

SCE/SCG County of Los Angeles Partnership

1. Projected Program Budget	\$	4,743,598
2. Projected Program Impacts		
MWh		1,156,755
MW (Summer Peak)		387.44
3. Program Cost Effectiveness		
TRC		3.91
PAC		5.84

4. Program Descriptors

Market Sector: Nonresidential, small, medium and large customers
Program Classification: Local
Program Status: Revised Existing

5. Program Statement

The 2006-08 SCE/SCG/County of Los Angeles Energy Efficiency Partnership will build on the lessons learned from the existing, successful partnership program. The current partnership consists of several elements such as Retrofit, Retro-commissioning, Technology Transfer/Feasibility Study and Public Housing Metering. This proposed partnership will focus mainly on retro-commissioning activities in County of LA facilities, continue the Public Housing Metering element, apply some of the recommendations from the Public Agency Collaboration study and will explore opportunities to expand the partnership to include retrofit and retro-commissioning activities in other county affiliated agencies. These agencies may include the Los Angeles County Office of Education (LACOE), the Los Angeles Unified School District (LAUSD), and the Los Angeles County Metropolitan Transportation Authority (LACMTA). The implementation of projects into these other agency facilities will be contingent on the availability of additional program funding during the 2006 - 2008 program cycle.

6. Program Rationale

The County of LA Partnership is a continuation of the existing, successful 2004-2005 program. This partnership is unique in that it allows existing resources to be leveraged including technical and energy project management expertise to facilitate the implementation of needed energy efficiency projects.

There are many governmental agencies and school districts that have previously not participated on a regular basis in energy efficiency programs and can therefore be considered hard to reach. The partnership will look to identify savings opportunities in these markets and as additional funding becomes available will implement the projects.

7. Program Outcomes

This partnership program will continue to achieve immediate electric and gas energy savings and peak demand reduction at county facilities. These energy savings will be accomplished by applying the retro-commissioning (RCx) processes that will result in the implementation of recommended energy efficiency measures to optimize the operation of HVAC and Lighting systems in each building.

The RCx program element will be enhanced with the County funding contribution, in-kind technical labor resources and the utilization of its existing, state-of-the-art Enterprise Energy Management Information System (EEMIS) which allows real-time, online monitoring of building systems.

Additional energy savings may be achieved by implementing retro-commissioning and retrofit measures in other county agencies. This partnership will seek opportunities to reduce peak demand and create energy savings in other facilities such as Los Angeles County Office of Education (LACOE), the Los Angeles Unified School District (LAUSD), and the Los Angeles County Metropolitan Transportation Authority (LACMTA). However, the implementation of projects for these organizations will be contingent on the availability of additional funds. If available, the sources of funding may come from SCE's Energy Efficiency budget or from this partnership's budget. In the event that the County of Los Angeles exhausts its opportunities to implement cost effective RCx projects, the surplus funds may be shifted to other retrofit and retro-commissioning projects for additional energy savings. Where applicable, these activities will be coordinated and will leverage resources of other utility programs such as Express Efficiency, Standard Performance Contract, Demand Response and Savings by Design.

As the opportunities arise to expand the program to include other county-affiliated organizations, a larger facility pool will be created to capture more energy savings. This increase in facility pool will meet or exceed the overall program cost effectiveness while capturing "lost opportunities."

Other program outcomes will include:

- Opportunities to share best practices and lessons learned from partnership activities, especially in the areas of retro-commissioning and monitoring based commissioning.
- Demonstrate the value of energy efficiency activities, and the benefits associated with having a local government energy efficiency management team that focuses on timely implementation of cost-effective projects with attractive payback for local government entities.
- Demonstrate the feasibility of a local government entity with upper management support in energy efficiency, can create opportunities to save energy, reduce operating cost and improve occupancy comfort.

8. Program Strategy

The implementation strategy will capitalize on the lessons learned from the current partnership program. A higher emphasis will be applied to the retro-commissioning element since preliminary results from the current RCx activities of 10 county

courthouses and administration buildings have provided higher than expected energy savings. In addition, if funding is available, the partners will implement retrofit and RCx projects in other county affiliated agencies. There are more retrofit opportunities in other county affiliated agencies since County of LA departments, through the Internal Services Division, have already implemented most of the cost effective retrofit projects. The Multi-family Public Housing metering element will also be continued in this program cycle. Lastly, this partnership will seek opportunities to implement some of the recommendations noted in the feasibility study on public agency collaboration which was conducted as part of the PY04-05 program.

Retro-Commissioning Element (RCx):

There will be a major change in the implementation strategy for retro-commissioning. The county will apply the lessons learned from current RCx projects to streamline the RCx process for the new program cycle. The Internal Services Department (ISD) will contribute more in-house staff to perform many of the tasks associated with the retro-commissioning process such as preliminary investigation, bench marking, determination of system deficiencies, and correction of those deficiencies. Contractors will be utilized for tasks where County staff does not have the resources or expertise to address the issues. ISD will also contribute separate funding to improve the cost effectiveness of the RCx element.

The continuing use of ISD's in-house, existing EEMIS is a critical component of the RCx element. EEMIS will continue to be utilized for benchmarking, pre-functional and functional trending analysis, and post-implementation measurements. The use of EEMIS will also ensure persistence in energy savings and will provide a real-time monitoring tool for the County's maintenance and operations staff to efficiently and effectively monitor and diagnose issues in its buildings. Furthermore, the California Commissioning Collaborative may use EEMIS to support its efforts to develop facility benchmarking standards for RCx utilizing energy management systems. EEMIS will be expanded under this program cycle to accommodate the needs of the proposed scope of work. This expansion will be in the form of additional monitoring points to replace those utilized by the current RCx activities in the 10 county buildings.

Retrofit Element:

This partnership will seek opportunities to reduce peak demand and create energy savings in other facilities such as Los Angeles County Office of Education (LACOE), the Los Angeles Unified School District (LAUSD), and the Los Angeles County Metropolitan Transportation Authority (LACMTA). However, the implementation of projects for these organizations will be contingent on the availability of additional funds. The partnership will work with these entities to identify projects and have a pool of projects available in the event that additional funding becomes available. These additional strategies will include retrofit projects such as complete lighting retrofits (T5 technology, LED applications, newer 28 watt T-8's), building wide lighting controls, boiler replacements, installation of water heaters, tankless water heaters, and HVAC

upgrades/replacements in County-affiliated facilities. The experience and knowledge acquired in identifying and implementing retrofit projects will be transferred to staff members of these entities. If implemented, these projects will be funded based on incremental energy savings for each measure and each project will have to meet the required utility cost effectiveness guidelines.

Multi-Family Public Housing Metering Element:

The Multi-family Public Housing metering element will be continued in this program cycle. More time is needed to install the metering equipment and sufficient time is required to gather customer energy usage data.

The partnership is currently collaborating with the Los Angeles County Community Development Commission SCE's Emerging Technologies Department and USCL, the supplier of the monitoring equipment, to implement this element,.

Public Agency Energy Efficiency Knowledge and Technology Transfer Element:

This partnership will seek opportunities to implement some of the recommendations noted in the feasibility study on public agency collaboration which was conducted as part of the 2004-2005 program.

9. Program Objectives

The primary objectives of the program are to produce cost effective energy savings, help develop standard methodologies to be implemented in other RCx programs, and to develop strategies to share these experiences with other local governments and public agencies. Specifically, these objectives include:

- Improved cost effectiveness on a \$/kWh or \$/therm basis for implemented projects.
- Improved partnership coordination and project implementation process.
- Increased transfer of energy efficiency knowledge and implementation experience to other local governments.
- Increased awareness and knowledge of the benefits of energy efficiency initiatives for local governments.
- More integrated efforts between partnership activities and utility programs offerings.

10. Program Implementation

The implementation plan for this program cycle will include the continuation of activities implemented in the 2004-2005 SCE/SCG/County of LA Partnership program. The partnership will apply the lessons learned from the current partnership program. The management structure of the partnership will remain the same with projects managed by a management team which consists of representatives from each partner (SCE, SCG, County of LA). Each program element will be coordinated through specific project teams for RCx, Retrofit and Public Housing Metering.

SCE will retain the overall administration of the partnership program. The partnership will work together to establish funding guidelines for various projects, sharing technical expertise, and implementing projects. The partnership also will coordinate the use of ISD's own resources and total program resources to identify and develop projects, manage individual projects, and track costs and savings. Contracting for construction work will be shifted from the utilities to the County of LA to facilitate the implementation process. However, project decisions will continue to be made by the management team on a partnership level.

As previously noted, a higher emphasis will be placed on the retro-commissioning element since preliminary results from the current RCx activities of 10 county courthouses and administration buildings have provided higher than expected energy savings. In addition, if funding is available, the partners will implement retrofit and RCx projects in other county affiliated agencies. There are more retrofit opportunities in other county affiliated agencies since County of LA departments, through the Internal Services Division, have already implemented most of the cost effective retrofit projects. The Multi-family Public Housing metering element will also be continued in this program cycle. More time is needed to install the metering equipment and sufficient time is required to gather customer energy usage data. Lastly, this partnership will seek opportunities to implement some of the recommendations noted in the feasibility study on public agency collaboration which was conducted as part of the 2004-2005 program.

Retro-Commissioning (RCx) Program Element:

The RCx program element will be implemented as follows:

Key Activity	Description
1. Identification and selection of facilities to be RCx	Partnership management team (SCE, SCG, County of LA) will evaluate the potential of identified sites and select the most cost effective facilities to proceed with RCx activities.
2. Develop site specific assessment tools and checklists	RCx project team (SCE, SCG, County of LA representatives) will establish the process for RCx activities and will coordinate with LAC/ISD staff to investigate facilities, determine equipment and systems, develop facility prioritization procedures. LAC/ISD's EEMIS will be heavily utilized in this phase.

Key Activity	Description
3. Market program, enroll customers	Partnership management team (SCE, SCG, County of LA) will establish marketing strategies and will meet with and educate County facility managers and administrators about program scope, goals, their participation and follow-up.
4. Hire contractors, determine roles	Partnership management team (SCE, SCG, County of LA) will coordinate with LAC staff to develop the RFP's, solicit bids and will select RCx technical resource, and implementer as necessary,
5. Hold building scoping meetings, site investigations, staff interviews	RCx project team in coordination with LAC/ISD staff and technical resources/contractor will analyze the data collected during the investigations and identify the specific facilities in which to implement energy efficiency measures under this program.
6. Install monitoring systems for initial diagnostic monitoring.	RCx project team in coordination with LAC/ISD staff and contractors will work with the customers to record initial operating data. Much of this step will utilize EEMIS where it is already installed to provide historical operating data.
7. Analyze data and develop recommendations	RCx project team in coordination with LAC/ISD staff and contractors will review data, determine recommended improvements, and determine feasibility. Improvements will include no-cost measures as well as potential retrofit measures. Recommendations will be forwarded to management team for review and approval prior to commencement of project implementation.
8. Implement improvements	RCx project team will have oversight of project implementation. LAC staff and/or RCx contractor will implement improvements.

Key Activity	Description
9. Second round of diagnostic monitoring	RCx project team in coordination with LAC/ISD staff and contractors will work with the customers to record further operating data. Much of this step will utilize EEMIS where it is already installed to provide historical operating data. RCx project team will provide final improvement recommendations to Management team for review and approval prior to commencement of final improvements.
10. Make final improvements	RCx project team will have oversight of project implementation. LAC staff and/or RCx contractor will implement final improvements as needed. LAC staff and/or RCx contractor will also identify opportunities to retrofit EE gas and electric measures to improve building operation.
11. Train building staff	RCx project team in coordination with LAC/ISD staff and/or contractor will provide training to facility management staff on implemented measures and recommended follow-up activities.
12. Project close out, submit final report	RCx project team in coordination with management team will establish the formats and requirements for the RCx final report. The RCx contractor will provide the final report in the established format and will provide information such as lists of deficiencies, improvements, recommendations and project annual and long term savings. Follow-up activities and recommendations will incorporate LAC/ISD's long-term ability to monitor performance via EEMIS.

Retrofit Program Element:

The Retrofit element will be implemented only when additional funding is available to provide incentives for retrofit projects in other facilities such as Los Angeles County Office of Education (LACOE), the Los Angeles Unified School District (LAUSD), and the Los Angeles County Metropolitan Transportation Authority (LACMTA). The partnership will work with these entities to identify projects and have a pool of projects available in the event that additional funding becomes available. The energy efficiency

measures for retrofit projects will include electric and gas measures such as lighting retrofits (T5 technology, LED applications, newer 28 watt T-8's), building wide lighting controls, boiler replacements, installation of water heaters, tankless water heaters, and HVAC upgrades/replacements. The partnership experience and knowledge acquired in identifying and implementing retrofit projects will be transferred to staff members of these entities. These retrofit projects will receive incentives for incremental energy savings for each measure and each project will have to meet the required utility cost effectiveness guidelines.

The Retrofit Element will be implemented as follows:

The table below describes the major activities this partnership will conduct and oversee to implement the proposed retrofit program element.

Key Activity	Description
1. Identify additional funding for Retrofit projects	The partnership management team will work with the utilities to identify additional funding for retrofit projects of other county agencies.
2. Collaborate with targeted agencies to discuss retrofit opportunities and get buy-in for project	If funding is available, the partnership will meet with representatives from targeted agencies to discuss EE opportunities and obtain upper management approval for projects.
3. Identify key stakeholders to participate in retrofit program	The management team, in collaboration with the targeted agency, will identify key stakeholders in each agency to participate in the retrofit project team.
4. Develop project criteria and cost-effectiveness requirements.	The retrofit project team will establish the criteria for project selection and develop the requirements for incentive payments, etc.
5. Develop process for identifying projects and to generate a pool of projects for agencies.	The retrofit project team will establish the process for identifying projects and develop forms and procedures to solicit projects and generate a pool of projects for potential retrofit work.
6. Conduct solicitation for potential projects from participating agencies	The retrofit project team will coordinate with LAC and targeted agency staff to generate a pool of projects for evaluation.

Key Activity	Description
7. Compile and evaluate projects based on project criteria and cost effectiveness requirements.	The retrofit project team will perform due diligence on proposed projects to ensure that each project meets the criteria and cost-effectiveness requirements. Project team will provide a list of recommended projects to proceed with implementation.
8. Approve projects for funding	The management team will review project team recommendations for potential retrofit projects and will approve funding based on incremental energy savings.
9. Coordinate project implementation with partners and contractors.	The retrofit project team will have oversight of project implementation and will coordinate with LAC and contractors to ensure successful and timely implementation of the project.
10. Verify project installation and provide incentive payments.	The retrofit project team in coordination with LAC staff and contractors will inspect roughly 25% of the retrofit projects. Retrofit projects with incentive levels in excess of \$100K shall be flagged for 100% inspection. Upon verification, project team will approve the completed projects for incentive payments.
11. Compile project results and complete final report	The retrofit project team will compile all relevant project information including measure information, energy savings, and program incentives paid, etc.
12. Coordinate with EM&V contractor where applicable.	If required, the management team will coordinate with the project teams and key stakeholders to support any requests from the CPUC approved EM&V contractor.

Multi-Family Public Housing Metering Program Element:

The Public Housing Metering Element will be implemented as follows:

Key Activity	Description
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Key Activity	Description
1. Identification and providing access to public housing facilities for meter, sensor, and display installation.	The metering project team will coordinate the selection of test sites with the Los Angeles Community Development Commission. In the PY04-05 program, the Orchard Arms facility, in Valencia was identified as one of the five locations for the project. The partnership is in the process of identifying the remaining of the sites.
2. Meter acceptance testing, purchase and installation of revenue-grade meters,	The metering project team, coordinated with internal SCE metering group, to acquire, validate and purchase revenue-grade meters for the projects. To date, all the meters have been completed and ordered. All meters for the Valencia facility have been installed. The meters were delivered and are waiting to be installed once the other sites are selected. SCE will coordinate with field delivery personnel to
3. Provide notifications and assist in training of tenants to fully utilize the LCD display to encourage positive behavioral changes in conservation and to use appliances more efficiently.	The metering project team will coordinate with LACDC to notify tenants of the projects and minimized issues that may arise from the meter installations.
4. Installation of optical sensors and display units.	The metering project team will coordinate with USCL (contractor) to install the optical sensors and display units.
5. Establish an evaluation protocol to study the impacts of meter and display technology.	The metering project team will coordinate with SCE's Emerging Technologies (ET) group to develop the monitoring protocol and evaluation process.
6. Monitor and acquire energy usage data	USCL (contractor) will ensure that equipment operates as efficiently as possible and that pertinent data is captured for the final report
7. Evaluate a test group and a control group and conduct energy usage analysis for all participating tenants to establish the pre and post impacts of the project.	ET will analyze the monitoring data and provide all pertinent information to be used in the final report.

Key Activity	Description
8. Generate a final report for the project.	The project team in coordination with ET and USCL, will compile all pertinent data to support the final report.

11. Customer Description

The customer base comprises of the County’s 38 departments that provide services to more than 10 million county residents. These departments include: Sheriff, Health Service, Probation, Superior Courts, Children and Family Services, Public and Social Service, Fire, Parks and Receptions, Registrar/Recorder, Chief Administrative Office, District Attorney, County Counsel, and Internal Services.

In addition, the partnership will explore opportunities with targeted agencies such as Los Angeles County Office of Education (LACOE), the Los Angeles Unified School District (LAUSD), and the Los Angeles County Metropolitan Transportation Authority (LACMTA).

12. Customer Interface

The partnership will interface with various County departments (customers). The partnership in coordination with LAC/ISD staff will meet with and educate the facility managers and administrator in the County and other targeted agencies about the program scope, goals, their participation and follow-up.

13. Energy Measures and Program Activities

13.1. Measures Information

The program primarily focuses on retro-commissioning activities that include building system optimization for lighting, heating and cooling loads. These RCx activities will identify opportunities to address system deficiencies for both gas and electric equipment. These deficiencies may require simple, quick fixes or may require a replacement of the inefficient or failed system component.

The retrofit measures may include lighting retrofits (T12 to T8, LED exit signs, HID, T5 technology), installation building-wide lighting controls, and HVAC upgrades/replacements (packaged units and chillers) that are not part of the RCx program. These retrofit projects will receive incentives for incremental energy savings for each measure and each project will have to meet the required utility cost effectiveness guidelines.

13.2. Energy Savings and Demand Reduction Level Data

Please refer to the E3 Calculator.

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

The partnership program will provide training to facility staff through the RCx

component of the program to allow for persistence and sustainability of achieved energy savings.

In addition, this partnership will seek opportunities to implement some of the recommendations noted in the feasibility study on public agency collaboration which was conducted as part of the 2004-2005 program.

Subcontractor Activities

The partnership will rely on subcontractors to carry out certain portions of the partnership program. These subcontractors will include but not limited to the following:

Retro-Commissioning Contractors (“Contractors”)

The partnership management team which includes the SCE, SCG and LAC/ISD will oversee the procurement of RCx Contractors to assist in the implementation of the RCx program element.

- The RFP will be developed by LAC/ISD staff in coordination with the management team to obtain a pool of RCx contractors.
- Each project will be competitively bid from a pool of RCx Contractors, solicited under ISD’s procurement process.
- The scope of work for each successful contractors may include comprehensive audits, design, equipment purchase, and/or installation of the systems.
- The RCx project team in coordination with the management team will be responsible for approval of all design and installation activities.
- The contractors will enter into a contract with ISD to provide the agreed-upon equipment and services.
- Finally, RCx project team in coordination with LAC/ISD staff will provide all project management services on behalf of the customer.

Retrofit Contractors

As the partnership expands to other targeted agencies, additional contractors may be procured implement the RCx as well as energy retrofit projects. The key tasks that they may perform include:

- Completion of the final, comprehensive audits;
- Complete any necessary design work and obtain the necessary permits;
- Procurement of all material;
- Installation of the systems;
- Project Closeout including completion of punch list items.

13.5. Quality Assurance and Evaluation Activities

The SCE/SCG/County of LA management team will establish and oversee quality assurance measures for the Partnership programs, including oversight and verification of subcontractor activities. These procedures and the associated reporting will be developed in more detail as a part of program implementation. The management structure of this

partnership will provide project teams, in each of the program elements, the opportunities to continue the level of due diligence and quality assurance of the current partnership program, including a representative percentage of pre/post installation confirmation inspections for small hardware projects, and pre/post inspections on all large or specialized projects hardware projects (installation of energy efficient equipment, facility retrofits, and building commissioning and new construction projects).

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

This partnership will inspect 100% of the Retro-commissioning projects and will inspect roughly 25% of the retrofit projects. Retrofit projects with incentive levels in excess of \$100K shall be flagged for 100% inspection.

14. Marketing Activities

The retro-commissioning and retrofit program element will use a similar marketing approach. The partnership management team, in coordination with the LAC/ISD staff, will conduct marketing and outreach efforts to better inform and educate customers of the energy efficiency services and programs available through the partnership program. The emphasis will be placed on marketing the retro-commissioning program element to large County facilities. The RCx program will target mainly buildings with office space of over 100,000 square feet. However, smaller building size may be considered if RCx process will yield cost-effective energy savings. The retrofit program will be targeted to the facilities in other county agencies. These building may be large, over 100,000 square feet. However, a majority of the retrofit projects will be in smaller size buildings that are 25,000 square foot and under. This established market base will allow the partners to focus directly on those customers.

This outreach effort will be accomplished mainly through contacts with facility administrators and managers to inform them of the availability and scope of the retrofit and RCx program elements and to explain the benefits associated with measures for which their facilities have been selected. Key activities will be:

Key Activity	Description
Outreach	The partnership management team in coordination with LAC/ISD administrative staff will begin outreach efforts by contacting the heads of facilities management for each department to inform them of the availability of funds for approved measures and activities in County facilities. When additional funds are available, the team will also outreach to other targeted agencies within LA County. The team will schedule meetings to discuss the options, implementation criteria, and benefits of program participation, as well as program offerings.
Customer Follow-Up	The partnership management team in coordination with staff from LAC/ISD, SCE and SoCalGas, will visit each targeted site to talk with facilities manager(s) about the various options and proposed energy efficiency measures. After confirming an appropriate site

Key Activity	Description
	for implementing measures and/or retro-commissioning, The management team will meet with the appropriate facilities managers to present the anticipated energy savings, the incentive amount and other benefits and considerations associated with the implementation.
Implementation – Training	In addition, the partnership management team will share energy efficiency knowledge and implementation experience with other local government entities through a series of meetings and workshops.