies, including: moisture monitors for crop and nursery irrigation; high-efficiency fans and pumps for crop, livestock, and dairy farms; variable speed drive (VSD) motors for dairy and ag processing pumps; anaerobic digesters for waste treatment; compressor heat recovery for dairy and agricultural processing</li> </ul>	<p>Segments: select a few customer segment/technology combinations early and expand each year</p> <p>Technologies: dairy pumps and equipment, processing equipment, hi-efficiency fans, others as appropriate</p>

<ul style="list-style-type: none"> <li>▪ <b>Measure Description</b></li> </ul>	<ul style="list-style-type: none"> <li>▪ ▪ <b>Target Segments and Technologies</b></li> </ul>
<p>Non-Specialized Equipment Energy Efficiency Improvement</p> <ul style="list-style-type: none"> <li>▪ During facility new construction and remodeling, opportunities abound for incorporation of non-specialized energy-efficient equipment in cooperation with Savings by Design</li> <li>▪ Opportunities to incorporate lighting, HVAC, and motor equipment efficiencies already offered in other SCE programs (Audits, SPC, Express Efficiency, Upstream Motors, Upstream HVAC) into agricultural facilities</li> <li>▪ May need to supplement SCE reps to cover these facilities; must be trained to address idiosyncrasies of this customer sector (e.g., reluctance to adopt new technologies, seasonal schedules)</li> </ul>	<p>Segments: all agricultural production accounts and refrigerated storage</p> <p>Technologies: all available in other nonresidential programs</p>
<ul style="list-style-type: none"> <li>▪ <u>Load Management</u></li> </ul> <p>Voluntary Demand Response Bidding</p> <ul style="list-style-type: none"> <li>▪ Customer selects price level (dollars per kWh or dollars per kW) that they are willing to reduce electric use or switch to backup generation if requested by SCE</li> <li>▪ Customers will be notified by pager if their bid is selected at least 30 minutes before the curtailment period</li> <li>▪ The customer has the ability to make a real-time decision about whether to curtail their electric use. If they cannot curtail after receiving the page, they are under no obligation to do so.</li> <li>▪ This should leverage existing DR and Self-Gen activities</li> </ul>	<p>Segments: all agricultural production, water supply, and irrigation accounts that have the flexibility to reduce electric use by at least 50 kW or can switch to backup generation with a capacity of at least 50 kW during peak periods</p>
<p><u>Pilots &amp; Feasibility Assessments</u></p> <p>Sustainable Fuels for Pumping</p> <ul style="list-style-type: none"> <li>▪ Assess the cost-effectiveness of bio-diesel, PV, and methane digesters for agricultural water pumping</li> <li>▪ These fuels procure peak load reduction without adverse environmental effects</li> <li>▪ Customers in other locations are already interested</li> <li>▪ If cost-effective, use rebates and training to promote</li> </ul>	<p>Segments: TBD during feasibility assessment</p> <p>Technologies: TBD during feasibility assessment</p>
<p>Low/No Interest Loans for Energy Efficiency Improvements</p> <ul style="list-style-type: none"> <li>▪ Partner with Farm Credit Bureau to bring information from credible source and low/no interest financing to</li> </ul>	<p>Segments: customers served by Farm Credit</p>



<ul style="list-style-type: none"> <li>▪ <b>Measure Description</b></li> </ul>	<ul style="list-style-type: none"> <li>▪ ▪ <b>Target Segments and Technologies</b></li> </ul>
farmers <ul style="list-style-type: none"> <li>▪ SCE could pay the difference between the market interest rate and reduced rate to efficiency-investing farmers, providing motivation for Credit Bureau to promote the loans</li> <li>▪ Credit Bureau role is to make loans to farmers and is already a credible source of information</li> <li>▪ Farmers get shorter payback period and generate measurable savings</li> <li>▪ Perform feasibility assessment for viability of the partnership with Credit Bureau, interest from their customers, and cost-effectiveness of the buy-down</li> </ul>	Bureau  Technologies: TBD during feasibility assessment
<b>On-Bill Financing</b> <ul style="list-style-type: none"> <li>▪ If SCE’s Non-Residential On-Bill Financing (NROB) Pilot successful, leverage opportunities and lessons learned to make this service available to agricultural and water customers</li> </ul>	Segments: depends on results of NROB Pilot  Technologies: TBD during feasibility assessment
<b>Power Quality Assurance</b> <ul style="list-style-type: none"> <li>▪ Perform feasibility assessment to determine the extent of the problem, opportunities to address, which customer segments this is applicable to, and cost-effectiveness</li> </ul>	Segments: TBD during feasibility assessment  Technologies: TBD during feasibility assessment
<b>Mobile AgTAC</b> <ul style="list-style-type: none"> <li>▪ Information brought right to customer site or other location where agricultural customers can easily visit</li> <li>▪ May be used for highly focused assistance, for demonstration and/or education in general</li> <li>▪ Phase I: perform feasibility of delivery (e.g., direct to customers through reps or via a bus with designated “stops”) and suitable technologies/applications</li> <li>▪ If assessment suggests opportunities, consider implementation as a pilot and/or statewide initiative</li> </ul>	Segments: TBD during feasibility assessment  Technologies: TBD during feasibility assessment

### 13.2. Energy Savings and Demand Reduction Level Data

First-year energy savings and demand reduction levels are summarized in the supporting tables.

#### Assumptions Used in Estimation of Energy Savings

These are itemized in Attachment B, “Budget and Savings Detail Worksheets.”

### Assumptions Used in Calculation of Cost Effectiveness

- Effective Useful Life = 15 years for all measures. This is consistent with the 2004/5 California Farm Energy Efficiency program.<sup>27</sup> and the *Energy Efficiency Policy Manual*.<sup>28</sup>
- Net-to-Gross Ratio = .80 is applied to the gross kWh and kW savings. This value is a kWh considered average that reflects the ratios currently in use for the measures included in this portfolio, including: .83 for agricultural information, tools, design assistance, audits, and energy management services; .75 for agricultural and dairy incentive measures; .96 for Express Efficiency rebate measures; .82 for Savings by Design measures; and .80 for all other nonresidential measures, as indicated in the *Energy Efficiency Policy Manual*.

### **13.3. Non-energy Activities**

Audits, testing, education, and training activities included in this program, which have historically been considered non-energy activities, are included in Section 13.1 above because anecdotal evidence strongly indicates that some actions are taken and savings achieved by customers who are motivated by the information and recommendations and education provided as part of these measures. Under the implementation practices designed for this program, monitoring and verification after customer receipt of these measures will allow measurement of these savings.

These measures include the following:

- Tests & Audits
  - Pump Test Market Expansion
  - Agricultural Facility Audits
- Education & Assistance
  - Design Assistance for Potable Water Systems
  - Design Assistance for Agricultural Processing Operations
  - Education on Efficient Farming and Energy-Efficient Technologies and Practices

### **13.4. Subcontractor Activities**

The *Agricultural Energy Efficiency Program* offers considerable opportunities for the inclusion of qualified third-party providers or program implementation. These opportunities will be offered through a competitive bidding procurement process and some might be procured through the IDEEAS program.

Table 13.3 details potential roles subcontractors could play in the implementation of the program measures.

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<sup>27</sup> Global Energy Partners, *Revised Program Implementation Plan for California Agri-Food Energy Efficiency Program*. December 2004.

<sup>28</sup> California Public Utilities Commission, *Energy Efficiency Policy Manual, Version 2*. August 2003. This was the manual also used for the 2004/5 programs.

**Table 13.3. Subcontractor Opportunities by Measure**

▪ Measure	▪ Subcontractor Opportunity
▪ Tests & Audits	
Pump Test Market Expansion	Supplement SCE reps with and other proven resources to address increase in pumps tested. Subcontractors will be required to demonstrate ability and willingness to maintain the same standards SCE has set for pump testing. Responsibilities will include follow-up testing of pumps to verify improvements
Agricultural Facility Audits	Perform audits and make energy efficiency recommendations
▪ Education & Assistance	
Design Assistance for Potable Water Systems	Specialized consultants to teach about new technologies and practices and to provide on-site design advice
Design Assistance for Agricultural Processing Operations	Specialized consultants to teach about new technologies and practices and to provide on-site design advice
Education on Efficient Farming and Energy-Efficient Technologies and Practices	Specialized consultants to teach about new technologies and practices
▪ Financing & Incentives	
Full-service Pump Efficiency Improvement	Make pump repairs and improvements
Farm Equipment Energy Efficiency Improvement	Services like those provided under 2004/5 third-party programs, including California Dairy Farms Multi-Measure Farm Program and the Agricultural Ventilation Fan Efficiency Program
Non-Specialized Equipment Energy Efficiency Improvement	None identified
▪ Load Management	
Voluntary Demand Response Bidding	None identified
▪ Pilots & Feasibility Assessments	
Sustainable Fuels for Pumping Low/No Interest Loans for Energy Efficiency Improvements On-Bill Financing (leverage pilot) Power Quality Assurance Mobile AgTAC	Consultants with expertise may be engaged to assist with performance of feasibility studies and/or implement pilot programs that the studies suggest will be cost effective

### **13.5. Quality Assurance and Evaluation Activities**

More detailed and complete tracking of non-incentive measures (e.g., information from tests) customers received under this program will allow the program to capture and document customers' actions following participation in pump tests, audits, and education activities.

To the extent that subcontractors implement portions of the program, quality assurance measures will be put in place to ensure that standards of service and claimed savings have been achieved. These measures will be determined on a service-by-service basis.

#### **13.5.1. Expected Number/Percent of Inspections (planned percent of projects)**

Historically, SCE has performed post-test inspections on pumps to verify that customer-reported improvements were made. In keeping with this practice, about 4% of water pumps tested (approximately 200 pumps in 2006) will be retested in the same program year. The cost of these retests is included in the pump testing budget.

Ten percent of energy efficiency projects not related to pump tests will also receive post-participation inspections.

### **13.6. Marketing Activities**

#### **A. Program-wide Marketing**

Program-wide marketing is designed to provide program information to all customer segments. Program-wide marketing will utilize all appropriate marketing methods to reach each customer segment. Program-wide marketing will build upon the existing SCE infrastructure of assigned account managers and field representatives, as well as third-party contractors selected to implement portions of the program, to reach the agricultural community. Marketing materials for other SCE programs to which measures in the *Agricultural Energy Efficiency Program* are linked (e.g., low-pressure sprinklers offered under Express Efficiency) will be customized for the agricultural market. In addition, program-wide marketing will also integrate with any state-wide marketing efforts targeted toward the agricultural community. Specific program-wide marketing efforts are described below:

#### Education on Efficient Farming & EE Technologies and Practices

- Leverage existing SCE program information regarding the benefits of energy efficiency to reduce costs, increase productivity, and address environmental concerns. Customize marketing material with specific agricultural examples.
- Identify existing case studies on efficient farming.
- Develop at least one case study for each customer segment regarding a specific energy efficiency technology or practice.

- Work with trade associations and AgTAC to schedule workshops and seminars to disseminate case studies.
- Expand the agricultural section of the SCE website to include program specific information as well as case studies and relevant industry links.
- Work with trade associations and trade allies to include case studies and program information in industry publications.

#### Non-specialized Equipment EE Improvement

- Focus Savings by Design program on specific agricultural opportunities like on-site walk-in coolers, irrigations systems, and anaerobic digesters.
- Extract agricultural specific measures from the Express Efficiency program and repackage for each customer segment.
- Identify trade allies that provide motor, HVAC, and refrigeration equipment.
- Develop marketing materials targeted at the identified trade allies.
- Use direct mail and e-campaigns to disseminate program information.

#### Voluntary Demand Response Bidding

- Identify customers that are most likely to meet the program requirements.
- Develop examples of the economics of the program from the agricultural consumer perspective.
- Develop specific marketing materials that identify the costs and benefits of program participation.
- Use direct mail and e-campaigns to develop list of interested firms.
- Utilize SCE account managers to follow-up on program participation. Since only relatively large agricultural customers will qualify for the program, potential participants already have account managers assigned to them.

#### B. Targeted Segment Marketing

Targeted segment marketing is designed to provide program information to a focused customer segment. Targeted segment marketing will utilize specialized and customized marketing methods to reach the targeted customer segment. Specific targeted segment marketing efforts are described below:

#### Pump Test Market Expansion

- Identify underserved markets like golf courses, cemeteries, and other large water pumping users on agricultural pumping rates.
- Develop case studies of successful pump tests including economics from the customer perspective.
- Publish selected case studies in industry publications for underserved markets.

- Use direct mail and e-campaigns to develop list of interested firms in underserved markets.
- Work with trade associations, trade allies, and third-party resources to include case studies and program information in industry publications.
- Identify and contract with third-party resources that provide pump testing on sewerage systems.
- Develop/expand tracking system to collect and prioritize pump test findings. Integrate these with any facility audit results and deliver to customer with recommendations for energy efficiency/productivity improvements and information on program measures available to encourage action.
- Follow-up with direct mail and e-campaign to provide program specific information based on pump test recommendations.
- Develop mechanism to track customer action through any SCE initiative or on own. Offer measures (e.g., rebate, financing), as appropriate.

#### Agricultural Facility Audits

- Purchase additional handheld audit devices like those used by auditors who perform small/medium facility audits under SCE's Nonresidential Audit program and program them to record information appropriate for farm equipment and pump testing.
- Train agricultural auditors on device usage.
- Train pump testers to perform simple facility audits.
- Develop/expand tracking system to collect and prioritize audit findings. Integrate these with pump test results and deliver to customer with recommendations for energy efficiency/productivity improvements and information on program measures available to encourage action.
- Follow-up after audit with direct mail and e-campaign to provide program specific information based on audit recommendations.
- Develop mechanism to track customer action through any SCE initiative or on own. Offer measures (e.g., rebate, financing), as appropriate.

#### Design Assistance for Potable Water Systems

- Develop case studies of successful irrigation system designs including economics from the customer perspective.
- Develop appropriate irrigation system metrics so that irrigation users can determine if their existing systems are candidates for a system re-design.
- Publish selected case studies in industry publications.
- Incorporate Savings by Design program into design assistance marketing materials.
- Work with trade associations, equipment vendors, and AgTAC to schedule workshops and seminars to disseminate case studies and provide tools for customers to troubleshoot and design irrigation systems.

### Design Assistance for Agricultural Processing Operations

- Work with the California Energy Commission (CEC) and the University of California – Davis (UCD) to identify end-use technologies that should be targeting in the agricultural processing operations.
- Work with CEC and UCD to develop/expand case studies of successful agricultural processing system designs including economics from the customer perspective.
- Publish selected case studies in industry publications.
- Work with the California League of Food Processors to schedule workshops at their Expo & Tradeshow in January each year.
- Incorporate Savings by Design program into design assistance marketing materials.

### Full-service Pump Efficiency Improvement

- Identify existing trade allies that provide pump replacement and repair.
- Develop a brochure insert that incorporates Express Efficiency, new repair/rebate services, and pump testing.
- Develop certified contractor list for program participants.
- Use direct mail and e-campaigns to announce expanded program offerings.
- Utilize agricultural representatives to follow-up on program participation.

### Farm Equipment EE Improvement

- Develop farm specific brochure inserts addressing new measures. Leverage existing SCE program information regarding the benefits of energy efficiency to reduce costs, increase productivity, and address environmental concerns. Customize marketing material with specific farm examples.
- Identify existing trade allies that provide energy-efficient farm equipment.
- Use direct mail to announce expanded program offerings.
- Work with trade allies, equipment vendors, and AgTAC to schedule workshops and seminars to disseminate information on ways to increase the energy efficiency of the farm.
- Identify the key farm tradeshow held in the service area and staff a booth to provide program information. This should be done in coordination with AgTAC.
- Develop/expand/customize case studies on energy efficient technologies used on farms from existing resources like the CEC, UCD, University of Wisconsin, and other utility agricultural programs.

### Pilots & Feasibility Assessments

- Develop case studies of successful pilots and feasibility studies including economics from the customer perspective.
- Identify target market and potential participant qualifications. Identify customers that are most likely to meet the program requirements.

- Use direct mail and e-campaigns to announce expanded program offerings.
- Depending on the technology, work with trade associations, equipment vendors, and AgTAC to schedule workshops and seminars to disseminate pilot and case study information.
- Identify existing trade allies that provide the technology and utilize this channel to distribute program information.

**Table 13.4. Marketing Method by Measure**

Measures	Direct Mail	Print Articles	Trade Shows	Case Studies, Guides, & Fact Sheets	AgTAC	Workshops & Out-reach	E-campaigns	Trade Ally Program
Pump Test	●	●		●			●	●
Facility Audits	●	●					●	
Design Assist. for Water Sys.		●		●	●	●		●
Design Assist. for Agricultural Processing		●	●	●		●		
Education on Efficient Farming & EE		●	●	●	●	●		●
Pump Efficiency Improvement	●						●	●
Farm Equipment EE Improvement	●		●	●	●	●		●
Non-specialized equipment EE improvement	●						●	●
Voluntary DR Bidding	●	●		●			●	
Pilots & Feasibility Assessments	●			●	●	●	●	●

## 14. Conclusions

### Target Market

The target market for the *Agricultural Energy Efficiency Program* consists of all customers that engage in farming, agricultural product processing, and water supply and treatment

The target market is segmented into eight distinct customer segments: Crop Farms, Greenhouses and Nurseries, Animal Farms, Dairy Farms, Agricultural Processing, Refrigerated Warehousing and Storage, Water Supply and Irrigation Systems, Wastewater Systems.

### Market Outreach

The target market will be made aware of and encouraged to participate in the program through implementation of a dual-level marketing plan: program-wide marketing and targeted segment marketing. Outreach will include the following components:



- Direct mail: invitation letter and brochure to all customers in target market
- Pump test visits to promote audits, financing and incentives, load management participation while on site with customers; addition of more than 500 pump tests and 350 facility audits provides opportunity for face-to-face contact with upwards of 20% of customers over the 2005 PTHS program.
- Comprehensive reports on pump test and audit results mailed to customers provide recommendations on energy saving improvements and information on program mechanisms available to encourage action
- Expanded set of seminars, training, and demonstrations offered through AgTAC will address segment-specific interests, concerns, and energy efficiency measures
- Partnerships with county Agricultural Commissioners to jointly promote this program with other agency activities
- Relationships with local agricultural trade associations will increase program awareness through established agricultural customer networks
- Information on efficient, as well as energy efficient farming practices through use of AgTAC and competitively contracted resources known to the agricultural community
- On-line information about the *Agricultural Energy Efficiency Program* within SCE's website

#### Portfolio of Products and Services

The program portfolio consists of five types of initiatives:

- Tests & Audits
- Education & Assistance
- Financing & Incentives
- Load Management
- Pilots & Feasibility Assessments

The initiatives complement one another, integrate with other SCE energy efficiency and demand response program activities, and can be implemented with statewide, regional, and national initiatives. The Pilots and Feasibility initiative provides a mechanism for evaluating and incorporating additional measures over the lifetime of the program.

Within the five initiatives, the portfolio includes more than a dozen products and services from. These have been designed to address the diverse needs and interests of the customer segments in the targeted market.

This is the first comprehensive program offered to this target market. It retains successful features of earlier agricultural programs—such as the pump testing service which SCE has been offering since 1911 and has received national recognition, and innovative measures—such as design assistance for potable water systems and investigation of sustainable fuels for pumping.

### Participant Activities

The *Agricultural Energy Efficiency Program* will encourage and facilitate the following customer actions:

- Repair and/or replacement of water pumps to improve water flow and reduce energy use
- Installation of pump system controls and sprinkler improvements
- Improvements to water system design to facilitate more accurate pump testing
- Installation of higher efficiency motors for water pumping, dairy operations, and agricultural product processing
- Installation of more efficient lighting and lighting controls, fans, chillers, and packaged AC units

# Nonresidential Direct Installation

<b>1. Projected Program Budget</b>	<b>\$</b>	<b>48,400,458</b>
<b>2. Projected Program Impacts</b>		
MWh		348,848
MW (CEC Factor)		75.70
<b>3. Program Cost Effectiveness</b>		
TRC		5.42
PAC		3.82

## 4. Program Descriptors

Market Sector: Nonresidential  
 Program Classification: Local Program  
 Program Status: Revised Existing

## 5. Program Statement

Small businesses provide a significant source of historically untapped potential for energy efficiency. Limited capital resources, lack of acceptance of the magnitude of the personal financial benefits of energy efficiency improvements and generally high discount rates for financial decisions are the primary barriers to participation. In addition, the majority of these customers occupy short-term leased facilities. Consequently, there is also a split incentive barrier to adoption of energy efficiency improvements. The Nonresidential Direct Installation program addresses these barriers by providing no-cost energy efficient retrofits and, beginning in 2006, on-bill financing.

The Nonresidential Direct Installation program delivers energy efficient hardware retrofits through installation contractors that offer turnkey partnerships with local governments, Community Based Organizations (CBOs), Faith Based Organizations (FBOs), and other selected organizations.

The targeted audience is very small and small commercial/industrial businesses in SCE's service territory. Eligible customers are defined as very small commercial customers with a monthly peak demand equal to or less than 19 kW; small commercial customers with a monthly peak demand between 20 kW up to 100 kW; and small commercial customers with a location-aggregated monthly demand of less than 100 kW. Small business customers located in rural communities will also be targeted for enrollment in the Nonresidential Direct

### What's New for 2006-08?

- Innovation
  - Pilot On Bill Financing option as a means to encourage greater adoption of energy efficiency
  - Implement youth job creation in economically-challenged areas
- Integration
  - Provide demand response opportunities to small businesses
- Other Program Improvements
  - Promote energy efficient refrigeration

Installation program. SCE will partner with CBOs/FBOs and already-existing city partnerships to ensure participation from rural zip code customers.

### **5.1. Innovation**

During 2006-08, SCE will pilot an on-bill financing option to approximately 300 qualified small commercial customers with a monthly demand peak of over 50 kW, but less than

100 kW.

The program will provide

zero

**The program will provide zero interest financing for select lighting and refrigeration retrofits. This on-bill financing pilot offers an innovative combination of loan and incentive to strengthen customers' partnership in energy efficiency.**

interest financing for select lighting, refrigeration, and air conditioning retrofits. This pilot will offer a combination of loan and incentive to cover the total cost of adding or replacing equipment. Combining a no interest loan with an incentive will lower the financial hurdle customer's must overcome to participate in the program. In addition, revolving PGC funds should increase the reach of the program by spreading the same loan dollars to additional customers as funds are repaid.

Eligible customers will be reached through a combination of direct outreach by contractors and SCE's customer representatives. Contractors will be able to enroll, offer free audits, and provide for the direct installation of energy efficiency retrofits for small commercial customers. Based on market research of the on-bill financing participants in 2006, the pilot may expanded to other types of small business customers. This may include the government and school segments with a monthly demand peak of over 50 kW, but less than 200 kW may also be targeted as candidates for the on-bill financing offering beginning in 2007 and 2008.

### **5.2. Integration**

An element of the program's design is to leverage the door-to-door delivery mechanism. The program's primary contractors and CBO/FBOs will deliver both energy efficiency and demand response program information. This approach will provide integrated program outreach and marketing to support energy efficiency and demand reduction objectives. Information on demand response programs listed below will be promoted:

- Summer Discount Program
- CPA Demand Reserves Partnerships
- Demand Bidding Program
- Scheduled Load Reduction Program
- SCE EnergySmart Thermostat Program

### **5.3. Other Program Improvements**

The Nonresidential Direct Installation program will also work collectively with SCE's Local Government Partnerships program to deliver a combined approach to energy efficiency. This approach will enhance and strengthen the energy efficiency offerings

through partnerships between SCE, local governments, and other entities. Customers benefit not only from the Nonresidential Direct Installation program, which includes energy audits and the direct installation of energy efficient equipment, but also from seminars, workshops, and customer education resulting from all SCE programs they are qualified to enroll and participate in to reduce energy use and save money.

## **6. Program Rationale**

The most likely alternative to a direct installation program would be a prescriptive form of rebate program. Prescriptive programs (like Express Efficiency) allow for simple participation. However, the primary barriers to participation for very small and small commercial customers are lack of available capital and generally high interest rates for financial loans. Only direct installation programs that provide for the entire cost of measures address these barriers.

To achieve greater long-term energy reduction, SCE will include lighting and selected refrigeration maintenance measures in the program. HVAC package units, including package terminal units, will be included in the Nonresidential Upstream HVAC program for 2006-08 and measures such as variable frequency drives will be included in the 2006-08 Express Efficiency program.

The 2004 Energy Efficiency Potential Estimates conducted by Kema-Xenergy for SCE shows potential savings of 58% in indoor lighting, 19% in refrigeration and 13% in cooling. HVAC measures are being addressed and included in the Comprehensive Packaged Air Conditioning and the Business Incentive programs. In addition, the Nonresidential Direct Installation program will incorporate refrigeration and air conditioning components.

## **7. Program Outcomes**

The Nonresidential Direct Installation Program is designed to produce cost-effective, long-term peak demand and energy savings by providing no-cost and low-cost energy efficient equipment retrofits to very small and small commercial customers in SCE's service territory. The program will target the entire service territory in a staged delivery approach that provides program services in specific geographic areas at different times allowing for a more concentrated, directed, and yet comprehensive program. In addition, SCE will continue coordination with CBO/FBOs to offer job creation opportunities for local youth in challenged areas of SCE's service territory.

In 2006-08, SCE expects to enroll 17,200 small business customers in the Nonresidential Direct Installation program. In addition, 300 small business customers will be solicited for the on-bill financing pilot.

## **8. Program Strategy**

The Nonresidential Direct Installation program works through a set of approved contractors and third-party (CBO/FBOs) implementers who are empowered to promote, enroll, and audit qualified customers to the program and to install measures at no cost to

participants. This approach addresses three key barriers to participation by these customers:

- Lack of available capital for energy efficiency investment
- Concerns about the benefits of energy efficiency
- Administrative and time burden of participating in other programs

This combination of delivery mechanisms covering full measure costs and using local contractors and community agencies creates a powerful engine to transform historically non-participating customers.

The program is a turnkey offering that provides the customers with a single source for information, technical assistance, and financial incentives. The program will be administered through a prime contractor who will be responsible for the following:

- Marketing to customers.
- Customer enrollment to the program.
- Performing on site audits and collecting all equipment and energy data, identifying energy efficiency opportunities, completing an analysis, and making energy efficiency recommendations to the customer.
- Presentation of the recommendations to the customer and obtaining customer agreement to proceed with installation of retrofits.
- Explanation to the customer about the finance and the payment agreement.
- Installation of eligible measures.
- Completion of the contracts between SCE, customer and vendor.
- 100% post installation inspection for quality assurance.
- Tracking program and customer activity.
- Tacking and setting aside all equipment for proper disposal.
- Proposal disposal of equipment and materials.

Financing programs are offered by several utilities throughout North America. While utilities in Canada have consistently offered financing for energy efficiency investments, only a handful in the U.S. are currently offering such an option. In general, the primary operating principles for these utilities include:

- Offering a combination of loan and incentive.
- Structuring the package to result in a relatively short payback period.
- Restrict participation to customers with very good credit histories.

For 2006-2008 SCE will pilot an on-bill financing approach. Rather than paying the entire cost of equipment retrofits, the financing approach includes a customer paid portion. On-bill financing for qualifying customers with energy intensive equipment retrofits such as refrigeration will be piloted to larger small businesses that have the energy savings potential large enough to offset part of the cost of the project through monthly bill savings. Forty percent (40%) of the customer retrofit invoice will be paid by

SCE through the incentive directly to the contractor. Sixty percent (60%) will be financed by SCE at no interest to the customer for a period of no more than 24 months.

This approach has three potential advantages:

- Increased energy savings potential by spreading dollars further.
- Financial participation by customers fosters greater investment in the efficient operation of equipment.
- Allows the program to fund more expensive equipment replacements, which brings larger customers and more energy intensive equipment into the range of possible measures.

## **9. Program Objectives**

The Direct Installation Program is designed to secure cost-effective, permanent, long term and verifiable annual energy savings from small businesses that typically do not incorporate energy efficiency in their businesses due to costs and the split incentive barrier.

A second objective of the program in 2006-08 is to conduct a pilot on-bill financing element to collect data and evaluate the benefits of offering on-bill financing as a supplemental or alternative means of mitigating financial barriers to energy efficiency investments. The SCE pilot program will be offered to customers with connected demands greater than 50 kW but less than 100 kW. Targeted customers will include grocery stores, restaurants, schools and municipal buildings.

The on-bill financing pilot will be coordinated with pilot programs being proposed by San Diego Gas & Electric and by the SCG Company. Taken together, the results of the three efforts will provide answers to several important program design and policy questions:

- Does on-bill financing secure the participation of customers who otherwise do not participate in incentive-type programs?
- Do the benefits from additional participation outweigh the additional administrative and other program costs?
- What is the default and partial payment rate?
- What are the actual carrying costs of operating a zero interest on-bill financing option?
- Does on-bill financing allow for the increased adoption of more expensive measures?

## **10. Program Implementation**

The Nonresidential Direct Installation Program is offered on a first-come, first-served basis and will be available from June 1, 2006 through December 31, 2008 or until program funds are spent, whichever comes first.

Equipment installation contractors selected through a competitive bidding process will perform the program services. In addition, in certain areas SCE will leverage CBO/FBOs

that will use community resources to perform program services. Services will include job training and contractor selection so that local constituents can deliver program services. These CBOs or FBOs will conduct their activities through a performance-based contract with SCE. SCE, through its selected prime contractor, will work with and coordinate the work of CBO/FBO.

The program will coordinate with other SCE programs to deliver an overarching message of energy efficiency that spans both residential and nonresidential segments, to facilitate access to all energy efficiency and applicable demand response programs. SCE's general energy efficiency education efforts and literature will be used to support the program through general communications.

The on-bill financing pilot will be offered to pre-identified small business customers who have excellent credit standing with SCE. This is defined as customers who have been receiving electricity services for at least two years in the current location, with bill in arrears no more than 30 days, and with no partial payments for at least two years. SCE will be responsible for the credit underwriting process and provide a list of qualified customers to third-party implementers. Customers will be required to sign a loan document as part of the pilot program. The loan/incentive packages will be structured to provide for a two year loan payback. SCE may modify these eligibility requirements through the pilot stage to optimize the pilot's performance.

To support the pilot program, SCE will undertake changes to its billing system to allow for the on-bill payment. These changes are expected to be completed by August 1, 2006, assuming approval of the pilot by December, 2005. As well, SCE will develop a loan contract that complies with State and Federal lending laws and regulations. The loans, all loan costs, and administrative costs will be funded by ratepayer funds. Collections from repayments will be credited back to the program.

## **11. Customer Description**

The targeted market segments are very small and small nonresidential customers whose annual electric demand is less than 20 kW in targeted rural areas other than the Los Angeles basin, and targeted areas identified by the CBO/FBOs working with SCE. Throughout the program cycle, SCE may focus on other areas of the service territory especially in coordination with local government partnerships.

In 2006, eligible customers will be nonresidential customers whose annual electric demand is less than 100 kW in targeted areas within SCE service territory. In program years 2007 and 2008, the program could be expanded to include tax-exempt customers such as government buildings and schools from with annual demand between 50 kW and 100 kW for participation in the on-bill financing pilot program.

## **12. Customer Interface**

The program will be delivered through a prime contractor or depending upon the competitive bid process, several prime contractors that perform door-to-door program marketing and customer sign-ups. Additionally, the program will work with SCE's Local



Government Partnership program to target cities to promote the program via outreach activities, education opportunities, and on-site visits. Past program experience indicates that the door-to-door, face-to-face marketing is a very effective method of reaching very small and small commercial customers. This approach increases participation levels while decreasing the level of free-ridership. To overcome key non-financial barriers, SCE will leverage the community influence of local governments, CBO/FBOs, and selected organizations that have the unique cultural, language or economic knowledge of under-participating communities.

### **13. Energy Measures and Program Activities**

#### **13.1 Measures Information**

Energy savings and demand reduction measures are included in the associated calculator and portfolio workbook.

#### **13.2 Energy Savings and Demand Reduction Level Data**

Energy savings and demand reduction level data are included in the associated calculator and portfolio workbook.

#### **13.3 Non-energy Activities (Audits, Trainings, etc.)**

Program-related activities not directly tied to measurable energy savings include job performance evaluations, data requests, workplace organization, informational meetings, training, corporate requirements (e.g., safety meetings, work environment surveys, etc.), computer system maintenance, and technical reading.

An important aspect of the program is the job-creation partnership with the CBO/FBOs, designed to train and create jobs in the energy efficiency installation and audits segment for those in the economically underserved cities. Other non-energy related activities derived from the program include increased customer awareness to the benefits of energy efficiency.

#### **13.4 Subcontractor Activities**

It is anticipated that several third-party programs offering similar retrofits to small business customers will be continued under a consolidated program design and administered by SCE.

#### **13.5 Quality Assurance and Evaluation Activities**

To determine the total net energy and demand savings attributable to the program and overall customer satisfaction, on site customer inspections and survey will be performed. CBO/FBOs will conduct a 100% of participating customers for customer satisfaction. Site verification will be conducted for each completed job by primary contractors. Additionally, SCE will send a set of separate inspectors to perform post-installation inspections to ensure quality standards are met. SCE will also select approximately 20 percent of participating customer, at whose sites SCE will perform post installation inspections for quality of work and customer satisfaction. Inspectors will be instructed to check for sufficient light levels,

coverage, no flickering, compliance to electrical codes, proper completion of work and good aesthetics.

### **13.5.1 Expected Number/Percent of Inspections**

The Nonresidential Direct Installation program will adopt a rigorous inspection plan that will ensure that itemized measures are installed and operational. The overall level of inspection for this program will be approximately 20% of the total number of site verification.

### **3.6 Marketing Activities**

The program will deploy marketing strategies necessary to increase customer awareness of the program. Coordinating with heads of local communities, CBO/FBOs, energy efficiency awareness may include:

- Energy efficiency literature distribution.
- Training of local CBO /FBOs personnel.
- Energy use surveys conducted by SCE contractors and local resources recruited by CBO/FBOs.

This program is selectively marketed to the target customer group through telemarketing and direct contact. Customer communication is conducted ‘in-language’, where appropriate. Chambers of commerce and/or local city officials are typically notified and SCE or the CBOs or FBOs will partner with the community to market to the selected customer groups.

### **14. Conclusion**

The Nonresidential Direct Installation Program is an important element of SCE’s energy efficiency portfolio, providing an effective means of including small business customers who have historically not adopted energy efficiency measures. The program will deliver reliable, cost effective, and long-term energy savings. Inclusion of the pilot on-bill financing alternative will determine if this program can be cost effectively expanded to reach a broader base of generally under-represented customers with an expanded array of measures.

## Retro-Commissioning (RCx)

<b>1. Projected Program Budget</b>	<b>\$</b>	<b>11,756,050</b>
<b>2. Projected Program Impacts</b>		
MWh		39,040
MW (CEC Factor)		8.47
<b>3. Program Cost Effectiveness</b>		
TRC		1.72
PAC		2.48

#### 4. Program Descriptors

Market Sector: Nonresidential  
Program Classification: Local  
Program Status: New

#### 5. Program Statement

Most buildings have never gone through any type of commissioning or quality assurance process and are therefore performing below their potential. Many problems from the original construction may exist and may not manifest themselves in an obvious manner, although they may be causing unnecessary consumption of energy and increased electrical demand. Even if building staff members have been able to work out most of the “obvious deficiencies”, they are often forced to solve problems under severe time and budget constraints and without the benefit of proper documentation. Having to solve problems fast and without good information usually results in “quick and dirty” solutions which can lead to other problems that may be invisible yet costly.<sup>29</sup>

Owners and building managers often ask “Do my existing buildings need commissioning?” Unfortunately, many existing buildings are limping along and most owners don’t know it. As long as building systems maintain a reasonably comfortable or tolerable environment, nothing appears wrong. Many problems are noticed only when a catastrophic failure or a visible consequence occurs. For example, when unnecessarily large volumes of outdoor air are drawn into a building due to a failed economizer actuator, more heating and cooling energy are used. However, as long as heating and cooling systems have the capacity to handle this increased outdoor air volume, the problem goes unnoticed. Other common problems that drive energy costs up but may or may not cause comfort problems include:

- Variable speed drives that no longer modulate properly
- Time clocks circumvented or set up improperly
- Equipment running more than necessary or running inefficiently due to improper operating strategies

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29 PECCI and Oak Ridge National Laboratory. 1998. A Practical Guide For Commissioning Existing Buildings. U.S. Department of Energy

- Equipment cycling excessively due to improper sequences of operation and/or equipment operational problems
- Equipment that is operated manually because the automated system operation is misunderstood or is causing operational problems
- Improperly sized equipment cannot meet the operational requirements as currently configured
- Airflow and/or water flows within the system are improperly balanced, leading to energy waste
- Energy management systems that were never installed or programmed to take full advantage of their capabilities or that have degraded over time
- Sensors and/or actuators out of calibration or have failed

Each of these problems can have a sizable effect on the economics of owning and operating a building. These types of problems are typical in many buildings.<sup>30</sup> The result is that significant savings are achievable for a majority of existing buildings. It may be surprising that market penetration is so low for building system optimization and RCx services. In general, there is a lack of demand for these services due to four main market barriers:

- There is a lack of awareness of building system optimization and RCx benefits.
- The first cost of building system optimization (BSO) and retro commissioning (RCx) is too high to be funded through tight building operations budgets.
- The facilities staff lacks the time and/or initiative to implement this process.
- Inconsistent approaches to building system optimization and RCx do not give a sense of the service and value that owners receive.

In addition, previous RCx programs have revealed the following critical difficulties that have hindered success:

- Securing buy-in from building owners and facilities staff to participate in building system optimization and RCx programs has been difficult. In previous programs with short program cycles, the rush to secure participants and undertake field work has led to strategies that bypass owner and facilities staff involvement at the early stages of the process. This has caused difficulty and delay when moving from investigation results to the implementation of corrections. Prompt implementation requires owner and facilities staff commitment and the identification or cultivation of an internal champion for the process. This work should occur upfront in the process and is in fact an effective screening method to sort out participants that will help the project to succeed.
- Ensuring persistence of some savings measures in a cost-effective manner is challenging. Building owners must be interested and capable to make and sustain ongoing commitments of operating resources to ensure the implementation of and persistence of corrections. Because the savings are realized from a variety of operational interventions, their ongoing viability depends on the owner's readiness and ability to manage the systems effectively and oftentimes in new

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<sup>30</sup> PECEI and Oak Ridge National Laboratory. 1998. A Practical Guide For Commissioning Existing Buildings. U.S. Department of Energy

ways. Building facility staff must know and understand the consequences of their decisions as it impacts not only comfort, but energy usage. Again, candidates must be screened to ensure these qualities are present.

- Supporting large amounts of building system optimization and RCx is unmanageable when utilizing only a few service providers. The experience and skills required to quickly and efficiently diagnose and correct operating deficiencies is significant. The pool of service providers that can execute these tasks needs to be increased. Due to the wide variety of control systems and equipment likely to be found in the stock of existing buildings, the selection of vendors should allow flexibility in selecting vendors that have the appropriate experience for a particular retro-commissioning project. Additionally defined assessment protocols to identify building system optimization opportunities and clearly defined processes for RCx will provide valuable operations diagnostic experience to new providers and allow experienced providers to participate efficiently.
- The amount of time required to implement an RCx project is often underestimated. Unlike new construction commissioning there is no natural implementation timeline. Other issues often come up that tend to extend the process including capital funding availability, trending of data, availability of in-house labor, and unforeseen problems encountered during implementation. Enhanced screening of potential sites may help with the funding and in house labor issues. However, other unforeseen factors should be carefully considered in developing a realistic timeline for each individual project.
- The projected amount of project expenditures at the onset is inherently difficult to project. There are several aspects of the process that make projection of

**Building commissioning is increasingly recognized as a cost-effective process to improve building performance, reduce energy use, increase equipment life, improve indoor air quality, and improve occupant comfort and productivity.**

expenditures from the onset difficult. These include the unknown state of the system(s) prior to the investigation phase, unknown building issues found during installation of equipment and/or software modifications, and the difficulty of getting good cost estimates for work from multiple vendors before the full scope of work is known.

## **6. Program Rationale**

Building commissioning is increasingly recognized as a cost-effective process to improve building performance, reduce energy use, increase equipment life, improve indoor air quality, and improve occupant comfort and productivity. Over the past ten years, utilities in California and across the United States have been important supporters of the commissioning industry, and that support has led to significant energy savings. However, the majority of existing buildings has never undergone a commissioning or quality assurance process, and is therefore most likely to be performing well below their

potential. In 1998, a study for the Department of Energy estimated that less than 0.03% of existing buildings were retro-commissioned each year.<sup>31</sup> Although that percentage has most likely increased since 1998, there remains substantial energy saving opportunities through RCx existing buildings.

Retro-commissioning (RCx) applies a systematic process for improving and optimizing larger sized building's operations and for supporting those improvements with enhanced documentation and training. The process focuses on the operation of mechanical heating, ventilating, and air-conditioning (HVAC), lighting, domestic hot water (DHW) and related controls. The RCx process is intended to optimize how equipment operates as a system. Other specific equipment such as landscaping fountains may be included as well if they are applicable to a specific project and meet other program guidelines. RCx projects produce typical savings of 12-15% of total building energy costs, with a simple payback from energy savings alone averaging less than 2 years.<sup>32</sup>

Medium and large sized commercial, industrial, and institutional buildings represent a large proportion of the market potential that can be effectively realized using defined assessment protocols to identify building system optimization opportunities. In addition to significant energy savings, these practices can reduce maintenance costs, provide accurate building documentation, provide appropriate training to operating staff, aid in long term planning for retrofits, and increase the asset value of a building.

#### **7. Program Outcomes**

- Improve the ability of building operations staff to identify wasteful energy use
- Create persistent savings over the remaining lifetime of the affected equipment
- Prolong equipment life
- Optimize comfort in cases where the corrections rectify outstanding comfort issues
- Demonstrate a well-delivered RCx process so that building owners and operators realize the value inherent in this service
- Documentation and staff training on the optimized building system operations.

#### **8. Program Strategy**

The market barriers and programmatic difficulties described in the program statement are common limitations for incentive programs, and require innovative solutions. The program presented in this proposal is designed to overcome these issues by incorporating the following elements:

- **Careful building screening to reduce risk of ineffective RCx Activities.**  
Successful building system optimization and RCx projects require buildings with high potential for realizable operational savings. Buildings may be less desirable candidates for building system optimization and RCx due to their small size, their age, general level of maintenance, equipment types and imminent need for a

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<sup>31</sup> PECI. 1998. National Strategy for Building Commissioning. U.S. Department of Energy.

<sup>32</sup> PECI. 2000. California Commissioning Market Characterization Study. Report prepared for Pacific Gas and Electric Company.

major retrofit, or a lack of an automated building control system. Screening requirements will assure that the program does not invest in buildings that are poor physical RCx candidates.

- **Owners will be involved early, and screened based on their willingness and ability to undertake initial program steps.** As mentioned above successful projects require owners willing to invest capital and human resources in the project. Early owner recruitment and participation steps involve some owner decisions and actions including review and approval of a project scope and support of the RCx provider. Owners that cannot or will not undertake these initial steps are not likely to follow through with the subsequent building system optimization and RCx requirements.
- **Building operators will be involved early based on their willingness and ability to be an integral part of the RCx process.** If the building owner does not have the support of the facilities staff, the likelihood of successful RCx program and savings persistence is low. The facilities staff must eventually deal with any changes made, so they need to be supportive and understanding of any changes to be made. The owners need to allocate appropriate time and/or budget so that the facilities staff can adequately support the RCx process. Along with the owner, the facilities staff should be involved in the decision of which measures should be implemented. A designated staff member will be the point of contact for this portion of the process. Owners that cannot get this degree of buy in from the facilities staff are not likely to be able to successfully follow through with the subsequent building system optimization and RCx requirements.
- **Targeting owners that have already engaged in energy efficiency activities and experienced success.** To keep projects moving through owner's decision processes, the identification of an internal champion is helpful. These people are likely to exist within organizations that have already undertaken efficiency upgrades, participated in earlier utility or third-party programs or employ graduates of the Building Operator Certification program or employ staff with documented RCx training. These owners are excellent candidates for taking the next step and pursuing increased operating efficiencies. The program will target these owners as a priority. Targeting and recruiting good owner candidates will reinforce the building screening and owner involvement elements above.
- **Ensuring the persistence of savings through carefully targeted requirements for building documentation, training, and energy tracking.** A challenge in the building system optimization and RCx process is how to prove that the benefits last. Verifying persistence of savings is a key goal of this program. The systems and methodologies developed to produce long-lasting results are a result of the most recent experience and research in monitoring building performance, working with building operators to understand their needs, and delivering building system optimization and RCx training to the appropriate audiences. Through these experiences, documentation and monitoring requirements will be streamlined to ensure the program delivers persistence of savings in a cost-effective manner.
- **Building the building system optimization and RCx infrastructure by providing consistent protocols suited to different building sizes and complexity, and thoroughly training service providers on the program.** The

SCE RCx Program will utilize the traditional trade ally design – a framework that has worked well for California utilities’ past programs. For medium sized buildings and less complex systems, specific defined assessment protocols to identify building system optimization opportunities will be developed from those currently in use in today’s market. These protocols will allow quick efficient assessments of system components and functions to identify opportunities and then employ specific analyses to further qualify the measure, and quantify the savings potential and define the scope of the correction. For larger buildings and more complex systems, the program will utilize a uniform set of RCx protocols and templates that will allow skilled providers flexibility in the diagnostic approach while yielding consistent deliverables from the process that conform to program requirements. As practical, web based tools may be used to enhance the reporting and resolution of issues among the participants. Participating service providers will be extensively trained in the use of these tools and their deliverables will be monitored to ensure compliance with program requirements.

- **Processes will be developed to ensure that the process moves along at a reasonable rate and takes into account problems typically encountered.** A timeline that identifies typical milestones will be established. Allowances for typical delays (e.g. trending of data) will be included to ensure that realistic time expectations are created. Owners and RCx Service providers will need to meet their obligations with respect to the schedule to ensure that the project can be completed successfully.
- **A qualification process for service providers will be developed.** Due to the likely variation in building type, equipment, and control system, and location, it will be necessary to have a flexible process to obtain service providers for each individual project. This process will screen providers for required attributes including capability, cost, and experience with specific systems including controls, relationships with outside contractors, training capabilities and geographic location.

## 9. Program Objectives

The program will provide optimization of existing buildings within the SCE service territory. Program benefits include a demand reductions and energy savings.

Coordination with the SCG will be included with projected therm savings as part of this process. A

**The program is designed to expand building system optimization and RCx capabilities in SCE's service territory with program features that directly address market barriers, as well as to ensure the persistence of the program benefits.**

total of 53.5 million square feet of space will be retro-commissioned as part of this program. Ancillary benefits include improved occupant comfort, increased equipment life, increased training of the building operators, and a training program for the RCx community.



## **10. Program Implementation**

SCE's Retro-commissioning (RCx) Program is a unique energy efficiency effort aimed at cost-effective peak energy and demand savings. Incentives for gas based measures found as part of the RCx process will be coordinated with SCG. The program is designed to expand building system optimization and RCx capabilities in SCE's service territory with program features that directly address market barriers, as well as to ensure the persistence of the program benefits. These objectives are met through the development of building and owner/operator candidate screening protocols, use of specific building system optimization and RCx protocols, building operator and commissioning provider trainings, and building operation tracking systems. Additional management tools will be used to keep the project on schedule and to assist with program and project budgeting. Furthermore, to effectively market the program services, the program will leverage existing relationships among building owners, participation in other SCE retrofit programs, participants in the Building Operator Certification program, and local governments.

### **Overview of Program Process**

The Program will provide the initial screening of the candidate buildings. Approved candidates will be required to enter into an agreement with the program to ensure the dedication to the process.

The program will assist owners in selecting a commissioning provider from the pre-qualified provider list if they are not already working with one. The building system optimization and RCx provider will contract directly with the owner, and all incentive payments will be made to the owner with the exception of the investigation scope and bid payment.

After the investigation scope and bid, a building with non-functioning equipment will be directed to complete repairs that affect the ability to perform RCx services. Next, the building system optimization and RCx provider completes the investigation, helps the facility staff to select items for implementation, aids implementation when necessary, and sets up the tracking system.

Required or recommended retrofit items will be referred to applicable rebate programs if the owner is interested in implementing these measures. If applicable, these measures can be evaluated as part of the RCx process.

The program will tap into the existing commissioning industry in California for RCx services and will assure long-lasting benefits by completing the following tasks: Appendix A contains a program implementation flow chart that supports the followings process summarizes.

### **RCx Project Screening and Marketing**

A comprehensive means will be used to screen buildings and their occupants for participation in the program. The goal of the screening process is to ensure that the proper buildings with interested owners and operators are selected for the program.

Considerations such as building EUI, equipment type and condition, building usage, funding, and building operator interest will all be considered.

Marketing of the program will be directed from a pre-screening of the applicants and through other vehicles such as a web site and project brochures.

### **RCx Provider Selection**

The program will publish eligibility criteria for commissioning providers and will evaluate provider qualifications for eligibility. Eligibility criteria will include demonstrated experience in building lighting and HVAC systems, engineering, control systems, diagnostics, monitoring, data analysis, functional testing and energy savings calculations and approved pricing structure. These qualifications include work experience, training and/or education, and employee licenses or certifications. Additionally, the RCx provider will be required to have on staff or via subcontracts, personnel that are capable of operating and programming a variety of control systems, and have software and/or hardware keys and qualifications to use them. Requirements for liability insurance and appropriate licensing will also be required. Due to the expected diversity, sizes, and locations, multiple vendors for specific types of work and/or subcontracting of portions of the work may be considered as part of this process.

The program will pre qualify RCx contractors for participation in the program. An initial qualification process will be initiated at the start of the program to ensure that the contractors are pre-qualified prior to the initiation of the RCx process in order to expedite the RCx process. Although the pre-screening will be done at the program onset, the process will be left open so that buildings requiring special skills, specific controls contractors, or a vendor of the owner's choosing can be accommodated as required. Applicants will be qualified and identified by particular skill sets that they bring to the program. A pool of qualified contractors will be available for the program projects. The program will be able to drop an RCx provider from the RCx provider pool and or a job due to non-performance, inaccurate projections, poor quality work, lack of timelines, owner complaints, lack of cooperation, etc.

Upon acceptance of the RCx process, the owner will be able to choose an RCx contractor of their own choice or one from the pool. The program will match appropriate contractors to a particular site based upon such factors as controls capability, engineering capability, RCx provider workload, and geography. If a particular match does not exist, the existing contractors with the most similar background will be asked to see if they can expand their capabilities (e.g. add separate subcontractors for a different control systems) to match a particular site.

### **RCx Hardware Contractor Selection**

In general, contractors to perform hardware related work (valves, control sensors, VFDs, etc.) will be approved by the RCx program. In general the contractors used or referred by the current building staff will be utilized as long as they meet basic requirements including appropriate licenses, insurance, and qualification for the particular job. The RCx program will approve these contractors.

In cases where the existing building staff does not have a contractor for a specific portion of the work, other contractors will be qualified and contacted as needed for specific work.

### **Building system Optimization and RCx Protocols**

For medium sized buildings and less complex systems, specifically defined assessment protocols to identify building system optimization opportunities will be developed from those currently in use by RCx providers. These protocols will allow quick efficient assessments of system components and functions to identify opportunities and then employ specific analyses to further qualify the measure, quantify the savings potential and define the scope of the correction. For larger buildings and more complex systems, the program will utilize a uniform set of RCx templates. While allowing for flexibility for individual commissioning provider styles, the protocol is a framework that will provide the requirements for the program, and shall create clear expectations for commissioning providers and customers. These templates shall also provide some level of quality control. Commissioning providers that qualify will complete a thorough RCx process using protocols that include candidate screening, building investigations, and implementation of deficiency corrections to achieve savings that persist over time.

### Building system optimization, RCx Training and Orientation

To build the infrastructure for quality RCx process, a one-day building system optimization and RCx orientation will be made available to potential and existing service providers. Qualified providers will be required to participate in a Program Orientation. The orientation will summarize how the retro-commissioning process will be operated in order to ensure consistent delivery and implementation. The Program Orientation will cover the required RCx program protocols and templates for the scoping studies, the RCx analyses, implementation of fixes, documentation, operator training, and operational tracking system.

Participants will benefit from working with an experienced commissioning provider in a well-developed framework for providing building system optimization and retro-commissioning services. Orientation topics include:

1. Scoping – tools and techniques
2. The system approach
3. Efficient methods for uncovering problems
4. Working with the building staff
5. Calculating the savings
6. Environmental impacts of reduced energy consumption
7. Implementing the findings
8. Providing a targeted Systems Manual
9. Building system assessment protocols

Participants will leave the orientation with an understanding of the building system optimization and RCx processes and how to apply that process in this program's building stock. The emphasis of the orientation is on the operation of the program, not how to retro-commission a building.

A separate training component with more emphasis on the general process and less emphasis on the program specifics will be offered as a one time course for interested building owners, building operators, service providers and decision makers.

### **RCx Incentive and RCx Process**

The Building RCx program will provide incentives to the owners as a means to get them to undergo the RCx process and to implement the recommendations in a timely manner. The incentive process is a multi faceted approach that is meant to provide value to the customer, to the utility and to the operators of the buildings.

Upon approval of the RCx process by the owner, an initial fee of \$500 is charged to the owner. This fee is meant to financially engage the owner in the process at the beginning. The RCx Provider will bill both RCx Program and the owner will share a significant part of the RCx process cost on a monthly basis through the project duration. Monthly billings will keep the owner engaged both financially and time wise in the process. This billing would also include any approved programming changes.

The RCx Program will allocate an incentive value per building based upon size, Energy Usage Index (EUI), and building type. A funding cap will be set for both the RCx process and incentives. This total budget will used be to fund a significant portion of the RCx process and the approved controls programming changes with the balance being used for hardware/labor buy downs that are not appropriate or funded by other programs. This split is meant to encourage owner financial involvement in the process and to encourage the funding of controls changes rather than major hardware changes (pure retrofit work) from RCx funds.

The RCx Program will develop a formula for doling out the hardware/labor buy downs for a given budget. In general, the following rational will be used to allocate and approve measures for funding incentives that are not strictly controls based, although similar considerations will be use to approve control changes.

- Does the measure have a payback from 1-3 years?
- Does the measure help meet the energy goals for the program?
- Will the measure improve occupant comfort?
- Will the measure improve equipment lifetimes?
- Does it make sense to and is their project time to fund this measure from another incentive program (The emphasis on this program is RCx and not pure retrofit measures)?
- Will this measure help other measures save more?

For measures with outstanding paybacks (after incentive) of less than one year, the owner will be expected to contract for this work and pay for the amount not covered by the incentive as a requirement of the program. For measures with outstanding paybacks over 3 years, the owner will be given incentives to take advantage of the measure, but is not required to do so as part of the program contract. The RCx provider will provide an

estimated payback prior to implementation phase. Rebates will be calculated based upon installed costs and any quantification of energy cost savings that is done after installation. All hardware incentives will be paid to the owner by RCx Program at the successful completion of the program.

For the purposes of evaluation, measures are split into three groups.

- O&M and minor repairs (Fan belts, equipment tune ups, filters, broken gauges, etc.)
- Control repairs/enhancements (programming effort, broken sensors, broken actuators, etc)
- Major repairs (VFDs, major hardware repairs or replacements)

Both during the program and during the evaluation of the measures, the RCx Program will group the measures into the appropriate category using the basic strategy indicated below. For items all categories, the RCx provider will provide an engineering estimate of cost savings and implementation cost that yields a payback value.

Incentives for each type of measure will be paid as indicated for measures that have been approved by the building operator, building owner, and the RCx Program . Non approved measures will not be funded, but may be implemented at the owner's expense if desired.

For O&M and minor repair items, these items will be identified during the RCx process by the RCx Provider. Per the RCx contract terms, these items will probably be limited to \$500 or less (each) and the cost and labor for the repair will be the full responsibility of the owner. The intent is that this will be covered by the owner's O&M budgeting and personnel. The RCx Provider will review and ok these fixes and coordinate any related programming with the owner's contractor.

For control repairs, these items will be identified during the RCx process by the RCx provider. For typical programming issues, the cost will be shared between the RCx process and the owner with a significant cost share. For control hardware costs, the owner will contract with a separate contractor to perform the installation/repair work. SCE/Admin will rebate the owner for this work based upon the guidelines indicated previously. The RCx provider will review and ok the hardware installation/repair.

For major repairs, these items may be identified both initially and during the RCx process. For critical problems that impact the RCx process near the onset (first portion of the RCx timeline), the owner will be required to pay the non-incentivized portion of the cost. If the owner refuses/cannot pay, the RCx will be stopped at this point, with the owner required to pay their share of any outstanding monthly fees to the RCx provider. For other major repairs found late in the process, the incentives will be evaluated using the criteria indicated previously. The owner may or may not decide to approve these measures.

At the completion of the project, interested building operators will be eligible for a \$500 rebate for the BOC class. At the completion of a successful course, the owner of each building with an operator will be paid \$500/operator for a maximum of two operators per building attending the courses. Because of the program and course timing issues, the program will be limited to 60 trainees that would most likely come from the first few buildings that are RCx'd.

**Program Completion**

At the end of the program, the full process will be evaluated for as built conditions and documentation provided to the building owner and the program . This documentation shall consist of training information, final performance and costs, targeted documentation of the RCx'd systems and a final report.

As indicated above, operators will become eligible for the BOC program incentives at the completion of the project. If applicable, after one year, the building may be reviewed for Energy Star<sup>®</sup> qualification by the RCx provider. Alternately, if interested, the owner will be provided with the documentation required by the RCx process of the LEED-EB program.

**Ongoing RCx Program Operations**

To ensure success of the RCx program, a quality control process will be established. The program will provide oversight and technical assistance to the commissioning providers and modify the program procedures to ensure that owner/management firms are being well served by the commissioning providers.

**Oversight**

Throughout the program, documentation from each step of the RCx project will be reviewed. The table below lists the documents that will be reviewed.

RCx Phase	Quality Control Documentation
Screening	Screening report and Owner agreement
Scoping	Investigation scope and bid
Investigation	Findings list with energy savings calculations and cost estimates Owner and operator approval of proposed measures form
Implementation	Confirmation of implemented measures
Persistence of Savings	Targeted Building Systems Manual Integrate RCx process with Building Energy Monitoring System. Tracking System Documentation Training Documentation Final Report

**Ensuring Persistence Through Performance Tracking**

Recently conducted studies of RCx persistence have found a greater persistence of commissioning benefits when building operators were well-trained and tracked building

performance<sup>33</sup>. Experience has shown that well-informed owners and operators not only ensure that RCx savings persist, but they also work to create additional savings. Savings need to be monitored and actions need to be taken periodically to fine tune building performance.

The commissioning providers will propose and implement a tracking system to monitor the improvements implemented in each building. The program will assist in the

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**Experience has shown that well-informed owners and operators not only ensure that RCx savings persist, but they also work to create additional savings.**

these plans  
These systems  
critical points  
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improvements,  
provide that

information to the program and the building operators. This approach ensures a high level of confidence in the realization of the savings from this program.

## 11. Customer Description

Nonresidential medium and large customers in the commercial & industrial, government and institutional segments are the primary customer groups. Office buildings, retail malls, hotels, institutional facilities, and public buildings would all be eligible under this program. The primary market actors targeted will be the building owners and key financial decision-makers.

Desirable characteristics we look for in buildings include:

- Greater than 100,000 square feet
- Owner occupied
- Owner able to commit to capital expenditures within 6 months or less of agreement
- Owner maintained
- Utilizes direct digital controls (DDC) for the primary operation of building systems to undergo RCx
- DDC system values can be readily trended using existing software and hardware
- HVAC systems primarily consist of built-up equipment or central plants rather than unitary equipment.
- High electricity and gas consumption
- Mechanical equipment in relatively good condition
- Building not commissioned or retro commissioned within the last five years

## 12. Customer Interface

Although the RCx process is somewhat more complex than many energy efficiency programs, this program is designed to act as a single point of contact for a building retro-commissioning process. This feature will allow the customer to go to a respected entity

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<sup>33</sup> H. Friedman, A. Potter, T. Haasl, D. Claridge, S. Cho, "Persistence of Benefits from New Building Commissioning", Proceedings of 11th National Conference on Building Commissioning, May 20-22, 2003.

(SCE) that will be dealing with many of the complexities of the process including defining a process, qualifying providers, overseeing the implementation and providing estimates of energy savings and cost impacts. This will relieve the customer from having to investigate many of the activities that they may not be familiar with. Typically, the program will be presented to the customer via SCE's marketing process. Alternately, the customer may get information about the program through a website.

Screening will be done to ensure the customer meets the program guidelines, which will consist of quick facility walkthrough and some brief questions. Once the customer has been approved via the screening process, an agreement will be developed that summarizes the program scope including likely customer costs, customer time commitments, likely sources of inconvenience, and work being done by the RCx provider. Upon the completion of the investigation phase of work, the RCx provider will present a list of recommended measures to the Customer and to the RCx program. The customer and the customer's facility operator will need to review and approve any proposed measures to ensure they are comfortable with the operational and cost ramifications (including incentives). During the implementation phase, the RCx program and the RCx provider will work with the owner to ensure that the measures are installed and operate properly prior to being accepted.

One feature of this program is that appropriate retrofit measures identified as part of this process will be referred to the appropriate retrofit measure efficiency programs, which should make the identification, qualification, rebating and evaluation of these measures less intrusive for the owner and more integral to the retro commissioning process. Conversely, demand response opportunities identified as part of this process will be referred to the appropriate demand response efficiency programs, which should make the identification, qualification, rebating and evaluation of these measures less intrusive for the owner and more integral to the retro commissioning process.

### **13. Energy Measures and Program Activities**

#### **13.1 Measures Information**

If the owner expresses an interest, appropriate demand response items will be identified as part of the Energy efficiency review process.

##### **Typical HVAC Measures Information**

Measure information provided in corresponding cost-effectiveness calculator and portfolio workbook.

The SCE RCx Program will target these common problems found in HVAC, DHW and lighting systems, and will include measures to address the following systems:

*Chillers* – Chillers are often the single biggest equipment loads in commercial and institutional buildings and almost always set the peak summer demands. Operators tend to be more concerned with maintaining comfort than they are about the energy efficient operation of the equipment. Consequently, three operating scenarios commonly occur that result in excess energy use. These are usually easy to remedy by reprogramming the building automation system. The three common scenarios are described below.



- **Chilled water set-point too low.** Operators often lower the chilled water set-point during periods with peak cooling loads. However, they forget to reset it and it remains at the low value continuously or until they receive complaints of discomfort. Raising the set-point by a few degrees during periods of smaller loads can save substantial amounts of energy. Often automatic chilled water reset controls have been overridden or were never employed during the initial start-up of the chiller system.
- **Improper staging.** Most electric chillers are more efficient operating at higher loads. Many buildings will have more than one chiller. Quite often two chillers will operate at low loads, when one has sufficient capacity to meet the load. For more energy efficient operation (as indicated by the IPLV of the chillers), a single smaller chiller should be used to meet lower loads, and multiple chillers used to meet the higher ones.
- **Chillers energized when unnecessary.** Chillers are often operated when outdoor air can meet cooling loads with airside economizers. This results in the chiller being operated at low loads when they are not needed. Carefully determining the “balance point” of the building and then setting an appropriate ambient lockout temperature can reduce the number of hours a chiller is operated.

Collecting and analyzing chiller performance data is the only way to determine if their dynamic performance is optimal. Potential chiller problems that are investigated using time series data include: proper staging, proper temperature resets, meeting load or drifting, maintaining proper temperature differentials, short cycling, and calculated efficiency (kW per ton).

Cooling Towers – Cooling towers are a key component of most large cooling systems and their performance and operation can have a large impact on the efficiency of the chillers and the total energy use and peak demands of the entire cooling system. The following four common operational characteristics of cooling towers can cause excess energy consumption:

- **High condenser water temperatures.** Similar to the condition for chilled water temperature discussed above for chillers, the condenser water temperature is often set too high. Chillers run more efficiently at low condenser temperatures. Chillers will operate with lower temperatures than are typically programmed.
- **Excessive cycling of fans.** This condition is most common on large towers with single, constant speed fans. Excessive cycling is common at low loads and causes wear on motors and drive systems (belts, pulleys, etc). This condition can be reduced by slightly increasing the control deadband of the condenser water setpoint or installing two-speed motors or variable speed drives.
- **Improper staging of fans.** Multiple sets of fans are not programmed in a manner that provides the most cooling for the least energy.

- **Poor maintenance.** This reduces heat transfer efficiencies and requires excess fan energy to reject heat from a tower. It is often a result of poor water treatment.

Time series performance data collected on cooling towers is used to investigate: approach to wet bulb temperatures, condenser water temperature differential, condenser water reset, and fan cycling and staging. Static tests are not sufficient to investigate these parameters over a range of operating conditions.

*Boilers* – Boilers are a key component of most large heating systems and their performance and operation can have a large impact on the efficiency of the entire heating system. The following four common operational characteristics of pumps can cause excessive energy consumption:

- **Excessive hot water temperatures.** Boilers are often set to run at 180 F, which is often higher than required. Enabling of temperature resets can be used to optimize the hot water temperature to the load.
- **Excessive cycling of boilers.** Sequences of operations may not properly turn the boilers on and/or off due programming.
- **Improper staging of boilers.** Multiple sets of boilers are not programmed in a manner that provides the most heat output for the least energy.
- **Boilers when not required.** Due to the limited RH requirements in Southern California, re-heat systems do not typically need to be active during many periods of the year. Controls will be checked to ensure that appropriate lockouts are enabled and operable.

Time series performance data collected on pumps is used to investigate hot water supply and return temperatures, boiler enable and outdoor air temperature. Coordination with SCG will be done for gas boilers.

*Pumping* – Pumps are a key component of most large central plant systems and their performance and operation can have a large impact on the efficiency of the entire cooling system. The following three common operational characteristics of pumps can cause excessive energy consumption:

- **Unnecessary balancing valves.** Pumps are often over designed, resulting in the use of balancing valves to cut back flow. This wastes a lot of energy. Trimming impellers and/or adding variable speed drives can replace the need for the major balancing valves. Additionally, the replacement of two way valves at airhandlers will result in enhanced savings with variable pump flow.
- **Excessive cycling of pumps.** Sequences of operations may not properly turn the pumps on and/or off due programming.
- **Improper staging of pumps.** Multiple sets of pumps are not programmed in a manner that provides the most pumping for the least energy.

- **Pumps run when not required.** For various reasons, pumps often run when not required, consuming considerable amount of energy. Re-programming can quickly solve this problem.

Time series performance data collected on pumps is used to investigate: pump cycling and staging.

*Economizers* – Economizers are designed to reduce the need for mechanical cooling when outside air conditions can provide “free cooling.” Only a small percentage of the economizers we have studied actually work properly. The following four common operational faults in economizers can cause excess energy consumption and increased peak demand:

- **Outside air damper at minimum.** Outside air dampers are locked in the minimum air setting and “free cooling” is never realized. Mechanical cooling is necessary at times when free cooling should be available. This increases the cooling requirements in morning and evening hours, as well as during the cooler swing months.
- **Outside air damper open.** Outside air dampers are locked in the maximum air setting and free cooling is realized, but the peak loads are increased. These excess loads are particularly prevalent during the hottest hours on summer months.
- **Actuator failure.** Either of the two conditions above may result if the actuator has failed. Additionally, temperature and RH sensors may have failed or be out of calibration, resulting in improper operation.
- **Improper logic.** Economizer has not been configured as an integrated economizer and thus does not sequence properly with the chilled water valve. This additional programming can save significant energy.

*Air Side Delivery* – Air handlers (AHUs) are the key to climate delivery and efficiency. The following five common operational faults in AHUs can cause excess energy consumption and increased peak demand:

- **Poor Balancing.** Either the result of a poor initial air balance or the result of changes, air balance is not proper. Resulting in comfort and performance problems. In some cases, there may be inadequate airflow which causes comfort problems.
- **Variable flow not properly operating.** For older units with vane axial controls, these controls have often failed. Newer units with VFDs may not be operating properly due to VFD failure, sensor mis calibration, etc.
- **Inefficient Power transfer.** Belts are worn, rubbing or not properly aligned. Simple fixes can improve system operation and reduce wear and tear.
- **Valve actuator failure.** Chilled water and/or hot water valve controls may have failed, resulting in limited temperature control and /or comfort problems. Repair or replacement of the actuator and/or valve will yield better temperature control and reduced energy usage.

- **Improper logic.** Misunderstanding of damper controls and speed control algorithms results in dampers being closed or modulated improperly, thereby driving up the amount of fan energy required.

Restoring economizers to proper operation reduces energy consumption. Only time series data will reveal these problems over a range of operating conditions. It will also clearly show the interaction between the operation of system components, such as the economizer and chiller or compressor.

*Zonal Terminals and Controls* – Often, heating and cooling are supplied to spaces at the same time when not required for humidity control. This can happen if a space is cooled and heated using independent controls. The heating and cooling systems can run simultaneously without causing perceptible comfort problems, so these conditions are rarely reported to maintenance personnel. Eliminating simultaneous heating and cooling is often a matter of the following inexpensive changes:

- Coordinating setpoints and educating staff on their impact for energy savings
- Locking out the heating during summer months or via temperature controls
- Reducing over ventilation
- Repair or replace zonal sensors or actuator controls that may have failed
- Add zonal supply air temperature resets that may reduce the need for re-heat during dry periods of operation or low load
- Changes to control logic

*Controls* – Control systems are often the most problematic system in a building. Improving and changing the controls to a building can result in significant energy savings. The following strategies are commonly implemented during retro-commissioning:

- Scheduling for HVAC systems according to demand and required warm-up/cool down
- Correctly programming reset schedules for supply air and hydronic systems
- Recalibrate or repair sensors that are not functioning properly. For outdoor sensors, ensure that the sensor is properly shielded from the sun
- Correcting operation when VFD turndown is limited
- Configure VFDs to operate in variable torque mode
- Improving the ability to meet setpoints without valve hunting or cycling of equipment
- Reducing leaks in pneumatic control systems
- Addressing interactions between systems to avoid cascading instability

Control problems can be found through observation and analysis of time series data. Retro-commissioning addresses the root cause rather than a work-around that may have been implemented if a resultant symptom was being addressed.

### **Typical Lighting Measures Information**

Measure information provided in corresponding cost-effectiveness calculator and portfolio workbook.

*Luminaires* – Improving and changing the luminaires to a building can result in significant energy savings. The following strategies are commonly implemented during retro-commissioning:

- For applications where lighting runs continuously and is inefficient recommend retrofit measures (the rebates would be offered via other existing programs)
- Address any maintenance issues that impact existing lighting systems (relamping, cleaning, etc.)

*Controls* – Lighting control systems are often the most problematic part of the lighting. Improving and changing the controls to a building can result in significant energy savings. The following strategies are commonly implemented during retro-commissioning:

- Scheduling for lighting systems according to usage
- For older buildings, no easy way to turn lighting off when not needed
- Recalibrate or repair sensors (occupancy and photocell) that are not functioning properly.

Control problems can be found through observation and analysis of time series data. RCx addresses the root cause rather than a work-around that may have been implemented if a resultant symptom was being addressed.

### **Typical DHW Measures Information**

Measure information provided in corresponding cost-effectiveness calculator and portfolio workbook.

*Heaters and Re-circulation* – Heaters are a key component of most large DHW systems and their performance and operation can have a large impact on the efficiency of the entire DHW system. The following four common operational characteristics of pumps can cause excessive energy consumption:

- **Excessive hot water temperatures.** Heaters are often set to run at 140 F, which is often higher than required or allowed by code if there is no tempering. Lowering set-points will save energy.
- **Re-circulation controls not configured properly.** Times and/or setting may not be appropriate, wasting energy and/or keeping the system from providing hot water at the required times.

- **Aquastat Controls.** Aquastat controls may be set inappropriately or have failed, wasting energy and/or keeping the system from providing hot water as required.

Typically on site measurements can be used to diagnose these issues. Coordination with SCG will be done for gas heaters.

### **13.2 Energy Savings and Demand Reduction Level Data**

Energy savings and demand reduction information provided in corresponding cost-effectiveness calculator and portfolio workbook. Assumptions are indicated below.

Although several other RCx programs have been implemented in various locals, the type, scope and mechanism of delivery has varied substantially. Although some of the programs are in CA, some of them are on the East coast (NYSERDA) or Pacific Northwest (Northwest Energy Alliance, 2003), with different energy costs, climate, and equipment types. Some programs are utility incentive programs, some are utility partnership programs, and some are third-party programs that cost share identified measure costs. Program scopes have varied from HVAC to multiple system types. This program is intended to address some items that have been adopted in some of the other programs. The reasoning behind this is that the cost and effort on the part of the customer to evaluate these other items is lower than if multiple evaluations are done. Among these are the inclusion of lighting and DHW as part of the standard scope, including gas system evaluation. Additionally, the scope is to contain come evaluation of demand response potential, water savings measures, and enhancement of the current building control system to allow for “monitoring based commissioning.”

As a result of the variation in the programs, there is no clear best set of numbers upon which to base the program costs and savings from. However, there is a range upon which these assumptions are built. The two most relevant programs which are both in SCE territory are not far enough along to fully substantiate completed costs and savings. Additionally, the delivery mechanisms of the two programs are substantially different. The BTU program is a third-party program that has a scoping phase, a detailed investigation phase, and an implementation phase. This program relies heavily upon walkthroughs and data collection to identify problem issues. The SCE/Los Angeles County Partnership program is formed much as the construction phase of a new building commissioning program would be with a pre-functional, functional and re-testing phases. Additionally, the county is devoted considerable resources and commitment to the program that may not be available on a general program basis. Consequently, the program cost for the partnership would be larger than the BTU program. It is planned that the proposed program’s scope will fall midway between the two programs with more scope and incentives than the BTU program, but less testing of equipment than the partnership program.

The cost range for programs has varied from approximately \$0.09 to \$1.42/ sf. A figure of \$0.50/sf was selected based upon it being slightly higher (6%) than the high end of the range of programs that account for buildings of similar type and location (PECI “California Commissioning Market Characterization Study, 2002). The increased cost is

included to deal with additional scope items indicated above and is about 10% less than the buildings in the Northwest Energy efficiency Pilot Program (2003).

Energy savings across the various programs also varied dramatically, depending upon many factors, including the scope of work and building type. As there will not be a fixed building type for this program, it is assumed that a wide variety of buildings will be encountered. A figure of 1.22 kWh/sf-year was selected as the projected energy savings in kWh/SF-year. This figure is consistent with the North West Energy Alliance program. Likewise, gas savings of 0.056 therms /SF was based upon the same study. Although the SMUD study (Evaluation of the Persistence of Savings from the SMUD Retro-commissioning Program, 2004) shows considerably lower savings, it should be noted that many of the buildings were less than 10 years old or recently renovated, which is considerably newer than the mean age of buildings anticipated for this program.

The projected incentive cost is \$0.20/sf. This is 33% higher than the current figure being used in the BTU program. The reason to increase this cost was to help get owners committing to the process quicker (which has been an issue in the BTU program) and to allow increased cost for more implementation scope and support including documentation, training, and monitoring based commissioning. This incentive consists of several components including the investigation (cost shared), programming measured (cost shared), and incentives for major measures that are not incentivized through other sources.

The established effective useful life (EUL) for many of the defined measures is 15 years (Energy Management System). It has been assumed that most of the equipment in the affected building has no more than 10 years of life on average remaining. Thus the baseline EUL was lowered from 15 to 10 years or 2/3 of the standard value to account for the fact that the equipment is not new (except for some hardware replacements).

NTG was assumed to be 0.80. This is the default for programs that do not have other supporting evidence for an NTG value. Although the bulk of building owners will not currently pursue RCx unless given incentives or enticed, because of the growing use of LEED-EB (LEED for existing buildings), it is assumed that some portion of the RCx work would be applied for buildings that are pursuing this certification.

### **13.3 Non-energy Activities (Audits, Trainings, etc.)**

The program activities that support the energy savings achieved, but do not directly achieve energy savings by themselves are as follows:

- Investigation scope and bid
- RCx investigation, including a findings list and simple payback analysis
- Service provider orientation on building system optimization and RCx
- Optional incentives will be provided to interested participant building operators that are interested in pursuing Building Operator Certification.

Each of these activities is described in detail under Program Implementation.

### **13.4 Subcontractor Activities**

Subcontractors may be used to support the screening stage of the process.

The RCx provider will provide the full retro-commissioning support for the process. This includes activities detailed elsewhere including on site scoping and investigation work, data collection and analysis, evaluation of cost and energy savings, modifications of controls and implementation of controls based measures.

Additional subcontractors will be used as needed for major repair or retrofit items discovered during the RCx process and not funded otherwise.

### **13.5 Quality Assurance and Evaluation Activities**

Initial inspections will be randomly inspected upon completion of the retro-commissioning by the service provider. The installation verification will be done by confirming if the installed measures match the measures indicated in the report. Inspections will be made prior to payment.

#### **13.5.1 Expected Number/Percent of Inspections (planned percent of projects)**

Approximately 10% of the sites will be inspected. At each site, approximately 1/3 of the total measures will be verified, including at least one for lighting and DHW measures, as applicable.

### **13.6 Marketing Activities**

Currently, market demand for RCx services is still low, except in certain markets where long-term ownership interests are high, such as government buildings and schools.

The RCx program will identify potential new candidates using customer billing data. This will provide a list of possible sites for the screening process. In addition, the marketing plan is designed to recruit and leverage existing customer contacts and networks from within previous utility programs as well as from local governments. The target audience is best approached through existing relationships and SCE and local governments are the best source of existing relationships that can be tapped for recruitment. Commissioning providers and the program itself will also recruit owners.

A separate training course will be made available to train the decision makers about the retro commissioning process. This will be tied into the marketing program.

The marketing messages will be designed to inform owners about building system optimization and RCx and to spur them to take advantage of the energy saving opportunities offered by the program. The marketing plan provides materials that have consistent messaging from credible sources and can be used by the providers, SCE, local governments, and program staff to build awareness and enroll participants. Marketing materials will be designed with a consistent look and message. Materials will include a brochure, fact sheets, and presentations that can be customized. The materials will explain the program approach, the energy savings potential, and available financial

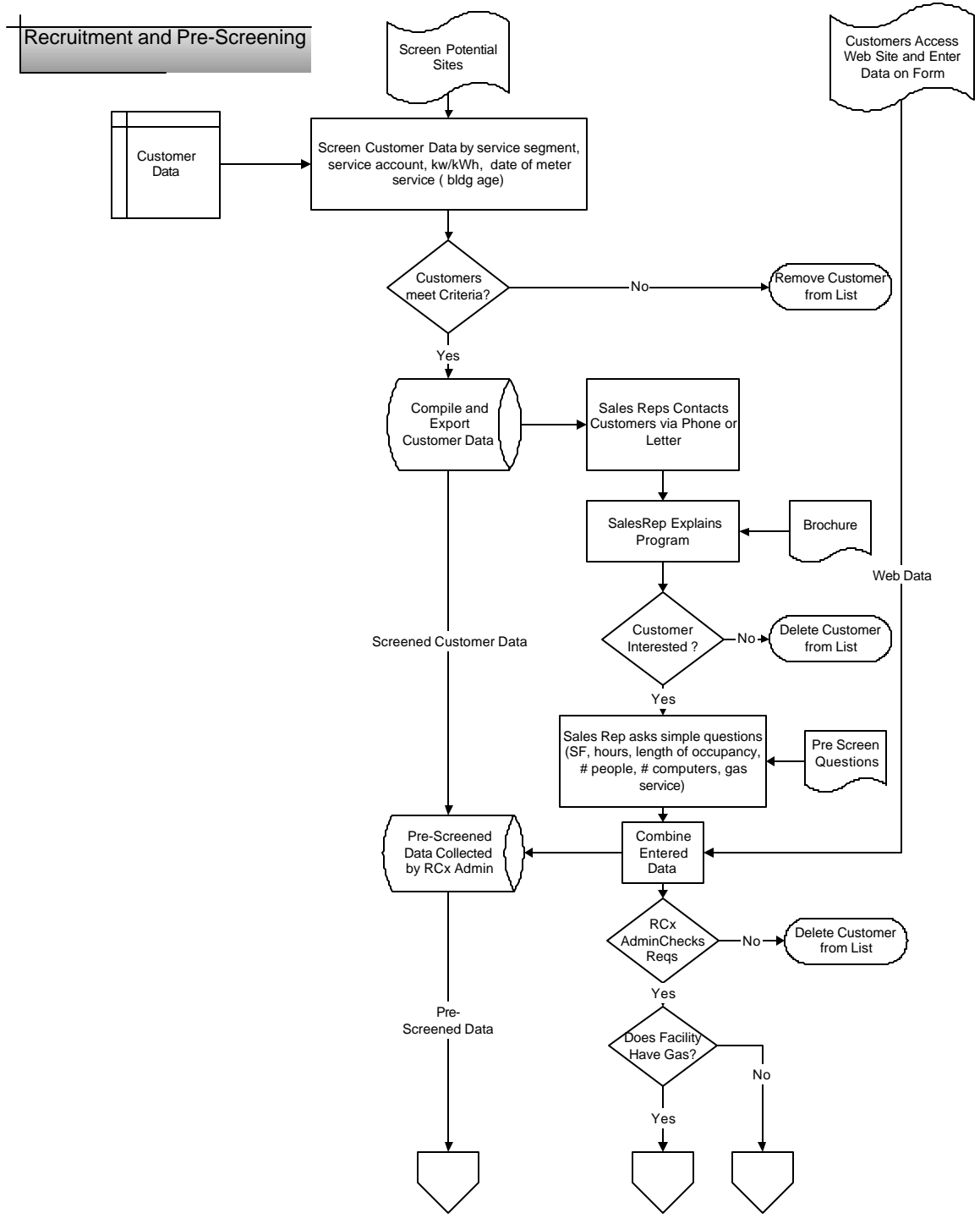


assistance, and include brief case study information. SCE, local governments and RCx providers may use the materials to aid in project recruitment.

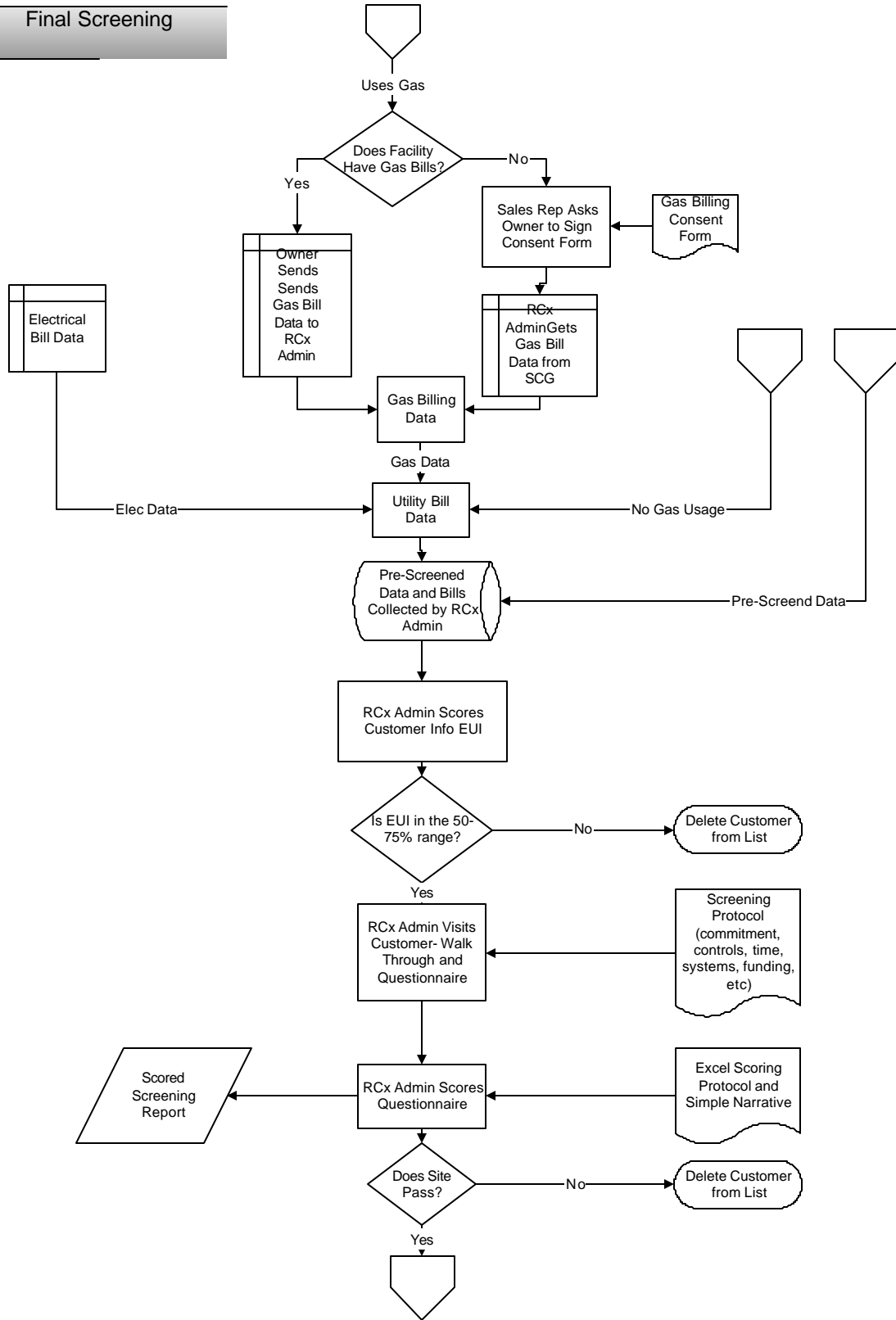
A program webpage will be an integral part of promoting the program. It will contain all the marketing materials in an easy to download format. In addition, it will contain the program requirements, the RCx protocols and RCx resources for providers and owners. Means to share information between the various parties may also be integrated into this site.

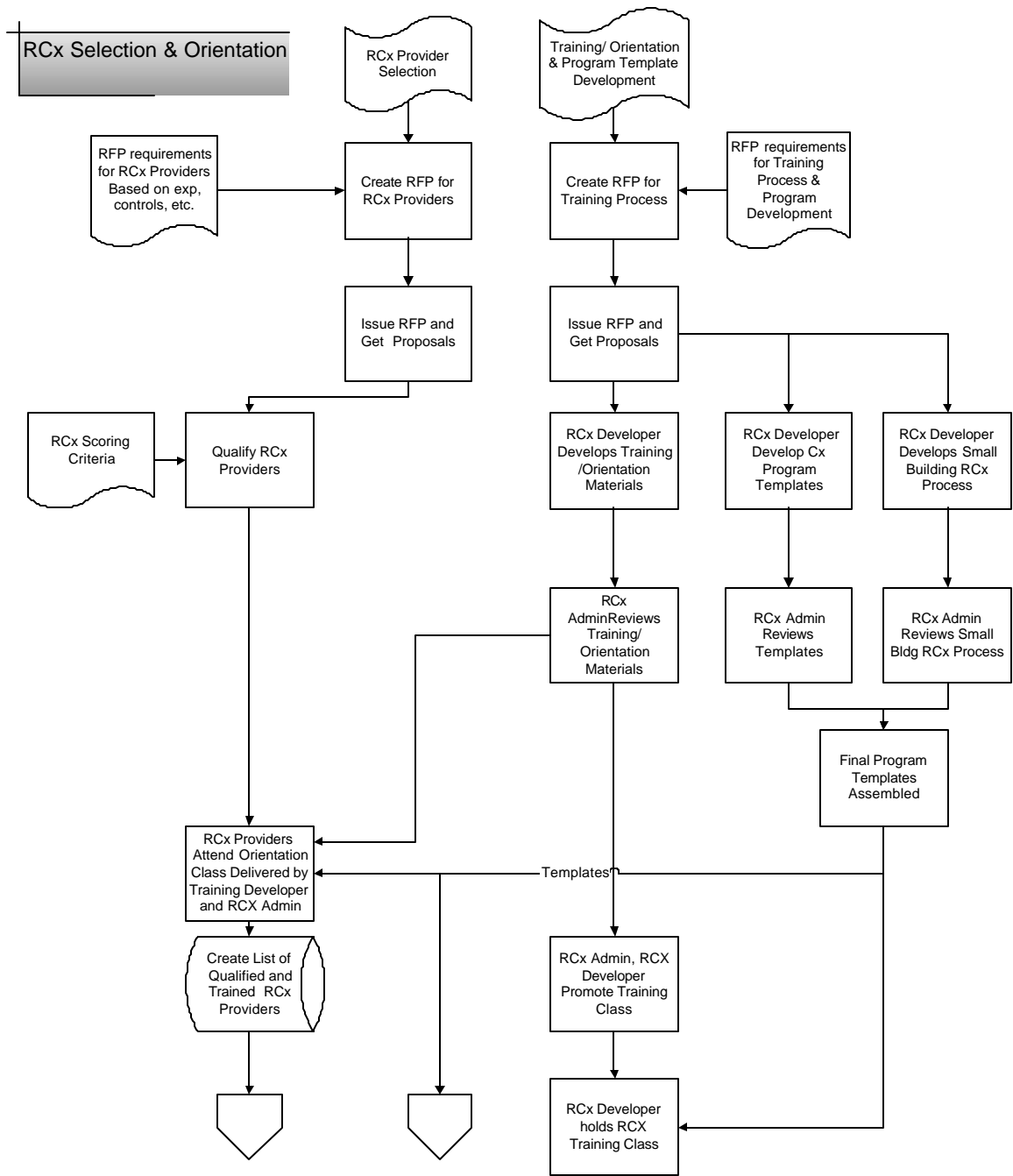
## Appendix A

### Program Implementation Flow Chart

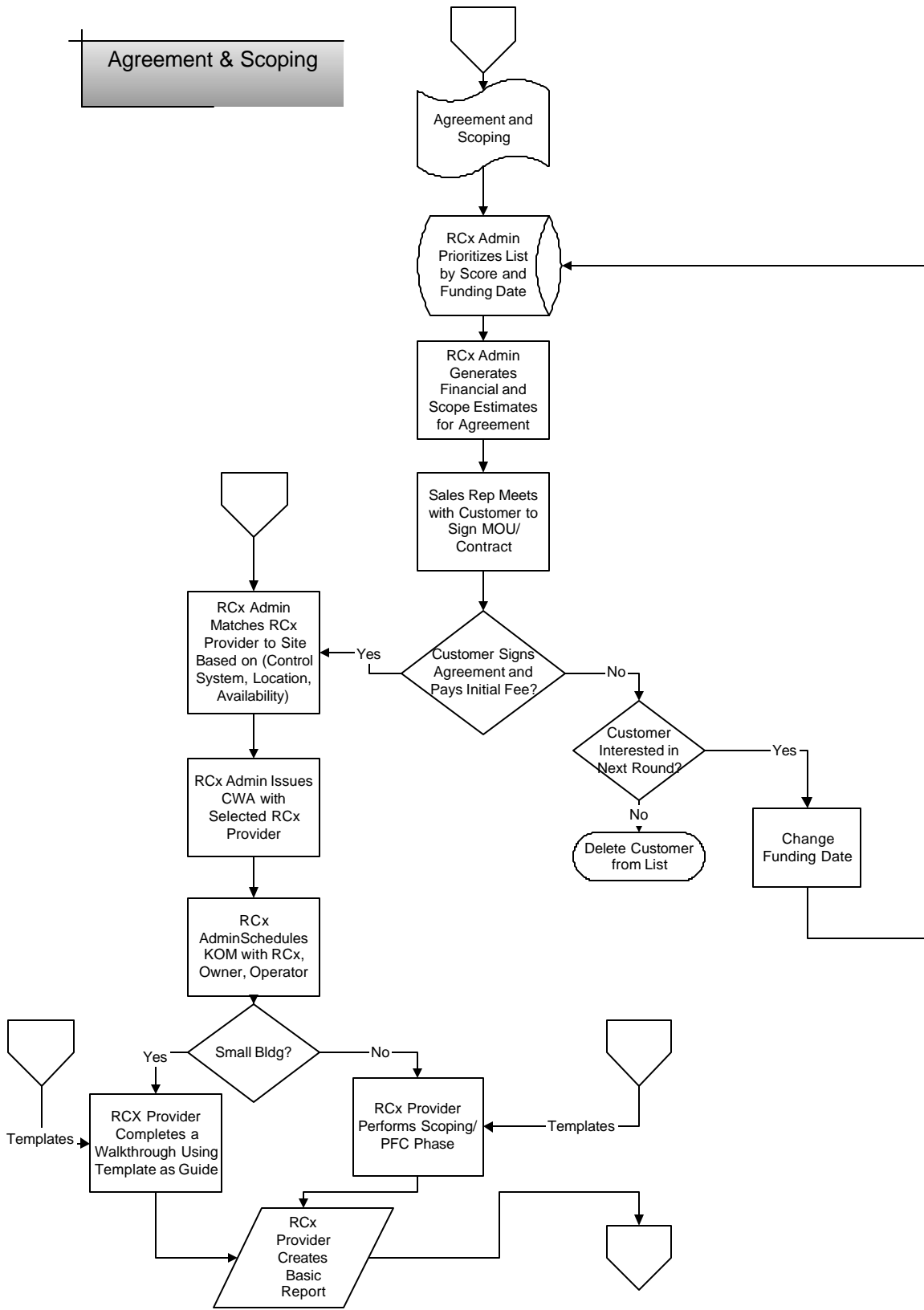


Final Screening

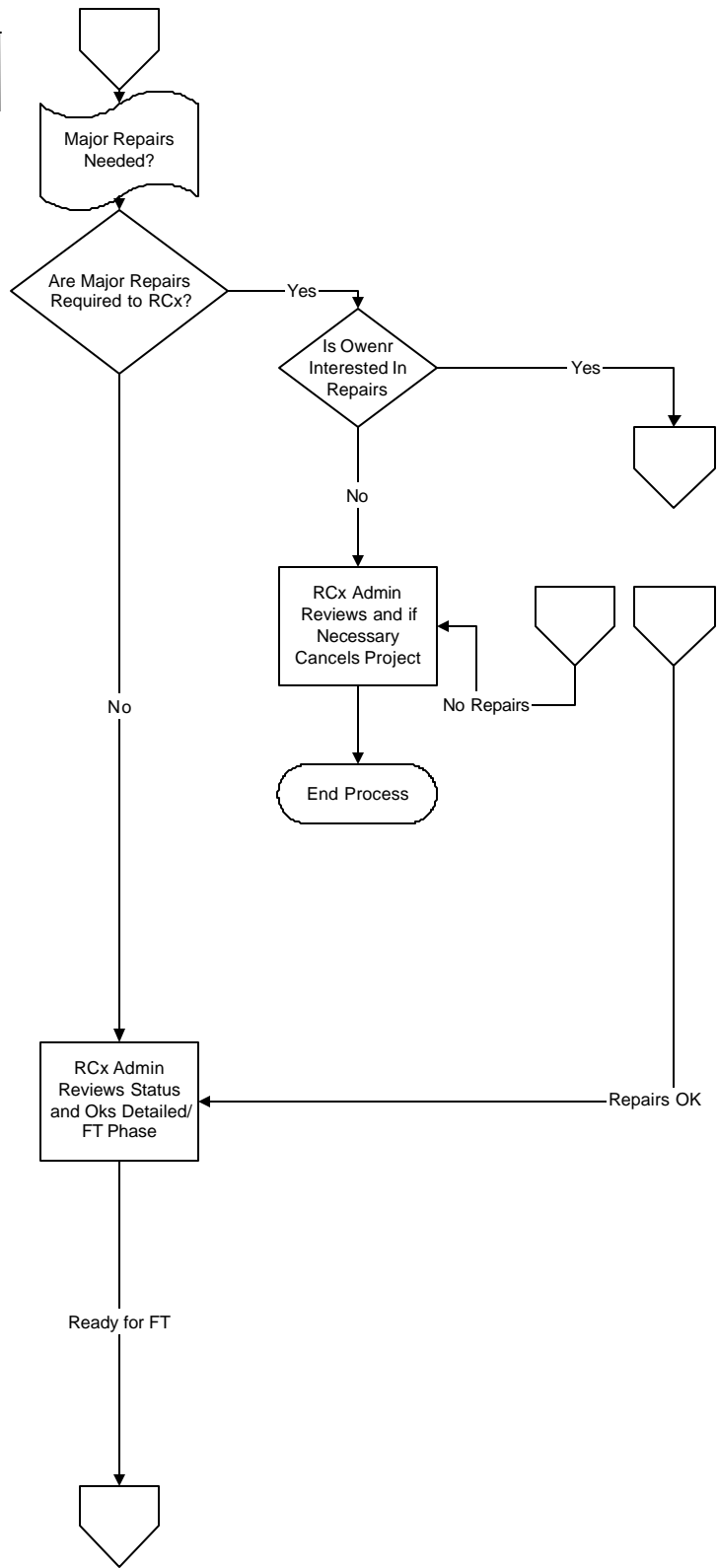


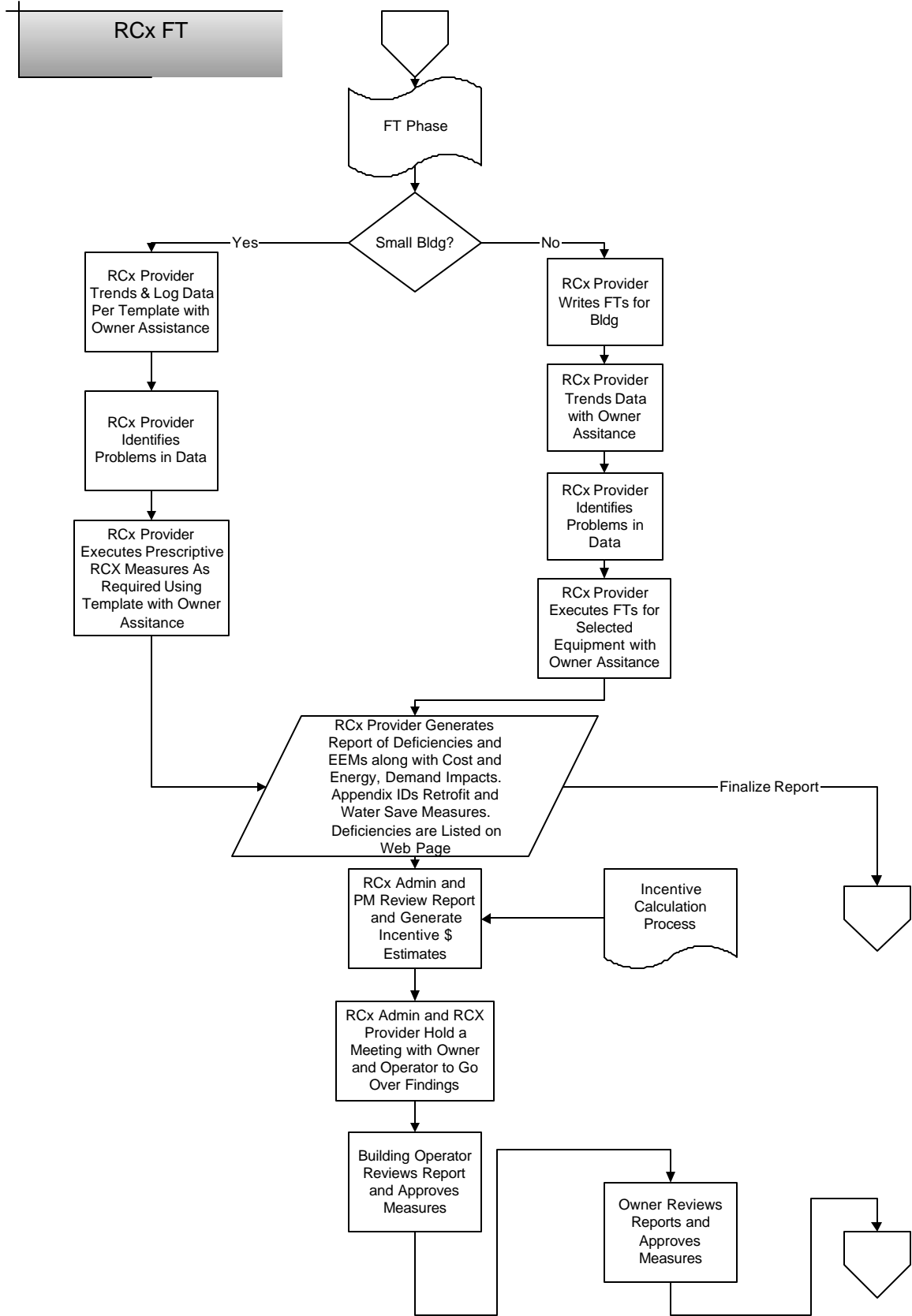


Agreement & Scoping



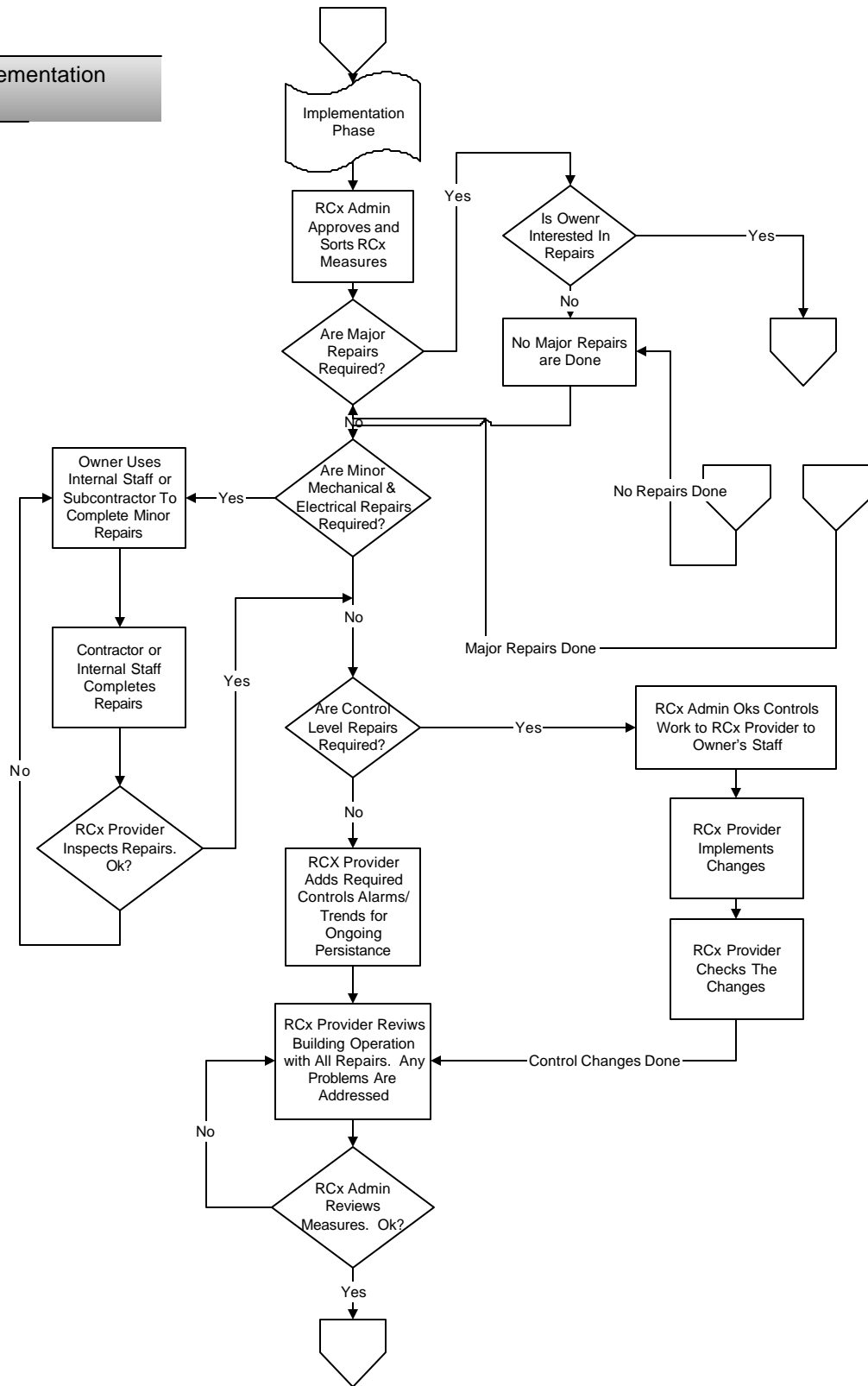
Scoping Review & Major Repairs

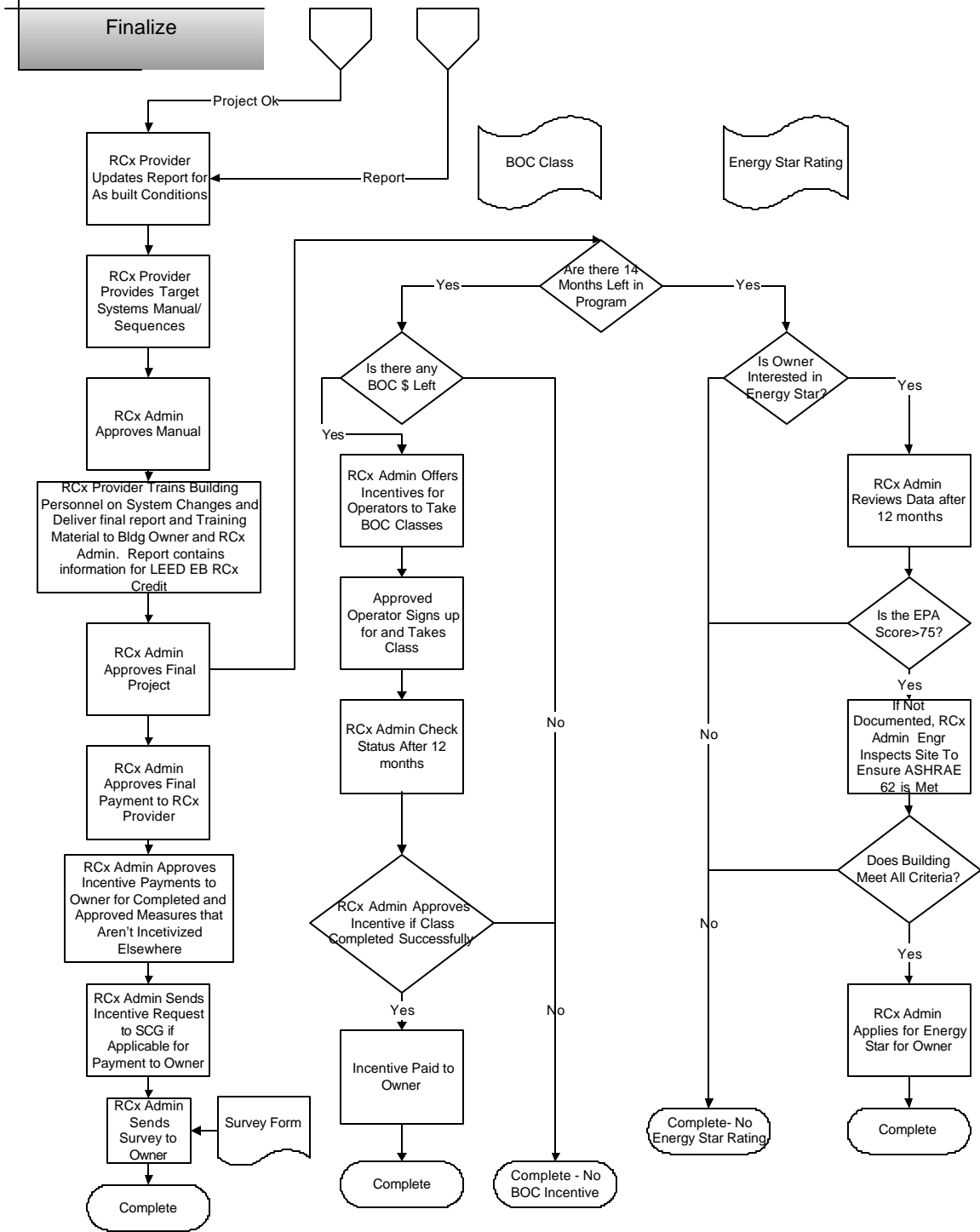




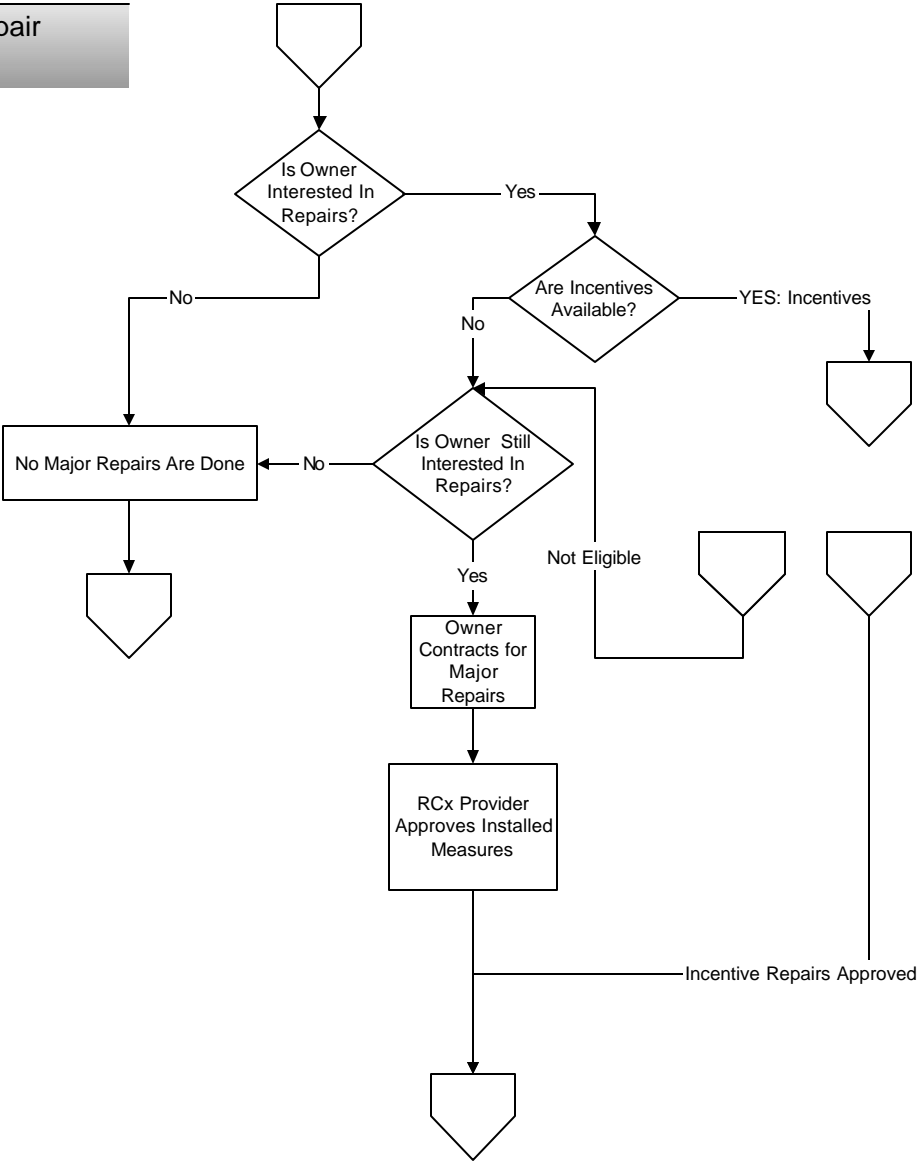


Implementation

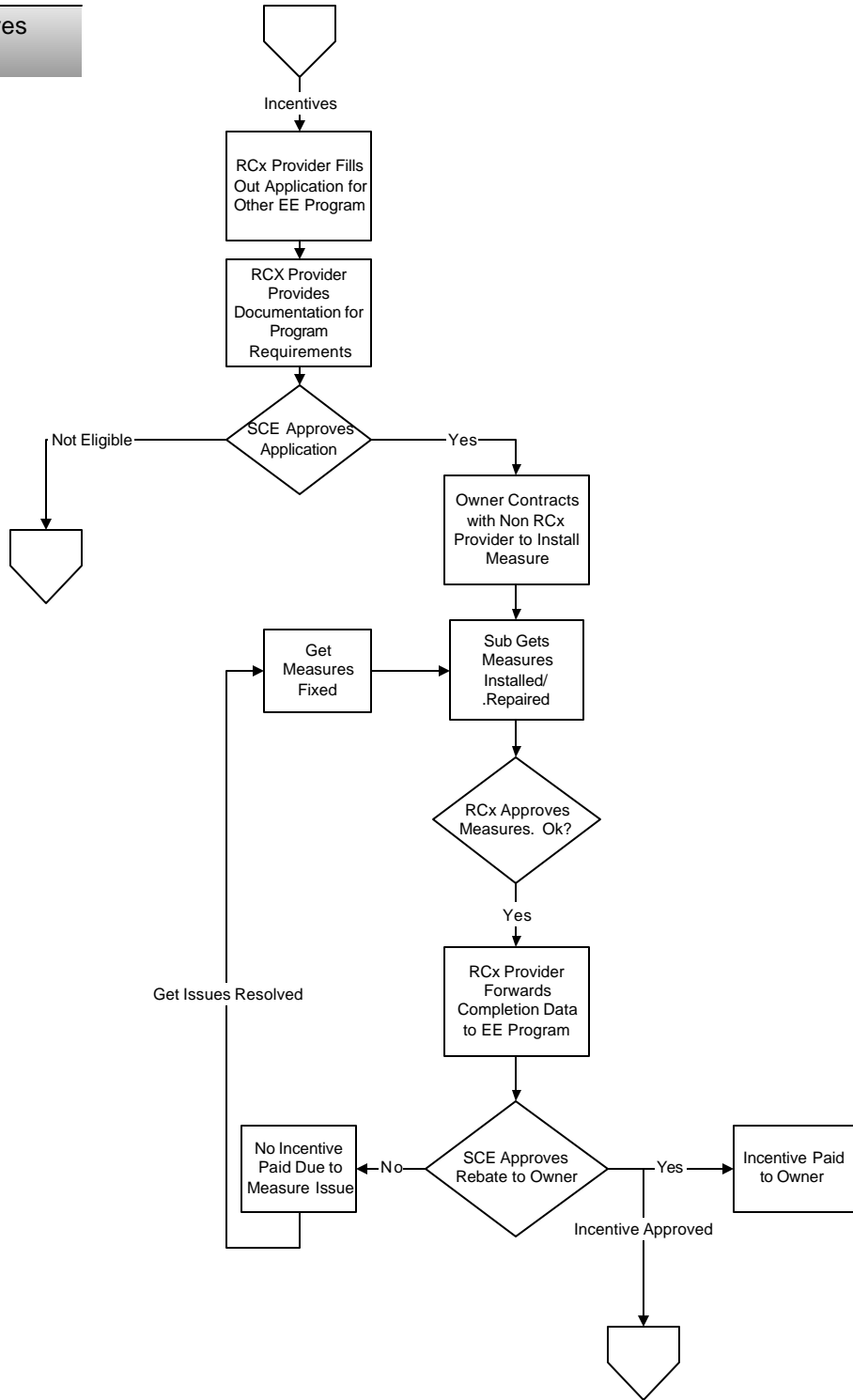




# Major Repair



Other Incentives



## Savings By Design

<b>1. Projected Program Budget</b>	<b>\$</b>	<b>30,932,770</b>
<b>2. Projected Program Impacts</b>		
MWh		132,261
MW (CEC Factor)		11.80
<b>3. Program Cost Effectiveness</b>		
TRC		2.67
PAC		3.79

#### 4. Program Descriptors

Market Sector: Nonresidential New Construction  
 Program Classification: Statewide  
 Program Status: Revised Existing

#### 5. Program Statement

Savings By Design (SBD) will continue to improve upon established successful approaches to overcome customer/market barriers to designing and building high performance facilities. SBD will provide the nonresidential new construction industry with a broad palette of technical and financial resources to aid them in designing new facilities to the most cost-effective energy and resource efficiency standards. SBD will also tailor current marketing and delivery efforts to further penetrate into a wider array of market and customer segments.

SBD will provide the nonresidential new construction industry with a broad spectrum of technical and financial resources to assist the industry in the design of new facilities with the maximization of cost-effective electric energy efficiency integration as a primary consideration, along with water, gas, and other related environmental and sustainability

#### What's New for 2006-08?

- Innovation
  - A new program element to apply incentives to design efforts only rather than both design and construction efforts
  - Targeting specific customer segments such as hospitals, clean rooms, and fast food
- Integration
  - Program materials and assistance to include connections with demand response and self generation offerings.
  - A revised incentive structure that recognizes the time-dependent valuation basis of the new Title 24 energy standard.
- Other Program Improvements
  - Review of processes and procedures to improve participation

considerations (White Paper, “Energy Efficiency Program Ideas,” NRDC; PAG/PRG Workshop Recommendations; Green Buildings Action Plan).

California’s Title 24 requirements set some of the most stringent energy regulations in the nation. Title 24, for some market actors, can be very confusing. As a result, customers and designers need education and guidance just to comply with the requirements. Exceeding these standard energy performance levels requires an even higher level of intense design, technical assistance, and motivation. SBD provides the tools and expertise necessary to exceed standard energy performance levels and achieve long-term energy and cost savings for the customer.

It’s been firmly established in SBD program evaluations that the integrated design process, when implemented correctly, can lead to highly cost-effective energy savings for most projects.

Yet, many in the design field are unaware of, or prohibited from,

**SBD’s integrated design process, combined with financial incentives, can assist customers in moving beyond initial cost considerations and towards the realization of long-term energy cost savings, avoiding “lost opportunities”.**

implementing energy efficiency strategies due to a lack of knowledge of the integrated design process and perceived budgetary constraints. As a result, energy efficiency is often a “lost” consideration, abandoned in favor of pursuing the “lower initial cost” option. SBD’s integrated design process, combined with financial incentives, can assist customers in moving beyond initial cost considerations and towards the realization of long-term energy cost savings, avoiding “lost opportunities”.

### **SCE/SCE PAG, PRG, Public Workshop, and Whitepaper Recommendations**

A number of recommendations have been made during the scheduled program planning meetings and submitted as whitepapers by interested parties in the 2006-08 energy efficiency program planning process. Several of the concepts, ideas, and suggestions have been included as useful additions to the Savings By Design program. Below are the individual program recommendations and the corresponding actions to be included in the 2006-08 programs.

*Recommendation:* “Look at targeting programs to particular areas or sectors.”

*Action:* Recommendation adopted. SBD plans to continue and expand a variety of approaches to reach specialized areas of the industry. Areas planned for this type of focus include hard-to reach markets, such as leased office and retail spaces with high turnover rates; segments requiring a high level of technical support, such as hospitals and clean room applications; and rapidly designed-and-constructed facilities, such as quick-service restaurants and agricultural cold storage facilities. Other segments with specialized needs will be targeted as they are identified.

Recommendation: “Provide a higher incentive tier for the New Construction program, so that it continues to push the envelope, and ensure it’s consistent with the proposed federal tax incentives. Consider a green building component for higher incentive tiers.” Also, “Provide a cross-marketing approach with the Governor’s Green Building Initiative.”

Action: Recommendation adopted. The Whole Building Approach in Savings By Design is built around a linearly escalating incentive rate, intended to push designers to aim for the highest levels of energy efficiency. For the 2006-08 program, the incentive structure for the Whole Building Approach will be revised to reflect the time-dependent valuation basis of the 2005 energy standard and to motivate designers to put a high priority on strategies that save energy during on-peak periods. Including a “green building” tier to support and work with industry trends toward sustainability will also be explored in conjunction with this incentive restructuring.

Recommendation: “Allow commercial tenants who are renovating existing spaces (e.g. new HVAC and lighting without touching shell) to participate.”

Action: Recommendation adopted. Savings By Design has always allowed these projects to participate. However, historical participation has been low because of split incentives. For the 2006-08 program, a target component, focused on reducing the barriers found in customers involved in leased office and retail spaces with high turnover rates, will be added to the program.

Recommendation: “Include building commissioning in new construction programs.”

Action: Recommendation partially adopted. While it has been well-established that building commissioning is an effective avenue to ensure savings in new facilities, incorporating such services into a program has been difficult due to high costs and lack of standardization in the services offered in the market today. For the 2006-08 program, mandating prescribed installation standards for lighting and HVAC systems (beyond what the new code requires) will be adopted. Additionally, the program, through its Energy Design Resources component (now included in the Education, Training, and Outreach program), will continue to provide advanced informational resources and tools to support commissioning efforts within the new construction industry.

Recommendation: “Provide incentives for buildings for not installing central air conditioning in new construction.”

Action: Recommendation is already allowed in existing program structure. The Whole Building Approach component of SBD has always recognized and allowed, and will continue to encourage, innovative energy efficiency strategies when they are determined to contribute to real energy savings beyond standard practice.

Recommendation: “Consider the potential building projects associated with seismic upgrades mandated for hospitals throughout California.”

Action: Recommendation adopted. SBD will focus resources to better address the unique concerns within this segment as activity increases due to seismic upgrading.

Recommendation: “Do not over-allocate funds to SBD”.

Action: Recommendation adopted. The overall percentage of funds allocated to the nonresidential new construction area is no greater than allocated in prior program cycles.

## **6. Program Rationale**

SCE’s nonresidential new construction program will play an increased role in reducing the electric energy needs of new and expanding commercial, industrial, and agricultural facilities in SCE’s service territory. Savings By Design will offer a full spectrum of support to building owners, architects, engineers, and other specialized consultants, providing the tools and information necessary to achieve optimum energy and resource efficiency in their projects.

By providing multi-level design, technical, and financial assistance to influence the basic design of a customer’s project, Savings By Design’s focused intervention minimizes lost

**Savings By Design will offer a full spectrum of support to building owners, architects, engineers, and other specialized consultants, providing the tools and information necessary to achieve optimum energy and resource efficiency in their projects.**

opportunities that may result when a building’s performance is not a primary consideration in the design of a project. SCE will work to incorporate other existing offerings, internal and external to SCE, to assist projects that reflect a cohesive sense of sustainability that go beyond the traditional aspects of electric energy efficiency. Such offerings may include coordination with LEED™ certification and Energy Star® ratings; connections with demand-response, self-generation, and water conservation programs; partnerships with industry organizations to promote acceptance of new program approaches by design professionals, and others as applicable.

## **7. Program Outcomes**

Savings By Design will:

- Motivate customers and design industry professionals to integrate energy use and environmental considerations into their standard process of design to achieve cost-effective levels of energy and resource efficiency.
- Move customers to design their facilities to achieve long term energy, resource, and cost savings, not just minimal compliance with mandated government regulations.
- Support industry trends and developments, such as the US Green Building Council’s Leadership in Energy and Environmental Design (LEED™) building certification program and the California Energy Commission’s switch to time-dependent valuation of energy use as the basis of the new Title 24 energy standards.
- Reduce customer confusion through appropriate alignment of SBD marketing materials with other applicable programs such as Education, Training, and Outreach, Codes and Standards, Emerging Technologies, the Business Incentive Program, and the new Sustainable Communities Program.



- Efficiently extend the reach of Savings By Design through support and coordination with utility-sponsored partnership programs such as the UC/CSU Partnership program, the Collaborative for High Performance Schools, and the various city/county partnership programs.
- Provide customers with a full spectrum of sustainable energy design consulting and resources through active collaboration with a network of other “energy” agencies and programs (water, gas, renewable generation).
- The Business Incentive Program will process and provide resources to the Systems approach. The move will allow for increased participation and access by market players.
- Promote available resources to the new construction market players regarding Title 24 Code changes and how to exceed them cost-effectively. Support the time-dependent valuation of energy used as the basis of the new Title 24 energy standards.

**SCE will continue to collaborate with the statewide Savings By Design team to share and coordinate program process “best practices” and marketing strategies, and contribute to tools and resources that enhance the overall cost-effectiveness of the statewide program.**

- Identify and capture additional gas energy savings that might have been overlooked previously.

## **8. Program Strategy**

Savings By Design will:

- Build on the existing, award-winning statewide program that has been validated and proven successful for over six years in California. SCE will continue to collaborate with the statewide Savings By Design team to share and coordinate program process “best practices” and marketing strategies, and contribute to tools and resources that enhance the overall cost-effectiveness of the statewide program.
- Design and implement several focused efforts to more effectively reach customer and market segments where a traditional design assistance/financial incentive offering has been marginally successful. Areas currently planned for this type of focus include markets that have not been receptive to traditional program delivery approaches such as leased office and retail spaces with high turnover rates; segments requiring a high level of technical support such as hospitals and clean room applications; and rapidly designed-and-constructed facilities such as quick service restaurants and agricultural cold storage facilities. Other segments will be targeted as they are identified.
- Develop a program component that applies incentives to offset increased design costs rather than increased construction costs. It is anticipated that this will take the form of a training/certification process that will prepare design professionals to lead and facilitate an integrated design process with the goal of enhanced energy and resource efficiency into the majority of their projects, such that no additional construction costs are necessary.

- Develop and include a full spectrum of energy use and sustainability program offerings by collaboratively working with applicable gas, water, and other industry groups. Issues such as energy savings associated with water use efficiency and the energy impacts of embodied energies in building materials and transportation will be explored and analyzed to identify potential new sources of energy savings.
- Collaborate with SCG specifically within the SCE service territory, and Pacific Gas and Electric (PG&E) and San Diego Gas & Electric (SDG&E) generally, to assist in the identification and development of gas energy savings opportunities that have historically been overlooked.
- Collaborate with demand response and self-generation programs, as appropriate, to combine program offerings into a customer-friendly and easy to navigate suite of materials. Technologies, such as building-integrated photovoltaic systems and energy management systems that are flexible enough to respond to new demand response strategies, are obvious strategies that can be integrated into a whole building approach to educate designers in the benefits of their adoption in new construction.

**Collaborate with demand response and self-generation programs, as appropriate, to combine program offerings into a customer-friendly and easy to navigate suite of materials.**

**9. Program Objectives**

The Savings by Design program will provide cost-effective energy savings and demand reductions as the result of installments which occur from the 2006-08 program. SCE’s energy savings and demand reduction goals are provided in the detailed tables included with this Application. In addition, SCE intends to facilitate between 9 and 19 integrated design projects during the 2006-08 program period and between 4 and 7 projects in niche markets (e.g., leased spaces, hospitals, quick-service restaurants) during the 2006-08 program period.

**10. Program Implementation**

The Savings By Design program will promote two successful components – Whole Building Approach (Integrated Design) and Systems Approach to its customers with new construction or major remodel/renovation projects:

The Whole Building Approach is the preferred method of estimating energy savings within SBD because it enables a design team to consider integrated, optimized energy efficiency solutions. This customized approach provides and requires a high level of energy analysis and interactive feedback, which generally leads to much more efficient design decisions. The key to maximizing energy choices, using this type of collaborative effort, is intervention at the earliest phase of building design.

The Systems Approach is a simplified performance-based method utilizing a calculation tool known as CaNCCalc to optimize efficiency choices. It is straightforward and participants may find it the best available option for certain types of projects. The Systems Approach makes it easy for designers to look at the interaction of systems within

their project, rather than individual equipment or fixtures. The Systems Approach is provided to address small, simple facilities where integrated opportunities are limited, as well as projects where program intervention may come late in the design phase.

SBD also offers Design Team Incentives to support the extra effort for integrated energy design and to provide an incentive to reward exceptional design accomplishments within the context of the Whole Building Approach. In addition, SCE will pilot and develop a mechanism by which incentive dollars can be effectively applied to the design phase such that incremental costs are minimal and no financial offsets to the construction costs will be necessary. It is anticipated that this will take the form of a training/certification process that will prepare design professionals to facilitate an integrated design process focused on energy and resource efficiency into the majority of their projects.

Savings By Design will continue to build on the successful Alternative Delivery Method which invites third-party market players to implement program goals in specific hard-to-reach niches such as facilities with dominant refrigeration loads. For 2006-08, the program will explore a similar effort to more effectively extend the reach of the program into the arena of leased commercial spaces with high turnover rates. Other niche markets that may respond to a higher level of technical support will also be considered as they are identified.

SCE will also explore the potential of extending Targeted Approaches to market segments or industries where alternative interventions may be more effective than the traditional design

assistance/incentive example, simplified working with the rapidly designed-and-building types would facilities as quick

**The integrated design process embodies the ability to design a facility with energy efficiency included as an objective from the start.**

approach. For approaches to segment of constructed consider such service

restaurants. Customized Targeted Approach will focus on market segments such as hospitals and clean room facilities.

The integrated design process embodies the ability to design a facility with energy efficiency included as an objective from the start. When this is done correctly, it is assumed that the overall cost of construction for the energy efficient building will not exceed the cost of the building at minimum code compliance. As such, the focus of this offering is to provide an incentive to a certified design professional that provides an energy efficiency influence at the earliest stages of the design process using the integrated design approach. Therefore it is of utmost importance to insure the integrity of design professional's application of the Integrated Design/Whole Building approach process, to ensure the highest level of cost-effective energy efficiency in the final design.

SCE will fully support the inclusion of other energy sources and sustainability issues in its program delivery to its best ability. The first phase of including sustainability is to

educate the field delivery team which is composed of new construction representatives (NCRs) and Business Customer Division Account Management.

SCE will bring in experts to identify energy savings measures for water and gas through technology solutions. In addition, educational opportunities will be provided to enhance the current understanding of self-generation applications, renewables, and the issues that might influence their use by customers.

Materials will be provide for those existing agencies and programs whose current offerings may be leveraged to raise the awareness and adoption of certain measures by customers in their building design. Existing agencies and programs include Water agencies, SCG, USGBC LEED<sup>®</sup>, CHPs, Energy Star<sup>®</sup>, and others.

SCE's SBD representatives and staff will work closely with the SCG's SBD team to provide enhanced recommendations that will lead to higher fidelity gas savings in new construction projects and major renovation projects in SCE service territory.

## **11. Customer Description**

Savings By Design specifically targets design and construction industry decision-makers: architects, mechanical engineers, electrical engineers, lighting designers, developers, contractors, energy consultants and, of course, building owners and operators.

SBD is available to the following customer participants: New construction or major renovation projects in nonresidential market segments (commercial, governmental, institutional, agricultural, and industrial).

SCE will explore the potential of developing targeted approaches to market segments or industries where alternative interventions may be more effective than the traditional design assistance/incentive approach. Simplified approaches for rapidly designed-and-constructed

building types such as quick service restaurants and agricultural

**SCE will explore the potential of developing targeted approaches to market segments or industries where alternative interventions may be more effective than the traditional design assistance/incentive approach.**

cold storage facilities will be considered, as well as others where potential is identified. Customized approaches for complex and specialized facilities, such as hospitals and clean rooms, where informed design assistance can be more persuasive than incentive dollars, will be actively explored.

Applicable program support and targeted efforts involving third-party driven activities will be competitively bid following SCE procurement diversity policy.

## **12. Customer Interface**

Both the Systems Approach and the Whole Building Approach, as described in the “Program Implementation” section, follow the same delivery process. The process begins with initial contact between the customer and/or the customer’s design team and an SCE new construction representative. These representatives are technical support staff trained to understand the dynamics and language of the design and construction industry and are focused primarily on the delivery of the Savings By Design program.

The owner completes and submits to the NCR a brief Letter of Interest that documents the specifics of the project, the design team (if known), and the owner’s interest in participating in and receiving program benefits.

An initial meeting between all members of the design team, the NCR, and supporting technical staff is then held to discuss the parameters of the project and determine the appropriate approach for the project. Design assistance, matched to the needs and scope of the project, is offered for the project to identify and validate energy savings strategies appropriate to the facility under design.

The NCR and supporting technical staff continue to provide recommendations, feedback, consulting, and energy use analysis, as needed, to the owner and design team as the project proceeds through the various design phases. Such activity can vary in duration from months to years depending on the requirements of the customer’s needs. This phase of the process culminates in a list of agreed-upon energy efficiency strategies that will be incorporated into the project.

At this point, an Incentive Agreement between the owner and SCE is executed. The execution of the Agreement generally should take place before the onset of building construction. When applicable, an Incentive Agreement between the design team leader and SCE is executed after the Owner Agreement has been finalized. These agreements can extend up to four years.

When the building construction has been substantially completed, SCE will make an on-site visit to each participating project to confirm compliance with the terms of the Agreement. Once the inclusion of all measures/strategies has been confirmed, the owner is paid the agreed-upon incentive amount. Should the completed construction vary from the Agreement, the available incentive will be recalculated to reflect the actual construction, and resulting energy savings, before the incentive is distributed.

## **13. Energy Measures and Program Activities**

### **13.1. Measures Information**

Measure information is provided in the corresponding cost-effectiveness calculator and portfolio workbook.

Calculation assumptions for eQUEST and CaNCCalc are located in Appendix 1, Section -IV. Calculation Assumptions.

### **13.2. Energy Savings and Demand Reduction Level Data**

Energy savings and demand reduction information is provided in corresponding cost-effectiveness calculator and portfolio workbook.

### **13.3. Non-energy Activities (Audits, Trainings, etc.)**

- Outreach/marketing activities, including annual Energy Efficiency Design Awards, co-sponsored with the AIA, California Council, to raise the awareness of successful high performance facilities within the design professions.
- Feasibility studies and pilot program components as needed to develop new program approaches to more effectively engage targeted market segments.
- Training and resource enhancements in concert with the Energy Design Resources component (now included in the Education/Training/Outreach program).
- SBD will participate in various conference and workshops to develop tools and concepts that will aid the program expand its education and efforts to encompass sustainability issues, Demand Response, water conservation, and enhanced gas savings into the program.
- SBD will continue to provide scholarships for students to attend the UC/CSU's Sustainability Conferences. The annual conference provides the architectural students with the rare opportunity to "see first-hand" that sustainability issues are growing in importance. The scholarship also provides SBD with a participatory role on a panel that answers questions regarding the SBD program and the compliance characteristics of potential customer projects.

### **13.4. Subcontractor Activities**

SCE recognizes that including other industry experts in certain program implementation processes enhances and extends the value of program benefits that customers can receive. SCE will use competitively bid solicitations to select appropriate consultants for any and all of the following activities:

- Project-specific energy simulation design assistance for Whole Building Approach projects.
- Integrated energy design support, such as charrette facilitation and process training.
- Program marketing and delivery in technically specialized, hard-to-reach industries.

### **13.5. Quality Assurance and Evaluation Activities**

To the extent subcontractors implement portions of the program, quality assurance measures will be put in place to ensure that standards of service and claimed savings have been achieved.

#### **13.5.1. Expected Number/Percent of Inspections (planned percent of projects)**

One hundred percent of the participating projects are verified during an on-site visit as soon as a facility is substantially complete.

### **13.6. Marketing Activities**

The primary marketing agent for Savings By Design is SCE's New Construction Services group, working in concert with SCE customer representatives to leverage long-standing

relationships with assigned customers. For 2006-08, SBD program information will be included in marketing materials of the Business Incentive Program and other programs/services as appropriate, to extend the reach of the program through that delivery channel and reduce customer confusion as to program availability.

Additionally, individual memberships in pertinent local industry organizations such as American Institute of Architects, American Society of Heating, Refrigeration, and Air-conditioning Engineers, the Illuminating Engineers Society, the US Green Building Council, Construction Specifications Institute, and the International Council of Shopping Centers are leveraged to build a presence in, and an informational resource for, members of these organizations.

Activity	Quantity
Brochures – one pagers	3- 6 projects/year
SBD Statewide Brochure	1 for program period
SBD Inserts (for program changes)	3 for program period
Targeted Market Fact Sheet	4 – 6 per year
Trade Journal Ads/Articles	1 - 3 per year
Energy Efficiency Design Awards	1 event
Conferences: CEE, AIACC, AIA National, AEE, ASHRAE, USGBC, Urban Marketplace, Green Expo.	4 – 8 per year
AIACC Sponsorship/Design Awards	1 per year

#### 14. Conclusion

SCE’s 2006-08 Savings By Design program builds on a well-established program that has been proven successful in securing electric energy and demand savings in the nonresidential new construction market for many years. By incorporating pertinent recommendations from the Policy Advisory Group, the Peer Review Group, Public Workshops, and whitepapers submitted by interveners and other interested parties, SCE is enhancing the program to bring more comprehensive energy efficiency and sustainability-focused services and offerings to our customers, which ultimately will accrue tangible long-term benefits to the state of California.

The enhanced program design not only reaffirms the integrated design process as the most effective method of achieving electric and gas energy efficiency, but also addresses the role and importance of other environmental issues under consideration by architects and engineers as they design new facilities. A focus on collaborative efforts and direct connections with internal and external programs promoting sustainability and water resource conservation, renewable energy and emerging technologies, and demand response strategies reinforces SCE’s commitment to provide a comprehensive resource for, and ensure optimum reach and effectiveness to, the nonresidential design and construction industry. Lastly, targeted outreach to unique and specialized industry segments will ensure a broader level of customer participation in SBD, as well as

increase the potential for SCE to reach and exceed the aggressive energy goals demanded by society.



## **II. Residential Programs**



# Appliance Recycling Program

<b>1. Projected Program Budget</b>	<b>\$</b>	<b>39,885,951</b>
<b>2. Projected Program Impacts</b>		
MWh		177,323
MW (CEC Factor)		38.48
<b>3. Program Cost Effectiveness</b>		
TRC		6.57
PAC		2.69

## 4. Program Descriptors

Market Sector: Residential/Nonresidential  
 Program Classification: Statewide  
 Program Status: Revised Existing

## 5. Program Statement

The Appliance Recycling Program (ARP) will produce cost-effective long-term coincident peak demand reduction and long-term annual energy savings in residential and non-residential market sectors by removing operable, inefficient refrigerators, freezers and room air conditioners from the power grid in an environmentally safe manner.

## 6. Program/Measure Rationale

Given the continued market saturation for working refrigerators and freezers, the program offers significant opportunities for cost-effective long-term coincident peak demand reduction and long-term annual energy savings<sup>34</sup>. The success of the program will be attributed to the accelerated retirement and removal from the potential secondary markets of the older and least efficient refrigerators and freezers.

ARP continues to explore opportunities to increase energy savings by adding volume from existing measures or adding new measures to the existing portfolio.

In the 2006-08 program period, ARP will add room air conditioners (A/Cs) based on the

### What's New for 2006-08?

- Innovation
  - Include room air conditioners
  - Expand into nonresidential market
- Integration
  - Link with residential and multifamily rebates
  - Promote Demand Response programs
- Other Program Improvements
  - Create turn-in and pick-up events, collaborating with retailers and local partnerships/governments

<sup>34</sup> Based on the "California Statewide Residential Appliance Saturation Study" by KEMA-Xenergy June 2004 Study ID CEC0022.01;400-04-009, there are 4,005,582 refrigerators, of which 949,225 (or 24%) are over 10 years old, 611,134 stand alone freezers, of which 202,987 (or 33%) are over 10 years old, and 875,921 room air conditioners, of which 219,871 (or 25%) are over 13 years old in the SCE service territory.

market saturation and potential for additional cost-effective long-term coincident peak demand reduction and long-term annual energy savings. This new measure will follow the best practice model established through the New York State Energy Research and Development Authority's (NYSERDA) Keep Cool Bounty Program<sup>35</sup>. The addition of room A/Cs will complement the existing ARP portfolio and supplement the ENERGY STAR® qualified room A/C rebate offered through SCE's Residential Energy Efficiency Incentive Program (REEIP).

The Program Advisory Group (PAG) recommended that ARP include nonresidential customers since a number of office complexes and industrial buildings have standard, residential size refrigerators and freezers. In response, ARP will offer the program to nonresidential customers including office complexes, industrial customers, schools, municipalities, etc.)

PAG recommended that ARP consider adding clothes washers to the existing portfolio for 2006-08. Although an engineering analysis did identify some energy saving opportunities resulting from the combination of avoided water pumping and mechanical washer efficiencies, it did not prove to be a cost effective measure due to the prohibitive recycling charges to remove the oils/grease from the clothes washers in an environmentally safe manner as mandated by the State of California.

## **7. Program Outcomes**

The program will emphasize the energy-efficiency benefits associated with the disposal of spare refrigerators and freezers and will also encourage the accelerated retirement of older and least efficient primary refrigerators and freezers, and room air conditioners with more energy efficient (e.g., ENERGY STAR®) units. ARP will disseminate program information and collaborate with other energy efficiency programs (REEIP, Home Energy Efficiency Survey) to educate customers on taking these actions

## **8. Program Strategy**

The program will deploy the following strategies to achieve program goals and objectives:

- Develop program materials/messages (brochures, ads) that clearly emphasize energy savings (through the use of charts) associated with disposal or early retirement of older, inefficient appliances, particularly the retirement of spare units. Collaborate with other energy efficiency programs (e.g., Home Energy Efficiency Survey Program) to distribute these collateral materials
- Encourage customers to turn in their old, working inefficient primary refrigerator for a new ENERGY STAR® model by promoting a combined incentive/rebate offering with SCE's REEIP ENERGY STAR® refrigerator rebate. These

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<sup>35</sup> Based on the "Best Practices Benchmarking for Energy Efficiency Programs" study managed by Pacific Gas and Electric Company under the auspices of the California Public Utility Commission in association with Southern California Edison, the California Energy Commission, San Diego Gas and Electric, and Southern California Gas Company.

promotions would be conducted through POS materials located at retail appliance stores and other cross promotional marketing activities.

- Encourage customers to turn in their old, working inefficient room air conditioner for a new ENERGY STAR® model by promoting a combined incentive/rebate offering with SCE's REEIP ENERGY STAR® room air conditioner rebate.
  - These promotions will be held in conjunction with SCE-sponsored "Turn In Events" held at various retail establishments or co-sponsored with

**Encourage customers to turn in their old, working inefficient room air conditioner for a new ENERGY STAR® model by promoting a combined incentive/rebate offering with SCE's REEIP ENERGY STAR® room air conditioner rebate.**

other community/company/city sponsored events utilizing local partnerships/government initiatives. SCE will promote combined incentives for refrigerator and room air conditioners at turn-in events and pick-up day events.

- Utilize community-based agencies to promote ARP in conjunction with low income program activities.
- Collaborate with local partnerships and local governments to offer "Refrigerator and Freezer Pick-Up Events". These events would be scheduled in advance and would cover specific geographic areas to promote the turn in of spare or replacement refrigerators and freezers.
- In collaboration with the Multifamily Energy Efficiency Rebate Program (MFEER), promote the early retirement of older, inefficient refrigerators, freezers and room A/Cs. Encourage property owners/managers to replace the older, inefficient

**Collaborate with local partnerships and local governments to offer "Refrigerator and Freezer Pick-Up Events".**

appliances by offering bundled incentives/rebates for the turn in of the older inefficient units and the purchase of new ENERGY STAR® units. This strategy was developed through input received from the PAG.

- Offer a higher customer incentive for freezers (vs. refrigerators) to increase total program energy savings and demand reduction. In line with market penetration data<sup>3</sup>, offering customers a higher incentive for freezers provides an opportunity to increase the number of freezers picked up (as a % of total units), thereby increasing energy savings and peak demand reduction.
- PAG recommended an incentive (e.g. spiff) to appliance salespeople to encourage customers to participate in ARP when they purchase new appliances. This creates many barriers as it conflicts with existing contractual relationships between retailers and their pick up/delivery service contractors and poses

significant program logistic challenges in coordinating the pick up of old units with the delivery of new units. SCE will continue to collaborate with retailers to encourage customers to turn in their old units through ARP. To expand on this opportunity, SCE plans to cross-promote SCE's ENERGY STAR® refrigerator rebate program with ARP at appliance stores (e.g. POS) throughout the SCE service territory.

## **9. Program Objectives**

A prime objective of the program is to produce cost-effective long-term coincident peak demand reduction and long-term annual energy savings by removing from the power grid operable, inefficient primary and second refrigerators and freezers in an environmentally safe manner.

In addition to the quantifiable unit goals listed in section 13.1 below, ARP plans to implement the following:

- Educate and encourage residential and nonresidential customers to dispose of spare refrigerators or freezers or replace old, inefficient working units by disseminating program information through various channels (i.e., radio, bill inserts and/or bill messages, direct mail). Details on the channels deployed are listed below under marketing activities.
- Hold multiple "Pick-Up Day Events" for the turn in and disposal of spare and inefficient primary refrigerators and freezers through collaboration with local partnerships/government efforts.
- Hold multiple "Turn-In Events" for the early retirement of room A/Cs through collaboration with retail appliance stores, local partnerships/government efforts.
- In collaboration with SCE's MFEER, encourage major property managers/owners to retire old inefficient refrigerators, freezers and/or room A/Cs and replace appliances with new ENERGY STAR® units at multi-family complexes.
- To increase customer participation in both energy efficiency and demand response programs, promote SCE's Summer Discount Plan, where applicable.

## **10. Program Implementation**

ARP offers customers on a first-come, first-served basis free pickup of working (cooling) refrigerators or freezers and a cash incentive. SCE customers can schedule a pickup

**In response to recommendations received during public workshops, SCE will lower the size eligibility down to 10 cubic feet. This will allow customers with "apartment-sized" units, such as seniors, lower income households and young households, to take advantages of ARP.**

appointment of their working, standard size (10-27 cu. ft.) refrigerator or freezer by calling a toll-free number or going to the designated SCE web site. To maximize program energy savings opportunities, SCE will continue accepting all working units as

approved by the Commission in SCE's 2005 Summer Initiative Program. In response to recommendations received during public workshops, SCE will lower the size eligibility down to 10 cubic feet. This will allow customers with "apartment-sized" units, such as seniors, lower income households and young households, to take advantages of ARP.

SCE will seek to accelerate the disposal of spare refrigerators or freezers by providing a convenient means of properly and permanently retiring the units. In addition, through the REEIP and MFEER, SCE will seek to increase the market share of ENERGY STAR® refrigerators by facilitating consumer purchase and use of energy efficient units while simultaneously providing a convenient means of properly and permanently retiring the replaced primary inefficient refrigerators.

Customers can turn-in older, working room air conditioners for new ENERGY STAR® qualified models at "Room A/C Turn-In Events" that SCE will sponsor or co-sponsor throughout the SCE territory. SCE seeks to accelerate the increase in the market share of ENERGY STAR® room air conditioners by facilitating consumer purchase and use of energy efficient units while simultaneously providing a convenient means of properly and permanently retiring the replaced inefficient room air conditioners. Proposed venues for these turn-ins include appliance stores, home improvement centers, and community-based events.

Customers will receive a \$35 incentive for each refrigerator and \$50 for each freezer. SCE will continue this freezer incentive (increased from \$35) as approved by the CPUC in SCE's 2005 Summer Initiative Program. This incentive seeks to accelerate freezer turn-ins as over 202,987 freezers are over 10 years old in SCE's service area (see footnote <sup>1</sup>). Offering customers a higher incentive for freezers provides an opportunity to increase the number of freezers picked up (as a % of total units), thereby increasing energy savings and peak demand reduction.

Intended interactions with other SCE energy efficiency programs include:

- Collaborative efforts with SCE's REEIP offering customers a combined \$85 incentive/rebate to turn in their old, working inefficient refrigerator when purchasing a new ENERGY STAR® refrigerator (\$35 for turn in of old and \$50 for purchase of new)
- Collaborative efforts with REEIP will provide customers a combined \$75 incentive/rebate to turn in their old, working inefficient room air conditioner when purchasing a new ENERGY STAR® room air conditioner (\$25 for turn in of old and \$50 for purchase of new) at "Room A/C Turn-In Events" that SCE will sponsor or co-sponsor.
- Collaborative efforts with SCE's MFEER will encourage multifamily property owners to early retire older, inefficient room air conditioners and refrigerators with ENERGY STAR® qualified models by promoting both recycling and purchase incentives to this market sector.

SCE will explore synergistic opportunities to further promote ARP through other SCE energy efficiency programs (e.g., partnerships, local governments and the demand

response Summer Discount Plan). As an example, a recent KABC-TV consumer report focused on SCE's residential energy efficiency and demand response programs. This segment included an interview with an SCE residential customer who said, "I do other things with Edison to save energy (besides participating in the Summer Discount Plan). As a matter of fact, I'm having my refrigerator picked up later this week". As further support, recent SCE market research data shows that customers participating in the Summer Discount Plan have a proclivity to participate in ARP.

#### **11. Customer Description**

Residential and nonresidential customers are eligible for the program. This program will target these owners to turn in eligible spare refrigerators and freezers. To maximize demand reduction and energy saving opportunities, ARP will also focus on early retirement of primary, inefficient refrigerators and freezers and room A/Cs, with new ENERGY STAR® qualified models.

#### **12. Customer Interface**

Customers can schedule their pickups of refrigerators and freezers through a toll free 800 number or the SCE web site ([www.sce.com](http://www.sce.com)). ARP has offered online scheduling since 2003 and, is well received with over 22,000 customers choosing that option to schedule their appointment. We will encourage more customers to use the online option since it offers both customer convenience (24/7 scheduling) and program administration cost efficiencies.

Currently, customers receive a check by mail 4-6 weeks following the pickup of their appliance. To offer customers more convenience, ARP will explore new incentive

**SCE residential customer who said, "I do other things with Edison to save energy (besides participating in the Summer Discount Plan). As a matter of fact, I'm having my refrigerator picked up later this week". As further support, recent SCE market research data shows that customers participating in the Summer Discount Plan have a proclivity to participate in ARP.**

delivery options. These options may include direct deposit and/or a credit off the customer's SCE electric bill. Customers will be surveyed to determine their preference for other options beyond getting a "check in the mail".

SCE's implementation of refrigerator and freezer "Pick- up Day Events" and room A/C "Turn-in Events" offer customers an easy way to turn-in and, in some cases, early retire their old, inefficient refrigerators, freezers and room A/Cs with energy efficient ENERGY STAR® models. Both event types will be held on a selected day of the week to facilitate customer participation. Further, SCE will solicit the support of community-based agencies, local partnerships/governments, retail appliance stores, home improvement centers, and others to promote these events.



### **13. Energy Measures and Program Activities**

#### **13.1. Measures Information**

Additional measure information is provided in the corresponding portfolio workbook.

#### **13.2. Energy Savings and Demand Reduction Level Data**

Energy savings and demand reduction information provided in corresponding portfolio workbook.

#### **13.3. Non-energy Activities (Audits, Trainings, etc.)**

Not applicable

#### **13.4 Subcontractor Activities**

SCE plans to issue an RFP for recycling services for the 2006-08 program period and, as recommended by the PAG, will encourage bidders to submit suggestions on ways to improve the program from both a program delivery and customer service perspective. As program administrator, SCE will oversee the recycling vendor's scheduling and collections of refrigerators and freezers, including "Pick Up Day Events" and collections from room A/C "Turn In Events". The vendor is also responsible for the recycling process of dismantling the refrigerators, freezers and room A/Cs and removing oils and refrigerants. The vendor must meet the comprehensive toxic material recycling and disposal standards in conformance with California environmental laws and regulations, along with relevant permitting requirements.

#### **13.5. Quality Assurance and Evaluation Activities**

The following activities will be undertaken to assess quality assurance and program compliance:

- ARP will randomly survey approximately 5% of all program participants. This survey will gather specific program information to ensure customer satisfaction.
- Recycling center site visits will be conducted on a monthly basis to verify the recycling vendor is complying with all program rules governing the disposal of collected appliances.
- Ride-alongs will be conducted with recycling vendor drivers to verify eligibility compliance of units collected and appropriate field procedures.

##### **13.5.1. Expected Number/Percent of Inspections (planned percent of projects)**

- Minimum of 12 recycling center site visits will be conducted annually to verify program compliance on collected appliances.
- Minimum of 12 ride-alongs will be conducted annually with different recycling vendor drivers to verify program compliance.

#### **13.6. Marketing Activities**

The Appliance Recycling Program will coordinate marketing tactics with manufacturers, distributors, retailers, home improvement centers, contractors, and other energy efficiency and demand response programs (as appropriate) to achieve the desired levels

of customer awareness and program participation. Marketing activities may include, but are not limited to:

- Point of Sale collateral materials (clings, shelf talkers, counter stands, etc.) – at participating retail locations
- Advertisements in retail circulars (as available and appropriate)
- Bill inserts
- Community outreach (e.g. community-based organization outreach to low-income households, in conjunction with the delivery of utility- and state-funded efficiency programs; promotions at home shows, etc.)
- Direct mail (e.g. targeted program promotions to customers who may be most eligible or interested in recycling services.). This may include cross-promotional direct mail with other demand response programs (e.g. Summer Discount Plan).
- E-mail blasts to customers participating in home energy survey programs or other SCE service offerings
- Shared mail (e.g. ValPak, ADVO, etc.)
- Home Energy Efficiency Survey analysis and recommendation packages
- Statewide advertising campaigns

# Residential Energy Efficiency Incentive Program

<b>1. Projected Program Budget</b>	<b>\$ 67,301,657</b>
<b>2. Projected Program Impacts</b>	
MWh	788,040
MW (CEC Factor)	160.20
<b>3. Program Cost Effectiveness</b>	
TRC	4.17
PAC	6.49

## 4. Program Descriptors

Market Sector: Residential/Nonresidential  
 Program Classification: Statewide  
 Program Status: Revised Existing

## 5. Program Statement

California is the nation's most efficient state in terms of per capita electricity consumption. Yet, significant energy savings potential remains. Lighting, refrigerators and cooling equipment are the largest energy users in a typical California home. Most households are still using inefficient light bulbs and are hanging onto refrigerators and room air conditioners that are more than 10 years old.

Studies show that a very small percent of lighting products sold and used in California are compact fluorescent lamps (CFLs), and there is a huge potential to expand market share for energy efficient lighting<sup>36</sup>. In efforts so far, SCE has caused

### What's New for 2006-08?

#### Innovation

- Move HVAC measures to new Comprehensive HVAC Program
- Expand point-of-sale rebates to additional measures
- Add new lighting measures

#### Integration

- Link incentives for new appliance to appliance recycling opportunities
- Complement demand response programs

#### Other Program Improvements

- Offer new online rebate application to simplify participation
- Implement new approaches for lighting measures, such as methods to open new retail sales channels and to cross-promote non-rebated products, with sound ways to quantify savings for each.

<sup>36</sup> A 3.3% saturation of CFLs to total lamps sold is indicated in the California Lamp Report, July 15 2005. Figure 2 shows fluorescents at 9.4% of California total lamps sold, and Figure 5 shows 36% of fluorescents sold are CFLs, which equals 3.3% of total. Two studies that show significant potential for CFLs are: 1) Documentation of Energy Efficiency Potential Estimates Prepared for Southern California Edison Company July 12, 2004 Kema-Xenergy 2) California's Secret Energy Surplus, The Potential for Energy Efficiency September 23, 2002 Xenergy, Inc.

California CFL sales to start outpacing the rest of the nation<sup>37</sup>, which is an encouraging sign.

However, residential customers are still often reluctant to use energy efficient lights due to the comparatively high initial cost, a steeper learning curve, limited availability, and quality concerns. Hence, there is a huge potential to expand market share for energy efficient lighting. The demand by retailers and manufacturers for more lighting program involvement far exceeds the supply each year, indicating a healthy persistence long term.

The Statewide Residential Appliance Market Share Tracking Study

**Retailers are a key market actor in moving energy-efficient appliances and equipment, and most prefer the point-of-sale rebate or “instant rebate” to increase sales.**

shows a growing trend of appliance purchases throughout California. Over the past five years, appliances, such as refrigerators, have seen an average growth of 24%, while room air conditioner sales have risen by 85%<sup>38</sup>. This level of growth indicates an ever increasing potential to achieve energy savings through the installation energy efficiency measures. Retailers are a key market actor in moving energy-efficient appliances and equipment, and most prefer the point-of-sale rebate or “instant rebate” to increase sales.

Customers are also reluctant to purchase energy efficient appliances and equipment due to initial high cost and lack of information and awareness of the benefits of energy efficiency measures. Other barriers include a lack of retailer information and awareness and low stocking and promotion of energy efficient products in retail stores.

## 6. Program Rationale

SCE’s Residential Energy Efficiency Incentive Program (REEIP) takes advantage of statewide utility coordination and “best available practices” to optimize every opportunity in the residential

and renovation. The program is consistent and

**Recognized in 2004 by the National Energy Efficiency Best Practices Study...**

retrofit market. provides a

recognizable program presence throughout the state and offers similar measures, incentives and processes coordinated statewide with PG&E, SDG&E and SCG.

Recognized in 2004 by the National Energy Efficiency Best Practices Study, the program will continue to support the national DOE/EPA ENERGY STAR® program and Consortium for Energy Efficiency. Program design and implementation strategies successfully integrate energy efficiency with demand response programs such as the 20/20 rebate program. Demand response and energy efficiency both affect customer end-

<sup>37</sup> The Statewide Residential Market Share Tracking Studies have shown over the years while the share of CFL sales has been rising, in California compared to the rest of the nation, the numbers still hover around 14% - California Lamp Trend 2003.

<sup>38</sup> These numbers are derived from Table 1 of the California Appliance Trends, Residential Market Share Tracking Project, 2003.

use of energy.<sup>39</sup> Joint marketing messages will be designed to increase participation in energy efficiency and demand response programs.

Innovative program implementation strategies take advantage of the synergies with other SCE energy efficiency programs and community. SCE will strengthen the connection between incentives and the Home Energy Efficiency Survey (HEES) program and the Appliance Recycling Program (ARP). The integration with these programs and community partnerships will result in increased awareness and adoption of efficient measures throughout SCE's service area and create permanent and verifiable long-term energy savings.

Past results from of SCE's incentive program has proven it to be highly successful and ever growing. Demand reduction is the most important aspect of energy efficiency in California, and the program has demonstrated the ability to produce annual growth rates exceeding 40%.

**REEIP Program Recorded Results (non lighting measures)**

	2002		2003		2004	
	kWh	kW	kWh	kW	kWh	kW
	17,184,071	10,213	24,138,083	16,440	27,720,439	23,469
<b>Percent of Goal Achieved</b>	90%	151%	99%	110%	97%	98%
<b>Growth Over Previous Year</b>			40.5%	61%	15%	43%

Sales data published by ENERGY STAR<sup>®</sup> reflect high participation rate of this program. In the 2004 ENERGY STAR<sup>®</sup> Annual Sales Report, the market penetration for ENERGY STAR<sup>®</sup>

**In a systematic approach, the program will achieve maximum energy savings through two program components—lighting and non-lighting measures—to effectively address market barriers specific to each end-use technology.**

qualified room air conditioners at the national level is 35%, whereas in California, the report shows 40%. For refrigerators, ENERGY STAR<sup>®</sup> reports 32% nationally, and 41% in California. These increases over the national averages are significant and can be attributed to the effectiveness of the information and incentive aspects of the REEIP.

The program reduces customer initial cost, expands availability, and strongly influences manufacturers to improve product quality. This key portion of REEIP educates customers to use the products correctly while understanding their benefits. This program element provides maximum ease for customers to participate. It features discounted ENERGY STAR<sup>®</sup> qualified products, and introduces new and advanced lighting technologies to the market.

<sup>39</sup> Exploring the Relationship Between Demand Response and Energy Efficiency: A Review of Experience and Discussion of Key Issues, American Council for an Energy-Efficient Economy, March 2005.

The program's traditional framework incorporates innovative approaches to address opportunities in the upstream, midstream, and downstream markets. In a systematic approach, the program will achieve maximum energy savings through two program components—lighting and non-lighting measures—to effectively address market barriers specific to each end-use technology. SCE intends to offer other technologies as they become available in the 2006-08 program timeframe. In addition, the lighting component will target lighting products for residential and nonresidential markets.

The lighting component offer incentives on the following measures:

- Screw-in CFLs (standard)
- Specialty CFLs and fixtures
- Exterior and interior fixtures
- Table lamps, floor lamps and torchieres
- Night lights (including LED)
- Interior LEDs (non-night lights)
- Cold cathode
- Lighting controls
- Address signs
- Exterior HID
- Alternative inducement lighting measures

Residential lighting, a major portion of this program, is delivered upstream and midstream through manufacturer and retailer participants. The lighting measures are promoted and tracked separately from other POS rebate measures in an offering known to participants as the Residential Lighting Incentive Program. Lighting incentives and promotions influence

**Expand the point-of-sale (POS) rebate delivery method to include additional measures. This method offers instant rebates for selected energy efficient products. The customer participates without having to complete and mail a rebate application.**

customers to purchase energy-saving lighting products at retail outlets and install them in homes and small businesses.

The non-lighting component offer incentives on the following measures:

- Pool pump and motors (single speed)
- Pool pump and motors (two/variable speed)
- ENERGY STAR® qualified refrigerators
- ENERGY STAR® qualified room air conditioners
- Whole house fans
- Electric storage water heaters
- Attic insulation
- Wall insulation

Several significant enhancements to the 2006-08 non-lighting program component:

- Move HVAC equipment, with the exception of room air conditioners and whole house fans, to SCE's new residential and nonresidential Comprehensive HVAC Program.
- Expand the point-of-sale (POS) rebate delivery method to include additional measures. This method offers instant rebates for selected energy efficient products. The customer participates without having to complete and mail a rebate application.
- Link incentives for the purchase of new appliances to recycling opportunities. The program seeks to accelerate the increase in market share by facilitating consumer purchase of new units and the removal of old, inefficient units. The program simultaneously provides a convenient means of properly and permanently retiring the replaced units. Increased retailer interest is expected as a result.
- A new electronic rebate application to improve the rebate payment process for customers using the direct customer rebate payment method.

### **Program Advisory Group and Public Workshop Meetings**

During the program planning process, the following recommendations were made by the Program Advisory Group (PAG) and Public:

*Recommendation:* Increase the use of hardwired CFL fixtures in new construction.

*Action:* This recommendation will be addressed through aggressive promotions encouraging builders to surpass Title 24 lighting requirements by installing the following:

- Dimmable interior fluorescent fixtures
- Interior fluorescent fixtures operated with manual-on occupancy detectors
- Exterior fixtures on photo-sensor and motion detector controls
- Fluorescent kitchen lighting exceeding 50% of total kitchen wattage.

These four equipment applications encompass over 99% of potential residential new-construction lighting measures claimable under this program<sup>40</sup>.

*Recommendation:* Drive manufacturers to develop and commercialize LED lighting for common use in homes.

*Action:* This program plans to address the objective through a two-pronged approach: 1) incentives for LED and other new technologies, and 2) technology procurement/certification efforts that reward manufacturers for bringing future generations of LED and other advanced performance products to market. This approach has more direct potential than the PAG recommendation to subsidize LED installations in showcase homes, but

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<sup>40</sup> Other fixture installations are excluded because incentives and energy claims for installations already required by code are ineligible. Title 24 is a code structured in a way that indirectly disqualifies most standard on-off controlled fluorescent fixtures from incentives and reportable energy savings by IOUs. The code ironically also allows market forces to prevent the installation of such fixtures to a great degree. To achieve greater penetration of high efficacy fixtures, Title 24 should be improved to favor fluorescent fixtures over dimmer-controlled incandescent fixtures.

both could be applied. The showcase of LED area lighting could be added to SCE's other showcase projects.

*Recommendation:* Look into offering different rebate levels in different areas in response to different avoided costs.

*Action:* SCE will maintain consistent incentive levels on a statewide basis. However, SCE will explore different rebate levels and exercise flexibility with statewide program design if results are warranted, the need arises to promote new technology or implement new delivery mechanisms on a pilot basis.

*Recommendation:* Raise the diversity plan with program subcontractors.

*Action:* SCE's competitive bidding process will include a section entitled "WMDVBE Supplier Diversity Program" in all competitive. While subject to change, following is an example of the

accompanying Request for Proposals language: "The Bidder must explain how it encourages the recruitment of Women, Minority, and

**SCE's competitive bidding process will include a section entitled "WMDVBE Supplier Diversity Program" in all competitive.**

Disabled Veteran Business Enterprises for its organization or bidding team. The Bidder must attach a completed subcontracting plan that consists of either a list of WMDVBE subcontractors or a statement setting forth the Bidder's activities and goals for WMDVBE subcontracting. Bidders should also submit WMDVBE certification documentation if they claim WMDVBE status. Bidders who have WMDVBE status must still submit a WMDVBE subcontracting plan.

*Recommendation:* Address coordination with demand response, degeneration and energy efficiency.

*Action:* The program will support demand response programs, such as the 20/20 rebate program, and encourage customers to adopt energy efficient measures to reduce energy usage. Examples of coordinate include joint marketing messages and materials.

*Recommendation:* Fuel switching as an energy efficiency option.

*Action:* The program will not promote fuel switching as an energy efficiency option.

*Recommendation:* Take advantage of a service call to promote energy efficiency to customers.

*Action:* SCE will distribute "welcome packages" to customers requesting service turns. The package will promote all energy efficiency programs and encourage customers to adopt measures and practices.

*Recommendation:* Offer an energy efficiency charge card. Reminder—every time you touch a customer, think about the next sale. Repeat customer is easier than new.

*Action:* The concept of retaining customers is part of the day-to-day operations of the program. Program strategies address barriers to the adoption of energy efficiency measures. SCE has found that retailers do not support third-party consumer cards because of their technology limitations and, more importantly, competition with their



own consumer cards including retailer credit cards. SCE will not offer energy efficiency charge cards but will explore other strategies, such as on-bill financing starting with the small commercial segment, to keep customers engaged in saving energy.

*Recommendation:* Include a follow-up with customers to ensure customer satisfaction with program design. Explain how you will identify ideas for future program design and continuous improvements.

*Action:* SCE will conduct customer satisfaction surveys for continuous improvement to program design, and the surveys will capture new ideas for future program design. In addition, SCE will collaborate with energy efficiency partners, such as manufacturers, retailers, DOE, EPA and CEE to stay abreast of new technologies and processes to continuously make program improvements.

*Recommendation:* Look into expanding the third-party water heater program.

*Action:* SCE will explore opportunities available with third-party water heater programs for all-electric customers. The IOUs are currently involved with a statewide water heater PAG subcommittee to look at energy efficiency potential for this measure.

*Recommendation:* Consistent rebate levels for non-weather sensitive measures across the IOUs.

*Action:* The program provides a consistent and recognizable program presence throughout the state and offers similar measures, incentives and processes coordinated statewide with PG&E, SDG&E and SCG. The program offers consistent incentive levels for non-weather sensitive measures on a statewide level. For example, the IOUs propose to offer \$1-\$2 incentives for screw-in CFLs and a \$50 incentive for refrigerators.

*Recommendation:* Offer simplified simulation modeling for customers that are doing retrofits in the residential market at big box retailers through a kiosk. This would steer people to more energy efficiency options at the time of remodels.

*Action:* Utility experience with placing kiosks in stores has not been successful. Retailers are not receptive to using floor space dedicated for merchandise for other activities. However, SCE's HEES program will explore placing information kiosks in financial institutions to promote energy efficiency when customers are considering financing or refinancing mortgages. REEIP's marketing message is designed to increase awareness about the many energy efficiency opportunities, including customers in the market to purchase new products for remodeling projects.

*Recommendation:* Use community-based organizations (CBOs) to outreach to local communities, especially to the residential market.

*Action:* The program supports energy efficiency community outreach efforts and provides program materials to CBOs and community partnerships to increase awareness of available incentives in the community. CBOs are used to target local communities through the HEES program.

*Recommendation:* Avoid incentivizing whole house fans because of the indoor air pollution issue. Suggest investigating economizers in a residential application.

*Action:* SCE intends to continue offering incentives for whole house fans because of their energy savings benefits. Whole house fans are among the measures identified in the California's Secret Energy Surplus report, which identifies technologies and measures used as a foundation for the Commission in estimating the range of savings potential that could be achieved in the next few years. SCE will offer incentives for economizers under the new Comprehensive HVAC Program.

*Recommendation:* Link rebates (online) to an in-store information energy efficiency kiosk.

*Action:* Utility experience with placing kiosks in stores has not been successful. Retailers are not receptive to using floor space dedicated for merchandise for other activities. However, SCE's HEES program will explore placing information kiosks in financial institutions to promote energy efficiency when customers are considering financing or refinancing mortgages. REEIP's marketing message is designed to increase awareness about the many energy efficiency opportunities, including customers in the market to purchase new products for remodeling projects.

*Recommendation:* Rebates should include insulation and windows during the in-store transaction.

*Action:* SCE provides insulation rebates to all-electric customers. The volume of in-store transactions by do-it-yourselfers for insulation should be reasonable to make the delivery of POS rebates cost-effective. In addition, the all-electric customer cannot be identified for the POS rebates at the time of purchase. Based on EM&V studies, the net-to-gross ratio for high efficiency windows is extremely high. SCE believes the market for high efficiency windows has been transformed both in retrofit and new construction.

*Recommendation:* Embed a chip in a consumer card with customer account information which could be provided to retailer to capture necessary participation information

*Action:* SCE has developed a mechanism to capture necessary participation information, which is an acceptable approach for the market. The process involves offering a \$5 gift card to customers participating in POS rebates to collect customer level data for EM&V studies. SCE has found that retailers do not support third-party consumer cards because of their technology limitations and, more importantly, competition with their own consumer cards including retailer credit cards.

*Recommendation:* Take up the solar water heating issue at the SW subcommittee.

*Action:* The statewide PAG currently investigating opportunities for EE water heating. Within SCE's service area, SCG will address the solar water heating measure.

*Recommendation:* Program placeholder for water heating for SCE and SCG.

*Action:* SCE plans to offer incentives for energy efficient electric storage water heaters. SCG plans to offer incentives for energy efficient gas storage water heaters.

## **7. Program Outcomes**

The program substantially reduces energy use per capita in California while helping to achieve both the objectives of the State's Energy Action Plan and Commission. The program expands the proportion of installed energy efficient equipment in homes and small businesses wider and faster than would take place otherwise. The installation of energy efficient end-uses in the home saves money for customers, improves the economy, and reduces greenhouse gas emissions to the environment. It also defrays the cost of power plants, electricity purchases, and utility infrastructure in accordance with the Commission's effort to meet 55% to 59% of the incremental electric energy needs between 2004 and 2013 through energy efficiency.

The program contributes toward annual and cumulative savings goals, both over the short- and long-term. It does this in a way that optimizes opportunities in the market, regulates "cream-skimming" and improves capacity utilization by lowering peak loads through a measure mix that balances high energy savings measures with low load factor/high critical peak saving measures.

## **8. Program Strategy**

The program will be delivered through three major program strategies to achieve maximum energy savings:

4. Upstream strategy to stimulate sales of energy efficient lighting
5. Midstream strategy aimed at retail stores and home improvement centers to increase stocking and sales of energy efficient lighting, appliances and equipment
6. Downstream strategy based on customer education to create demand for higher efficiency and cooperative promotions to take advantage of joint marketing opportunities and seasonal selling and service cycles

### Lighting Strategy

The strategy for the lighting measures is to use tactical mass market penetration activities to achieve a significant increase in the acceptance of energy efficient lighting in lieu of less efficient sources.

*Market-based Approach*—Flexibility for trying new approaches and penetrating new markets will help expand the base for customer participation. The multi-pronged strategy incorporates methods such as: (1) customer incentives tiered by product type and lumen range in the form of instant price discounts; (2) a manufacturer wholesale buy-down and reimbursement component; (3) a retailer price markdown and reimbursement component; (4) bill inserts; (5) in-store promotional materials; (6) direct mailings, promotional sales events; (7) product competitions; (8) up-selling; and (9) programmatic efforts to open new sales channels. The customer benefits from the ease of participation in the program. There is no application for the customer to complete and mail in order to reap the program benefits.

*Innovation*—To capture otherwise missed opportunities, innovative new approaches and improvements will be incorporated as they become viable for lighting -- such as internet promotions, targeted small nonresidential customer mailings, and customized new

construction offers. We also propose to add new and advanced products to the program as they become commercially available to tap the cost-effective potential of ways we cannot predict today. Alternative inducements will be used, such as customized spiffs or dealer incentives for retailers to: (1) increase in-store promotional messaging; (2) up-sell non-discounted products; (3) conduct sales events; and (4) provide extra sales or customer-level data. Efforts will also be made to apply higher (or in some cases lower) customer discount levels in combination with special promotional activities. One example involves incentive adders for specialty CFL bulbs. We have also had multiple retailer requests for enhanced promotional and educational involvement combined with split or redirected incentives, which could increase cost-effectiveness. Exchange/turn-in outreaches for pin-based plug-in fluorescent products such as torchieres and table lamps will feature subsidized full replacement of incandescent products. These new approaches both utilize accepted best practices and pioneer new ones. More detail about them can be found in the program work papers.

*Lighting Exchange/Turn-In Events*—SCE has experienced success with torchiere floor lamp exchange/turn-in events and outreaches. In 2006-08, new products would augment torchieres, such as pin-based CFL table lamps, desk lamps, and non-torchiere floor lamps. These added products are in the early stages of market acceptance. The outreaches to leverage government activities to increase exposure market penetration. The outreaches are also designed to renew market acceptance of CFL torchieres, as well as remove the safety hazard and energy waste of halogen torchieres.

**In 2006-08, new products would augment torchieres, such as pin-based CFL table lamps, desk lamps, and non-torchiere floor lamps.**

are proposed SCE's local partnership and programs product and hasten

### Non-Lighting Strategy

The strategy for non-lighting measures is to expand the POS rebate delivery method, streamline the rebate application payment process and integrate appliance incentives with appliance recycling opportunities.

*Market-based approach*—This delivery method will be expanded to as many retailers in SCE's service area and "instant rebates" at the cash register for pool pumps and motors, refrigerators, room air conditioners and whole house fans. Retailers are a key market actor in moving the energy-efficient appliance and equipment market. They historically dispensed the rebate applications to nearly three of four program participants. When asked about the relative merits of POS rebates vs. mail-in rebates, most retailers preferred POS rebates, but offered the following pros and cons for each approach:

- The most significant benefits of the POS approach are: customers receive their rebates instantly, and they avoid the hassle of completing and mailing in a rebate form.

- The greatest drawbacks of the POS approach are: retailers must rely on the IOUs for payment, smaller retail establishments are not equipped to handle POS rebates, and it is difficult to track participants.

Two-thirds of the retailers interviewed supported expanding POS rebates to additional measures, such whole house fans, room air conditioners, and pool pumps.

*Innovation*—SCE will pilot an electronic rebate application available on SCE’s website during the 2005 program year which will be fully implemented by 2006. In 2003, 24% of participants downloaded an application (compared with 20% in 2002). It is our intention to take this a step further to include the ability to apply online. Customer input would go directly into the IOU processing database, reducing the need for manual processing. The online rebate

**SCE will pilot an electronic rebate application available on SCE’s website during the 2005 program year which will be fully implemented by 2006.**

application will provide step-by-step instructions and the ability for customers to check the status of their rebate request. These online designs will greatly reduce rebate payment processing time.

*Integration*—SCE will integrate marketing and implementation efforts to link program rebates for ENERGY STAR<sup>®</sup> qualified refrigerators and room air conditioners with rebates from SCE’s ARP. The program seeks to accelerate the increase in the market share by facilitating consumer purchase and use of energy efficient units, while simultaneously providing a convenient means of properly and permanently retiring the replaced units. Together, the two programs offer customers:

- A combined \$85 incentive to purchase a new ENERGY STAR<sup>®</sup> qualified refrigerator and turn of the old, inefficient working refrigerator (\$50 for the purchase of a new unit and \$35 for turn in of an old unit)
- A combined \$75 incentive to purchase a new ENERGY STAR<sup>®</sup> qualified room air conditioner and turn in the old, inefficient working room air conditioner (\$50 for purchase of new unit and \$25 for turn in of an old unit)

## **9. Program Objectives**

The primary objective is to meet Commission’s criteria for delivering cost-effective energy efficiency while incorporating recognized “best available practices” and capturing otherwise lost opportunities in the process. The utilities will also coordinate with energy efficiency and demand response programs and entities at the community level to leverage program exposure, as well as support state and federal efforts.

The REEIP targets the major end-uses of electricity in and outside the home:

- Lighting is the easiest and least expensive energy efficiency measure to adopt and install in the home.
- For homes with pools, the pool pump and motor is the largest user of electricity outside the home, consuming as much as 33% of energy annually. According to

the Residential Appliance Saturation Study, more than 400,000 swimming pools exist in SCE's service territory. The program will allow us to eliminate up to .43 kW of peak period demand per retrofit.

- For homes without pools, one of the major end-use is refrigerators. ENERGY STAR® qualified refrigerators use 15% less energy than standard models, this measure helps introduce other program measures to customers participating in the program.
- ENERGY STAR® qualified room air conditioners use 10% less energy than standard units.
- Whole house fans eliminate the need for air conditioning where interior temperatures remain high, though outside temperatures have dropped.
- For all-electric homes, electricity for heating water can constitute a significant cost. The program provides incentives for customers to purchase the highest efficiency system (EF > .93).

In addition to the measures listed, SCE intends to aggressively seek new measures for implementation as technologies currently on the horizon become available for incorporation into the program.

## **10. Program Implementation**

### Lighting Measures

For lighting measures, the program provides POS incentive discounts to SCE customers for purchasing energy efficient lighting products, primarily compact fluorescent light-bulbs (CFLs) and fixtures. The products are displayed with labeling and signage indicating discounts are provided through SCE. The manufacturer and retailer participate to promote the discounted products through advertising, circulars, and in-store materials.

Program implementation starts with promotional announcements to manufacturers and retailers. Then these participants take part by reserving fund allocations for planned sales promotions. The retailers display the discounted products that bear stickers showing the discount comes through SCE. Near the products is promotional messaging on signs and displays. In most cases, the lighting manufacturer reduces the wholesale price to the retailer who passes it on to the customer in the form of a POS discount. Sometimes retailers apply POS discounts directly to products purchased at the normal wholesale price. The participants discount the prices at their own initial expense and SCE later reimburses them.

The proposed tiered incentive structure for ENERGY STAR® qualified lighting products includes the following:

We also propose for specialty CFLs a \$1.50 per lamp adder above the standard incentive. Examples include globes, candelabras, A-lamps, 3 Way CFLs, high performance reflectorized CFLs, and high performance dimmable CFLs. Dimmable fixtures could also qualify for a \$1.50 per fixture adder. These products and adders will be featured primarily in specialized promotions.

Specialized promotions will occur at various times and can be customized to locales and market channels. They can be mass customer promotions or could be targeted to manufacturers and retailers of specific kinds of products. Examples include outreaches and events featuring exchange/turn-in of torchiere, table, desk, and floor lamps, as well as specialty bulb promotions, targeted bill inserts, direct mailings, up-selling promotions, internet campaigns, and efforts to open new long term sales channels. All program results will be tracked on an ongoing basis and reported according to the protocols reflected in both the program workbook and supporting work papers. We plan to track and report exchange/turn-in outreaches separately from other lighting activities.

### Non-Lighting Measures

Traditionally, customers become aware of non-lighting measures through SCE promotions, energy surveys, participating retailers, and contractors, then apply for rebates through a mailed-in application. Rebate checks are mailed within 6–8 weeks of submittal.

Several new approaches are planned for implementation in 2006. The program will expand POS measures and activities. SCE has piloted POS rebates since November of 2002. In this approach, SCE encourages retailers to offer the rebate to the customer at the time of purchase. To do this, a formal business agreement is signed covering invoicing and reimbursement processes. Joint marketing provisions are made, and program evaluation methods are developed. Over the last several years, SCE has developed POS practices which work well with most retailers. Starting in 2006, we intend to expand the POS method to include pool pumps and motors, whole house fans, refrigerators, and room air conditioners.

To make the program easier for customers to participate, SCE will implement an online rebate application to expedite the rebate payment process for direct customer rebates. Customer can apply and check the status of their applications online. Some customers may still elect to mail in a conventional rebate application.

The program will have a dispute resolution process that involves the relaying of complaints to the program manager, who will fully investigate the situation. Disputes have historically been rare, and the vast majority have been resolved at the program manager level through immediate and appropriate correction of inequities. In the event that the dissatisfied party does not experience resolution due to program manager intervention, the matter will be elevated to management, and if management does not resolve it, appropriate company departments, such as Consumer Affairs and Claims will do so.

## **11. Customer Description**

The program will target homeowners and renters for the non-lighting measures, and for lighting we will also target residential new construction and small commercial customers. Nonresidential customers are expected to account for 10% of screw-in CFLs and wall-mounted CFL fixtures due to existing market forces and increased targeted promotion.

## **12. Customer Interface**

The program is designed to provide maximum ease for customers to participate. Through the program's education component, awareness and knowledge of energy efficiency opportunities will help customers with the purchase energy efficient technologies.

The POS rebate approach provides customers with an "instant" rebate at the cash register and does not require the completion of a rebate application. The program will offer a new electronic rebate application for customer desiring to participation over the Internet and will streamline the hard-copy rebate application.

For lighting measures participating is as easy as putting a program product in the shopping cart and taking it to the register for check out. In locales where customers cannot find program-discounted product in stores, internet sales will be available as will centralized toll-free phone ordering directly from retailers and manufacturers.

## **13. Energy Measures and Program Activities**

### **13.1. Measures Information**

Measure information provided in corresponding cost-effectiveness calculator and portfolio workbook.

### **13.2. Energy Savings and Demand Reduction Level Data**

Energy savings and demand reduction information provided in corresponding cost-effectiveness calculator and portfolio workbook.

### **13.3. Non-energy Activities (Audits, Trainings, etc.)**

Direct non-energy activities involve education on residential energy efficiency measures, practices, and incentives to customers. SCE's field personnel place program information in the aisles of the stores and educate sales personnel about the program. Administrative functions not contributing to energy savings are non-energy activities as well.

Indirect non-energy activities involve joint cooperation with the Home Energy Efficiency Survey program to promote REEIP. The program is also designed to interface with SCE's Energy Centers to incorporate enhanced training and design assistance, which could be presented at classes, in literature, or on the internet.

### **13.4. Subcontractor Activities**

Subcontracted activities will consist of field services needed to post point-of-purchase materials in participating retail stores, and some elements of appliance and lighting exchange/turn-in events and community events.

### **13.5. Quality Assurance and Evaluation Activities**

SCE will be implementing two independent practices to ensure that the participating retailers are both offering the instant rebate and submitting accurate invoices. Once a quarter, SCE will send its inspectors at random to participating retail stores to confirm that promotional materials are prominently posted in the aisles where the product is sold.



Additionally, any retailers who are offering the rebate, but not discounting the product at the register will be challenged by customers who are expecting the rebates. Customers who encounter this will be free to call SCE's toll-free number and report it.

In addition, SCE will provide a small incentive (e.g., \$5 gift card) for customers to let us know who they are. The process will work like this: in randomly selected retail stores, SCE will post tear-off coupons at the point of purchase that invite participating customers to let us know who they are. The coupon will instruct the participant to fax a copy of his receipt to SCE's processing center, along with his name, address, and phone number. SCE will send each customer a \$5 gift card in return, and will build a database which will be analyzed for a possible detailed customer inquiry. The information which comes from customer feedback will go into program design changes as needed.

#### **13.5.1. Expected Number/Percent of Inspections (planned percent of projects)**

For the lighting measures, 100 to 150 inspections per year are planned. SCE will inspect 2% to 10% of the rebate applications for lighting measures. SCE will also conduct random in-store inspection to ensure retailers are following program rules.

#### **13.6. Marketing Activities**

The program will coordinate marketing efforts with market actors (manufacturers, distributors, retailers, distributors, retailers and contractors), other programs (energy efficiency and demand response) and national and regional marketing and outreach campaigns (ENERGY STAR appliance, lighting and cooling campaigns and Flex Your Power). Marketing activities may include, but are not limited to:

- Point-of-purchase materials (e.g., refrigerator static clings, room air conditioner hang tags, lighting shelf talkers, pool pump and motor counter stands, etc.) at participating retail locations
- Advertisements in retail circulars
- Utility bill inserts
- Community outreach (home shows, appliance and lighting turn-in events, etc.)
- Direct mail
- E-mail
- Shared mail (e.g., ValPak, ADVO, etc.)



# Multifamily Energy Efficiency Rebate Program

<b>1. Projected Program Budget</b>	<b>\$</b>	<b>53,165,366</b>
<b>2. Projected Program Impacts</b>		
MWh		132,383
MW (CEC Factor)		28.73
<b>3. Program Cost Effectiveness</b>		
TRC		2.47
PAC		1.85

## 4. Program Descriptors

Market Sector: Residential  
 Program Classification: Statewide  
 Program Status: Existing

## 5. Program Statement

Multifamily property owners and managers are a historically unresponsive market to energy efficiency efforts. As one of California’s largest industries, this unique customer segment warrants additional attention and effort to motivate property owners and managers to actively participate in energy efficiency programs.

After some recent years of concerted energy efficiency efforts to target this sector, there are still areas with large concentrations of multifamily households that have not yet received energy efficiency installations as noted in the 2003 EM&V report for this sector. Market studies<sup>41</sup> have noted that there are over 1.0 million multifamily units in Southern California Edison’s service territory contained in approximately 145,000 multifamily buildings. Having received only modest participation in utility programs to date the multifamily segment holds tremendous savings potential.

**What’s New for 2006-08?**

- Innovation
  - Use installer network to promote early Refrigerator and Room A/C change-out and recycling
  - Change definition of multifamily from 5+ units to 2+
- Integration
  - Aggressively promote Demand Response options through installation contractors
  - Incorporated mobile home strategy
- Other Program Improvements
  - Tripled funding levels to meet sustained owner interest
  - Showcase completed customer projects in trade publication promotions

<sup>41</sup> The California Energy Commission’s “2003 Residential Appliance Saturation Survey (RASS)” database

In SCE's service area, the multifamily market sector has a consumption base well over 2 billion annual kilowatt hours generated by roughly 682,000 multifamily (tenant) service accounts<sup>42</sup> (five or more units). Although participation levels have depleted program funding each of the last three years, market penetration remains only about 12%.<sup>43</sup>

Split incentives, lack of knowledge, and out-of-pocket expenses of any kind pose significant barriers to participation.

With the split incentive issue, where tenants pay the utility bill and owners receive no tangible savings, there is little motivation to install energy efficient products in dwelling units.

Property owners/managers, in large part, are not a cohesive group which leads to disparities and gaps in industry knowledge and poses a barrier to knowledge sharing. Some regional associations provide a centralized knowledge and services base for a portion of the property owner/manager segment that belongs to these organizations. Focused and specifically directed outreach and marketing efforts are necessary to reach this customer segment.

Out-of-pocket costs pose a significant participation barrier for the customer. With the exception of a few larger property management firms, pay-back terms, no matter how favorable, are perceived as an unacceptable risk to the average customer.

## 6. Program Rationale

The Multifamily Energy Efficiency Rebate Program (MFEER) is designed specifically to motivate the multifamily property owner/manager toward installing energy efficient products.

product suitable for multifamily and incentive help alleviate incentive, the

**The MFEER is in the unique position to overcome the split incentive barrier by serving two distinct beneficiaries of energy savings; the multifamily property owner and the tenant.**

With offerings the complex levels that the split MFEER is

effectively designed to drive this customer segment toward participation in energy efficiency.

The MFEER is in the unique position to overcome the split incentive barrier by serving two distinct beneficiaries of energy savings; the multifamily property owner and the tenant.

Prescribed rebates motivate the property owner/manager to install energy efficient products in common areas, whereby receiving direct energy savings affect. It also motivates them to install energy efficient products inside the dwelling units where tenants typically receive the direct energy savings affect. This motivation is accomplished

<sup>42</sup> (See footnote 1)

<sup>43</sup> Based on MFEER participation in SCE service territory PY 2002- 2004 of 84,858 dwelling units.

through the effective positioning of rebate levels that overcome the out-of-pocket barrier and drive the market to action while maintaining a cost-effective program.

As part of the public process, it has been suggested that the MFEER program address the split-incentive issue. MFEER design has been overcoming the split incentive barrier since its inception in 2002 as too its predecessor, the Residential Contractor program since 1999. Program design has been effective to such an extent that the majority of MFEER rebates paid were for products installed in tenant dwelling units.

The statewide multifamily program year 2003 evaluation report<sup>44</sup> states, “By delivering energy efficiency to tenant spaces, this program is reaching out into a virtually untapped area, where no energy efficiency has penetrated and virtually none will without the program

incentives.” The MFEER is designed to capture millions of kilowatt hours

**The MFEER is designed to capture millions of kilowatt hours of energy savings and peak demand reduction that otherwise might fall through the cracks.**

of energy savings and peak demand reduction that otherwise might fall through the cracks.

Further, both outdoor and indoor fixtures with incandescent lighting approximately account for a combined connected load of 68 MW in SCE’s service territory. A statewide market assessment study from 2000 reported that energy efficiency improvements to laundry equipment, heating and cooling equipment, and swimming pools/Jacuzzis/spas, were made to 15% or fewer of the complexes.

The multifamily property sector is a commercial enterprise providing residential living spaces. In this quasi-commercial role, the property owner straddles the residential and commercial energy efficiency programs’ definitions. The MFEER specifically addresses their needs which are often overlooked.

Further proof of this successful program design is concluded from program results. In each of the three years since program inception, market demand in all four IOU service territories has exceeded program budgets.

Additional support of SCE’s MFEER design and offering can be found in a multifamily best practices benchmarking report<sup>45</sup> that specifically states “Tailor multi-family programs to the unique needs of the sector.” SCE’s MFEER has a proven track record of addressing and fulfilling these unique needs.

<sup>44</sup> “2003 Statewide Multifamily Energy Efficiency Rebate Program Evaluation Report”, Wirtshafter Associates, Inc., February 27, 2004

<sup>45</sup> Best Practices Benchmarking for Energy Efficiency Programs, “Residential Multi-Family Comprehensive Report”, Quantum Consulting, Inc.

## 7. Program Outcomes

The desired outcome of MFEER implementation is to realize long-term energy savings through the installation of energy efficient products in both the common areas and dwelling units of multifamily complexes and the common areas of condominium complexes and mobile home parks. The inclusion of rented mobile homes when the park owner/manager is conducting common area replacements is yet another objective.

The MFEER is moving toward a greater emphasis of hardwired fluorescent fixture installations and early retirement of T-12s to achieve more sustainability of energy savings. Comments from previous year's MFEER evaluations and Program Advisory Group (PAG) suggestions support the move toward more permanent products such as hardwired fluorescent fixtures.

**The MFEER is moving toward a greater emphasis of hardwired fluorescent fixture installations and early retirement of T-12s to achieve more sustainability of energy savings.**

The MFEER will also strive for the early retirement of room air conditioners and property owner owned refrigerators. The MFEER will work together with the Appliance Recycling Program to generate interest and gain higher participation levels through joint marketing efforts and turn-in events.

While MFEER participation is primary, an additional objective is to heighten property owners/managers and tenants energy efficiency awareness and knowledge. Multifamily property owners/managers can influence their tenants' opinions and behaviors by creating an energy efficient complex.

**Multifamily property owners/managers can influence their tenants' opinions and behaviors by creating an energy efficient complex.**

Tenants who move from complex to complex, or become homeowners, then can be expected to instill their newly formed energy efficient knowledge and lifestyles upon other tenants and neighbors.

Previous MFEER participants often state their intent to continue upgrading their complexes with energy efficient products. Lowered energy bills and reduced maintenance efforts (changing out short-lived incandescent lamps) are proof enough to continue.

During routine customer surveys, one owner states, "My new lights have not only lowered my bill but also provided more lighting." And another property manager commented, "My tenants are happy with their new lights."

## **8. Program Strategy**

The statewide MFEER strategy for 2006–08 will continue with its proven design and implementation, augmented by a hands-on approach focused at specific customer groups.

Incentive funding is nearly tripled in an effort to sustain pent-up market demand from this customer sector and from the over 40 independent contractors with jobs in queue.

Independent contractors play a key role as a vital source of technical knowledge and services for many property owners/managers. The MFEER leverages these market actors who extensively promote the program and target market this sector. They are a valuable

**Incentive funding is nearly tripled in an effort to sustain pent-up market demand from this customer sector and from the over 40 independent contractors with jobs in queue.**

resource to the customer participating in the MFEER, and account for the bulk of all rebate requests.

Capitalizing on the tremendous success of these independent contractors, SCE will make use of this group to promote SCE's Appliance Recycling Program and demand response programs such as the Summer Discount Program.

It is important and necessary to involve the property owner/manager in the tenant's participation in the Summer Discount Program and can be a tremendous positive influence.

The MFEER program is beginning to impact the market, as a significant shift toward property owner/manager initiated rebate requests began in 2004 and is steadily growing. In its initial years the program relied upon independent contractors to help promote the program offerings and nearly all rebate requests resulted from these contractor contacts.

The past two years has seen a three-fold increase of self-initiated owner/manager participation. Program momentum is building as these customers find the program easily accessible, pervasive and prevalent in their industry.

To continue this trend, the MFEER will continue its advertisement campaign in the five major trade journal publications in SCE's service territory while seeking other complimentary venues. The campaign consists of monthly ads in trade journals, and flyers are sent to every member of each of four apartment associations. This continual exposure is responsible for much of the increase of customer requests seen in the past two years.

Supplementing the ongoing print advertising campaign, program management makes presentations at apartment associations' member meetings and is an exhibitor at their trade shows where attendance is in the thousands.

Even with its successful endeavors to date, the MFEER continues to strive toward a stratified distribution of program participants. Multifamily property owners and management companies have many levels of sophistication and complexity. A significant number of small, independent ownership groups own one or more small complexes. There are several mega-property management firms owning and/or managing thousands of units. And there are many property managers and owners between these two extremes.

Most program participation to date has been from owners of mid-sized properties where complexes average about 90 dwelling units. MFEER's continued presence in apartment association activities gains the confidence of smaller property owners. These are the "show me it works and I'll believe it" customers of whom it takes time to win over.

The mega-property management firms require a hands-on approach by MFEER management. Companies managing greater than 250 unit apartment complexes make purchases from distributors and manufacturers 90% of the time. Since these firms typically do not belong to apartment associations and do not use the MFEER contractor corps, much of the traditional advertising methods do not reach this customer. Going forward, these customers will be actively pursued by MFEER personnel through personal contacts and presentations to garner their participation.

As always, the program is promoted through various other SCE energy efficiency programs and activities such as local partnerships and SCE's Mobile Energy Unit displays. Going forward, these leveraging and networking opportunities will be fully developed in order to gain wide-spread exposure for the MFEER offerings.

## **9. Program Objectives**

Key MFEER objectives include realizing a marked increase in property owner/manager self-initiated rebate requests, participation of at least three mega-property management companies each year, and an ongoing yearly increase of MFEER awareness by non-participating property owners/managers, measured by program evaluators.

A core measure of MFEER success is whether the above mentioned objectives are met, since a primary and underlying objective of the program is to be an ongoing resource for the underserved multifamily market.

MFEER will also include multifamily property owners who own complexes of less than five dwelling units. These previously ineligible MFEER customers add, according to the Residential Appliance Saturation Survey, participation potential of over 350,000 duplexes, triplexes and four-plexes.

In the past three years, program management conducted program awareness campaigns at association presentations and trade shows exhibitions. These efforts led to numerous customers who, as owners of multiple duplex, triplex, four-plex, complexes, consider themselves multifamily property owners and yet were unable to participate in the program. They do not meet current program requirements that complexes be five or



more units resulting in a large, untapped customer base. Comments are received regularly that the program guidelines create inequities among multifamily property owners and managers. Other programs do not offer these customers similar product incentives through which they can participate and achieve energy savings.

#### **10. Program Implementation**

Implementing tactics will occur in much the same successful manner as in the past. Due to ongoing high demand, the primary implementation approach is generating program announcements alerting property owners/managers and market actors of program

**MFEER personnel will initiate contact with the top 100 property management firms in SCE's service territory.**

offerings, requirements, and funding availability. This will be accomplished by direct mailings to property owners/managers including previous participants, updating SCE's website [www.sce.com](http://www.sce.com), with current funding availability and current MFEER rebate application, and (c) emailing to an existing database of market actors and independent contractors.

Concurrent with program announcements, SCE will implement the print advertising campaign in the apartment associations' monthly trade journals completing the traditional MFEER launching.

Shortly after program launch, MFEER personnel will initiate contact with the top 100 property management firms in SCE's service territory. These efforts carry the objective of gaining program participation by these large property owners/managers. At the very least, personally contacting and working with these customers will help entrench the MFEER as an available resource they can utilize for future energy plans.

Incentive funding will be provided in a structured fashion that promotes year-round funding availability and helps ensure fair and equitable funding for all participating entities. Requiring rebate reservations helps govern funding availability, provides an equitable funding environment, and assists MFEER management in achieving program energy savings goals.

Through its unique relationship to market actors, MFEER management can exert influence to help control the mix of products that are installed and rebated through the program. Influencing the market is an effective way to ensure that energy savings goals are met and protects the market from any imbalances that, left unchecked, could easily occur.

To summarize the participation process: (a) MFEER program offerings are promoted to property owners and managers through a variety of direct and indirect means; (b) the program application and staff provide product information to the customer; (c) customer purchases and installs qualifying products; (d) the rebate application documents and

generates the rebate; and (e) verification efforts validate savings and customer satisfaction.

Starting in 2006, SCE will collaboratively integrate marketing and implementation efforts to link program rebates for Energy Star® refrigerators and Energy Star® room air conditioners with incentives from SCE's Appliance Recycling Program. Integrated

**SCE will collaboratively integrate marketing and implementation efforts to link program rebates for Energy Star® refrigerators and Energy Star® room air conditioners with incentives from SCE's Appliance Recycling Program.**

collaboration seeks to accelerate the increase in the market share by facilitating consumer purchase and use of energy efficient units, while simultaneously providing a convenient means of properly and permanently retiring the replaced units. Together, the two programs offer customers:

- A combined \$60 rebate/incentive to purchase a new Energy Star® refrigerator and turn in their old, working inefficient refrigerator (\$25 for purchase of new and \$35 for turn in of old)
- A combined \$50 incentive/rebate to purchase a new Energy Star® room air conditioner and turn in their old, working inefficient room air conditioner (\$25 for purchase of new and \$25 for turn in of old) at "Room A/C Turn-In Events" that SCE will sponsor or co-sponsor.

MFEER program management is considering increasing the wattage range of CFL-type lamps from a maximum of 30 watts to a maximum of 55 watts beginning in 2007. This increase helps meet the need for certain high lumen output lighting needs in the common areas not currently available in the MFEER program. This increase is slated for 2007 to allow for market acceptance and price leveling as the higher lumen CFLs are relatively new to the retail market.

Also being considered for 2007 is a new incentive that will encourage converting recessed incandescent cans to fluorescent recessed cans.

Beginning in 2006, fluorescent torchiere lamps will be added to the measures list encouraging the replacement of potentially dangerous and high energy consuming halogen torchiere lamps. Two wattage levels will be available (55 and 70 watts) each at a rebate level of \$35.00.

Fluorescent torchieres also provide an opportunity for MFEER to work with community based organizations in a direct exchange service to multifamily tenants. The direct exchange will help remove tenant's potentially dangerous and high energy consuming halogen torchiere lamps while leveraging the site visit to outreach MFEER offerings to the property manager/owner including handing out Demand Response Programs information, such as the Summer Discount Program.

The MFEER program seeks to partner more closely with market related entities such as federal and state housing authorities. Many cities and federal organizations own conventional multifamily residential sites and have yet to fully realize the opportunities of the MFEER program. This holds true also for many of the larger property management companies in the SCE territory.

Beginning in 2006 and onward, program management will adopt a more aggressive and personalized approach to both the federal and state multifamily housing sector and the larger property management firms to gain greater participation in the MFEER program. Both sub-segments represent significant energy consumption and thus high energy

**program management will adopt a more aggressive and personalized approach to both the federal and state multifamily housing sector and the larger property management firms to gain greater participation in the MFEER program.**

savings potential. These entities will be approached through personal appointments, presentations, and by working collaboratively with their SCE account representatives.

The PAG has recommended Off Bill Financing for multifamily units to the owners. Prior to implementing this recommendation, SCE will be assess the Direct Installation program's financing pilot to evaluate financing options as a tool to eliminate barriers for adoption. Effectiveness of this pilot offering will be assessed and applied where appropriate.

#### **11. Customer Description**

The MFEER eligible customer is the property owner or manager of multifamily complexes of two or more dwelling units. Prescribed rebates are available to this customer for the installation of qualified energy efficient products installed in the dwelling units of apartment complexes or the common areas of apartment and condominium complexes or mobile home parks.

In addition, the MFEER is including rented mobile homes on the condition that the mobile home park property owner/manager is participating in MFEER through common area installations.

#### **12. Customer Interface**

The MFEER program will be available to all property owners and managers through the utilization of the rebate application obtained either online at [www.sce.com](http://www.sce.com) or by calling SCE's energy efficiency call center. Program information and applications may also be linked to by customers from external sites such as the Flex Your Power web site.

SCE will directly market the program to property owners and managers in a variety of ways including brochures, presentations, exhibits, and direct mail in order to increase

customer awareness leading to program participation. Repeated marketing efforts and promotional messaging have resulted in increased levels of participation and program awareness. This successful approach will continue to be used.

**It is believed that much of the increase in property owner/manager initiated applications during the 2005 year can be attributed to the more simplified version of the MFEER application.**

SCE has access to a vast network of independent installation contractors who, while conducting their own outreach, effectively market and deliver the MFEER program and will offer other SCE program information such as the demand response Summer Discount Plan.

Over the course of the past three years, the MFEER application has been revised a number of times in response to customer input resulting in streamlining necessary information and providing an easy-to-use checklist. It is believed that much of the increase in property owner/manager initiated applications during the 2005 year can be attributed to the more simplified version of the MFEER application.

### **13. Energy Measures and Program Activities**

#### **13.1. Measures Information**

Measure information provided in corresponding portfolio workbook. As recommended by the PAG, the incentive levels are consistent among the IOUs for the Statewide MFEER.

Measure	Incentive per Unit
Energy Star® Labeled Screw In CFLs (5 – 30 watt)	\$4.00 - \$6.50
Energy Star® Labeled Reflector CFLs	\$8.00 - \$10.00
Energy Star® Labeled Hardwired Fluorescent Fixtures	\$30.00 - \$50.00
Energy Star® Labeled Ceiling Fan with CFLs	\$20.00
Energy Star® Labeled Room Air Conditioner	\$50.00
Energy Star® Labeled High Efficiency Exit Signs	\$35.00
Energy Star® Labeled Fluorescent Torchiere	\$55.00
Energy Star® Labeled Residential Refrigerator	\$25.00
T8 or T5 Linear Fluorescent Lamps with Electronic Ballasts	\$32.00 - \$45.00
High Performance Dual-Pane, Low-E Windows	\$0.75 sq. ft.
Attic and/or Wall Insulation	\$0.15 sq. ft.

Occupancy Sensors	\$10.00
Photocells	\$10.00
Energy Efficient Electric Storage Water Heaters	\$30.00
High Efficiency Pool Pumps (Single and Dual Speed)	\$125.00 – \$300.00
Duct Test and Sealing Services	\$250.00

### **13.2. Energy Savings and Demand Reduction Level Data**

Energy savings and demand reduction information provided in corresponding cost-effectiveness calculator and portfolio workbook.

### **13.3. Non-energy Activities (Audits, Trainings, etc.)**

Not applicable

### **13.4. Subcontractor Activities**

The MFEER will have no subcontractors. The program relies on the contractor industry to provide installation services through a standardized incentive structure.

### **13.5. Quality Assurance and Evaluation Activities**

SCE's MFEER management incorporates 100% customer telephone surveys into its routine processing of rebate requests. Every participating customer is contacted and questioned about a number of program aspects ranging from how the customer first heard about the program to quality of service questions about the installation contractor. MFEER management will use this feedback to make proactive changes that will result in a more satisfied customer as well as full utilization of program offerings.

In addition, a percentage of all rebate applications are selected for on-site verification inspections by SCE inspectors. At the inspection appointment, SCE's inspector compares detailed product installation information contained in the rebate application to the product(s) found at the site noting make and model numbers and quantities installed.

Discrepancies are resolved with customer input, however, rebates are paid only for those products verified as installed at the time of inspection.

#### **13.5.1. Expected Number/Percent of Inspections**

The MFEER intends to inspect roughly 20% of all submitted applications. Based on initial projections, this could amount to roughly 300 annual inspections.

### **13.6. Marketing Activities**

MFEER marketing plans will consist generally of print collateral material, direct mail campaigns, print advertisement, industry partner presentations, trade show exhibitions, statewide advertising, and leveraging other SCE energy efficiency efforts and programs where feasible.

Beginning in 2006, direct mail efforts will increase from once yearly to a minimum of two times each year. Direct mail campaigns will feature messages that are seasonal in nature such as spring-time maintenance and fall energy saving CFLs as the days grow shorter. There will be continued emphasis on the early retirement of room air conditioners, refrigerators and T-12 lamps.

As presented and commented upon at PAG meetings, the MFEER will coordinate with the Appliance Recycling Program's promotional activities and events in an effort to engage property owners/managers to change out their old room air conditioners or refrigerators utilizing both programs.

Program brochures will continue to be produced as the program's main collateral material. In-language efforts have already produced a Spanish version of the brochure and other languages are under consideration.

The 2004-05 program has seen tremendous strides in increased program awareness as a result of ongoing print advertisements in regional monthly trade journals. This effort will continue so that property owners/managers are continually reminded that the MFEER is available to them as a key tool toward energy efficient multifamily housing. It is anticipated that exposure will increase from four journals each month to not less than six in an effort to cover the entire service territory.

Trade show exhibits, trade association presentations, and industry partner presentations are an integral part of ongoing promotion and marketing efforts. It is important to reinforce program presence and accessibility to this customer segment on a continual basis until awareness becomes common place.

At the suggestion of PAG members, a new approach of showcasing participating customers' projects will be implemented beginning in 2006. These customers' experiences and smart energy efforts will be showcased in trade journal magazines through articles and photos and possibly displayed at trade shows as well. Additional aspects of this approach will be developed later.

Another new approach suggested by PAG members will utilize the existing network of community based organizations (CBOs) and the like for outreach and promotional opportunities. These organizations are well entrenched and carry tremendous influence in their community. SCE's MFEER may team up with CBOs in a leveraged marketing effort to bring additional value to their community efforts.

MFEER program management will also increase marketing and leveraging emphasis to geographic areas such as Santa Barbara and Ventura counties in order to boost participation levels in these regions.

Listing of marketing activities:

- Program announcement letters to multifamily service accounts (est. 32,000 letters)
- Monthly print advertisement in 4 apartment association trade journals (est. circ. 10,000)
- Monthly print advertisement in 2 industry trade journal (est. circ. 25,000)
- Exhibitor at 4 -5 industry trade shows (est. total attendance 30,000)
- Direct mailer – Spring and Fall
- Industry partner presentations
- Collateral Materials:
  - Brochures (English and Spanish)
  - Promotional items





# Comprehensive Mobile Home Program

Program summary information is shown under the Multi Family Energy Efficiency Program.

## 4. Program Descriptors

**Market Sector:** Residential  
**Program Classification:** Local  
**Program Status:** Existing 2004-05 Third-party Program

## 5. Program Statement

This residential comprehensive Mobile Home program has been designed to complement SCE's current filing for 2006-08 by reaching mobile home customers, where there is a rich potential for cost-effective energy and demand savings. This is a targeted market

**The program has been designed to provide a comprehensive energy program to 7,500 mobile home customers in the SCE service territory, collaborating with local communities within this service area to maximize service to the citizens of their cities and towns.**

that is not reached by statewide mass-market programs. The Comprehensive Mobile Home program has been delivered by Synergy Companies as a third-party program (2002-03 and 2004-05) and has been one of the most reliable and dependable programs in delivering energy savings, with a high customer satisfaction rating.

## 6. Program Rationale

The comprehensive mobile home program focuses on those measures and the geographic segments identified which both the utility and their customers have found desirable and which the proposed mix of utility programs would not otherwise specifically address on a targeted basis. The program has been designed to provide a comprehensive energy program to 7,500 mobile home customers in the SCE service territory, collaborating with local communities within this service area to maximize service to the citizens of their cities and towns. This program is steadily realizing energy savings from this cost effective market segment. Care is being taken to track saturation rates by Mobile Home parks. There is a large untapped potential in this market with an estimated 80% of Mobile Homes untreated.

## 7. Program Outcomes

The desired results of the comprehensive mobile home program are to contact 20,000-25,000 mobile home owners/tenants and explain the energy savings program to them. SCE expects that 35% of the mobile home owners/tenants will either desire or qualify to have the work completed. It is the program goal to serve 7,500 customers throughout the SCE territory, beginning in the warmer climate zones and working across the Los Angeles and Northern Los Angeles areas. SCE anticipates that there will be a 97% plus satisfaction rate by customers. Energy savings are outlined above.

SCE anticipates a significant contribution to demand reduction and a reduction in summer peaks in the SCE territory including lighting and air conditioning loads for the market sectors addressed in will directly these peak loads sealing, and AC improvements. The customers in this market segment are major users of HVAC equipment during the peak hours in the summer.

**The comprehensive mobile home program will be a direct-install no cost to the customer program.**

that are being this program. Synergy address and reduce through lighting, duct Diagnostic/Balance

**8. Program Strategy**

The comprehensive mobile home program will be a direct-install no cost to the customer program. This will significantly reduce the barriers for this customer base to make a decision to have the work completed. This is a customer that is traditionally not fully aware of Energy Efficiency programs because of age, income, or language demographics.

**9. Program Objectives**

Through the program, 20,000-25,000 customers will be contacted and energy efficiency services will be 7,500 customers. activities include 150 meetings or fairs in parks, direct mail of and distribution of educational brochures to customers and potential customers.

**Interested homeowners will call a toll free hotline to schedule the work to be done in their home.**

provided to Outreach neighborhood mobile home 25,000 flyers, 10,000

**10. Program Implementation**

Mobile Home occupants and property managers will receive information regarding the mobile home energy efficiency program. Interested homeowners will call a toll free hotline to schedule the work to be done in their home. On the scheduled date, Synergy Company’s certified technicians will complete a walk through of the home with the customer, provide energy efficiency education, and install the needed measures to maximize energy efficiency.

Synergy Companies will provide to the SCE regular reports on the program’s progress. In addition to the report, Synergy Companies will invoice SCE for will the work done at each customer’s home, and the energy savings benefit accrued from measures installed.

**11. Customer Description**

This proposal is designed for mobile home customers in the SCE territory. Owners/Tenants must have a SCE account to qualify for the program or be on a Master Meter Account in the Mobile Home Park where they reside. Duct Seal or HVAC Diagnostics must not have been done within the last three years.

## 12. Customer Interface

Synergy Companies' finds customers through the following activities:

- 1) Working directly with property managers and associations.
- 2) Neighborhood meetings or fairs.
- 3) Local Community Organizations: Senior Citizen Centers, Multifamily Associations, Association of Retired People, Chambers of Commerce, Local Libraries.
- 4) Working with local communities and cities to target specific neighborhoods and areas within their cities. Once an area is identified, customers will be found through billing inserts and community newsletters.
- 5) Flyers.
- 6) Word-of-mouth.

Customers that desire to have the measures installed call a toll-free number for an installation date.

## 13. Energy Measures and Program Activities:

Information will be provided to the customer through a brochure and during a walk-through. This will outline the SCE and Commission programs that may be available to the customer. In addition, the technician will assess possible energy savings and make possible recommendations to the customer. Measures available will be HVAC Diagnostics and Tune-up; Duct Test and Seal; Interior and Exterior CFL's, Interior and Exterior Hardwire Fixtures, and Common Area Lighting.

### 13.1. Measures Information

Measure information provided in corresponding cost-effectiveness calculator and portfolio workbook.

### 13.2. Energy Savings and Demand Reduction Level Data

Energy savings and demand reduction information provided in corresponding cost-effectiveness calculator and portfolio workbook.

### 13.3. Non-energy Activities (Audits, Trainings, etc.)

At each mobile home park there will be a neighborhood meeting or fair provided to residents. This is an outstanding experience where the energy efficiency program is explained to

neighborhood and community, usually clubhouse or meeting programs are being Synergy Companies details of the program

**Synergy Companies explains the details of the program with samples of the measures to be installed in their apartments and homes.**

members of the mobile home in the facility room, where implemented. explains the with samples of

the measures to be installed in their apartments and homes. Questions and answers take place and individuals that are interested can take literature on the program or schedule their installation date. Synergy Companies often follows-up with a second visit after

many of the residents have had the opportunity to have measures installed within their complex. Almost without exception, these meetings are welcomed and well received.

In addition, Synergy Company technicians will do an energy assessment walk-through with each customer and leave a brochure with energy savings tips and information for other SCE and CPUC energy efficiency programs.

#### **13.4. Subcontractor Activities**

Synergy Companies will implement this program under the direction and supervision of Southern California Edison.

#### **13.5. Quality Assurance and Evaluation Activities**

Upon notice of completion from Synergy Companies, the work will randomly be inspected through both in-house and independent inspectors. In addition, Synergy Companies uses an independent electronic process that checks all pre and post numbers on the HVAC and Duct Seal work. The predefined California and local IOU standards for retrofit will be used to measure quality and correctness of installed measures. In addition to these measures, an independent EM&V contractor will also provide measurement and verification checks and balances on this program.

In addition, SCE will provide constant monitoring of the program through review of regular reports and invoices. SCE will also conduct random on-site visits.

##### **13.5.1. Expected Number/Percent of Inspections (planned percent of projects)**

Synergy Companies will physically inspect 5% of all measures installed and will call 20% of customers to assess satisfy and quality. In addition, the independent EM&V Contractor will do a significant statistical survey for measures installed, estimated energy savings, and customer satisfaction. Additionally, SCE will conduct random inspections, 5-10%, of the worked performed by the implementer.

#### **13.6. Marketing Activities**

Mobile Home occupants and property managers will receive information regarding the mobile home energy efficiency program. Interested homeowners will call the toll free hotline to schedule the work to be done in their home. On the scheduled date the Synergy Companies technicians will complete a walk through of the home with the customer, provide energy efficiency education, and install the needed measures to maximize energy efficiency. Program information is provided to mobile home occupants and property managers via flyers and brochures.

# Home Energy Efficiency Survey

<b>1. Projected Program Budget</b>	<b>\$</b>	<b>5,965,280</b>
<b>2. Projected Program Impacts</b>		
MWh		18,011
MW (CEC Factor)		3.91
<b>3. Program Cost Effectiveness</b>		
TRC		0.93
PAC		0.90

#### 4. Program Descriptors

Market Sector: Residential  
 Program Classification: Statewide and Local  
 Program Status: Revised Existing

#### 5. Program Statement

Lack of information or awareness of specific measures and practices is one of primary barriers to energy efficiency. Residential customers often lack information and knowledge about energy efficiency opportunities that would help them understand, manage and reduce their energy use.

Customers face difficulty assessing the value of energy efficiency opportunities and the information necessary to evaluate claims regarding future performance. Consumers also face difficulty in evaluating the veracity, reliability and applicability of claims made by sales personnel for a particular energy-efficient product or service.

A 2002 measurement study showed that there is a gap between the number of times energy efficiency measures are recommended and the frequency of people adopting

**What's New for 2006-08?**

- Innovation
  - Gas and water-saving components
  - Energy use comparisons with similar households
  - "Home Energy Action" plan to track participation in incentive programs and recommendations
  - Ongoing communications with participants to encourage measure adoption
- Integration
  - Demand Response programs and services
- Other Program Improvements
  - Outreach to homeowners through "welcome" packages and information kiosks when applying for home loans
  - In-home survey expanded to target Asian community
  - Additional CBO outreach

the recommended measures. Results indicated that there is a need to fill the gap between awareness and adoption of low-cost measures, such as compact fluorescent lamps (CFLs).

## 6. Program Rationale

SCE's Home Energy Efficiency Survey (HEES) program will take advantage of statewide utility coordination and "best available practices" and optimize every opportunity in the marketplace to fill the gap between consumer awareness and adoption of energy efficient measures and practices. The HEES program provides a consistent and recognizable program presence throughout the state and offers similar services and processes coordinated statewide with PG&E, SDG&E and SCG. The program provides accurate and comprehensive information about energy and will induce a permanent change in attitudes and actions toward energy efficiency by assisting customers in understanding their energy usage and patterns of usage.

The measurement results of SCE's 2002 HEES and In-Home Survey programs indicates that 74% of program participants implemented at least one recommendation after the survey was completed. The measurement study also indicates the HEES program helps overcome the barrier of customers not willing to make energy efficiency investments by providing "no cost" and "low cost" energy-saving recommendations.

The 2006-08 program is an extension of this existing information program, which is one of the primary tools used to effectively communicate in five languages (English, Spanish, Chinese, Vietnamese and Korean) and four delivery channels (mail-in, on-line, in-home and phone energy surveys) the importance of energy efficiency to California's diverse society. Since 2002, more than 120,000 English-, Spanish- and Chinese-speaking customers participated in SCE's energy surveys.

**Recognized on a national level in 2004 by the National Energy Efficiency Best Practices Study...**

Recognized on a national level in 2004 by the National Energy Efficiency Best Practices Study, the HEES program will capitalize on its four energy survey offerings to deliver an integrated approach that expands its reach across various customer markets. Key elements of the comprehensive approach include:

- **Providing a range of options to offer participants a choice of energy surveys.** Input from the joint SCE/SCG Program Advisory Group (PAG) and public workshops recommended that the utilities offer different energy surveys and ask customers which one they prefer to complete. The options would provide different access, such as mail-in or online, and include services other than energy payback. The HEES program is flexible and allows customers to choose from SCE's four survey options. SCE will investigate providing model numbers to make the energy survey flow seamlessly into the adoption of recommended measures. A PAG member also suggested that the utilities provide contractor

referrals. In response, SCE will provide links to the California Contractor State License Board, League of American Homeowners and other resources for a list of licensed contractors.

- **Integrating program participation as part of an existing, routine transaction, such as the purchase of a home or the installation of a heating and cooling system.** This approach makes energy surveys more likely to become a permanent part of the market. For example, a PAG member recommended that the utilities develop a “welcome package” to encourage new homebuyers to complete an energy survey. In response, SCE will distribute “welcome packages” to new homeowners and encourage them to complete a survey upon service turn-ons. One year later, after move-in, SCE will follow-up with the customer to track results. Additionally, a PAG member recommended that the utilities make energy efficiency mortgages more available to homebuyers, include an energy efficiency component during the time-of-sale inspections and consider energy efficiency certification of existing homes. SCE will competitively bid these services for innovative approaches to effectively target these markets.
- **Offering survey instruments and marketing materials in multiple languages.** Energy surveys will be available to a broader range of customers. The program offers energy surveys in English, Spanish, Chinese, Vietnamese and Korean. The PAG recommended the use of community-based organizations (CBOs) to outreach to the local communities, especially for the residential market. SCE will continue to work-side-by-side with CBOs to target the Spanish and Asian communities for participation in the HEES program. In 2004-05, SCE collaborated with CBOs to target Spanish and Asian communities. These efforts resulted in more than 1,000 completed surveys. In 2006-08 and at the recommendation of PAG members, SCE will expand its outreach to additional CBOs and target faith-based organizations (FBOs). The program has proven to be an effective tool to reach customers who otherwise have limited access to reliable efficiency information, including non-English speaking consumers.

SCE and SCG also received a recommendation from the PAG process to build an online interface between the two utility billing systems so that customers served by both utilities would receive one survey that provided electric and gas savings information. SCE will

**SCE will also collaborate with regional and local water agencies to offer information on electric, natural gas and water efficiency. The partnership between energy and water is an innovative aspect of the program.**

incorporate this recommendation into its 2006-08 program plans and collaborate with SCG to offer one joint survey available through the same four delivery channels. The venture may require the development of an online interface between electric and gas customer information systems.

SCE will also collaborate with regional and local water agencies to offer information on electric, natural gas and water efficiency. The partnership between energy and water is an innovative aspect of the program. Water conservation lowers energy use and energy bills. The utilities and water agencies will extend the reach of their programs and services and reduce costs and hassles. Whitepapers submitted by the PAG recommended that the utilities consider collaborating with water agencies to promote energy and water efficiency.

The program will continue the integration with demand response programs to increase consumer awareness of incentives available through the SCE's Summer Discount Program (air conditioning cycling) and the 20/20 Summer Savings Program (20/20 rebate). SCE plans to enhance the survey instruments to help customers develop a "home energy action plan" and strengthen the connection between information and incentive programs and services.

The HEES program focuses on equity, recognizes the vast diversity in the State, and serves as a primary tool to bring valuable information on energy efficiency, demand response and water conservation to the residential customer market.

## **7. Program Outcomes**

The desired outcomes of the program are to increase consumer awareness, knowledge and adoption of opportunities for energy and water efficiency.

The program provides customers with information at no charge to help them become familiar with ways to control and reduce energy usage in their homes. SCE will continue to focus on improving the current program by increasing participation, ensuring customer equity, and providing innovative approaches to optimize opportunities in the residential market.

This program includes a direct install component and will deliver immediate, measurable energy savings. SCE will install CFLs in the homes of customers participating in the in-home survey. In addition, the program has the potential to achieve energy savings for each completed survey as documented by past measurement studies. PAG members recommended utilities report and claim energy savings associated with residential audits. In response, SCE will claim and report energy savings for each completed energy during the 2006-08 program cycle.

## **8. Program Strategy**

HEES will be delivered through six program strategies to effectively address the gap between awareness and efficiency measure adoption.

- *Mail-In Energy Survey*—self-completed questionnaire and personalized energy and water report mailed to the home
- *On-Line Energy Survey*—instant access to energy and water efficiency information and incentives
- *In-Home Energy Survey*—face-to-face consultation on ways to save energy and water



- *Phone Energy Survey*—convenient service for customers unable to complete energy surveys by mail, Internet or in the home
- *Welcome Packages*—encourages energy survey at the time of move-in and one year later to track results
- *Energy Efficient Mortgages*—information kiosks in financial institutions, time-of-sale inspections and energy efficiency certification of existing homes

Through collaborative efforts with SCG and water agencies, SCE will offer all program strategies in multiple languages, targeting customers at key trigger events such as:

- High energy bills
- Service turn-ons
- Purchase of new home
- Purchase of an older home
- Financing or refinancing home mortgage

As recommended by the PAG, the program will continue to target high energy users through direct mail solicitations.

The program will also send monthly emails about energy

**SCE will distribute “welcome packages” to encourage new homeowners to request an energy survey. This strategy will include automatic follow-up by SCE within a year after move-in to review results.**

usage to communicate more frequently with customers to save energy and water. This feature will develop a continuous dialogue with participants to strengthen efficient measure adoption.

At which time a service turn-on is requested, SCE will distribute “welcome packages” to encourage new homeowners to request an energy survey. This strategy will include automatic follow-up by SCE within a year after move-in to review results. The PAG also recommended that the utilities target homes built prior to 1986, and SCE will incorporate this recommendation in its targeted energy survey solicitation mailings.

Another opportunity to encourage customers to adopt energy efficiency is during the financing or re-financing of a home. SCE and SCG have limited experience with intervention in these types of transactions, but have an interest of seizing this opportunity to have customers take action on energy efficiency with the possible reward of a reduced interest rate on these types of loans. SCE and SCG envision a program on a pilot basis to test the theory. Program rationale includes running a pilot program to achieve tangible educational and behavioral results with linkages to existing incentive programs. SCE and SCG are not providing financing for participants. The innovative approach may include, but is not limited to, utilizing information kiosk to promote energy efficiency upgrades to homeowners and small business owners who are planning remodeling or upgrading projects. The kiosks would be located in the lobbies of financial institutions and contain information on energy efficiency and demand response and available incentives. The program would provide consumers direct access with information at this significant

decision point. Parties submitting proposals would establish agreements with banks or credit unions interested in participating in the program. Parties submitting proposals would also propose innovative approaches to deliver the program, such as connecting surveys to the time-of-sale inspection and energy efficiency certification of an existing home.

The energy efficient mortgage pilot program would encourage customers to participate in an energy efficiency survey to help identify the energy saving opportunities. Subject to negotiation with the implementers, banks or lenders could offer preferred consideration for customers applying for home improvement loans, which include an energy efficiency plan. The program would support the efforts through public recognition for participating in Energy Efficiency programs, which benefit their customers, and the community at large. Rewarding energy efficiency participants with publicity, i.e., newspaper, was recommended by the PAG.

The PAG recommended that the utilities connect the residential survey to point-of-purchase when customers are making purchases for energy efficient products. Retailers have not expressed great interest in the placement of kiosks in their stores. However, the utilities will incorporate this recommendation and partner with local banks and credit unions to offer energy and water efficiency information.

## **9. Program Objectives**

SCE plans to achieve more than 100,000 completed surveys and install nearly 40,000 CFLs during 2006-08.

Customers participating in the HEES program will learn to:

- Better manage their home energy and water costs,
- Make informed purchase decisions for energy-efficient technologies, e.g., appliances, equipment and lighting products,
- Determine which appliances or equipment in and around the home consume the most energy and water, and
- Learn about additional resources and programs available to help reduce energy and water usage.

## **10. Program Implementation**

SCE will competitively bid all survey components and pilot program activities for implementation by selected subcontractors. As recommended by the PAG/Public, SCE will continue to provide

efficiency

recommendations

based on a whole-house

system approach

capturing data based on

billing history. Examples of our whole-house system surveys include the mail-in and online surveys.

**SCE will develop a targeted mailing strategy to encourage customers identified as high-energy users to participate in the mail-in survey option.**

SCE will develop and implement On-Line Survey advertising and marketing campaigns to encourage customer participation. The On-Line Survey, available on SCE's web site, provides customers with direct access to information on energy and water energy. Customers spend 5-15 minutes to answer specific questions and instantly receive an analysis of energy use in their homes as well as energy-saving recommendations. On-Line Surveys are available in English, Spanish, Chinese and Vietnamese.

SCE will develop a targeted mailing strategy to encourage customers identified as high-energy users to participate in the mail-in survey option. Survey solicitation packages are mailed to customers. Customers complete the mail-in survey and return it to SCE for processing. SCE sends the customer a personalized energy representing actual energy usage in easy-to-read charts and graphs. Reports include information on energy efficiency and demand response programs and other energy-related information to encourage adoption of energy and water efficiency. Copies of the mail-in survey in all five languages are also available on SCE's website.

In 2004 and 2005, SCE collaborated with CBOs to target Spanish and Asian communities. These efforts resulted in an additional 1,000 surveys. In 2006-08 and at the recommendation of PAG members, SCE will expand its outreach to include additional CBOs to target local communities. SCE also plans to collaborate with faith-based organizations (FBOs).

The In-Home Energy Survey provides customers, who may not respond to On-Line and Mail-In survey options, with a more personalized, face-to-face energy survey option. After responding to the energy survey solicitation cards to schedule an in-home survey, a specially trained energy auditor inspects the home and provides the customer with immediate answers to basic questions as well as specific recommendations on how customers can save energy and water. The energy auditor installs CFLs, showerheads and faucet aerators in the home and provides valuable energy-saving information. The PAG requested that the utilities continue their in-home surveys. In-home surveys are conducted in English and Spanish and SCE plans to continue this survey option and offer Chinese in-home surveys.

The Telephone Survey is an alternative to the In-Home Survey and allows customers to obtain immediate results from a trained auditor. The energy auditor walks the customer through the survey over the phone and provides specific energy recommendations and information on incentive programs. Surveys are available in English and Spanish and will be expanded to include Chinese.

## **11. Customer Description**

The program targets residential customers in distinct market segments that are looking for ways to reduce their electric bills. Customers have four survey options to choose from: mail-in, via the Internet, on-site or telephone surveys.

## **12. Customer Interface**

The program provides maximum ease for residential customers to participate. The surveys are available in multiple languages to meet the needs of our different customer groups:

- 1) *Customers who prefer to access information online and receive instant recommendations.* The On-Line Survey provides customers who frequently access the Internet with an interactive feature easily accessible on SCE web site, which allows customers to obtain immediate customized results by answering specific questions regarding their home energy use online.
- 2) *Customers with limited online access.* The written version of the survey is available in five languages. This Mail-In Survey version allows customers with limited or no-on line access the flexibility of an easy-to-complete mail-back format.
- 3) *Non-English speaking customers with limited or no on-line access and prefer a more personalized face-to-face survey option.* The In-Home Survey provides customers, particularly customers who may not respond to On-Line and Mail-In Survey options, with a more personalized, face-to-face energy survey alternative.
- 4) *Customers who request immediate energy solutions over the phone.* The Telephone Survey is an alternative to the In-Home survey that allows customer to obtain immediate results from a trained energy auditor. The energy auditor walks the customer through the survey over the phone and provides specific energy-saving information.

## **13. Energy Measures and Program Activities**

### **13.1. Measures Information**

Measure information provided in corresponding cost-effectiveness calculator and portfolio workbook.

#### **13.2.1 Energy Savings and Demand Reduction Level Data**

Energy savings and demand reduction information provided in corresponding cost-effectiveness calculator and portfolio workbook.

Past measurement studies have demonstrated that the program lead to the potential energy savings resulting from the actions customers take after receiving an energy survey. The 2002 EM&V study on SCE's Residential Audit Programs conducted by Ridge and Associates has estimated the above gross and net kWh and kW impacts per dwelling/energy survey. Additionally, the study also concluded that energy savings and demand reduction last beyond the expected two years.

### **13.3. Non-energy Activities (Audits, Trainings, etc.)**

Non-energy activities include targeted mailings of survey solicitation packages and cards marketing activities.

#### **13.4. Subcontractor Activities**

Subcontractor activities for the program are listed below for all survey components:

##### Mail-In:

Subcontractor is responsible for printing and mailing the survey packages, receiving and analyzing the survey results, processing and mailing the energy reports to the customers.

##### On-Line:

Subcontractor is responsible for hosting, managing, and maintaining all on-line energy analysis tools.

##### In-Home and Telephone:

Subcontractor is responsible for scheduling appointments and conducting on-site or telephone surveys and processing completed surveys.

#### **13.5. Quality Assurance and Evaluation Activities**

Quality assurance and evaluation activities will be conducted on a monthly basis to ensure that customers are receiving pertinent and beneficial information in reducing their energy consumption at home.

SCE will perform telephone inspections and verifications on an ongoing basis throughout the program term. SCE will also randomly select and call customers who participated in the In-Home Survey for verification and quality assurance.

Inspection of the CFLs installation will also be performed on selected customer homes to ensure compliance.

##### **13.5.1. Expected Number/Percent of Inspections (planned percent of projects)**

SCE will inspect approximately 200 (5%) CFLs installation in 2006, 220 in 2007 and 242 in 2008.

#### **13.6. Marketing Activities**

The program will continue to promote energy efficiency, demand response programs and other information and services. The program will incorporate a variety of marketing approaches to promote the survey and increase participation. Because utility service areas and customer segments are unique, marketing efforts may be tailored by each utility to obtain maximum effectiveness and the highest response rate. Where practical, SCE will jointly launch marketing efforts with other utilities, and will explore opportunities to coordinate with CBOs and FBOs in outreach efforts and to deliver program services directly to traditionally HTR areas. These CBOs and FBOs may include churches, community centers, adult schools and senior centers.

Activities will include, but are not limited to, targeted direct mail campaigns, promotions, on-line marketing, Interactive Voice Response (IVR), community events, radio spots, newspaper ad and coordination with the statewide marketing agencies' marketing and

outreach efforts. SCE will continue to coordinate closely with the Statewide Marketing and Outreach Campaign, such as the statewide Flex Your Power campaign.

# Integrated School-Based Program

<b>1. Projected Program Budget</b>	<b>\$</b>	<b>4,988,158</b>
<b>2. Projected Program Impacts</b>		
MWh		10,704
MW (CEC Factor)		2.32
<b>3. Program Cost Effectiveness</b>		
TRC		1.32
PAC		1.03

## 4. Program Descriptors

Market Sector:	Residential / Nonresidential
Program Classification:	Local
Program Status:	Revised Existing

## 5. Program Statement

Energy costs for schools can be an enormous expense. They are the second largest expense for schools after employee salaries. Declines in school funding over the last 20 years have left little or no room in school budgets for incorporating high performance measures during major repairs or renovation of existing buildings. There is a drastic need for additional classrooms owing to increased enrollments and reduced class sizes. Failure to take advantage of energy efficiency options when renovating existing facilities or building/adding new facilities represents a significant missed opportunity.

The U.S. Department of Energy estimates that schools could save about 25% of their energy costs by improving energy efficiency. Additional funds are needed before schools will seriously consider the more energy efficient options.

According to the 2001 evaluation of SCE's school programs, other barriers facing the schools market segment include information-search costs, performance uncertainty and organizational practices. In the schools market, schools often do not have information about the benefits of energy efficiency and there is little enthusiasm for adopting more efficient technologies since administrators are uncertain about their performance. In additions, schools have little practice incorporating efficient

### What's New for 2006-08?

- Innovation
  - Combines three distinct education products to impact energy use in schools, universities and homes
  - Collaborates with SCG and regional and local water agencies to offer gas and water-saving components
- Integration
  - Links education/information program components to hardware installations that result in firm energy savings
  - Combines energy efficiency, demand response and renewable energy

technologies in educational or building specifications, since they have traditionally opted only for standard equipment and designs.

Energy education is critical to assuring a stable and reliable supply of electricity in California. Educating students will create a new generation of Californians who understand the significance of energy in their lives and their role in its efficient use.

SCE's new local Integrated School-Based Program (ISBP) is an education and information program that effectively integrates energy efficiency, demand response and renewable energy to address the barriers faced by the schools market. ISBP leads homes and schools to programs that directly produce verifiable energy savings. The program also produces energy savings through school and community activities that result in the installation of energy efficient measures.

## **6. Program Rationale**

The program is designed to address all aspects of the schools market through an integrated approach that promotes energy efficiency and demand response opportunities to decision

makers. The program will address lost opportunities in the schools

**Educating students will create a new generation of Californians who understand the significance of energy in their lives and their role in its efficient use.**

market by implementing a comprehensive, innovative approach that involves incorporating:

- Three of the nation's leading energy education programs to impact energy use in schools, universities and the community;
- Natural gas- and water-saving components by collaborating with SCG and regional and local water agencies; and
- Utility and water programs and services to encourage the adoption of energy efficiency, demand response and water conservation options.

SCE will implement three successful energy education programs to educate the schools market to achieve energy efficiency retrofits. The program provides K-12 and university students with a unique opportunity to create a new generation of energy smart citizens.

The program effectively combines classroom learning with hands-on activities.

**The program will address the needs of the schools through a combination of student, teacher and school administrator education programs and increase their awareness and knowledge.**

The program will address the needs of the schools through a combination of student, teacher and school administrator education programs and increase their awareness and knowledge. ISBP will teach them essential information about energy efficiency and



water conservation and what each individual can do to make a difference. School-aged children are receptive to energy education and can motivate their parents to take actions at home to reduce energy and water consumption.

The partnership between energy and water is an innovative aspect of the program. Water conservation lowers energy use and energy bills, particularly when hot water use can be reduced. The utilities and water agencies will extend the reach of their programs and services and promote integrated solutions. Whitepapers submitted by the Program Advisory Group (PAG) recommended that the utilities consider collaborating with water agencies to promote energy and water efficiency.

SCE's program employs a proven program format to achieve tangible educational and behavioral results as well as measurable, verifiable energy savings. The program offers

beneficial  
cost-  
results for  
natural gas,  
water

**SCE's program employs a proven program format to achieve tangible educational and behavioral results as well as measurable, verifiable energy savings.**

and  
effective  
electric,  
and

sponsors. The program is effective, adaptable and versatile, which makes it attractive to both utilities and schools to build awareness and participation in all available programs and services.

Combining the concepts used in each energy education component will allow SCE to successfully address the full range of educational opportunities through in-school instruction of students; hands-on activities to promote energy saving behavior change; team building between students, teachers and administrators; and expanding these opportunities to the community to reduce the environmental impact associated with the state's energy and water consumption and strengthen California's economy for the future.

## 7. Program Outcomes

The desired outcomes of the program are to improve public education facilities and inform facility operators and administrators about the benefits of energy efficient equipment and operation practices, inform K-12 and college students about energy and water efficiency and how to apply what they learn at home and in their communities.

The basis  
of the  
program  
theory is  
that  
increased

**Each program component will leverage existing incentives, available through energy efficiency and demand response, to achieve immediate and long-term energy savings and demand reduction in the schools, universities and homes.**

awareness will result in increased levels of energy and water efficiency measure adoption, and conservation efforts at schools, universities and home. The performance basis for the program is comprised of educational outcomes that include knowledge gains and attitudinal changes with respect to energy and water efficiency.

## **8. Program Strategy**

The program will be delivered through three coordinated program strategies to effectively address the barriers faced by the schools market. Each program component will leverage existing incentives, available through energy efficiency and demand response, to achieve immediate and long-term energy savings and demand reduction in the schools, universities and homes.

SCE will “mainstream” the three education programs into its 2006-08 program portfolio. By using the concepts and materials established in the existing programs, SCE has the greatest opportunity for recruiting new schools and school districts. The methods used in these programs have already made inroads into a number of school districts and have been well received.

### LivingWise®

The LivingWise® is implemented by the Resource Action Programs® (RAP) and provides classroom learning activities and take-home kits to elementary and middle school classes. The kit contains energy and water-saving products such as a compact fluorescent lamp and high efficiency showerhead, and a CD game to introduce energy efficiency and water conservation to children and their parents. The program features a blend of classroom learning activities and hands-on energy survey and installation projects which students complete in their homes with parental assistance. Key components of LivingWise® are:

- Interactive school-to-home program for students
- Teacher-designed classroom activities that reinforce student work on critical State Standards for core subject areas
- Hands-on projects that utilize kits containing energy and water efficiency technologies that students directly install in their homes, thus reinforcing education results
- Involvement of parents to shape family habits and awareness of the benefits of energy and water efficiency
- Community outreach

SCE and SCG offered LivingWise® in 2000-01 as a third-party initiative. In 2004-05, SCE successfully piloted LivingWise® in SCE’s South Bay region. The program targets about 3,000 6<sup>th</sup> grade students and involves collaborating with the Southern California Water Company and the City of Torrance Public Works Department to fund the water-saving component.

### Green Schools

Implemented by the Alliance to Save Energy (ASE), Green Schools reduces energy costs in schools and educates students and their families about energy and the link between efficiency, the environment and finances. It is a comprehensive and long-term approach to school efficiency, bringing together the facilities, instructional and administrative staff in a cooperative effort to improve education using energy as a tool. Its unique approach

integrates school facility energy-savings with energy savings action and instruction in school, homes and the community.

Green Schools achieves energy efficiency by inducing behavioral changes, operational changes and product retrofits. The program will be implemented by teams of teachers, custodians, administrators and students at each school. A local project leader visits schools monthly to assist and encourage school teams. The program provides a baseline of energy use and energy tracking, professional development to teachers, training for students to conduct energy surveys of their schools, homes and small businesses, and convenes school teams three times during the year to celebrate successes and learn from their challenges.

Green Schools' instructional materials are correlated to the California Department of Education standards, making it easier for teachers to integrate into their curriculum and strengthen student academic learning. Students learn about ways they can help the environment, a compelling issue for many young people, and will involve their schools and families in energy lessons and energy efficiency practices.

#### Green Campus

Modeled after the Green Schools, Green Campus realizes immediate energy savings on campus, particularly in dorms; educates the campus community on the importance and methods of saving energy and other resources and integrates resource efficiency into

**Green Campus realizes immediate energy savings on campus, particularly in dorms; educates the campus community on the importance and methods of saving energy and other resources and integrates resource efficiency into students' academic learning.**

students' academic learning. The program uses student interns, who recruit and work with an advisory committee of administrators, faculty, and staff to plan and carry out activities, such as energy-saving competitions, or "decathlons." For example, the program will sponsor "Energy Savings in Dorms," where campus residents compete to reduce energy savings after interns establish energy usage baselines in their residence halls. Results will be tracked and winners announced every month. Input from members of the PAG recommended that schools have energy efficiency decathlons.

In addition to energy savings competitions in the dorms, Green Campus interns will work with faculty, administration and staff to off-set information gathering costs associated with identifying potential energy savings throughout campus; interns will work closely with the faculty and administration to promote energy efficiency and conservation within the campus community through events and meetings.

#### **9. Program Objectives**

All program components will promote available energy efficiency programs, such as SCE's Business Incentive program, and services and lead schools and homes to retrofits.

### LivingWise®

- Target 43,400 students and their households in the 2006-08 program years: 10,500 students in 2006; 14,000 students in 2007 and 18,900 students in 2008
- Increase awareness and adoption of energy and water efficiency measures at home and at school through the education component

### Green Schools

- Train and support teams of teachers, custodians, and administrators at 30 new schools per year, in addition to up to 30 second year schools to implement energy efficiency activities
- Provide energy audit training to 20 high schools (approximately 300 students) per year
- Train college students to assist high school students in conducting approximately 250 small business energy audits per year and 15 retrofit projects
- Exchange 100 incandescent bulbs with compact fluorescent lamps in 25 schools per year for a total of 2,500 bulbs
- Work with school teams to install low-cost retrofits at 50 schools per year

### Green Campus

- Implement program at 3-4 campuses in the SCE service area during 2006-08
- Conduct annual light bulb exchanges focusing on off-campus housing in each university
- Conduct energy savings competitions on each campus each year
- Exchange incandescent bulbs with compact fluorescent lamps in campuses for a total of 1,250 bulbs per year
- Identify potential energy savings on each campus and make policy recommendations to capture these savings

## **10. Program Implementation**

Program implementation involves implementing the following three program components to provide education and achieve energy savings.

### LivingWise®

Initial implementation includes program customization to promote utility energy efficiency programs as well as water conservation programs, teacher outreach and enrollment, materials production, kit assembly and materials shipment.

- Enrollment data and teacher information will be gathered for eligible schools in the target area(s) approved by SCE. Teachers will be contacted via mail, email, fax and phone to introduce the program. Individual participation commitments will be collected.
- RAP will assemble and ship LivingWise® activity kits for each participant. The kits may include, but are not limited to, high efficiency showerhead, compact fluorescent lamp, LimeLite® Night Light, FilterTone® Alarm, kitchen aerator, water temp check card, air ruler, bathroom aerator, mini tape measure, flow rate

- test bag, resource fact wheel, toilet leak detector tablets, drip gauge, Adventures in Green Valley® CD-ROM, installation instructions, and order form.
- Additional customization of teacher, student and family instructions, and website will be ongoing.
  - Coordination and delivery of individual shipments, by school, will be conducted using common carrier to participating schools.

Throughout program implementation, RAP provides ongoing teacher support, results collection, and results tracking and reporting.

- RAP contacts participating teachers via phone and email to answer implementation questions and to monitor program progress.
- Participating teachers gather completed student program materials and forward them to the RAP Program Center for processing. RAP provides ongoing support to participating teachers to ensure maximum response.
- RAP collects, stores, and summarizes results for the program.

### Green Schools

Program implementation requires identifying school districts to participate, recruiting school sites and providing school support. A Statement of Intention (SOI) will be developed, in a non-legal format, for each participating school district outlining the roles and responsibilities of the school district and the program. The SOI encourages districts to return a percentage of savings back to the schools that achieve them. Each school will complete a brief application describing their desire to participate and identifying a team of teachers, custodians, administrators to champion the program at their school.

Program implementation also requires the following activities:

- Conduct two-day Professional Development Workshops for teams of teachers, custodians, administrators, and other participants from each school. At the professional development workshop, program participants receive energy-related instructional resources and learn how to integrate hands-on, inquiry-based learning activities into their instruction. Each team works together to formulate a customized plan for how teachers will integrate energy into instruction, how teams will save energy at school, how the whole school will become involved in saving energy, and how the information will be taken home and into the community.
- Train college interns to work with teams. College interns will make monthly visits to schools and provide overall support for school teams. The program will train, manage, and supervise the college interns. Interns will also lead teams in implementing activities with measurable savings, such as light bulb exchanges and small business energy audits, as well as providing energy information and advice.
- Establish baselines of electricity and gas usage for each participating school and provide monthly tracking reports to school teams. All schools will receive historical baselines as well as monthly energy data to track their energy usage.
- Provide the following hands-on learning opportunities to interested school teams:

- High school students will be trained to become energy auditors through the program's Student Energy Audit Training program (SEAT). These students will conduct energy surveys of their schools and present their findings and recommendations to district administration and school boards.
- College students in SCE's service area will be trained to mentor and assist high school students who have completed the program's SEAT training in performing energy surveys on small businesses and encouraging those businesses to install efficiency retrofits.
- Middle and high school students will participate in the innovative Residential Retrofit Program (RRP). The RRP teaches students to install low-cost retrofits, such as CFLs and low-flow showerheads. Students also analyze their home utility bills before and after installation to see whether the retrofits result in energy savings.
- Offer energy efficiency, demand response and Building Operator Certification (offered through SCE's Education, Training and Outreach program) to interested school and district facility staff. This training would increase the capability of facility staff to provide expert guidance to teachers and students on energy efficient operations, maintenance, and retrofits.
- Provide information to teams on low-cost school retrofits. The program will funnel incentives available through energy efficiency, demand response and renewable energy programs to schools. Students will research the most cost-effective and strategic retrofits to install in their schools, subject to facility staff input.
- Conduct Mid-Year meetings of school teams and distribute stipends to successful participants. The mid-year meeting brings teams together to discuss successes and challenges, network with other participating schools in the area, and plan activities for the second half of the school year. Each team member is given a stipend for documented participation in the program.
- Convene Advisory Council meetings. The program will continue to convene the California Green Schools Advisory Council, a group of leaders in the California energy and education fields that meet twice a year, to discuss potential improvements to the California Green Schools program. These meetings provide valuable guidance and insight into the integration of energy efficiency into the California educational structure and make the program more useful to California teachers and administrators.
- Conduct end-of-year meeting/celebration of school teams. The end-of-year meeting brings all Green Schools teams together to celebrate successes, recognize outstanding accomplishments, and plan summer activities.

### Green Campus

Program implementation involves facilitating a planning meeting with student organizers and key administrators, facility staff, and faculty at each campus. The purpose of this meeting will be to introduce the program, discuss the role of energy efficiency and

demand response on campus, and engage participants in a planning process that will result in identifying the overall goals for the program. Participants will set goals for:

- Saving energy on campus
- Integrating program activities into academic learning
- Influencing the larger campus population and the community. The outcome of the meeting will be an agreement on goals and priorities for the program and identification of the research, information and partners needed for a successful project.

Implementation also requires the following activities:

- Recruit and support interns at each campus in implementing program activities. The program will hire and support an intern to work on key facets of program development and implementation over the summer, including conducting research, developing partners, and coordinating outreach to incoming freshmen. The program will also hire and support additional interns to work on program implementation throughout the school year. The number of interns hired on a given campus will vary from school to school and will depend on the number of highly qualified applicants. The program will work closely with the newly hired interns as they identify their objectives and draft a detailed implementation plan.
- Conduct a training session for newly hired interns and provide ongoing support to interns in carrying out their Green Campus plans. The training session for newly hired interns will include an introduction to the components of the Green Campus Program and energy use on campus, as well as in-depth training on topics such as meeting facilitation, marketing, budgeting, etc. Alliance staff will facilitate strategy sessions and will work with the interns to capture ideas generated at the training session into their evolving implementation plans. The Alliance will provide ongoing support to interns, in the form of bimonthly conference calls and periodic campus visits, to assist the interns in carrying out their Green Campus plans and activities.
- Conduct fall planning meetings of student organizers and key administrators, facility staff, and faculty at each campus. Interns will bring new participants up to speed on the program, report on activities conducted to date, unveil future plans, and solicit feed-back. Meeting participants will revisit program goals and finalize planning for the fall term. Following the fall planning meeting, the program will meet with interns and help them modify their implementation plans, incorporating meeting participants' suggestions and comments.
- Convene mid-year meeting of all participating campuses. This event will bring interns together with administrators, faculty, and staff from various campuses. Meeting attendees will share successes, discuss challenges, and plan Green Campus activities for the remaining half of the academic year.
- Integrate energy efficiency and conservation into course curricula. The program will work with interns and faculty of various disciplines to tie Green Campus activities into students' academic plans. Students will be encouraged to take many different approaches, such as developing a class based on the Green Campus or conducting a semester-long practicum or independent study based on an aspect of campus energy use. Interns will document the results of their research and, when

appropriate, will be encouraged to make policy recommendations to administrators based on their findings.

- Conduct outreach to K-12 Green Schools in the SCE's service territory. Interns will reach out to local K-12 school participants in the program. Activities may include visiting teams monthly to support them in carrying out their energy plans and activities, training high school students to conduct energy surveys in small businesses, residences, or community buildings, etc.
- Convene end-of-year meeting of all participating campuses. The program will work with interns and to review the year's progress, recognize group and individual accomplishments, and plan for the summer and following year.

### **11. Customer Description**

The program targets K-12 and college students and their families in SCE's rural and moderate-income areas or other locations as directed by SCE. The program also targets K-12 schools; regional occupational centers; and universities, such as the University of California and California State University campuses, within SCE's service territory.

### **12. Customer Interface**

The program is designed to provide maximum ease for students, teachers and schools to join. Subcontractors will contact teachers and schools for program enrollment. All materials, training and program support are provided at "no cost" with easy access to participants.

### **13. Energy Measures and Program Activities**

#### **13.1. Measures Information**

Measure information provided in corresponding portfolio workbook.

The LivingWise® activities kit contains retrofit devices and supplies. The kits will include a CFL, nightlight, air filter alarm, showerhead and faucet aerators. Students in the programs targeting school buildings and community outreach will receive at least one CFL for their home or dorm room.

#### **13.2. Energy Savings and Demand Reduction Level Data**

Energy savings and demand reduction information provided in corresponding portfolio workbook.

#### **13.3. Non-energy Activities**

Non-energy activities include marketing and subcontractor activities such as educating, training, conducting workshops and supporting the schools market.

#### **13.5. Quality Assurance and Evaluation Activities**

SCE will perform on-site inspections and telephone verifications on an ongoing basis to monitor and verify program participation.



**13.5.1. Expected Number/Percent of Inspections**

SCE will inspect five percent of the total participants each year.

**13.6. Marketing Activities**

Marketing activities will be performed by SCE and the subcontractors to solicit and recruit participation of school superintendents, principals and teachers into the program and include the promotion of all available utility incentive programs and services.



## CA New Homes Program (includes Advanced Home)

<b>1. Projected Program Budget</b>	<b>\$</b>	<b>18,332,158</b>
<b>2. Projected Program Impacts</b>		
MWh		48,212
MW (CEC Factor)		10.46
<b>3. Program Cost Effectiveness</b>		
TRC		4.13
PAC		8.11

#### 4. Program Descriptors

Market Sector: Residential New Construction  
 Program Classification: Local  
 Program Status: Revised Existing

#### 5. Program Statement

Production builders are generally aware of the impending changes to the Title 24 Building Energy Efficiency Standards effective October 1, 2005. However, there is concern among builders as to which energy efficiency strategies they will be able to cost-effectively incorporate in their projects. "California ranks third among all states in new housing production so far this year, behind Florida and Texas."<sup>46</sup> Even though there is a slight decrease in new housing production in California in 2005, it is expected to remain above the 200,000 unit level through 2006.<sup>47</sup>

The residential new construction market for both single family and multifamily housing has long been recognized as a potential lost opportunity for long-term energy savings.

#### What's New for 2006-08?

- **Innovation**
  - includes prescriptive component and showcase/demonstration component
  - partner w/SCG
- **Integration**
  - Collaborative links with multiple SCE energy efficiency programs containing new construction program elements (Comprehensive HVAC, Residential Lighting, Local Government Partnerships)
- **Other Program Improvements**
  - Increased comprehensive training offerings

In 2004, SCE's California Energy Star® New Homes Program (CESHNP) committed more than 7,100 single family units and over 2,500 multi-family units resulting in a total of 8,430 MWh of net annualized energy savings and 9.1 MW of net peak load reduction. Based on building trends and forecasts from the California Industry Research Board

<sup>46</sup> Construction Industry Research Board (CIRB) Review, April 28, 2005, pg. 2

<sup>47</sup> CIRB Review, April 28, 2005, pg. 4

(CIRB), housing permits increase an average of 3% per year. For 2006, approximately 140,000 single family and 60,000 multifamily housing units are forecasted for the entire state. Of those statewide permits, 50 percent will be single family homes

**Constructing residential housing that exceeds *the entire country's* energy efficiency standards is not only commendable but sensible economically and environmentally.**

and 70 percent will be multi-family units to be built throughout Southern California. Therein lies a huge opportunity for SCE to continue to influence builders, assist customers with energy efficient solutions, and contribute towards the state's and utilities collective goals of reducing kWh usage and load demand. Constructing residential housing that exceeds *the entire country's* energy efficiency standards is not only commendable but sensible economically and environmentally.

Currently, the award-winning CESHNP is a performance-based program that encourages and assists builders to incorporate energy efficient technologies and design in the homes they construct to exceed the California Title 24 Energy Efficiency Standards by a minimum of 15%.

In California, homes built to current Title 24 standards are 15% more efficient than homes built to the federal government's standards. This is due in part to the adoption of AB970 and subsequent revisions to Title 24 in 2001. Effective October 1, 2005 the

**Effective October 1, 2005 the California Energy Commission (CEC) will again make significant changes to energy code standards that will raise the efficiency requirements of California homes.**

California Energy Commission (CEC) will again make significant changes to

energy code standards that will raise the efficiency requirements of California homes. These new requirements will increase the standards by an additional 15% for new homes built in California. That said, California's building codes will exceed the rest of the nation by 30%. These new standards will be challenging and more costly to meet compared to the existing standards. For instance, current code for HVAC installations require a 10 SEER unit, the new October 2005 code requires a 13 SEER unit which is more expensive and at this time less attainable in the market in mass quantities. Other cost increases and code changes include, but are not limited to, lighting standards.

At this time, single family and low-rise multifamily builder projects meeting the program requirements will also meet the requirements of the U. S. Environmental Protection Agency (EPA) Energy Star® Homes Program. Currently, the EPA has proposed changes to the Energy Star® specifications for new homes and are expected to be finalized in July 2005 at which time the utility may adjust program requirements.(The EPA does not currently recognize high rise construction with the Energy Star label. The information gathered as a result of this program is shared with the EPA Energy Star®. EPA is

interested in the outcome of this program activity for possible future Energy Star designation of multifamily buildings that are four or more stories.)

## 6. Program Rationale

The CESHNP targets builders and developers for the improvement of energy efficiency in single family and multifamily dwelling units. The California Building Industry Association (CBIA) and the California Energy Commission (CEC) continue to look to the utilities to help in educating builders and other industry participants in advancing increased energy efficiency in new construction. The value of this statewide program is greatly recognized by the Environmental Protection Agency (EPA) and has won Energy Star® Partner of the Year awards for the past three consecutive years.

According to the RLW 2002 EM&V on the CESNHP prepared for California IOUs, RLW's findings declared the value of the program as follows: "The 2002 Energy Star New Homes program was overall a tremendous success in California."<sup>48</sup> "The Energy Star

**The value of this statewide program is greatly recognized by the Environmental Protection Agency (EPA) and has won Energy Star® Partner of the Year awards for the past three consecutive years.**

program has been successful in establishing awareness about energy efficient building measures. In collaboration with the EPA, the Energy Star® logo is a recognized symbol of quality and energy efficient homes. The collaboration between the utilities established uniform services offered to customers. In addition, it allowed for an opportunity to exchange ideas and to combine efforts."<sup>49</sup>

Though builders will face challenges to exceed code after October 1, 2005, studies show that with education and assistance from utilities and industry consultants, "The results of the interviews with Title 24 consultants revealed the same pattern – the most difficult period of adjustment immediately follows the inception of new standards. Over time, builders adjust their practices and accept the new requirements."<sup>50</sup>

With increased estimates of single-family and multi-family new construction for the Southern California region, offering the CESNHP continues to meet the needs of:

- California home buyers
- The Building Industry
- The Governor's Executive Order S-20-04, The Green Building Action Plan
- SCE's Energy Efficiency Goals

<sup>48</sup> Evaluation, Measurement and Verification of the 2002 California Statewide Energy Star® New Homes Program, RLW Analytics, Inc. Phase 1 Report – March 1, 2004, Chapter 1, page 3

<sup>49</sup> Evaluation, Measurement and Verification of the 2002 California Statewide Energy Star® New Homes Program, RLW Analytics, Inc. Phase 1 Report – March 1, 2004, Chapter 13, page 187

<sup>50</sup> Residential New Construction Baseline Study of Building Characteristics, ITRON August 17, 2004, page 7-4

In order to encourage and increase builder participation, SCE will expand upon the strong base already developed through the CESNHP. This will be accomplished by offering additional opportunities to incorporate energy efficiency into new projects cost effectively. The Residential New Construction program will expand in 2006-2008 to include three program elements:

- performance-based approach (CESNHP)
- prescriptive approach
- demonstration or design showcase approach (Advanced Home)

Due to the increased Title 24 code changes and the challenges they present, it is now necessary to offer a new innovative two-tiered approach as a means of encouraging

**Due to the increased Title 24 code changes and the challenges they present, it is now necessary to offer a new innovative two-tiered approach as a means of encouraging builder participation through options and choices.**

builder participation through options and choices. This will be accomplished by presenting different scenarios for measure/system installations in order for builders to stay within energy budgets and meet energy efficiency requirements.

These options will allow more builders to participate and qualify for incentives which in turn allows a diverse group of residential housing projects (i.e., small and large production single-family and multifamily, manufactured homes, custom homes) to qualify as Energy Star® rated. Customers will benefit from the increased energy efficiency of their home by realizing energy savings, lower utility bills, and superior comfort compared to standard new housing. SCE will review and assess current documentation related to the potential development of an additional program component for manufactured housing via an upstream incentive program for manufacturers.

Fixed incentives will be provided to builders for achieving either the performance or prescriptive program qualifications. The performance approach will provide rebates for achieving a minimum 15% above Title 24. The prescriptive approach will provide rebates for deemed savings where builders can earn incentives for measures that are more efficient than those that would be required for minimum 2005 Title 24 compliance.

### **Program Advisory Group and Public Workshop Meetings**

During the program planning process, the following recommendations were made by the Program Advisory Group (PAG) and Public:

*Recommendation:* Include solar heating in the program, for example, solar heating in combination with tankless water heating.

*Action:* Currently the statewide PAG is investigating opportunities for energy efficiency in water heating. Solar space heating is not included in the program.

*Recommendation:* Create a tiered incentive approach in the program. Also tie appliances to the purchase of the new home.

*Action:* SCE integrated a tiered incentive approach with 25% improvement required under the prescriptive program in coastal areas. A Welcome Home packet will be available to new homebuyers which will promote efficient appliances among other information.

*Recommendation:* Provide incentives for buildings/homes for not installing central air conditioning in new construction.

*Action:* This recommendation was not integrated into the program. Builders would not support the recommendation because consumers prefer to have central air conditioning installed in new homes.

*Recommendation:* Agrees with Whole Building Analysis/approach. Piecemeal approaches do not work. Need a program that focuses on older homes.

*Action:* This program incorporates a whole building approach. SCE has other programs that focus on existing housing.

*Recommendation:* The program should provide education on HVAC - testing & sealing.

*Action:* The California New Homes program will coordinate service delivery with SCE's Comprehensive HVAC program which provides the recommended services.

*Recommendation:* Train evaluators to look at the whole package. There is an industry opportunity for independent evaluation of needs in whole house approach.

*Action:* The California New Homes program has a performance based element that facilitates a whole house approach to energy efficiency improvements.

*Recommendation:* Develop a certification program for homes that are brought up to a higher energy efficiency level.

*Action:* Participating homes in the California New Homes programs are certified as EnergyStar homes.

*Recommendation:* Encourage builders to incorporate a chip into new homes to monitor performance.

*Action:* Builders are not receptive to the chip proposal. Widespread agreement on design and protocols for the chip would be required prior to implementation.

*Recommendation:* The 10-15% proposed level for Residential New Construction appears too low. It should be increased to a level such as 50%.

*Action:* The California New Homes program will continue to encourage builders to exceed building efficiency standards by 15%.

*Recommendation:* Improve Title 24 software - but it should continue to be used.

*Action:* SCE will continue to use the existing Title 24 based software.

*Recommendation:* An additional tier above the 15% tier should not be added. SCE should look into fixing software if it can be manipulated to reach proposed tier levels.

*Action:* The California New Homes program will continue to encourage builders to exceed building efficiency standards by 15%.

*Recommendation:* The program should incorporate demand response measures such as smart-thermostats.

*Action:* The California New Homes program will incorporate demand response measures when they are feasible.

*Recommendation:* A 3-year plan, not a short-term plan, is needed for New Construction.

*Action:* The program addresses the next phase of homes that will be constructed after the expected adoption of more stringent Title 24 building standards in 2005.

*Recommendation:* Design competition may be a good strategy to pursue. Take risks to move the market beyond new standards.

*Action:* The program has been expanded to include a prescriptive approach and a demonstration/design showcase approach to continue the advancement of energy efficiency beyond the expected revisions in 2005 to Title 24 standards.

*Recommendation:* The program misses the remodeling market and should be expanded to incorporate this market.

*Action:* SCE will look for opportunities to provide energy efficiency options in the remodeling market. SCE has other programs that serve this market.

*Recommendation:* The program would benefit from an upstream strategy for the manufactured home market.

*Action:* SCE will review and assess current documentation related to the potential development of an additional program component for manufactured housing via an upstream incentive program for manufacturers.

*Recommendation:* Breakout a HVAC component for the new construction program including appropriate installation training and make it an upstream strategy.

*Action:* HVAC is part of the new Comprehensive HVAC program.

## **7. Program Outcomes**

The desired outcomes of the program are:

- Increased builder participation
- Increased number of Energy Star® rated new homes (single-family and multi-family)
- Increased energy efficiency benefits for customers (energy efficient home, lower utility bills)
- New opportunities for new construction in SCE's service territory
- Innovative methods of delivering a new revised program
- Continued synergistic efforts for program delivery among utilities
- Advance California's energy efficiency goals



- Heightened awareness of energy efficiency practices and services through education and training sessions on new and emerging technologies and programs that target the building industry

## **8. Program Strategy**

The population of California continues to increase rapidly as does the need for new housing. Energy efficiency has been identified as an important factor for builders in marketing their homes. Builders also confirm that energy efficiency features and Energy Star® marketing helps to differentiate their homes from their competitors. Awareness by home-buyers of the importance of energy efficiency will lead to higher demand for energy efficient homes and the desired response from builders to meet this demand.

Working together with single and multifamily builders, developers, architects, energy analysts, and other building industry professionals, this program will seek to increase energy savings which will be achieved through a combination of education, design assistance and financial incentives.

The new program will offer a performance-based component of 15% above Title 24 for inland regions (climate zones 8-16), as well as a prescriptive component containing a select list of measures from which builders not seeking the use of performance eligibility, may install above and beyond their minimum Title 24 compliance or 25% above code in the coastal areas (climate zones 1-7).

**Through the demonstration projects, the Advanced Home program will cover areas of sustainable design and emerging technologies as well as increased educational opportunities to builders.**

The prescriptive component will capture additional energy savings that would otherwise be considered “lost opportunities” for achieving energy efficiency savings when only offering performance-based options.

In addition, SCE will collaborate with SCG in offering the Advanced Home Program. This program offers residential new construction program support with technological changes in construction that increase not only energy savings but provide a more comfortable environment for the residential occupant. Through the demonstration projects, the Advanced Home program will cover areas of sustainable design and emerging technologies as well as increased educational opportunities to builders.

### Performance Based Incentives

Program	Climate Zone (See Note 1.)	Performance Level	Incentive per Dwelling Unit
Single Family	Coastal	15%	\$400.00
Single Family	Inland	15%	\$500.00
Multifamily	All Climate Zones	15%	\$240.00

Note 1: For the purpose of energy usage analysis, California is divided into 16 geographical areas, which have typical weather conditions and are referenced as climate zones. The CESHNP defines climate zones 1-7 as coastal and 8-16 as inland.

### Prescriptive Based Incentives

Measure	Climate Zone (See Note 1.)	Incentive per Dwelling Unit
High Efficiency HVAC, Quality Installation, Airflow/Refrigerant charge	All Climate Zones	Savings and Incentives will be included in Upstream Comprehensive HVAC
Quality Insulation Installation	All Climate Zones	\$100
Lighting	All Climate Zones	Savings and Incentives will be included in Upstream Lighting
Energy Star® Appliances	All Climate Zones	\$50

The program will continue to identify the performance component of the program through Energy Star® New Homes to both builders and homebuyers. Numerous surveys and studies continue to show the Energy Star® label represents greater value and awareness for energy efficiency to consumers and the environmental stewardship it symbolically represents.

### 9. Program Objectives

To increase energy efficiency in new homes, both single and multifamily, above state standards. In a recent strategy assessment report, builders were surveyed and the majority believed that energy efficiency is an important factor in marketing their homes currently. Also, a large percentage responded that they believed that the importance of energy efficiency in marketing new homes will increase with the implementation of the 2005 changes to Title 24. The program will focus on maintaining this focus on energy efficiency.

## **10. Program Implementation**

SCE maintains strong community ties and well-developed relationships with local associations and organizations that serve the building industry. The program managers will continue to work closely with an implementation team made up of field personnel as well as third parties with technical expertise in both the multifamily and single family markets. The implementation team will market the program to builders, provide technical and feasibility analyses, and assist with program documentation and application requirements. In addition, SCE will seek to coordinate with other internal energy efficiency programs containing new construction elements such as the Local Government Partnership, Comprehensive HVAC, and Residential Upstream Lighting programs. SCE also will coordinate on a statewide level with the IOUs, where applicable.

In addition, SCE will collaborate with SCG to collectively offer the Advanced Home program to builders seeking assistance in the development of sustainable design and construction, green building practices and emerging technologies.

## **11. Customer Description**

The program shall target all residential builders regardless of production size, market segment, or geographic location. In addition, continued attention will be directed towards customers who typically do not have easy access to program information or generally do not participate in energy efficiency programs for a variety of barriers.

## **12. Customer Interface**

SCE will present the program to builders, developers, Title 24 consultants, architects, and other building industry professionals. SCE will also promote participation through a team of implementers including but not limited to field representatives, subcontractors, and industry trade vendors who will work directly with the builder as well as their affiliated design and installation team.

## **13. Energy Measures and Program Activities**

### **13.1. Measures Information**

Measure information provided in corresponding cost-effectiveness calculator and portfolio workbook.

### **13.2. Energy Savings and Demand Reduction Level Data**

Energy savings and demand reduction information provided in portfolio workbook.

### **13.3. Non-energy Activities (Audits, Trainings, etc.)**

The program will continue to offer comprehensive training courses and educational seminars relevant to building energy efficiency into new construction projects including Title 24 code training. Other activities include attendance at building industry trade conferences/outreach events and contractor/builder field visits as necessary. The target audience consists of builders, developers, energy consultants, architects, and other industry professionals.

#### **13.4. Subcontractor Activities**

Residential New Construction third-party implementers will provide direct implementation services for builder outreach, design assistance, plan check procedures, and field verification. These services will be utilized to review all project submittals to ensure that they meet both minimum state energy code compliance (Title 24) and the CESNHP program criteria. The consultants and staff selected will have extensive experience in all areas of energy code compliance, HERS verifications and knowledge of construction practices as they relate to the energy code.

#### **13.5. Quality Assurance and Evaluation Activities**

An inspection of the fully constructed dwelling unit will ensure that all measures have been installed according to CEC established protocols. Appropriate benchmarks will be determined for measures which do not have an established protocol.

##### **13.5.1. Expected Number/Percent of Inspections (planned percent of projects)**

At this time it is undetermined as to the planned number of inspections. However, SCE will follow protocols established by the CEC for the specific measures.

#### **13.6. Marketing Activities**

Program marketing and outreach will be achieved through various methods including printed program literature, direct mail, and media advertising in various industry trade magazines. SCE will also directly market to the single family and/or multifamily homebuilders through local and regional involvement with the Building Industry Association, Affordable Housing Association, and other associations related to single family and multifamily residential new construction markets. In addition, SCE will continue its presence in key industry events by attending and exhibiting in regional and local trade shows that offer opportunities to promote the program. Finally, SCE will seek to educate and inform consumers most effectively through potential SCE bill inserts and outreach through local community events as to the benefits and performance features of energy-efficient new homes.

### **III. Crosscutting Programs**



# Local Government Partnerships Program

<b>1. Projected Program Budget</b>	<b>\$</b>	<b>44,491,054</b>
<b>2. Projected Program Impacts</b>		
MWh		131,961
MW (CEC Factor)		28.64
<b>3. Program Cost Effectiveness</b>		
TRC		3.15
PAC		2.49

## 4. Program Descriptors

Market Sector: Crosscutting  
 Program Classification: Local  
 Program Status: Existing

## 5. Program Statement

Partnerships have been an integral element of SCE’s overarching demand-side management procurement strategy since our work with the “flagship” model pioneered by SCE, the cities of Irvine and Santa Monica, and the Energy Coalition.

Local Governments, especially cities, counties and special districts (collectively referred to as Jurisdictions) have access to residential, commercial and institutional constituents that are also SCE customers. Also, local government economic redevelopment and similar designated areas are specifically designed to increase community prosperity and represent a vital source of energy savings across a diverse residential and business market sector that has had lower participation in traditional energy efficiency programs.

Our past experience with SCE’s Local Government Initiative (LGI) program indicates that Jurisdictions are not being sufficiently utilized to aid the energy efficiency effort through educating their communities and distributing information on energy efficiency, demand response, self-generation and low income programs. SCE’s 2002 and 2003 LGI Evaluation prepared by Wirtshafter Associates suggested that SCE was missing opportunities to partner with local Jurisdictions to address energy efficiency in municipal buildings. The studies recommended that SCE increase its efforts to “...achieve its true potential in partnering with local Jurisdictions to deliver energy savings.” In addition, local

<p><b>What’s New for 2006-08?</b></p> <ul style="list-style-type: none"> <li>• Innovation           <ul style="list-style-type: none"> <li>○ Assist with “Green Building Action Plan” and address missed opportunities in public facilities</li> </ul> </li> <li>• Integration           <ul style="list-style-type: none"> <li>○ Provide information on demand response and self-generation programs offered at SCE</li> <li>○ Leverage community infrastructure to increase participation in existing EE programs</li> </ul> </li> <li>• Other Program Improvements           <ul style="list-style-type: none"> <li>○ Four exciting new Partnerships</li> </ul> </li> </ul>
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Jurisdictions are now more than ever interested in energy efficiency as they develop strategies to implement the Governor's Executive Order S-20-04, The Green Building Action Plan. Further, the Program Advisory Group (PAG) is also desirous of a vehicle to disseminate comprehensive energy information to cities and to help communities transition to the new energy codes.

## 6. Program Rationale

SCE's Local Government Partnerships (LGP) program will optimize the opportunities for institutions, Jurisdictions and their communities to work toward the common goal of achieving short and long-term energy savings, reduced utility bills, and an enhanced level of comfort in

and buildings as homes. LGP promote an efficiency

**SCE will assist Jurisdictions in retrofitting municipal buildings to in complying with the Governor's "Green Building Action Plan".**

municipal commercial well as will help energy "ethic" by

increasing awareness and participation in energy efficiency, demand response, self generation, and energy management assistance (low income energy efficiency and CARE) programs. Energy code training will be feature strongly in the LGP. As recommended by the PAG, LGP will deliver energy code training to all cities and counties in SCE's service territory.

LGP involves the creation of energy partnerships with cities, local governments, local government organizations, state and community universities and colleges to set energy efficiency goals and generate measurable, verifiable energy savings through identification of specific energy efficiency projects and community outreach activities. SCE will assist Jurisdictions in retrofitting municipal buildings to in complying with the Governor's "Green Building Action Plan".

LGP supports the Commission vision, as set forth in 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." Local government economic redevelopment and similar designated area are specifically designed to increase community prosperity and represent a vital source of energy savings across a diverse residential and business market sector that has had lower participation in traditional energy efficiency programs. These customers represent significant energy savings and demand reduction potential, as well as potential lost opportunities if not given targeted consideration.

## 7. Program Outcomes

The desired outcomes of this program are:

- Short and Long-term energy savings and demand reduction for Partner organizations and the communities they serve. Partners, especially Jurisdictions, will leverage their local infrastructure to "spread the word" about energy efficiency and deepen the reach of SCE's portfolio of programs and services.



- An energy efficiency “ethic” resulting from delivery of energy information to the communities, training and education for local government facility managers, energy managers and other staff in the use of “best practices” methodology for identifying and implementing energy efficiency opportunities in their facilities; and possibly HVAC and other training targeted at refrigeration/HVAC technicians.
- Integration of demand side management strategies in Partner organizations and progress towards the goal of 10% reduction of grid based purchases by the year 2010 and 20% by 2015 in government organizations.

## **8. Program Strategy**

SCE believes that considerable progress towards our energy savings goals will come from partnering with local communities and leveraging the strengths of both partners to bring the message about energy efficiency conservation and savings to our customers. The current program includes both local and statewide Partnerships with state as well as local government organizations and other investor-owned utilities. SCE will build on experience with seven 2004-05 partnerships which embraced over thirty cities and the counties of Los Angeles, Ventura and Kern as well as state and community universities and colleges.

Current SCE Partnerships which will be continued in 2006-08 are as follows:

- **City of Bakersfield/Kern County Partnership:** Energy information and education and retrofit of municipal buildings, small businesses and residential units.
- **Community Energy Partnership:** Partner with individual cities to provide energy information, conduct community promotions, residential tune-up and an on-line school program.
- **Los Angeles County Partnership:** Energy information and retrofit and retro-commissioning of county-affiliated facilities.
- **Pomona Inland Valley Partnership:** Energy information and education and retrofit of public facilities
- **South Bay Partnership:** Energy information center, energy education, audit of municipal buildings and identification of energy savings projects for funding.
- **University of California/California State University Partnership:** Energy information and education and retrofit of UC and CSU facilities.
- **Ventura County Partnership:** Regional resource center, energy education and retrofit of public facilities.

The following new Partnerships will be added in 2006-08:

- **California Department of Corrections/IOU Energy Efficiency Partnership:** Energy efficiency retrofits, monitoring based commissioning, energy efficiency education and best practices development.
- **California Community College Partnership:** Energy retrofits and load management projects, new construction assistance and emerging technology demonstration project.
- **County of Riverside Partnership:** Energy information and education and facilities retrofits.
- **County of Santa Barbara Partnership:** Energy information and education, energy savings project identification and retro commissioning.

Brief profiles of the above Partnerships are presented in later sections.

#### Future Partnerships

- SCE has reserved a pool of funds to allow for the identification of new partnership projects throughout the funding cycle as suggested during the public process. This strategy also takes into account the challenges faced by our partners in the approval of capital projects and allows the immediate implementation of projects that are “ready to go”. This fund will also be available to existing partners for the funding of additional energy savings projects. New partnering opportunities with local governments will be identified by the Local Government Energy Action Resources (LGEAR) Program and funded from this budget.

The strategy for each Partnership will vary as individual Partnerships will require a different approach depending on climate zone, customer mix, market characteristics and individual need. Each Partner will conduct activities to funnel, i.e., increase participation in, existing energy efficiency rebate programs. Where possible, Partners will utilize their existing infrastructure, for example water bills, tax renewal notices and community outreach activities, to funnel residential energy efficiency programs. General partnership strategies include the following:

Energy Efficiency Retrofits: Provide incentives, rebates and other financial incentives to offset the costs of energy efficient retrofits in order to address the financial barriers identified by partnering organizations. In some cases incentives will be customized within established guidelines to ensure cost-effectiveness.

Energy Information: Provide government, businesses and residents with information on energy efficiency programs and services, demand response, self-generation, low income, CEC, DOE, EPA and other energy assistance programs such as gas and water efficiency resources. In addition, statewide and national energy marketing campaigns will feature in Partnerships.

Energy Efficiency Training: Energy code training and other energy efficiency training targeted to meet the needs of the region. Training will include Building Operator Certification (BOC) training and will be targeted to building professionals and other training that will target, energy managers and local government facility managers in all

**SCE will also provide assistance in developing recognition programs, including expedited permitting to builders participating in energy efficiency programs, for example, Savings By Design, Checkpoint or SCE's Energy Star New Homes Program, as recommended in the public process.**

cities in SCE's service territory. This service will help communities transition to the new energy codes and provide information and education to assist local jurisdictions that are considering local ordinances regarding resale of homes as well as establish tree programs. This addresses comments and suggestions made in the public process to establish a tree program. Through the Local Government Energy Resources Program (LGEAR), SCE will also provide assistance in developing recognition programs, including expedited permitting to builders participating in energy efficiency programs, for example, Savings By Design, Checkpoint or SCE's Energy Star New Homes Program, as recommended in the public process. It is anticipated that partnering Jurisdictions will facilitate early identification of residential and nonresidential new construction projects through the cities permitting process as the PAG recommended.

Energy Audits and Project Identification: These services will be provided to support local government investments in energy efficiency retrofits, renovation, new construction and monitoring based continuous commissioning (MBCx) and retro commissioning (RCx) of Partners facilities. Specialized assistance will also be available through the relevant energy efficiency programs, for example Savings By Design, where applicable.

Technical Assistance: SCE has strong technical analysis capabilities, including cost effectiveness calculations, technology application and deployment, and analysis of savings from different operating environments. SCE will pool its resources with Partners to ensure optimum program effectiveness. In design and cost addition, Partnerships will leverage SCE's existing program infrastructure for inspections, rebate payment processing tracking and reporting. The LGP will provide planning and project management support to help with coordination and implementation of energy efficiency projects as our experience indicates that the absence of this type of support is a barrier to the implementation of energy efficiency projects.

**SCE will collaborate with the State of California to enhance Green building compliance support.**

Green Building Initiative Executive Order Compliance: Assist interested cities in Leadership in Energy and Environmental Design (LEED) certification and implementing the Governor's Executive Order S-20-04, The Green Building Action Plan, as requested

in the public process. SCE will collaborate with the State of California to enhance Green building compliance support. Green Building compliance provides an excellent opportunity to work with new and existing water agency partners for greater energy savings and water efficiency, as recommended by the PAG.

Climate Change Registry: Through Partnerships, as well as other energy efficiency programs, SCE will explore opportunities to leverage the California Climate Change Registry (Registry) to promote energy efficiency to large commercial and industrial customers. SCE will also take the opportunity to inform these customers about the Climate Change Registry and encourage the accurate reporting of emissions in California.

Benchmarking and Performance Tracking: Assist partnering organizations in benchmarking their energy use by providing energy use data for their facilities as well as assist in the development of facility retrofit and retro-commissioning plans. SCE's Bill Manager will be leveraged in the Partnerships.

Energy Efficiency Outreach and Community Activities: As recommended in the public process, Partnerships, where possible, will funnel local and statewide energy efficiency programs, including the Integrated School-Based Program. In addition, local governments will leverage their unique communications and outreach infrastructure to promote the programs. Community activities will include "neighborhood sweeps", for example, CFL change-outs, air conditioner, refrigerator and freezer recycling pick-ups, and small business retrofits. It is anticipated that these activities will mobilize communities and create excitement around energy efficiency, resulting in deeper penetration of statewide and local energy efficiency programs.

Technology Transfer: A Technology Transfer study was conducted as one of 2004-05 Partnership program elements. The study focused on the energy management needs of various local governments and public agencies in the area. One of the preliminary conclusions of the Technology Transfer study was that local government/public agency customers desired more networking specifically to discuss technical training and project implementation successes that specifically addressed governmental challenges. Some Partnership programs will provide workshops to address these issues.

## **9. Program Objectives**

SCE anticipates that the partnership programs will achieve considerable energy and demand reduction by implementing the respective program strategies in the various partnerships. Other objectives include:

- Helping local governments, state and community universities and colleges to achieve cost-effective long and short term energy savings.
- Conduct energy efficiency and energy code training for building professionals, energy managers, facility managers and other staff
- Improve energy efficient operations and maintenance practices in Partner facilities

- Assist Partners in the development of integrated demand side management strategies for their facilities and implementation of the Governor’s “Green Building Action Plan”.
- Provide information on all energy-related options and sponsoring of community with local government, local community-based organizations, businesses, schools and others to generate awareness and increase participation in statewide and local energy efficiency and low income programs.

**10. Program Implementation**

As with program strategy, specific implementation of each Partnership program and the roles of Partners will vary depending on program design and selected strategies. The roles of each

Partner will be defined and confirmed in a Partnership

**SCE will organize and host regularly scheduled “roundtables” meetings for our partners and us to share “best practice” and to mentor each other.**

Agreement acceptable to all parties. All Partners will participate equally in program development and the establishment of goals, deliverables and milestones for the program and share commitment to the achievement of energy savings and demand reduction goals. SCE will organize and host regularly scheduled “roundtables” meetings for our partners and us to share “best practice” and to mentor each other.

SCE will ensure that all energy-related information and marketing materials are made available for use or distribution by the Partners and will be responsible for providing technical support and energy and demand information as appropriate. To reduce the administrative burden on the partners, SCE will utilize its existing infrastructure to process and pay rebates and incentives, to assist with pre and post inspection and verification and to coordinate the independent evaluation, measurement and verification effort.

Local government and state and community universities and college Partners will use their communication channels, where possible to conduct outreach to customers, community-based organizations, building officials and energy efficiency contractors. Partners will also facilitate the identification and scoping of energy savings projects and commit the required matching funds for retrofit and commissioning activities.

In addition, SCE will file Partnership program proposals, track and report program activities, expenses and status to Commission and make payments to Partners.

**11. Customer Description**

The LGP Programs will target cities, counties, state and community universities and colleges and local government organizations. All SCE customer segments, residential and nonresidential, that can be positively influenced by Partners to harvest greater energy efficiency than would otherwise be possible through traditional marketing and outreach

efforts, will benefit from the program. Low income customers, multi-family residences, small businesses and customers with primary languages other than English will be better targeted by Partnership activities.

## **12. Customer Interface**

SCE and/or Partner representatives will initiate person-to-person contact with appropriate personnel. Intake of customers into a Partnership program will be simple with any registration or application form conforming to best practices for non-residential incentive programs. Customers benefiting from Partnership programs through their “funneling” efforts will be subject to the customer interface feature of the respective program. It is expected that all Partnerships will have a designated SCE contact.

## **13. Energy Measures and Program Activities**

Measure information for each Partnership will be provided in corresponding portfolio workbooks.

### **13.1. Measures Information**

A full range of measures will be employed in the Partnerships and will include lighting, HVAC, motors and controls.

### **13.2. Energy Savings and Demand Reduction Level Data**

Energy savings and demand reduction estimates are provided for in the corresponding portfolio workbooks.

### **13.3. Non-energy Activities (Audits, Trainings, etc.)**

Presentations, attendance at conferences, meetings, community fairs, outreach events, marketing materials such as brochures and information packets, on-site visits and Title 24 and other energy efficiency training classes are all non-energy related activities associated with Local Government Partnerships. In addition, LGP will conduct energy audits and energy efficiency planning activities.

### **13.4. Subcontractor Activities**

LGP will coordinate with various organizations and competitively select subcontractors to help deliver various program elements. SCE supplier diversity policy will be observed in the selection of contractors as suggested by the Program Advisory Group.

### **13.5. Quality Assurance and Evaluation Activities**

LGP staff will verify that work invoiced by subcontractors have actually being performed through appropriate documentation of all activities for which the vendor requests payment as well as regular on-site visits to ensure that training events and outreach activities are executed as planned. Back-up documentation will include marketing and outreach materials, attendance registers, evaluation forms and expense reports as appropriate.

Because of the "Uncertainty in savings estimates" issue identified in the National Energy Efficiency Best Practices Study on Non-Residential Large Comprehensive Incentive Programs (Quantum Consulting Inc., December 2004), SCE will participate actively in the estimation of energy savings for each project.

**13.5.1. Expected Number/Percent of Inspections (planned percent of projects)**

All large retrofit projects utilizing customized incentives will be inspected. LGP will also utilize existing energy efficiency programs, and the existing program's inspection criteria will apply as appropriate.

**13.6. Marketing Activities**

Marketing is addressed through direct mail, program literature, fact sheets, face to face meetings, customer education and outreach events, web links and selected media advertising. Partners will be encouraged to participate in community events, including "neighborhood sweeps" to create excitement and generate interest in energy efficiency. SCE will develop a menu of support materials and tools to be used by Partners, for example bill inserts and newspaper advertisements, as well as energy efficiency recognition programs. In addition, there will be presentations at city council meetings, builder conferences and other outreach events.

Partners, especially local governments, use their communications channels which include, water and waste removal bills, and tax notices to outreach to customers. A menu of marketing and outreach materials and activities will be prepared by SCE to be utilized by Partners in their community outreach efforts, for example flyers to be placed in water bills.

# City of Bakersfield/Kern County Partnership

## 4. Program Descriptors

Market Sector: Residential, Nonresidential  
Program Classification: Local  
Program Status: Revised Existing

The City of Bakersfield, Kern County, and the surrounding area is located in the San Joaquin Valley, an important area to the State of California but very isolated from much

**The program provides specially tailored measures such as direct installed products and locally based energy efficiency seminars...**

of SCE's, PG&E's, and SCG's service territories. The area is hard to reach and underserved. By partnering with the city and county governments, the partnership has been able to effectively reach entire communities within this area, including residential, multi-family, small businesses, and municipal buildings. The program provides specially tailored measures such as direct installed products and locally based energy efficiency seminars, while promoting all energy efficiency programs available to all customers throughout the state.

SCE, PG&E and SCG propose to continue this program and expand it to include cities both within and outside of Kern County. Together, these entities have reduced energy use in Kern County by providing residential and business customers with energy audits; direct installation of energy efficiency measures in selected redevelopment areas; technical assistance and financial incentives to the City of Bakersfield and the Kern County for energy efficient retrofits in municipal facilities; locally-based energy efficiency seminars and training classes; and local advertising and marketing about other energy efficiency programs to increase awareness of and participation in those programs.

The partnership will serve residential and business customers, including municipal projects in the county of Kern and will expand to serve the nearby cities of Hanford, Visalia, and Turlock. Market segments to be address are Mass Market, Office Buildings, Retail Stores, and Medical Buildings. Restaurants are also a target for the small business direct install component. The program will also conduct audits of chosen facilities, and identify energy savings project opportunities and provide energy education

SCE's annual goal is to serve a combined 3,000 to 4,000 single family and multi-family units with direct install of interior and exterior CFLs and T8 fluorescent lamps, and 60 or more small businesses with energy audits and direct installed products. Contracted installers will canvass targeted residential and small business areas by going door to door and providing information on the various program measures for small business customers. Local governments will assist this effort through local and city channels including bill inserts and community outreach.



# Community Energy Partnership

## 4. Program Descriptors

Market Sector:	Residential/Nonresidential
Program Classification:	Local
Program Status:	Existing

The Community Energy Partnership is a complementary delivery mechanism for energy efficiency that provides services to customers in SCE's service territory. It draws upon the

**It draws upon the unique strengths of a myriad of energy stakeholders within a community to create a powerful synergy and fundamentally, to reach customers who have not traditionally participated in statewide or local efficiency programs.**

unique strengths of a myriad of energy stakeholders within a community to create a powerful synergy and fundamentally, to reach customers who have not traditionally participated in statewide or local efficiency programs.

The Community Energy Partnership is multidimensional, beginning with SCE and SCG who serve as "Utility Partners." The Energy Coalition serves in the capacity of "Facilitating Partner." Ten Southern California cities participate in the program. The Partnership employs a multitude of strategies to be responsive and to reach a variety of customer segments and to create a critical mass of activities to raise awareness within partner cities and to thus reap immediate and ongoing savings.

The Partnership engages customers and links them to greater opportunities for savings and benefits through community promotions, direct installation, and energy efficiency tune-ups as well as "PEAK" Student Energy Actions program. PEAK is a comprehensive energy efficiency curriculum for elementary and middle school students. The combination of direct implementation and education for the multiple customer segments served, has proven to create significant energy, demand and gas savings.

The synergy of these efforts has developed the program's signature approach:

- PEAK Students
- PEAK Households
- PEAK School Districts
- Community Promotions (CFLs)
- Community Promotions (Torchieres and other efficiency devices)
- Community Efficiency Tune-Ups: Mobile homes
- Community Efficiency Tune-Ups: Rental Apartments
- Community Demonstration Tune-Ups (replaces Owner-Occupied Tune-Ups)
- Small Business Efficiency Tune-Ups
- Municipal Energy Planning and Special Activities

# Los Angeles County Partnership

## 4. Program Descriptors

Market Sector:	Nonresidential, small, medium and large customers
Program Classification:	Local
Program Status:	Revised Existing

The 2006-08 SCE/SCG/County of Los Angeles Partnership builds on the lessons learned from the existing, successful partnership program. This Partnership is being expanded to include the facilities and in-house resources of various County affiliated agencies including the Los Angeles County Office of Education (LACOE), the Los Angeles Unified School District (LAUSD), and the Metropolitan Transit Authority (MTA). Other County affiliated commissions and agencies may participate in this program.

This partnership will allow existing resources in each organization (including technical and project management expertise) to be leveraged in order to implement much needed energy efficiency projects throughout a much larger public agency/local government building sector. This larger facility pool will be instrumental in maintaining overall program cost effectiveness while capturing lost opportunities.

This proposed program will achieve immediate peak energy and demand savings in County and County-affiliated facilities (County facilities, schools within L.A. County, and public transportation buildings) through the retrofit and retro-commissioning (RCx) processes. The RCx program is enhanced through the availability of County technical labor resources and existing Enterprise Energy Management Information System (EEMIS) which allows real-time, online monitoring of building system operating points.

Other activities will include electronic bill data coordination to benchmark the energy utilization of each facility, technical training and education that focuses on implementing retrofit measures and understanding retro-commissioning principles. Additional workshops and training courses may be leveraged through SCE education, training and outreach program. The partnership will also implement a long-term, sustainable K-12 energy education element by collaborating with other partnership, utility and non-utility programs to promote programs and services throughout the school districts in Los Angeles County.

EEMIS will continue to be available for benchmarking, pre-functional and functional trending analysis, post-implementation measurements, and maintenance and operation monitoring for savings persistence. EEMIS may also be utilized to support the efforts of California Commissioning Collaborative (CCC) to develop facility benchmarking standards utilizing energy management systems.

In addition, The Partners will follow-up on the 2004-05 Technology Transfer program element which studied the energy management needs of various local governments and public agencies in the area and offer best practices workshops to address common issues.

# Pomona Inland Valley Partnership

## 4. Program Descriptors

Market Sector: Residential, Nonresidential,  
Program Classification: Local  
Program Status: New

The 2006-08 Pomona Inland Valley Partnership Program (PIVPP) is a new residential and nonresidential partnership among SCE, Southern California Association of Governments (SCAG) and nine Cities in the San Gabriel Valley. The program will build on the

learned partnership established 2004-05 Efficiency cycle and

**The program will provide energy education, retrofit assistance, Retro-Commissioning (RCx) as well as design consultation and energy analysis of new construction and renovation project plans.**

lessons from other

in the Energy Program will be

supported by the various Chambers of Commerce in the targeted Cities and the San Gabriel Cities Council of Governments (SGCCOG). This Program will build an infrastructure by raising awareness of energy efficiency and by completing targeted retrofit and retro-commissioning projects in city facilities. The targeted nine cities include: Covina, West Covina, Industry, Glendora, La Verne, San Dimas, Diamond Bar, Walnut, and Pomona.

The program will provide energy education, retrofit assistance, Retro-Commissioning (RCx) as well as design consultation and energy analysis of new construction and renovation project plans. Analysis of city facilities will be conducted to identify demand reduction projects with ECM alternatives to optimize the energy and environmental performance of a new building design or extensive retrofit project in each of the targeted Cities.

In addition, the program will address the Green Building Initiative Executive Order Compliance Assistance and LEED Certification by providing design and management consultation to formulate an action plan and provide assistance to local governments to comply with the Executive Order.

The partnership program will conduct a general energy awareness campaign targeting residents and businesses to increase awareness of energy efficiency savings programs and of the importance of energy conservation in maintaining a healthy environment, reducing costs, and creating other economic benefits. Outreach events will further generate awareness and drive participation in energy programs offering low cost/no cost products, services and financial incentives. Event sponsors could include SCE, City, local community-based organizations, businesses, schools and others.

# South Bay Partnership

## 4. Program Descriptors

Market Sector: Cross-cutting  
Program Classification: Local  
Program Status: Revised Existing

The South Bay Partnership is an alliance between the South Bay Cities Council of Governments (SBCCOG), SCE and SCG. The SBCCOG region includes fourteen cities and a number of markets, such as non-English speaking consumers, renters, small businesses and government organizations that traditionally have not taken optimum

**The South Bay Energy Resource Center (SBESC), a local clearinghouse for energy efficiency information, education and technical resources in the region and will continue to provide information, education and energy displays and community outreach.**

advantage of energy savings programs. Our past experience with the South Bay Partnership indicates that this local government organization was effective in aiding the energy efficiency effort through educating their communities by distributing information on energy efficiency programs

The Partnership will continue to build on its successes. The South Bay Energy Resource Center (SBESC), a local clearinghouse for energy efficiency information, education and technical resources in the region and will continue to provide information, education and energy displays and community outreach. An exciting enhancement to the program will be the creation of "The South Bay Public Facilities Energy Efficiency Project (EE+)" element which will contribute to California and SCE's 2006-08 energy savings and demand reduction goals through the identification of energy savings projects. SBCCOG will work with SCE to address energy savings opportunities in public facilities. In addition, the Partnership will set goals for increasing participation in Nonresidential Direct Installation program, Appliance Recycling program and Multi-Family Energy Efficiency program as well as low income and CARE programs.

# UC/CSU Partnership

## 4. Program Descriptors

Market Sector: Nonresidential  
Program Classification: Statewide  
Program Status: Revised Existing

The UC/CSU Partnership is a nonresidential statewide partnership among SCE, PG&E, SCG, SDG&E, the University of California (UC) and California State University (CSU) systems.

The Partnership is a unique energy efficiency program that accomplishes immediate, long-term peak energy savings and demand reduction, and establishes a permanent framework for a sustainable, long-term, comprehensive energy management program at the UC and CSU campuses served by California's four investor-owned utilities (IOU).

**This program will leverage the vast resources and expertise of UC/CSU and California IOUs to ensure a successful and cost-effective program...**

This program will leverage the vast resources and expertise of UC/CSU and California IOUs to ensure a successful and cost-effective program and will also address a backlog of cost effective projects that were identified in the previous cycle but could not be completed because of budget limitation.

The implementation strategy will be the same as in the previous partnership program. It is comprised of three elements, which will operate on a statewide, integrated basis, providing immediate energy savings and setting the foundation for a long-term program focused on sustainability and best practices. The elements of the program are energy efficiency retrofits, monitoring-based commissioning (MBCx), energy efficiency education and best practices development and training.

The MBCx program will go beyond the typical program in that the campuses that participate in MBCx will install sufficient equipment to insure a comprehensive built-in measurement and verification capability and combined with best practices development training to become a persistent commissioning program that is institutionalized at the campuses. In this way, savings will be sustained well beyond those from the more typical and limited retro-commissioning programs. The program will use the campus facilities management staff to identify new cost-effective retrofit opportunities.

# Ventura County Partnership

## 4. Program Descriptors

Market Sector: Residential, Nonresidential  
Program Classification: Local  
Program Status: Existing

The Ventura County Partnership is an alliance between the Ventura County Regional Energy Alliance (VCREA), SCE, and SCG. The VCREA is a joint powers authority (JPA) representing Ventura County and several cities in Ventura County. The program provides information and education and customized rebates for the retrofitting of energy efficiency projects.

The Ventura Partnership offers a local clearinghouse for all energy information including statewide and national marketing materials as well as education and training, project management assistance and customized incentives. This Partnership was effective in aiding the energy efficiency effort through educating their communities and identifying and

**The Ventura Partnership offers a local clearinghouse for all energy information including statewide and national marketing materials as well as education and training, project management assistance and customized incentives.**

addressing energy savings opportunities in public facilities. Substantial opportunities have been uncovered and there is the need to continue working with government organizations to address these opportunities as they would not be possible without the additional project management assistance provided by the VCREA. VCREA will work with IOU Partners to provide additional technical support in respect of demand side action planning and new construction.

The partnership is designed to maximize the inherent advantages and strengths of the VCREA's JPA approach, leveraging the abilities of the VCREA to conduct joint project development and implementation. It is anticipated that this coordinated approach will continue to reduce the upfront costs and challenges of energy efficiency retrofit projects in public agency facilities.

The Ventura County Energy Resource Center (VCERC) is a local clearinghouse of energy information including energy efficiency, demand response, self-generation, CEC, DOE, EPA and low income and CARE programs. Information on statewide and national marketing campaigns will also distribute through the VCERC. Training of government and commercial sector will continue to feature in the program.

# California Department of Corrections Partnership

## 4. Program Descriptors

Market Sector: Nonresidential  
Program Classification: Statewide  
Program Status: New

The CDC Partnership is a new nonresidential statewide partnership among the four investor-owned utilities, SCE, PG&E, SCG, SDG&E, and the State of California Department of Corrections (CDC). The CDC brings to the partnership more than 30

**The program will leverage the 50/50 matching fund from the CDC, capitalize on the vast opportunities for efficiency improvements and utilize the resources and expertise of CDC and IOU staff to ensure a successful and cost-effective program.**

institutions that are large and complex and will provide a considerable opportunity to improve operational efficiency that will result in reduction of energy consumption and operating cost on a scale that is meaningful to the State of California.

The program will leverage the 50/50 matching fund from the CDC, capitalize on the vast opportunities for efficiency improvements and utilize the resources and expertise of CDC and IOU staff to ensure a successful and cost-effective program. The new program will address a significant backlog of cost-effective projects that have been previously identified by the CDC but could not be completed because of budget limitations.

The program will utilize the management and team interface structure where the staff from each IOU and from the CDC will be responsible for the successful execution of the program.

The CDC/IOU team will develop a communication network with the institutional staff and stakeholders, to market the new 2006-08 program through internal channels. Marketing efforts will be based on highlighting the unique advantages and efficiencies of the partnership program and the ability to achieve results and meet program goals.

The implementation strategy will be comprised of three elements, which will operate on a statewide, integrated basis, providing immediate energy savings and setting the foundation for a long-term program focused on sustainability and best practices. In each case, the program elements will be customized to meet the specific needs of the CDC and the specific implementation barriers.

# California Community Colleges Partnership

## 4. Program Descriptors

Market Sector: Nonresidential  
Program Classification: Statewide  
Program Status: New

The CCC Partnership is a new nonresidential statewide partnership among the four investor owned utilities SCE, PG&E, SCG and SDG&E and California Community College (CCC). The California Community College (CCC) system includes 110 campuses

statewide that make up a significant portion of both the electric and natural gas loads

**The program will provide a considerable opportunity to improve operational efficiency that will result in reduction of energy consumption and operating cost on a scale that is meaningful to the State of California.**

in the State of California. The CCC is a large, complex organization with a broad set of goals, stakeholders, processes and constituencies and is diverse from a geographic, climate, and operational needs standpoint. The program will provide a considerable opportunity to improve operational efficiency that will result in reduction of energy consumption and operating cost on a scale that is meaningful to the State of California.

The timing of the CCC Partnership is critical; the CCC is embarking on a major construction cycle and needs technical and financial input from the IOUs to ensure that the resulting new buildings are as energy efficient as possible.

The implementation strategy will be comprised of four program elements to optimize opportunity for load reduction and for energy efficiency education. These elements will operate on a statewide, integrated basis, providing immediate energy savings and setting the foundation for a long-term program focused on sustainability and best practices. Program strategies include an energy efficiency retrofit and load management element; retro-commissioning and monitoring-based commissioning (MBCx); new Construction assistance element focusing on the unique needs and opportunities of the CCC as they embark on a major construction cycle associated with bond funding as approved by Proposition 39; and implementing the Governor's Green Building Initiative Executive order and LEED certification.

An Emerging Technologies Demonstration element capitalizing on the unique opportunities associated with the upcoming new construction projects at CCC will also be a feature of the program.



# County of Riverside Partnership

## 4. Program Descriptors

Market Sector: Residential, Nonresidential  
Program Classification: Local  
Program Status: New

The 2006-08 County of Riverside is a nonresidential partnership between SCE and the County of Riverside (County). The program will assist and facilitate county government officials in understanding, managing, and reducing their energy use and costs, and to position the partners as leaders in the region in energy management practices and will

**The program will provide energy education, project identification, retrofit assistance, Retro-Commissioning (RCx) as well as design consultation and energy analysis of new construction and renovation project plans.**

leverage existing resources in the County (including technical and project

management expertise) in order to implement much needed energy efficiency projects throughout the public agency/local government building sector. This larger facility pool will be instrumental in maintaining overall program cost effectiveness while capturing lost opportunities.

The program will provide energy education, project identification, retrofit assistance, Retro-Commissioning (RCx) as well as design consultation and energy analysis of new construction and renovation project plans. Analysis of city facilities will be conducted to identify demand reduction projects with ECM alternatives to optimize the energy and environmental performance of a new building design or extensive retrofit project in each of the targeted Cities.

In addition, the program will also address the Green Building Initiative Executive Order Compliance Assistance and LEED Certification by providing design and management consultation to formulate an action plan and provide assistance to local governments to comply with the Executive Order.

Partnership outreach efforts may include CARE enrollment sweep, ESCO Fairs, events/workshops in the region to share experiences and best practices in implementing energy saving projects in local government facilities. Events could highlight procurement and contracting approaches, available financing options such as the California Energy Commission, municipal bonds, private sources and others. Event sponsors could include SCE, City, local community-based organizations, businesses, schools and others. The outreach efforts would be accomplished through local media outlets, joint SCE/County mailings, and other channels.

# County of Santa Barbara Partnership

## 4. Program Descriptors

Market Sector: Residential, Nonresidential  
Program Classification: Local  
Program Status: Revised Existing

The 2006-08 County of Santa Barbara Partnership is a new residential and nonresidential partnership among SCE, County and City of Santa Barbara, and the City of Goleta. The

**The program will assist and facilitate residents and businesses and other city and county government officials in understanding, managing, and reducing their energy use and costs, and position the partners as leaders in the region in energy management practices.**

program will assist and facilitate residents and businesses and other city and county government officials in understanding, managing, and reducing their energy use and costs, and position the partners as leaders in the region in energy management practices.

The program will provide design consultation and energy analysis of new construction and renovation project plans. Analysis of city facilities will be conducted to identify demand reduction projects with ECM alternatives to optimize the energy and environmental performance of a new building design or extensive retrofit projects in the partner facilities.

The program will provide co-funding of energy efficiency/load management and renewable generation project cost for city and county facilities. The program will provide partial funding of incremental cost of Energy Conservation Measures (ECMs) such as lighting retrofits, building wide lighting controls, and HVAC upgrades/replacements. These projects would be funded through the partnership program and other EE programs and services and will utilize the procedures and application process of those programs.

Other program offerings include Retro-Commissioning (RCx), Green Building Initiative Executive Order Compliance Assistance and LEED Certification, SCE energy efficiency and best practices education for facilities managers and may provide co-sponsorship of Vocational Education and Training Program for community college students and/or working technicians in the trades.

The partnership program will conduct a general energy awareness campaign targeting residents and businesses to increase awareness of energy efficiency savings programs and the importance of energy conservation in maintaining a healthy environment, reducing costs, and creating other economic benefits.

# Local Government Energy Action Resources Program

## 4. Program Descriptors

Market Sector: Residential, Nonresidential  
Program Classification: Local  
Program Status: New

There is tremendous residential and commercial growth in the Inland Empire, Riverside County, Los Angeles County and Kern County. For those cities that have a pro-active interest in being recognized as a community that practices mindful growth with such environmentally friendly programs as Green Building and ENERGY STAR® rated

**The LGEAR Program will optimize the opportunities for Jurisdictions and their communities to work toward the common goal of achieving short and long-term energy savings, reduced utility bills, and an enhanced level of comfort in municipal and commercial buildings as well as homes.**

homes, the Local Government Energy Action Resources (LGEAR) is the new venue for SCE to develop partnerships that will assist Jurisdictions to further establish themselves as an energy resource. LGEAR participants may want to address energy efficiency in municipal buildings and help implement the Governor's Energy Action Plan.

The LGEAR Program will optimize the opportunities for Jurisdictions and their communities to work toward the common goal of achieving short and long-term energy savings, reduced utility bills, and an enhanced level of comfort in municipal and commercial buildings as well as homes. LGEAR will help promote an energy efficiency "ethic" by increasing awareness and participation in energy efficiency programs and practices as well as provide information on demand response, self generation and energy management assistance (low income energy efficiency and CARE). Energy code training will feature strongly in LGEAR. As recommended by the PAG, this program will deliver energy code training and "Green Building Action Plan" support to all cities in SCE's service territory.

Program offering include energy education and information, energy audits and savings projects identification, technical support, bench-marking and performance tracking. This program will also assist participants with Green Building action planning and will work with the State of California to enhance this program element. Retrofitting of municipal buildings will further Jurisdictions' objective to comply with the Governor's "Green Building Action Plan." Incentive assistance for municipal energy savings projects will be provided from the fund reserved by SCE for future partnerships.

LGEAR participants will leverage their outreach mechanism to "spread the word" about energy efficiency and to connect constituents with energy savings opportunities. It is anticipated that by utilizing their unique outreach methods, cities will be able to reach customers not reached by SCE's traditional marketing efforts and deepen penetration of

statewide and local energy efficiency programs. A menu of programs and activities for example, nonresidential Direct Installation, residential torchiere exchange, room air conditioner, refrigerator and freezer turn-in events, display of Checkpoint information in building offices and multi-family direct install programs for government housing facilities will be provided for Participants as well as outreach material and assistance with event planning and implementation and the development of energy efficiency recognition programs.

## Education, Training, and Outreach

<b>1. Projected Program Budget</b>	<b>\$</b>	<b>24,076,499</b>
<b>2. Projected Program Impacts</b>		
MWh		n/a
MW (CEC Factor)		n/a
<b>3. Program Cost Effectiveness</b>		
TRC		n/a
PAC		n/a

#### 4. Program Descriptors

Market Sector: Cross Cutting (Nonresidential, Residential, New Construction)  
 Program Classification: Statewide  
 Program Status: Existing

#### 5. Program Statement

Education, Training, and Outreach (ET&O) is an information program that promotes energy efficiency, demand-side self-generation, and demand response to a variety of customer segments through energy centers, technology test centers, and other information and training program strategies. The objective is to: (1) disseminate information about efficient technologies and practices to electric, natural gas, and water utility customers for the purpose of assisting them in reducing energy and water usage, lowering their bills, reducing operation and maintenance costs, and improving customer productivity; and (2) provide services to a variety of midstream and upstream market actors, including but not limited to architects, engineers, distributors, and contractors, who use information and tools to design more efficient buildings or processes and to conduct efficient energy system retrofits and renovations.

There are a number of new, exciting strategies for the 2006-2008 Education, Training, and Outreach Program. Foremost among the new strategies are the moves to consolidate former disparate training, educational, and outreach activities into the program in such a way that

#### What's New for 2006-08?

- Consolidation of training and educational energy efficiency activities
- Focus on emerging technologies promotion, demand side self-generation, demand response, and water agency conservation program information availability
- Outreach to local communities
- Sharpened focus on establishing baseline energy usage information for technologies that lack energy efficiency regulations
- Expanded on-line design resources for industrial, agricultural, residential, and existing commercial buildings
- Remote energy audits to add Spanish language mail-in version
- Building Operator Certification to develop/ implement new Level II class series for operators: "Sustainable Building Performance"
- Sustainable program outreach in ethnic Chinese communities

creates added synergy to the entire SCE program portfolio.

Following are examples of new additions to the education, training, and outreach program strategies:

Displays at both of SCE's energy centers (CTAC/ AGTAC) will reflect a customer-centric approach to programs and services, focusing on the overall benefit to the customer in terms that relate to their business need rather than the specific program details. These displays will be supported by literature outlining the program participation and application details. The high-flow displays will be refreshed on a rotating basis and will

**Displays at both of SCE's energy centers (CTAC/ AGTAC) will reflect a customer-centric approach to programs and services, focusing on the overall benefit to the customer in terms that relate to their business need rather than the specific program details.**

feature

applicable audience programs, welcome messages, and general technologies featured in the centers. Program staff at the energy centers will focus on evoking customer interest by introducing more contemporary and sophisticated graphics and signage. All design elements will utilize a complimentary "look and feel" throughout both energy centers, to create a flexible design system that will be a key to addressing new energy efficiency, self-generation, demand response, and partnering water agency programs, with continually revised collateral materials.

As a target for 2006, the energy centers will leverage SCE's Business Customers Division (formerly Major Customer Division) and Energy Efficiency Department relationships with a minimum of three area water agencies, including the Metropolitan Water District (MWD), to collaborate on insuring mutual availability of water conservation program materials and energy efficiency program materials to customers-in-common. Energy center staff will also investigate the possibility of licensing, delivering, or facilitating an accredited certification course for home inspectors (as opposed to building code inspectors) at the energy centers. Energy center staff will coordinate the plan with various home inspector associations.

SCE's Technology and Test Centers (TTCs) will focus on end use technologies where there is a significant opportunity for energy efficiency improvements. These areas include process refrigeration, lighting, and heating, ventilating, and air conditioning (HVAC) systems. Each of these represents significant loads and the activities performed at the Technology and Test Centers will provide customers and practitioners with impartial and reliable performance information. In addition to performance uncertainty analysis, market connection activities will occur through training seminars and publications. These activities help remove concerns about performance uncertainties and lack of reliable information as market barriers for customers interested in installing energy efficient equipment in their businesses. The new activities planned for the TTCs include the following:

- Perform tests to address the baseline energy usage information for technologies lacking energy efficiency regulations including:
  - Refrigerated vending machines
  - Food service reach-in refrigerators and freezers
  - Display cases
  - Outdoor signage
- Establish partnerships with manufacturers to develop high efficiency prototypes for technologies without energy efficiency regulations
- Perform tests to verify the energy efficiency benefits of the prototypes and disseminate the information to customers, manufacturers and regulatory agencies
- Work closely with SCE's program planners to leverage technology test results to formulate new energy efficiency, demand side self-generation, and demand response programs and program elements.

New for 2006 at the Energy Design Resources (EDR) Website, will be the expansion of resources to include information about effective energy efficiency applications in industrial, agricultural, residential and existing commercial buildings to add to the rich resources currently available in the area of design practices and energy efficient technologies for nonresidential new construction.

Nonresidential Remote Energy Audits (NRREA) will expand the existing portfolio of available remote energy audit tools to include a Spanish language mail-in energy audit for ethnic Hispanic business owners and operators who currently use English as a second language. The program manager will investigate the availability of existing software to provide periodic energy savings status reports showing on-going savings from past upgrades, and changes that result when the customer reports the addition of an energy efficient product installation or recommended efficiency action completion. In addition, the program manager will investigate the possibility of adding to the remote energy audit scope of work to collect information about, and report recommendations for social concern topics: (the following list is not meant to be comprehensive) solid waste handling, recycling, water conservation, landscape with native plants that require little water, tree planting, and fire prevention, to the existing electric energy efficiency recommendations.

The Mobile Education Unit (MEU) will employ a new customer feedback survey and information collection tools. In addition, SCG, and local participating water agency conservation program materials will be available. MEU staff will receive additional training in the area of natural gas energy efficiency and water agency conservation programs to enable a more complete customer experience.

The Building Operator Certification (BOC) strategy will develop and implement an expanded Level II class module (2-3 class series) for operators interested in Sustainable Building Performance. The new Level II class module will significantly expand the curriculum currently offered in the present Level II class series.

Chinese Language Efficiency Outreach (CLEO) will recruit volunteer “Green Community Ambassadors” and “Green Student Ambassadors,” empowered to carry the CLEO program strategy into ethnic Chinese communities with the goal to create a sustainable energy efficiency presence. These volunteers will be assisted by CLEO program staff to leverage school and local government outreach and newsletter marketing efforts to direct customers to the program.

***SCE/SCG PAG, PRG, Public Workshop, and Whitepaper Recommendations***

A number of recommendations have been made during the scheduled program planning meetings, and submitted as whitepapers by intervening parties to the 2006-2008 energy efficiency program planning process. Several of the concepts, ideas, and suggestions are useful additions to this Education, Training, and Outreach (ET&O) Program. Following below, are the pertinent recommendations for the program and the corresponding proposed actions.

**The Bidder must explain how it encourages the recruitment of Women, Minority, and Disabled Veteran Business Enterprises for its organization or bidding team.**

the pertinent recommendations for the program and the corresponding proposed actions.

Recommendation: “Suggestion to raise the diversity plan with program subcontractors”

Action: Henceforth, include a section entitled “WMDVBE Supplier Diversity Program” in all competitive solicitations for the ET&O program. While subject to change, following is an example of the accompanying Request for Proposals language: “The Bidder must explain how it encourages the recruitment of Women, Minority, and Disabled Veteran Business Enterprises for its organization or bidding team. The Bidder must attach a completed subcontracting plan that consists of either a list of WMDVBE subcontractors or a statement setting forth the Bidder’s activities and goals for WMDVBE subcontracting. Bidders should also submit WMDVBE certification documentation if they claim WMDVBE status. Bidders who have WMDVBE status must still submit a WMDVBE subcontracting plan.”

Recommendation: “Need to address coordination among demand response, self generation, and energy efficiency. The CPUC requires the energy efficiency and demand response applications to be filed on the same day.”

Action: Recommendation adopted. The energy centers will facilitate program information availability at the centers for energy efficiency, self-generation, and demand response programs offered by SCE and others. The energy centers currently provide customers with information about many other programs, including education/ training opportunities available at the SCG.

Recommendation: “Would like to see additional partnerships with water agencies.”

Action: Recommendation adopted. Program planners view the recommendation as a natural expansion of the ET&O program. As a target for 2006 the energy centers will leverage existing Business Customers Division (formerly Major Customer Division) and Energy Efficiency Department relationships with a minimum of three area water agencies, including the Metropolitan Water District (MWD), to collaborate on insuring mutual availability of water conservation program materials and energy efficiency



program materials to customers-in-common. For the mobile education unit (MEU) strategy, SCG program materials and local participating water agency conservation program materials will be available. MEU and energy center staff will receive additional training in the area of natural gas energy efficiency and water agency conservation programs to enable a more complete customer experience.

Recommendation: “EE charge card. Reminder – Every time you touch a customer, think about the next sale. Repeat customer is easier than new.”

Action: Recommendation (partial) has been previously integrated into the day-to-day operations at the energy centers. For the ET&O program, the actionable recommendation element is the concept of cross selling participation in one program based on prior or related participation in another program. The energy centers currently provide marketing assistance to the Building Operator Certification (BOC) Program by mailing BOC certification class and introductory seminar information to customers who have attended classes and seminars at the CTAC and AGTAC facilities. The result has been increased participation in the BOC introductory seminars and the Level I class series.

Recommendation: “Recommends close coordination with the Consortium for Energy Efficiency (CEE), as it is working internationally with the Building Owners & Management Association (BOMA), to develop a series of training sessions to get customer buy-in, at the decision-making level, to install energy efficiency. This EE activity dovetails nicely with the BOC program.”

Action: Recommendation adopted. The BOC program implementer and program manager will work closely with representatives of the Building Owners & Management Association, L.A. Chapter, and the Consortium for Energy Efficiency to coordinate training class development.

Recommendation: “Suggest increase funding for the energy centers. Also, host building inspector training including an outreach to various inspector associations”

Action: Recommendation adopted. Energy center staff shall investigate the possibility of licensing, delivering, or facilitating an accredited certification course for home inspectors (as opposed to building code inspectors) at the energy centers. Energy center staff will coordinate the plan with the various home inspector associations.

Recommendation: “Outreach Mobile Education Unit to high density areas as an opportunity for high density events.”

Action: Recommendation Adopted. The MEU program manager has made arrangements for the MEU to support events with projected high numbers of participants such as the Tet Festival in Whittier (150,000 expected participants), Lancaster Poppy Festival (40,000), and San Bernardino Route 66 Rendezvous (500,000).

Recommendation: “Tie-in energy audits with social responsibilities.”

Action: Recommendation adopted. The Nonresidential Energy Audit program manager will investigate the possibility of adding to the remote energy audit scope of work to collect information about, and report recommendations for social concern topics: (the following list is not meant to be comprehensive) solid waste handling, recycling, water

conservation, landscape with native plants that require little water, tree planting, and fire prevention, to the existing electric energy efficiency recommendations.

## 6. Program Rationale

The Education, Training, and Outreach Program plays a significant role in overcoming market barriers related to insufficient information and product knowledge regarding energy efficient products and technologies. Venues including seminars and workshops,

**The Education, Training, and Outreach Program plays a significant role in overcoming market barriers related to insufficient information and product knowledge regarding energy efficient products and technologies.**

participation in trade shows and community events, customer consultations and equipment demonstrations, technology testing, on-line information, nonresidential energy-use audits, and outreach activities are utilized to assist the customer in making informed decisions about implementing energy efficiency.

During 2004-2005 the SCE Education and Training Program was approved for PGC funding. The program included a subset of the program strategies proposed for the 2006-2008 program period.

Below is a table comparing the strategies available during 2004-2005 with those proposed for 2006-2008:

<b>Education, Training, and Outreach Program Strategies</b>	<b>2004-2005</b>	<b>2006-2008</b>
CTAC - Customer Technology Application Center	✓	✓
AGTAC - Agricultural Technology Application Center	✓	✓
RTTC – Refrigeration Technology Test Center	✓	✓
SCLTC – Southern California Lighting Test Center	✓	✓
EDR – Energy Design Resources	Element of the Savings By Design Program	✓
NRREA – Nonresidential Remote Energy Audits	Element of the Nonresidential Energy Audit Program	✓
MEU - Mobile Education Unit	Stand-alone Program Element	✓
BOC - Building Operator Certification Training	Stand-alone	✓

Classes	Program	
CLEO - Chinese Language Efficiency Outreach	Third Party Program	✓

*Customer Technology Application Center/ Agricultural Technology Application Center (CTAC/ AGTAC)* – The information program strategy most recognized by SCE’s customers is the energy centers. These technology application centers serve as an important delivery channel for information concerning energy efficiency programs. The energy centers offer a place where customers can see, hear, touch and learn about the latest energy-efficient technologies for their business and home. The centers are relied upon by, and are trusted resources for, utility customers seeking unbiased and accurate information regarding existing and emerging energy efficiency technologies and their application. The energy centers also promote energy efficiency programs in coordination with business and community-based organizations by holding seminars outside of the centers and within economically disadvantaged and ethnically diverse communities. Off-site events are often supported through outreach activities that provide customers hands-on material and displays to further enhance their learning experience.

Interest in the energy centers and outreach activities continues to be strong, indicating that demand for these services will continue.

CTAC/ AGTAC Activities:

Activity	2004 Results	Estimated 2005 Results	Projected 2006-2008 Results
Seminars/Workshops	203	178	178 [x] 3 = 534
Outreach Events	93	81	81 [x] 3 = 243

Since 1990, SCE’s energy centers, located in Irwindale (CTAC) and Tulare (AGTAC), have delivered quality energy efficiency seminars, workshops, and technology demonstrations to tens of thousands of ratepayer customers and government personnel. The seminars serve to inform customers, reduce market barriers, and also modify the energy efficiency opinions and behaviors of those who attend. Seminars are supported by the interactive nature of the exhibits and displays and the technical expertise provided by the staff, both of which reinforce the information provided in the seminars.

*Technology and Test Centers (TTC), a.k.a. Refrigeration Technology Test Center, Southern California Lighting Test Center* – Performance uncertainties and at times the lack of energy efficiency regulations are often barriers for decision makers to try new energy efficiency strategies. A laboratory setting allows for the performance of detailed and replicable tests which are realistic and impartial. SCE’s suite of Test Centers integrates detailed testing protocols with market connection activities for space conditioning, refrigeration, and lighting. These activities have had a profound impact on statewide energy efficiency programs by integrating test evaluation results into both the historic Express Efficiency and Standard Performance Contracts Programs. Additionally,

numerous statewide training events are delivered to key stakeholders regarding the results of the Test Center activities. Partnerships are nurtured with the California Energy Commission, Federal Agencies, National Laboratories, Manufacturers, and customers to leverage resources and transfer results.

*Energy Design Resources (EDR)* – The Energy Design Resources strategy offers a valuable palette of energy design tools, informational resources, and training opportunities directly to the primary decision makers in new construction projects, the building owners, architects,

builders, energy designers. that

**SCE's nonresidential energy audits often provide the first energy savings recommendations that customers receive, at either no cost or low cost to the customer.**

owners, engineers, contractors, developers, and consultants and Design resources support the

outreach efforts of the Savings By Design Program, including design guidelines, case studies, software tools, newsletters, and on-line training modules, are distributed to all interested participants via the [www.energydesignresources.com](http://www.energydesignresources.com) Website. Additionally, on-site seminars, workshops, and charrettes are provided at easily accessible locations and in concert with industry organizations such as the AIA, USGBC, ASHRAE, and IES. When designers and developers understand that energy efficiency will add value to new facilities and thus are desired by their clients, they will be more open to incorporate these goals in their work in order to increase their competitive edge. As more designers regularly produce efficient facilities, it will become an obligation for all.

*Nonresidential Remote Energy Audits (NRREA)* – In recent years remote energy audits have increased in popularity and demand because of innovative approaches and a variety of available remote energy audit tools. SCE's nonresidential energy audits often provide the first energy savings recommendations that customers receive, at either no cost or low cost to the customer. Remote (as opposed to on-site, in person) energy audit tools include a mail-in energy audit (including a Spanish-language tool for 2006-2008), an over-the-phone audit, and a CD-Rom version of the online energy audit tool. The on-line energy audit tools are available in English and Spanish at the following websites:

English

- o <http://www.energyguide.com/energysmartsbe/SBEMasterFrame.asp?bid=sce>

Spanish:

- o <http://www.sce.com/es/DoingBusiness/Online-Energy-Survey/default.htm>
- or
- o <http://www.energyguide.com/energysmartsbe/sbemasterframe.asp?referid=176&bid=scesp&sid=447>

Customers have come to trust SCE's energy audits for the provision of comprehensive unbiased information to guide their energy decisions. The manner in which the strategy is designed, and how it has served customers over the years has shown it to be an

effective approach in delivering energy efficiency information and leading to customer awareness and participation in other energy efficiency opportunities. As a result, the Nonresidential Remote Energy Audits will continue to assist customers in becoming familiar with information about participation in other helpful programs and services that SCE offers, such as self-generation, demand response, and other beneficial programs offered by SCE. The program helps reduce lost opportunities by using multiple channels of delivery to reach more customers than would otherwise be possible. There remains a large portion of the nonresidential customers which need remote energy audit services.

*Mobile Education Unit (MEU)* – SCE’s mobile education unit is a converted 35’ recreational vehicle outfitted with energy efficient products. Examples of the equipment on display inside the vehicle include an ENERGY STAR® refrigerator, washer/ dryer combination, and hands-on lighting displays. Customers in remote areas and diverse cultures may not have access to mass media that permeates more populated areas, or have not been acculturated to issues outside of their immediate communities, thereby missing the energy efficiency message and opportunities. The MEU offers a solution to these barriers. The MEU is available to serve the entire SCE service territory. The schedule is available at the following Webpage: <http://www.ossoline.com/energystar1.html>. The MEU travels to communities and is displayed at large events where there is the greatest opportunity to reach customers. The MEU is then able to promote all energy efficiency and demand reduction programs that would benefit that community (for example, air conditioner retrofit and cycling programs in the inland empire) using brochures and written materials, interactive displays, and static displays.

*Building Operator Certification (BOC)* – Building Operator Certification training focuses on the vital components of running a building properly, such as electrical systems, building main and subcomponent systems, HVAC systems, building controls, building automation, efficient lighting fundamentals, maintenance and building codes compliance, indoor air quality, energy efficiency, and energy conservation. The program’s training curriculum helps building operators identify those opportunities that can save energy, reduce electric peak demand, and become more knowledgeable about how to respond to load reduction and demand response when managing their buildings’ operation. The following BOC Webpages are available for customers: [http://www.sce.com/ Training/BOC](http://www.sce.com/Training/BOC), and [http://www.theboc.info/ca/schedule\\_ca.html](http://www.theboc.info/ca/schedule_ca.html). There is a growing need on the part of owners to train new personnel or to have existing building operators undergo building certification training. Such training will allow these persons to raise their level of skills, knowledge, and expertise in all phases of building operations techniques. This is especially necessary due to the increased level of new building construction, which requires operational staff to properly handle building operations.

*Chinese Language Efficiency Outreach (CLEO)* –The program strategy is unique in that it is a 100% Chinese in-language strategy (Mandarin and Cantonese), which plays a significant role in overcoming the English as a second language market barrier and specifically targets hard-to-reach low and medium income customers. The program is a 2004-05 third-party program. The program leverages an outreach campaign to offer

interactive workshops, energy audit and feedback information, low/no cost energy efficiency strategy implementation, efficient product installation, knowledge transfer about efficient technologies, and information about available incentive and rebate programs. The program builds sustainable efficiency relationships with SCE's Chinese customers and the Chinese community, and provides a bridge for easy access to all future Chinese in-language efficiency offerings.

## **7. Program Outcomes**

*CTAC/ AGTAC* – Through showcasing and demonstration of hands-on energy efficiency displays and exhibits and in conjunction with seminars specifically designed to leverage and deliver the up-to-date information provided by Emerging Technologies program, the CTAC/ AGTAC strategy helps to breakdown customer market barriers concerning first cost, performance uncertainty, and asymmetric product information. The centers offer an informative customer experience that can influence customers to implement energy efficient measures which result in energy savings and bill reductions, as well as effectively moving them to participate in other demand-side programs.

*TTC* – The Technology and Test Centers' activities will continue to address energy efficiency performance uncertainties and transfer this intelligence to statewide energy efficiency programs managers, consumers, and other key stakeholders. Test Center results will also be incorporated into engineering handbooks and trade journals; and will be presented at appropriate forums to promote the adoption of promising energy efficient technologies and strategies.

*EDR* – The potential for energy efficiency increases steadily as new technologies and new design strategies are developed and proven. Energy Design Resources will provide a bridge directly to the various target markets to educate customers as technologies emerge and standards evolve. For example, even though California already leads the nation in energy-efficient building construction, the state again tightened its energy standards for nonresidential new construction in 2005. The EDR program strategy will help make it as easy as possible for customers to transition to these new regulations. More importantly, program planners also want to help customers exceed these standards to create more efficient facilities that will be less expensive to own and operate.

*NRREA* – The program's chief target is to encourage customer acceptance and use of energy efficiency technologies, save energy, and reduce overall demand and user costs for electricity. The remote audit strategy is designed to help customers reduce the cost and effort of assessing their energy expenses, learn about energy efficiency programs, and even make suitable operational changes on their own, while contributing to social and environmental quality.

*MEU* – The mobile education unit will promote energy efficiency programs that benefit the communities in which it is displayed. Through the use of hands-on displays, such as the walk-through "Tunnel of Heat," which uses heat lamps to demonstrate the benefits of low-E, energy efficient windows, and the bicycle generator, which demonstrates the extra effort needed to light an incandescent light bulb compared to a fluorescent light bulb,

customers are able to personally experience energy efficiency. In addition, a compact fluorescent lamp (CFL) will be given to each customer as an incentive for completing the new customer feedback survey, so that he/she will be able to immediately benefit from the learning experience and have it reinforced so that he/she is more likely to buy this type of product in the future. A follow-up call will be made to a sample of the customers to determine if and where the CFL was placed into service. No energy savings results will be reported from the CFL distribution.

*BOC* – As a certification program, BOC seeks to establish a recognized professional credential for building operators. The goals of the program also include reaching out to building owners/ operators in our service area to make them aware of the BOC certification training, to provide the BOC training, and finally, to certify those students. By increasing student skill level and knowledge, they can make changes in their building operations that will result in improved building efficiency, lower operating costs, and increased useful life of the equipment, so long term energy savings are sustained.

*CLEO* – As an information and outreach program, CLEO offers a variety of innovative program offerings. By leveraging an aggressive Chinese in-language print media information campaign, the CLEO strategy will offer interactive in-language (Mandarin and Cantonese), on-site energy-use audits, over-the-phone energy audits, event booths, telephone customer support, a “Schools Program,” brochures, and a dedicated Website. The CLEO strategy encourages workshop customers to engage in energy efficiency with a distribution of free CFLs and energy efficiency product drawings. To help create a sustainable presence in the Chinese community, “Green Community Ambassadors” are selected at seminars and schools. These volunteers are provided additional training to carry the efficiency message to the community. CLEO thereby achieves sustainable energy efficiency awareness, enabling customers to access and acquire products, technologies, and strategies, as well as participate in SCE’s other energy efficiency programs for permanent energy savings. No energy savings results will be reported from this program, including any savings realized from the CFL distribution.

## **8. Program Strategy**

*CTAC/AGTAC* – The energy centers’ outreach strategies equitably distribute energy efficiency information to all customer classes through various and innovative elements, either on-site at the centers or at outlying locations. These elements include:

- Seminars and Workshops – Classroom-style presentation of information
- Displays and Exhibits – Information presented through graphics, text and hands-on exhibits
- Program Rollouts – Events designed to introduce energy efficiency programs to customers
- Technology Transfer – Dissemination of information regarding emerging technologies and new technology applications
- Trade Shows – Participation in industry shows attended by SCE customers
- Community Events – Participation in events sponsored by community groups and attended by local customers

- Consultations – One-on-one or small group discussions between customers and a technical specialist about energy efficient technology and its application(s)
- Equipment Demonstrations – Visual exposure to how specific energy efficient equipment operates
- Energy Center Facility Tours – Overview of technologies and applications
- Industry Trade Group Presentations – Presentations made to trade organizations on topics pertaining to their industry
- Webpages incorporated into www.sce.com

*TTC* – The Technology and Test Centers are in a unique position to provide essential energy efficiency information to SCE customers. The Test Centers have forged a close relationship with state and federal energy agencies and alliances with manufacturers and trade organizations. Understanding customers’ energy challenges have enabled the Test Centers to develop effective program strategies. Based on their knowledge of customers, energy regulations, and new emerging innovations, the Test Centers will develop effective energy efficiency projects. In 2006 through 2008, the Test Centers will continue to work closely with the following entities to obtain program outcomes which are valuable to the advancement of energy efficiency:

- Energy Efficiency program planners and managers
- CEC staff
- Trade organizations
- Customer affiliated organizations
- Manufacturers
- SCE’s account management team
- Federal Energy Agencies
- National Laboratories
- Academia

*EDR* – The program strategy is to offer an up-to-date, complete resource that serves architects, engineers, lighting designers, developers, building operators, and facility managers with multiple avenues and resources to reduce the barriers to the inclusion of energy efficiency criteria in standard design and operation and maintenance practices. The areas of influence include design practices and processes, proven energy reduction and demand response strategies, and new and emerging energy efficiency technologies. For 2006-2008, an additional focus will be to expand the resources to include information about effective energy efficiency applications in industrial, agricultural, residential, and existing commercial buildings to add to the rich variety of resources currently available in the area of design practices and energy efficient technologies for nonresidential new construction.

*NRREA* – Activities will include coordination with SCE’s Information Technologies department (to improve the technological capabilities of the program), SCE field staff, statewide program administrators and implementers, and Community-Based Organizations (CBOs) and business and trade organizations to deliver remote audit services. Post-audit customer actions to retrofit hardware will be tracked to indicate the



impact of the remote energy audit on SCE's hardware retrofit programs. Program outreach and lead generation is accomplished primarily through SCE phone center recommendations, direct mail responses, email responses, on-line audit access, coordination with business organizations and trade groups, local governments, and by working closely with CBOs that demonstrate access to owners of small-, and medium-sized businesses. The remote energy audit service strategies lead the customer to become informed about what they can do to save energy, lower their energy bill, and help extend energy resources to avoid critical energy shortages.

*MEU* – The mobile education unit visitation schedule will target large scale events that are likely to attract the largest number of customers within a community. The MEU will display products that achieve energy efficiency, including, but not limited to, those that have rebate offers. Information from SCE, ENERGY STAR<sup>®</sup>, and Flex Your Power will be available in addition to rebate and other program information. In addition, the Residential and Small Business Energy Guides, CARE and FERA rate information, and other customer services information will be made available. A tracking and coding system will be set up to track coded incentive and rebate applications given to MEU participants. These will be recorded and tracked when a customer uses the form to apply to another program. Additionally, each customer will be asked to fill out a survey form with their name, address, phone number and responses to energy related questions. A portion of these customers will receive a follow-up phone call to ask if and where they installed the free CFL, what other energy efficient products they have installed, and which promotions they have or plan to participate in. This process will assist in measuring the effectiveness of the MEU education and improving upon the process.

*BOC* – Outreach and lead generation is accomplished primarily through direct mail, email, and one-on-one follow-up contacts. These recruitment strategies lead customer prospects to attend one or more scheduled informational meetings. A percentage of the informational meeting attendees enroll in the Level I course series. Level I graduates who have earned certification are recruited to attend the Level II course series. An expanded Level II course series for customers interested in “sustainable building performance” is planned for development and implementation in 2006.

*CLEO* – The strategy is to disseminate energy efficiency information, product and technology information, SCE rate and rebate information, and energy audit feedback information through the following outreach, and marketing initiatives:

- Print media ad blitz in Chinese language newspapers and other media
- Targeted Seminars: classroom-style interactive presentation at locations selected for their ready access by the target customers
- Displays and Exhibits: information presented through graphics, text and hands-on exhibits
- Community Events: colorful booths attended by local customers in interactive settings such as the “Energy Quiz” delivered to students in the school setting, etc.
- Phone Consultations: one-on-one discussions between customers and a technical specialist about energy efficient technologies and their application(s)

- Free energy audits that include hands-on customer training in the area of common energy saving strategies
- Schools Program creates awareness and participation through a free drawing and contests, “Energy Quiz,” and other events
- Energy Center Facility Tours: overview of energy efficiency technologies and applications
- Volunteer “Green Community Ambassadors” who work to increase local government participation
- Dedicated Chinese language CLEO Website with links to [www.sce.com](http://www.sce.com)

## 9. Program Objectives

*CTAC/AGTAC* – The primary objective of the energy centers has been and will continue to be the reduction of barriers to customer participation in the energy efficiency marketplace by providing accurate and unbiased energy efficiency information to SCE customers. This information assists customers with reducing energy use and/or increasing productivity, thereby lowering energy costs. As in the past, the program will address equity objectives by targeting the hard-to-reach markets as previously defined by the Commission in the *Energy Efficiency Policy Manual*. Targeted promotion of activities will be initiated to address the specific needs of these markets, although not to the exclusion of the larger and urban customers, whose use of energy, and therefore potential for increased efficiencies, is substantial. All energy efficiency-related activities at the energy centers are provided to participants at no cost, as long as they are SCE customers.

An integral part of the *CTAC/AGTAC* strategy is the outreach component that continues to work with SCE Business Customers Division (formerly Major Customer Division) personnel in their efforts to communicate to, and educate, SCE’s commercial and industrial customers, both small and large, about energy efficiency programs, incentives, and technologies. The outreach component also supports energy efficiency events, industry conferences, community events, and energy associations with displays, staffing, materials, and hands-on exhibits, including the ENERGY STAR® office exhibit. Exhibits and displays complement the face-to-face customer interaction that is essential to understanding technologies and giving answers to important customer questions.

*TTC* – In 2006 through 2008, the Test Centers will continue its application testing to improve the body of technical knowledge available to the industry, utility energy efficiency program planners and managers, and policy makers in California. Test Centers will meet the following objectives:

- Expand energy efficiency measures in SCE’s program portfolio
- Improve the terms and conditions of SCE’s nonresidential refrigeration measures offered in the prescribed and calculated incentive programs
- Develop additional training seminars at *CTAC* and *AGTAC*
- Provide training seminars at joint utility workshops
- Spread the awareness of energy efficiency by publishing articles in journals or proceedings of energy conferences

- Enhance ASHRAE Refrigeration Handbook with the latest energy efficiency information

*EDR* – The primary goal of this effort is to educate architects, engineers, lighting designers, and developers about techniques and technologies that contribute to energy efficient facilities. Additionally, the program will continue to provide, update, and expand robust and reliable design tools that reduce the time designers spend evaluating the energy use impact of their design decisions, at no cost. Adapting and expanding the resource base for use by designers of non-commercial businesses and building operators focused on existing buildings will efficiently leverage the solid foundation of tools now provided to the new construction market.

*NRREA* – The three year goal for remote energy audit completions is 4,200, or 1,400 per year.

*MEU* – The MEU will be scheduled an average of at least 10 event days per month (some events are 2 days). Program planners forecast an average of 300–500 visitors per event day.

*BOC* - Train and certify 280 students in 14 Level I classes and enroll 60 students in 4 Level II classes during the program period. Design and implement a Sustainable Building Performance Level II class series module in 2006.

*CLEO* – Each year in the SCE service territory the CLEO strategy will conduct 50 radio spots, 50 television spots, 40 newspaper ads, 15 workshops, 50 energy audits, 50 over-the-phone audits, 3 community event booths, a Schools Program, produce informative and colorful brochures, and operate a dedicated Website.

## **10. Program Implementation**

*CTAC/AGTAC* – The energy centers provide education in the form of seminars, workshops, displays, demonstrations, technical consultations, facility presentations, fact sheets and brochures. In addition, information is provided to customers representing economically disadvantaged and ethnically diverse communities by taking specific seminars and presentations to offsite locations. Supporting the educational curriculum are the exhibits and displays that range from energy efficiency showcase equipment to demonstrations on the operation of specific energy efficiency applications. The presence of these exhibits and displays at the energy centers reinforces the information provided in the seminars and workshops. The exhibits and displays create an atmosphere of specialized knowledge in energy technology lending unbiased credibility to the information.

Energy center staff continues to be available to provide consultations to customers regarding their specific energy needs, ensuring that they are advised on the most energy efficient methods to meet those needs. This can be done in person, by telephone, and by email, both direct and Website-generated through [www.sce.com](http://www.sce.com).

Seminar offerings are a key element of the overall energy centers strategy. A variety of updated materials and new technology topics will be developed into seminars and exhibits addressing customer needs and emerging technology concepts. This work will be conducted in cooperation with various expert internal and external organizations, not only to meet customer needs as identified in the March 10, 2005 Statewide Education, Training and Services Program Study, but also to meet those needs identified by other sources as well, including customer feedback surveys, stakeholder input, etc. As a result of customer and stakeholder feedback, targeted marketing efforts will be utilized to increase customer attendance, to achieve greater market saturation.

Exhibits and displays will continually be upgraded and newly constructed in support of the overall energy centers' seminar series and to promote various SCE and statewide energy efficiency programs. These exhibits and displays help provide a balanced and well-rounded menu of learning methods while setting the energy centers apart from organizations that do not offer such an extensive variety of exhibits and displays. Some of the new exhibits and displays planned for 2006-2008 include:

#### AGTAC

- AG Demonstration Center – A 5,000 square-foot AG-related demonstration center is planned for construction utilizing capital funding (as opposed to PGC funding). This metal canopy type construction will provide an outdoor shaded roofing area for showcasing electric motors and controls, HVAC equipment, ventilation and circulation fans, lighting and other systems and technologies that may be used in agriculture applications.
- Exhibit Building – The 3,200 square-foot Exhibit Building, built in 2005, will be outfitted with exhibits and displays to showcase commercial and industrial-type technologies.
- Technology Trailer – This existing mobile unit will be utilized to expand AGTAC's reach to off site locations. Energy efficiency related displays and technical demonstrations will be featured.
- Updates to existing exhibits and new exhibit construction on a variety of technologies such as air compressors, hi-bay lighting, program-related displays and graphics, exhibits for the Technology Trailer, emerging technologies, etc.

#### CTAC

- Food Service Technology Center (FTC) – New exhibits will be added to the FTC including a new variable speed drive ventilation hood system and energy management and lighting systems that meet the needs of customers in the foodservice industry.
- New and innovative energy efficient heating, ventilation and air conditioning systems that may include direct/indirect evaporative cooling, high efficiency package air conditioners, air conditioning units that are designed for specific climatic conditions, and advanced air conditioner controls.
- Planned display upgrades include new lighting technologies for indoor and outdoor applications, including LED (light emitting diode) lighting systems, advanced daylighting systems, and lighting controls.

Outreach continues to be a valuable component of the information dissemination strategy for the energy centers. In many cases, energy center outreach is responsible for initiating customer dialogue and furthers discussion that leads to increased interest in energy efficiency, rebates and incentives, and new technologies. As a result, customer leads and the specific actions the customer is interested in pursuing are provided to account managers and program managers who follow-up with the customer. In 2006-2008, AGTAC will be exploring new outreach opportunities by taking information, exhibits and hands-on displays to customers unable to attend seminars at the center.

Statewide collaboration will continue in 2006-2008 through the sharing of course materials, classes, instructors and advertising. The sharing of these resources ensures a more consistent energy efficiency message throughout the state. Also, by coordinating the development and sharing of training materials, opportunities to reduce development costs can be realized, depending on the subject and needs of the specific target audience.

*TTC* – In 2006 through 2008, the Test Centers plan to develop projects in support of SCE's residential and nonresidential programs. Additionally, they plan to provide technical support to statewide programs. Technical support in these areas will include developing new measures, engineering tools, and training.

*EDR* – Resources are also available to interested market actors via an easy to use and navigate Website where information resources are organized for easy access and re-access. Implementation of the program strategy is currently accomplished in concert with new construction field representatives engaged in the delivery of the Savings By Design program to the new construction market, and will be expanded to include account representatives working with major business customers. Additionally, resource CDs containing the entire suite of tools and information are distributed directly to interested parties, at industry events, and at applicable training events throughout California.

*NRREA* – The remote energy audits are designed for, and available to, those who would otherwise be lost opportunities to the on-site, in-person energy audit service. The on-line and CD-Rom remote audits provide customers with instant energy savings recommendations they can print out to help the customer to move on to the next steps involving retrofit decision making, sourcing, and obtaining incentives or rebates. The mail-in and over-the-phone energy audits are questionnaire-driven, with printed energy savings information and recommendations mailed to the customer. Program outreach and lead generation will be accomplished primarily through the utility phone center, direct mail, email, on-line audit access, and coordination with business organizations, trade groups, local governments, and CBOs with business customer contacts. The remote energy audit staff will send audit activity results on a weekly basis to the program manager. The program manager will track the all audit activity, budget, marketing efforts, required materials, and provide biweekly and monthly reports to management.

*MEU* – Various groups may request the MEU for events throughout SCE service territory through an online application process. Internal SCE departments, partnerships and local

government programs, and third-party contractors will have first priority for scheduling; however, the general public may also request and receive scheduling dates. There will be guidelines to assist with application evaluation.

*BOC* – The building operator certification training strategy will be responsible for development of the training curricula, marketing of the program, organization of participant enrollment, training site logistics, tuition fee collection (fees are used to reimburse the program to offset other expenses), preparation of course content, conducting recruiting informational meetings, and provision of course delivery and participant certification. The program implementer and program manager will work closely with representatives of the Building Owners & Management Association (BOMA), L.A. Chapter, and the Consortium for Energy Efficiency (CEE) to coordinate training class development.

Statewide IOU collaboration continues through the use of consistent course materials, program marketing collateral materials, and sharing of best practices.

*CLEO* – In 2006 through 2008, CLEO will closely coordinate with other information program strategies and incentive programs to develop an effective print media outreach campaign. Workshops will be offered at selected locations to cover the Chinese language customer segment in different geographic locations including the popular adult daycare centers. Customers will gain increased energy efficiency knowledge through workshops, energy audit feedback sessions and other activities designed to drive customer participation in SCE's resource programs. Awareness and outreach in schools will be created with a dedicated Schools Program element. The strategy also works toward a sustainable community presence by nominating volunteer "Green Community Ambassadors" at seminars and schools. These ambassadors work with local government representatives and business association leaders to help get out the message about the CLEO program strategy.

## **11. Customer Description**

*CTAC/ AGTAC* – The energy centers' outreach promotes energy efficiency to virtually all market segments and customer types. Additionally, the energy centers provide services to a variety of market actors including architects, engineers, distributors and contractors who use information and tools to design more efficient buildings and conduct energy efficiency retrofits and renovations.

*TTC* – The Test Centers will target all of SCE's market segments including residential and very small nonresidential customers.

*EDR* – Energy Design Resources has, in the past, targeted the primary decision makers in new construction projects, the building owners, architects, engineers, contractors, builders, developers, and energy consultants and designers. Efforts in 2006/08 will focus on expanding the target market to similar decision makers in the industrial, agricultural, and residential segments, as well as building operators and developers focused on improving energy use in existing commercial buildings.

*NRREA* – Remote Energy Audits are best suited for very small-, to medium-sized nonresidential customers with an aggregate annual demand of less than 500 kW. These customers are further defined as very small (<20 kW), small (20 kW to 100 kW), and Medium (>100 kW to 499 kW) customers. Following are common business types addressed by the remote energy audit tools:

Auto Sales/ Repair Facility	Bakery	Barber/ Beauty Shop
Funeral Home	Gasoline Station	Grocery/ Convenience Store
Health Club	Hotel/ Motel	Laundry/ Dry Cleaner
Medical/ Dental Office	Nursing Home	Office Building
Printing/ Copying	Religious Facility	Restaurant/ Bar
Retail Store	School	Small Warehouse

*MEU* – Target audiences include homeowners and renters, multi-family property owners and property management companies, and very small-, to medium-sized business owners. The MEU will service the entire SCE territory, with remote locations (generally defined as the area outside of the Los Angeles and Orange County metropolitan areas) taking priority. The approach, which focuses on economically-disadvantaged communities with large numbers of customers that speak English as a second language or have a large first generation immigrant population will benefit from the hands-on experience since this may be the first time they have been exposed to the concept of energy efficiency. The MEU provides an opportunity for these communities to understand that there are opportunities for energy conservation and efficiency both at home and in their businesses, and by saving energy they lower operating expenses and save money.

*BOC* – The targeted audience is the building operator, facility manager, and/or director of medium and large commercial buildings in Southern California Edison’s service territory.

*CLEO* – The program strategy will target low and medium income residential customers, homeowners, and tenants with a language barrier. The program strategy is also to deliver the strategy to Chinese speaking clients at adult day care centers. The program strategy will service the Chinese language customer segment in locations spread across SCE’s service territory.

## **12. Customer Interface**

*CTAC/AGTAC* – The energy centers provide individualized information which is provided by knowledgeable instructors in an interactive environment to give customers the impetus to depart from the status quo. Additionally, objective information is provided on-the-spot in the form of technical support to ensure that customers have a good understanding regarding energy efficiency applications that are relevant to their businesses. The energy centers are available to interface with customers on a daily basis, Mondays through Fridays from 8 AM to 5 PM via face-to-face, e-mail or by calling the 1-800 numbers. Also, information is available on a 7-day/24-hour basis utilizing the energy center Webpages. Two examples of the several Webpages and numerous hyperlinks throughout [www.sce.com](http://www.sce.com) are at

<http://www.sce.com/RebatesandSavings/EnergyCenters/>, and  
<http://www.sce.com/RebatesandSavings/EnergyCenters/workshops.htm>

*TTC* – In 2006-08, the Technology Test Centers will strategically target the following key customer interface channels that will most likely expedite customers' program participation.

Customized Training – In collaboration with SCE's account management team, the Test Centers will offer customized energy efficiency workshops for major customers. These workshops will address the following topics:

- Energy efficiency opportunities in supermarket refrigeration systems
- Energy efficient applications in food service refrigeration
- Energy efficiency guidelines for design and operation of energy efficient refrigerated supermarket display cases
- Maintenance and energy efficiency opportunities for refrigerated vending machines
- Maintenance and energy efficiency aspects of packaged roof top air conditioners
- Latest lighting technologies for special applications and market segments

SCE Webpages – The Test Centers maintain Webpages which provide updates on all current activities and the projects. Customers may access a Webpage to obtain energy efficiency solutions to reduce their energy use.

<http://www.sce.com/RebatesandSavings/DesignandEngineering/SoCalLightingCenter/SoCalLightingCenter.htm> and  
<http://www.sce.com/RebatesandSavings/DesignandEngineering/RTTC/Default.htm>

Guided Technical Tours – The Test Centers will offer tours for SCE customers. These tours are designed to address customers' energy efficiency challenges and solution strategies.

Professional Handbook Revisions – The Test Centers will participate in the revisions of professional handbooks such as the *American Society of Heating, Refrigeration and Air Conditioning Engineers (ASHRAE)*, and the *Advanced Lighting Design Handbook*. These professional reference books provide valuable energy efficiency information to the design community.

Professional and Trade Organizations Conferences – The Test Center staff will share the technical information collected at the Centers with customers and professionals at appropriate workshops and conferences.

*EDR* – The customer interface for architects, engineers, lighting designers, and developers is through a user-centric Website accessed through a hyperlink located at <http://www.sce.com/RebatesandSavings/BuilderandBuyer/> and from the external Savings By Design Program Website at <http://www.savingsbydesign.com/designassist.htm>. Direct access to the statewide Energy Design Resources Website is through <http://www.energydesignresources.com>



*NRREA* – Customers learn about the remote energy audit availability at the SCE Website at [http://www.sce.com/\\_Tools/SmallMediumBusiness/OnlineBusinessEnergySurvey.htm](http://www.sce.com/_Tools/SmallMediumBusiness/OnlineBusinessEnergySurvey.htm), by direct mail, outbound telephone contact. In addition, SCE’s Business Solutions Account Executives will promote program participation to African American and small business owners who may prefer to communicate in a language other than English. Business Solutions Account Executives are capable of addressing customers in the following languages: Vietnamese, Korean, Chinese and Spanish. The face-to-face outreach will be conducted at education opportunities, on-site visits, and collaboration with various Community-, Ethnic-, and Faith-based organizations.

*MEU* – Customers see the MEU on location and are curious about the physical displays and exhibits that explain energy efficiency and offer a hands-on customer experience.

*BOC* – While some customers hear about the certification classes by word-of-mouth, the primary method of creating awareness of the classes is by direct mail marketing. The lists are made up of names of facility managers and building operators at large customer locations. In addition, the energy centers mail/ email prior attendees of energy center training class attendees in a cross selling approach to increase the response rate to the certification class offering. Interested individuals are scheduled for seminar-style Building Operator Certification class introduction meetings which are held at CTAC and at other locations throughout the SCE service territory.

*CLEO* – The CLEO strategy encourages customers to enroll for the educational seminars. These seminars are conducted in a free flowing, interactive, problem solving platform where customers discuss their concerns and get answers to different low cost/no cost energy efficiency strategies, information on SCE incentives and rebates, and CLEO program support as needed. Customers are also offered free in-home energy audits and toll-free phone support for them to effectively translate the energy knowledge to real energy savings. Colorful booths at community events provide an easy interaction and information dissemination. For senior citizens the program strategy moves on location at adult day care centers. The School Program also reaches out directly to children and their parents at their neighborhood school. The CLEO strategy vision is to make the program proactive by designating lay persons as “Green Community Ambassadors” to ensure program sustainability.

## **13. Energy Measures and Program Activities**

### **13.1. Measures Information**

The education, training, and outreach services offered by the program continue to have an impact on disseminating energy efficiency information and influencing customers to implement energy savings technologies as well as effectively moving them to participate in other energy efficiency programs.

### **13.2. Energy Savings and Demand Reduction Level Data**

Based upon the California Public Utilities Commission's (CPUC) approved Energy Efficiency Policy Manual, an information-only program is not reasonably expected to provide an estimate of energy savings. Any deficiency in energy savings, demand reduction, therm savings, resource benefits, or a TRC ratio for any particular program, i.e. information programs, should not imply that a strategy, element, or program does not promote energy efficiency. As a result of the information and services they disseminate, the education, training, and outreach strategies do indeed contribute to the success of SCE's energy efficiency, self-generation, and demand response programs.

### **13.3. Non-energy Activities (Audits, Trainings, etc.)**

*CTAC/AGTAC* – The energy centers will continue to assist with the diffusion of energy efficient technologies and practices into all market segments. Primary venues for this are the AGTAC and CTAC facilities which provide education in the form of seminars and workshops. In addition, information is provided to the hard-to-reach customers by taking specific seminars and presentations to offsite locations. These activities will continue for 2006-2008, complimenting emerging technology and energy efficiency program strategies.

*TTC* – In 2006 through 2008, in addition to technical support to energy efficiency incentive programs, Test Centers plan to offer market connection training seminars in the following areas:

- Energy efficiency opportunities in supermarkets refrigeration systems
- Energy efficient applications in food service refrigeration
- Energy efficiency guidelines for design and operation of energy efficient refrigerated supermarket display cases
- Maintenance and energy efficiency opportunities for refrigerated vending machines
- Maintenance and energy efficiency aspects of packaged roof top air conditioners
- High efficacy lighting for residential applications
- Marquee signage optimization testing
- Skylight enhancement activities

*EDR* – Continued development and expansion of existing information and tools will be undertaken in 2006 through 2008, as appropriate to enhance the value and usefulness of the EDR resources. New tool and resource development is undertaken primarily by third-party participants through a competitive bidding process to solicit and select the most promising and innovative resources. EDR tools such as eQUEST, an energy simulation modeling tool that now officially supports compliance with Title 24 Energy Standards, will be maintained and extended to support the advancement of new and emerging technologies as they become commercially viable.

*NRREA* – A minimum of 1,400 remote nonresidential energy audits will be conducted per program year, or a total of 4,200 remote energy audits conducted over the 2006-2008 program period.

*MEU* – A minimum of 10 MEU event days per month are planned.

*BOC* – Annually, 1) Conduct 5 Level-I classes and 1 Level-II class; 2) Enroll 100 students in Level-I and 15 students Level-II classes.

**BOC Class Offerings and Student Enrollment**

BOC Program Element	2006	2007	2008	3 Yr. Total
Level I Classes	4	5	5	14
Level II Classes	2	1	1	4
Student Enrollment Level I	80	100	100	280
Student Enrollment Level II	30	15	15	60

*CLEO* – Overall the program will offer 150 radio spots, 150 television spots, 120 newspaper ads, 45 workshops, 150 energy audits, 150 over-the-phone audits, 9 community event booths, an annual Schools Program, colorful brochures and a dedicated Website. The program reinforces a sustainable shift in energy efficiency knowledge about energy savings. In addition, as part of the free energy audit program, *CLEO* will install 4 CFLs at 150 residences or 600, 20 Watt CFLs. No energy savings results will be reported from the CFL or other energy efficient product distribution.

**13.4. Subcontractor Activities**

*SCE* uses a variety of subcontractors for tasks including graphic design, exhibit construction and maintenance, lighting consultations, resource and tool development, program and seminar development, specialized training and staffing needs, facilities support, and other administrative support. The activities will continue to be awarded through the competitive bid process as the need arises.

**13.5. Quality Assurance and Evaluation Activities**

*CTAC/AGTAC* – Energy center staff will review class schedules and curricula to assess breadth and appropriate depth of subject coverage. They will drop in on classes informally to observe and will be available to attendees for any questions or concerns.

Class sign-in sheets will be requested and retained to document course attendance and to allow for feedback surveys and analysis of attendance patterns. Attendees in all courses will be given brief course and instructor evaluation surveys to complete at the end of the course. SCE employees will attend selected classes to gain first-hand knowledge of the quality of course content and presentation. Instructors and energy center staff will be encouraged to discuss with their course participants how the training can be made more valuable or what additional training would be useful to them, and to share these discussions with the SCE program manager. Process evaluations that will be undertaken in the EM&V process are the formal method of gathering such information, but ongoing informal feedback is also very helpful.

*TTC* – Test center managers will monitor the number and types of tests being done and for whom they are being done. They will review articles written by test center personnel for publication. Test center personnel will meet periodically with their manager to discuss issues that have arisen with some tests and to share approaches and solutions that they have developed.

*EDR* – The website will be redesigned in 2006, with supervision and beta-testing by SCE personnel. Each new tool is evaluated prior to its general availability. Page hits and downloads will be counted and reviewed. The pattern of activity will be compared before and after changes. Website users will be given the opportunity to identify any problems they have experienced and to ask for assistance. This will provide feedback to the program staff about needs for change in the software or the website.

*NRREA* – The audit data are uploaded to a server and maintained. The program manager will monitor the number of audits completed, the types of businesses that are participating, any patterns of non-response to questions, and other issues that would help them to target program outreach and identify any problems with the survey forms. The program manager will contact customers informally to obtain feedback on ease of use of the survey, whether it met their expectations, and how useful it was in identifying ways to save energy. Software will be developed to automatically monitor whether customers follow up on survey recommendations by participating in incentive programs.

*MEU* – The MEU will provide visitors with a brief survey on their energy use and the usefulness of the MEU in identifying energy savings solutions. The program manager will follow up on the MEU survey with a telephone call to some of the customers to find out if they have installed the CFL they were given, if they are planning to buy another, and if they found the MEU helpful in leading them to efficient products and practices. The SCE program manager drops in at customer events and observes activity at the MEU. The program manager identifies the largest and most promising events in SCE's service territory and monitors the pattern of use of the MEU.

*BOC* – Class sign-in sheets will be requested and retained to document course attendance and to allow for feedback surveys. Attendees in all courses will be given brief course and instructor evaluation surveys to complete at the end of the course. Instructors will be encouraged to discuss with their course participants how the training can be made more

valuable or what additional training would be useful to them, and to share these discussions with the SCE program manager. Process evaluations that will be undertaken in the EM&V process are the formal method of gathering such information, but ongoing informal feedback is also very helpful. The utility evaluation staff and the program manager will also review evaluations of the BOC program done in other states in order to gather information that could be applied to enhancing the California BOC.

*CLEO* – The SCE program manager will review the contractor's monthly activity reports and discuss issues with them. They will follow up with school principals on the school's experience with the school portion of the program. Chinese-speaking SCE staff members will drop in on some events, such as CTAC tours and in-home audit follow-up sessions, to observe the contractor's performance. SCE will review the contractor's brochures and printed materials for accuracy and applicability.

**13.5.1. Expected Number/Percent of Inspections (planned percent of projects)**

*CTAC/AGTAC* – Drop in on 10% of classes. Sign-in sheets and evaluation surveys will be collected from 100% of classes.

*TTC* – Program personnel will record all projects and provide the logs to the program manager for review.

*EDR* – Reports of the hits and downloads will be provided to the program manager at least monthly. A log of problems and assistance requests will be maintained.

*NREEA* – The program manager will contact a minimum of 100 customers during the year. Logs of customer contacts will be maintained.

*MEU* – SCE personnel will attend at least 10% of all events at which the MEU is operated. They will follow up on the MEU survey with a telephone call to at least 100 customers per year. Logs of customer contacts will be maintained.

*BOC* – Drop in on 10% of classes. Sign-in sheets and evaluation surveys will be collected from 100% of classes.

*CLEO* – Chinese-speaking SCE staff members will make at least 50 telephone calls per year to program participants to check on their participation and their satisfaction with the service provided.

### 13.6. Marketing Activities

#### *CTAC/AGTAC – Marketing Activities*

ACTIVITY	DESCRIPTION
Quarterly Mailings	Four mailers sent each year. Each mailing is sent to approximately 9,000 AGTAC and 39,000 CTAC customers, most located within a 50-mile radius of the energy centers. The mailers consist of a list of the classes offered, dates and times for each and a brief description of what material is covered. Cost for each quarterly mailer is approximately \$6,000-\$13,000 for AGTAC and CTAC respectively. Field representatives also share the schedule of classes with their customer contacts, and discuss applications or possible technologies those individuals may be considering.

*CTAC/AGTAC – Marketing Activities (Continued)*

ACTIVITY	DESCRIPTION
Joint Utility Promotion	In cooperation with SDG&E, PG&E and The Gas Company, all energy efficiency classes offered at the energy centers are promoted at the other utilities' energy centers.
EnergyEfficiencyCenter.com	This joint utility Website features class listings for each of the State's energy centers. Class schedules are updated throughout the year and provide customers a one-stop shopping location to find what workshops are available to help solve their energy efficiency needs.
<a href="http://www.sce.com">www.sce.com</a>	SCE's Website which contains all the various programs and services offered by SCE, including a schedule of classes offered at both the energy centers. Customers will find a comprehensive list of programs and services detailed throughout the Website and are able to make clear choices for those that could potentially meet their energy needs.
AGTAC Highway Sign Board	All energy efficiency workshops are advertised on this sign board located on the facility grounds adjacent to Highway 99. Thousands pass the facility on a daily basis.
Targeted Seminar Mailings	Workshops and seminars may require a separate mailer to reach certain customer segments or customer types. These mailings may be sent to a limited number of customers, segment support groups and product-related vendors.
<i>TTC</i> – Technology Test Center services and activities are marketed through Websites, SCE's Business Customer Division representatives, energy centers, and brochures.	
<i>EDR</i> – Energy Design Resources is the outreach and education component of, and is marketed hand-in-hand with, the Savings By Design program, focused on nonresidential new construction market players. Events include an annual Integrated Energy Efficiency Design Awards program, co-sponsored with the AIA, California Council; periodic training events that support the use of resources such as eQUEST; as well as direct in-person promotion at appropriate industry organization events throughout the year.	

Similar activities in other target segments will be included as appropriate within each industry.

*NRREA* – SCE Business Solutions group will promote the remote energy audit availability, and distribute CD-Rom audits at business organization and trade group meetings. In addition, program planners have identified the following promotional methods to be utilized:

- Regional/National trade shows and conferences, focusing on all nonresidential audits, with emphasis on CD-Rom energy audits
- Direct mail for mail-in energy audits
- On-line ([www.sce.com](http://www.sce.com)) remote energy audit campaign for on-line energy audits
- Email blast for on-line energy audits
- Distribution of brochures and flyers for all remote energy audit tools
- Bill insert for on-line energy audits

*MEU* – The following marketing activities will be accomplished during 2006-08:

(1) SCE's Business Solutions group and SCE's Public Affairs organization will promote MEU scheduling through the event coordinator, however the program benefits from various organizations requesting its use at events in which SCE is a sponsor or major participant. Examples of these kinds of events are as follows: Cambodian Festival in Long Beach, Lancaster Poppy Festival (40,000 attendees), Tet Festival in Whittier (150,000), Route 66 Rendezvous in San Bernardino (500,000), and the Jalisco Federation in Lynwood. There will be an application which can be downloaded from a designated Website; and

(2) Once at an event, the MEU will be prominently located. It will be tastefully painted with SCE and other energy efficiency logos and pictures, as a customer attraction. Visitors will also be attracted to the MEU through the use of "wind dancers" and outside displays. The event management will be requested to announce the MEU in event literature, including mention of the free CFL distribution and customer feedback survey components.

*BOC* – Program outreach and lead generation is done through direct mail, email, and one-on-one follow-up contacts that lead customer prospects to attend one of the scheduled information meetings. These recruitment strategies lead to student enrollment. The program contractor sends a BOC newsletter to prospective clients with program schedule and enrollment form, outreach at selected customer conferences to potential BOC participants and coordination with statewide IOUs with information meetings and in class IOU presentation of incentive programs.



*CLEO – Marketing Activities:*

Deliverables	CLEO Program Strategy Goals
1. Design and Air Radio Spots	50
2. Design & Publish News Ads	40
3. Design and Air TV Spots	50
4. Phone Audits	50
5. Seminars	15
6. Energy Audits	50
7. Community Events	3

The media blitz will be designed for maximum campaign effectiveness. The different media will reflect a uniform message with focused goals. Each year, the campaign will commence in April and will continue until the second week of September. After the initial blitz the campaign will be active on alternate weeks with a pause during the Thanksgiving and Christmas seasons. The planned frequencies and the number of campaigns are as indicated below.

Radio – Fifty (50) spots broadcast during prime time, will air over the course of the program strategy. The radio station hosting these spots will be Networks Asia, the dominate Chinese language radio network in southern California. The spots will be planned around the efficiency workshops. In addition to providing program benefits, the content of these spots will extol the benefits of saving energy. The messaging includes reference to the state of California’s “Flex Your Power” program and other programs. The toll free number staff will answer questions in Chinese and enroll customers for seminars and subsequent energy audits. SCE incentive and rebate program information and simple over-the-phone energy audits will be provided in Mandarin and Cantonese to customers who call the program toll free number.

Newspapers – During the course of the program strategy, forty (40) advertisements will run in the “Chinese Daily News” a popular daily newspaper in southern California. The newspaper ad campaign will coincide with the other media advertisements. The ad content will be designed in consultation with SCE’s marketing department and will incorporate messages from Flex Your Power, CEC, and will follow recommended guidelines.

Television – In keeping with the findings of a recent EM&V study report and the CLEO program planners’ experience from the recently concluded CLEO third-party program, the television broadcast campaign has been revised to complement the other media campaigns. Fifty (50) spots will air for a period of six months in each 2006, 2007, & 2008. These spots will air on Channel 18, KSCI-TV the leading Chinese language television station in southern California. High recognition news program anchorpersons will perform these advertisement/ announcements. The CLEO program strategy will also provide information on key person interviews and provide informative banner ads. These

television ads will also cover upcoming seminars and information on SCE's energy efficiency programs.

Special Events and Trade Shows – In addition to the media blitz the contractor will also participate in special Chinese events such as the Chinese New Year, and Lunar festivals. Program planners estimate three such events every year in SCE's service territory with a CLEO booth for information dissemination, seminars and energy audit enrollments. These booths will also provide efficiency quiz contests and raffles for CFLs as incentives to drop by the program booth and hear the energy efficiency message.

Seminars – The CLEO program strategy will conduct 15 targeted seminars in a classroom setting at locations in the SCE service territory. A focused effort will be made to register as many participants for each seminar. However, to ensure effectiveness, CLEO will limit participation to a maximum of 40 customers (SCE service account numbers) for each session. The seminars are designed to increase energy efficiency awareness and will focus on simple strategies for energy savings. SCE rebate program information will be provided and attendees will be encouraged to embrace efficiency projects and spread the word about the advantages of energy efficiency in their communities. The seminars will target the moderate income residential customers and small commercial customers. Volunteer "Green Community Ambassadors" that are selected at the seminars will carry the program strategy message to the community. CLEO staff will then work with local city officials to leverage their outreach and marketing efforts to deliver the program strategy to the local Chinese community.

Local Community-Based Organizations (CBOs) – CBOs will help organize seminars and also enroll participants from communities they serve. Seminar registration will be on going and consists of direct phone registration from the media blitz, special events registration, on-site registration and registration by Chinese CBOs. CLEO will offer special incentives such as energy efficient product door prizes and drawings to encourage participation. All seminar registrants will be enrolled and tracked using their address and telephone number for future program verification work. Seminars will also allow for a qualitative self-assessment of the CLEO program strategy. A direct feedback focus group approach will help incorporate customer inputs into the current and future program design. The seminars will also provide first person feedback and evaluation of the various aspects of the program.

Energy Audits – The CLEO program strategy has budgeted to enroll 50 customers for free energy audits. These energy audits will highlight energy usage and energy saving opportunities. A simple audit report in Chinese will be provided to these customers with a one-on-one discussion of energy efficiency implementation strategies. A majority of these customers will be enrolled from seminar attendance. This allows these customers the opportunity to actually use the information received and will increase the odds of the customers following up on the audit report recommendations. These reports will also be used as case studies for workshop participants. Simple audit forms will be used to aid in the explanation of results and recommendations during the customer consultation.

Phone Audits and Support - CLEO will establish a toll free number for over-the-phone energy audits, enrollment in the seminars, on-site energy audits, and for general questions arising from the media campaign. CLEO program planners have budgeted for 50 over-the-phone audits.

School Program – CLEO will also introduce a “School Program.” Chinese Sunday schools and schools in demographic areas with a high presence of ethnic Chinese persons will be contacted for coordination of the in-language School Program. Students will be provided with simple quizzes which they have to bring back after review with their parents. Students will be rewarded for their participation with home energy and water use efficiency kits. Parents of these students will also be encouraged to attend the CLEO workshops. Attending parents will be given small educational gifts for their children. A number of the students will be selected as volunteer “Green Student Ambassadors” to help sustain the strategy at the schools. A guided tour of SCE’s energy center is also included in the program strategy.

#### **14. Conclusion**

SCE’s 2006-2008 Education, Training, and Outreach program is another piece in SCE’s portfolio of energy efficiency programs in its service territory in California. By incorporating recommendations from the Policy Advisory Group, the Peer Review Group, Public Work Shops, and whitepapers submitted by interveners and other interested parties and program design requirements, SCE is continuously refining the process to bring more and better energy efficiency and integrated self-generation program information, demand response program information, training, and outreach services to our customers. Two good examples are the recommendations to integrate demand response program information into the education, training, and outreach capability of the program, and the recommendation to initiate and expand partnerships with water agencies to join arms to mutually provide information about water agency and water purveyor conservation programs and energy efficiency programs in the service territory. The resulting interwoven programs will benefit both SCE and water agency customers and the state of California.

The enhanced program design now promotes energy efficiency, self-generation, and demand response to a variety of customer segments through energy centers, technology test centers, and other information and training program strategies. The revised objectives are to disseminate, and make available, information about efficient technologies and practices to electric, natural gas, and water utility customers for the purpose of assisting them in reducing energy and water usage, lowering their bills, while reducing operation and maintenance costs, and improving their productivity; and also to provide services to a variety of midstream and upstream market actors, including but not limited to architects, engineers, distributors, and contractors, who use information and tools to design more efficient buildings or processes, and to conduct energy efficient retrofits and renovations.



# Sustainable Communities

<b>1. Projected Program Budget</b>	<b>\$</b>	<b>4,429,150</b>
<b>2. Projected Program Impacts</b>		
MWh		8,212
MW (CEC Factor)		0.36
<b>3. Program Cost Effectiveness</b>		
TRC		3.68
PAC		4.29

## 4. Program Descriptors

Market Sector: Crosscutting  
 Program Classification: Local  
 Program Status: New

## 5. Program Statement

SCE's Sustainable Communities Program (SCP) provides comprehensive energy efficiency and demand response services to help address the increasing demand for electricity in the State. SCP will provide a "full spectrum" of solutions for new communities and individual projects by leveraging existing community programs, services, and tools in conjunction with SCE's programs' services and tools.

## 6. Program Rationale

This program is a direct response to the growing interest in designing facilities and communities with sustainable design practices. Programs like the U.S. Green Building Council's (USGBC) LEED (Leadership in Energy and Environmental Design) program are catching the attention of many business and government entities (PAG/PRG Workshop – Recommendation). Many of these institutions are incorporating aspects of LEED and Savings By Design into their new construction requirements. Efficient use of electrical energy efficiency is a major component of the LEED program, and SCP will seek to leverage existing programs and resources from internal SCE programs and services such as: Savings By Design (SBD), Self-Generation Incentive Program (SGIP), Residential

**What's New for 2006-08?**

- Innovation
  - A brand new program that addresses the growing interest in a comprehensive look at energy and sustainability issues.
- Integration
  - Leverages information and resources from existing programs and coordinates efforts to effectively address energy efficiency in new buildings and community developments.
  - Leverages resources through an alliance with SCG and San Diego Gas & Electric's teams.

New Construction, SCE service planners, Economic Business and Development (EBD), Public Affairs, Transmission and Distribution Business Unit, and Consumer Affairs to leverage and influence developers and designers to maximize energy efficiency (gas,

water, electric) and sustainability concepts. This program will also seek to form collaborative efforts with City/County Agencies (gas, water, city planning) (PAG/PRG Workshop – Recommendation); LEED™; CHPs; and Energy Star® to name a few.

## 7. Program Outcomes

### Sustainability

- Design and implement a successful collaborative model to affect project sustainability design goals for buildings and communities.
- Support sustainable design principles in a number of projects.

### Leveraging Existing Internal and External Programs

- Strategic support of raising the level of LEED certification for those participating projects.
- Provide offerings and services that support the Green Buildings Executive Order goals to establish a “...campaign to inform building owners and operators about the compelling economic benefits of energy efficiency measures; improving commercial building efficiency programs to help achieve the 20% goal...” (PAG/PRG Workshop – Recommendations).
- Develop materials which highlight and promote successful projects to raise the awareness and viability of the sustainable design process and the technologies used.
  - SCP will use the energy centers in SCG and SCE’s service territories to provide pertinent subject matter training on technologies and sustainability issues. Offsite training may also be used if necessary.
  - Most training will be provided by consultants.

**Provide offerings and services that support the Green Buildings Executive Order goals...**

### Innovation

- Investigate and incorporate potential electric energy savings from indirect sources such as water conservation strategies. Any verifiable electric energy savings will be reported as part of this program offering. Collaborate with Savings By Design and any other effort to quantify these energy savings. (White Paper, NRDC, “Energy Efficiency Program Ideas.”)

## 8. Program Strategy

The primary focus of the program is to utilize utility and community delivery channels to offer an enhanced bundled package of SCE’s energy efficiency, pricing and demand response, self-generation, economic and business development, and service planning tools while leveraging existing agencies such as water, gas, infrastructure services, and others. Projects will be used as case studies to demonstrate the economic benefits of including proven sustainable designs and practices in new building and community developments.

## 9. Program Objectives

### Sustainability

- Evaluate sustainability market potential and electric energy savings
- Identify, develop and participate in several sustainable projects.
  - Include a program effectiveness review
  - Incorporate substantive comments into program improvement modifications as appropriate.
- Develop case studies and detailed process report for projects.
- Develop and offer training classes on designing with sustainability with emphasis on cost-effective energy efficiency.

### Leveraging Existing Internal and External Programs

- Establishing a network of subject matter experts in the area of energy and sustainability that will coordinate efforts in assisting customer projects attain energy and sustainability goals.
- Assist in three to five state government or institution projects over the course of the program to ensure that these projects achieve the State's Green Building Initiative goals.
- Evaluate completed projects to identify learning opportunities and process improvements to ensure that the program is viable and that participants recognize the benefits of the program's services.

### Innovation

- Substantiate indirect electrical energy savings from nontraditional sources such as water.

## 10. Program Implementation

By working with community leaders and stakeholders, such as developers, planning departments, and local agencies, SCE will facilitate development of an integrated solutions proposal that incorporates the approach, design, and delivery of this pilot

**SCE will facilitate development of an integrated solutions proposal that incorporates the approach, design, and delivery of this pilot program for specific community or facility needs...**

program for specific community or facility needs, whether it encompasses a whole community development or a

single building or several facilities on the same site. This proposal will incorporate planned measures, schedules, and deliverables for this project, in concert with the community development goals and guidelines that serve the best interest of the community. LEED™ certification, Energy Star® tools and other references will be included as appropriate.

The process:

- 1) Potential projects will be identified from several key sources including SCE's Savings By Design new construction representatives, SCG' Savings By Design new construction representatives, SCE's Residential New Construction representatives,

SCE's Public Affairs group, City/County/Community planners, Developers, and Architects.

- 2) The SCP program manager will evaluate the potential project and determine what resources need to be involved.
- 3) The SCP program manager and/or a consultant will facilitate energy efficiency and sustainability design meetings with the client.
- 4) SCE or its consultant will assist with energy and environmental analyses. Energy savings will include impacts not attributable to any existing program.

**SCE has initiated discussions with the city of Irvine about an innovative demonstration of integrating all demand-side actions, along with sustainable building practices, at the Irvine Great Park Conservancy. We are also in discussions with the city of Santa Monica about the possibilities for their Civic Center project.**

- SCE will work jointly with SCG and the Santa Monica Sustainability project (PAG/PRG Workshop – Recommendations).
- Energy Centers will provide education and training regarding sustainable community issues and techniques. As appropriate, utilities will coordinate training activities. As resources permit, this program will sponsor training on green policies and support efforts by other entities to educate the marketplace. (PAG/PRG Workshops – Recommendations)
- SCE will review and evaluate the potential to partner with other cities in an effort to promote sustainable communities. (PAG/PRG Workshops – Recommendations).

SCE has initiated discussions with the city of Irvine about an innovative demonstration of integrating all demand-side actions, along with sustainable building practices, at the Irvine Great Park Conservancy. We are also in discussions with the city of Santa Monica about the possibilities for their Civic Center project.

## **11. Customer Description**

The target audience will include architects, building contractors, building owners, engineering firms, land developers, and municipalities and their internal agencies.

Primary customer market sectors/customer class include new construction projects involving public buildings, schools, office buildings, retail, multi-family, and single family residences.

Target market players are city and county community development stakeholders, building owners, architects, designers, engineers, and land developers.

## **12. Customer Interface**

- Establish a resource network which includes internal SCE programs and services and external agencies such as water and gas departments, consultants, USGBC, Energy Star™, developers, and other entities. Develop materials that clearly identify the



availability of specific resources and the process the SCE will use in making their project reach its energy and sustainability goals.

- Based on input from various groups, develop marketing material that focuses on specific building types and community development efforts. Outreach materials may also be developed to target specific ethnic groups.
- In order to ensure effective project coordination, the project manager will participate in all meetings as needed along with necessary support personnel such as the SBD new construction representative, the consultant, representatives from various agencies.

### **13. Energy Measures and Program Activities**

Electric energy savings will be calculated using SBD's Whole Building Energy analysis tool, eQUEST. Calculation assumptions for eQUEST are located in Appendix 1, Section - II. Calculation Assumptions.

#### **13.1. Measures Information**

SCE expects the majority of measure information to come from leveraged programs, such as Savings By Design, Residential New Construction, Multi- and Single-Family Rebates, and the Self-Generation Incentive Program.

Design assistance in facilitating the sustainability process will result in electric energy savings not associated with any current program offering. Through research and evaluation, SCE expects to include these savings in program results.

#### **13.2. Energy Savings and Demand Reduction Level Data**

Energy savings and demand reduction will be determined based on information obtained from the first prototype of buildings or community projects. Most energy savings and incentive payments will come from a primary program such as Savings By Design. Electric energy savings from indirect sources such as water conservation efforts will be research and reported as results as appropriate.

#### **13.3. Non-energy Activities (Audits, Trainings, etc.)**

- Identify, develop and participate in 7 to 10 sustainable projects over the 3 year period.
- Develop case studies and detailed process report for 3 to 5 of the total projects.
- Develop and offer 2 to 4 training classes on designing with sustainability, with emphasis on cost-effective energy efficiency.

#### **13.4. Subcontractor Activities**

Consultants will be used to facilitate energy efficiency, sustainability, and LEED compliance. Their activity will be supplemental to services provided by current program staffing. Consultants will be chosen by competitive bid.

#### **13.5. Quality Assurance and Evaluation Activities**

Verification or commissioning of completed projects.

### **13.5.1. Expected Number/Percent of Inspections (planned percent of projects)**

Inspections/verifications will adhere to the process and procedures of the primary incentive/rebate program. In addition, SCE is exploring including a commissioning component for all project (White Paper, NRDC, “Energy Efficiency Program Ideas”)

### **13.6. Marketing Activities**

- Promotional pieces to educate potential building owners of the advantages of building with sustainability in mind
- Trade shows and convention table top promotions

## Statewide Emerging Technologies

<b>1. Projected Program Budget</b>	<b>\$</b>	<b>11,430,240</b>
<b>2. Projected Program Impacts</b>		
MWh		n/a
MW (CEC Factor)		n/a
<b>3. Program Cost Effectiveness</b>		
TRC		n/a
PAC		n/a

#### 4. Program Descriptors

Market Sector: Crosscutting  
 Program Classification: Statewide  
 Program Status: Existing

#### 5. Program Statement

The Statewide Emerging Technologies (ET) program is an information-only program that seeks to accelerate the introduction of innovative energy efficient technologies, applications and analytical tools that are not widely adopted in California. Emerging technologies may include hardware, software, design tools, strategies and services. There are a daunting amount of market barriers which must be overcome for a new energy efficient product to gain acceptance. As the typical product life cycle in Figure 1 illustrates, during initial marketing efforts, products accepted by “innovators” may fail to gain wider acceptance with more risk-adverse customers, and the product’s adoption rate may fall off into “the chasm.” The ET program intends to help accelerate a product’s market acceptance through a variety of approaches, but mainly by reducing the performance uncertainties associated with new products and applications. The program targets all market segments.

#### What’s New for 2006-08?

- Increase in funding levels
- Increase focus on emerging technologies for longer term

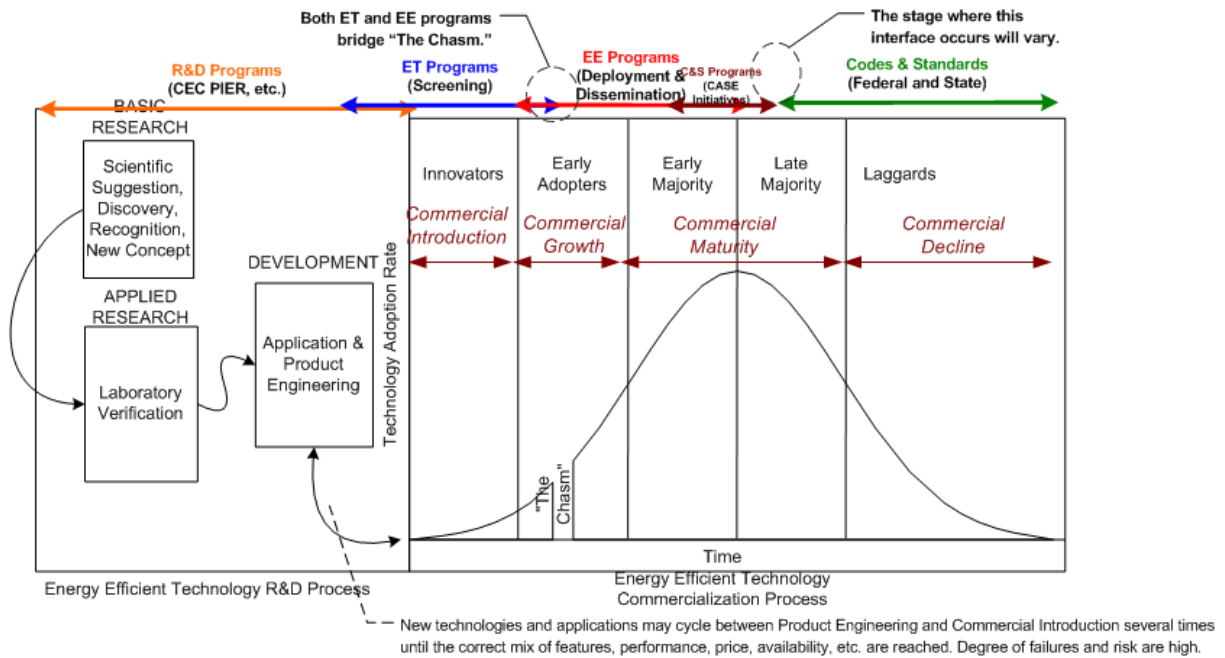


Figure 1. Energy Efficient Technology Commercialization Process

The ET program will consider technologies that are available for short-term and long-term deployment. The deployment of new and improved energy efficiency products and applications can help sustain or increase current savings. The ET program serves to make a new generation of

**The ET program is a statewide program that seeks to overcome many of these market barriers and to gain acceptance of innovative energy efficiency options that are not widely adopted in California.**

cost-effective energy efficiency technologies available. In order to provide a continuous stream of new technologies to the energy efficiency programs, an increase of annual funding for the ET program has been requested.

## 6. Program Rationale

The ET program is an information program. Energy Efficiency cannot remain static in the face of ever tightening energy markets and regulations. As the next generation of energy efficient technologies and applications emerge, they face market hurdles that may either delay their introduction or consign them to failure. The ET program is a statewide program that seeks to overcome many of these market barriers and to gain acceptance of innovative energy efficiency options that are not widely adopted in California. As shown in Figure 1, the program forms an important link between new energy efficient technologies and applications emerging from the Research & Development (R&D) cycle and their introduction into the marketplace. It also shows the relationship of the Emerging Technology Program, the Energy Efficiency Programs, and the Codes and Standards Program over the product life of the technology.

The proposed 2006-2008 statewide ET program will be slightly different from the 2004 and 2005 program. In 2004 and 2005, utilities and the California Energy Commission's (CEC) Public Interest Energy Research (PIER) staff met to discuss and coordinate statewide activities through the Emerging Technologies Coordinating Council (ETCC). Through PIER, the CEC helps to develop, test and demonstrate products up to the end of the R&D cycle.

**the overall objective of the ET Program is to verify the performance of new energy efficiency innovations which can be integrated into SCE's portfolio in support of its resource acquisition goals for energy efficiency.**

During the 2004-05 meetings, the PIER program managers and contractors reviewed with the

utilities those projects and technologies that had advanced enough to warrant utility ET program consideration. At SCE, work is progressing on several ET assessment projects based on PIER technologies that are in their final development stages. In addition, program staff may investigate opportunities with manufacturers, CEC PIER, and others to develop new, innovative and cost-effective energy efficient technology enhancements to existing products. SCE ET program staff worked with SCE energy efficiency program planners to discuss emerging technology applications that may be considered ready for the 2006 - 2008 energy efficiency programs. The synergy between R&D programs, like PIER, and the utilities' ET programs is working well and should continue. However, the overall objective of the ET Program is to verify the performance of new energy efficiency innovations which can be integrated into SCE's portfolio in support of its resource acquisition goals for energy efficiency. The continued success of energy efficiency programs as a resource will depend on new technologies that can achieve the greatest levels of demand reductions and energy savings. New selection criteria were developed to meet these energy efficiency program objectives. It is also important that a balance of new innovations for various market segments, including residential, commercial, industrial and agricultural, be achieved.

## **7. Program Outcomes**

The aim of the ET program is to develop all the necessary information required for the energy efficiency program to employ a technology to achieve energy savings goals. Such information includes verified energy savings and demand reductions, market potential and market barriers, incremental costs, and the technology's life expectancy.

The outcome of each individual energy technology is very difficult to predict, especially for high-risk projects. It is expected that a few projects may not turn out to be successful. Even unsuccessful assessments may provide insight so that improvements can be made in the future.

## **8. Program Strategy**

The utilities will deliver the program through custom demonstration projects, often working with targeted "innovators" and coordinated efforts such as the ETCC ET database. Information transfer efforts disseminate project results through many different outlets, including the Energy Centers, utility personnel and community organizations.

These information transfer activities leverage the utilities' overall energy efficiency communication efforts by disseminating information resources such as reports, fact sheets, design methods and tools developed through the demonstration projects.

## **9. Program Objectives**

The ET program will initiate several new Emerging Technology Application Assessments during 2006 - 2008. New technologies will be developed, with the selection of technologies depending upon the market potential of the innovation, market barriers encountered, estimated incremental measure costs, life expectancy of the technology, cost of the assessment, and the time required for the assessment. In order to better integrate the Emerging Technology Application Assessments with SCE's portfolio, SCE's energy efficiency program managers will be involved in the selection process for Emerging Technology Application Assessments during 2006 - 2008. In order to guarantee a truly diversified and equitable portfolio in the future, SCE will review technologies which serve each market segment, although some technologies may not offer energy savings as others.

Assessments initiated in prior program years will continue until completion. Project results and information will be made available to targeted markets and the utilities' energy efficiency program planners will be briefed on emerging technology applications that may be considered ready for future efficiency program efforts. Once an assessment project concludes and the results are understood, many of the demonstrated applications become part of the portfolio of mainstream energy efficiency programs, form the basis of future energy-related codes and standards, or are adopted as standard design practice in the marketplace.

## **10. Program Implementation**

The Emerging Technologies program consists of two parts: Assessment and Information Transfer, and the ETCC. Assessment and Information Transfer focuses on analysis of promising, early prototypes or commercially available Emerging Technologies which have not yet obtained adequate penetration or acceptance in the marketplace. Emerging Technologies may include hardware, software, design tools, strategies and services. Part of the assessment may include field demonstrations, conducted at either customer sites or in controlled environments, which provide design and performance information, and verify or validate novel energy efficient systems. Verification helps to reduce market barriers inhibiting wider acceptance of a technology. Demonstration projects help to measure, verify, analyze, and quantify the potential demand and energy savings, and document customer acceptance of specific applications in different market segments. Information transfer disseminates the results of emerging technology application assessment projects in a way which is customized to reach the most appropriate target markets.

The ETCC is a statewide information exchange and coordination effort between SCE, PG&E, SCG, SDG&E and the CEC PIER programs. The PIER programs, like other public and private R&D efforts, develop, test, and demonstrate prototype products. The utilities' ET efforts form an important link in the commercialization of emerging energy

efficient natural gas and electric technologies and their applications. Program efforts to select technology applications for assessment projects include working with the CEC PIER program, members of the research and design communities, manufacturers, energy efficiency advocates, and public entities such as Electric Power Research Institute (EPRI), Gas Technology Institute (GTI), universities, E-Source, California Institute for Energy Efficiency (CIEE), The Air-Conditioning and Refrigeration Institute (ARI), American Society of Heating, Refrigeration and Air-Conditioning Engineers (ASHRAE), Illuminating Engineering Society (IES), Institute of Electrical and Electronics Engineers (IEEE), national laboratories, Department of Energy (DOE), Environmental Protection Agency (EPA), NASA, engineering firms, industry and trade groups and customers. Contacts with these groups through both the individual utilities and the CEC PIER program constitute a large part of the public input the ETCC receives concerning energy efficient emerging technologies.

The ETCC will hold quarterly meetings to coordinate project activities, exchange information about specific customer projects and technologies, and discuss ways to enhance the utilities' Statewide ET Program efforts and collaboration with the CEC PIER, the ETCC website and the ET database. During ETCC business meetings, discussions concerning ongoing and/or proposed projects at times involve privileged customer information, business strategic and operational details, or privileged manufacturer product details that are too sensitive to discuss in an open forum. These exchanges are necessary to ensure truly effective coordination and collaboration efforts between the utilities and the CEC PIER. For this reason, ETCC business meetings will not be open to the general public. At times, the ETCC may invite speakers to a portion of a work meeting to present advances in energy efficient emerging technologies that fit within the context and interests of the existing Statewide Emerging Technology program.

Each utility's program consists of activities that may be coordinated with other utilities' approved emerging technology programs and the CEC, and activities that are unique to each utility service territory and customer base. The efforts that each utility undertakes, as part of the statewide ET program, will be guided and prioritized based on the following criteria: customer needs, coordinated ETCC activities, technology readiness, potential energy and demand savings, approved program funding levels, and other relevant objectives.

The program will focus on new energy efficient emerging technology assessment projects in 2006 through 2008. ET Program efforts form an important link between ongoing R&D efforts on energy efficient technology applications and their commercialization. Applications mature out of the R&D cycle at different times and are not always available for consideration during initial program planning efforts. Thus, program staff work to remain informed on a broad range of emerging technology applications from many information sources, and any of the technologies may prove to be a viable project candidate. Currently, some of the technology areas that SCE may assess through the program and coordinate through the ETCC, include, but are not limited to:

- Phase change construction material
- Heat flux defrost for refrigeration systems

- LED lighting for display cases
- Ceramic metal halide
- Magnetic suspended refrigeration compressor
- Duct sealer for commercial buildings
- Evaporative condenser for residential air-conditioners
- Solar collector for daylighting

It is important to note that the less mature a technology is, the higher the risk that the technology may fail in an application. The identified risks are among the many factors that the utilities use to select technology applications for demonstration projects and to establish project contingency requirements. Starting in 2006, SCE may direct some resources toward market research to achieve a better initial understanding of a technology's market potential in order to improve the overall selection process. The significant increase in budget requested for program years 2006 through 2008 will be used to improve the ETCC website and ET database, increase assessment goals and information transfer activities, comply with added program tracking requirements and increased risks due to working with less mature products emerging from research. In past program years, the estimated specific costs of projects undertaken are reported in quarterly workbooks once the projects are committed. These costs will continue to be reported as required in the reporting workbooks. Likewise, narratives discussing initiated assessment projects and their progress are provided in past quarterly narrative reports. As requested, these narratives will be expanded to include projects initiated in previous program years. As assessment projects are concluded, their results will be summarized in the annual report narratives including which associated products have since been incorporated into the utilities' energy efficiency program efforts.

## **11. Customer Description**

Customers from all markets segments are eligible to host emerging technology application demonstration projects. In general, the information the program generates through its demonstration activities benefits all customers. One of the aims of an ET program is to explore how far an application of a new technology can be extended into various market segments in order to characterize the widest possible deployment. Thus, the utilities seek opportunities to host appropriate demonstration projects at hard-to-reach customer sites.

The program does not use a mass marketing approach to finding interested customers willing to participate in an emerging technology application demonstration and does not enroll customers. The utilities may implement the program through custom demonstration projects. For projects that require a customer demonstration site, the program works with customers that are willing to accept the potential risks and expenses associated with relatively new energy efficient technology applications. Residential and nonresidential customers from all market segments are potential participants. Figure 2 illustrates the general project and customer selection process. Customer site demonstration projects may come about in one of two ways:



- *Customer “Pull.”* A utility account representative may approach the program staff on behalf of a customer interested in pursuing energy efficiency. The ET program staff will help the account representative address the customer’s needs, and at the same time, consider a range of potential energy efficient emerging technology applications.

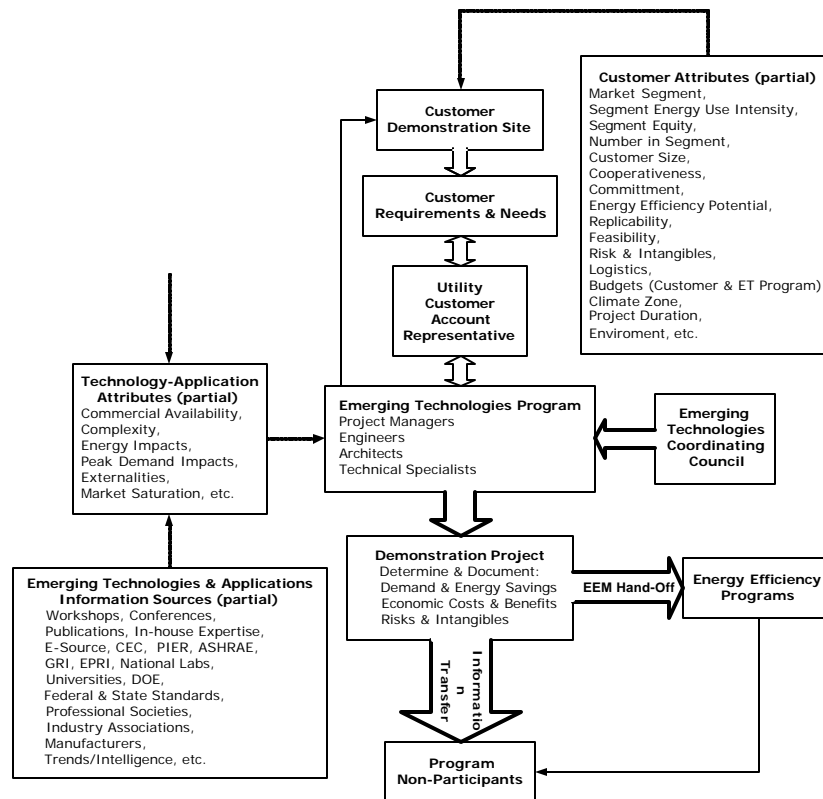


Figure 2. General Emerging Technologies Program Process

- Technology “Push.”* The second manner in which a project may come about is due to the emergence of a significant new technology application. ET program staff then approach the utility account representatives for a particular market segment, inform them about the new technology application, and ask them to help identify a potential demonstration site from among their customers. The program follows a targeted marketing approach to work with “innovators.” These “innovators” may further influence other customers. Note that the utility’s customer account representative plays an important role in the overall process. For those projects that do not require a field demonstration at a customer site, the program staff seeks to frame the project targeting the customer’s needs and requirements. This helps ensure that project objectives are aligned with customer needs and expectations.

Before a customer site demonstration project can take place, a legal agreement acceptable to both the customer and the utility is developed, negotiated, and executed. These agreements specify the terms of the projects, maximum duration, dispute resolution methods, termination provisions, general liability, etc. It is important to note that some demonstration projects may require up to four years to complete, commencing on the date an agreement is signed with a customer. The time required to complete a project will vary due to how complex a new technology application is, construction schedules, building and process commissioning, logistics, etc.

## **12. Customer Interface**

The Emerging Technology Program is different from other EE programs. If the technology assessment requires field verification, a test site requirement will be developed by project management and forwarded to account managers. Account managers will search for customers who fit the specification. Once customer sites are located, the project manager meets with those customers to review the project objective and responsibilities of all parties. A draft agreement is then developed by the project manager and reviewed by the SCE Law Department. The draft agreement is forwarded to the customer for their approval. If the language is not accepted, recommended changes may be provided by the customer. The changes will be reviewed by the SCE Law Department. The agreement will not be signed until the final language is accepted by both parties.

Once the agreement is fully executed by both parties, the project will begin. The project manager will be responsible for the implementation and all operational aspects of the project. All customer questions and complaints are directed to the project manager. If a dispute arises, the project manager will resolve it based on the terms of the negotiated agreement with the customer. In case the project manager cannot resolve a dispute, the issue is brought to senior management for resolution. If the unit manager cannot resolve the matter with the customer, the case is turned over to the SCE Law Department for resolution.

## **13. Energy Measures and Program Activities**

### **13.1 Measures Information**

Based upon the California Public Utilities Commission's (CPUC) approved Energy Efficiency Policy Manual, an information-only program is not reasonably expected to provide an estimate of energy savings. The lack of energy savings, capacity savings, therm savings, resource benefits, or a TRC ratio for any particular program, i.e., information programs, should not imply that a measure or program does not promote energy efficiency. Neither should it imply that there is no impact to the customer's use of electricity or natural gas, nor a corresponding impact to the electricity or natural gas system. Although this program does not create immediate short-term energy savings, it provides a clear, logical, and verifiable link between program activities and eventual energy savings.

The ET program performs assessments of emerging technologies. The number of emerging technology assessments initiated each year will be reported to the CPUC and can be verified. Some of those assessments may include performance of field demonstrations at customer sites. These field demonstrations may take as long as four years to complete, especially at new customer sites. The progress of the project will be reported throughout the funding cycle.

The Statewide Emerging Technologies Program progress will be measured through the following three annual metrics:

- **SCE will perform a total of 45 Emerging Technology Application Assessments over the three year period (2006 through 2008).** The technology application assessments may consist of diverse project types including: feasibility studies, simulation analyses, field demonstrations, controlled environment tests, commercial product development, design methodologies and tool development. Some assessments may take up to four years to complete.
- **Annual Update to the Emerging Technology Database.** ETCC will retain an outside contractor for this task. The list of emerging technology applications on the Emerging Technology Coordinating Council website ([www.ca-etcc.com](http://www.ca-etcc.com)) will be updated during the program year. Each IOU as well as the CEC will be responsible for providing the project information to the contractor who will incorporate them into the ETCC website.
- **The Emerging Technologies Coordinating Council will meet at least four times during each year.** At the start of program year (PY) 2006, the ETCC will meet to coordinate and plan joint efforts, and initiate updates to the Emerging Technologies Database available on the ETCC web site (<http://www.ca-etcc.com/>). The ETCC will continue to meet throughout the program years at least once per quarter. The ETCC will assess whether energy efficient emerging technology applications have reached a sufficient stage of maturity for the utilities to consider them in the statewide program efforts. In addition, to better monitor PIER progress, utility program staff members will attend PIER project meetings as often as possible. This will allow the utilities to remain current of PIER project changes and developments. Demonstration projects will be initiated throughout the program year to assess energy efficient emerging technology applications.

### **13.2 Energy Savings and Demand Reduction Level Data**

Section 13.2 is not applicable.

### **13.3 Non-energy Activities**

After the emerging technologies are assessed, it is important to have the information transferred to the energy efficiency program managers as well as the customers. Information transfer efforts disseminate project results through many different outlets, including the Energy Centers, utility personnel, community organizations and other entities. These information transfer activities leverage the utilities' overall energy efficiency communication efforts to disseminate information resources such as reports, fact sheets, design methods and tools developed through the demonstration projects.

### **13.4 Subcontractor Activities**

The ET program staff are responsible for all aspects of the program. Subcontractors may be used to perform the actual construction and installation of the equipment and hardware at customers' sites. All subcontractor activities will be reported in the monthly workbook.

### **13.5 Quality Assurance and Evaluation Activities**

This statewide evaluation plan was developed in accordance with EM&V requirements as specified in the current Energy Efficiency Policy Manual. The manual does not require the evaluation plan for this information-only program to have a measurement and verification component. Pursuant with CPUC instructions, this plan should not be regarded as final. A final, more complete plan will be specified in accordance with the forthcoming new California Evaluation Framework at a later date.

The success of the program will be measured by the achievement of the above goals. In addition, a process evaluation of the program and an update of the market assessment will also be conducted. The proposed evaluation plan contains two primary objectives:

- To evaluate program success by measuring indicators of program effectiveness and test the assumptions underlying the program theory, and
- To provide ongoing feedback and corrective guidance regarding program design and implementation.

Program data on the number of sponsored technology assessments, field demonstrations, published articles, workshops, professional forums conducted and other information dissemination opportunities will be collected and reviewed to verify and document 2006-2008 program accomplishments. Information obtained from depth interviews with program staff and available data on the number of workshop and forum attendees will provide supplemental information on program activities and accomplishments. In the past evaluation report, a recommendation was made to improve the design of the ETP tracking database. Future program evaluations will monitor the program's progress in accomplishing this goal.

#### **13.5.1 Expected Number/Percent of Inspections**

The ET program is an information program which does not require inspections. The performance of the program will be evaluated by the M&V program.

### **13.6 Marketing Activities**

The ET program is an information program. The only marketing is for information dissemination. Most of the seminars are presented at the SCE Customer Technology Application Center (CTAC) and Agricultural Technology Center (AgTAC). Seminars are promoted through e-mail, web site access, newspaper and trade association advertisements, posted seminar schedules and flyers mailings to targeted audiences.



# Statewide Codes & Standards Program

<b>1. Projected Program Budget</b>	\$	<b>5,851,877</b>
<b>2. Projected Program Impacts</b>		
MWh		n/a
MW (CEC Factor)		n/a
<b>3. Program Cost Effectiveness</b>		
TRC		n/a
PAC		n/a

## 4. Program Descriptors

Market Sector: Crosscutting  
 Program Classification: Statewide  
 Program Status: Existing

## 5. Program Statement

The statewide Codes and Standards (C&S) program is an information-only program that advocates upgrades and enhancements in energy efficiency standards and codes. Program activities are conducted over long-term code upgrade cycles. A typical building code cycle, for example, may require four years of continuous support. Codes and Standards Enhancement (CASE) studies for energy efficiency improvements are performed for promising design practices and technologies and are presented to standards and code-setting bodies. The Codes and Standards program offers the state expert testimony to promote standards that approach best practices in energy efficiency, which becomes critically important as stakeholders voice opposition to improvements to building and appliance standards throughout the public workshops and hearings process. Additionally, the program supports implementation of energy efficiency standards through strategic initiatives or training. The program targets all market segments.

**What's New for 2006-08?**

- Increase funding for Codes & Standards
- Focus on next generation of codes, standards

## 6. Program Rationale

Saving energy and capturing societal benefits are the primary reasons behind the Codes and Standards program. These advancements are achieved by assisting the state in modifying existing standards or setting new codes into law. Enhancements to codes and standards lead to significant electric and gas energy savings and electric demand reduction by advancing the identification and early adoption of innovative technologies. Following this progression, Codes and Standards activities create synergies with other programs, such as Emerging Technologies, energy efficiency equipment rebates, and energy audits.

## 7. Program Outcomes

The Codes and Standards program is designed to enhance state and federal appliance and building energy efficiency codes, standards and guidelines. In 2006 through 2008, the Codes and Standards program will specifically support implementation of the California Energy Commission's Title 24 Building Energy Efficiency Standards and revisions to Title 20 Appliance Efficiency Standards. CASE initiatives may target enhancements to the Title 24 Building Energy Efficiency Standards rulemaking. Additionally, Southern California Edison has looked beyond Title 24 and Title 20 to urge those industries that are not currently regulated by this code to embrace "baseline" technologies and best management practices until they are formalized into industry-accepted standards.

## 8. Program Strategy

The Program Advisory Group (PAG) recommends that the program receive adequate attention to meet both near-term and longer-term goals. Recommended funding for 2006 has been increased by 50% over 2005 funding levels in order to ensure implementation of the C&S program strategy.

Program staff will assess technologies which present the strongest opportunities to direct and influence code enhancements with significant energy savings. Codes &

**Codes & Standards activities create synergies with other programs, such as Emerging Technologies, energy efficiency equipment rebates and energy audits.**

Standards activities create synergies with other programs, such as Emerging Technologies, energy efficiency equipment rebates and energy audits. Staff will work with the Emerging Technologies program, as they provide comprehensive analysis of a technology's market potential, market barriers, incremental cost, adoptability, life expectancy, and life cycle costs – all of which determine at which point the technology can drive future code modifications.

## 9. Program Objectives

Progress will be measured through the following two metrics:

- **Southern California Edison will initiate or continue eight CASE studies.** The completion and presentation of a CASE study may take up to four years.

**Codes and Standards program managers will work closely with California Energy Commission (CEC) staff, and other codes and standards advocates, since advocacy efforts within the public rulemaking process are more effective if carried out in a coordinated manner.**

- **Southern California Edison will conduct five training courses.** Each course shall address enhancements to the standards or efficiency guidelines that customers may use to construct code-compliant buildings and install appliances, respectively.



Additionally, an update will be completed that summarizes the status of each CASE study active during the year. Final reports presented to the CEC will be available through transcripts of CEC standards workshops, typically posted on the CEC web site after public hearings. The transcripts include comments made by stakeholders and advocates. Studies targeting areas outside of Title 24 and Title 20 but designed to establish “standards” for other industries will be publicly available from SCE’s web site along with all other Codes and Standards work.

#### **10. Program Implementation**

Codes and Standards program managers will work closely with California Energy Commission (CEC) staff, and other codes and standards advocates, since advocacy efforts within the public rulemaking process are more effective if carried out in a coordinated manner. Prioritization of C&S activities will consider the applicable rulemaking proceedings, measure cost effectiveness, potential long-term energy savings, and demand savings of the enhancements. The IOU’s Codes and Standards program staff plan to meet periodically to coordinate inter-utility activities so that the limited statewide funding is used efficiently. Activities will also be coordinated with other programs, as needed.

SCE, PG&E, SDG&E, and SCG will collectively consider CASE initiatives on various cost effective building and appliance energy efficiency measures. Implementation

**Through the statewide Codes and Standards program, expert testimony is provided to promote standards that approach best practices in energy efficiency.**

activities may include CASE studies, targeted training, or other strategic efforts. Additionally, projects such as scoping studies addressing retrofit residential and nonresidential building code opportunities, or advanced energy codes, may be included.

#### **11. Customer Description**

Through the statewide Codes and Standards program, expert testimony is provided to promote standards that approach best practices in energy efficiency. Key stakeholders impacted by these regulatory changes include equipment manufacturers, standard enforcement agencies, government institutions, agencies responsible for standard enforcement such as building departments, architects, engineers, designers, and building industry associations, among others.

#### **12. Customer Interface**

SCE, along with the other investor owned utilities, will actively work with the stakeholders cited above to make changes in the code. Our efforts will not only evaluate changes that are consistent with the goals of the California Energy Commission by conducting CASE studies, but SCE will also help transition any changes in the code by implementing training sessions for “customers”. Thus there are two customer audiences that SCE will be targeting as part of these activities; (1) all stakeholders interested in making improvements to the energy code, and (2) local code compliance officials,

building officials and other entities involved in the implementation of the energy efficiency standards.

1. **Code Change Stakeholders:** The California Energy Commission is clearly a large stakeholder in the activities of the Codes and Standards program. SCE will continue to work closely with CEC staff personnel to insure that our work is timely and relevant to their needs. Specifically, this takes the form of frequent meetings at the CEC, workshops with other interested stakeholders and conference calls as needed to either plan activities or provide status updates. This has been a successful tactic that will continue to be employed.
2. **Local Compliance Officials and Other Entities:** The key element of the “training and seminar” portion of the Codes and Standards program is to provide timely information regarding the implementation of any Code changes to local compliance and building officials. SCE will continue to offer training and seminars to engineers, architects and specifiers. The courses will provide information to help them better understand the Code changes and how to incorporate them into their designs.

### **13. Energy Measures and Program Activities**

The 2006-2008 programs will focus on new opportunities to address retrofit residential and nonresidential building codes or advanced energy codes. Projects will share the objectives of informing state and federal agencies, verifying and enhancing the CEC’s appliance energy efficiency and building code standards, and, in some cases, enhancing manufacturers’ specifications and developing new statewide measures.

#### **13.1. Measures Information**

(See the portfolio workbook.)

#### **13.2 Energy Savings and Demand Reduction Level Data**

This section is not relevant to the Codes and Standards program. The PAG recommends that C&S should receive credit for energy savings created by new codes. Based upon the California Public Utilities Commission’s (CPUC) approved Energy Efficiency Policy Manual, an information-only program is not reasonably expected to provide an estimate of energy savings. The lack of energy savings, capacity savings, therm savings, resource benefits, or a TRC ratio for any particular program, i.e., information programs, should not imply that a measure or program does not promote energy efficiency. Neither should it imply that there is no impact to the customer’s use of electricity or natural gas, nor a corresponding impact to the electricity or natural gas system.

Although this program does not create immediate short-term energy savings, it provides a clear, logical and verifiable link between program activities and eventual energy savings.

#### **13.3 Non-energy Activities (Audits, trainings, etc.)**

As indicated above, one of the key goals of the Codes and Standards program is to conduct relevant training and/ or seminars to help in the dissemination of code changes and enhancements. The target audience is code officials, builders, developers, engineers and equipment specifiers.

### **13.4 Subcontractor Activities**

Although subcontractors may be employed, Design and Engineering Services staff is responsible for all aspects of the Codes and Standards program.

### **13.5 Quality Assurance and Evaluation Activities**

This statewide evaluation plan was developed in accordance with EM&V requirements as specified in the current Energy Efficiency Policy Manual. The Manual does not require the evaluation plan for this information-only program to have a measurement and verification component. Pursuant with CPUC instructions, this plan should not be regarded as final. A final, more complete plan will be specified in accordance with the forthcoming new California Evaluation Framework at a later date.

The success of the program will be measured by the achievement of the above goals. The proposed evaluation plan contains two primary objectives:

- To evaluate program success by measuring indicators of program effectiveness and test the assumptions underlying the program theory, and
- To provide ongoing feedback and corrective guidance regarding program design and implementation.

Program data on the number of sponsored technology assessments, field demonstrations, published articles, workshops, professional forums conducted and other information dissemination opportunities will be collected and reviewed to verify and document 2006-2008 program accomplishments. Information obtained from in-depth interviews with program staff and available data on the number of workshop and forum attendees will provide supplemental information on program activities and accomplishments. In the past evaluation report, a recommendation to improve the design of the Emerging Technologies program tracking database was made. Future program evaluations will monitor the program's progress in accomplishing this goal.

#### **13.5.1 Expected Number/Percent of Inspections**

None-applicable.

### **13.6 Marketing Activities**

As an information-only program, Codes and Standards' only marketing efforts are those conducted for information dissemination. SCE will deliver studies and reports to code-making bodies or organizations which would benefit from technology information as it relates to the code-making process. If seminars or training are conducted as a part of a Codes and Standards program, marketing materials will promote the events through e-mail, web site access, newspaper and trade association advertisements and flyers mailings to the appropriate target audiences.



## **IV. Competitive Bid Process**



# Competitive Bid

<b>1. Projected Program Budget</b>	<b>\$</b>	<b>32,662,058</b>
<b>2. Projected Program Impacts</b>		
MWh		96,875
MW (CEC Factor)		21.02
<b>3. Program Cost Effectiveness</b>		
TRC		4.23
PAC		2.52

<b>1. Projected Program Budget</b>	<b>\$</b>	<b>5,780,860</b>
<b>2. Projected Program Impacts</b>		
MWh		14,539
MW (CEC Factor)		3.16
<b>3. Program Cost Effectiveness</b>		
TRC		3.84
PAC		2.14

## 4. Program Descriptors

Market Sector: All  
 Program Classification: Local  
 Program Status: Existing Revised

## 5. Program Statement

The competitive bid process proposed by SCE is a comprehensive and multi-faceted approach that draws from the skill, experience, and creativity of the energy efficiency community. SCE's competitive bid process will help to enhance current program design as well as uncover newer approaches to capturing cost effective energy savings and demand reduction for both the short and long-term. This approach is consistent with the Commission direction to

### What's New for 2006-08?

- Innovation
  - Offer 3 types of competitive bids
  - Include a 2-stage proposal to reduce expenses for administrator and bidders
  - Special solicitation to promote next generation of energy efficiency technologies

conduct a competitive bid "for the purpose of soliciting innovative ideas and proposals for improved portfolio performance".<sup>51</sup> Additionally, the planned competitive bid will also search and promote the latest energy efficiency technologies throughout the 2006-08 program cycle. Although these newer program approaches and technologies may be

<sup>51</sup> D.05-01-055, Section 5.2.1, p.94.

unproven in the marketplace, SCE believes these tests are necessary to help sustain cost effective energy efficiency for the longer-term.

In order to capture cost-effective energy efficiency for both the short and long-term, SCE proposes to offer three unique types of solicitation:

- **Targeted.** SCE has targeted various programs and areas which we propose to bid. During the planning process, SCE looked to current programs which could be enhanced through improved design and implementation. In the competitive bid, SCE will set the program criteria and seek bids which will improve overall program effectiveness through innovative approaches. The enhancements could take on various forms such as greater outreach, improved penetration, improved coordination with other programs, or a creative delivery approach which may reduce ratepayer cost.
- **IDEEA (Innovative Design for Energy Efficiency Applications).** SCE proposes to conduct a general solicitation to look for new program designs that have a real potential for cost effective energy efficiency. The overall IDEEA portfolio must provide cost-effective energy efficiency opportunities similar to the performance of the overall program portfolio. The winning bids must also provide installed energy and demand savings in the years they are funded.
- **INDEE (Innovative Design for Energy Efficiency).** The INDEE solicitation is a search for unique and newer energy efficiency technologies and/or very distinctive approaches to capturing cost effective energy efficiency in order to create a future for the next

**INDEE places much more emphasis on innovation and promotion of promising technologies...**

generation of energy efficiency programs. INDEE places much more emphasis on innovation and promotion of promising technologies and as a result the INDEE programs may be less cost effective than other programs in the portfolio. The INDEE solicitation proposal is borne from SCE's current experiences with the 2004-05 IDEEA solicitation. SCE found a number of interesting program designs typically promoting the application of emerging technologies. Although these technologies had proven their technical feasibility through lab testing and individual showcasing, it was not clear whether, and if so where, their application was feasible in the marketplace. In addition, many of these proposals were very costly to implement and/or had very weak potential for short-term cost effective energy and demand savings.

Each of these solicitations will be conducted during calendar year 2005 to allow for program implementation beginning 2006. For IDEEA and INDEE, SCE proposes to conduct additional solicitations during the three year program cycle. This will allow SCE to continue to identify the latest program concepts and technologies in order to constantly improve and enhance the overall program portfolio for the longer-term.



## **SCE/SCG PAG and Public Workshops – Recommendations**

Stemming from the PAG recommendations, IDEEA program planners have addressed and built into the program design the following:

- Targeted bidding approach – solicitations will be targeted for these specific programs.
- Two-stage bidding approach – The two-stage bidding approach will be used to solicit abstracts (Stage I) and proposals (Stage II) as a way to reduce expenses for administrators and bidders.
- Encourage bidders to present program designs to promote identified technologies – Under the INDEE umbrella program, technologies and concepts that show promise will be identified and subject to directed solicitation.

### **6. Program Rationale**

#### **Program Portfolio Solicitation and Administration**

The proposed solicitation builds upon SCE’s 2004-05 IDEEA solicitation. The marketplace is a fertile source of new and innovative ideas to enhance the overall energy efficiency program portfolio. SCE proposes the continuation of IDEEA to find, fund, and test the best of these ideas from the marketplace and to provide the opportunity to “mainstream” them into the overall SCE-managed portfolio of proven, successful, and reliable programs. SCE’s objective is to ensure that the Commission’s energy and demand savings goals are achieved through the installation of cost effective energy efficiency.

#### **Promoting a significant source of program innovation**

SCE proposes to seek out interested organizations that have special knowledge and experience or different links to some of our customer that permit them to promote installation, reduce market barriers, and effective use of energy efficient options through

**Through a well-advertised general solicitation, SCE will seek organizations that may find ways to “mine” energy efficiency to targeted customer segments and/or promote a promising technology.**

innovative ways. Through a well-advertised general solicitation, SCE will seek organizations that may find ways to “mine” energy efficiency to targeted customer segments and/or promote a promising technology.

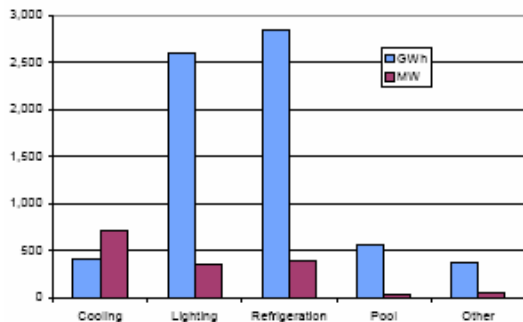
#### **Covering possible gaps in the SCE portfolio**

SCE’s comprehensive energy efficiency portfolio provides a broad coverage of market and customer segments, program approaches, and energy-efficient technologies. However, as demonstrated in the 2004-05 IDEEA programs, winning bidders were able to design boutique programs that targeted niche markets.

Under the targeted market approach, SCE will encourage participation from those market segments and sub-segments with greater potential for energy efficiency. As indicated in

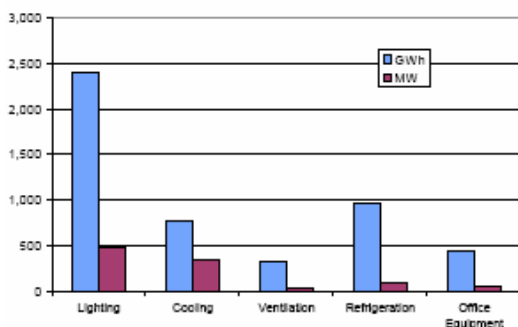
Figure 1 below, in the residential market<sup>52</sup>, the greatest potential for energy efficiency can be prioritized by refrigeration, lighting, pool pumps, cooling, and other. In addition, when analyzing the potential for emerging technologies, cooling is identified as the greatest potential for future demand and energy savings. Lighting in the residential market is another example of a possible gap in the energy efficiency portfolio. Although SCE's and third-party providers' lighting programs have been extremely successful, studies<sup>53</sup> indicate that in California, only a small percent of lighting products sold and used are compact fluorescents lights (CFL), thus there is a huge potential to expand this market and for energy savings. Many of the energy efficiency programs offered by California's investor-owned utilities have caused California CFL sales to begin outpacing the rest of the nation. The barrier for many customers to use CFL is typically the higher initial cost, limited availability and quality concerns.

**Figure 1.**  
**Residential Market Economic Potential**



In the commercial market, shown on Figure 2 below, the greatest potential for energy efficiency can be prioritized by lighting, refrigeration, cooling, office equipment, and ventilation.

**Figure 2.**  
**Commercial Market Economic Potential**



<sup>52</sup> Documentation of Energy Efficiency Potential Estimates, KEMA-XENERGY Report, pp. 31-40, July 12, 2004.

<sup>53</sup> A 3.3% saturation of CFLs to total lamps sold is indicated in the California Lamp Report, 2001, Volume 1.

**7. Program Outcomes**

The desired program outcome is to capture cost effective energy savings and demand reduction opportunities for both the short and long-term that help the overall portfolio achieve the targets, both annual and cumulative, as set forth by the Commission. The first step to achieving this desired outcome is to successfully solicit, select, and award program under each solicitation in time for implementation beginning 2006.

**The desired program outcome is to capture cost effective energy savings and demand reduction opportunities for both the short and long-term...**

SCE will conduct multiple solicitations throughout most of the three-year program cycle. Below is an example of the staggered implementation approach (Table 1A).

**Table 1A – Implementation Schedule (Illustrative Purposes Only)**

Program	Program Budget	2006	2007	2008
Targeted Program # 1	\$10,000,000			
Targeted Program # 2	\$600,000			
Targeted Program # 3	\$1,500,000			
IDEEA Program # 1	\$800,000			
IDEEA Program # 2	\$2,300,000			
IDEEA Program # 3	1,200,000			
InDEE Program # 1	\$400,000			
InDEE Program # 2	\$800,000			
InDEE Program # 3	\$650,000			

Each of the solicitations has specific desired outcomes. The following is a list of those preferred outcomes.

Specific outcomes for the program elements are:

- Targeted
  1. Early start of the solicitation process to allow implementation in January, 2006
  2. Complete program and contractor selection by November, 2005
  3. Implement multi- year programs that typically run from two to three years
- IDEEA
  1. Early start of the solicitation process to allow implementation in January, 2006
  2. Complete program and contractor selection by October, 2005
  3. Select innovative boutique programs that serve to complement SCE’s portfolio
  4. Attempt to “mainstream” successful program concepts or parts of programs concepts into SCE programs as early as the 2007 program year, after proper evaluation
  5. Implement multi- year programs that typically run from two to three years
  6. Perform another round of solicitation in 2006 for implementation in 2007
- INDEE

1. Early start of the solicitation process to allow implementation in January, 2006
2. Complete program and contractor selection by October, 2005
3. Find, fund, and test emerging technologies that would otherwise be too expensive for smaller organizations to commercialize
4. Have an annual solicitation for pilot programs to test new technologies or non-resource concepts
5. Attempt to “mainstream” successful program concepts and/or technology into SCE programs as early as the 2007 program year after proper evaluation
6. Perform subsequent annual solicitations in 2006 and 2007
7. Implement targeted solicitations for identified technologies and encourage bidders to present program designs to promote those technologies

## 8. Program Strategy

For the Targeted programs, will require less time because the targeted market sector, technology or strategy is predetermined thus allowing for a shorter solicitation process. For IDEEA and INDEE, SCE plans to implement the full IDEEA solicitation to cast a wide net in an effort to capture all program and technology types. However, in order to implement all program elements by January 2006, the solicitation process must start six months prior to implementation. Below is a program timeline with specific process events:

**Table 1B – Proposed Solicitation Schedule**

	RFP Events and Periods	Duration	Start	Finish	Predecessors
1	RFP Pre-notification	44 days	6/6/05	8/4/05	
2	RFP Release Date	1 day	7/15/05	7/15/05	
3	Stage I, Abstract Writing and Due Date	15 days	7/18/05	8/5/05	2
4	Abstract Evaluation and Management Portfolio Review	15 days	8/8/05	8/26/05	3
5	PRG Abstract Review	5 days	8/29/05	9/2/05	4
6	<b>CPUC Decision</b>	<b>1 day</b>	<b>9/1/05</b>	<b>9/1/05</b>	
7	Notice to Submit Full Proposal, Stage II	1 day	9/5/05	9/5/05	5
8	RFP Bidder Question Period	5 days	9/6/05	9/12/05	7
9	Responses to RFP Question Period	5 days	9/13/05	9/19/05	8
10	Stage II, Program Proposals Writing and Due Date	23 days	9/6/05	10/6/05	7
11	Bid Screening Period	11 days	10/7/05	10/21/05	10
12	Portfolio Manager's Review and Recommendation	3 days	10/24/05	10/26/05	11
13	Bid Clarification Meetings	6 days	10/27/05	11/3/05	12
14	PRG Proposal Selection Review Period	3 days	11/4/05	11/8/05	13
15	Selection Subject to Negotiation	1 day	11/9/05	11/9/05	14
16	<b>CPUC Submission</b>	<b>5 days</b>	<b>11/10/05</b>	<b>11/16/05</b>	<b>15</b>
17	Purchase Order Kits Due	10 days	11/17/05	11/30/05	16
18	Purchase Order Request Submission	5 days	12/1/05	12/7/05	17
19	Purchase Order Processing and Issuance	45 days	12/8/05	2/8/06	18

## Two-Stage Approach

The two-stage approach was a recommendation from a 1999 study<sup>54</sup> that enables organizations to submit program abstracts as a precursor to a full proposal. Prospective bidders will not be burdened with the cost of developing a full proposal. Also, the two-

<sup>54</sup> Evaluation of the Third Party Initiative Program, Final Report, Quantum Consulting, June 10, 1999. In addition, in preparing this program, SCE reviewed other IOUs and NYSERDA's approach as well as receiving input from the Program Advisory Group (PAG) and selected stakeholders to Third Party Programs.

stage approach allows SCE the ability to evaluate more program concepts in a more efficient manner. This two-stage approach also allows a comprehensive solicitation that explores all program design ideas and technologies. As part of the public workshop process, many public members like the two-stage process and encourage the IOUs to propose this approach.

### **Staggered Implementation**

All three solicitations (i.e., Targeted, IDEEA, INDEE) will have different solicitation and implementation schedules. This will allow potential bidders the opportunity to participate in more than one solicitation throughout the program cycle. Additionally, the staggered approach allows SCE the flexibility to shift program funds as needed to programs that perform beyond expectations or to pull funds from programs that perform below expectations. Each solicitation has different selection, implementation, and funding guidelines.

**Targeted.** In general, Targeted programs will be implemented throughout the three-year program cycle. Budgets will be pre-determined as part of the open solicitation.

**IDEEA.** Typically, IDEEA programs will be implemented during a two-year period within the three-year program cycle. The program award values may range from \$500,000 up to \$3,000,000. The first round of solicitation and implementation will be for the 2006 to 2007 program cycle, and the second round of solicitation and implementation will be for the 2007 to 2008 program cycle. Allowing for enough time for implementation, the solicitation starts six months prior to the intended implementation date. For example, 2006 programs will be solicited in June, 2005, and 2007 programs are solicited in June, 2006. To ensure complete program shut down, each program cycle will allow for ramp-down as long as six-months before the end of that cycle. This effectively suggests a program effective run time for customer participation, from start to close, of one and a half years. Since these programs are of different nature and different customer segments, there will not be a perceived gap or downtime in between program implementation dates.

**INDEE.** Programs selected through this solicitation will have shorter durations. Serving as a test bed for new technologies or concepts, these contracts will typically be for three to six months with smaller budgets typically running from \$300,000 and no larger than \$500,000. However, if some programs find promise, SCE may extend the program term and budget to test the program's potential for mainstreaming into the program portfolio.

### **Mainstreaming**

For programs that show potential for mainstreaming into one of program portfolio, SCE may elect to merge these concepts or technologies before the conclusion of their implementation period. If a greater demand is determined that is beyond the capability of

the contractor or their program design, SCE may elect to shorten the program and its contract and mainstream the technology or concept.

Programs from the 2004-05 IDEEA that show promise but need more development either in technology, marketing, or implementation will be encouraged to bid for the this upcoming program. The evaluation criteria will have a subcategory that favors these prior program designs and concepts that show promise and needs continuation of development.

## **9. Program Objectives**

### **A. Achieve cost-effective energy and peak demand savings**

The focus will be on proposals that provide cost-effective, energy savings and peak demand reductions for both the short and long-term.

### **B. Filling gaps and adding best practices**

Winning proposals may complement or fill market niches and technology gaps, in the overall portfolio and/or offer best practices not incorporated in particular programs in the portfolio. Program implementation participants, in addition to the participants from a broader base, will include specific segments such as manufacturers, energy services companies, consultants, energy management system contractors, lighting contractors, and mechanical contractors. As an example, specific market sub segments such as: (1) commercial office market through asset managers; (2) pharmaceutical/biomedical facilities through design-build contractors; and (3) refrigerated warehouses and produce packing houses present a significant opportunity for energy and demand savings in the short and long-term.

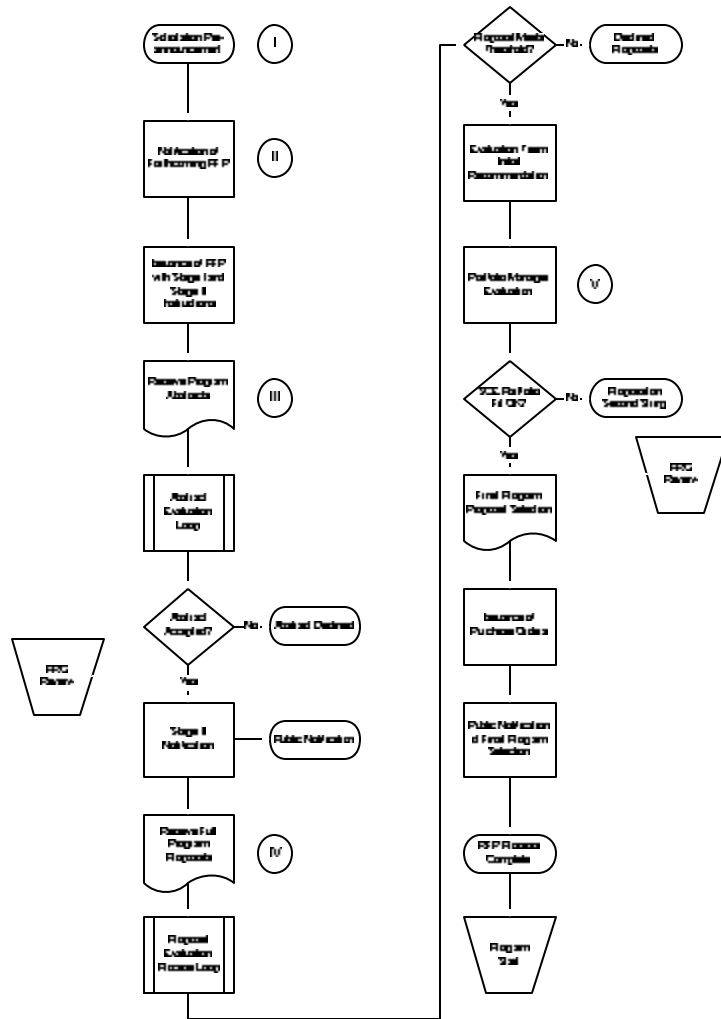
### **C. Coordinating programs in SCE's portfolio for maximum effectiveness**

The winning proposals will be implemented by the bidders with SCE active support. Wherever feasible and desirable, coordination among programs will be facilitated by SCE to provide maximum effectiveness of these programs that complement SCE's services or other third-party program services.

## **10. Program Implementation**

The solicitation process incorporates the two-stage (Stage I abstract and Stage II full proposal) approach tested effectively in two solicitation rounds of SCE's 2004-05 IDEEA Program. The full solicitation process involves multiple steps with multiple review loops by SCE management that allow for process checks and to ensure the solicitation process moves forward and for best portfolio fit that meets SCE's long-term energy efficiency plan. In addition, the newly formed Peer Review Group (PRG) will have a chance to review SCE's solicitation process in an oversight role. Below are the steps in this solicitation process. Illustration of the complete process is in Table 1C.

**Table 1C – IDEEA RFP Process Flow (Solicitation Process)**



- II. Solicitation (RFP announcement and release)** – The beginning of this sealed bid process starts with an official notification. This two-stage process includes an abstract submission (Stage I) and a full proposal submission (Stage II). This process allows SCE to cast a wide net on Stage I to receive as many program abstracts or concept papers without having to burden prospective bidders with writing a full proposal.

The solicitation list will be from the original pre-announcement and additions to that list, as a result of the mass mailing. Each prospective bidder must have their organization registered with SCE in order to officially participate in this sealed bid process. To register, the prospective bidder must contact the SCE program manager via e-mail or a phone call. The bidder then receives a confirmation e-mail from SCE. They may also register through [www.sce.com](http://www.sce.com) in the IDEEA web-page and receive a confirmation e-mail.

The release date signals the distribution of the RFP package to all registered bidders either with a hard copy or an electronic (soft) copy.

- III. Abstract Submission (Stage I)** – Due to the expected large volume of abstracts, the evaluation will be fairly subjective with a high level review of program concepts. SCE program managers, analysts, and engineers will review abstracts. Recommendations are submitted to portfolio managers. Selected abstracts will also receive technical energy savings review from SCE's engineering group (technical documentation that substantiates energy savings is a required attachment to the abstract).

The abstracts must follow a SCE recommended format and must cover the proposed concept's target market, proposed ways of achieving goal (energy savings for resource programs or non-energy savings milestones), technology offering (for resource programs), program innovation, program budget, and metrics of the proposed goal. Selected Stage I bidders will be notified of selection and asked to develop a full proposal based on the concepts of the abstract.

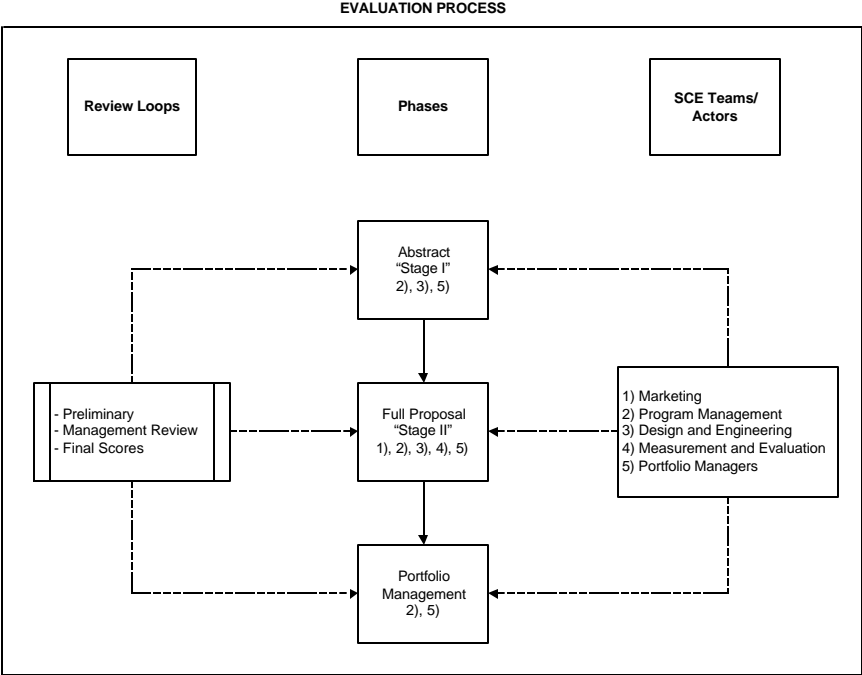
- IV. Proposal Submission (Stage II)** – The proposal submission for all programs is aided by a web-based submission of the soft copies of the proposals and its attachments. The hard copies are still submitted to SCE, but the soft copies are uploaded into a system that provides content validation documentation completeness. This central repository allows SCE to model a certain portfolio program mix that meets the utility needs and delivers cost-effective customer-based programs.

The proposal review process involves a complete evaluation of each proposal with the illustrated evaluation criteria proposed (Example 1D, below). Evaluation teams are organized with each team comprised of program management, marketing, and design and engineering members. This ensures



an evaluation on all aspects of the program and evaluation category scores are negotiated between team members. In addition, a cost effectiveness and budget evaluation is done as part of the process. The proposals are ranked from high to low and certain evaluation categories such as energy savings realization is taken into consideration. This ranking is presented to management (portfolio managers) for determination of program suitability. The relationship of the RFP phases, review loops, and evaluation teams are illustrated below (Table 1D).

**Table 1D – Evaluation Process**



V. Program Portfolio – The portfolio managers evaluate the reviewed program proposals and hold an open discussion with the review teams. This open forum is designed to discuss the strengths and weaknesses of each program design and how it may fit into SCE’s overall portfolio. Any proposal discrepancy, changes, and suggested improvements are noted and if selected for implementation, these suggested changes are incorporated by the bidder into the program design.

**Evaluation Process and Criteria**

The evaluation process is a series of “review loops” for Stage I and Stage II. Evaluation teams that consist of marketing, program management, engineering, measurement and evaluation, and portfolio management, provide input at certain phases of the process. This ensures that the teams’ evaluation is conducted under the portfolio manager’s oversight. It is the task of the portfolio managers to ensure that the program designs and technologies all fit in SCE’s overall vision of energy efficiency.

The evaluation criterion provides program and program proposal evaluation parameters and determines the strength, depth, viability, and energy savings persistence (for resource programs). Below is a draft of the evaluation criteria document SCE is proposing (Example 1A).

Example 1A

**2006-08 Program Solicitation: Summary and Bid Criteria**

**Solicitation Type:**

[Targeted, IDEEA or IDEEA<sup>ETC</sup>]

**Award Term:**

[1, 2, 3 yrs., 3 mos., 6 mos., 9 mos., etc.]

**Program Name:**

**Budget<sup>1</sup>:**

[in thousands]

**Statement of Work Overview:**

[Summary of program and of the scope of work required]

**Bid Evaluation Criteria & Weights:**

[Choose one of the following tables depending on type of solicitation and program (i.e., resource or non-resource.)]

For **TARGETED** choose one of the following:

**Targeted Resource Programs & Combination Resource/Non-Resource Programs**

Criteria	Weights
Proposal Responsiveness	pass/fail
kWh and kW Potential	30%
Cost Effectiveness	25%
Program Implementation and Feasibility	15%
Program Innovation	15%
Skill and Experience	10%
Minimizing Lost Opportunities	5%

**OR**

**Targeted Non-Resource Programs -**

Criteria	Weights
Proposal Responsiveness	pass/fail
Cost Efficiencies	40%
Program Implementation and Feasibility	20%
kWh, kW Tie-in	15%
Program Innovation	15%
Skill and Experience	10%

<sup>1</sup> Does not include IOU administrative costs or other costs (e.g., marketing, etc.).

Example 1A (continued)

For <b>IDEEA</b> choose one of the following:	
<b>IDEEA - Resource Programs -</b>	
<b>Criteria</b>	<b>Weights</b>
Proposal Responsiveness	pass/fail
kWh and kW Potential	30%
Cost Effectiveness	25%
Program Implementation and Feasibility	15%
Program Innovation	15%
Skill and Experience	10%
Minimizing Lost Opportunities	5%
<b>OR</b>	
<b>IDEEA - Non-Resource Programs -</b>	
<b>Criteria</b>	<b>Weights</b>
Proposal Responsiveness	pass/fail
Cost Efficiencies	30%
Program Implementation and Feasibility	20%
kWh, kW Tie-in to Resource Programs	15%
Program Innovation	15%
Skill and Experience	10%
Minimizing Lost Opportunities	10%
For <b>IDEEA<sup>ETC</sup> &amp; Innovative Approaches</b> use the following:	
<b>Criteria</b>	<b>Weights</b>
Proposal Responsiveness	pass/fail
kWh and kW Potential	25%
Cost Effectiveness	10%
Program Implementation and Feasibility	15%
Program Innovation	30%
Skill and Experience	10%
Minimizing Lost Opportunities	10%

Within the major criteria, sub-criteria items will be added that further defines the components that add up to the weights assigned to the category. For example, under the criteria *Program Implementation and Feasibility*, the sub-criteria may address such items as marketing, realistic forecast, etc.

**Portfolio Management**

Targeted programs are managed in the pre-determined areas of the portfolio. Portfolio management for IDEEA and INDEE requires managers to look for programs that may target market and technology niches that the current portfolio programs, through its existing delivery channels, may not be able to penetrate. In addition a balance is sought for the following:

- Distribution of residential and nonresidential programs,
- Program delivery mechanism (incentive, direct install, etc.), and/or
- Customer education delivery mechanism.

### **Staff and Subcontractor Responsibilities**

The SCE directly manages all of the component programs under the Targeted, IDEEA, and INDEE. SCE's task is to facilitate these program contracts and provide needed guidance, assistance, and direction. SCE's administrative duties include various tasks such as:

- Tracking and reporting to the Commission the status of activities and goals
- Making payments to the component program contractor
- Assisting in resolving issues among solicited programs and across the program portfolio
- Coordinating program activities with other SCE programs and non-IOU programs

## **11. Customer Description**

### **Customer Description**

This program applies to all residential and nonresidential customers within SCE's service territory.

### **Customer Eligibility**

In terms of bidders, all entities able to meet or successfully negotiate SCE's standard terms and conditions are eligible to submit proposals for this program. In terms of customers eligible to participate in the winning proposals, all customers who meet project-specific criteria and who are distribution customers of SCE are eligible.

### **Customer Complaint Resolution**

**Bidder Questions and Complaints** – All bidder inquiries and concerns related to SCE's solicitation process, commercial and contractual terms, or the purchase order contracts are directed to SCE's procurement agent. With regards to issues of program design or implementation, SCE will provide assistance to the bidder.

**Customer Questions and Complaints** – Customers concerns and questions regarding any IDEEA component program projects will be directed to SCE's IDEEA program manager. The program manager will involve the component program contractor in developing an effective response based on the contract terms and SCE policy. If a dispute arises and the program manager cannot resolve it, the issue will be brought to the attention of the next level of utility management, so that additional SCE resources can be brought in to resolve the issue.

## **12. Customer Interface**

In terms of the umbrella programs, the program is presented to prospective bidders through mass e-mail distribution, web announcement, industry newsletters, and various industry contacts. Once component programs are in place, communication between SCE and contractors will be through each program's assigned SCE program managers.

For SCE customers, methods will vary with the program selected. SCE will provide advice and support in the development and use of these methods, when requested by the program contractor.

### **13. Energy Measures and Program Activities**

#### **13.1. Measures Information**

For targeted programs, the known measure details, energy savings, and corresponding budgets are discussed in their respective program implementation plans. For IDEEA and INDEE programs, the measure information and program activities are not known until program proposals are received from prospective bidders.

#### **13.2. Energy Savings and Demand Reduction Level Data**

Energy savings and demand reduction information provided in corresponding portfolio workbook.

#### **13.3. Non-energy Activities (Audits, Trainings, etc.)**

SCE's non-resource programs under the Targeted element are found in their respective programs. For IDEEA and INDEE, the activities will not be known until the winning proposals are selected.

#### **13.4. Subcontractor Activities**

As mentioned under program implementation, subcontractors are the winning bidders. These program implementers will have the primary implementation responsibility for:

- Identifying target customers and conducting marketing activities
- Managing internal staff or contracting and managing subcontractors to carry out program work
- Coordinating with SCE on energy efficiency training seminars or workshops
- Meeting established goals and performing the work specified in the contract
- Documenting expenditures and program activities
- Resolving customer issues

#### **13.5. Quality Assurance and Evaluation Activities**

##### **13.5.1. Expected Number/Percent of Inspections (planned percent of projects)**

The planned inspection rates will range from 5% to 20%, depending on program design. Programs implementers that perform 100% inspection on their subcontractors before payment for work completed can be inspected by SCE at a rate as low as 5%.

#### **13.6. Marketing Activities**

Outreach for the open solicitation is discussed in previous sections.

## **V. Statewide Marketing and Outreach**





# Flex Your Power - Statewide Marketing and Outreach

<b>1. Projected Program Budget</b>	<b>\$ 20,213,514</b>
<b>2. Projected Program Impacts</b>	
MWh	n/a
MW (CEC Factor)	n/a
<b>3. Program Cost Effectiveness</b>	
TRC	n/a
PAC	n/a

## 2. Projected Program Impacts

Flex Your Power statewide marketing and outreach program is unique in that it supports and complements other energy efficiency programs and focuses on the broader goal of heightening consumer understanding of the benefits of energy efficiency. It serves as the “call to action” that leads to increased purchases of energy-efficient products and supports all other energy efficiency programs. While Flex Your Power does generate energy savings, like other information-only programs, it is difficult to determine the energy savings directly caused by the program. The *Energy Efficiency Policy Manual Version 3*, Rule IV.9, recognizes this issue, stating, “For statewide marketing and outreach programs and information-only programs, the link between programs and savings is difficult to discern.”

## 3. Program Cost Effectiveness

Under CPUC guidelines for 2006-08 programs, statewide marketing and outreach programs are not subject to cost-effectiveness tests: “The Commission and program administrators will need to consider factors and performance metrics other than the TRC and PAC Tests of cost-effectiveness when evaluating such program [statewide marketing and outreach programs and information-only programs] proposals for funding and when evaluating their results.” (*Energy Efficiency Policy Manual Version 3*, Rule IV.9.)

## 4. Program Descriptors

Market Sector: Residential/Nonresidential - All sectors (Commercial, industrial, Government, agricultural and residential)  
 Program Classification: Statewide  
 Program Status: Existing

## 5. Program Statement

### Introduction

The Flex Your Power statewide energy efficiency marketing and outreach program, managed by the Efficiency Partnership (EP), is an extension of the innovative and historically successful *Flex Your Power* public education and outreach effort initiated by the State of California in 2001. The program works in partnership with the investor-

owned utilities (IOUs), third parties and thousands of businesses, local governments, water agencies, non-profits and others including the state and federal government agencies with responsibility for energy and water efficiency. The campaign targets all sectors: commercial (including small businesses and hard-to-reach), industrial, governmental, institutional (including schools), agricultural and residential (including single-family, multifamily and hard-to-reach audiences.)

The campaign's goals are (1) to educate Californians on the energy, financial and environmental benefits of energy efficiency; (2) to motivate them to take action to achieve lasting energy efficiency; and (3) to support the energy efficiency programs of the Investor Owned Utilities (IOUs), third-party program providers and other organizations. The campaign achieves these goals through a full and synergistic range of marketing and outreach strategies including television; radio and newspaper ads; earned media; printed educational materials; events; a comprehensive website resource serving all parties statewide; a biweekly electronic newsletter; forums and workshops; and partnerships with thousands of businesses, government and nonprofit organizations.

To ensure cost-efficient and effective marketing and outreach, the campaign will continue to coordinate closely with IOUs, municipal utilities, water agencies, non-utility program providers, manufacturers, retailers of energy-efficient products, contractors and other energy efficiency service providers. The campaign also coordinates closely with demand response and renewable energy generation marketing and outreach programs including a combined energy efficiency/demand response Flex Your Power campaign. The statewide campaign delivers a widely recognized, clear, concise and compelling call-to-action message of energy efficiency. The 2006-08 effort will continue to build on the relationships, successes and momentum of the past five years, and add innovative new marketing and outreach tools targeted to each sector and supporting all energy efficiency programs.

California's economy and population are expected to grow over the next three years, which means that, without action, so will the state's demand for electricity. In fact, energy consumption is projected to grow by as much as 2% annually over the next 10 years. Given projected supply constraints caused by older plants being taken offline, slower than expected construction of generation plants and low wind and hydro production, California will face significant challenges in ensuring adequate electricity supplies on especially during peak periods at our current growth pace. By 2006, the California ISO projects a supply deficit of 2,335 megawatts.

The state's energy agencies – the California Energy Commission (CEC), the California Public Utilities Commission (CPUC) and the California Consumer Power and Conservation Financing Authority – outlined a new loading order for future energy policy to ensure California has reliable, affordable and environmentally sound energy. Specifically, the Action Plan places energy efficiency, energy conservation and demand response first and foremost among the solutions to secure new energy. The administration also enacted policies to ensure California could meet its future energy needs. On December 15, 2004, Governor Schwarzenegger signed the Green Buildings Executive,

which set a goal of reducing electricity used in existing government and private commercial buildings by 10% per square foot by 2010 and 20% per square foot by 2015 through energy efficiency, demand response and renewable energy generation. The Order also mandated that all new and renovated buildings paid for with state funds be certified as Leadership in Energy and Environmental Design (“LEED”) Silver standard or higher, and that office spaces and office equipment leased or purchased by the state be Energy Star-qualified where cost-effective.

However, there is no single or simple mechanism the State can use to reduce energy use. As we learned in the energy crisis, successfully reducing energy use will take the actions of virtually all residents, businesses, governments and other entities. Also, given the combination of California’s large market size – more than 11 percent of the nation’s gross domestic product – and serious commitment to energy efficiency – greater and sustained investment in energy efficiency than any state in the nation – California is in a position to exert enormous leverage over the design, manufacture and supply of energy-efficient products and services. The challenge facing the State is to implement a comprehensive, well-executed public education and outreach campaign to encourage behavioral change, drive energy users to the programs and products that will help them save energy and increase private sector investment in energy efficiency.

The lessons learned during the 2001-02 energy crisis as well as Energy Star sales data showing increased sales of energy-efficient equipment and products over the last five years demonstrate that Californians can be motivated to reduce energy use through education. Key to the success of encouraging all sectors to take advantage of cost-effective energy efficiency is to support a statewide marketing and outreach program that can overcome several informational and financial barriers to public and private sector investments in energy efficiency. Specifically, we need to:

- *Ensure marketing and outreach continuity.* To be effective, statewide marketing and outreach programs need long-term planning cycles to build and maintain lasting relationships, cost-effectively take advantage of mass media strategies and leverage additional public and private resources to make the most of the limited funding available. Manufacturers and retailers of energy-efficient products plan their production and marketing programs eighteen months to three years in advance and can only coordinate their plans with utilities and educational efforts with similar long-range cycles. Longer planning cycles and cooperation are equally important to the customers of energy-efficient products and services. Local governments, water agencies and businesses of all sizes are more likely to incorporate energy efficiency into their long-term capital outlays planning and budget allocations if program and incentives (including public recognition) are certain. Finally, continuity is needed to enable programs to secure mass media – television, radio and newspaper – several months in advance, and therefore at a much lower cost.

In the past years, the California Public Utilities Commission (CPUC) has helped foster California’s leadership in energy efficiency by supporting statewide

marketing and outreach programs and calling for program continuity and multi-year funding.

- *Provide constant information.* Consumers must have constant and consistent messages to take action. This is important for several reasons. First of all, consumers make the decision to purchase major-cost items, such as appliances and new homes on a three-year or longer timeframe. Therefore, messages must be constant from year to year to remind consumers when they are making decisions. Secondly, without the daily presence of energy issues in the news (which occurred during the 2001-02 Energy Crisis), Californians need to be constantly reminded to take action. Focus group and other research found that although Californians are much more aware of energy conservation and efficiency measures after the energy crisis, reminders through ads, the press, their peers and other means are the key to ongoing behavior changes. In fact, the public wants and appreciates these reminders. Finally, to break through the "noise" in the public consciousness and its ever-changing environment requires sustained and consistent messages.
- *Provide compelling information.* To effectively communicate to consumers through mass media, the Internet and other forms, the messages conveyed must be clear, compelling and concise. Consumers must be able to understand the importance of energy efficiency and see the value in considering it in their purchase decisions. Programs have to find the right tone and motivators for a wide range of customers. For example, market research has consistently shown that businesses are motivated by energy market (reliability) and financial (energy price and profitability) concerns. While residents are also concerned about money and reliability, social responsibility (helping others, or their neighborhood) plays an equally important role.
- *Provide consistency and coordination across the state.* In order to avoid confusing customers and amply compelling messages, California needs a statewide marketing and outreach effort to coordinate messages and timing with the myriad of programs offered by program providers in the state – IOUs, municipal utilities, water agencies, manufacturers, retailers, third parties and contractors. A statewide effort, for example, can build relationships and outreach to corporate businesses with facilities that cross service territories or local government boundaries and provide a complete package of available resources and tools. Also, statewide marketing and outreach programs can take advantage of strategies that may be unavailable or not cost effective for regional efforts, such as broadcast media. Finally, with statewide coordination and consistency, larger manufacturers and retailers can reliably plan their production and marketing programs to include energy efficiency; their marketing campaigns are statewide rather than regional.
- *Leverage resources to promote energy efficiency.* Given their limited funding, energy efficiency marketing and outreach programs need to leverage private

sector and other resources. California needs significant public and private investments in marketing energy efficiency. Flex Your Power successfully utilizes advertising and public recognition as an incentive to recruit retailers, manufacturers, builders and other stakeholders to sell energy-efficient products, distribute educational materials, augment energy efficiency marketing and outreach funding, and invest in energy efficiency within their own facilities. Other strategies including sharing information and developing joint marketing and outreach initiatives with public and private entities as well as other related outreach efforts such as water conservation or demand response programs.

## **6. Program Rationale**

The Flex Your Power campaign address the above-mentioned problems by:

*Ensuring marketing and outreach continuity.* The Flex Your Power campaign will:

- Build on the existing momentum, structure, partnerships, marketing and outreach materials and plan, and strategies. Any other campaign would have to start from scratch.
- Continue to work with existing and build new relationships with sector leaders across the state. Since 2001, the campaign has established partnerships and built relationships with thousands of entities in all sectors.
- Build on the equity of the campaign's near universal and universally favorable "call to action" to save energy.

*Providing constant information.* The Flex Your Power campaign will:

- Continue to employ all message delivery vehicles, including paid and free media, outreach and partnerships, to reach a significant portion of all sectors (commercial, industrial, government, agriculture, and residential) of the state.
- Continue to develop proven marketing and outreach tools to support all energy efficiency programs, including its television, radio and newspaper advertising, partnerships, and its comprehensive website, events and electronic newsletter.

*Providing constant and compelling information.* The Flex Your Power campaign will:

- Convey the energy, financial and environmental savings potential of energy efficiency measures through existing and innovative new marketing and outreach efforts.
- Utilize market, focus group and other research to develop compelling messages for all sectors.
- Continue to communicate that energy efficiency measures are not hard, are cost effective and save money; communicate that by "working together" we can all secure reliable, affordable energy, and, of course, call on Californians to make saving energy a way of life.

*Providing consistency and coordination across the state.* The Flex Your Power campaign will:

- Serve as a statewide platform for energy efficiency marketing and outreach and communicate across service areas, private sector market territories and media

markets. As a statewide program, Flex Your Power is uniquely positioned to accomplish this goal.

- Provide opportunities for regional and local educational efforts to benefit from identification with the Flex Your Power umbrella campaign and its consistent and compelling messages in a way that would be cost prohibitive for them to undertake individually.
- Expand the involvement of, and support for, all utility, public and private energy efficiency providers in a coordinated statewide educational effort.
- Continue to work with partners to coordinate their communications to reduce confusion, eliminate duplication, and amplify everyone's messages.
- Keep all stakeholders and participants in the campaign up to date and alleviate problems associated with miscommunications through regular meetings (e.g., the 2005 Energy Summits with the Governor's office), the Flex Your Power website and e-Newswire.
- Host the Flex Your Power website as a one-stop, statewide resource for information about energy efficiency for all sectors, eliminating the redundancy and inefficiency of having all sites gather this information. A single resources allows all providers to focus their website information on their programs. Through crosslinks, Flex Your Power will drive customers to providers' sites.

*Leveraging resources to promote energy efficiency.* The Flex Your Power campaign will:

- Augment the marketing and outreach scope and reach with municipal utility, water agency, government and private sector marketing and outreach support, delivery structures, messages, relationships and customer knowledge and trust. The result is a more cost-effective energy efficiency marketing and outreach campaign.
- Enable retailers, manufacturers and contractors to market their energy-efficient products and services regardless of utility service territory. Every program dollar is stretched further, achieving greater impact of existing efforts.
- Partner with the California Urban Water Conservation Council and the American Council of Water Agencies, and water agencies across the state on a joint campaign to educate the public on saving energy by saving water. The campaign will also work its many manufacturer partners that produce energy/water-efficient products.
- Provide integrated marketing and outreach of energy efficiency and demand response to all sectors to magnify the limited marketing and outreach dollars of both efficiency and demand response assuming ongoing funding for Flex Your Power NOW!. Flex Your Power will incorporate the Flex Your Power Now! demand reduction messaging into the overall energy campaign and achieve efficiencies in advertising and outreach by promoting conservation, load shifting and long-term energy efficiency in one clear, consistent and compelling message.

Flex Your Power is being advanced instead of other program approaches.

The IOUs plan to continue the Flex Your Power Statewide Marketing and Outreach Campaign for the 2006-2008 program cycle based its success over the past four and one

half years, the campaign's ability to build upon this success and the enormous equity, awareness and relationships the campaign has with major players in all sectors California.

Flex Your Power has established a near universal and favorable awareness of its "call to action" to save energy. The relationships that the campaign has built with private and public entities and the near-and long-term marketing and outreach strategies the campaign has developed, working hand-in-hand with IOUs and third-party program providers, have helped California maintain leadership nationally and in the world in the arena of energy efficiency. As a statewide campaign not restricted to territories or markets and with a history of working with hundreds of entities, the Flex Your Power campaign delivers clear, compelling and consistent information across service territories and government boundaries through strategies and means of communications not available to individual efforts. Flex Your Power successfully and cost-effectively uses mass media, the Internet, partnerships, educational materials and other outreach strategies to reach virtually the entire population of California institutions to save energy immediately and lock in the savings for years to come. The continuation of the Flex Your Power campaign builds on the existing momentum, partnerships and strategies without wasting money and resources to reinvent the wheel.

Over the years, Flex Your Power has also successfully addressed the challenge of coordinating the programs and messages of California's providers of energy-efficient products and services – IOUs, municipal utilities, water agencies, manufacturers, retailers and contractors. California is now leveraging the additional funding and resources of the private sector — money left on the table in past years — to further augment and amplify the State's energy efficiency messages. Several examples highlight Flex Your Power success in building leveraging partnerships with the private sector including:

- Retailer's sales of energy-efficient appliances doubled during one week after running three co-op ads with Flex Your Power.
- Co-op brochure developed with a retailer and Flex Your Power, which was distributed by retailer's service technicians and included a "10% off ENERGY STAR appliances coupon," (funded by the retailer) produced an estimated 1,300 coupon redemptions in just three weeks (plus numerous secondary sales of ENERGY STAR products).
- Manufacturing partner's co-op direct mail piece with Flex Your Power led to a 70% increase in wholesale orders of high-efficiency clothes washers in California over two months. One store reported that they sold more during the single Flex Your Power promotion weekend than they usually sell in one month.
- Retail partner sales of energy-efficient lighting jumped over 400% during an off-peak sales period due to header board displays and ads developed jointly with Flex Your Power and a major energy-efficient lighting manufacturer.

## **7. Program Outcomes**

The overarching goal of the Flex Your Power campaign is to increase overall statewide awareness and demand for energy efficiency and continue to build the market for energy-efficient appliances, products and services to help the state reach its long-term energy goals. As such, the campaign seeks to:

- Educate all Californians on the economic, environmental and system reliability benefits of energy efficiency;
- Motivate all sectors to commit to take action to achieve lasting energy savings;
- Support the energy efficiency programs of the Investor Owned Utilities (IOUs), third-party program providers and other organizations; and
- Facilitate marketing and outreach coordination between program providers, other energy industry stakeholders and customers from all sectors through planning forums and educational events.

## **8. Program Strategy**

The 2006-08 Flex Your Power statewide energy efficiency marketing and outreach program will achieve its goals using a full and synergistic range of marketing and outreach strategies including television; radio and newspaper ads; earned media; printed educational materials; events; a comprehensive website resource serving all parties statewide; a biweekly electronic newsletter; forums and workshops; and partnerships with thousands of businesses, government and nonprofit organizations. The program works in partnership with the investor-owned utilities (IOUs), third parties and thousands of businesses, local governments, water agencies, non-profits and others including the state and federal government agencies with responsibility for energy and water efficiency. Many of these entities are well underway in planning activities with Flex Your Power for 2006 and beyond.

To ensure cost-efficient and effective marketing and outreach, the campaign will coordinate closely with all the abovementioned entities. The campaign will also coordinate with demand response and renewable energy generation marketing and outreach programs including Flex Your Power NOW!, which is an existing partnerships between the IOUs, the ISO, CEC the administration and Flex Your Power.

## **9. Program Objectives**

A major objective of the campaign is to maximize targeted reach and frequency. This includes: building the subscriber base of the e-Newswire; continuing to drive traffic to Flex Your Power's and program providers websites; building new, and expanding existing, partnerships across all sectors; and reaching the public through mass media (reach 95 percent (95 percent is highest possible) of the target market, at a frequency of 38 times through the joint energy efficiency and demand response program).

Another objective is to drive traffic to IOU and third-party programs. Once these programs are approved by the CPUC, EP will work with program providers on specific strategies goals.

Finally, EP seeks to increase investments in energy efficiency and will work with partners across all sectors to encourage them to commit to savings goals and share – through Flex Your Power's case studies, best practice guides, year-end congratulation ads and awards – their progress.



## 10. Program Implementation

### 10.1 Residential Sector

The primary strategy EP will use to reach, educate and motivate the general public is through mass media. EP will continue to produce clear, compelling and consistent messaging for television, radio and newspapers to encourage California residents to always consider energy efficiency when purchasing products or designing projects. The message will build on the success and recognition of the statewide Flex Your Power campaign.

As was done in 2004, EP will continue to refine media buys to ensure broadcast messages have the greatest impact on targeted markets. For instance, the general market media buy will reflect a targeted approach to reach those residents that are most likely to purchase energy-efficient products and appliances. These Californians have specific and identifiable television viewing and radio listening habits. Combined with the multi-media mix, the targeted media buys will enable EP to continue to frequently reach the target audience and during the times they are most likely to be watching television or listening to the radio. Through these various media, 94.5 percent of the target audience will be reached. To these same markets, the target audience will be reached an average of 19.2 times with the messaging.<sup>55</sup> The combined demand response and energy efficiency campaigns will increase the overall reach to 95 percent (95 percent is highest possible) and frequency to 38 times.

The media buy will also be run seasonally to help ease strain on the system during seasons with high peak demand (e.g., media may run more frequently during the summer months and the hot month of September to keep energy at the top of residents' minds).

The Flex Your Power campaign will explore other mass-media opportunities, including online, direct mail and outdoor. Equally important, EP will incorporate and coordinate where appropriate demand response and renewable energy generation messages into the overall efficiency messages to magnify the limited marketing and outreach dollars of both efficiency and demand response and provide a complete array of energy-saving solutions to customers.

The Flex Your Power campaign will also reach residents through partnerships:

- *Ethnic media partnerships.* The Flex Your Power campaign will continue to build and expand relationships with ethnic media publications to reach non-English speaking residents. These communities are difficult to penetrate given geographic and language barriers. The goal of the partnerships is to leverage key ethnic publications' influence within their readership base to drive awareness of and traffic to energy-efficient products and programs. Ethnic media outlets serve as both a news source and a respected voice in the communities they serve. As a cultural and information hub, ethnic media plays a critical role in raising awareness about energy efficiency among their readers/viewers.

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<sup>55</sup> Reach is the percentage of the target audience that is being reached with the message. Frequency is the average number of times that the target is being reached.

The Flex Your Power campaign will continue to coordinate advertising with partner publications to outreach to their readers, which represent 16 different ethnicities and 13 different languages. Advertising, co-developed with the ethnic press, will follow the overarching themes of the general market campaign and be culturally relevant to the audience. Potential joint outreach strategies between Flex Your Power and partner publications include educating residents and businesses through events and editorial content (press releases, op-eds or articles); creating web links between media's and Flex Your Power's websites; and communicating regularly to ethnic community leaders. Through the e-Newswire and events, the Flex Your Power campaign will keep ethnic publishers and broadcasters abreast of energy efficiency news, programs and opportunities and provide informative content on energy efficiency.

- *Partnerships with retailers and manufacturers:* The Flex Your Power campaign will continue to work to increase private sector involvement and investment in the marketing and outreach campaign. While EP will develop some common statewide marketing and outreach materials in conjunction with industry stakeholders, the Flex Your Power campaign will primarily focus on exploring opportunities for ongoing cooperative marketing and outreach partnerships and to leverage manufacturer incentives and promotion funding for other direct-to-consumer and direct-to-retailer efforts. For instance, the Flex Your Power campaign will roll out a statewide all-appliance recycling campaign in partnership with Lowe's Home Improvement and Adams Steel and that supports California's recycling program. The program, the first all-appliance recycling program in the United States, was initially launched in 2005 whereby Flex Your Power worked with Lowe's and Adams Steel to place large (10' x 4') recycling containers at 18 Lowe's stores throughout Southern California. Under the agreement, Adams Steel agreed to recycle old appliances if customers purchased an Energy Star appliance from Lowe's. Flex Your Power produced marketing materials for the program, including billboards for the containers, which were seen by hundreds of thousands of people. Lowe's and Adams Steel paid all other costs of this program. Lowe's will roll out the program statewide in 2006 in partnership with Flex Your Power due to the success of the Southern California pilot. All cooperative efforts will be coordinated with the IOUs. The result will be creative marketing and outreach tools that continually remind customers to take action.

The Flex Your Power campaign will also continue to facilitate the advancement of new energy-efficient products and appliances by working with and coordinating with the CEC and manufacturers as they work to create more energy-efficient products. For instance, the Flex Your Power campaign in partnership with the CEC, GE, Phillips Lighting and other lighting manufactures will launch a marketing and outreach initiative in 2006 to not only continue to increase the sale of compact fluorescent lamps (CFLs), but also test the market acceptance of new efficient incandescent bulbs. Planning for the initiative began in 2005, when the CEC considered lighting standards to increase the efficiency of incandescent light bulbs by as much as 10%. The vast majority of residents still use incandescent lighting; therefore, these standards will deliver large energy savings for the state. The CEC

enlisted Flex Your Power, and Flex Your Power has been working with national lighting manufacturers and retailers to develop a comprehensive efficiency lighting campaign for 2006-08. Since, the manufacturers and retailers require long-lead times to research, produce, and ship the planned marketing devices (e.g., end-caps, shelf space, and advertising) the CEC's and Flex Your Power's early involvement has been essential to initiating and implementing the campaign. All parties anticipate an increase in CFL sales as an integral part of the effort.

The Flex Your Power campaign will continue to coordinate with national, regional and other California energy efficiency promotions, including those run by Energy Star, utilities, third parties and water efficiency campaigns. The result will be greater awareness of each program, promoted measures, and the overall message of efficient use of resources.

To increase awareness, demand and availability of energy-efficient products, the Flex Your Power campaign will also communicate regularly with retailer and manufacturer partners through e-Newswire, partnerships with program providers, and personal contact. EP will challenge manufacturers and retailers to make long-term commitments to energy efficiency and will track their success in meeting the goals.

- *Partnerships with the residential new construction industry.* The Flex Your Power campaign will continue to support to new home builders to increase customer awareness of Energy Star homes, support utility, third-party and Energy Star new homes programs, help move California's building industry toward greater overall efficiency goals beyond Title 24, and accelerate implementation of future Title 24 measures and standards. To meet these goals, EP will convene industry leaders with utilities, state agencies, water agencies and others to lead new homebuilders to programs and resources and gather commitments from them to build energy-efficient new homes. EP will also continue to communicate and coordinate with the building industry, providing updates and resources to builders so that they can permanently incorporate energy efficiency into their business plans. EP will continue to develop best practice guides on building new homes with assistance from industry associations and the IOUs. EP will also explore the potential of further developing the Flex Your Power website to serve as a tool and resource for builders, realtors and homebuyers. The result will be co-developed, creative and consistent marketing and outreach tools.
- *Partnerships with water agency partners/water campaign.* There are numerous synergies between water and energy efficiency strategies. Joint water and energy efficiency campaigns lead to higher customer awareness and offer manufacturers and retailers larger coordination and sales opportunities – many water-efficient appliances are also energy efficient. EP will continue to communicate regularly with water agencies to coordinate statewide efforts and events and integrate wherever appropriate water efficiency into the overall Flex Your Power campaign. Also, to augment the reach of energy efficiency marketing and outreach, Flex Your Power will continue to urge these agencies to commit their resources in support of the Flex

Your Power campaign. For example, in a partnership with the California Urban Water Conservation Council and the American Council of Water Agencies, Flex Your Power will work with water agencies and manufacturers of water-efficient products on a joint campaign to educate the public on saving water and saving energy in 2006-08. The campaign will develop coordinated promotions for Energy Star clothes washers and dishwashers.

Flex Your Power will recognize the successful efforts of these partners – manufacturers, retailers, new home builders and water agencies – in helping to increase energy efficiency for California residents through the Fifth (2006), Sixth (2007) and Seventh (2008) Annual Flex Your Power Awards. The winners will receive publicity for their achievements as an incentive for implementing innovative programs and will be highlighted in case studies, on the Flex Your Power website and in e-Newswire so that other entities can learn from their success. Their leadership and energy savings measures will be highlighted in congratulatory newspapers ads run statewide.

To reach and educate residents the Flex Your Power campaign will also continue to host, build and expand the Flex Your Power website as a one-stop, statewide resource for information about energy efficiency. The Flex Your Power campaign will keep the web content for residents timely, useful and relevant through regular communication and coordination with energy efficiency program providers and other stakeholders. The website will continue to provide:

- All energy efficiency, demand response, and water efficiency programs (including rebates, grants, loans, technical assistance, classes, and audits offered by utilities, 3<sup>rd</sup> parties, water agencies, municipal utilities, the private sector and other providers).
- Energy efficiency product guides describing the benefits and savings potential of high-efficiency products/equipment, operating and purchasing tips and lists of major manufacturer.
- Store locator for energy-efficient products, enabling visitors to find stores near them, by distance and address. These stores have committed to Flex Your Power to sell specific energy-efficient products.
- Links to relevant information, program providers and other sites to drive traffic to the programs and services offered by the IOUs, third parties and others.
- Additional tools to assist in the promotion and support of these programs.
- Information in Spanish and Chinese.

Finally, EP will continually explore new marketing and outreach opportunities. EP will explore possible programs include educational programs for schools, developed in coordinated with the IOUs and possibly modeled after the successful 2001-02 Flex Your Power school programs.

## 10.2 Commercial and Industrial Sector

To encourage action among businesses requires educating them about energy market (reliability, price) concerns, publicly recognizing their positive efforts, and securing

decision-maker buy-in within each company and within the business community. As such, Flex Your Power's outreach will continue to involve working with the campaign's existing business and business association partners recruited over the past four and one half years as well as to new businesses recruited by staff and with assistance from program providers and trade associations.

One step in this initiative is to convene commercial and industrial sector businesses, representing diverse industries and sizes, to meet with utilities, state agencies and other stakeholders to provide these organizations access to tools and resources to help them set and meet long-term energy goals, as well as learn about successful programs from peers in their industry. The Flex Your Power campaign will continue to challenge organizations to set energy efficiency goals based on the goals of the Governor's Green Building Initiative and the Energy Action Plan. Major events will be modeled after the successful summits held statewide in 2005, which drew participation from more than 1,000 businesses and included participants from the state agencies, the Governor's office, business organizations, IOUs, water agencies, municipal utilities, and others. The Flex Your Power campaign will also convene facility manager trainings in partnership with business organizations and the IOUs and modeled after the pilot program developed jointly in 2005 with the Building Owners and Managers Association (BOMA). The 2006-08 training program will include facility manager "workbooks" and best practice guides produced by Flex Your Power and training programs co-hosted by business organizations and the IOUs. Flex Your Power will write and use these best practice guides and training workbooks and use them as the basis for trainings in different industry groups. For instance, the California Sustainable Wine Growers Association has agreed to host the training sessions with 800 wineries. Warehouses, hotels and motels, and other subsectors will be approached to do the same. In each case, the businesses will be encouraged to avail themselves of IOU and third-party programs.

Secondly, the Flex Your Power campaign will communicate regularly with businesses partners, following up with them through Flex Your Power's e-Newswire, the Flex Your Power website, educational materials, regional updates and other means. Flex Your Power will provide these partners with consistent and up-to-date information including programs, articles, product information, and policy information to continually help them invest in energy efficiency. For example, the Flex Your Power campaign will continue to write and disseminate industry-specific case studies and best practice guides on a wide range of successful projects to provide guidance on investment in energy efficiency. The Flex Your Power campaign will work with program providers and partners to identify successful projects, as well as report on the Flex Your Power award winners. The primary focus of the studies will be program elements, budget, results and lessons learned. The materials will be displayed on the Flex Your Power website and promoted via e-Newswire and through Flex Your Power campaign partner organizations. Additionally, with assistance from program providers and business leaders, EP will continue to develop the Flex Your Power website. Where appropriate, EP will form partnerships with business publications that allow the campaign to contribute editorial content or other value-add options in exchange for advertising.

Finally, the Flex Your Power campaign will publicly recognize businesses' efforts in the Fifth (2006), Sixth (2007) and Seventh (2008) Annual Flex Your Power Awards. The winners will receive publicity for their achievements as an incentive for implementing innovative programs and will be highlighted in case studies, on the Flex Your Power website and in e-Newswire so that other entities can learn from their success.

Consistent with the IOUs programs and assuming ongoing demand response funding, the Flex Your Power campaign will integrate demand response and renewable energy marketing and outreach when appropriate to the commercial and industrial sectors. Often organizations consider all of these energy strategies together – energy efficiency, demand response and renewable energy generation – when planning capital investments and improvements. By integrating them in the marketing and outreach, Flex Your Power will achieve efficiencies and ensure more consistent and compelling messages.

#### 10.4 Contractors

Nonresidential and residential contractors are a valuable resource to introduce and educate residents and businesses about energy-efficient products – the majority of home improvement and facility retrofit projects are undertaken under the guidance of a contractor. To support the IOUs extensive outreach to and programs for contractors, especially HVAC contractors, Flex Your Power will convene events similar to those for residential new homebuilders described above. EP will also produce best practice guides and case studies in coordination with industry and IOUs. Where appropriate, EP will co-develop and produce with the help of utilities third parties, and manufacturers of energy-efficient products, customer educational materials to be distributed by contractors.

#### 10.5 Government Sector

As stated above, Governor Schwarzenegger signed the Green Buildings Executive Order requiring increased investments in energy efficiency for state-owned buildings and urged the Flex Your Power campaign to assist in the marketing and outreach. EP's outreach to government facilities – including state, local and water agencies – in 2006-08, will focus on urging that government decision makers to make commitments and develop strategies to meet the goals and have the access to resources, information and tools offered by the IOUs, third parties and others like the CEC, to meet those goals. EP will also ask local government partners to provide assistance in reaching businesses, small businesses, and residents.

This outreach will be modeled after the successful commercial and industrial sector outreach program described above. First, the Flex Your Power campaign will invite local government and state agencies representatives to larger regional events with businesses, as well as host events that specifically target government needs. For example, the Flex Your Power campaign would host events that focus on how to finance public energy efficiency projects. In partnership with utilities and state agencies, the Flex Your Power campaign will also tailor facility manager “training” programs and materials for government officials, providing guidance on investing in energy efficiency, from retrofitting city facilities to outreaching to the community.

Secondly, to keep government decision makers abreast of programs, products, resources, and other information, EP will regularly communicate with partners through e-Newswire, the Flex Your Power website, and other means including continued participation in their association meetings (e.g., local government and public information officers). Again, EP will integrate demand response and renewable energy marketing and outreach, when appropriate, to government facilities.

Finally, EP will publicly recognize innovative government and water agencies efforts in the Fifth (2006), Sixth (2007) and Seventh (2008) Annual Flex Your Power Awards. The winners will receive publicity for their achievements as an incentive for implementing innovative programs and will be highlighted in case studies, on the Flex Your Power website and in e-Newswire so that other entities can learn from their success. Leaders will also be recognized in year-end congratulatory ads.

#### 10.6 Institutional Sector

Outreach to medical facilities and schools will be integrated into Flex Your Power commercial sector outreach initiatives.

In 2006-08, the Flex Your Power campaign will also explore opportunities to augment school IOU and third-party programs with statewide marketing and outreach support including:

- Partnering with program providers to enhance their marketing and outreach components and/or bring higher awareness of the statewide effort to cut energy use to the programs.
- Building out the schools section on the Flex Your Power website, including updating the database-driven locators with program information and exploring opportunities to co-produce content.
- Providing consistent information to school administrators, teachers and others.

#### 10.7 Agricultural Sector

EP will continue to incorporate agricultural outreach to processors into the Commercial and Industrial Initiative and work with water agencies to market energy efficiency in relation to pumping and irrigation programs. EP will convene leaders, communicate through e-Newswire, continue to build out the section of the Flex Your Power website dedicated to agriculture, promote successful programs through the Flex Your Power awards. Leaders will also be recognized in year-end congratulatory ads. The best practice guides being developed with the wine industry for training of wineries will be expanded to include all agricultural customers and they will likewise be convened for trainings and to connect to program providers.

### **11. Customer Description**

The Flex Your Power campaign targets all customers and market segments and actors in the state, including hard-to-reach. Customers include:

- Residents: English-speaking, non-English speaking residents.

- Commercial: large commercial facilities (e.g., office buildings), lodging and hotel facilities, supermarkets, small commercial (small retail and restaurants) and medical facilities.
- Industrial: fabrication, process, heavy industrial manufacturing, hi-tech facilities and wineries.
- Government: state government facilities, local government facilities and water agencies.
- Institutional: schools and colleges
- Agriculture: irrigation and processing (integrated into industrial outreach)

## **12. Customer Interface**

The Flex Your Power campaign will work and coordinate with IOUs, third parties and other program providers to develop materials, events, the Flex Your Power website and other outreach strategies that provide program information using consistent and compelling messages. By coordinating the messages under the statewide umbrella Flex Your Power education campaign, IOUs and program providers can reduce or eliminate the confusion that would otherwise occur as customers hear competing messages, inconsistent programs and inadequate information upon which to make buying decisions.

## **13. Energy Measures and Program Activities <sup>56</sup>**

### **13.5. Quality Assurance and Evaluation Activities**

The Flex Your Power campaign will regularly ensure that the marketing and outreach program provides the most effective strategies to educate and motivate all sectors. EP will work with formal and informal working groups from each sector, such as BOMA, as well as regionally, such as Flex Your Power Silicon Valley, to continue to improve and coordinate programs. EP will also meet regularly with the IOUs to find the most effective ways to promote programs help the utilities meet their goals.

The Flex Your Power campaign will also evaluate the program through a more formal evaluation process using same approaches that were approved by the CPUC for the past four and one half years and recommended for 2006-08. As outlined in CPUC Decision 05-04-051 (page 56), the performance basis of statewide marketing and outreach programs will be based on:

1. “Any direct energy savings impacts attributable to the activity;
2. The intention to act, if no direct impacts are possible to measure; and
3. The reach of the advertising/marketing activity, the frequency of the activity and the leveraging of ancillary resources that comes from the activity.”

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<sup>56</sup> Not all of the categories in the Program Plans template applied to Statewide Marketing and Outreach Programs.



The evaluation will include:

#### Consumer focus groups

The overall aim of the consumer focus group research is to assess a range of Flex Your Power messages against a series of communication objectives. The research will evaluate:

- TV commercials
- Radio commercials
- Newspaper advertisements
- Educational and sales support materials and other educational materials
- Materials and advertising produced through cooperative partnerships

The focus group research method proposed by the research firm is a “Hybrid” research model that includes both qualitative and quantitative components. The Hybrid method includes an in-depth discussion of each communication piece led by a skilled moderator with experience in the category, plus a numerical scoring of each piece against a number of set criteria. The Hybrid qualitative/quantitative method represents the “best of both worlds” and uses a sample size that is large enough to approach quantitative statistical significance. Furthermore, it resolves some of the limitations of quantitative communications testing by allowing in-depth probing and the ability to truly discover why (or why not) consumers find an advertisement motivating. By using both qualitative and quantitative testing, the Hybrid method provides a more accurate examination of effectiveness across different media and the overall campaign.

The evaluation will include six to eight focus groups consisting of eight to nine per group, which would provide an approximate sample size of 65. The Flex Your Power Campaign evaluation will be coordinated with the Staples/Univision and RSE marketing and outreach effort.

In the Hybrid method, the interview is more structured than typical qualitative focus groups. After a brief warm-up discussion:

- 1) Each communication piece is shown to consumers (in a random order over the total project).
- 2) Before any group discussion, each piece is then scored on a scale of 1-5 on a number of measures such as “*Level of Appeal*” and “*Makes Me Interested In Energy Efficiency.*”
- 3) The focus group respondents then discuss their reaction and impressions of that communication, but are not asked to justify their scores.
- 4) The next communication piece is then exposed, scored and discussed.
- 5) The final report with the Hybrid method contains both in-depth attitudes as well as scores for each communication piece.

#### Advertising reach and frequency verification

Targeted rating points (TRPs) are input into a third-party computerized reach and frequency program developed by Telmar. The program utilizes the most up-to-date,

media industry standardized reach and frequency statistical curves from independent sources like Nielsen. The program takes into account the demographic target, selected daypart<sup>57</sup> mix, media type, and individual market characteristics to calculate average reach and frequency. If multiple media types are used, an additional independent program incorporates various media types to calculate an overall reach and frequency estimate.

Also, the Flex Your Power campaign will repeatedly reconnect with businesses, local governments and others that make energy savings commitments, attend Flex Your Power events, etc., to solicit information on their accomplishments in energy efficiency (e.g., increase energy efficiency of an office building, sell more energy-efficient products). The incentive to encourage these entities to report their accomplishments are recognitions in best practices guides, the Flex Your Power website, in awards and other outreach materials. The results will be used to guide partners, to educate others through in best practice guides and advertising, and as one of the determinate for selecting Flex Your Power award winners.

### **13.6. Marketing Activities**

Marketing activities are all described above.

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<sup>57</sup> Daypart Mix is the allocation of media weight (generally expressed in targeted rating points--TRPs) across standardized divisions of the broadcast day.

# Reach for the Stars—Energy Efficiency Campaign

1. **Projected Program Budget**
2. **Projected Program Impacts**
3. **Program Cost Effectiveness**

## 4. **Program Descriptors**

Market Sector: Rural  
Program Classification: Statewide  
Program Status: Existing:

## 5. **Program Statement**

The Reach for the Stars marketing campaign is a comprehensive statewide energy efficiency communications effort designed to encourage residential energy users in rural areas to make permanent upgrades to their homes and to participate in statewide gas and electric energy efficiency activities.

In California, a typical homeowner is spending more on electricity than necessary. In fact, the average household could cut up to one-third of its current energy bill by switching to energy-efficient appliances, equipment and lighting, which use less energy than standard products. For rural communities, this issue is especially critical, given they are often situated in remote areas with extreme summer and/or winter climates and significantly greater electricity and/or natural gas requirements. They also historically have been underrepresented in energy efficiency programs. The rural campaign exposure is critical to the overall effectiveness of the California Public Utilities Commission's (CPUC) energy efficiency effort because many California communities are under-reached by traditional mass-market media.

## 6. **Program Rationale**

By extending RS&E's contract to implement one of three statewide energy efficiency marketing and outreach programs through 2008, we will be able to maintain the momentum built during the last three years. Since RS&E was awarded this contract in April 2003, we have made notable headway within the rural communities of California. However, ongoing education is imperative in changing people's attitudes and purchasing behaviors and creating social norms where communities and individuals understand and act responsibly when it comes to saving energy. Our program's advertising, public relations and grass roots outreach components, which have a synergistic effect in the rural communities, are intended to teach consumers about ways to reduce their energy consumption, while emphasizing long-term residential improvements.

As noted above, this program has been extremely successful in reaching the rural consumers in IOU territories and delivering energy efficiency messages. Some highlights of our 2004 campaign include:

- Generation of more than 85 million advertising impressions via radio.

- Outreach through ads in newspapers that had a total readership of almost 52 million.
- Outreach to more than 1.5 million Hispanic rural California residents throughout the state through media relations activities and radio and print partnerships.
- Dissemination of more than 111,000 pieces of collateral, including informational brochures and branding items at conferences, fairs and community events in rural areas statewide.
- Outreach to more than 100 community-based organizations (CBOs) and state organizations in recruitment of 15 grassroots organizations as partners.

## **7. Program Outcomes**

RS&E has identified (through research) two key outcomes of its marketing and outreach activities:

Rural consumers have learned about ways to reduce their energy consumption and lower their utility bills, with emphasis on long-term residential improvements.

Rural residential energy users have made permanent upgrades to their homes and participated in statewide gas and electric energy efficiency activities.

## **8. Program Strategy**

RS&E will maintain the key components of its current effort, recognizing the importance of grass roots outreach and the necessity of targeting rural communities through local media outlets. To reach the target audience and achieve its program objectives, RS&E intends to:

- Continue placing newspaper ads and radio commercials in rural markets throughout California.
- Expand the activities of the CBO network to facilitate direct access to rural consumers in need of energy efficiency information by coordinating more closely with other statewide marketing and outreach programs.
- Participating in a bi-weekly conference call between M&O contractors, as well as the IOUs and representatives of the CPUC.
- Sharing information, including a monthly report of marketing activities as well as collateral and advertising creative, in order to avoid duplication of marketing efforts.
- Continue providing consumers with an easy-to-access point of contact through the 24-hour toll-free phone line that provides information for energy efficiency programs. Additionally, RS&E will add messaging regarding the Flex Your Power marketing program to the introductory information on the toll-free phone line.
- Produce advertising and outreach messages with energy efficiency information that is relevant to all rural customers.

## **9. Program Objectives**

RS&E's statewide program will provide information about IOU and third-party energy-efficiency programs and the related energy saving benefits to the target group of all households in rural areas in order to ultimately reduce energy consumption by the target audience. Rural areas of California are based upon zip code data provided by the IOUs.

To reach these program objectives, our team will:  
Place newspaper ads in rural markets throughout the state.  
Develop a radio campaign to air in rural markets statewide.  
Augment the network of CBOs that will provide outreach to rural consumers seeking energy efficiency information.  
Continue the toll-free phone line service to provide energy efficiency program contact information and support throughout the contract.  
Implement a Spanish-language public relations effort throughout rural California.  
Evaluate messaging and awareness levels related to energy efficiency.

## **10. Program Implementation**

RS&E firmly believes in the importance of coordination between marketing and outreach implementers. Coordination and consistency can only enhance results achieved by everyone. Since all marketing and outreach efforts support the IOU and statewide energy efficiency programs, we believe it is vitally important that the contractors work closely with each other and continually share information to avoid duplication. To that end, RS&E will coordinate its campaign efforts with those of both other marketing and outreach programs:

- Efficiency Partnership/McGuire & Co., Inc.'s (EP) statewide general market media campaign.
- Univision Television Group and Staples/Hutchinson and Associates' (Univision) Spanish-language media and outreach campaign.

RS&E will participate in regular conference calls and meetings between the M&O contractors listed above, as well as the IOUs and representatives of the CPUC. Additionally, all marketing and outreach materials will be accessible to these groups so information can be shared and the duplication of efforts can be avoided.

In order to implement a successful program, it will be imperative that we begin planning for the 2006 – 2008 program during the end of the 2005 campaign. We will coordinate the messaging and the timing of that messaging with the other statewide marketing and outreach contractors. In addition we will send out requests for proposal to CBOs, research vendors and suppliers to ensure that the 2006-2008 program is as cost efficient as possible. Additionally, our media planning work will also begin early in order to negotiate the most beneficial rates for this program.

## **11. Customer Description**

The population targets for our 2006-2008 extended energy efficiency advertising component are rural “hard-to-reach” IOU customers who do not have easy access to information or generally do not participate in energy efficiency programs.

We will utilize zip code data provided by the IOUs to guide our media and marketing planning. Only those zip codes categorized by the utilities as “rural” and where the

majority of households receive service from a participating IOU will be considered for advertising coverage.

This is the same strategy RS&E used in identifying and targeting the appropriate customers in the past.

## **12. Customer Interface**

In order to ensure that energy efficiency program information is accessible, RS&E will continue to direct consumers to the existing toll-free phone line, as well as to the Flex Your Power Web site. The toll-free phone number and the Web site address will be displayed on all our advertising and outreach materials. Additionally, RS&E added a Spanish-language option to the phone line in 2004 in an effort to support the Spanish-language collateral and Spanish language PR efforts, which will continue in the 2006 – 2008 contract term.

## **13. Energy Measures and Program Activities**

### **13.1 Measures Information**

Not applicable.

### **13.2 Energy Savings and Demand Reduction Level Data**

Not applicable.

### **13.3 Non-energy Activities (Audits, Trainings, etc.)**

All of the activities of the Reach for the Stars campaign fall under the category of “non-energy activities” since the entire program is focused on marketing and outreach. That said, below is an outline of projected activities and tactics proposed for the 2006 – 2008 campaign. We should note that these are estimated projections that will be more clearly defined as development of the program implementation plan gets underway.

#### **Advertising**

RS&E will produce between 4 and 6 radio spots to air statewide each year. We will run more than 30,000 radio spots in 12 California metro markets and nine remote counties, including:

Metro Markets include:

Bakersfield

Chico

Fresno

Merced

Modesto

Palm Springs

Redding

Riverside/San Bernardino

Sacramento

San Luis Obispo

Santa Maria  
Visalia/Tulare

Non-rated remote counties include:

Humboldt  
Inyo  
Kern  
Lake  
Mendocino  
Plumas  
Riverside East  
San Bernardino West  
Tuolumne

RS&E will produce between 4 and 6 print ads per year to support the three seasonally appropriate messages (i.e. appliance replacement, cooling and heating and lighting). Print media will run in rural communities throughout the state. RS&E will place approximately 15 insertions per year in a total of 120 newspapers statewide.

#### CBO Outreach

RS&E's program will include the recruitment of between 16 and 18 CBOs strategically located in IOU rural territories throughout the state. These CBOs will be trained and monitored to disseminate materials and garner public relations locally to promote the energy efficiency messages associated with the *Reach for the Stars* program.

In order to ensure proper messaging is delivered in a quality manner, RS&E will also offer media training opportunities and host an annual gathering where best practices and ideas can be shared between grassroots organizations.

Each CBO will be required under contract to annually:

Staff the campaign portable exhibit and distribute campaign materials at no less than three community events.

Conduct a minimum of three presentations for local organizations or groups appropriate to the energy efficiency message (i.e. business groups, PTAs, etc.).

Develop events or products themselves to further extend campaign messages (i.e. poster contests, public service announcements, etc.).

Distribute press releases to local print media outlets and place campaign advertisements in local venues such as newspapers, newsletters or movie slides.

#### Hispanic Marketing and Public Relations

Through our Hispanic marketing and public relations efforts, RS&E will distribute press releases to more than 140 media outlets statewide. Additionally, we will secure radio partnerships with two radio networks covering the following markets:

Placerville  
Grass Valley

Auburn  
Palm Desert  
Hemet  
Moreno Valley  
Murrieta Hot Springs  
Temecula  
Sun City  
Tracy  
Bakersfield  
Tehachapi  
Hanford  
Atascadero  
Paso Robles  
Porterville  
Visalia

These radio partners will distribute promotional items at various community events, conduct live remotes, air 60-second spots and promote press coverage in the Hispanic markets. RS&E will also secure several print partners to run ads and place stories that support the energy efficiency messages directed at the Hispanic market.

#### **13.4 Subcontractor Activities**

RS&E plans to retain SG Henderson Consulting (SGH) to coordinate CBO activities acceptable for the 2006 – 2008 cycle. SGH, led by Suzane Henderson, has been actively involved in the *Reach for the Stars* program since RS&E was awarded the contract in 2003. For the next three years, these efforts will include:

- Implementing a request for proposal process to secure 18 CBOs throughout the state for a one-year term. (We will seek new participants as part of this process.)
- Conducting a two-day training session for all CBOs upon award of their contracts to educate them on the program.
- Coordinating CBO marketing activities in partnership with RS&E.
- Providing a final report of all CBO marketing activities each year of the contract.

RS&E will review proposals and select a research vendor to perform focus groups, the results of which will be used to guide creative development of the campaign. We will secure this vendor in 2006 for a three-year term to ensure continuity.

#### **13.5 Quality Assurance and Evaluation Activities**

While the evaluation and verification of marketing activities will be conducted by the Commission, RS&E will conduct quality assurance and evaluation activities including:

- Tracking of incoming phone calls to toll-free line.
- Measuring the number of advertisements and media placements.
- Measuring the quantity of information distributed by participants in the grass roots outreach component.
- Conducting focus groups that help guide the messaging.



RS&E's focus groups will be conducted by a research firm based in California that has experience with energy related issues and marketing techniques.

### **13.5.1 Expected Number/Percent of Inspections**

In order to ensure work is performed in a quality and timely manner as stated in agreements secured with vendors, RS&E will conduct a review process for each CBO under contract each fiscal year. This review will consist of a monthly report submitted by contractors to detail their marketing activities, as well as a monthly follow up call conducted by RS&E staff. Additionally, RS&E will conduct random inspections of marketing and outreach activities performed by all subcontractors. These inspections will be conducted, at a minimum, on a monthly basis and will include random site visits to events and trainings hosted by grassroots organizations.

### **13.6. Marketing Activities**

Our experience tells us that the sole use of a traditional medium, such as television, will not be successful in breaking down the barriers faced by this campaign's target audiences. As a result, we propose continuing with a multi-tiered, synergistic marketing approach, utilizing the following tactics:

Placement of media specifically geared to consumers in the IOU rural service territories, using radio and local newspapers as primary mediums. A strong community connection in which CBOs will be encouraged and rewarded for spreading the word about these energy-saving programs within their communities. Hispanic/general market rural public relations (PR) activities will be conducted to secure maximum interest in energy efficiency programs through the engagement of the news media, community leaders, etc. A toll-free telephone line is available to provide information in several languages for people who are confused about energy efficiency products or hesitant about taking advantage of IOU or local programs.



# Univision Television Energy Efficiency Marketing

1. **Projected Program Budget: \$9,000,000**
2. **Projected Program Impacts: n/a**
3. **Program Cost Effectiveness: n/a**

## 4. **Program Descriptors**

Market Sector: Residential Crosscutting  
Program Classification: Statewide  
Program Status: Existing

## 5. **Program Statement**

Hispanics represent one-third of California's population. Barriers to participation in statewide energy efficiency programs have included language, income, and location. In addition, Hispanics do not have the level of access to the web that the population in general enjoys. Traditionally, these barriers have prevented the Hispanic population from more fully taking advantage of opportunities for making permanent energy saving installations and improvements.

## 6. **Program Rationale**

Despite the fact that Hispanics are responsible for the majority of the population growth in California and make-up one-third of the population, this audience is underserved by Spanish-language media. In fact, there is only one Spanish-language daily newspaper in the state. Growth has been realized in the broadcast media.

This program proposes to build on past success in reaching California's Hispanic population with information about and access to statewide energy efficiency programs. This has been accomplished by utilizing a statewide network of Hispanic media to provide energy efficiency messages in Spanish, generating in-depth editorial coverage of energy efficiency subjects; deploying an aggressive program of outreach activities in Hispanic communities and distributing bilingual informational materials to Hispanic audiences. The program has encouraged audience acceptance by using well-known Hispanic media personalities as spokespersons.

## 7. **Program Outcomes**

This is an information-only program designed to increase participation in residential energy efficiency programs by Hispanic customers. The goal for the 2006-2008 program cycle is to reach

## 8. **Program Strategy**

Since 2001, this program has used the Univision Television Group as the sole media subcontractor. Univision has 11 stations strategically located throughout the state of California which reach up to 98% of the IOUs customers with their broadcast signals. The primary component of the program is an annual 18-week schedule of 30-second commercials promoting energy efficiency programs and initiatives. By focusing the advertising campaign in a single media, we have been able to effectively negotiate value-

added opportunities. Delivered at no charge to the program, these bonus components include interviews on locally produced talk shows and news programming, distribution of program materials and information at Hispanic-oriented outreach activities throughout the state, and a bonus 10-second schedule worth 50% of the 30-second schedule.

To ensure that we are effectively reaching the statewide Hispanic audience and achieving the highest value for the available budget, Staples Marketing will investigate other statewide Hispanic media outlets that could be used alone or in combination with other media.

## **9. Program Objectives**

This is an information-only program and, therefore, is not currently tied directly to energy savings goals. Staples Marketing has a goal of reaching 138,122,000 Hispanic consumers per year at least three times with energy efficiency messages. The media schedule includes airing both 10- and 30-second messages. Ten-second messages are projected to air at least 2,699 times; while 30-second message are scheduled to air 6,078 times.

## **10. Program Implementation**

Staples Marketing will investigate, plan, and place an integrated advertising schedule designed to reach the statewide audience of Spanish-speaking Californians with market-specific information about energy efficiency programs available through the program administrators.

Staples Marketing will augment the advertising campaign with outreach activities in the Hispanic community, providing outreach staff with training and orientation, as well as supplies of informational materials and handouts.

To provide Hispanic customers with more in-depth information regarding energy efficiency and statewide and local programs, Staples Marketing will work with the subcontracted media to identify opportunities for editorial coverage, such as interview shows or news programming, depending on availability. In addition, Staples Marketing will coordinate with the program administrators to identify bilingual representatives willing to be interviewed by the media subcontractor.

## **11. Customer Description**

The program targets California's Hispanic population, ages 18-54, with a primary focus on customers who speak Spanish as their first or second language. The majority of customers reached are moderate and middle income, with a large proportion of renters in certain markets where there the economy is dependent on agriculture.

## **12. Customer Interface**

The goal of this program is help Hispanic customers understand the value of and provide access to energy efficiency programs. Specifically, the advertising and marketing materials will provide phone and web contacts that allow them to access information about residential and small business energy efficiency programs in Spanish.

### **13. Energy Measures and Program Activities**

Staples Marketing will not be installing any energy measures.

#### **13.1. Measures Information**

This is an information-only program and, therefore, does not offer energy efficiency measures.

#### **13.2. Energy Savings and Demand Reduction Level Data**

This is an information-only program and, therefore, does not have energy savings and demand reduction level data attached to it.

#### **13.3. Non-energy Activities (Audits, Trainings, etc.)**

All activities associated with this program involve marketing and the distribution of information.

#### **13.4. Subcontractor Activities**

The media subcontractor will broadcast the advertising campaign; schedule sponsor and staff outreach activities; and provide vehicles for editorial coverage and facilitate interviews with program administrator representatives.

#### **13.5. Quality Assurance and Evaluation Activities**

For quality assurance, Staples Marketing will monitor advertising schedules and review monthly reports from the media subcontractor. The media subcontractor will provide documentation of schedules. Any advertising that does not appear as ordered will be compensated for in the form of a no-charge “make good.” Monthly media reports will update progress toward the program goals in terms of number of paid and no-charge ads realized on all media outlets and approximate audience reached.

Prior to the production of advertising, Staples Marketing will facilitate message testing on the previous year’s marketing materials. An independent third-party research firm will use focus group(s) to review and comment on previous messages and creative approaches. The results of this message testing will drive the development and production of all future advertising and marketing materials for greatest effectiveness.

Staples Hutchinson will facilitate training and orientation for subcontractor staff involved in outreach activities. To ensure that outreach events are conducted in an appropriate manner and consistent with the goals of the program, the program manager will make random visits, acting like a “secret shopper” to evaluate interactions with outreach staff.

Staples Marketing will also request taped copies of Univision interviews with IOU and/or CPUC staff and monitor the quality of these interviews.

Program evaluation in the form of primary research will depend on current discussions among the CPUC regarding appropriate measurement of information-only programs. In any event, Staples Marketing will review the advertising campaign, outreach activities

and editorial coverage to assure that all goals were met. In addition, we anticipate a primary research project designed to determine the effectiveness of the marketing effort in communicating energy efficiency messages.

**13.5.1. Expected Number/Percent of Inspections (planned percent of projects)**

This does not apply.

**13.6. Marketing Activities**

This is a marketing program. All activities have been described previously.