Final Report

Evaluability Assessment of 2006-2008 IDEAA and InDEE Programs

Study ID: SCE0282.05

Volume 5 of 5

Prepared for:

Southern California Edison

November 26, 2007

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1. Background and Overview

In 2006, Quantec, LLC was hired to conduct a process and impact evaluation of the 2004-05 IDEEA Program. The IDEEA Program was an initiative undertaken by Southern California Edison to encourage third part programs that addressed gaps in efficiency program offerings, and that encouraged new marketing approaches or the adoption of new technologies. A total of 13 IDEEA constituent programs were approved.

The evaluation of the 2004-05 IDEEA Program found several underlying issues that affected program management and program evaluation. Among those issues were the lack of consistent tracking, documentation of existing conditions and measures replaced, missing contact information and poorly chosen installation decisions.

These findings resulted in an understanding that IDEEA-type programs may require more involved and proactive program management, and greater care in data tracking and implementation decisions. The first aspect of these findings was reflected in Edison's decision to develop a management handbook specifically for IDEEA-type programs, and an overall tracking system (SMART). The second aspect resulted in a recommendation that a systematic evaluability assessment be required for new IDEEA programs building upon the learning done for the 2004-05 Program. This report is the result of the development of an evaluability assessment framework for the 2006-07 IDEEA/InDEE Program portfolio.

The purpose of this study is to conduct an early review of the 2006-08 IDEEA/InDEE portfolio with the goal of developing a systematic approach for early program review and M&V that can be used by managers and evaluators to organize information and plan for evaluation. Because these programs generally have a limited time frame (one year for InDEE and 2 years for IDEEA), and start-up issues often dominate, it is easy for programs to fall into "production" mode, where installation of approved measures takes precedence over installation quality and appropriateness, in order to fulfill a quota. By focusing on evaluability, tracking and M&V needs early in the program process – ideally no later than Statement of Work approval – data and monitoring gaps can be addressed before they become problems, and program managers will be provided with early feedback on program progress and accomplishments, and will be able to make adjustments even before formal evaluations take place.

In addition to program managers and evaluators, the results of this study – in particular, the forms and data requirements – can be used at the RFP and contract negotiation stage to inform contractors about tracking and reporting requirements for IDEEA-type programs. One of the findings of the 2004-05 Evaluation was that record keeping at the implementer level was often missing, incomplete or otherwise deemed as unnecessary. Adding requirements after implementation has begun may not be a reasonable approach; alerting implementers to evaluation, tracking and M&V requirements early in the process is prudent, reasonable and may be more cost effective.

Early review of program requirements is especially critical for IDEEA/InDEE programs for several reasons. Primarily, these programs are by-and-large pilot or "proof of concept" programs, and learning for possible mainstreaming requires more, rather than less information on performance and implementation.

All programs that install measures - with the exception of those that have a history of approved deemed savings – should have data on measures replaced, and accurate estimates of existing conditions. This is the minimum requirement for effective program QA/QC.

Programs that do not install measures directly (non-resource programs) still present tracking and monitoring challenges. Clear indicators can be developed from program theory and logic models, and might include training sessions held, number of participants in training, number of contacts made, etc.

IDEEA programs are applications of existing technology or innovative marketing techniques to new market segments. Assessment of these programs required information on performance, acceptance, reasons for nonparticipation, and detailed information on target markets and marketing.

InDEE programs generally involve the application of new technologies in limited quantities. Because the field performance of these technologies is critical, increased emphasis on early M&V, including pre-installation monitoring (metering) should be required.

Finally, in the new CPUC-led impact evaluation environment, early M&V becomes extremely important to enable utilities to adjust programs before evaluations occur, and to maximize program performance. Early M&V, coupled with early process evaluation, should improve program performance and program efficiency.

This issue is increasing in importance as the first two utility incentive calculations will be based on verification only. Verification will rely on site inspections and record reviews, which constitute the basis of evaluability assessment.

For these reasons, Quantec, LLC and the evaluation Team, under the direction of Edison evaluation staff, undertook this effort to develop an early evaluation assessment for 2006-08 IDEEA/InDEE programs which includes the development of an evaluability assessment protocol, the development of early M&V plans, where appropriate, development of program theories and preliminary logic models and recommendation for QC activities.

2. Approach

Evaluability Assessment has a long history in the evaluation field, but has not been formally applied to energy efficiency programs, although an ERPI publication in 1992 seems to contain the first mention of Evaluability Assessment as applied to DSM programs[1]. As described by Wholey[2]:

> *"Evaluability Assessment explores the objectives, expectations, and information needs of program managers and policy makers; explores program reality; assesses the likelihood that program activities will achieve measurable progress toward program objectives; and assesses the extent to which evaluation information is likely to be used by program management."*

The products of Evaluability Assessment are:

> *"1) a set of agreed-on program objectives, side effects, and performance indicators on which the program can realistically be held accountable; and (2) a set of evaluation/management options which represent ways in which management can change program activities, objectives, or uses of information in ways likely to improve program performance."*

Wholey argued that EA should be the first step in conducting any evaluation, be it process or impact.

Trevisan and Huang[3] lay out a 10 step process for conducting EA (after Smith[4]), as shown below in Figure 1. Although we did not start out working within this framework, our process ultimately mirrored these steps quite closely.

Figure 1. Ten-Step Evaluability Assessment Process

1. Determine Purpose, Secure Commitment, and Identify Work Group Members.
2. Define boundaries of Program to be Studied.
3. Identify and Analyze Program Documents.
4. Develop/Clarify Program Theory.
5. Identify and Interview Stakeholders.
6. Describe Stakeholder Perceptions of Program.
7. Identify Stakeholder Needs, Concerns, and Differences in Perceptions.
8. Determine Plausibility of Program Model.
9. Draw Conclusions and Make Recommendations.
10. Plan Specific Steps for Utilization of EA Data.

[1] Barakat & Chamberlin (1992). *DSM Evaluation-Six Steps for Assessing Programs*. Electric Power Research Institute, Palo Alto, CA. . EPRI-CI-6999.

[2] Wholey, J. S. (1979). *Evaluation: Promise and Performance.* Washington, the Urban Institute

[3] Trevisan, M. S. & Y.M. Huang (2003). Evaluability Assessment: A Primer. *Practical Assessment, Research & Evaluation*, 8(20)

[4] Smith, M.F. (1989). Evaluability Assessment: A Practical Approach. Boston: Kluwer Academic.

After discussions with Edison resulting from our evaluation of the 2004-05 IDEEA program, it was decided that an evaluability assessment of the 2006-08 IDEEA and InDEE programs would assist whatever evaluations might be undertaken in the future. Further, the EA could make recommendations for early Baseline and M&V activities that Edison could initiate for the purpose of refining implementation procedures and savings estimates prior to any evaluation.

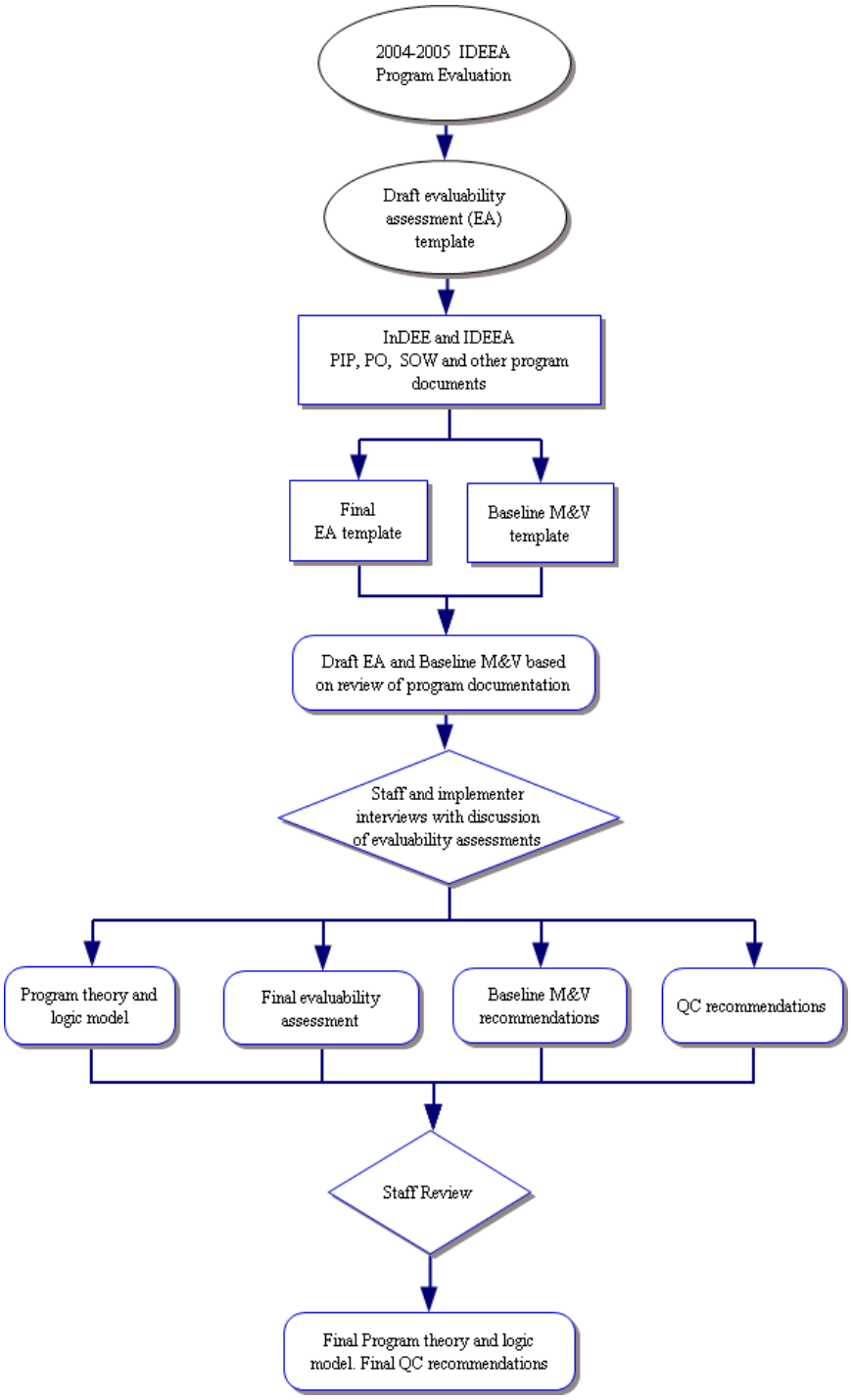
Evaluability Assessment and Baseline/Early M&V forms were developed and EA's completed for each of the 25 2006-08 IDEEA/InDEE programs. Separate Early M&V forms were completed only for programs where Baseline and Early M&V were judged to be significant issues. Otherwise, monitoring concerns were included in the EA forms themselves. At Edison's request, recommendations for program QC were also included.

The process of completing the EA's revealed that few programs included a program theory in the program proposal or subsequent document, and none had Logic Models. The Quantec team then developed both preliminary program theories and logic models from the documentation available.

Upon further review of IDEEA program documents we determined that there were no M&V plans or baseline monitoring plans in most of the proposals. We then independently developed these plans, where appropriate, for some of the programs. In most cases, Baseline/M&V recommendations were included in the "Recommendations" section of the Evaluability Assessment Table. In a few instances a separate Baseline/M&V Table was developed, recommending the monitoring approach and methods, as well as identifying a responsible party. Finally, at Edison's request, further recommendations regarding Program QC were made.

The final flow diagram of our process looked very similar to the evaluability assessment 10-step process described earlier, and is shown in Figure 2, below.

Figure 2. Evaluability Assessment Project Flow Diagram



3. Evaluability Assessment Template

To begin the Evaluability Assessment project, we developed an Evaluability Assessment Template that would be used to review each program plan. The EA Template, shown in Table 1, was developed from the Team's experience in conducting the comprehensive process and impact evaluation of the 04-05 IDEEA Program, the lessons learned from that evaluation, coupled with our experience in conducting similar – although less systematic – evaluability assessments for other public and investor-owned utilities in North America.

Table 1. Evaluability Assessment Template

QUESTION	COMMENT
1. Is there a description of the staff that will operate the program?	
• How many staff and where are they located?	
2. Is there an explicit program theory or logic model	
• Indicators of success	
3. Is there a description of the target market?	
• Is it possible to identify the potential population of participants and nonparticipants?	
4. Is there a marketing plan?	
• How will potential participants be recruited once identified?	
• Is there a way to track participants?	
• Is there a way to track nonparticipants?	
5. Have proposers included an electronic tracking database in their plans?	
• Does it include the elements needed to contact participants & non-participants of various program activities?	
• Does it include program forms, surveys and implementation back-up	
• Are specific locations of measures being tracked? Can they be found?	
• Are program assumptions being tracked on a site specific level (e.g., hours of operation)	
• Is the delivered energy saving service and/or installed retrofit being recorded?	
• Does it include the outcome/result of the activities?	

6. Will the program be delivered with trade allies?	
• What type of trade allies	
• Are the trade allies well enough defined to identify a potential group of participants and nonparticipants?	
• Is there a way to track participating trade allies?	
• Is there a way to track nonparticipating trade allies?	
7. Are savings assumptions documented?	
• DEER?	
• If not, is the source of savings assumptions specified?	
• Are the pre-retrofit or baseline parameters being recorded?	
• Does the database record the as-found values for parameters used to estimate ex-ante savings?	
• Does baseline monitoring need to take place?	
• Can one of the impact evaluation methods specified in the CA Evaluation Protocols be used?	
• Are there code compliance or program overlap issues for savings estimation?	
Recommendations to improve evaluability:	1.
	2.

These questions and criteria were developed primarily from the evaluators' perspective, with a focus on minimum data and information requirements in order to conduct process and impact evaluations with little start-up costs. Typically, evaluators are trained to gather additional data as part of the of the evaluation process. The impetus for the EA Table is to alert program managers and contractors of the data needs for evaluation early in the process so that the data will be available as part of the program management and implementation monitoring process.

There is an underlying issue with data availability at the time that evaluations are undertaken. For example, if operating conditions and existing equipment characteristics are not gathered at the time of program participation, those data will be lost, and any estimation or recall of those variables at a later point in time will be subjective and unreliable, at best. Likewise, if non-participant contact information is not maintained, it cannot be re-created at a later date. The EA Template is a vehicle for anticipating and organizing and communicating data and information needs from the outset.

The EA Template was created for three audiences. For evaluators, the form provides a systematic template to review program documentation and data tracking systems at an early stage to identify gaps that may affect program evaluation plans and strategies. For

program managers, it provides a roadmap of information and data requirements that should be part of their management plan. And for contractors and implementers, it provides an overview of responsibilities and requirements prior to program implementation.

4. Conducting Evaluability Assessments

As shown in Figure 2, above, the Evaluability Assessment began with a review of relevant program documents. We began with a review of the Statements of Work (SOWs) contained in the program Purchase Orders (POs). Until the program proposals actually progressed to the PO phase we could not be certain that the individual programs would actually be approved. Additionally, there were undoubtedly changes in program offerings and requirements as a function of contract negotiations that would not have been reflected in the original proposals or filed Program Implementation Plans (PIPs). While the program SOWs contained the program implementation plans, much of the information required (logic models, implementer names, trade allies, marketing plans) was not contained in any of the SOWs. The SOWs turned out to be contractual instruments, not program design and concept papers.

Previous experience had shown that much of the missing material – if it was available – would be available as part of filed Program Implementation Plans (PIPs) or as part of the original IDEEA/InDEE Proposals submitted by the 3rd Party implementers. These documents were reviewed, along with any other supporting materials, including E3 calculators, and Work Papers.

After reviewing all the documents provided, a preliminary EA table was completed for each program. In several cases this required a revision to the draft EA Template (the final template is shown in Table 1). Generally, the revisions involved being more explicit in the sub-categories.

Along with general evaluability and reporting recommendations, simple baseline recommendations were included in the "Recommendations" section. However, when recommendations to improve evaluability involved the more comprehensive baseline monitoring and early M&V activities, a separate Table was developed. The form contained the specific recommendations for baseline data gathering and early M&V, along with our recommendation for who should be responsible for each element. Separate Tables were infrequent, and used primarily for new programs in the InDEE portfolio. An example of this Table is shown below in Table 2.

Table 2. Baseline and M&V Recommendations for the Escalator Power Genius™ Program

DATA FIELD	PRE-INSTALLATION		POST-INSTALLATION	
	Data Collection Method	*Responsibility*	*Data Collection Method*	*Responsibility*
True power measurement: kW, voltage, amperage, and power factor	Measure true RMS power at motor control panel. 5 minute intervals for 2 weeks.	Implementation contractor/host/EM &V by Edison or its contractor	Measure true RMS power at motor control panel. 5 minute intervals for 2 weeks.	Implementation contractor/host/EM &V by Edison or its contractor
Operating Hours	Site Interview, Runtime data logging for two weeks	Implementation contractor	Runtime data logging for two weeks	Implementation contractor

The draft EAs and Baseline/M&V results were reviewed by Edison evaluation and program staff, and were discussed with the program implementers. Results of these discussions were documented, and revisions were made, where necessary. These discussions were documented and summarized, and are presented in this report under the presentation of individual program results.

5. Findings

There were several important findings from this project. This first finding suggests that there are still gaps in Edison's baseline, tracking and documentation activities for IDEEA/InDEE type programs. The second finding suggests that one of the reasons for the issues described above is "production" orientation of the projects – installation of measures is the highest priority, and everything else is secondary. The final finding is that IDEEA/InDEE programs require a different kind of program management – more interactive, and more engaged with the entire range of implementation, monitoring and verification activities.

The IDEEA/InDEE portfolio is different from conventional mainstream programs in several significant ways. First, the programs showcase new technologies, or technologies new to target market segments. As such, the actual performance in the field requires more measurement and verification, especially in baseline measurement. Second, assumptions about new market segments also require verification. The 2004-05 evaluation showed some misconceptions about the small to medium motel market, and the current portfolio had one project where the underlying market structure was wrong, resulting in the program being cancelled.

Treating and managing the IDEEA/InDEE portfolio in the same way as mainstream program clearly will not be adequate. Hopefully this Evaluability Assessment will assist in reframing the requirements.

The Evaluability Assessment was undertaken from the perspective of the evaluator. However, it was recognized that program managers would not have the same perspective, might not understand the needs of evaluators and therefore would not understand data needs that were different from "standard" program management activities. To this end, one additional product and one additional task were added.

We produced an Evaluability Assessment Table for Program Managers, Implementers and proposers that explained the rationale for the data elements and information requested and reviews in the program specific evaluations, shown below in Table 3.

Table 3. Rationale for Management, Tracking and Evaluation Data

DATA ELEMENT	PURPOSE
1. Implementer and subcontractor contact information. • Project roles	Tracking responsibilities; appropriate contacts for information
2. Program "theory" • A description of how and *why* the program is supposed to achieve the desired results (This is not a flow diagram of the program process). • Example: *If* we pay for marketing training for installers, *then* that will lead to improved marketing skills, lead to more comprehensive retrofits, increase market penetration for this underserved market, and ultimately lead to more savings. Additionally it will result in increased competition as other contractors try emulate the more successful participating installers.	Assist in the development of appropriate indicators of success: short, medium and long-term Assist in the development of a final budget/resource allocation Does the theory make sense, based on current experience? Is the target market appropriately defined or identified What innovative features are being tested?
3. Target Market • A specific description of the target market eg., small commercial customers (LT 50kW) in geographic area A.	Identify market potential Identify potential participants Identify nonparticipants
4. Marketing plan • Approach and schedules for marketing the program, consistent to the program theory • Marketing materials	Marketing progress tracking Documenting changes in marketing approached and materials
5. Tracking Database • As-found values for parameters used to estimate ex-ante savings • Name, address, account number of participant • Pre-retrofit or baseline • Program assumptions tracked on a site specific or site/location specific level (e.g., hours of operation) • Specific locations of measures (Can the installed measures be found?) • Measures installed, or activity completed • Estimated outcomes (savings) if appropriate • Referrals to other programs	Essential program management Critical to M&V and evaluation; some data will be lost if it is not gathered at the time of installation/implementation
6. Program Forms • Participation, Audit and installation forms • Customer contact forms • Baseline monitoring requirements and results	QA/QC linkage M&V documentation requirement Tracking database validity check

7. Nonparticipant Contact Information • Direct marketing list • Refusals • Utility target market customer list	Ongoing feedback on barriers Program redesign Evaluation net effects CPUC Requirements

We also produced recommendations for QC for program managers. Those recommendations are contained in the individual program Evaluability Assessments that follow.

6. Conclusions and Recommendations

After conducting the Evaluability Assessment for the 2006-08 IDEEA/InDEE portfolio, we come to one overarching conclusion:

Conclusion 1: Without some systematic Evaluability Assessment and program manager training, proper evaluation, monitoring and program performance data is lost, program performance suffers, and, ultimately, utility incentives and IDEEA/InDEE programs are at risk.

Recommendation: Program managers should be trained on what constitutes an evaluability assessment, and how EA benefits program implementation. Program managers should also be trained to recognize the needs of program evaluators raised in the Evaluability Assessment to ensure that appropriate information is available when evaluations commence.

Recommendation: The Evaluability Assessment template should be included as part of future IDEEA/InDEE RFPs to alert proposers to their expanded responsibilities when project are accepted.

Recommendation: Evaluation professionals should be involved early in the program cycle to assist program managers in conducting an Evaluability Assessment, to design appropriate early M&V studies, to recommend QC procedures and to conduct early program startup process evaluations.

7. Appendix A: Evaluability Assessment by Program

The following section details the program-by program Evaluability Assessment for the 2006-2008 IDEEA/InDEE portfolio. Each Program Chapter consists of four Sections:

- Section 1 Program Description and Status;
- Section 2 Program Theory and Logic Model;
- Section 3 Evaluability Assessment, and
- Section 4 Recommended QC Protocol.

Some programs include a Recommended Early M&V Protocol in lieu of or in addition to the QC Protocol.

80 PLUS

Program Type - IDEEA - Resource
Program Implementer - Ecos Consulting
SCE 2535
PEPMA 05-10287

Section 1. Program Description and Status

The 80 PLUS Program is an upstream buy-down program that enlists utilities and computer manufacturers to get more energy-efficient power supplies into desktop computers and servers. 80 PLUS rewards manufacturers for installing a power supply in any desktop computer or server that meets the following specifications: 80 percent or greater efficiency at 20 percent, 50 percent and 100 percent of rated load, and true power factor of 0.9 or greater at 100 percent load. The strategy of the 80 PLUS Program is to overcome the price barrier of premium power supplies while educating customers about the benefits of efficient power supplies to maintain market demand. The program offers a $5 manufacturer buy-down for each desktop computer and $10 for each server containing a qualifying power supply that is sold in the SCE service territory.

Program Status as of 7/07
The program implementer indicated that the shipments finally started to move for the program in the spring of 2007. They are behind schedule as outlined in their SOW, but do expect to catch up and meet their revised 24 month schedule. They are using the SMART tracking system.

Significant EA Issues identified, including baseline/monitoring issues:

1. Getting actual customer contact information from both HP and Dell for their 80+ computer shipments has not happened. This affects the ability of SCE to verify that the computers are actually being deployed at the location being shipped to (SCE is getting the zip+4 info of where shipments are going to from each manufacturer and system integrator – but no phone number or contact name).

Edison/Implementer Contact History
Program implementation contractor interviewed on April 29. Program manager interviewed June 28 and 29.

Issue Resolution/Results, Current Status
At this stage, there appears to be no way to independently verify the System Integrator or Manufacturer shipment data – SCE must rely on the data provided to the implementer from the manufacturers.

Further Recommendations or Next Steps:
Try to either a) verify shipment of computers at the manufacturers site, or b) get HP or Dell to ask whether a customer would be willing to receive a phone call to verify the

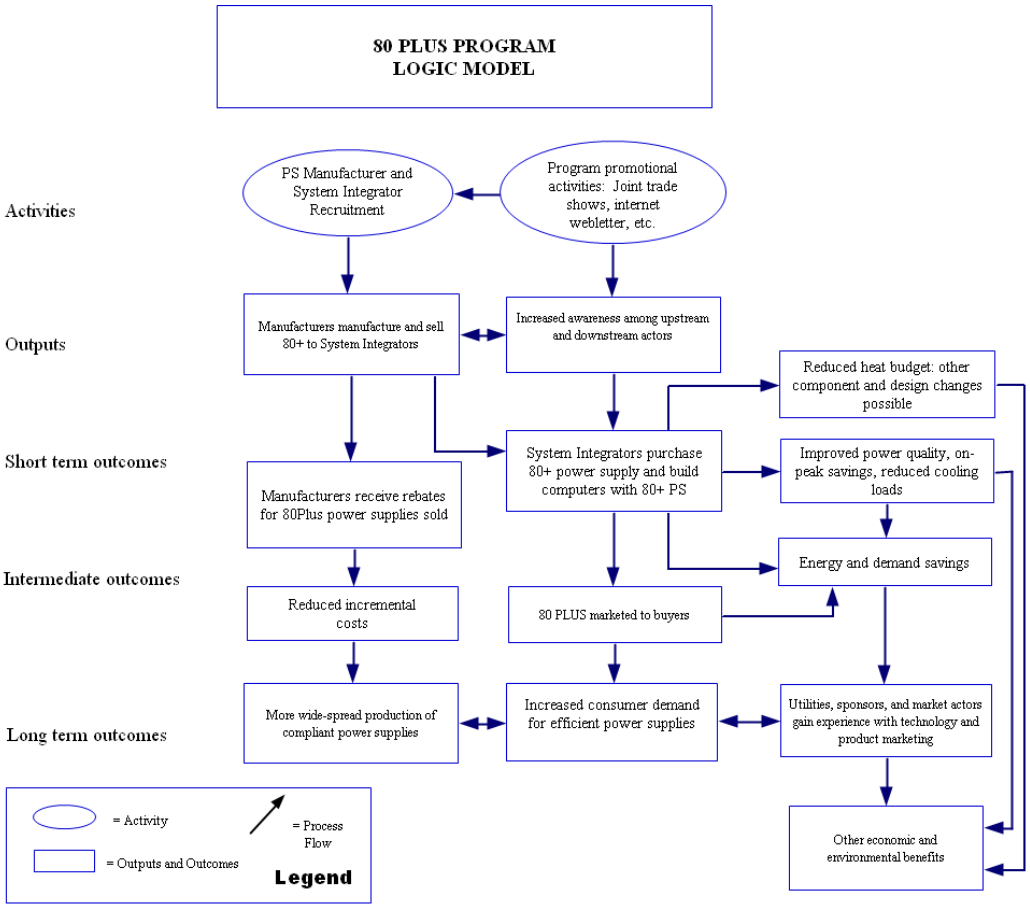
power supply is in fact the computer they receive (at least spot check some of the machines, even if a statistical sample is not available).

Section 2. Program Theory and Logic Model

Program Theory

If the manufacturers are offered an incentive, it will help to defray the incremental cost of producing energy-efficient power supplies. If system integrators request the 80 PLUS power supplies, manufacturers will have additional incentive to produce the supplies. If system integrators include 80 PLUS power supplies in computers they build, computers will result in energy savings. As system integrators sell more 80 PLUS units, consumers will increase demand for the product. Increased demand and sales will reduce the incremental cost, transform the market and result in additional energy and demand savings.

Figure 3. Logic Model



Section 3. Evaluability Assessment

Table 4. 80 PLUS

QUESTION	COMMENT
1. Is there a description of the staff that will operate the program?	No; to be delivered as part of Task 1
• How many staff and where are they located?	Unknown
2. Is there an explicit program theory or logic model	No
• Indicators of success	Goals for number of desktop and server units shipped
3. Is there a description of the target market?	Large commercial and institutional customers is the stated target market
• Is it possible to identify the potential population of participants and nonparticipants?	Not apparent in the program, but a list of large commercial and institutional companies headquartered in SCE territory could be identified
4. Is there a marketing plan?	Vague
• How will potential participants be recruited once identified?	Trained Edison staff – but apparently no plan to track participants so SCE providing limited commitment
• Is there a way to track participants?	Contract requests this for SCE recruited customers, flat file
• Is there a way to track nonparticipants?	No. Ecos, OEM or SI would need to maintain contact logs for end users contacted and choosing not to buy 80+
5. Have proposers included an electronic tracking database in their plans?	Yes
• Does it include the elements needed to contact participants & non-participants of various program activities?	Unknown
• Does it include program forms, surveys and implementation back-up	Unknown
• Are specific locations of measures being tracked? Can they be found?	May not be in database. SI and OEM would need to provide contact list for units sold & shipped. (This should be tracked by OEM & SI)
• Are program assumptions being tracked on a site specific level (e.g., hours of operation)	No
• Is the delivered energy saving service and/or installed retrofit being recorded?	Yes
• Does it include the outcome/result of the activities?	Yes
6. Will the program be delivered with trade allies?	Yes
• What type of trade allies	Manufacturers (OEM) and system integrators
• Are the trade allies well enough defined to identify a potential group of participants and	Yes

nonparticipants?	
• Is there a way to track participating trade allies?	Yes
• Is there a way to track nonparticipating trade allies?	No. Ecos would need to maintain contact logs for OEM & SI contacted and choosing not to manufacture or build systems with 80+
7. Are savings assumptions documented?	Yes
• DEER?	
• If not, is the source of savings assumptions specified?	EPRI Solutions testing
• Are the pre-retrofit or baseline parameters being recorded?	No
• Does the database record the as-found values for parameters used to estimate ex-ante savings?	Database spec calls for it
• Does baseline monitoring need to take place?	Some sample of computers shipped w/o 80+ power supply could be monitored – for runtime data and baseline power draws
• Can one of the impact evaluation methods specified in the CA Evaluation Protocols be used?	
• Are there code compliance or program overlap issues for savings estimation?	No
Recommendations to improve evaluability:	This will require a market level analysis to find participant and nonparticipant end-users – other than a few that occur as the result of SCE account executive efforts Need a list of staff and contact information Need more information on how the system integrators and OEMs are identified in order to develop a population/sampling plan Track outreach efforts to develop non-participant lists of OEM, SI, and end-users (institutional & commercial) OEM needs to provide documentation that the "billed" amount to the "participant" includes the "incentive" received by the manufacturer SI needs to provide documentation that the "billed" amount to the "participant" includes the "incentive" (the discount the SI received from the OEM)

Section 4. Recommended QC Protocol

The 80 PLUS post-installation verification and inspection plan calls for Edison to verify delivery of 400 80 PLUS computers. Verification is by telephone, using the computer's serial number and tracking documents. As of July 2007, implementers had not been able to obtain the actual customer contact information from HP and Dell for their 80 PLUS computer shipments. The implementers are responsible for randomly testing 80 PLUS computers using the EPRI test facilities; the number of random tests is not specified.

The risk in this program is assessed as low. QC should include review of paper documentation to confirm sale and delivery of 80 PLUS power supplies to system integrators. Randomly observe SCE inspector's verification process to confirm correct data collection and inspection. Paper reviews of the SCE inspector's verification calls, confirming serial numbers and contact information against master lists from manufacturer. Accompany Ecos once and observe their random tests using EPRI facilities.

Table 5. 80 PLUS Recommended QC

PROGRAM	RISK	DOCUMENT REVIEW	PERCENT VERIFICATION	ONSITE VERIFICATION	WHAT TO VERIFY
80Plus	Low	Yes	10% of Edison's inspections	No	Confirm sale and delivery of 80+ power supplies to system integrators. Review documents for 10% of Edison's inspections. Paper reviews of SCE inspector's verification calls, confirming serial numbers and contact information against master lists from manufacturer. Observe Ecos' random tests at EPRI facility.

Affordable Housing Energy Efficiency Alliance (AHEEA)

Program Type - IDEEA Non-resource
Program Implementer - Heschong Mahone Group (HMG)
SCE 2542
PEPMA 05-10343

Section 1. Program Description and Status

AHEEA provides Public Housing Authorities (PHAs) and their clients with a full array of services to assist PHAs foster energy efficiency among their clients and with a comprehensive energy efficiency manual. The implementation contractor provides training to professionals such as architects, engineers, financiers, builders, O&M staff, and property managers who work with construction, rehabilitation, or maintenance of affordable housing, and guides them to energy efficiency services. The implementation contractor also provides design assistance for several rehabilitation and new construction projects.

Program Status as of 8/07
The contract was signed in late summer 2006 and program operations began immediately. The first meetings with contacts were held in September 2006. The program has been meeting its milestones throughout the implementation period. It is anticipated all goals will be met by the end of the program. The implementer believes that the design assistance goal of 20 projects will be met, but will probably occur more slowly than meeting the other milestones. The training goals are on target. The contractor has its own database to track contacts and contact information. This is provided to Edison as a flat file each month. There is a growing list of potential contacts, over 2,000 names. The contractor has a website that is used for program promotion or participant sign-up.

Significant EA Issues, Including Baseline/Monitoring Issues
1. Program theory was being developed by SCE and HMG staff.
2. The contractor assumptions for the baseline equipment the Energy Packs replace is required along with ex-ante savings estimates. Because this is a non-resource program, the E3 calculator does not have savings data (perhaps not required).
3. The contractor should explain the baseline practices the training will attempt to improve so the behavior change can be assessed.

Edison/Implementer Contact History
The contractor has extensive experience with the market having operated Design for Comfort for over six years. Communication is frequent – the PM talks with the program manager weekly as well as when needed, reports are on time.

Issue Resolution/Results, Current Status
The contractor had tried to upload the flat file to the SMART database and ran into problems. As of May they were working with Intergy on this but feel the time spent

doing this may take away from field work. The project manager is considering exempting the program from the requirement to use SMART since it is a non-resource program.

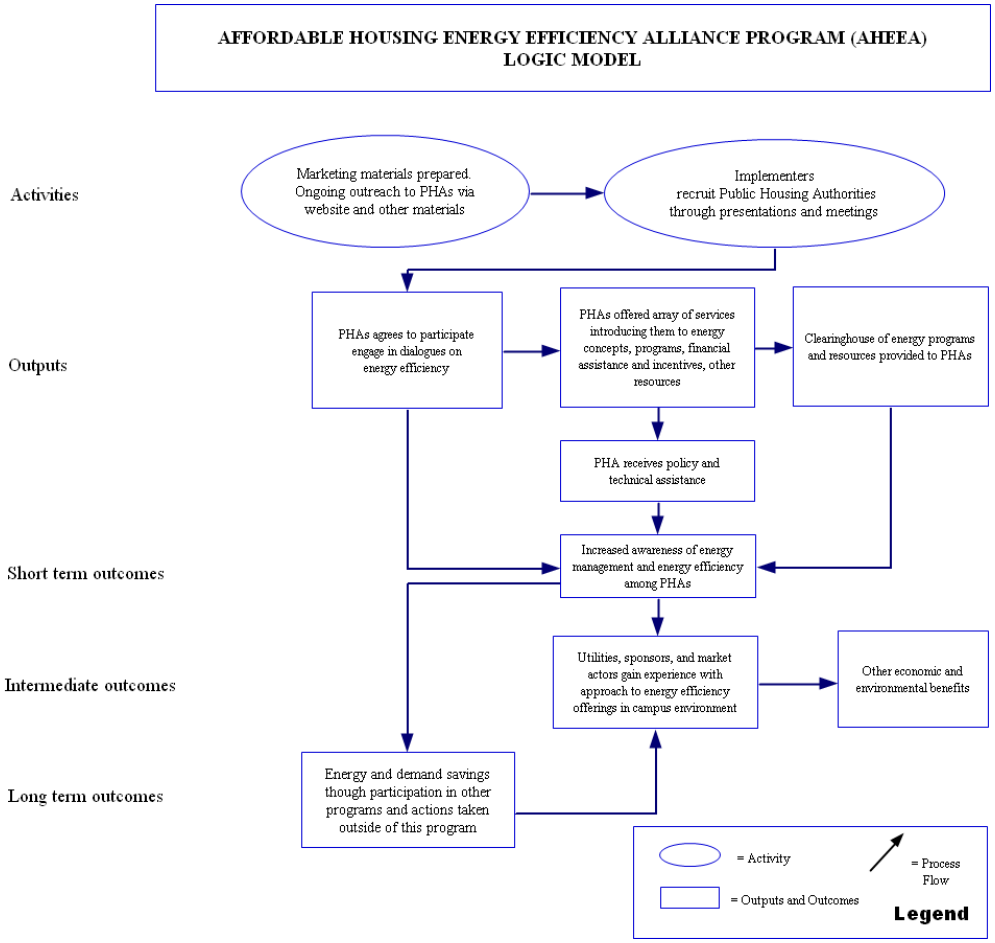
Further Recommendations or Next Steps
Good to track the resolution on the SMART system usability for this program as it affects all nonresource programs.

Section 2. Program Theory and Logic Model

Program Theory

If the PHAs are offered technical assistance and a road map to energy efficiency policy, they can overcome the barrier of being under-funded, short-handed and unable to fully participate in energy efficiency programs. With services from this program, including policy and technical assistance, the PHAs can then influence the status of energy efficiency in affordable housing by promoting energy efficiency programs to their constituent property owners and developers. By working with the PHAs, lost opportunities for energy efficiency within the affordable housing industry will be minimized.

Figure 4. Logic Model



Section 3. Evaluability Assessment

Table 6. Affordable Housing Energy Efficiency Alliance

QUESTION	COMMENT
1. Is there a description of the staff that will operate the program?	No
• How many staff and where are they located?	Unclear, list of key staff rates, no names or assignments
2. Is there an explicit program theory or logic model	No
• Indicators of success	No
3. Is there a description of the target market?	Yes but pretty broad – "public housing authorities and their clients and professionals working with them"
• Is it possible to identify the potential population of participants and nonparticipants?	No, though we can identify the public housing authorities
4. Is there a marketing plan?	Yes,
• How will potential participants be recruited once identified?	Face to face meetings
• Is there a way to track participants?	yes
• Is there a way to track nonparticipants?	Yes (partial participants)
5. Have proposers included an electronic tracking database in their plans?	yes
• Does it include the elements needed to contact participants & non-participants of various program activities?	Yes according to task 3
• Does it include program forms, surveys and implementation back-up	Yes
• Are specific locations of measures being tracked? Can they be found?	Not tracked; Energy Packs are giveaways. They can be found from surveys or on-site verifications
• Are program assumptions being tracked on a site specific level (e.g., hours of operation)	No
• Is the delivered energy saving service and/or installed retrofit being recorded?	Yes
• Does it include the outcome/result of the activities?	Yes, improved awareness and skills for training programs and installation of Energy Packs given awy
6. Will the program be delivered with trade allies?	No, but trade allies will receive the training
• What type of trade allies	Design and construction professionals
• Are the trade allies well enough defined to identify a potential group of participants and nonparticipants?	Not really

• Is there a way to track participating trade allies?	yes
• Is there a way to track nonparticipating trade allies?	no
7. Are savings assumptions documented?	No
• DEER?	No, DFC also has the Energy Pack component that has been evaluated before.
• If not, is the source of savings assumptions specified?	No
• Are the pre-retrofit or baseline parameters being recorded?	No
• Does the database record the as-found values for parameters used to estimate ex-ante savings?	No
• Does baseline monitoring need to take place?	No
• Can one of the impact evaluation methods specified in the CA Evaluation Protocols be used?	Indirect impact evaluation basic level for the training component; standard level for Energy Packs
• Are there code compliance or program overlap issues for savings estimation?	Yes
Recommendations to improve evaluability:	Evaluation team will want to review satisfaction survey before implementation program theory will need a lot of refinement, this appears to be a training program to hope that projects are implemented Contractor assumptions for the baseline equipment the Energy Packs replace is required along with ex-ante savings estimates. Because this is a non-resource program, the E3 calculator does not have savings data (perhaps not required). Contractor should explain the baseline practices the training will attempt to improve so that behavior change can be assessed.

Section 4. Recommended QC Protocol

This is a non-resource program and the risk is low. Program Managers should review the implementer's database to ensure that accurate and complete data is being collected, including participant and nonparticipant contact data, and participant support activities. Verify that the articles, newsletters, and videos were published, meetings, workshops and trainings were held.

Table 7. AHEEA Recommended QC

PROGRAM	RISK	DOCUMENT REVIEW	PERCENT VERIFICATION	ONSITE VERIFICATION	WHAT TO VERIFY
Affordable Housing Energy Efficiency Alliance	Low	Yes	10%	No	Confirm accuracy of databases and documentation provided by implementers, including contact information and activities conducted. Contact 10% of participating PHAs to confirm services received and quality.

Aggregation of Public Housing for Energy Efficiency (APHEE)

Program Type - IDEEA Non-Resource
Program Implementer – Strategic Energy Innovations (SEI)
SCE 2547
PEPMA 05-10092

Section 1. Program Description and Status

The Aggregation for Public Housing program is a non-resource program because it is focused on creating aggregations of public housing agencies to make them more attractive to Energy Service Companies (ESCOs) and to wholesalers/distributors to facilitate bulk purchasing. The program goal is to get four aggregations through five stages – from signing of a letter of intent through to implementation.

Program Status as of 7/07
The contract was signed in May 2006, by April 2007 SEI was in conversation with public housing agencies and had developed three aggregations: two were in stage 4 and one was in stage 1. By the end of July 2007, two aggregations were still in stage 4 and one was now in stage 2, no new aggregations had been formed.

Significant EA Issues, Including Baseline/Monitoring Issues
The EA identified a need to develop indicators of success. By the time the interviews were conducted with PM and program staff, the indicators of success had been developed and were in place. The EA had not been the driver for this; it was developed as a management tool by the PM. The EA also identified the need to have a consistent format for ESCOs to estimate savings and provide tracking data. However, the PM believes that this is outside the scope of this nonresource program, though it will likely be a concern if the program is continued.

Edison/Implementer Contact History
SEI provides regular and detailed reports. The PM and SEI are in regular phone contact as well. The PM currently (July) has initiated more frequent contact because the aggregation process is going slower than expected at this point. The PM has also discussed the potential involvement of SCE Account Managers to help SEI demonstrate the credibility of their offer to the public housing agencies. The PM thinks this might help overcome some of the last hurdles.

Issue Resolution/Results, Current Status
There are no issues to resolve.

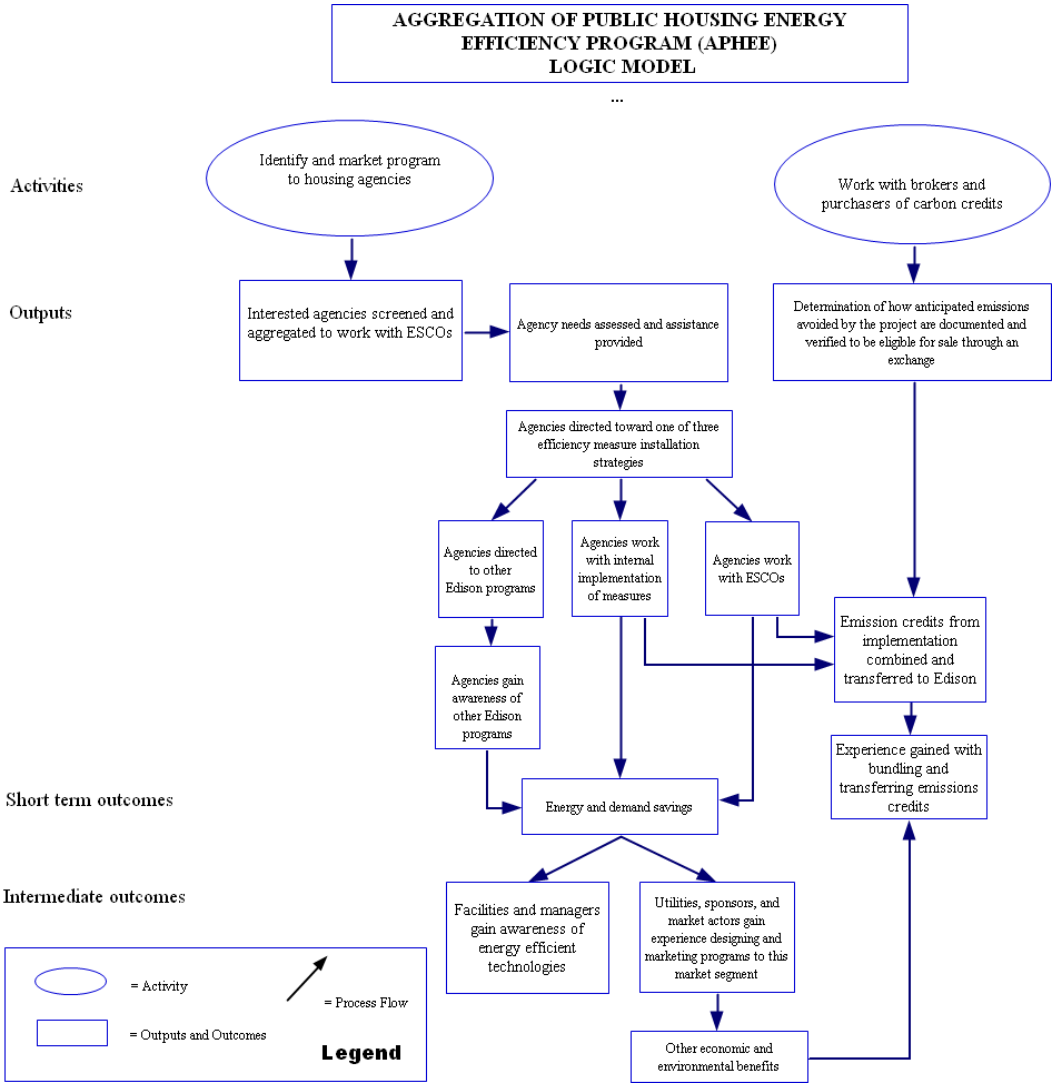
Further Recommendations or Next Steps
There are no evaluability issues to address. The public housing agencies are very bureaucratic organizations making the aggregation process quite difficult. Certainly a process evaluation of the program will be enlightening as to whether there are things that could be done to facilitate the process.

Section 2. Program Theory and Logic Model

Program Theory

If public housing agencies can be aggregated, they will become attractive investments to entities that facilitate implementation of energy-efficiency and demand-reduction strategies using energy performance contracts and traditional energy management services. Once aggregated, the bulk purchase agreements can be obtained for implementation of efficiency upgrades through ESCOs or by internal management. Efficiency upgrades will reduce energy use. When the program team documents and verifies the emissions credits achieved through this program, the emissions credits created by the Program will be transferred to Edison. Edison and implementers will gain experience with emissions credits.

Figure 5. Logic Model



Section 3. Evaluability Assessment

Table 8. Aggregation of Public Housing Agency Project

QUESTION	COMMENT
1. Is there a description of the staff that will operate the program?	Yes
• How many staff and where are they located?	7 staff noted with location
2. Is there an explicit program theory or logic model	There is a process flow model, but no logic model. The program theory is linear, SEI aggregates public housing opportunities and solicits ESCos and ESPs to provide services which SEI coordinates, no market effects anticipated.
• Indicators of success	Tasks with anticipated deliverables are noted; however indicators such as estimated numbers of aggregations at specific intervals are not specified.
3. Is there a description of the target market?	Yes
• Is it possible to identify the potential population of participants and nonparticipants?	Yes – publicly subsidized housing or assisted housing units in the SCE territory
4. Is there a marketing plan?	Yes, in outline form. One deliverable is a formal marketing plan
• How will potential participants be recruited once identified?	Four strategies include 1) speaking at industry events, 2) working through industry leaders & associations; 3) calls to agencies in SCE territory, and 4) working through industry stakeholders
• Is there a way to track participants?	Yes
• Is there a way to track nonparticipants?	Yes – if all contacts are entered (nonparticipants are not specifically mentioned)
5. Have proposers included an electronic tracking database in their plans?	Yes, web-based, extranet tool
• Does it include the elements needed to contact participants & non-participants of various program activities?	Yes, tracking of agencies is specified
• Does it include program forms, surveys and implementation back-up	Yes, all data, analyses, and reports will be stored on servers
• Are specific locations of measures being tracked? Can they be found?	Not specified - could be a problem given high potential numbers of residential units. the forms only say “area description”
• Are program assumptions being tracked on a site specific level (e.g., hours of operation)	Unclear if tracking system will be at the “aggregated agencies” level or broken down to the individual agency level.
• Is the delivered energy saving service and/or installed retrofit being recorded?	Yes, but it is unclear who will enter the installed measure information.
• Does it include the outcome/result of the activities?	Yes, but it is unclear who will enter the measure outcome information
6. Will the program be delivered with trade allies?	No

• What type of trade allies	NA
• Are the trade allies well enough defined to identify a potential group of participants and nonparticipants?	NA
• Is there a way to track participating trade allies?	NA
• Is there a way to track nonparticipating trade allies?	NA
7. Are savings assumptions documented?	Yes
• DEER?	Yes, according to E3 file
• If not, is the source of savings assumptions specified?	NA
• Are the pre-retrofit or baseline parameters being recorded?	Yes, assuming the sharing & data entry of audit results but again not specified who will enter the data.
• Does the database record the as-found values for parameters used to estimate ex-ante savings?	Yes
• Does baseline monitoring need to take place?	Yes
• Can one of the impact evaluation methods specified in the CA Evaluation Protocols be used?	Yes
• Are there code compliance or program overlap issues for savings estimation?	None known
Recommendations to improve evaluability:	Clarify who will populate the tracking system; assure that ESCO data will be shared (what are the consequences for non compliance). Estimate the N of ESCO's in the SCE territory, and develop program level indicators of success. Develop indicators of success for aggregations – possibilities include number of units or number of agencies. It may also be valuable to know the relative size in terms of consumption by agency and seek to achieve a percent of energy usage as an indicator. There should be a requirement that all ESCOs use the same process for estimating savings to ensure that the process is consistent. This project is complicated by the multiple parties who will be involved – this will make the evaluation very difficult unless all of the parties are required to use the database and do so consistently.

Section 4. Recommended QC Protocol

This is categorized as a nonresource program. A nonresource program is exempt from using SMART. SCE along with implementers developed indicators of success. QC will include activities to determine whether indicators of success have been met. Activities should include, at a minimum, reviewing program documentation to determine whether the items in the SOW have been met.

The risk of achieving documented energy savings delivered through an ESCO is high. Edison's QC should verify installation of measures and quality of installation. Baseline documentation should be collected. Edison should independently verify the installer's reported housing characteristics, operating hours, equipment count and equipment specifications. The process used to select participants should be carefully reviewed for bias.

Table 9. APHEE Recommended QC

PROGRAM	RISK	DOCUMENT REVIEW	PERCENT VERIFICATION	ONSITE VERIFICATION	WHAT TO VERIFY
APHEE	High	Yes	10% of measures installed	Yes	Review program documentation to determine whether indicators of success were met. Verify the pre- and post-installation parameters of 10% of projects.. Independently verify the baseline characteristics, operating hours, equipment count and equipment specifications.

Campus Housing Energy Efficiency Retrofit Program (CHEER)

Program Type - IDEEA Resource
Program Implementer - Quantum Energy Services & Technologies (QuEST)
SCE 2562
PEPMA 06-10100

Section 1. Program Description and Status

The CHEER program is a comprehensive set of energy efficiency services and measures for the public and private college campus-housing sector in the SCE service territory. The program focuses on reducing campus-housing energy costs in common dormitory areas and dining facilities as well as in individual student rooms. The program offers educational components and achieves energy savings through energy efficiency retrofits, retro-commissioning, and building tune-up services. Participating campuses receive a comprehensive energy survey and audit report designed to offer recommendations on how to lower annual energy use and costs. At select campuses, CHEER will coordinate with campus representatives to recruit, train, and oversee a team of students to conduct energy efficiency audits within campus residence halls. Financial incentives are available for the implementation of recommended retrofit and retro-commissioning measures.

Program Status as of 7/07
The CHEER program contract was signed in January 2007. The first outreach meetings were in March 2007 with the Claremont Colleges and University of Redlands. The meetings were arranged through Edison account staff. But because there were no materials approved yet QuEST was unable to proceed. The materials were approved in May and QuEST believes they are essentially on target. However, the PM sees the project as lagging, if they do not get the colleges to sign on early this summer, then they are quite far behind. They needed to complete three meetings by the end of March and the Claremont Colleges comprises seven colleges. QuEST has an extensive database tracking process and appear to be fully able to track measures installed, contacts with participant and nonparticipant campuses, and expect to be able to upload data to SMART once they have data to upload.

Significant EA Issues, Including Baseline/Monitoring Issues
1. Need to develop some indicators of success.
2. It is unclear how or if QuEST will document the activities of the students in Student Energy Auditing and CFL Retrofit Program tasks.

Edison/Implementer Contact History
QuEST is very timely in their reporting. The first invoices were a bit scattered but everything seems to be fine now. All monthly reports have been submitted and QuEST seems to be working fine with the customers.

Issue Resolution/Results, Current Status

One issue with tracking measures is retro-commissioning which is tracked in a disaggregated fashion in the QuEST database but is a single line item in the E3 calculator. The PM has defined a campus as a facility with 500,000kWh to permit QuEST to count all seven of the Claremont Colleges, if they all agree to participate.

Further Recommendations or Next Steps

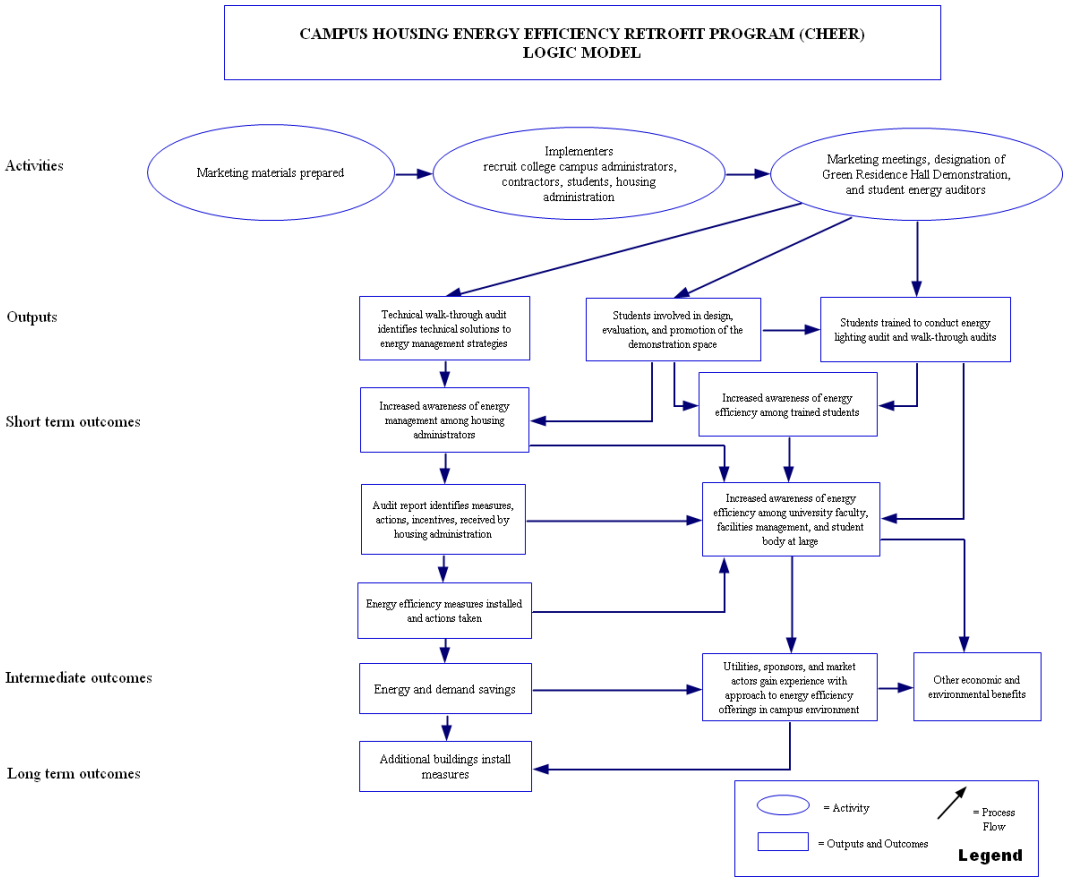
There does not appear to be any needed follow-up though it will be a concern if QuEST does not sign up Redland and several of the Claremont Colleges early this summer.

Section 2. Program Theory and Logic Model

Program Theory

By leveraging student's desire for a greener campus, full service assistance from the implementation contractor, and buy-in from University administrators, these actors can push (a sometimes reluctant) housing administration to implement the package of energy efficiency measures in campus housing. By focusing on reducing campus-housing energy costs in dormitories, dining, and facility common areas, and by providing incentives and financing for multiple measures, the Program will achieve energy savings through the implementation of energy efficiency retrofits, retro-commissioning, and building tune-up services. The Green Residence Hall Demonstration will promote the installation of green products within targeted dorm spaces, achieve current energy and demand savings, and as a demonstration project, it will foster future energy efficiency actions.

Figure 6. Logic Model



Section 3. Evaluability Assessment

Table 10. Campus Housing EE

QUESTION	COMMENT
1. Is there a description of the staff that will operate the program?	Yes
• How many staff and where are they located?	Yes
2. Is there an explicit program theory or logic model	Yes, however it is a linear model, pretty simple – do the project, get the savings – more of a decision model.
• Indicators of success	No, logic model is focused on barriers reduced rather than indicators of success.
3. Is there a description of the target market?	Yes
• Is it possible to identify the potential population of participants and nonparticipants?	Yes – private colleges in SCE territory
4. Is there a marketing plan?	Yes
• How will potential participants be recruited once identified?	Face to face meetings at targeted colleges
• Is there a way to track participants?	Yes
• Is there a way to track nonparticipants?	Yes, if all contacts are entered
5. Have proposers included an electronic tracking database in their plans?	Yes
• Does it include the elements needed to contact participants & non-participants of various program activities?	Yes, if all contacts are entered and the new database is comparable to the one used as a model
• Does it include program forms, surveys and implementation back-up	Unclear, a full list of items to be included not noted
• Are specific locations of measures being tracked? Can they be found?	There is a lighting data information sheet that identifies the area of the lighting equipment – may not be specific enough but should be able to be close.
• Are program assumptions being tracked on a site specific level (e.g., hours of operation)	Yes, required in SOW
• Is the delivered energy saving service and/or installed retrofit being recorded?	Yes
• Does it include the outcome/result of the activities?	Yes
6. Will the program be delivered with trade allies?	No
• What type of trade allies	NA
• Are the trade allies well enough defined to identify a potential group of participants and nonparticipants?	NA

• Is there a way to track participating trade allies?	NA
• Is there a way to track nonparticipating trade allies?	NA
7. Are savings assumptions documented?	Yes
• DEER?	Yes, for some measures
• If not, is the source of savings assumptions specified?	RCx measures are based on their program experience; PTAC controls from specific example by Trane
• Are the pre-retrofit or baseline parameters being recorded?	They are doing a detailed audit - measures that have to be agreed on with the campus.
• Does the database record the as-found values for parameters used to estimate ex-ante savings?	yes
• Does baseline monitoring need to take place?	Not clear, Quest will take spot measurements on installation inspections
• Can one of the impact evaluation methods specified in the CA Evaluation Protocols be used?	Yes
• Are there code compliance or program overlap issues for savings estimation?	None known
Recommendations to improve evaluability:	Need to develop some indicators of success. Success should be defined both in terms of the program itself and if there is a goal of demonstrating this as a potential mainstreamable program what would be the indicators of success for that.
	How is Quest defining customer for the customer satisfaction survey in Task 9? How will the data be analyzed and results presented?
	How will Quest document the activities of the students in Task 5B1&2?

Section 4. Recommended QC Protocol

This is a non-resource program and the risk is low. Program Managers should review the implementer's database to ensure that accurate and complete data is being collected, including participant and nonparticipant contact data, and participant support activities. Verify that the recommendations and subsequent activities have been documented in a form that can be directly tracked and verified in a subsequent evaluation. Forms and databases should include information on the baseline conditions and measure locations, measures recommended and installed, retro-commissioning, and tune-up activities. Student training and activities should be recorded for later contact and verification of activities. Review customer feedback surveys for useful data and follow-up needed. Ten percent of participating buildings should be visited on-site to confirm accuracy of the database and that reported measures were implemented.

Table 11. CHEER Recommended QC

PROGRAM	RISK	DOCUMENT REVIEW	PERCENT VERIFICATION	ONSITE VERIFICATION	WHAT TO VERIFY
Campus Housing Energy Efficiency Retrofit	Low	Yes	10%	Yes	Confirm accuracy of databases and documentation provided by implementers, including contact information, audit data and recommendations. Verify activities and measures installed in 10% of participating building.

Comprehensive Home Performance Delivery Program (CHPD)

Program Type - IDEEA Non-resource
Program Implementer - Bevilacqua-Knight, Inc. (BKI)
SCE 2548
PEPMA 05-10083

Section 1. Program Description and Status

This program, affiliated with the national *Home Performance with ENERGY STAR®* initiative, is designed to specifically address a major market deficiency—the general lack of appropriate technical education and subsequent inability of residential repair and remodeling contractors to identify, sell, and properly integrate effective and comprehensive energy savings projects into their activities in homes. CHPD finds, screens, trains, and mentors (on the first five homes) HVAC and remodeling contractors to deliver comprehensive home performance improvement packages tailored to individual homes and owners. Financial incentives are provided to contractors to do formal home diagnostics, post-retrofit quality assurance testing, and reporting of data on all jobs. BKI conducts independent quality assurance inspections on a sample basis. CHPD includes marketing activities to utility customers, but most participants will come from contractors' own customer records and marketing. The ENERGY STAR® label can be used in program marketing and contractor activities.

Program Status as of 5/07
The CBPCA program contract was signed in September 2006 and marketing began in the fall. The first contractor training sessions were in December. There was also some curriculum development. BKI is also operating a program in the City of Anaheim and they began conducting joint training in January. As of mid-May they had completed two training cycles with 40 trainees and were beginning the mentoring process. They are behind in their overall goals, but that is consistent with their expectations, though SCE program manager (PM) is concerned. The CHPD staff expects to be on target for the end of the program in Sept/Oct 2008. They track contractors who enroll in the program but not contractors who are contacted or who contact them and fail to enroll. They do not track activities relative to other Edison programs, though contractors are trained to encourage customers to use those programs. The program has a website and an 800 number.

Significant EA Issues, Including Baseline/Monitoring Issues
3. The PM is working with CHPD to get them to track contractors and customers, not clear how CHPD will respond.
4. Need to have the evaluation contractor review customer satisfaction survey to ensure there are useful data
5. CHPD needs to clarify the assumptions made to estimate program savings.

6. A baseline study will be required to understand practices followed in the market place without the proposed training program.
7. There is a potential for co-mingling of results between the City of Anaheim and SCE territory.

Edison/Implementer Contact History
Utility staff feel there is insufficient communication from implementation staff. Also reports and weekly updates have been "a little bit late." Quarterly reports have been timely. The mentoring session sheets have not been clearly completed regarding what customer was there and what was done. Implementation staff have co-mingled information from their work on a similar program for a different utility (City of Anaheim) "not really respecting the difference."

Issue Resolution/Results, Current Status
The challenge with contractors is getting them to report back once they are in the field; BKI is using incentives to try to increase the amount of reporting back. There is a database for tracking who is coming into the program, and a database to track jobs, but BKI is looking into the TREAT tracker system. The most important thing about the marketing program is to teach contractors about marketing and sales (one day). They are taught to do their own marketing using ENERGY STAR® materials. BKI also has a CD that includes a number of low cost marketing techniques.

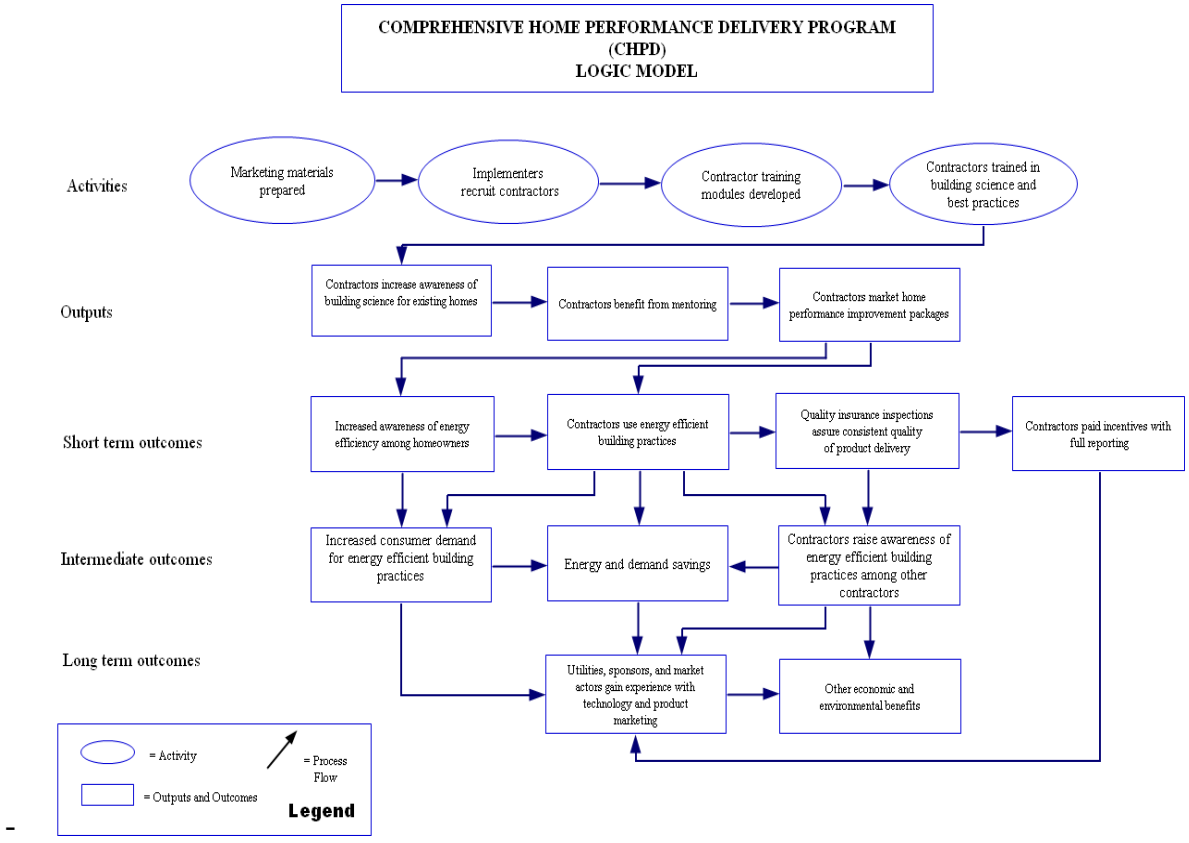
Further Recommendations or Next Steps
BKI seems quite committed to the program, at the same time they are not clear on the need for clear delineation between the programs they operate in SCE and Anaheim territory, they do not seem to be committed to tracking nonparticipants and participants. They are trying to capture data on end-users using an incentive, but this is the first time they have tried this and they are not clear if it will work. It seems that they are a little bit unwilling to really enforce QA.

Section 2. Program Theory and Logic Model

Program Theory

This program will train contractors to "do it right" and provide models for others in their professions, leading to continued growth in the use of best contractor practices and previously unrealized energy and demand savings. Contractor incentives will result in full reporting of the home diagnosis, job scope and results. The program's trained and active contractors will add more jobs and their associated long-term energy savings.

Figure 7. Logic Model



Section 3. Evaluability Assessment

Table 12. Comprehensive Home Performance Delivery

QUESTION	COMMENT
1. Is there a description of the staff that will operate the program?	No
• How many staff and where are they located?	Unknown
2. Is there an explicit program theory or logic model	No
• Indicators of success	No
3. Is there a description of the target market?	Very vague – 'contractors throughout Edison territory' and 'customers of contractors'
• Is it possible to identify the potential population of participants and nonparticipants?	No
4. Is there a marketing plan?	The marketing plan for contractors is to go through trade associations, none are listed, no process is noted to identify the associations, a list of marketing materials is noted. The marketing plan for customers is to go to public meetings sand to expand the website, no indication of ownership requirements, size or age of homes, or locations other than Edison territory.
• How will potential participants be recruited once identified?	Contractors will recruit from their own customers
• Is there a way to track participants?	Uncertain, tracking data for Task 3 indicates that they will collect participant data for customers
• Is there a way to track nonparticipants?	Uncertain, tracking data for Task 3 potential customers are mentioned, but not clear how they will identified
5. Have proposers included an electronic tracking database in their plans?	Yes
• Does it include the elements needed to contact participants & non-participants of various program activities?	See above
• Does it include program forms, surveys and implementation back-up	No
• Are specific locations of measures being tracked? Can they be found?	Unknown
• Are program assumptions being tracked on a site specific level (e.g., hours of operation)	Unknown
• Is the delivered energy saving service and/or installed retrofit being recorded?	Unknown
• Does it include the outcome/result of the activities?	Yes, trained contractors delivering Home Performance Delivery Services
6. Will the program be delivered with trade	Yes

allies?	
• What type of trade allies	"contractors"
• Are the trade allies well enough defined to identify a potential group of participants and nonparticipants?	No
• Is there a way to track participating trade allies?	Uncertain, tracking data for Task 3 indicates that they will collect potential as well as actual participant data for contractors
• Is there a way to track nonparticipating trade allies?	Uncertain, tracking data for Task 3 indicates yes for contractors
7. Are savings assumptions documented?	No, it is not possible to discern what measures will be installed, nor how the measures to be installed will be determined
• DEER?	Unknown
• If not, is the source of savings assumptions specified?	No
• Are the pre-retrofit or baseline parameters being recorded?	Unknown
• Does the database record the as-found values for parameters used to estimate ex-ante savings?	Unknown
• Does baseline monitoring need to take place?	Unclear
• Can one of the impact evaluation methods specified in the CA Evaluation Protocols be used?	Indirect impact evaluation for non-resource programs using the standard method appears feasible. The enhanced option might also be possible.
• Are there code compliance or program overlap issues for savings estimation?	Perhaps, unknown at this time.
Recommendations to improve evaluability:	Need to discuss with contractor the type of contractors will be recruited, what type of homes are targeted, and what portions of Edison territory they will cover and when in the implementation period. Need to obtain information on the program implementation staff – phone numbers and names. Need to have the evaluation contractor review customer satisfaction survey to ensure there are useful data The contractor should clarify the assumptions made to estimate program savings. The implementation contractor should provide expected specific activities the trained contractors will perform to save energy.
	A baseline study will be required to understand practices followed in the market place without the proposed training program.

Section 4. Recommended QC Protocol

This is a non-resource program and the risk is low. Contractors receive an incentive and are expected to deliver reports on their activities. Program Managers should review BKI's database to ensure that accurate and complete data is being collected, and the data is specific to the utility. Ten percent (10%) of the homes represented in the database should be verified with the contractor to determine that the data entered is complete and correct. The same cases should be verified in the field to confirm that the measures installed were completely and accurately recorded, and the measures were correctly installed. The customer satisfaction surveys should be reviewed for useful data. Program managers should review curriculum for technical accuracy. Managers should observe at least one of each type of training activity in the field to assess delivery, receptivity by contractors, market barriers and areas that could be improved.

Table 13. CHPD Recommended QC

PROGRAM	RISK	DOCUMENT REVIEW	PERCENT VERIFICATION	ONSITE VERIFICATION	WHAT TO VERIFY
Comprehensive Home Performance Delivery Program	Low	Yes	10%	Yes	Confirm accuracy of databases and documentation provided by implementers. Verify the measures were correctly installed and recorded in 10% of participant homes. Review contractor's curriculum for technical accuracy. Observe at least one of each type of training activity in the field to assess delivery, receptivity by contractors, market barriers and areas that could be improved.

Demand Responsive Emerging Technologies

Program Type - IDEEA - Resource
Program Implementer - ConSol
SCE 2534
PEPMA 05-10155

Section 1. Program Description and Status

Using various combinations of established and promising technologies, 50 demonstration test homes will be built in the SCE territory that are at least 30% above 2005 Title 24 code. Implementers will generate participation from builders willing to research construction techniques to improve energy-efficiency, quality, reduce risks, and potentially simplify field operations. This project is designed to determine the market barriers and explore the next steps in solving the barriers.

The design process will include discussions with the builder to determine how they typically build, what super-efficiency features are acceptable to the builder and what features are unacceptable. Based on this information, ConSol will use the builder's home plans to develop alternative sets of efficiency features and emerging technology that will produce the desired program goals, including a minimum 30% reduction in Title 24 energy use. These feature sets will be discussed with the builder partners and the team will settle on a final feature set to meet program goals.

Technologies incentivized through the program include:

Technology	Savings	Proposed Incentive
Demand Responsive T-stat	13% peak reduction	$80
Improved FAU	10-15% space conditioning	$750
Refrigerant Charge	8-12% space conditioning	$200
Quick Connect HVAC Ducts + Sealant	5% space conditioning	$300
Low-E Pigment Cool Roofs	7% peak reduction	$1500
OVE Framing	12% space conditioning	$500

These technologies are not readily adopted by the residential building industry so the incentives for these above code features have been estimated at 80% cost coverage. Implementers estimate the average incentive per home will be $775.

Program Status as of 5/07
No units have been installed to date. Contractor is in the process of signing up builders. ConSol expects to sign up the rest of the program builders and to have all required units committed to meet our original targets for 2007.

Significant EA Issues identified, including baseline/monitoring issues:

1. Getting builders signed up to build demonstration homes, and verifying the measure installations are installed
2. It will be some time before monitoring data from homes (as required in SOW) will be available

Edison/Implementer contact history:

Program implementation contractor interviewed on May 30, 2007.

Issue resolution/results, current status:

The program will incorporate customer surveys, though the surveys have not yet been developed.

Further recommendations or next steps:

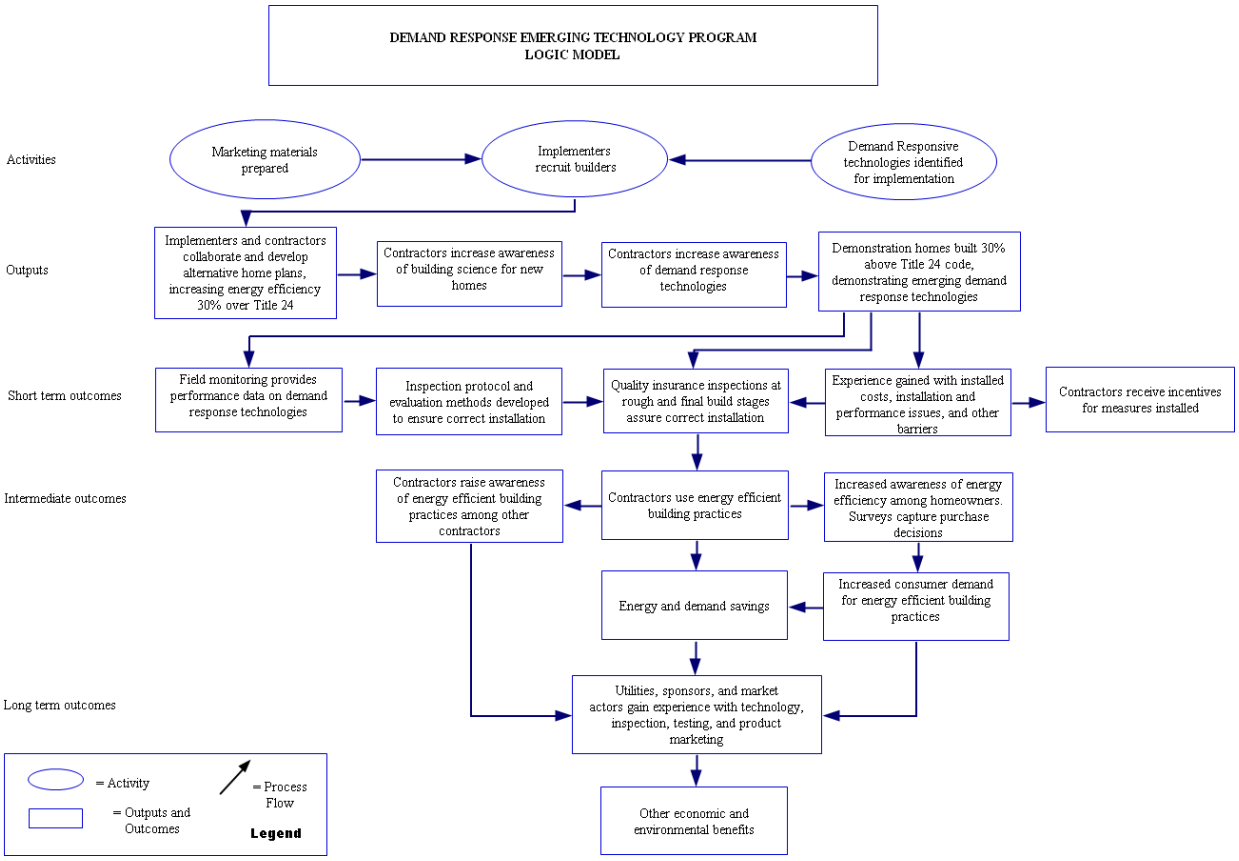
- Review the process being used for recruitment and training of builders
- Interview builders early on to determine effectiveness of program
- Conduct consumer survey to determine the effectiveness of Homebuyer education program

Section 2. Program Theory and Logic Model

Program Theory

If builders can be recruited who will incorporate above code measures into a sample of homes they construct, then standard practice will be documented, efficiency alternatives will be generated, market barriers will be identified, and solutions to the barriers in a production environment will be explored. Builders will receive incentives for installing specific technologies, the above code technologies will be demonstrated, and the demonstration homes will generate energy and demand savings.

Figure 8. Logic Model



Section 3. Evaluability Assessment

Table 14. Demand Responsive Emerging Technologies

QUESTION	COMMENT
1. Is there a description of the staff that will operate the program?	Yes, in the narrative
• How many staff and where are they located?	Yes, in the budget sheet in the main narrative
2. Is there an explicit program theory or logic model	No, only a brief task description was available in the SOW, and a discussion of program innovations in the abstract, along with a flow chart of tasks in the narrative
• Indicators of success	Yes, the kW and kWh savings are articulated, along with the expected savings by measure type to be installed in 95 new homes over a 2 year period
3. Is there a description of the target market?	Yes, home builders from Consul's database of builders target areas will be to have them located CEC climate zones 8,9, 10, 14 and 15
• Is it possible to identify the potential population of participants and nonparticipants?	Yes, participants they will outline, and a similar sample of non-participants could be developed
4. Is there a marketing plan?	Not yet, this is labeled as Task 2 & 3 and outlined there. It (the marketing plan) should be completed by now, given the date requirements in the SOW
• How will potential participants be recruited once identified?	Direct personal contact, and they will be asked to provide a letter of intent to build demonstration home(s)
• Is there a way to track participants?	Yes, a tracking system is specified. No idea if it has been developed yet.
• Is there a way to track nonparticipants?	Not clear
5. Have proposers included an electronic tracking database in their plans?	YES
• Does it include the elements needed to contact participants & non-participants of various program activities?	Yes, for participants
• Does it include program forms, surveys and implementation back-up	No, but there are plans to conduct a homeowner survey 6 months or so after construction completed
• Are specific locations of measures being tracked? Can they be found?	Not clear
• Are program assumptions being tracked on a site specific level (e.g., hours of operation)	No
• Is the delivered energy saving service and/or installed retrofit being recorded?	For a sample of the homes (10%), monitoring is outlined, and verification and testing is required for all homes
• Does it include the outcome/result of the activities?	Yes
6. Will the program be delivered with trade allies?	Yes

• What type of trade allies	Home Builders
• Are the trade allies well enough defined to identify a potential group of participants and nonparticipants?	YES, a set of 'matching' contractors could be determined
• Is there a way to track participating trade allies?	YES
• Is there a way to track nonparticipating trade allies?	Yes, a sample can be matched to those participating
7. Are savings assumptions documented?	Not in detail, only the savings amounts
• DEER?	Yes, for some measures
• If not, is the source of savings assumptions specified?	NO
• Are the pre-retrofit or baseline parameters being recorded?	N/A
• Does the database record the as-found values for parameters used to estimate ex-ante savings?	N/A – new construction
• Does baseline monitoring need to take place?	No
• Can one of the impact evaluation methods specified in the CA Evaluation Protocols be used?	Enhanced Rigor calibrated engineering models (IPMVP Option D) for whole house energy use could be used to statistically adjust engineering model with billing data to verify savings estimates.
• Are there code compliance or program overlap issues for savings estimation?	Yes, the program homes expect to exceed Title 24 requirements by 30%
Recommendations to improve evaluability:	Need more information on measures, marketing methods, and tracking system

Section 4. Recommended QC Protocol

Implementers will inspect and test 100% of the demonstration homes at rough and final stages of construction. As the homes are sold, a homeowner survey will be conducted to capture consumer factors considered in buying these demonstration homes. Implementers note that while the main focus of this work will be evaluation of and potential solutions to market barriers, limited field monitoring will be delivered in partnership with BIRA, the DOE Building America research team.

SCE QC will include activities to determine whether indicators of success have been met. Activities should include, at a minimum, reviewing program documentation to determine whether the items in the SOW have been met.

For the first home of the first 5 builders, SCE should review the alternative sets of efficiency features and emerging technology proposed to meet the minimum 30% reduction in Title 24 energy use, as well as the technologies implemented. Thereafter, a random sample of another 5 homes should be inspected. The implementer's site verification procedures and data collection forms should be reviewed. SCE should confirm how the process is working for builders as planned. SCE should confirm site-specific documentation submitted by implementers. SCE should also review a sample of data collected during monitoring and confirm the accuracy and adequacy of data collected. Review the homeowner surveys for collection of useful data.

Table 15. Demand Responsive Emerging Technologies Recommended QC

PROGRAM	RISK	DOCUMENT REVIEW	PERCENT VERIFICATION	ONSITE VERIFICATION	WHAT TO VERIFY
ConSol Demand Response Emerging Technologies	High	Yes	First 5, then random 5	Yes	For the first home of the first 5 builders, SCE should review the alternative sets of efficiency features and emerging technology proposed to meet the minimum 30% reduction in Title 24 energy use, as well as the technologies implemented. Thereafter, a random sample of another 5 homes should be inspected. The implementer's site verification procedures and data collection forms should be reviewed. SCE should confirm how the process is working for builders as planned. SCE should confirm site-specific documentation submitted by implementers. SCE should also review a sample of data collected during monitoring and confirm the accuracy and adequacy of data collected. Review the homeowner surveys for collection of useful data.

California Preschool Energy Efficiency Program (CPEEP)

Program Type - IDEEA Resource
Program Implementer - Low Income Investment Fund (LIIF)
SCE 2544
PEPMA 05-10185

Section 1. Program Description and Status

The preschool segment in California includes about 10,000 early care and education programs, with more than 3,000 in Southern California Edison's service area. Many of these preschools are housed in older energy intensive facilities that have never implemented energy efficiency retrofits. CPEEP's primary objectives are to deliver cost effective energy and demand savings through detailed audits, technical assistance in understanding the recommended technologies and preparing a financial analysis of the identified projects, implementation, and verification. It will also include facility staff workshops to educate preschool owners and managers on new energy efficiency practices and technologies and the development of outreach materials for preschool families and children, to help educate the public about energy efficiency. The participant contribution is a 20% copay toward measures installed.

Program Status as of 5/07
The contract was signed in June 2006 and the program was in the field in July, with the first audit completed in August 2006. The lead time has been long; in May 2007 they were still getting all the systems in order. There were few changes to the program workplan; some lighting measures were added to meet participant's needs.

The program goals are 1200 audits and 7.2 MWh and 1899 kW. As of May 2007, LIIF had completed 70 audits and had 60 installations scheduled or completed. There did not seem to be major problem subscribing this program, however Edison is somewhat concerned that the program is behind schedule. LIIF expects to meet the goals in this 2 year contract. They are achieving more kWh per preschool than expected because: 1) some sights are larger than expected; 2) some have more lighting than expected; and 3) most have had no prior retrofits. In year 2 LIIF was slated to develop the education piece for families; in May 2007, LIIF was beginning to work on the education piece.

LIIF is working with several agencies who help network and market the program. This program is marketed largely word of mouth. Personal referrals and word of mouth are important means of communication and marketing in this market segment where children are involved. The preschool market is very diverse in their characteristics, including for example, size and funding mechanisms. Geographically, the program participants are scattered. The program is primarily subscribed through the program website.

Significant EA Issues identified, including baseline/monitoring issues

1. Hours of operation are collected very generically for this program, and hours were assigned for the purposes of estimating energy savings based on 3 categories: traditional weekday, weekday extended, weekend. The hours of operation should be collected for each preschool facility along with other customer data. This information will build a profile of participants and provide better estimates of energy savings.
2. The location of measures was not originally tracked, but is currently tracked. Implementers felt installations should not be difficult to locate. Early installations where location is not tracked may need the building manager to assist in locating measures installed.
3. HVAC tune-ups are being conducted by American Synergy using the Charge-RITE system. Tune-ups include checking the refrigerant charge and air flow. Because tune-ups are offered at no charge, some participants opt for the tune-ups and not the lighting. AC tune-ups are included in other Edison programs. PMs may want to discuss calculating energy savings through tune-ups so that consistent data are collected and methods are used.
4. The current databases kept by installers record data for each preschool that agrees to participate and receive an audit. Nonparticipants, those who were contacted but did not participate in an audit, need to be tracked for future contact. LIIF may keep nonparticipant data; if not, this data should be collected.

Edison/Implementer contact history

LIIF has regular monthly telephone meetings with Edison and credits them with helping to stay on task. LIIF works with an Edison account representative for program leads. LIIF and subcontractors refer participants to an Edison representative or other Edison programs when it appears they may benefit from another program. The Edison account number was initially difficult to collect and at least one installation was completed outside of Edison's territory. Currently, participants are required to provide the account number before work can proceed.

The program is subscribing, but may be behind schedule according to the installation pace that the Edison PM projected to reach the program goals. Implementers are requesting that the audit goal be reduced, however, because the program is behind pace to complete on time, the audit goal will not be changed until it is clear that savings will be achieved.

Issue resolution/results, current status

Intergy's measures database is a mirror of the SMART database. A second database captures customer specific information. There are no difficulties uploading to the SMART database. Hours of operation, location of measures, baseline lighting data collection, account numbers and HVAC tune-ups were discussed with implementers and Edison's PM. Baseline lighting data collection is being completed. Databases record the existing lamp and the replacement lamp. Locations of measures and account numbers are being recorded.

Further recommendations or next steps

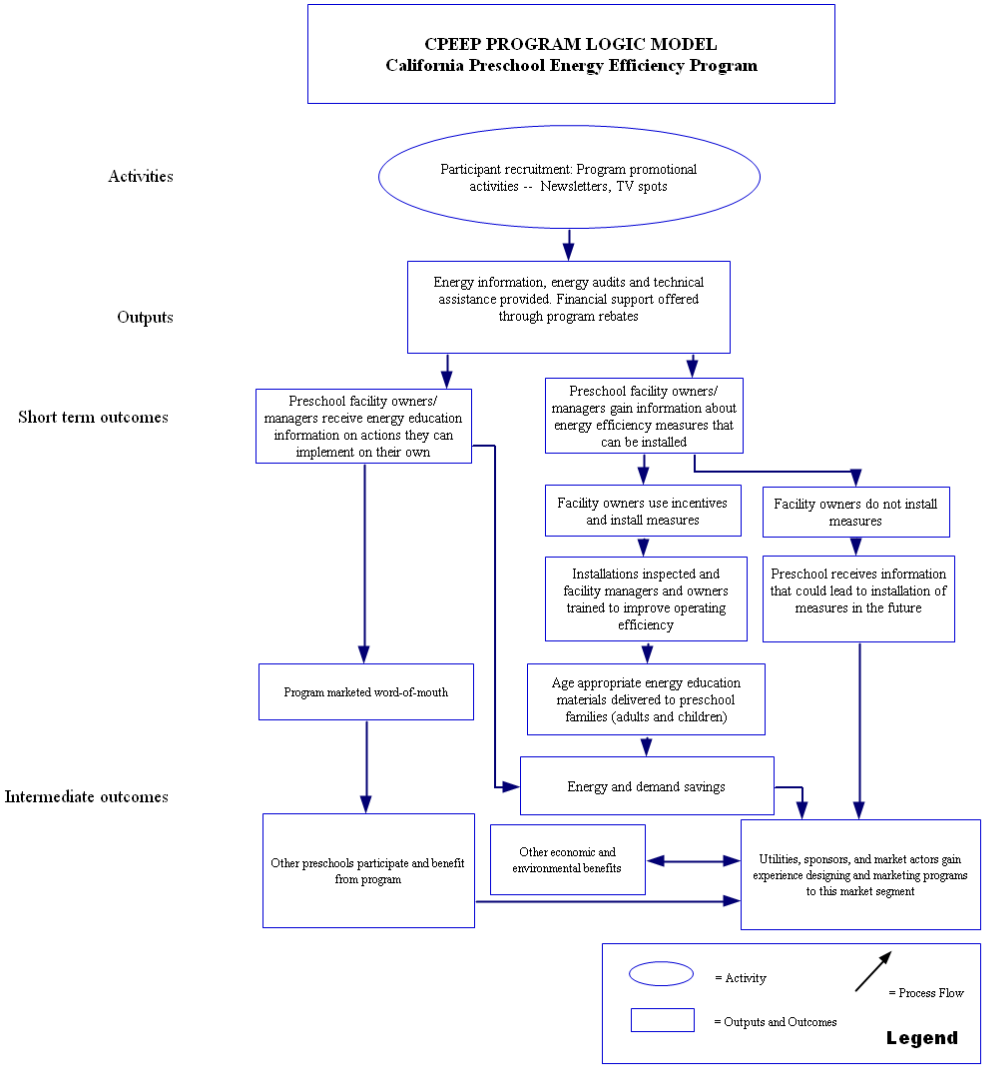
The hours of operation for each facility will need to be requested by Edison and collected by the implementers. HVAC tune-up data collection and procedures to estimate energy savings should be discussed with PMs managing tune-up programs. Nonparticipant contact data will need to be collected.

Section 2. Program Theory and Logic Model

Program Theory

If energy information is provided and incentives are offered to pay for measure installation, preschools will have access to energy information and opportunities not readily available before. Installation of measures will lead to energy and demand savings. Participation will provide energy information for facility managers, owners and preschool children and their families, and improve knowledge about energy. Ultimately more preschools will follow-up and this will lead to additional measure installation.

Figure 9. Logic Model



Section 3. Evaluability Assessment

Table 16. California Preschool Energy Efficiency Program

QUESTION	COMMENT
1. Is there a description of the staff that will operate the program?	No
• How many staff and where are they located?	Not specified, but much of it will be delivered by a sub-contractor -Intergy
2. Is there an explicit program theory or logic model	No. One is implied, but the role of information component to parents and children is very unclear.
• Indicators of success	Not specified; one paragraph says 3,000 audits to be delivered, another says 1,200
3. Is there a description of the target market?	Yes, very generally. The size is not specified, but the State Agencies described should have the information
• Is it possible to identify the potential population of participants and nonparticipants?	Possibly; see above
4. Is there a marketing plan?	Yes
• How will potential participants be recruited once identified?	Appears to be self selection. Enrollment is on the CPEEP website.
• Is there a way to track participants?	Tracking system does not explicitly say participants' contact information will be included.
• Is there a way to track nonparticipants?	Not proposed. But contacts and outreach customer information should be maintained.
5. Have proposers included an electronic tracking database in their plans?	Yes
• Does it include the elements needed to contact participants & non-participants of various program activities?	No
• Does it include program forms, surveys and implementation back-up	No
• Are specific locations of measures being tracked? Can they be found?	Yes
• Are program assumptions being tracked on a site specific level (e.g., hours of operation)	Yes, through audit, although the specific type of audit is not specified.
• Is the delivered energy saving service and/or installed retrofit being recorded?	Yes, but behavioral changes are not
• Does it include the outcome/result of the activities?	No
6. Will the program be delivered with trade allies?	Unclear; Intergy is specified, but SOW refers to: "Consultant shall be responsible for ensuring that any subcontractors working in the preschool centers have completed the required verification and licensing procedures" We assume these are installation contractors, but no recruitment protocols are discussed

• What type of trade allies	Probably installation contractors
• Are the trade allies well enough defined to identify a potential group of participants and nonparticipants?	No
• Is there a way to track participating trade allies?	Not specified
• Is there a way to track nonparticipating trade allies?	Not specified
7. Are savings assumptions documented?	Yes for installed measures, but not for "demand reduction strategies" or other behavioral recommendations.
• DEER?	DEER RunID provided in the E3 calculator. Non-DEER sources are cited.
• If not, is the source of savings assumptions specified?	See response to the previous question.
• Are the pre-retrofit or baseline parameters being recorded?	No, or not explicitly stated.
• Does the database record the as-found values for parameters used to estimate ex-ante savings?	Yes. The program database will inspect and record installed equipment.
• Does baseline monitoring need to take place?	No
• Can one of the impact evaluation methods specified in the CA Evaluation Protocols be used?	Yes; Basic Level, simple engineering model (SEM), and/or Normalized annual consumption. However the latter may not produce reliable measure-level results.
• Are there code compliance or program overlap issues for savings estimation?	No.
Recommendations to improve evaluability:	Measures such as refrigeration occupancy sensors are unlikely to yield demand savings for facilities unless they operate during Edison's peak summer period. Additionally, evaporative cooler tune-ups are unlikely to yield any demand savings at all. Hours of operation and annual operating schedules should be gathered on a site-by-site basis. Replaced lighting equipment should be documented on, at least, a sample basis.

Section 4. Recommended QC Protocol

The program is installing proven lighting technologies (CFL and T-8). The risk of achieving savings from lighting is low since implementers are collecting baseline lighting and installation data. In the early installations installers were not collecting specifics about hours of operation by site, but should be collecting that information now. We recommend that Edison verify the pre- and post-installation parameters of 10% of participants (pre- and post-inspections on the same project). Since this is a direct install program, Edison can conduct a pre-installation inspection. Edison should independently verify the operating hours, equipment count, location and equipment specifications (fixture/ballast/wattage configuration).

The risk for achieving savings through energy education is also low, since savings are seldom achieved and they are difficult to measure. Education materials should be reviewed for content and technical accuracy.

Although we estimate the risk of HVAC non-inspection as medium, we are only recommending 10% inspection in conjunction with lighting inspections for practical reasons. Confirm the tune-up was conducted and confirm nameplate data during the onsite lighting visit. The HVAC tune-up database should be reviewed and data assessed to determine whether data are within reasonable ranges and all nameplate, pre and post measurement data required for evaluation is collected.

Table 17. CPEEP Recommended QC

PROGRAM	RISK	DOCUMENT REVIEW	PERCENT VERIFICATION	ONSITE VERIFICATION	WHAT TO VERIFY
CPEEP Lighting	Low	Yes	10% of participants	Yes	Verify the pre- and post-installation parameters for a 10% sample of participants. Verify operating hours, equipment count and location, equipment specifications (baseline and post lighting inventory including fixture / ballast / wattage configuration).
CPEEP Education	Low	Yes	NA	No	Review the materials for content and technical accuracy.
CPEEP HVAC tune-up	Medium	Yes	10% of participants (during lighting onsite)	Yes	Review the HVAC tune-up database to determine whether data collected are within reasonable ranges and all data required for evaluation are collected. Confirm the tune-up was conducted and confirm nameplate data during the onsite lighting visit.

Dantec Low Pressure Reverse Osmosis Membrane Filters

Program Type - InDEE Resource
Program Implementer - Dantec Engineering, Inc
SCE 2551
PEPMA 05-10029

Section 1. Program Description and Status

Water is processed extensively in the industry by reverse osmosis (RO). Water purification is used in a variety of applications such as preparing water for soft drinks and other beverages, boiler feed water, cooling tower water, and other water purification applications. These installations are very energy intensive due to the high pump pressures required. New membrane filter developments have made it possible to retrofit these membrane filtration systems thereby reducing the operational pressures by 50% resulting in a very significant energy savings. Dantec proposes a retrofit program that will produce a high rate of upgrades that would not otherwise occur because of operational and informational barriers.

This program was cancelled early on. No program theory, logic model or recommended QC protocol were developed.

Section 3. Evaluability Assessment

Table 18. Lo Pressure EO

QUESTION	COMMENT
1. Is there a description of the staff that will operate the program?	Not in PO, a list of key personnel is required to be delivered though
• How many staff and where are they located?	Not listed
2. Is there an explicit program theory or logic model	Not in PO
• Indicators of success	Energy savings goals and # of unique projects
3. Is there a description of the target market?	Food processing facilities
• Is it possible to identify the potential population of participants and nonparticipants?	Not from information in the PO (there is a note that the implementer will use a targeted customer list)
4. Is there a marketing plan?	Yes , but minimal
• How will potential participants be recruited once identified?	Using list, program will begin with telephone contact. If customer expresses interest, they are sent a brochure and retrofit savings estimator tool and then followed up with.
• Is there a way to track participants?	Tracking system
• Is there a way to track nonparticipants?	Tracking system is expected to include customer data from the first sales contact through program completion – if so, nonparticipants should be identifiable
5. Have proposers included an electronic tracking database in their plans?	Yes
• Does it include the elements needed to contact participants & non-participants of various program activities?	Appears to
• Does it include program forms, surveys and implementation back-up	Not clear
• Are specific locations of measures being tracked? Can they be found?	Can be found
• Are program assumptions being tracked on a site specific level (e.g., hours of operation)	Probably, contractor should confirm
• Is the delivered energy saving service and/or installed retrofit being recorded?	Yes
• Does it include the outcome/result of the activities?	Yes
6. Will the program be delivered with trade allies?	Yes
• What type of trade allies	Pump/motor/VSD equipment vendors
• Are the trade allies well enough defined to identify a potential group of participants and	Possibly, “consultant and equipment vendors will develop a target customer list and a marketing schedule”

nonparticipants?	
• Is there a way to track participating trade allies?	Probably
• Is there a way to track nonparticipating trade allies?	No
7. Are savings assumptions documented?	No
• DEER?	No
• If not, is the source of savings assumptions specified?	No
• Are the pre-retrofit or baseline parameters being recorded?	Most likely
• Does the database record the as-found values for parameters used to estimate ex-ante savings?	Most likely
• Does baseline monitoring need to take place?	Yes
• Can one of the impact evaluation methods specified in the CA Evaluation Protocols be used?	Yes
• Are there code compliance or program overlap issues for savings estimation?	Yes, membrane filters must still filter to the required standard (if any) while operating at low pressure
Recommendations to improve evaluability:	The contractor should provide the basis for savings such as motor HP, operating hours, load factor and percent savings assumed for the VSD/pump retrofit. Also, data on the expected reduction in the pump pressure and performance comparison of baseline and retrofitted low pressure filters. The contractor should submit the baseline data fields. Since these are industrial retrofits, it is likely that the replaced equipment and retrofits will be tracked. The nature of retrofit will require pre- and post-metering and an assessment of filtration performance. Other methods to assess the impact are unlikely to be accurate, if pump is modified. Need to get information on contractor staffing. Need to have contractor commit to tracking contacts and documenting status.

Section 4. Recommended Early M&V

Table 19. Data Collection/Baseline Monitoring Template

DATA FIELD	PRE-INSTALLATION		POST-INSTALLATION	
	Data Collection Method	***Responsibility***	***Data Collection Method***	***Responsibility***
Motor HP/Model/Manufacturer/Efficiency	Name Plate	Implementation Contractor	Name Plate and recording changes	Implementation Contractor
Pump Capacity/Model/Manufacturer/Efficiency	Name Plate	Implementation Contractor	Name Plate and recording changes	Implementation Contractor
Motor/Pump (impeller replacement)/control (VSD) changes			Notes, name plate, specifications	Implementation contractor
Flow rate in GPM	Installed gauge (might be typically already installed)	Implementation contractor/host/EM&V by Edison	Installed gauge	Implementation contractor/host/EM&V by Edison
Pump Pressure in PSI	Installed gauge (might be typically already installed)	Implementation contractor/host/EM&V by Edison or its contractor	Installed gauge	Implementation contractor/host/EM&V by Edison or its contractor
Operating Hours	Site Interview	Implementation contractor	Site Interview	Implementation contractor
	Data logging for two weeks	EM&V by Edison or its contractor	EM&V by Edison or its contractor	EM&V by Edison or its contractor
KW drawn	Instant power draw	Implementation contractor	Instant power draw	Implementation contractor
	Data logging for two weeks	EM&V by Edison or its contractor	EM&V by Edison or its contractor	EM&V by Edison or its contractor
kWh usage	Data logging for two weeks	EM&V by Edison or its contractor	EM&V by Edison or its contractor	EM&V by Edison or its contractor
Membrane model/manufacturer/specifications	Name Plate or manufacturer manual	Implementation Contractor	Name Plate/manufacturer's manual and record of changes	Implementation Contractor
Process performance in ppm	Process-specific measurement	Implementation contractor/host	Process-specific measurement	Implementation contractor/host

Designed for Comfort Program

Program Type - IDEEA Resource
Program Implementer - HMG
SCE 2543
PEPMA 05-10357

Section 1. Program Description and Status

Designed for Comfort is a joint utility (SoCal Gas) contract. Designed for Comfort is a resource acquisition program that addresses the multifamily affordable housing retrofit market segment. The program uses a performance-based approach to encourage affordable housing property owners to choose cost-effective measures that achieve a 20% energy improvement over existing building conditions. The program uses a 2 stage enrollment process. Building simulation models (using Energypro or Micropath, approved by the CPUC) using existing equipment and conditions are run, then run again using rehab values. Participants are enrolled if it appears, from the assessment, that the property would save at least 20% in energy costs if measures were installed. When the nameplate or model information cannot be used the energy consultant inputs the equipment default value for the baseline. Once measures are installed the building is assessed again using actual measure information to determine energy savings. The installation is verified by a HERS rater before incentives are paid to the property owner.

Program Status as of 4/07
The 2004-2005 program ended Dec. 2005. HMG started a wait list then, anticipating start of the new program. The contract was signed in early August 2006 and was in the field by late August with the waiting list they had started. The first two projects were completed in March and inspected. Tenant workshops were also organized. Thirteen projects were enrolled by late April 2007. At that time HMG could not gauge how much of total incentives would go to the 13 active projects. Others were on a wait list, pending available incentives. There were 6 dropouts (Longbeach) due to the issue with split incentives and changes in the program rules related to pre-existing AC.

Significant EA Issues identified, including baseline/monitoring issues
1. There is a potential issue identifying nonparticipants for evaluation. HMG will have a list of dropouts (partial participants). HMG will need to retain list of contacts who did not respond or otherwise chose not to participate.
2. The EA raised potential code compliance and program overlap issues. The savings attributable to the program for new furnaces or hot water equipment should be computed based on the above-code savings. While Edison is not the code police, the question is whether the modeling software computes savings based on above-code savings, or, savings based on the total change in efficiency, from baseline to installed measures, regardless of code requirements.
3. Changes from the predecessor program to the current program led to lengthy discussions between the implementers and utilities about split incentives. Edison and

SoCalGas each paid a portion of the incentives based on fuel savings, where both utilities participated in the program. In territories where only one of two utilities participated in the program, only fuel savings from participating utilities could be incentivized, which was a change from the predecessor program. These changes, details and decisions involving split incentives and eligible measures within multiple utility territories should be carefully documented. Issues with multiple utility incentives and territories led to at least six complexes "dropping out." These apartments started the rehab work under the old program rules only to find that they did not qualify for incentives under the new rules.

4. A change order with Edison covered: (1) budgeting; and, (2) kWh, kW, and therms reported in the contract. (1) Budgeting didn't match utility burden rates and needed to be trued up. (2) The original EC calculations were too high, reporting therms and kWh savings combined for both utilities. Entries should have been zero therms for Edison and zero kWh for SoCalGas.
5. Software calibration was discussed with Edison. There was a question about whether the modeling software might be overestimating or underestimating savings.

Edison/Implementer contact history

The implementer is in contact with Edison and SoCalGas. HMG thought that all provisions of last year's contract would be retained in their contract with Edison but not all provisions were. This resulted in six in-progress projects dropping out when they were not able to meet final program requirements.

Issue resolution/results, current status

1. The issue with split incentives between the utilities, i.e., respective utilities paying just for fuel-based savings, seems to be working itself out. HMG is working with Edison and SoCalGas on this issue.
2. Potential code compliance or program overlap issues for new furnaces and hot water equipment should be assessed by Edison. We believe savings should be attributable to the program for above-code savings, now that Title 24 is in effect. While Edison is not the code police, the question is whether the modeling software computes savings as above-code savings, or, savings based on the total change in efficiency, from baseline to installed measure, regardless of code requirements. If Edison is interested in the above-code savings, then this is something that should be checked.
3. Regarding the software calibration, while the software is approved by the CPUC, Edison may want to look into calibration in the full impact evaluation. However, there may be issues with delving into proprietary software, as we found in the Energy Hog Program with CheckMe Sum!™.

Further recommendations or next steps

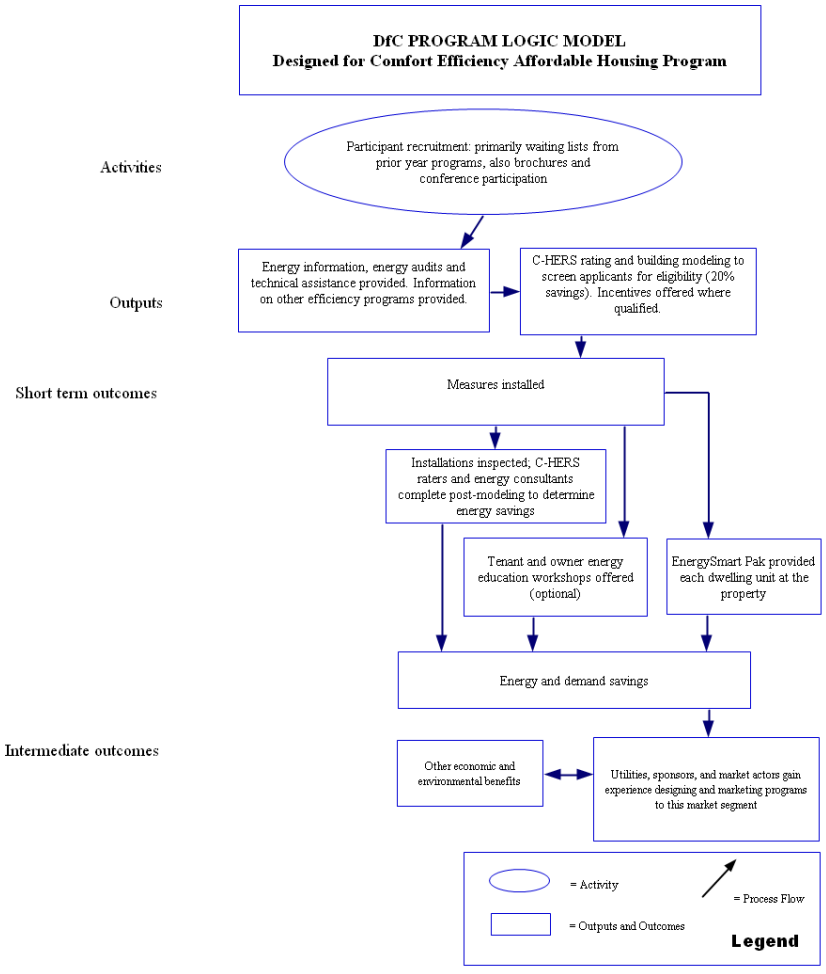
We also talked about QA for this program. We recommended to the PM, that for a sample of the sites, verification of the data input into the modeling software, and a check against the actual conditions and information recorded in their databases. The accuracy of baseline and rehab input data used for the modeling should be verified, including building square footage, nameplate data, any test or measurement data, etc. This database verification is in addition to visual inspection to confirm that the measures were installed.

Section 2. Program Theory and Logic Model

Program Theory

If energy audits are provided and incentives are offered to pay for measure installation, multifamily affordable housing complexes will have access to more comprehensive energy efficiency measures than previously available. Installation of measures will lead to energy savings of at least 20% (program criteria). Energy education workshops will provide information for tenants and owners and improve knowledge about energy. Participation will provide experience for energy consultants and HERS raters and increase their expertise and presence. If measures are installed, the *DfC* program will increase energy efficiency and promote a performance based approach to installation of energy efficient measures in this market.

Figure 10. Logic Model



Section 3. Evaluability Assessment

Table 20. Designed for Comfort

QUESTION	COMMENT
1. Is there a description of the staff that will operate the program?	Yes and the subcontractors
• How many staff and where are they located?	Helpfully three contacts are listed as key staff as well as key contacts for the subcontractors – contact information is not provided nor numbers of implementation staff
2. Is there an explicit program theory or logic model	Yes, in the concept papers
• Indicators of success	yes in the concept paper
3. Is there a description of the target market?	Not as clear as it could be, appears to be the owners of affordable multi-family property in the PO but in the concept papers it is clearly 'supportive' housing – a subset and innovative addition to the DFC efforts
• Is it possible to identify the potential population of participants and nonparticipants?	The marketing plan is pretty much a shotgun approach to the market, so it will not be easy to identify nonparticipants
4. Is there a marketing plan?	No a formal plan
• How will potential participants be recruited once identified?	Meetings
• Is there a way to track participants?	Yes, in the database
• Is there a way to track nonparticipants?	No
5. Have proposers included an electronic tracking database in their plans?	Yes
• Does it include the elements needed to contact participants & non-participants of various program activities?	Many elements are noted in the concept paper but nonparticipants are not
• Does it include program forms, surveys and implementation back-up	Yes
• Are specific locations of measures being tracked? Can they be found?	Most likely since it is a continuation of previous program. The PO is not clear about it.
• Are program assumptions being tracked on a site specific level (e.g., hours of operation)	Yes, data from residential energy audits will have assumptions at the site level.
• Is the delivered energy saving service and/or installed retrofit being recorded?	Yes, but on-site verification would be needed for impact evaluation.
• Does it include the outcome/result of the activities?	Yes.
6. Will the program be delivered with trade allies?	No
• What type of trade allies	--

• Are the trade allies well enough defined to identify a potential group of participants and nonparticipants?	--
• Is there a way to track participating trade allies?	--
• Is there a way to track nonparticipating trade allies?	--
7. Are savings assumptions documented?	Not clear but it is not a concern for a continuing program.
• DEER?	No. Modeled residential energy use.
• If not, is the source of savings assumptions specified?	Modeling software not named but it was EnergyPro for previous program.
• Are the pre-retrofit or baseline parameters being recorded?	Yes
• Does the database record the as-found values for parameters used to estimate ex-ante savings?	Yes
• Does baseline monitoring need to take place?	No, modeled baseline and improved modeled baseline can be used to estimate saving
• Can one of the impact evaluation methods specified in the CA Evaluation Protocols be used?	Yes
• Are there code compliance or program overlap issues for savings estimation?	Yes, for new furnaces and hot water equipment
Recommendations to improve evaluability:	Discuss with HMG a process for identifying nonparticipants
	Evaluation of 2004 program showed the realization rates in the twenties for SCE and SCG; PG&E's realization rate was nearly 60 percent. It appears that a major reason for low realization rate for SCE was the replacement of non-working equipment. SCE should discuss with HMG all reasons for low realization rate in the previous round and ascertain the changes they have made to this program to improve the RR. Evaluation of previous program did not discuss the remaining EUL issue but this program targets old buildings so the program lifetime savings could be low.

Section 4. Recommended QC Protocol

This is a joint utility program. Participation requires that the site be evaluated with CPUC approved software and show a 20% potential for savings. Each site receives a C-HERS rating before and after measure installation. Only 13 sites had participated by July 2007. Additional sites will participate only if incentive funding is available after these 13 are completed. Of the 13 participants, 7 are Edison electric customers. Each site can have a varying number of apartment units treated through the program. For example, one site has 7 buildings and 238 apartments. Measures include a mix of building and apartment level measures, such as a new packaged heat pump system, attic insulation upgrade, low E windows, and new DHW.

Risk is assessed as low, since the software and methodology are approved and 100% inspections are conducted by the implementers. Edison should ensure that C-HERS inspections meet or exceed M&V requirements of EE programs. Even though the risk is low, all Edison electric participants should have a review of the assessment and inspection records for any oddities or entries appearing out-of-range. Review implementation contractor's savings algorithm results and verification of equipment and savings parameters. No onsite verifications are recommended for QC.

Table 21. Dantec Recommended QC

PROGRAM	RISK	DOCUMENT REVIEW	PERCENT VERIFICATION	ONSITE VERIFICATION	WHAT TO VERIFY
Designed for Comfort	Low	Yes	Census Edison participant records	No	The program relies on C-HERS inspections and CPUC approved software so the risk of noncompliant installations is minimal. Review the assessment and inspection records, implementation contractor's savings algorithm results, and verification of equipment and savings parameters. Edison should ensure that inspections meet or exceed M&V requirements of EE programs.

Energy Efficiency with Demand Response (EEDR-Flex)

Program Type - IDEEA - Resource
Program Implementer - Energy Controls & Concepts
SCE 2536
PEPMA 05-10025

Section 1. Program Description and Status

This program is designed to showcase an emerging demand response (DR) dimming technology for lighting systems that reduces the overall costs for implementation and targets small to medium size marketplace where alternative technologies may not otherwise prove to be cost-effective. The technology is a dimming EE T8 lamp and ballast. The system integrates a paging network and leverages high efficiency dimming electronic ballasts coupled with power line control (PLC) from the electrical panels to the fixtures

Implementer's goals are to install lighting in approximately142 businesses. Each site is commissionable to desired lighting levels for maximum quality and efficiency, and may be dimmed via DR Pager calls to the circuit controllers. Implementers will inspect 100% of the projects' lighting upgrade measures. At the time of final inspection and education, implementers will query the customer to determine if they are interested in "tuning" their lighting to a permanently reduced light output of 10%.

Each site is commissionable to desired lighting levels for maximum quality and efficiency, and may be dimmed via DR Pager calls to the circuit controllers. This technology leverages existing business processes within Edison and directly installs lighting upgrades with the added benefit of demand response (load shed capability through dimming control).

Program Status as of 4/07
The program has been in the field since the fall of 2006. They expanded a bit from their original geographic focus in the Inland Empire. The program has installed about 7000-8000 ballasts at ~40 sites so far. The program is a bit behind schedule in terms of installations, but expects to catch up this year. They are working with SCE to develop their own data tracking system. Marketing is done in conjunction with SCE account reps, and marketing materials were developed in conjunction with SCE.

They track the baseline equipment being replaced in their data tracking system, and they inspect 100% of the job sites.

Significant EA Issues identified, including baseline/monitoring issues:
None identified

Edison/Implementer contact history:
Program implementation contractor interviewed on April 23, 2007.

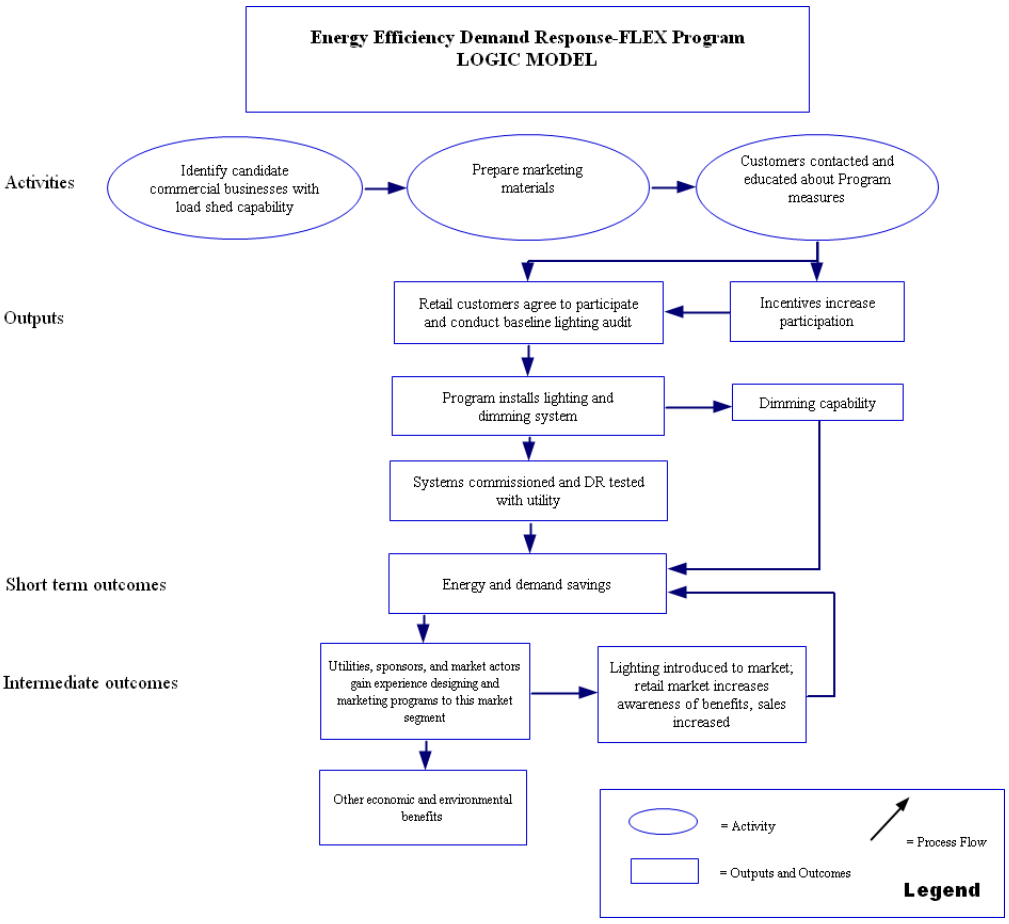
Further recommendations or next steps:
Set up a webcast to review tracking database
Interview subcontractors and field data collection processes

Section 2. Program Theory and Logic Model

Program Theory

If implementers and SCE can target their marketing to load shed clients, participants will demonstrate benefits of callable load shedding, and participants will overcome traditional pricing barriers. Participants will achieve energy and demand savings, and gain an awareness of the benefits of the technology. The market and SCE will gain experience working together on DR calls over the paging network with committed dim ranges. The marketplace will gain experience with this technology, additional installations will be completed, and additional energy and demand savings will result.

Figure 11. Logic Model



Section 3. Evaluability Assessment

Table 22. EEDR-Flex Program

QUESTION	COMMENT
1. Is there a description of the staff that will operate the program?	Yes, for admin and management functions, and some of the installation contractors. They provide a breakdown of staff by time commitment, cost, and provide bios for key staff
• How many staff and where are they located?	Number of staff (10 listed for admin and Mgmt.) All work aimed to be around Inland Empire [Redlands area primarily]
2. Is there an explicit program theory or logic model	No, but a narrative description of the program is provided in the intro
• Indicators of success	Some – kWh and kW goals provided. Customer satisfaction will be measured.
3. Is there a description of the target market?	Yes, small to medium commercial, retail, and light industrial. Must have 277V lighting, with T12 lighting and long hours of operation – and is focused on climate regions 9,10,13,14, and 15.
• Is it possible to identify the potential population of participants and nonparticipants?	Yes, through the flat file (which uses SCE customer data to recruit) for participants. The non-participants could be located from the customer list, and/or County Business Pattern data.
4. Is there a marketing plan?	Yes, limited. They plan brochures, emails, and direct sales calls.
• How will potential participants be recruited once identified?	Direct email (if SCE customer has email listed for account), then direct sales calls where a PDA is used for audit.
• Is there a way to track participants?	Yes, a detailed flat file spec is provided
• Is there a way to track nonparticipants?	Yes, if the SCE customer data used for recruiting is available – see above.
5. Have proposers included an electronic tracking database in their plans?	YES
• Does it include the elements needed to contact participants & non-participants of various program activities?	YES
• Does it include program forms, surveys and implementation back-up	Yes
• Are specific locations of measures being tracked? Can they be found?	YES, see flat file spec
• Are program assumptions being tracked on a site specific level (e.g., hours of operation)	YES
• Is the delivered energy saving service and/or installed retrofit being recorded?	Yes
• Does it include the outcome/result of the activities?	Yes

6. Will the program be delivered with trade allies?	Yes
• What type of trade allies	8 firms defined. A combination of controls companies, electrical contractors, and HVAC contractors
• Are the trade allies well enough defined to identify a potential group of participants and nonparticipants?	YES, a set of 'matching' contractors could be determined
• Is there a way to track participating trade allies?	YES
• Is there a way to track nonparticipating trade allies?	Yes, a sample can be matched to those participating
7. Are savings assumptions documented?	Yes – but in a limited fashion. Results of E3 calculator are provided in appendix, but very little backup data is provided to show details of savings calculations. Since the program combines DR and EE measures, calculations need to be verified. They state that DR ~150hr/year @20% reduction in lighting, w/ another 50 hrs/yr @ additional 10% reduction. There is limited info on the HVAC O&M savings. Not enough detail to determine whether savings estimates are reasonable.
• DEER?	No
• If not, is the source of savings assumptions specified?	NO, contractor estimates 863 kWh per ton, which is a significant savings based on 7000 hours per year. These calculations need to be verified.
• Are the pre-retrofit or baseline parameters being recorded?	Yes, for lighting measures. HVAC tuneup baseline data availability is unclear.
• Does the database record the as-found values for parameters used to estimate ex-ante savings?	Yes for lighting, unclear for HVAC tune-ups.
• Does baseline monitoring need to take place?	Yes. There is a need to know the baseline conditions for both the lighting and HVAC measures. Contractor plans to record some baseline data – but additional baseline inspection on a sample may be required – and contractor M&V methods validated.
• Can one of the impact evaluation methods specified in the CA Evaluation Protocols be used?	Yes, for EE lighting. For lighting dimming it may require a modification of the partially measured retrofit isolation. A similar method for HVAC tune-ups - that measures consumption b4 and after for the end use would be appropriate.
• Are there code compliance or program overlap issues for savings estimation?	None that I am aware of
Recommendations to improve evaluability:	Baseline data for the HVAC tune-up are needed. [equipment rated capacity, kW draw, refrigerant charge, air temp, and operating hours]
	Review the lessons from the 2005 IDEEA LEEDR program, and adjust methods accordingly. Contractor should provided more detailed marketing plan.

Section 4. Recommended QC Protocol

QC should include a review of the implementer's database and documentation, including confirming that the commercial business contact information and utility account number are present. Program Managers should confirm of the number of fixtures and dimming systems installed.

This is a new lighting and dimming technology. In this program, the risk is high because of the potential to overestimate ex-ante hours and dimming events will need to be recorded. Baseline lighting data will be important to collect. We recommend that Edison verify the pre- and post-installation parameters of the first ten projects. A ten percent sample inspection of participants, including 20% of measures installed, thereafter would be adequate. Since this is a direct install program, implementers and Edison would know about signed up customers before the contractor commences implementation. A pre-installation inspection should be feasible to perform at this time. Some of the pre- and post-inspections should be carried out on the same project. Edison should independently verify the store/building size, operating hours, equipment count and equipment specifications (baseline and post lighting inventory including lamp/fixture types and wattage).

Table 23. EEDR-Flex Recommended QC

PROGRAM	RISK	DOCUMENT REVIEW	PERCENT VERIFICATION	ONSITE VERIFICATION	WHAT TO VERIFY
EEDR-Flex	High	Yes	First 10 sites, pre and post. Thereafter, 10% of participants, capturing 20% of measures installed	Yes	Verify the pre- and post-installation parameters of the first ten projects. A ten percent sample inspection of participants, capturing 20% of measures installed, of pre- and post-installation parameters thereafter would be adequate. Pre- and post-inspections should be carried out on the same project. Edison should independently verify the store/building size, operating hours, equipment count and equipment specifications (baseline and post lighting inventory including lamp/fixture types and wattage).

E-mail Based Energy Efficiency Program

Program Type - IDEEA Non-resource
Program Implementer - Nexus Energy Software
SCE 2545
PEPMA 05-10330

Section 1. Program Description and Status

Nexus Energy Software deployed and manages a personalized email/Web based information program, designed to subscribe a large segment of Edison's residential customers to an ongoing dialog of energy use feedback and direction to programs and resources. Eight ENERGYgram are planned for delivery to Edison's subscribers. These communications are personalized to the customer's profile and billing data and are designed to deliver one-to-one energy efficiency action-oriented recommendations and demand response information to drive users back to the SCE website and Edison's program offerings.

Program Status as of 7/07
The contract was signed in April 2006. By May 2007, implementers noted they were working with the 2nd or 3rd Edison program manager, which presented a challenge. In July 2007 the program transitioned to a PM within the marketing department. The ENERGYgrams require review, approval, and coordination of messaging and content from Edison's marketing department. The prior EE PM retained management of the technical content of the ENERGYgrams. To streamline and coordinate, a top-down approach to writing the ENERGYgrams is now being taken. That is, marketing's residential manager is providing Nexus with topics and messaging to be used within a 90 day timeframe. These topics coincide time wise with other marketing and messaging efforts so that the ENERGYgram leverages other messaging. Before the transition to the marketing PM, Nexus had developed content for a number of ENERGYgrams to get them into the pipeline for Edison's approval. However, sometimes the content was not in sync with Edison's marketing communication strategy the desired messaging had changed, or the content was not timely with other offerings. To reduce rewrite and effort, top-down content specification was adopted. These changes and the reasons for the changes should be documented to inform future programs.

Overall, Nexus feels they have followed the work plan. Two ENERGYgrams had been sent by May 2007 and four by July 2007. The biggest challenge is subscribing the program. By early July 2007, Nexus has subscribed 9,400 of the targeted 60,000 subscribers. Edison provided an initial list of 850,000 potential participants' email addresses. After initial cleaning, 700,000 addresses remained. Edison continues to send email invitations to customers who add their profile to "My account" and who do not opt out of receiving communications from Edison. For example, in June 2007, 20,000 invitations were emailed and 19,000 were received (1,000 bounced back). Of the 19,000 received, only 277 signed up for the ENERGYgram. One possible barrier to sign up is that SCE requires the account number to complete the subscription. Customers may decide not to sign-up if it is too difficult to locate their account number at the

time they wish to subscribe. Also, if the customer opts out of receiving information from one Edison program or email offering, they opt out of all emailed contacts. Edison researched the option to send the ENERGYgrams to all customers, with the opportunity to opt out. The legal department approved this option because Edison has a business relationship with customers. However, this was not approved from a regulatory standpoint; it was decided Edison could not automatically send out a newsletter to all customers. The newsletter could only be sent to those requesting it.

Significant EA Issues identified, including baseline/monitoring issues

1. Fully subscribing the program remains the largest hurdle. Subscription success hedges on Edison's ability to provide large lists of potential participant's email addresses for invitations. Edison includes buttons and links to ENERGYgram from a number of their sites. In July 2007, Edison printed a message on customer's bills which will reach all 4.2 million residential customers. There is no backup plan if subscriptions fall short.
2. Educating Edison program PMs about the ENERGYgram so that PMs can integrate it into their programs is also challenging. Internally, Edison PM need to be aware of the program to direct their participants to it, and, PMs need to be aware of the ENERGYgram to ensure that their program is recognized in the newsletter.
3. Two satisfaction surveys will be sent to subscribers. The surveys will be developed by Edison and Nexus and may include questions to determine whether customers followed-up with investigation or participation in other programs. In addition, the surveys could include questions to determine whether the customer took actions to save energy as a result of receiving the ENERGYgram.
4. Identifying nonparticipants for future evaluation-related contact is an issue that needs exploration. The email bounce backs (invalid email addresses) may be included in a nonparticipant list. If the bounce-back report includes the customer name and account number Edison may be able to identify street addresses or phone numbers to contact potential participants by phone or mail. Opt-outs should be included in the nonparticipant list, and have good email addresses. Nonparticipants who look into subscribing to the ENERGYgram, and choose not to, should be identified and tracked for later contact to assess market barriers. Plans for capturing nonparticipants will need to be made; they could possibly be identified through email activity, but the method to capture the email will need to be worked out.
5. The PO included very little budget for marketing since it seemed that subscribing 60,000 from the original list of 850,000 would not be difficult. However, this has not been the case. Bill inserts were discussed with the Edison PM. Any mention in bill inserts would incur marketing costs. In addition, the Email based program competes for space with the programs that achieve energy savings and take priority. To date, the ENERGYgram has not been included in bill inserts. It was included on the July bill as a bill message. Virtually all of the means to invite customers to subscribe, without spending money, have been explored and tried.

Edison/Implementer contact history

Nexus sends regular reports and provides a variety of reports to Edison. After sending an ENERGYgram, a 1 day, 3 day, and 1 week marketing report is provided, with the number of delivered emails, bounce backs, and opt outs. Implementers can get a sense of the email open rate etc. Edison receives opt-out lists from Nexus. Nexus felt that Edison would determine

whether the subscriber is opting out of all Edison communication or just the ENERGYgram. However, Edison cannot modify a customer's "My Account" profiles to opt out and stated that Nexus would need to remove the opt-out from their email list.

Reports also include the number of 'click through' to other programs to track 'referrals' to other Edison programs. Documents state the ENERGYgram reduces the marketing costs of other programs, but doesn't offer a plan to evaluate this. Evaluators and Edison could explore alternatives to assess how the 'click through' could be monetized to assess reduced marketing costs.

Issue resolution/results, current status
Edison and Nexus are in regular communication, and are working to subscribe the program. We discussed future evaluation with the PM, including the likely need to contact nonparticipants to assess why they did not participate and other market barriers. We also discussed using the satisfaction surveys to collect information about the usefulness of the ENERGYgram, whether the customer had taken energy saving actions or participated in an Edison efficiency program as a direct result of reading an article the ENERGYgram.

Further recommendations or next steps
- Efforts to fully subscribe the program will need to continue.
- A method to collect nonparticipant contact information should be developed.
- Use the satisfaction surveys to determine whether customers find it useful, to hear about other topics customers would like to see, to determine if energy saving actions were taken as a result of the ENERGYgram, and to determine whether customers explored or participated in other Edison efficiency programs as a result of the ENERGYgram.
- A method to determine whether the program reduced overall marketing costs should be developed.

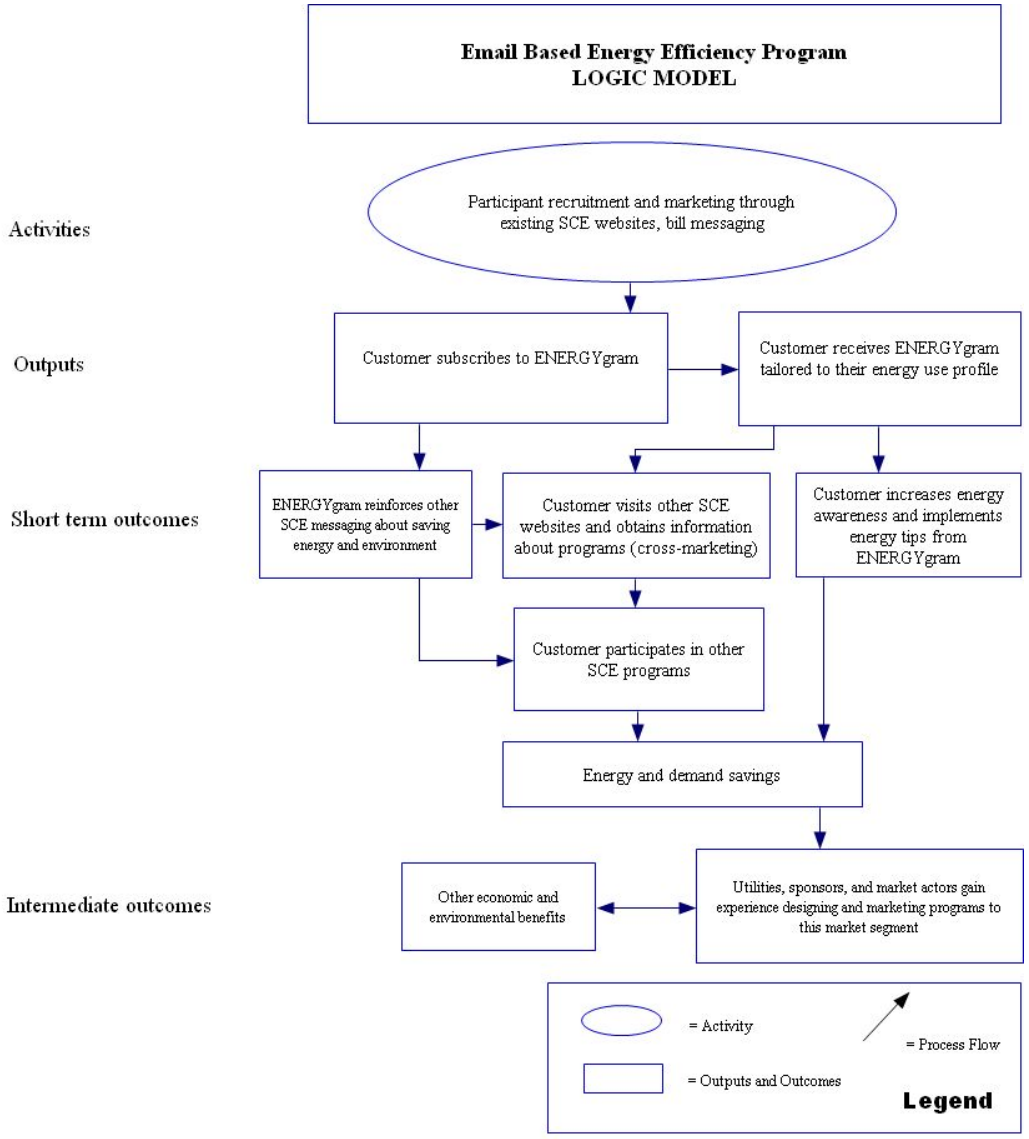
Suggested questions for the satisfaction survey
- Do you remember receiving the ENERGYgram?
- Did you find it: very informative / somewhat informative / somewhat not informative / not at all informative
- Did the ENERGYgram include information about saving energy? Saving money? Improving the environment?
- What was the most useful information you found in the ENERGYgram?
- Did you take any actions to save energy after reading the ENERGYgram?
- What did you do to save energy?
- Did you check any of Edison's websites that described energy efficiency programs after reading about them in the ENERGYgram?
- Which websites or programs did you look at?
- Would you have checked these websites if you had not read about them in the ENERGYgram?
- Did you participate in any of Edison's programs after learning about it in the ENERGYgram?
- Is there other information or are there other topics you would like to see in future issues of the ENERGYgram?

Section 2. Program Theory and Logic Model

Program Theory

If customers subscribe to the ENERGYgram, SCE will have a database of customers willing to be contacted and a profile of their appliance energy use. Subscribers will receive energy information through this email based information program, which will drive them to SCE websites and to SCE's efficiency programs. With the ENERGYgram, programs will be cross-marketed, messaging will be reinforced, and participation in SCE's efficiency and demand response programs will increase, which will produce measurable energy and demand savings attributable to this program.

Figure 12. Logic Model



Section 3. Evaluability Assessment

Table 24. Email Based Energy Efficiency

QUESTION	COMMENT
1. Is there a description of the staff that will operate the program?	Yes, proposal main narrative
• How many staff and where are they located?	Firm based in Arizona
2. Is there an explicit program theory or logic model	Concept, no logic model
• Indicators of success	Number of subscribers, number of Egrams, satisfaction survey
3. Is there a description of the target market?	60K Residential customers
• Is it possible to identify the potential population of participants and nonparticipants?	Yes, reports will include email opt-outs, bounce-back, successful deliveries
4. Is there a marketing plan?	Yes. Implementer relies on Edison for foundational marketing campaigns. Edison provides initial list potential participants
• How will potential participants be recruited once identified?	Invited to subscribe to email energy gram
• Is there a way to track participants?	Through continued receipt of email energy grams
• Is there a way to track nonparticipants?	Opt-outs (partial participants or dropouts). Bounce-back emails-won't know if wanted to subscribe. Nonparts through invitation to subscribe and no response; not on opt-out or bounce-back lists.
5. Have proposers included an electronic tracking database in their plans?	Yes
• Does it include the elements needed to contact participants & non-participants of various program activities?	Email address. Edison should be able to tie to account numbers since Edison is source of marketing list.
• Does it include program forms, surveys and implementation back-up	All electronic. Plan includes 2 cust surveys. No implementation backup
• Are specific locations of measures being tracked? Can they be found?	Non-resource program NA
• Are program assumptions being tracked on a site specific level (e.g., hours of operation)	NA
• Is the delivered energy saving service and/or installed retrofit being recorded?	NA
• Does it include the outcome/result of the activities?	NA
6. Will the program be delivered with trade allies?	NA
• What type of trade allies	NA
• Are the trade allies well enough defined to identify a potential group of participants and	NA

nonparticipants?	
• Is there a way to track participating trade allies?	NA
• Is there a way to track nonparticipating trade allies?	NA
7. Are savings assumptions documented?	Non-resource program
• DEER?	NA
• If not, is the source of savings assumptions specified?	NA
• Are the pre-retrofit or baseline parameters being recorded?	NA
• Does the database record the as-found values for parameters used to estimate ex-ante savings?	NA
• Does baseline monitoring need to take place?	NA
• Can one of the impact evaluation methods specified in the CA Evaluation Protocols be used?	NA
• Are there code compliance or program overlap issues for savings estimation?	NA
Recommendations to improve evaluability:	Indicators of success are number of Egrams & subscribers. Success could also be measured in terms of whether the Egram led to actions. Edison could use satisfaction survey to include questions to document energy efficiency actions taken as a result of Egram subscription. For example, asking subscribers to identify which programs they participated in as a result of Egram, what behavior changes they made to reduce energy use. Etc
	Documents suggest Egram reduces marketing costs of other programs, but doesn't offer plan to evaluate this. Egram reports include counts on 'click through' to other programs. Edison should assign a monetary value to this activity to assess reduced marketing cost or develop another way to evaluate.
	Subscription success hedges on Edison's ability to provide large list of potential customers' email addresses. No backup plan if subscription falls short. Subscription backup plans may be needed. Edison could also include Egram links from a number of their other internal sites (sign up, customer service, EE programs etc.)
	Plans for capturing nonparticipants will need to be made (nonparts could be identified through email activity, but method to capture should be worked out).
	Unless all evaluation surveys are conducted by email, phone and address contact information will be needed for both participants and nonparticipants.

Section 4. Recommended QC Protocol

This email/Web based information program had 9,000 subscribers to the ENERGYgram newsletter as of July 2007, far fewer than the target of 60,000 (of 1.4 million residential customers). The email based newsletter is being used to leverage other messaging and program promotions, so customers will receive similar messaging from multiple sources. The program intends to impact participant behavior and savings are indirectly acquired. The risk of acquiring documented savings is low because programs like this seldom show savings and free ridership is high. It will be difficult to assess whether any savings were acquired as a result of subscribing to the ENERGYgram.

Edison's QC should include a review of the implementer's reporting database and documentation for any oddities or entries out-of-range. Confirm program activities are occurring as intended and specified in the SOW. Send an email to 5% of the participants to confirm receipt of the ENERGYgram and track the responses. Ensure expected data are being collected. Follow-up with implementer if data are not collected as expected and reports are not generated. The subscriber's reported participation in other programs should be confirmed for a sample of 10% of the records. QC should include collaboration on the satisfaction surveys to ensure data useful to the evaluation are collected.

Table 25. E-mail Based Energy Efficiency Program Recommended QC

PROGRAM	RISK	DOCUMENT REVIEW	PERCENT VERIFICATION	ONSITE VERIFICATION	WHAT TO VERIFY
Email based energy efficiency	Low	Yes	10%	No	Review implementer's reporting database and documentation for any oddities or entries out-of-range. Ensure expected data are being collected and reports submitted. Confirm subscriber's participation in other programs for a sample of 10% of the records. Collaborate on the satisfaction surveys. Send an email to 5% of the participants to confirm receipt of the ENERGYgram and track the responses.

The line is somewhat blurred between M&V and QC. The approach to M&V assumes a standard level of rigor in an impact evaluation which would be conducted to link net behavioral impacts to energy and demand saving impacts. The two required satisfaction surveys should be utilized to assess the program's behavioral impacts. Questions should assess whether subscribers took specific energy saving actions, installed measures on their own, and/or participated in other programs (self report participation could be validated by specified program records).

In addition, the “click through” reports can be utilized to cross reference the clicks and visits to efficiency program websites with program records to determine if the subscriber participated in the program.

Energy Efficiency Program for Entertainment Centers (Theater Program)

Program Type - IDEEA Resource
Program Implementer - Matrix Energy Services, Inc.
SCE 2561
PEPMA No: 06-10094

Section 1. Program Description and Status

The Energy Efficiency Program for Entertainment Centers will focus on improving the energy efficiency of movie theaters. The implementation contractor will install a demand-based ventilation control (using CO2 sensors) on existing HVAC units and clean the condenser and evaporator coils of the modified units. The Program will deliver energy savings and peak demand reduction by reducing the cooling energy usage during peak summer hours through optimization of outdoor air intake. Demand-based ventilation controllers will be installed that allow fully integrated economizer capability on six-hundred and thirty-two (632) package HVAC units, with expected net energy savings of 2,806,080 kWh and demand savings of 1,868 KW.

The implementation contractor plans to develop a Program brochure and a CO2 sensor cut sheet that will highlight the benefits of installing a demand-based ventilation system. The Program brochure will also include a toll-free telephone number and a Web site address where movie theater owners/operators can sign up for the Program.

Program Status as of 5/07
Because the program is being expanded to include So Cal Gas, program implementation is expected to start in July 2007 and end in December 2008. The 2007 program targets will be affected because of this delay but the overall program goals still are attainable, according to the implementation contractor. Draft marketing material was not available from the implementation contractor as of May 2007. The implementation contractor intends to use direct sales approach, focusing only on large theater chains. The implementation contractor mentioned that they will maintain contact information on nonparticipants; Edison's program manager should get a formal confirmation from the implementation contactor.

Significant EA Issues identified, including baseline/monitoring issues:
The measure simulation data, that include the initial design and final design data, are maintained electronically. Parameters such as fan capacity, AC capacity, economizer controls, etc. will be available. The implementation contractor plans to conduct 100 percent inspections and monitor performance of ten percent of installations where CO2 controls will be installed. Details of monitoring plan have not been developed yet but it will include recording damper position over a few weeks period. Baseline data proposed to be maintained were reviewed by us and additional pre-installation parameters to record were communicated to Edison's program manager. The program data collection forms have not been finalized. The protocols and savings basis for the clean coils measure were not provided with the proposal, and these were still not made available

to us as of July 2007. These protocols should be consistent with the CPACS program and early M&V has been recommended to Edison's program manager.

Edison/Implementer contact history:
The implementation contractor and Edison are in regular contact over the status program implementation and other contract matters.

Issue resolution/results, current status:
See notes above.

Further recommendations or next steps:
The program ex-ante savings are 3.69 KW peak demand savings per installation. It is not clear from which measure these savings will be realized. The CO2 sensor based control of economizers is unlikely to save demand and energy during the peak period.

The baseline data for the clean coils measure should be collected similar to the CPACS program.

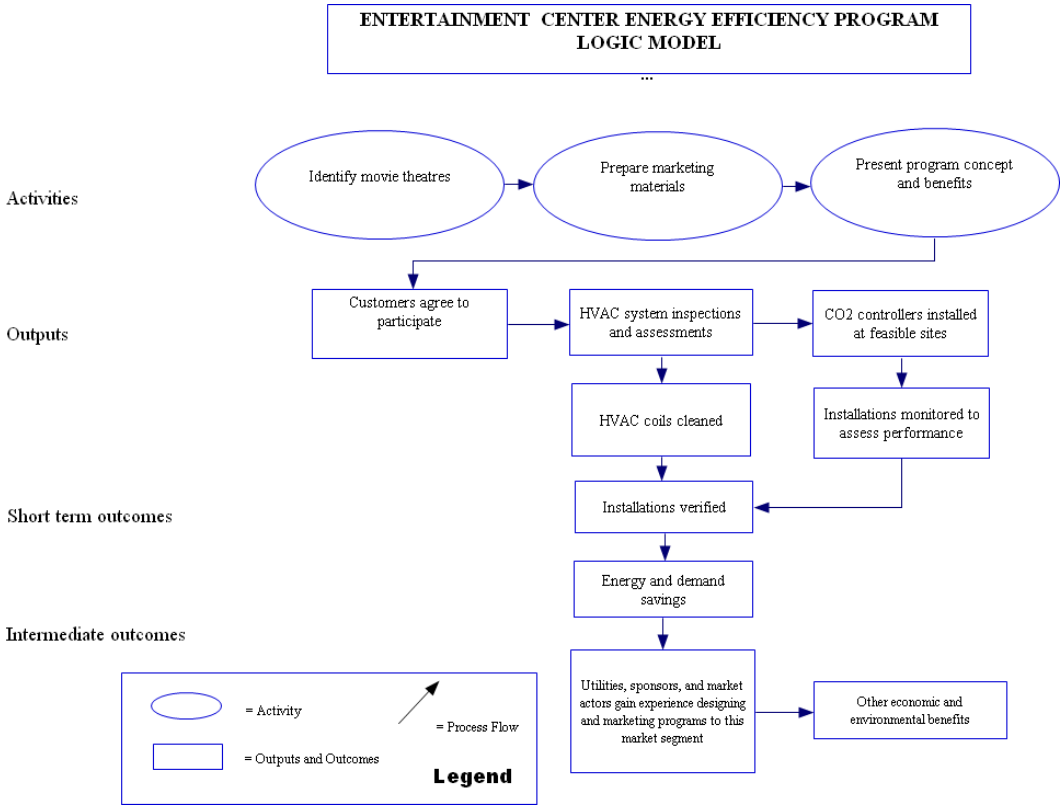
8. Ex-ante savings assumptions should be documented for both measures.
9. The implementation contractor has proposed measurement of pre- and post-installation data over one week which is inadequate because the occupancy profile of movie theatres varies during the week and weekend, and is seasonal. A more elaborate baseline data development is recommended, especially considering that average energy savings per installation (4,400 kWh) are too low for the billing analysis to differentiate from noise.
10. Energy audit should record the identifying and nameplate information for the analyzed units and address comments already made by us and the Edison program manager.
11. More information on the pre- and post-installation measurement method should be requested. Estimated savings will require an adjustment for outdoor temperature.
12. Mailing list and contact information for nonparticipants should be retained.

Section 2. Program Theory and Logic Model

Program Theory

By educating cinema theatre owners and managers about the benefits of demand based ventilation control systems, the program intends to promote this energy efficiency technology, and increase market acceptance and market penetration. The program also intends to increase energy savings by providing condenser and evaporator coil cleaning service to the units modified with the demand based control systems. By educating theatre service contractors about optimizing maintenance for energy efficiency, savings will persist through continued performance maintenance. Installation of the controllers and other services are intended to reduce peak summer cooling energy usage and winter heating energy usage.

Figure 13. Logic Model



Section 3. Evaluability Assessment

Table 26. EE Program for Entertainment Centers

QUESTION	COMMENT
1. Is there a description of the staff that will operate the program?	Not in the SOW – only consultant's company name provided
• How many staff and where are they located?	Not specified
2. Is there an explicit program theory or logic model	No
• Indicators of success	No
3. Is there a description of the target market?	Yes
• Is it possible to identify the potential population of participants and nonparticipants?	Not in the SOW, but market segment can be quantified
4. Is there a marketing plan?	General plan included
• How will potential participants be recruited once identified?	Mail, phone and website
• Is there a way to track participants?	Yes, in tracking database
• Is there a way to track nonparticipants?	Only through mailing lists and inquiries to phone center and website
5. Have proposers included an electronic tracking database in their plans?	Yes
• Does it include the elements needed to contact participants & non-participants of various program activities?	Participants only
• Does it include program forms, surveys and implementation back-up	No
• Are specific locations of measures being tracked? Can they be found?	Yes, if audit report fully identifies the treated HVAC units.
• Are program assumptions being tracked on a site specific level (e.g., hours of operation)	Yes, partially. The program will install two measures—CO2 sensors for economizer control and cleaning coils. The M&V plan is to measure pre- and post-installation data for the CO2 controller (not completely described yet) but a similar plan is lacking for the clean coils measure.
• Is the delivered energy saving service and/or installed retrofit being recorded?	Yes
• Does it include the outcome/result of the activities?	Yes
6. Will the program be delivered with trade allies?	No sub-contractors or third-party contractor involvement
• What type of trade allies	
• Are the trade allies well enough defined to identify a potential group of participants and	

nonparticipants?	
• Is there a way to track participating trade allies?	
• Is there a way to track nonparticipating trade allies?	
7. Are savings assumptions documented?	No. The program ex-ante savings are 3.69 KW peak demand savings per installation. It is not clear from which measure these savings will be realized. The CO2 sensor based control of economizers is unlikely to save demand and energy during the peak period.
• DEER?	No
• If not, is the source of savings assumptions specified?	No
• Are the pre-retrofit or baseline parameters being recorded?	Partially for the CO2 sensor measure only.
• Does the database record the as-found values for parameters used to estimate ex-ante savings?	Partially for the CO2 sensor measure only.
• Does baseline monitoring need to take place?	Yes, for both measures.
• Can one of the impact evaluation methods specified in the CA Evaluation Protocols be used?	Yes
• Are there code compliance or program overlap issues for savings estimation?	None expected.
Recommendations to improve evaluability:	The baseline data for the clean coil measures should be collected similar to the CPACS program. Ex-ante savings assumptions should be documented for both measures. The proposed one-week duration of pre- and post-installation measurement is inadequate because the occupancy profile of movie theatres varies during the week and weekend, and is seasonal. A more elaborate baseline data development is recommended, especially considering that average energy savings per installation (4,400 kWh) are too low for the billing analysis to differentiate from noise. Energy audit should record the identifying and nameplate information for the analyzed units. More information on the pre- and post-installation measurement method should be requested. Estimated savings will require an adjustment for outdoor temperature. Mailing list and contact information for nonparticipants should be retained. Include information on drop-outs in tracking database.

Section 4. Recommended QC Protocol

The implementation contractor (according to the SOW) plans to monitor 10 percent of program installations and inspect 100 percent of the remaining installations for functionality of equipment. While savings can vary significantly among program participants, the SOW affords an opportunity to review the results from monitored sites and take corrective actions. If Edison adheres to the proposed inspection and quality control plan, we assign medium risk to program savings realization. Since equipment is not being replaced post-installation inspections would be adequate, except for the clean coils measure for which inspections should be carried out per the agreed upon protocols, preferably the CPACS protocol.

Table 27. Theater Program Recommended QC

PROGRAM	RISK	DOCUMENT REVIEW	PERCENT VERIFICATION	ONSITE VERIFICATION	WHAT TO VERIFY
EE for Entertainment Centers	Medium	Yes	All ADM-monitored installations (10 percent of program installations) and 10 percent of the remaining installations.	Yes	Review data from all ADM-monitored sites to ensure compliance with the agreed upon monitoring protocols and verify monitored installations. The implementation contractor is planning to inspect 10 percent of the remaining installations. Edison should conduct onsite inspection of 10% of other installations (some of these can be the same that ADM inspects and others can be from those not inspected by ADM. These inspections should focus on verifying HVAC equipment data reported by the contractor per Edison-approved data collection form, functioning of equipment, and evidence of services provided (cleaning coils). If resources are available, Edison should review site-specific data for the remaining installations to check on data completeness, validity and accuracy.

Escalator Power Genius Program

Program Type - InDEE Resource
Program Implementer - Matrix Energy
SCE 2565
PEPMA 06-10097

Section 1. Program Description and Status

The primary objective of Escalator PowerGenius™ Program is to deliver energy savings and peak demand reduction through the installation of the PowerGenius™ controller on commercial escalators. Escalator motors are typically designed for maximum loading conditions, yet they typically operate in an underloaded or unloaded condition most of the time. The controller adjusts energy consumption of escalator motors based on real-time loading conditions, optimizing the escalator motor voltage to reduce magnetic losses at partial loads in order to achieve energy savings. The Program is marketed to department stores, shopping centers, hotels, and other large commercial establishments with escalators. Controllers are provided at no cost. The building owner/operator is responsible for the installation costs.

Program Status as of 6/07
The contract was signed late in 2006 and the kickoff occurred in Jan. 2007. As of May 2007, there were very few installations, however, funds had been reserved for 100 of the 270 expected installations. By June 2007, there were 27 installations and 44 pending. Many businesses have 2-4 escalators, others have up to 20. Businesses were receptive of the idea, but want to monitor and see the savings results before they commit.

Installation of the controllers can be costly. Matrix felt that installation rates quoted by the service companies (around $1500-$1600) were about double what they should be. Matrix has negotiated fixed installation prices with escalator service companies (June 2007 monthly report). There may be liability issues surfacing with the escalator maintenance companies where the controllers are installed by another contractor. This issue will need exploration and resolution.

Matrix is conducting baseline and post installation monitoring in four locations. One week pre- and post-installation monitoring is conducted. Matrix uses synergistic loggers, taking power measurements, kW, KVA, amps/current voltage, in 5 minute intervals. In May 2007, Matrix finished pre-post monitoring at Westfield shopping center. The savings results were higher than advertised by manufacturers. Rather than the 25% savings, they found 48% savings for the down-escalators, 40% savings for up-escalators. Monitoring projects were completed at Nordstrom's (1 week pre and post monitoring) and Universal Studios (2 week pre and post monitoring) in late June. Monitoring is in progress (June 2007) for 2 escalators at Mervyns (1 week pre and post monitoring).

Significant EA Issues identified, including baseline/monitoring issues
1. Account numbers were difficult to get from customers. Dummy account numbers were being entered into SMART database to get the record entered. Matrix felt that requiring the account

number from the customer up front could be a barrier to participation and would rather try to get it after installation.

2. The location code in SMART was difficult to use and was not a required database field. Location is important to track, otherwise the escalator with the power controller may be difficult to identify. Customer name (e.g, department store) and address (e.g., the mall's address) won't be enough to locate an escalator with the controllers installed (e.g., to verify installation).
3. The program got off to a late start and enrollment is slow. Unless there is significant activity the last five months of the program (expected by implementers) the program will be quite undersubscribed. Market barriers and the actual size of the potential market should be explored.
4. Costly installation may hamper enrollment. The SOW notes that the implementer will negotiate a reduced installation cost with service contractors. Matrix negotiated installation with service contractors but there may be issues between the escalator maintenance contractors and installation contractors.
5. Four commercial businesses were monitored, including 3 retail entities and one theme park. Monitoring occurred for one week which may be enough for an annual load profile, however, we recommend two weeks of pre-post monitoring for any additional escalators monitored. Also, if commercial establishments other than retail are enrolled in the program, (hotels, large offices) monitoring should be conducted of a sample of these escalators to establish load profiles for that commercial segment.

Edison/Implementer contact history

Escalator service companies initially provided referrals to Matrix, however, these did not bring enough participation. Edison representatives began working with implementers, connecting the implementers directly with potential customers/participants. This evolution in marketing appears to be working better, and should be documented. Edison receives monthly reports from Matrix, but is not in regular conversation with them.

Issue resolution/results, current status

The PM did not know if correct account numbers were entered into the database nor whether the exact locations of the escalators are being recorded. The PM will likely follow-up with Matrix. Monitoring escalators in commercial segments other than retail may be considered, however, the June 2007 report from Matrix includes only retail department stores/malls and Universal Studios.

Further recommendations or next steps

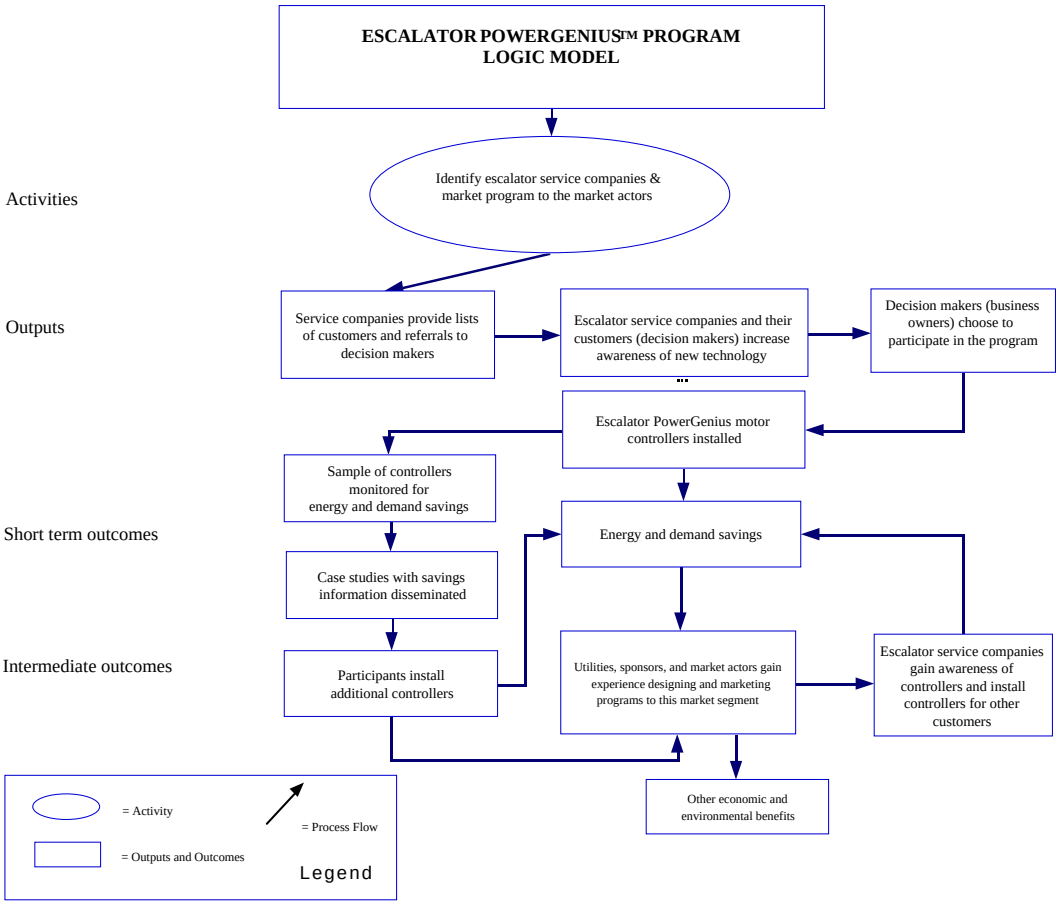
Market barriers will be an important area to explore in the process evaluation, including issues related to installation costs and installation contractors, as well as barriers perceived by participants and nonparticipants. The impact evaluation establishing baseline annual load profiles may benefit from two weeks of monitoring as opposed to one week pre- and post-installation monitoring.

Section 2. Program Theory and Logic Model

Program Theory

The program intends to increase market awareness and market penetration of the escalator efficiency technology. If the technology is marketed through escalator service companies, customers will adopt the escalator power genius controller technology. When escalators are monitored and energy savings information shared with customers, they will increase awareness and acceptance of the new technology, and install additional controllers. The installed power controllers will adjust escalator energy consumption based on real time loading conditions, resulting in energy and demand savings in this market sector.

Figure 14. Logic Model



Section 3. Evaluability Assessment

Table 28. Escalator Power Genius Program

QUESTION	COMMENT
1. Is there a description of the staff that will operate the program?	Proposed staff named in proposal. Final staff not specified, if different.
• How many staff and where are they located?	7 Staff located in Sacramento
2. Is there an explicit program theory or logic model	No
• Indicators of success	Tracking elements not tied to program theory or logic model
3. Is there a description of the target market?	Yes
• Is it possible to identify the potential population of participants and nonparticipants?	Yes. Property managers, retail department stores, malls, convention centers. Office complexes and office complexes: facilities greater than 500kW usage.
4. Is there a marketing plan?	A general outline is presented
• How will potential participants be recruited once identified?	Lists provided by elevator service companies and "published commercial directories"
• Is there a way to track participants?	Yes
• Is there a way to track nonparticipants?	Yes, if lists are made available for non-participants. Lists of customers contacted but not participating (partial participants) not explicitly tracked.
5. Have proposers included an electronic tracking database in their plans?	Yes
• Does it include the elements needed to contact participants & non-participants of various program activities?	Not in flat file. Other tracking not specified.
• Does it include program forms, surveys and implementation back-up	No
• Are specific locations of measures being tracked? Can they be found?	Not specified.
• Are program assumptions being tracked on a site specific level (e.g., hours of operation)	Yes, but nothing specific included. Some monitoring pre- and post- on some systems is proposed. No detail given. No indication of the duration or type of monitoring
• Is the delivered energy saving service and/or installed retrofit being recorded?	Yes
• Does it include the outcome/result of the activities?	Yes
6. Will the program be delivered with trade allies?	Elevator maintenance contractors will be doing the installations under the supervision of Davis Energy.
• What type of trade allies	See above
• Are the trade allies well enough defined to identify a potential group of participants and	Yes

nonparticipants?	
• Is there a way to track participating trade allies?	Yes
• Is there a way to track nonparticipating trade allies?	Yes
7. Are savings assumptions documented?	Yes
• DEER?	No.
• If not, is the source of savings assumptions specified?	Assumption from DEER regarding net-to-gross of .8, and 15 year measure life assumption is similar to DEER assumptions for hardware controllers.
• Are the pre-retrofit or baseline parameters being recorded?	Some monitoring pre- and post- on some systems is proposed. No detail given. No indication of the duration or type of monitoring.
• Does the database record the as-found values for parameters used to estimate ex-ante savings?	No database parameters specified other than location details.
• Does baseline monitoring need to take place?	Yes
• Can one of the impact evaluation methods specified in the CA Evaluation Protocols be used?	Yes, pre- and post-metering or engineering method can be used.
• Are there code compliance or program overlap issues for savings estimation?	No
Recommendations to improve evaluability:	Edison should collect pre- and post-installation equipment and operating data for each affected motor. Specific operating data should include continuous power monitoring of voltage, amperage, and power factor. Monitored data should be collected on a 15-minute basis for a minimum period of 2 weeks pre- and post-installation. A baseline annual load profile needs to be developed from measured data and scheduled annual operating hours. The power monitoring could be accomplished during the post-installation period by switching the motor control device to the “off” position to represent the pre-installation condition, and to the “on” position to represent the post-installation condition. The event of a motor replacement should be recorded along with the pre- and post-installation motor nameplate data.

Section 4. Recommended Early M&V and QC Protocol

Recommended Early M&V

Monitoring periods should be during "typical" shopping weeks, i.e., avoid peak shopping times such as the major holidays. Record the customer's scheduled annual operating hours for development of a baseline annual load profile using the pre-installation measured data. As an option and if applicable, monitoring could be accomplished entirely during the post-installation period by switching the motor control device to the "off" position to represent the pre-installation condition, and to the "on" position to represent the post-installation condition.

If a motor replacement is involved, the pre- and post-installation motor nameplate data should be recorded.

Table 29. Data Collection/Baseline Monitoring Template

DATA FIELD	PRE-INSTALLATION		POST-INSTALLATION	
	Data Collection Method	*Responsibility*	*Data Collection Method*	*Responsibility*
True power measurement: kW, voltage, amperage, and power factor	Measure true RMS power at motor control panel. 5 minute intervals for 2 weeks.	Implementation contractor/host/EM &V by Edison or its contractor	Measure true RMS power at motor control panel. 5 minute intervals for 2 weeks.	Implementation contractor/host/EM &V by Edison or its contractor
Operating Hours	Site Interview, Runtime data logging for two weeks	Implementation contractor	Runtime data logging for two weeks	Implementation contractor

Recommended QC Protocol

Implementers proposed installing 270 escalator power controllers. By June 2007, there were 27 installations and 44 pending installations.

There is moderate risk with this new technology. Implementers conducted baseline and post installation monitoring for four commercial businesses, including 3 retail entities and one theme park. Edison's QC should include review of the documentation for all monitored sites, and verification of power controllers installation at 10% of participant sites overall (including monitored sites). Post-installation data collected by the implementation contractor, equipment functionality, and equipment schedule should be verified.

Table 30. Escalator Power Genius Recommended QC

PROGRAM	RISK	DOCUMENT REVIEW	PERCENT VERIFICATION	ONSITE VERIFICATION	WHAT TO VERIFY
Escalator Power Genius	Medium	Yes	Records for all monitored sites, onsite for 10% overall, including monitored sites.	Yes	Post-installation data collected by the implementation contractor, equipment functionality, and equipment schedule should be verified.

Transforming the Market for New Energy Star Manufactured Mobile Homes

Program Type - IDEEA Resource
Program Implementer - Manufactured Housing Research Alliance
SCE 2557
PEPMA 06-10008

Section 1. Program Description and Status

Transforming the Market for New Energy Star® Manufactured Homes Program was designed to move new manufactured homes placed in Edison's service territory from a basic energy construction (current HUD standards are less restrictive than the California Energy Code) to high performance Energy Star levels by the strategic application of incentives. In addition, the program requires the installation of properly-sized cooling equipment. Program incentives were designed to partly offset the increased cost of manufacturing the home. Under the original SOW, $400 incentives were provided to manufacturers and $350 to distributors (or $350 to HVAC contractors with electric heat homes). While $400 doesn't cover the incremental cost of manufacturing more efficient homes, MHRA felt it would close the gap enough so the manufacturer could pass along or absorb the remaining cost.

Program Status as of 7/07
The contract was signed in Feb. 2007. The program got a late start but did not change the dates of the contract. MHRA has been talking with manufacturers since the contract was signed and expects to meet their overall goals by the end of the program. MHRA has been working with Edison to change the incentive structure, discussing other incentive distribution options to increase program participation. MHRA is working with manufacturers and with retailers. Bringing retailers on board is essential since they drive the decision makers (purchasers).

MHRA reports that most manufacturers cannot build 1 or 2 Energy Star homes in a production environment, but that it makes sense to build 50-100 or 80% of production. This is practical when Energy Star requirements become the standard. There are a number of steps the manufacturer must take, including certifying their plant as Energy Star, setting up databases, and allowing inspections. The manufacturer is ultimately responsible for Energy Star certification as it is their product and label.

Significant EA Issues identified, including baseline/monitoring issues
1. Baseline standards must be well defined in order to measure progress against the baseline. The number of homes sold in the pre-program market should be documented.
2. Any changes in standards, codes, or manufactured home building practices that occur during the program should be documented.

3. Retailers are independent companies and must change their selling tactics to include Energy Star homes. It appears retailers may be a market barrier.
4. Nonparticipants will need to be identified for future contact. These include manufacturers, retailers, and home buyers who were contacted about the program or were asked to participate or marketed the Energy Star home and chose not to participate. Buyers may be the most difficult to track.
5. Incentives were changed to encourage the manufacture and sales of program homes. Changes in incentives levels and in the recipients of the incentives must be documented to determine the impact of these changes on the program.

Edison/Implementer contact history
MHRA and Edison are in contact and Edison is aware of the need to change incentive levels to increase population. MHRA is in constant communication with the select few manufacturers they are recruiting to manufacture Energy Star homes and reports the Edison PM felt formal satisfaction surveys were not needed. The Edison PM notes this is a market transformation project and may take longer to achieve results than originally anticipated.

Issue resolution/results, current status
The Edison PM and implementers are aware of the need to track and contact nonparticipants. Implementers can track manufacturers, distributors and retailers who don't participate. Unless participating retailers keep records of customers who were shown the Energy Star homes and purchased HUD homes, another means to track nonparticipant buyers will be needed. Purchasers of non-Energy Star homes may need to be identified through sales or title records of new home buyers.

The need to document baseline conditions and changes in standards through the duration of the program were discussed with Edison and implementers. Program procedures include 100% site inspection to certify the home was built and installed to Energy Star standards. Edison's QA process for this program needs to be developed, which may include site inspections of a sample of homes.

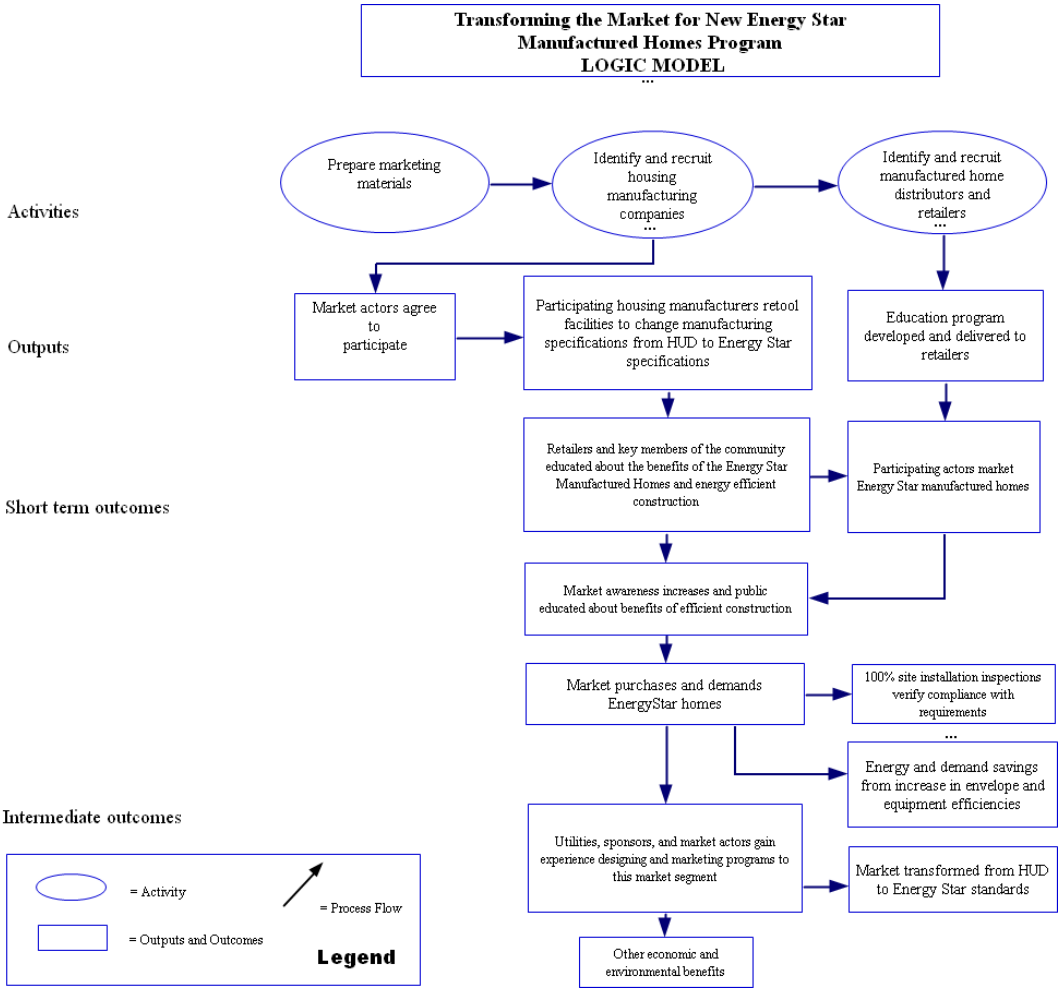
Further recommendations or next steps
Document baseline market conditions. Document evolution of the program, including changes in incentives and incentive recipients. Determine means to contact and/or track nonparticipants' contact information. Develop Edison's QA process.

Section 2. Program Theory and Logic Model

Program Theory

If the manufacturers are introduced to the program and learn about incentives available to reduce the cost to manufacture homes above HUD standards and to the Energy Star specifications, then manufacturers will modify their standards and methods to build Energy Star Manufactured Homes. Retailers and key members of the community will be educated about the benefits of the Energy Star Manufactured Homes and energy efficient construction. They will market the homes, in turn educating the public and increasing awareness for the product, transforming the marketplace for New Energy Star Manufactured Homes. Purchase of new homes will achieve energy and demand savings.

Figure 15. Logic Model



Section 3. Evaluability Assessment

Table 31. Energy Star Manufactured Housing

QUESTION	COMMENT
1. Is there a description of the staff that will operate the program?	In original proposal
• How many staff and where are they located?	Not specified,
2. Is there an explicit program theory or logic model	No. One is implied. The theory does not quite match experiences in other MH Market Transformation programs
• Indicators of success	Not specified; but the long term outcome is a substantial increase in non-subsidized Energy Star mobile homes in the market.
3. Is there a description of the target market?	Upstream target are manufacturers, distributors and retailers. Downstream is purchasers. It is difficult to believe that there are NO Energy Star manufactured homes in California.
• Is it possible to identify the potential population of participants and nonparticipants?	NO
4. Is there a marketing plan?	Yes, to upstream actors. Marketing to customer is left to the retailers. No SPIFFs are specified.
• How will potential participants be recruited once identified?	There are several types of participants Major participants are manufacturers, distributors and retailers. The Association has already reached agreements with manufacturers representing 90% of the market. The industry is evolving so that retailers are now more like car dealers – owned by manufacturers.
• Is there a way to track participants?	Yes, but purchasers of Energy Star homes should be tracked.
• Is there a way to track nonparticipants?	Not proposed. If there are nonparticipating retailers they should be tracked. Nonparticipating manufacturers should be identified.
5. Have proposers included an electronic tracking database in their plans?	Yes
• Does it include the elements needed to contact participants & non-participants of various program activities?	No
• Does it include program forms, surveys and implementation back-up	No
• Are specific locations of measures being tracked? Can they be found?	Yes
• Are program assumptions being tracked on a site specific level (e.g., hours of operation)	N/A
• Is the delivered energy saving service and/or installed retrofit being recorded?	Yes.
• Does it include the outcome/result of the	Yes

activities?	
6. Will the program be delivered with trade allies?	It is a manufacturer, distributor and retailer program; they are the trade allies.
• What type of trade allies	See above
• Are the trade allies well enough defined to identify a potential group of participants and nonparticipants?	Yes
• Is there a way to track participating trade allies?	Yes
• Is there a way to track nonparticipating trade allies?	Probably, but not specified.
7. Are savings assumptions documented?	Yes .
• DEER?	No.
• If not, is the source of savings assumptions specified?	Energy Star Package savings estimated using a DOE-2 based package developed in Florida. Baseline is assumed to be HUD. Measure life of the package is estimated at 20 years, which is the same as a majority of the individual measures.
• Are the pre-retrofit or baseline parameters being recorded?	Basel;ine assumed to be HUD.
• Does the database record the as-found values for parameters used to estimate ex-ante savings?	N/A
• Does baseline monitoring need to take place?	Current sales of Energy Star homes should be estimated, if any are currently on the market
• Can one of the impact evaluation methods specified in the CA Evaluation Protocols be used?	Yes; Normalized annual consumption, comparing participant and non-participant homes, controlling for size, age and location. Demand will require engineering assumption review.
• Are there code compliance or program overlap issues for savings estimation?	No.
Recommendations to improve evaluability:	What's the baseline? Market transformation cannot be evaluated without a baseline assumption. Market pull should be tracked. Changes in manufacturing practices for non-Energy Star homes is a definite program impact. Incorrect or sloppy installation can led to degradation of measures, especially in the ducting/plenum. Installation quality should be done by a 3rd party.

Section 4. Recommended QC Protocol

The program relies on Energy Star certification of the manufacturing plant and compliance inspections for the Energy Star manufactured home, so the risk of noncompliant manufactured homes is minimal. The risk is slightly higher when it comes to actually installing and siting the manufactured home. However, the program relies on 100% installation inspections.

Review program records and documentation for measures and construction methods that meet Energy Star certification and review the installation inspection records of the first 5 installations. Conduct on-site visits of the same sites to confirm that the manufactured home measures match the paper documentation, and to verify the installation inspection findings.

Table 32. Transforming the Market for New Energy Star Manufactured Mobile Homes Recommended QC

PROGRAM	RISK	DOCUMENT REVIEW	PERCENT VERIFICATION	ONSITE VERIFICATION	WHAT TO VERIFY
Energy Star Manufactured Homes	Low	Yes	First five homes	Yes	The program relies on Energy Star certifications of the manufacturing plants, homes, and 100% site installation inspections so the risk of noncompliant installations is minimal. Review program records and documentation for measures and construction methods that meet Energy Star certification and review the installation inspection records. Conduct on-site visits of the same sites to confirm that the manufactured home measures match the paper documentation, and to verify the installation inspection findings.

Grocery Area Energy Network

Program Type - InDEE - Resource
Program Implementer - Shelf Control, Inc.
SCE 2564
PEPMA No: 06-10073

Section 1. Program Description and Status

The Program will achieve energy savings by implementing efficient cold cathode lighting technology into cooler and freezer cases, and adding a sensor into the lighting to measure dew point (connected to a microprocessor that controls a relay) which will reduce the energy usage of the door and frame anti-sweat heaters (the "Project"). This smart control technology will pulse energy to door and frame heaters as needed to reduce condensation and to reduce energy consumption. The program will obtain technical data from control measures via the incorporation of wireless transceivers in the lighting that create an in-store network linking back to the Internet for real-time sensing, control, and virtualization of the in-store environment. The program will be marketed to a group of 200 screened customers, drawn from the implementation contractor's database for another prior direct install program. The program will be presented to customers by two salesman using face-to-face meetings. The implementation contractor will keep a record of nonparticipating customers.

Program Status as of 7/07
The program plans to install 3,867 measures and expects to save 2,517,038 kWh in net annual energy savings and 338 kW in demand savings. Edison signed the contract in August 2006 for implementation through December 2007. The program was not in the field as of May 2007. The implementation contractor was awaiting cold cathode lamps from China and expected to start implementing the program in July 2007. The contractor planned to rewrite their own tracking database code to provide the program data for SMART tracking system. The new code was expected to be ready in July 2007. The contractor plans to use a survey form to record baseline equipment data. A hard copy of the survey form was provided to Edison but lost during the move to the Irvindale office. The contractor stated having provided a copy of this form and other documents to Edison but we have not received the form.

Significant EA Issues identified, including baseline/monitoring issues:
The lab tests done on cold cathode lamps identified the need for improvement in color temperature and color rendition.

Edison/Implementer contact history:
The implementation contractor and Edison are in regular contact over the status of shipment of cold cathode lamps and other contract matters.

Issue resolution/results, current status:

Two issues will require Edison's attention: (1) The lamp brightness of the non-commercial version of the tested lamp is about 75 percent of an equivalent T-8 which means that a one-on-one replacement will produce less light and brightness compared to the baseline T-8 fixtures. Early estimates of reported savings should be based on lumen equivalence, pre- and post-installation. (2) The color temperature and CRI of the non-commercial version required an improvement to ensure warmer color and CRI close to 85. In recent evaluations, we have found that cold cathode lamps that do not produce the right color appearance for indoor applications would be difficult to sell, and if installed, savings may not persist.

Further recommendations or next steps:

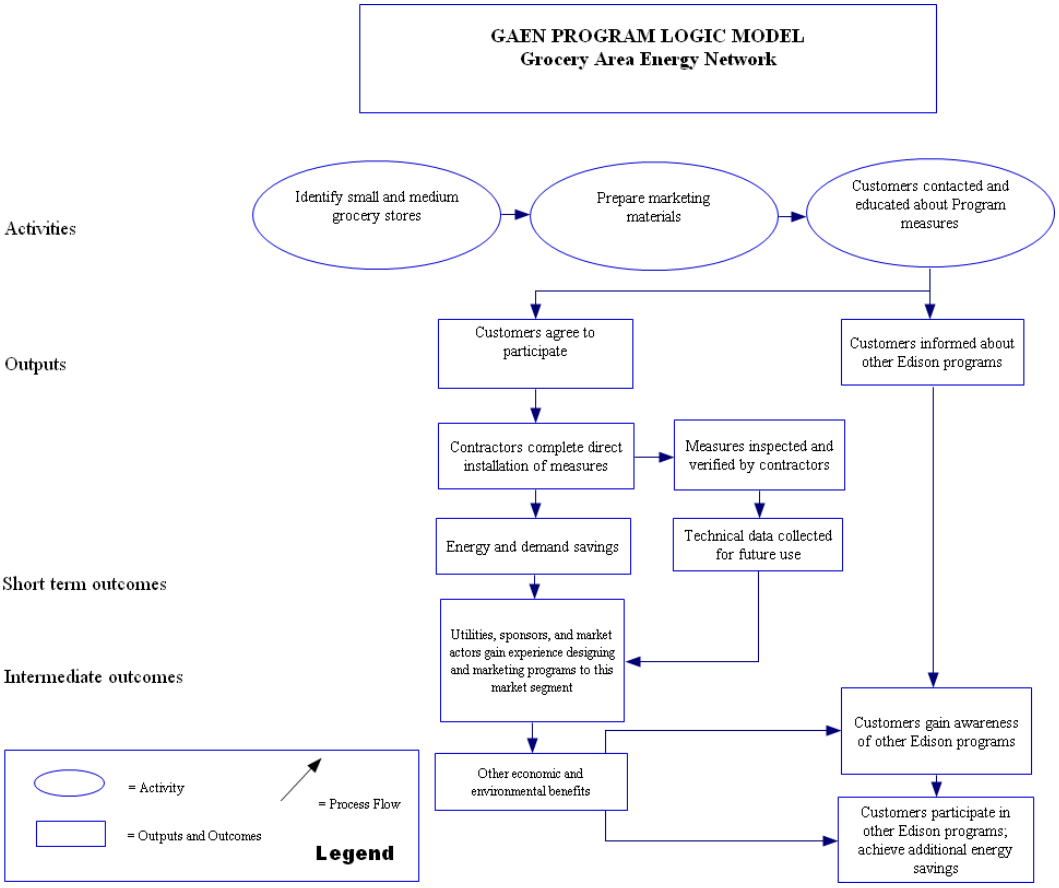
13. We recommend Edison ensure that the commercial version of cold cathode lamps will have improved color temperature and CRI. Nearly 60 percent of the proposed savings are attributable to the control of anti-sweat heaters using humidity control and cycling. We recommend Edison carry out pre- and post-metering to establish the baseline usage and estimate savings.
14. The lighting measure savings are dependent on the assumed 6570 operating hours, i.e., about 18 hours a day. We recommend metering lighting hours in a sample of facilities.
15. A majority of the remaining 40 percent of the proposed savings are attributable to two lighting retrofits (D52H-C to CC-2, and D52V-C to CC-2). Failure to find enough existing fixtures similar to those assumed as baseline for replacement will affect program performance and savings impacts. Edison should track replaced fixtures to ensure that the program planning assumption holds.
16. Pre-installation data such as fixture type, fixture wattage, ballast type, operating hours, anti-sweat heater capacity and control method, and refrigeration compressor capacity should be collected.
17. The program proposes to control 1882 refrigerated cases. This is based on the assumed number of refrigerated cases per participant (60 per medium size grocery store, 25 per small grocery store and 6 per very small grocery stores). The basis for these assumptions is not cited and needs to be verified, especially for medium and small grocery stores.

Section 2. Program Theory and Logic Model

Program Theory

By informing customers of opportunities to improve their energy efficiency through direct installation of cold cathode lamps and anti-sweat heater controls, then by installing retrofits, and providing information on other Edison programs, the GAEN program will increase awareness of energy efficiency opportunities and achieve energy and demand savings. The program will collect technical information to enable future internet-based control measures to be implemented at participating stores, achieving additional energy and demand savings.

Figure 16. GAEN Logic Model



Section 3. Evaluability Assessment

Table 33. Grocery Area Energy Network

QUESTION	COMMENT
1. Is there a description of the staff that will operate the program?	Proposed staff named I proposal. Final staff not specified, if different.
• How many staff and where are they located?	Not specified
2. Is there an explicit program theory or logic model	No
• Indicators of success	Tracking elements not tied to program theory or logic model
3. Is there a description of the target market?	Yes
• Is it possible to identify the potential population of participants and nonparticipants?	Yes. 20-500KW customers in commercial sector groceries in certain rate classes
4. Is there a marketing plan?	Not as such. Just general statements about developing materials, recruiting and enrolling. Marketing materials, program forms and customer surveys should have been delivered by now (due dates are January 15 or Jan 30)
• How will potential participants be recruited once identified?	Appears to be by direct contact, but not clearly specified
• Is there a way to track participants?	Yes
• Is there a way to track nonparticipants?	Not explicitly, but contractor should be required to maintain a contact database
5. Have proposers included an electronic tracking database in their plans?	Yes
• Does it include the elements needed to contact participants & non-participants of various program activities?	Not in flat file. Other tracking not specified.
• Does it include program forms, surveys and implementation back-up	No
• Are specific locations of measures being tracked? Can they be found?	Unclear. Need to review data collection forms.
• Are program assumptions being tracked on a site specific level (e.g., hours of operation)	Unclear. The first draft proposal mentioned about metering installations in consultation with Edison's RTCC. However, the final proposal or the SOW make no reference to measurements, if any, conducted.
• Is the delivered energy saving service and/or installed retrofit being recorded?	It appears so but all references to metering by the implementation contractor have been removed from the later version of program proposal.
• Does it include the outcome/result of the activities?	Yes
6. Will the program be delivered with trade allies?	Not clear. All installation activity refers to "the Consultant" Marketing will be implemented by "Two (2) Consultant marketing representatives."

	Original proposal further states that they expect contractor referrals from the non-residential direct install program.
• What type of trade allies	Not Specified
• Are the trade allies well enough defined to identify a potential group of participants and nonparticipants?	N/A
• Is there a way to track participating trade allies?	N/A
• Is there a way to track nonparticipating trade allies?	N/A
7. Are savings assumptions documented?	Yes
• DEER?	The anti-sweat heater control measure refers to DEER savings values without referencing the DEER RunID number.
• If not, is the source of savings assumptions specified?	The proposed cool cathode lighting measures are based on a table from the 2005 SPC manual (Appendix B). These values were adjusted in some cases between the two versions of the proposal and need to be reviewed by Edison.
• Are the pre-retrofit or baseline parameters being recorded?	Unclear
• Does the database record the as-found values for parameters used to estimate ex-ante savings?	Unclear
• Does baseline monitoring need to take place?	Yes
• Can one of the impact evaluation methods specified in the CA Evaluation Protocols be used?	Yes, pre- and post-metering or engineering method can be used.
• Are there code compliance or program overlap issues for savings estimation?	None are apparent. However, if lights are controlled over the Internet as part of demand response action, only one program should take credit. Further, the original technical proposal referred to securing leads from contractors of Edison's non-residential direct install program. The lead source should be identified in the program database.
Recommendations to improve evaluability:	Nearly 60 percent of the proposed savings are attributable to the control of anti-sweat heaters using humidity control and cycling. We recommend Edison carry out pre- and post-metering to establish the baseline usage and estimate savings. The lighting measure savings are dependent on the assumed 6570 operating hours, i.e., about 18 hours a day. We recommend metering lighting hours in a sample of facilities. A majority of the remaining 40 percent of the proposed savings are attributable to two lighting retrofits (D52H-C to CC-2, and D52V-C to CC-2). Failure to find enough existing fixtures similar to those assumed will affect program performance and savings impacts. Edison should track replaced

	fixtures to ensure that the program planning assumption holds. Pre-installation data such as fixture type, fixture wattage, ballast type, operating hours, anti-sweat heater capacity and control method, and refrigeration compressor capacity should be collected. Additional recommendations on data collection will be provided after reviewing the contractor's data collection forms. The program proposes to control 1882 refrigerated cases. This is based on the assumed number of refrigerated cases per participant (60 per medium size grocery store, 25 per small grocery store and 6 per very small grocery stores). The basis for these assumptions is not cited and needs to be verified, especially for medium and small grocery stores.

Section 4. Recommended QC Protocol

Edison's QC should include a review of the implementer's reporting database and documentation for complete and reasonable data, identifying any oddities or entries out-of-range. Review ex-ante hours of operation; they should vary across participants. Confirm program activities are occurring as intended and specified in the SOW, including marketing and customer enrollment.

The number of participants expected in this program is small but the number of projects is high (nearly 4000). Let us specify 10 percent of participants and 20 percent of measures installed. The risk is high because of overestimated ex-ante hours and concern about the quality of newly manufactured lamps. The risk cannot be mitigated by increasing the number of inspections; what is being inspected and how well it is being inspected matters as well.

We recommend that Edison verify the pre- and post-installation parameters of the first ten projects. A ten percent sample inspection of participants, including 20% of measures installed, thereafter would be adequate. These are inspections of pre- and post-installation parameters. Since this is a direct install program, Edison would know about signed up customers before the contractor commences implementation. A pre-installation inspection should be feasible to perform at this time. Some of the pre- and post-inspections should be carried out on the same project. Edison should independently verify the store size, operating hours, equipment count and equipment specifications. Post-inspections should look for the changes in quality of lighting and assess customer satisfaction.

Table 34. Grocery Area Energy Network Recommended QC

PROGRAM	RISK	DOCUMENT REVIEW	PERCENT VERIFICATION	ONSITE VERIFICATION	WHAT TO VERIFY
GAEN	High	Yes	First 10, pre and post. Thereafter, 10% of participants, capturing 20% of measures installed	Yes	Verify the pre- and post-installation parameters of the first ten projects. A ten percent sample inspection of participants, capturing 20% of measures installed, of pre- and post-installation parameters thereafter would be adequate. Since this is a direct install program, Edison would know about signed up customers before the contractor commences implementation. A pre-installation inspection should be feasible to perform at this time. Some of the pre- and post-inspections should be carried out on the same project. Edison should independently verify the store size, operating hours, equipment count and equipment specifications. Post-inspections should look for the changes in quality of lighting and assess customer satisfaction.

Plugging the Consumer Power Gap

Program Type - InDEE - Resource
Program Implementer - Energy Solutions (Cohen Ventures, Inc.)
SCE 2563
PEPMA 06-10052

Section 1. Program Description and Status

This program promotes high efficiency computer monitors, that is, "ultra-high efficiency" flat panel liquid crystal display (LCD) computer monitors—LCD monitors that are at least 25 percent more efficient than the current ENERGY STAR product category. The program provides midstream rebates through major consumer retailers (Best Buy, Circuit City and Walmart, etc.). Additionally, Energy Solutions will conduct salesperson trainings that will encourage the staff at major retail stores to promote the ultra-high efficiency monitors.

Overall, this Program is expected to result in the installation of 30,000 ultra-high efficiency monitors, with an expected net annual savings of 1,187,517 kWh and a net peak demand reduction of 163 kW. The implementer's proposal stated that based on the current SCE E3 Calculator, the first year of the Program would have a TRC of 1.70 and PAC of 1.01.

Program Status as of 4/07
This program just got into the field in April 2007. Energy Solutions is working hard to expand the group of retailers and on-line merchants selling and marketing the HE monitors. They expect to meet HE monitor sales targets for 2007.

Significant EA Issues identified, including baseline/monitoring issues:
1. Customer data is available on by zipcode, making surveys of customers to better understand usage patterns difficult.
2. Sales data from non-participating stores for baseline comparison will be difficult to obtain.

Edison/Implementer contact history: Program implementation contractor interviewed on April 29, 2007.

Issue resolution/results, current status:
None identified

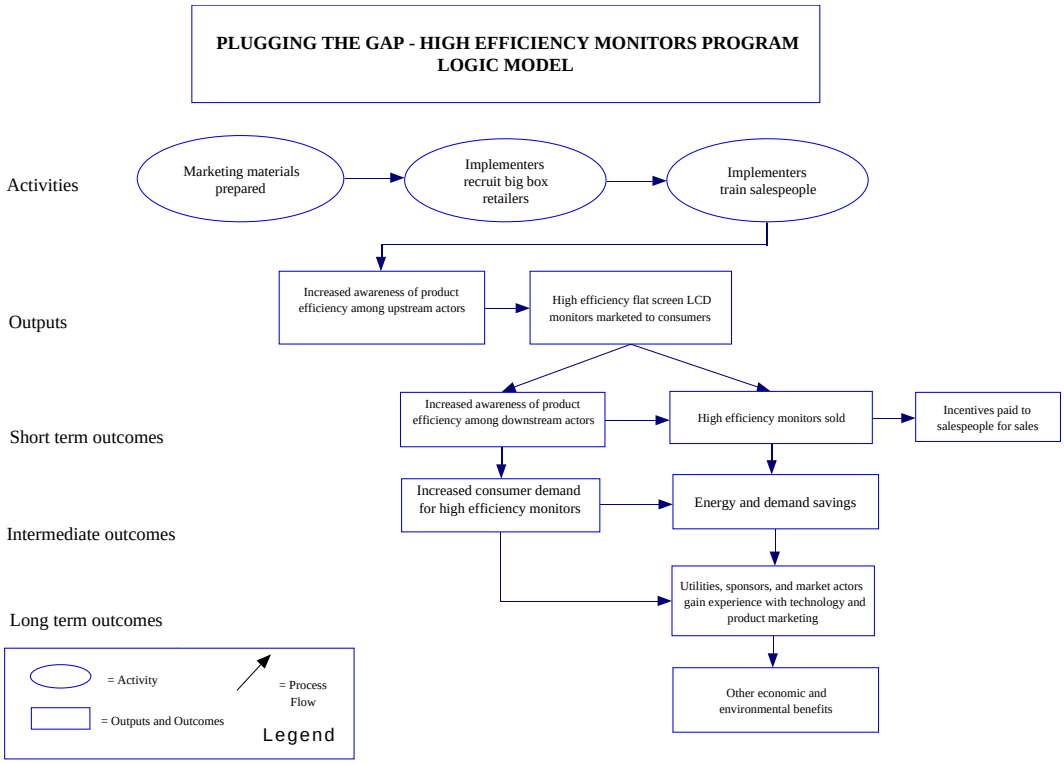
Further recommendations or next steps:
- A review is needed of the data in Energy Solutions data tracking system that allows retailers to upload data via a website once/month.
- Review retailer survey

Section 2. Program Theory and Logic Model

Program Theory

If sales training and midstream rebates are offered to major consumer retailers, it will leverage the market shifts to move customers towards flat panel monitors, and up to ultra-high efficiency LCD flat panel monitors. Sales will result in energy savings, increased product demand, and market transformation.

Figure 17. Logic Model



Section 3. Evaluability Assessment

Table 35. High Efficiency Computer Monitors

QUESTION	COMMENT
1. Is there a description of the staff that will operate the program?	Yes, they provide a breakdown of staff by time commitment, cost, and provide bios for key staff
• How many staff and where are they located?	Number of staff – including subcontractors, General location provided for some.
2. Is there an explicit program theory or logic model	No, but a narrative description of the program concept is provided
• Indicators of success	Yes, primarily monitor sales that are rebated in timeframe
3. Is there a description of the target market?	Yes, customers that buy monitors from major consumer electronics retailers
• Is it possible to identify the potential population of participants and nonparticipants?	Quite difficult for end users. Vendors will be tracked
4. Is there a marketing plan?	Yes
• How will potential participants be recruited once identified?	Via the participating stores, and marketing materials and training provided to them
• Is there a way to track participants?	No – but zip code information may be sought (processed and confirmed by credit card transaction)to assure monitors go in SCE service territory. Note there is a plan to conduct some customer surveys at stores, and at recycling events – but these would likely be highly selef-selected.
• Is there a way to track nonparticipants?	No
5. Have proposers included an electronic tracking database in their plans?	Required by SCE, indicates they will provide flat file
• Does it include the elements needed to contact participants & non-participants of various program activities?	No – just the vendors. It will allow tracking of participating mid-stream vendors, but not end-use customers.
• Is the delivered energy saving service and/or installed retrofit being recorded?	Estimated Savings will be recorded
• Does it include the outcome/result of the activities?	It should
6. Will the program be delivered with trade allies?	Yes
• What type of trade allies	Program rebates will be provided as midstream rebates to major chain consumer electronics retailers that sell monitors within Edison territory, such as Best Buy, Circuit City and Wal-Mart

• Are the trade allies well enough defined to identify a potential group of participants and nonparticipants?	Yes
• Is there a way to track participating trade allies?	Yes
• Is there a way to track nonparticipating trade allies?	Yes
7. Is there a QC plan?	One is referred to, but not completed. It will involve audit of vendor rebate tracking systems
• Is the plan sufficient to maintain quality?	Hard to say right now. There will be an attempt to track customer complaints and the complaint resolution.
8. Are savings assumptions documented?	Yes
• Are the savings assumptions reasonable?	Seem to be
• Is the source of savings assumptions specified?	Yes, workpapers are provided that cite applicable energy consumption numbers from Energy Star data
• Are lifetime energy and demand savings quantified, and is the savings basis provided?	Did not see lifetime savings, but demand savings are specified along with gross annual energy savings
• Are the pre-retrofit or baseline parameters being recorded?	Based on ratio of estimated computer monitors currently in the market
• Does the database record the as-found values for parameters used to estimate ex-ante savings?	Database spec calls for it
• Does baseline monitoring need to take place?	No really feasible
• Can one of the impact evaluation methods specified in the CA Evaluation Protocols be used?	No, other than a review of sales data, location, survey data, and savings calculations. It will be difficult to measure impacts at any particular customer site.
• Are there code compliance or program overlap issues for savings estimation?	Not that I am aware of
Recommendation to improve evaluability:	Track purchasers contact information, to allow for participant surveys and possible monitoring of hours of use.

Section 4. Recommended QC Protocol

An HE monitor post-installation verification and inspection plan, if none exists, can be patterned after the 80 PLUS Program. Edison should verify delivery of a sample of high efficiency monitors by telephone, using the monitor's serial number and tracking documents.

The risk in this program is assessed as low. QC should include review of paper documentation to confirm sale and delivery of "ultra-high efficiency" monitors that are 25 percent more efficient than the current ENERGY STAR product category to big box retail stores. Randomly observe SCE inspector's verification process to confirm correct data collection and inspection. Paper reviews of the SCE inspector's verification calls, confirming serial numbers and contact information against master lists from manufacturer. Review program documentation to ensure data needed for evaluation is present and accurate.

Table 36. Plugging the Consumer Power Gap

PROGRAM	RISK	DOCUMENT REVIEW	PERCENT VERIFICATION	ONSITE VERIFICATION	WHAT TO VERIFY
High Efficiency Monitors	Low	Yes	10% of Edison's inspections	No	Confirm sale and delivery of monitors meeting requirements to big box stores. Review documents for 10% of Edison's inspections. Paper reviews of SCE inspector's verification calls, confirming serial numbers and contact information against master lists from seller.

Hospital Facility Energy Efficiency Program (HFEEP)

Program Type - IDEEA Resource Acquisition
Program Implementer - Intergy Corporation and with the Putnam Price Group (PPG), and Mazzetti and Associates (Mazzetti)
SCE 2560
PEPMA 06-10036

Section 1. Program Description and Status

The Program will install energy efficient facility upgrades (i.e. lighting, HVAC and controls upgrades, retro-commissioning, etc.) at four hospital systems: Kaiser Permanente, Providence Health and Services, Catholic Healthcare West and St. Joseph's facilities located within Edison's service territory. The Program will focus on hospital services (medical office buildings and hospital facilities) that are exempt from Office of Statewide Health Planning and Development (OSHPD) approval. Projects that require OSHPD approvals will be passed along to the Edison Representative for participation in other Edison energy efficiency programs.

The program will conduct a walkthrough, perform a detailed audit, sign up a customer and implement agreed-upon measures. The implementation contractor has screened and shortlisted hospitals for program participation.

Due to California's seismic requirements required by Senate Bill 1953, hospitals are expected to undergo significant refurbishment in the future. The Hospital Facility Energy Efficiency Program (HFEEP) intends to provide a comprehensive assessment of energy saving opportunities in medical office buildings of selected hospitals that are exempt from Office of Statewide Health Planning and Development (OSHPD) approval. Projects requiring OSHPD approvals will be passed along to the Edison Representative for participation in other Edison energy efficiency programs.

Program Status as of 7/07
The program plans to perform 20 retrofit projects and expects to save 5,064,800 kWh in net annual energy savings and 1,214 kW in demand savings. As of July 2007, one project has proceeded to the implementation stage and three phase II audits have been performed. Intergy's contract with Edison excludes pre-installation metering. Edison will have to arrange for this as necessary. Detailed measure savings calculations will be available electronically. Intergy will install hardware-based measures that will exceed Title 24 or measures that are not required by Title 24; behavioral measures will not be installed.

Significant EA Issues identified, including baseline/monitoring issues:
Energy audit data will be available electronically. Since these are site-specific engineering studies, baseline data would be available and special data collection forms may not be necessary. The implementation contractor will have contact information for nonparticipants but the reasons for nonparticipation may not be recorded unless Edison asks them.

Edison/Implementer contact history:
The implementation contractor and Edison are in regular contact over the status program implementation and other contract matters.

Issue resolution/results, current status:
Savings for measures such as window tint or cool roof would need to rely on ***calibrated*** simulation results. The ex-ante savings basis is specified as estimated reduction in kWh/Sq. ft. where DEER data were not available. However, work papers cited were not available. Because the population of targeted hospitals is small, the contractor should be required to maintain contact lists and attendance lists at presentations.

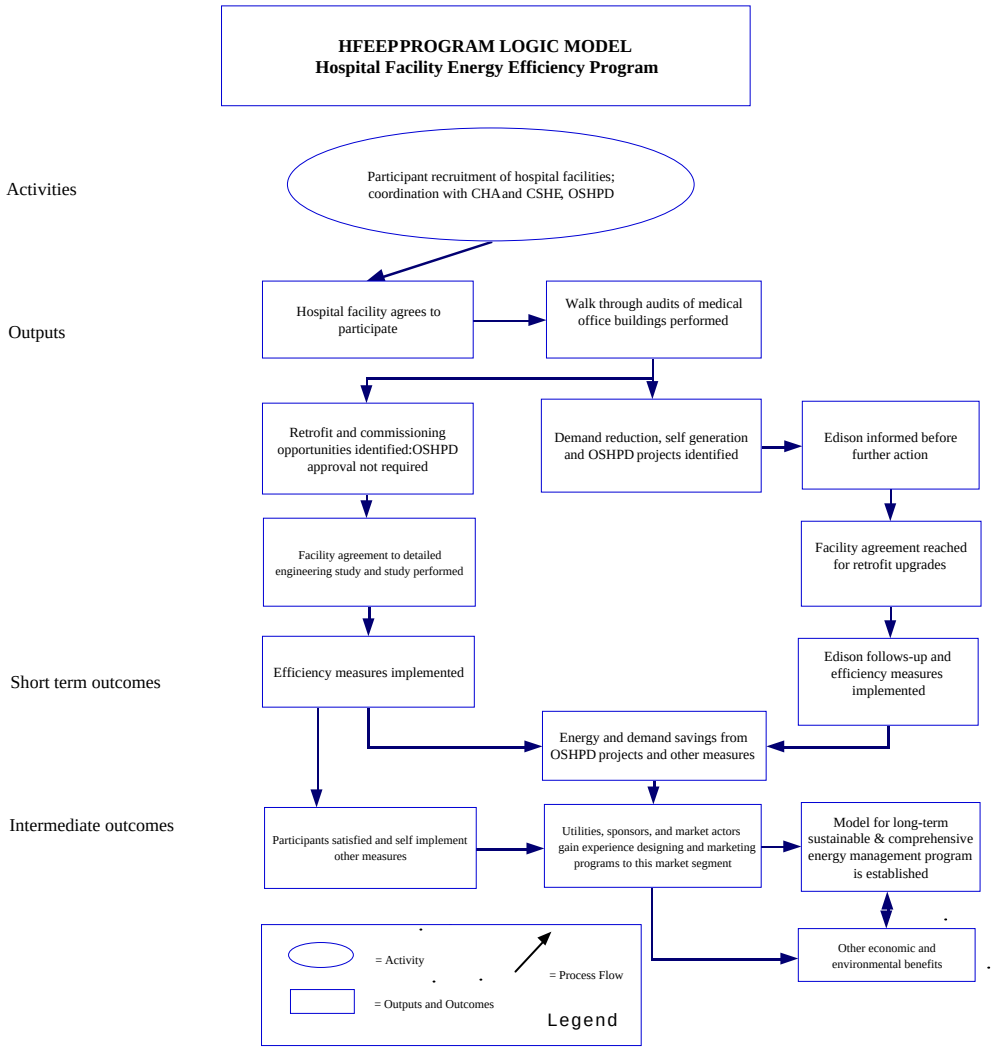
Further recommendations or next steps:
Edison should collect pre- and post-installation equipment and operating data. Since this is a retrofit program the data requirements should be similar to other retrofit or the SPC program. Lighting and motor operating hours should be measured for a sample of retrofits. For the VSD application, load profile needs to be developed from measured data. The program manager mentioned that default load curves are used even in the SPC program. The contractor assumed baseline usage of 30 – 35 kWh/Sq. Ft. as electric energy intensity, which has been used to estimate savings where DEER RunIDs were not available. Edison should check the contractor's baseline assumption with as found project data while reviewing program performance

Section 2. Program Theory and Logic Model

Program Theory

By providing information about the program and energy efficiency technologies, hospitals will increase awareness about energy efficiency technologies, and incorporate them into refurbishments. The program intends to increase energy efficiencies and achieve energy and demand savings, as well as establish a model for a sustainable, long-term comprehensive energy management program for medical office buildings.

Figure 18. Logic Model



Section 3. Evaluability Assessment

Table 37. HFEEP Program

QUESTION	COMMENT
1. Is there a description of the staff that will operate the program?	No. One main and two partner companies identifies. Task breakdown among the three not specified.
• How many staff and where are they located?	Not specified
2. Is there an explicit program theory or logic model	No; refers to Community Colleges as the "model."
• Indicators of success	Not specifically.
3. Is there a description of the target market?	Yes, very specific
• Is it possible to identify the potential population of participants and nonparticipants?	Yes
4. Is there a marketing plan?	Yes: Personal Relationship and General Awareness Marketing Activities
• How will potential participants be recruited once identified?	Through Hospital Care Associations and direct marketing
• Is there a way to track participants?	Yes
• Is there a way to track nonparticipants?	Not specified. The data will be easily available because the populations is so small, Contractor should be required to maintain contact lists and attendance lists at presentations.
5. Have proposers included an electronic tracking database in their plans?	Yes
• Does it include the elements needed to contact participants & non-participants of various program activities?	No
• Does it include program forms, surveys and implementation back-up	Due in January. Not received yet.
• Are specific locations of measures being tracked? Can they be found?	Unclear but probable since energy audit reports are being performed.
• Are program assumptions being tracked on a site specific level (e.g., hours of operation)	Unclear but probable since energy audit reports are being performed.
• Is the delivered energy saving service and/or installed retrofit being recorded?	Yes
• Does it include the outcome/result of the activities?	Yes
6. Will the program be delivered with trade allies?	Not specified
• What type of trade allies	N/A
• Are the trade allies well enough defined to identify a potential group of participants and nonparticipants?	N/A

• Is there a way to track participating trade allies?	N/A
• Is there a way to track nonparticipating trade allies?	N/A
7. Are savings assumptions documented?	Yes but work papers referred were not available with the program documents
• DEER?	DEER RunIDs were included for some measures.
• If not, is the source of savings assumptions specified?	The basis is specified as estimated reduction in kWh/Sq. ft. where DEER data were not available. However, work papers cited were not available.
• Are the pre-retrofit or baseline parameters being recorded?	Unclear but probable since energy audit reports are being performed.
• Does the database record the as-found values for parameters used to estimate ex-ante savings?	Unclear but probable since energy audit reports are being performed.
• Does baseline monitoring need to take place?	Yes, for some measures. However, measures such as window tint or cool roof would need to rely on calibrated simulation results.
• Can one of the impact evaluation methods specified in the CA Evaluation Protocols be used?	Yes, engineering and/or building simulation method or metering can be used.
• Are there code compliance or program overlap issues for savings estimation?	Yes. This is a retrofit program that would trigger compliance with Title 24 provisions for building renovation and retrofits. Overlap with other programs is not anticipated.
Recommendations to improve evaluability:	Edison should review specific measures being installed and ensure that these measures, where applicable, exceed Title 24 requirements, in which case incremental savings in excess of the Title 24 requirements will apply.
	Edison should collect pre- and post-installation equipment and operating data. Since this is a retrofit program the data requirements should be similar to other retrofit or the SPC program. Lighting and motor operating hours should be measured for a sample of retrofits. For the VSD application, load profile needs to be developed from measured data. The contractor proposal mentions controlling HVAC systems during the unoccupied period. Edison should ensure that this is an equipment retrofit measure, not a behavioral measure. The contractor assumed baseline usage of 30 – 35 kWh/Sq. Ft. as electric energy intensity, which has been used to estimate savings where DEER RunIDs were not available. Edison should check the contractor's baseline assumption with as found project data while reviewing program performance.

Section 4. Recommended QC Protocol

Edison's QC should include a review of the implementer's reporting database and documentation for any oddities or entries out-of-range. Confirm program activities are occurring as intended and specified in the SOW for all phases of the project. Review building benchmark EUI for reasonableness in a random sample of 5 buildings. Confirm outreach activities are being conducted, as well as audits and commissioning, for a random sample of 5% of the targeted hospitals.

We recommend that Edison verify the pre- and post-installation parameters of the first ten projects. A ten percent sample inspection of pre- and post-installation parameters thereafter would be adequate. Since there is sufficient time lag between signing up a customer (phase III audit) and commencement of retrofits, it should not be difficult to arrange for pre- and post-installation verification. While selecting a sample, Edison may want to choose projects that have a significantly different mix of retrofits compared to the census of ten project inspected initially.

Table 38. HFEEP Recommended QC

PROGRAM	RISK	DOCUMENT REVIEW	PERCENT VERIFICATION	ONSITE VERIFICATION	WHAT TO VERIFY
HFEEP	Medium	Yes	First 10, pre and post. Thereafter, 10% of installations	Yes	Review implementer's databases. Confirm activities are conducted as intended, confirming with 5% of targeted hospitals. Review benchmark EUI in 5% completed buildings. Since there is sufficient time lag between signing up a customer (phase III audit) and commencement of retrofits, it should not be difficult to arrange for pre- and post-installation verification. While selecting a sample, Edison may want to choose projects that have a significantly different mix of retrofits compared to the census of ten project inspected initially

Lighting Energy Efficiency with Demand Response (LEEDR)

Program Type - IDEEA - Resource
Program Implementer - Energy Solve (Intergy)
SCE 2538
PEPMA 05-10084

Section 1. Program Description and Status

The 2006-2008 LEEDR program is a continuation of the 2005 program. It implements new and emerging lighting technologies in the small commercial market and the governmental, educational, and commercial office sectors. The program is testing General Electric's Wireless Lighting Management system to provide wireless dimming for existing lighting systems using less energy.

In conjunction with these technologies, the program is using EnergySolve's Utility Bill Analysis and Reporting ("UBAR") system to precisely measure the energy efficiency savings, customer dimming and demand response savings resulting from the installation of dimmable lighting technologies. Implementation plans include a new wireless meter and software to control the wireless dimmable lighting systems and turn off other devices to reduce kWh and demand charges.

The 2006-2008 LEEDR program is a continuation of the 2005 program. It implements new and emerging lighting technologies in the small commercial market and the governmental, educational, and commercial office sectors. The program is testing General Electric's Wireless Lighting Management system to provide wireless dimming for existing lighting systems using less energy. EnergySolve will be delivering the direct install program through a proprietary Service Agreement where the project costs are paid out of savings.

In conjunction with these technologies, the program is using EnergySolve's Utility Bill Analysis and Reporting ("UBAR") system to precisely measure the energy efficiency savings, customer dimming and demand response savings resulting from the installation of dimmable lighting technologies. Implementation plans include a new wireless meter and software to control the wireless dimmable lighting systems and turn off other devices to reduce kWh and demand charges.

Program Status as of 7/07
They are behind schedule with installations. They had some early program delays with a subcontractor, that have now been corrected with the addition of a new subcontractor, and while they will likely NOT make their targets for 2007, they fully expect to make the combined 07-08 targets.

Energy Solve uses a tracking system developed for the 04-05 program cycle. They track leads for the program, and all contacts with those leads (which are developed by SCE account reps, or subcontractors). Energy Solve gathers on-site data on equipment in place during an audit, and

photometric measurements are being taken. Typically, after an audit is performed, they sell the LEEDR dimming system if appropriate.

Significant EA Issues identified, including baseline/monitoring issues:

- Timing of marketing materials was slow
- The UBAR system is available for data (note – screen shots of the system were provided, evaluators will need raw data for validation). The system has the capability to collect and store 15 minute load data by facility and zone.

Edison/Implementer contact history:

- Program implementation contractor interviewed on April 30

Issue resolution/results, current status:

- The 500 KW limitation on the program was recently lifted

Further recommendations or next steps:

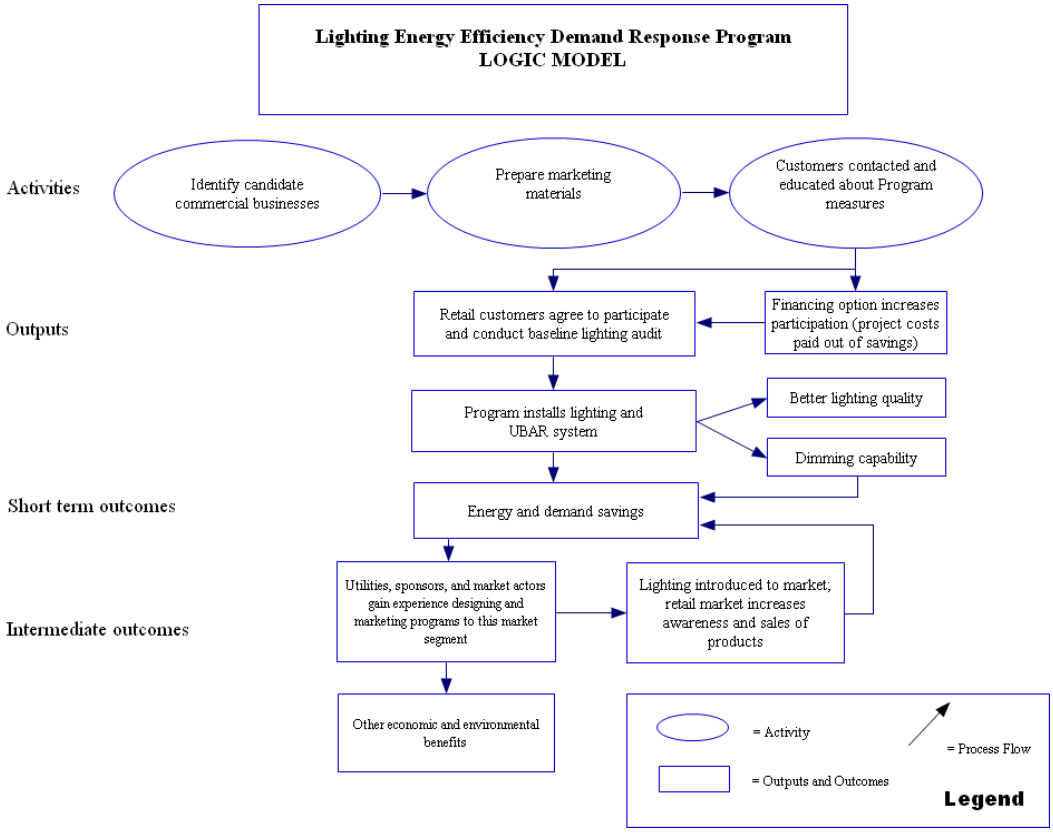
- Review audit data to assure baseline data is accurately collected
- Validate UBAR data at a sample site, and inspect database

Section 2. Program Theory and Logic Model

Program Theory

By introducing new PAR lighting technology to the retail sector, the program intends to increase market acceptance and market penetration of this technology. Commercial businesses will be audited and learn of the energy benefits and savings potential available with the new technology, and of the benefits of the dimming system. Lighting measures will be installed, and energy and demand savings will be achieved, in addition to benefits of better quality lighting. The increased market penetration will further increase sales and mainstream the technology, achieving additional energy savings.

Figure 19. Logic Model



Section 3. Evaluability Assessment

Table 39. LEEDR Program

QUESTION	COMMENT
1. Is there a description of the staff that will operate the program?	Not that I could find. There are no key personnel identified nor is there a functional staff diagram
• How many staff and where are they located?	Per item 1, there are no staff details. There is no staff budget in section 7, 'Allowable Costs'
2. Is there an explicit program theory or logic model	No, but there is a Program process flow diagram included.
• Indicators of success	Yes, the objectives spell out the number of installations expected of various types. These indicators are limited to nergy savings, and do not include indicators on items such as Awareness and Knowledge, Availability, Market Barriers, etc.
3. Is there a description of the target market?	Yes, small commercial, governmental, educational, and commercial office sectors – and specific size ranges are also identified. There is no discussion of the sizes of these markets and existing or planned penetration of the technology.
• Is it possible to identify the potential population of participants and nonparticipants?	It should be possible to identify the appropriate SIC/NAICS code populations in SCE territory.
4. Is there a marketing plan?	Yes, a basic one that will need to be elaborated on under their tasks 4 & 5. This is a basic outline and does not discuss any details, such as sector specific approaches, or level of effort such as quantities, etc.
• How will potential participants be recruited once identified?	By phone and email
• Is there a way to track participants?	Yes, a tracking system is specified, including the major elements to be included.
• Is there a way to track nonparticipants?	Yes, From the targeted lists developed by EnergySolve, and through census data (ex. NAICS codes), or SCE customer records
5. Have proposers included an electronic tracking database in their plans?	Yes. The tracking system is to be available with 2 weeks of the notice to proceed.
• Does it include the elements needed to contact participants & non-participants of various program activities?	Yes, as specified in the flat file description that is an appendix to the SOW
• Does it include program forms, surveys and implementation back-up	Unclear. Some data on program software, including UBAR data forms is presented. Implementation back-up data are excerpts from standard SCE flat-files, and CPUC workbooks.
• Are specific locations of measures being tracked? Can they be found?	Yes, via flat file. No project specific or program specific tracking tools are provided
• Are program assumptions being tracked on a site specific level (e.g., hours of operation)	According to flat file spec, yes. Dimming activity is to be tracked through the UBAR system.
• Is the delivered energy saving service and/or installed retrofit being recorded?	Yes
• Does it include the outcome/result of the activities?	Yes

6. Will the program be delivered with trade allies?	No, it appears EnergySolve will do all the installation and services. However, we consider it likely that subcontractors will used to install lighting and networking equipment, similar to the delivery of the 2005 EnergySolve project under the IDEEA program
• What type of trade allies	NA, however a lighting subcontractor was used for the previous EnergySolve/IDEEA program
• Are the trade allies well enough defined to identify a potential group of participants and nonparticipants?	NA
• Is there a way to track participating trade allies?	NA
• Is there a way to track nonparticipating trade allies?	NA
7. Are savings assumptions documented?	Not in the materials that I saw. No details on base or measure power or energy assumptions was provided. It is not stated whether there are any savings attributable to the actions of the wireless dimming system. It should be explicitly stated whether or not dimming savings are accounted for, or if dimming is simply a convenience item. Nor does this document disaggregate savings by measure type in the table on 18/19.
• DEER?	No
• If not, is the source of savings assumptions specified?	Data from manufacturer are included, hours of use will come from customer survey.
• Are the pre-retrofit or baseline parameters being recorded?	Yes, they are supposed to be. The reporting format is redamentary and based on SCE flatfile parameters only. This excludes details such as space codes, seasonal variations, etc.
• Does the database record the as-found values for parameters used to estimate ex-ante savings?	Yes, in the flat-file
• Does baseline monitoring need to take place?	I don't think so, since post-retrofit monitoring and surveys can gauge runtime, and power draws recorded. Verification of baseline conditions, such as baseline lamp wattages, would be useful.
• Can one of the impact evaluation methods specified in the CA Evaluation Protocols be used?	Option A: Partially Measured Retrofit Isolation - use partial short term field measurement of energy use to verify or adjust ex-ante energy and demand savings estimates for measures installed – along with billing analysis
• Are there code compliance or program overlap issues for savings estimation?	No, but savings may need to be adjusted if code specifies T8s and savings are being claimed for T12s
Recommendations to improve evaluability:	Thoroughly define whether dimming system is contributing to savings. State specific baseline and measure energy and power assumptions If dimming is contributing to impact, detail how customer organization will manage site dimming. For example, if multiple sits are installed for the same customer, will there be a central authority. Also, if and how SCE would use or integrate dimming capabilities with their demand response goals is not stated

Section 4. Recommended Early M&V and QC Protocol

Table 40. Data Collection/Baseline Monitoring Template

DATA FIELD	PRE-INSTALLATION		POST-INSTALLATION	
	Data Collection Method	Responsibility	Data Collection Method	Responsibility
Lamp fixture count & location	Visual observation	Implementation Contractor	Visual observation	EM&V by Edison or its contractor
Lamp type	Name Plate	Implementation Contractor	Visual observation	EM&V by Edison or its contractor
Wattage	Nominal	Implementation Contractor	Spot Measurement	EM&V by Edison or its contractor
Lamp condition	Visual observation	Implementation contractor	Visual observation	EM&V by Edison or its contractor
Operating Hours for lamp locations	Site Interview	Implementation contractor	Site Interview	EM&V by Edison or its contractor
	Not required	EM&V by Edison or its contractor	Runtime data logging for three weeks	EM&V by Edison or its contractor
kWh usage	Not required		UBAR system data Power data logging for three weeks (larger sample – not all systems have UBAR capabilities)	Implementation contractor EM&V by Edison or its contractor

Recommended QC Protocol

This is a direct install lighting program continuing a 2004-2005 IDEEA program which introduced a new lighting technology (dimmable T-5 with demand response capability). In the 2004-2005 program, ex-ante hours were overestimated. In this continuing program, the risk is high because of the potential to overestimate ex-ante hours. Baseline lighting data collected during the audit should be reviewed.

Edison's QC should include a review of the implementer's reporting database and documentation for complete and reasonable data, identifying any oddities or entries out-of-range. Review ex-ante hours of operation; they should vary across participants. Confirm program activities are occurring as intended and specified in the SOW, including marketing, audits, and customer enrollment.

We recommend that Edison verify the pre- and post-installation parameters of the first ten projects. A ten percent sample inspection of participants, including 20% of measures installed, thereafter would be adequate. These are inspections of pre- and post-installation parameters. Since this is a direct install program, the implementers (and therefore, Edison) would know about signed up customers before the contractor commences implementation. A pre-installation inspection should be feasible to perform at this time. Some of the pre- and post-inspections should be carried out on the same project. Edison should independently verify the store/building

size, operating hours, equipment count and equipment specifications (baseline and post lighting inventory including lamp/fixture types and wattage).

Table 41. LEEDR Recommended QC

PROGRAM	RISK	DOCUMENT REVIEW	PERCENT VERIFICATION	ONSITE VERIFICATION	WHAT TO VERIFY
Lighting Energy Efficiency with Demand Response Program	High	Yes	First 10 sites, pre and post. Thereafter, 10% of participants, capturing 20% of measures installed	Yes	Review of the implementer's reporting database and documentation for complete and reasonable data, identifying any oddities or entries out-of-range. Confirm program activities are occurring as intended and specified in the SOW, including marketing, audits, and customer enrollment. Verify the pre- and post-installation parameters of the first ten projects. A ten percent sample inspection of participants, capturing 20% of measures installed, of pre- and post-installation parameters thereafter would be adequate. Since this is a direct install program, implementers (and therefore, Edison) would know about signed up customers before the contractor commences implementation. A pre-installation inspection should be feasible to perform at this time. Some of the pre- and post-inspections should be carried out on the same project. Edison should independently verify the store/building size, operating hours, equipment count and equipment specifications (baseline and post lighting inventory including lamp/fixture types and wattage).

Lighting Energy Efficiency - Aluminum PAR CFLs (LEEP)

Program Type - IDEEA Resource
Program Implementer - EnergySolve Demand Response
SCE 2559
PEPMA 06-10009

Section 1. Program Description and Status

The Energy Efficiency PAR 38/30 CFL Program installs: 1) New Westinghouse Aluminum PAR 38 Compact Fluorescent Lights (CFLs) (23 watts) replacing Halogen PAR 38 lights (90 watts); and 2) new Westinghouse Aluminum PAR 30 CFL (15 watts) replacing Halogen PAR 30 lights (65 watts). The retail sector using these type of lamps for down lighting and display lighting is the primary target market. Implementers planned to use a retail buying cooperative (RETEX) as the primary marketing channel. Incentives buy down the cost of the lamps and the program pays $2/lamp for installation.

The Program introduces the retail sector to new technologies and provides for the installation and six years of maintenance for two new Westinghouse Aluminum Compact Fluorescent Lights made to replace Halogen lights. Aluminum PAR 38, 23 watt CFLs, replace 90 watt Halogen PAR 38 lights, and Aluminum PAR 30, 15 watt CFLs, replace 65 watt Halogen PAR 30 lights.

Program Status as of 7/07
EnergySolve signed their contract in Dec. 2006 and immediately went into the field using a Westinghouse distributor. Two things occurred that hampered participation: (1) an inferior CFL was introduced into the market in small commercial programs. Westinghouse gave price concessions to compete with the CFL. (2) RETEX marketing got off to a late start, waiting for brochure approval and finalization by SCE. These were made available mid-May 2007. RETEX sent brochures with a letter to their customers.

In May 2007 there were 4 large customers and implementers expected to pick up the pace through RETEX marketing. EnergySolve expects to meet their target by the end of the year. Implementers noted that contact lists of both participants and nonparticipants (contacted but don't buy the lamps) should be available through RETEX and their marketing efforts.

Significant EA Issues identified, including baseline/monitoring issues

1. Location of installed lamps was not recorded in the database. Implementers felt there would be no problem locating actual lamp installations within a building.
2. The database sample recorded the same number of operating hours for all participants. Implementers were asked to document the hours of operation by facility and location within a building (if they differed from the whole facility).
3. Implementers were asked to record a sample of the baseline (pre-installation) lamp wattage.
4. Implementers refer customers to other programs. They were also asked to document which programs they have referred customers to for future follow-up.

5. Implementers will need to request that RETEX provide lists of participants and nonparticipants with contact information.

Edison/Implementer contact history
EnergySolve is in regular contact with Edison. Waiting for the marketing department to approve brochures put the implementers behind schedule but implementers expect to meet goals by the end of the program. The Edison PM was somewhat concerned about enrollment but felt that the marketing was well thought out. EnergySolve was using the SMART system for the LEED-R program and did not expect problems with this program.

Issue resolution/results, current status
Implementers felt that once brochures became available for RETEX marketing efforts, the program would enroll. The status of enrollment and marketing efforts should be reviewed. EA issues noted above were discussed with the Edison PM.

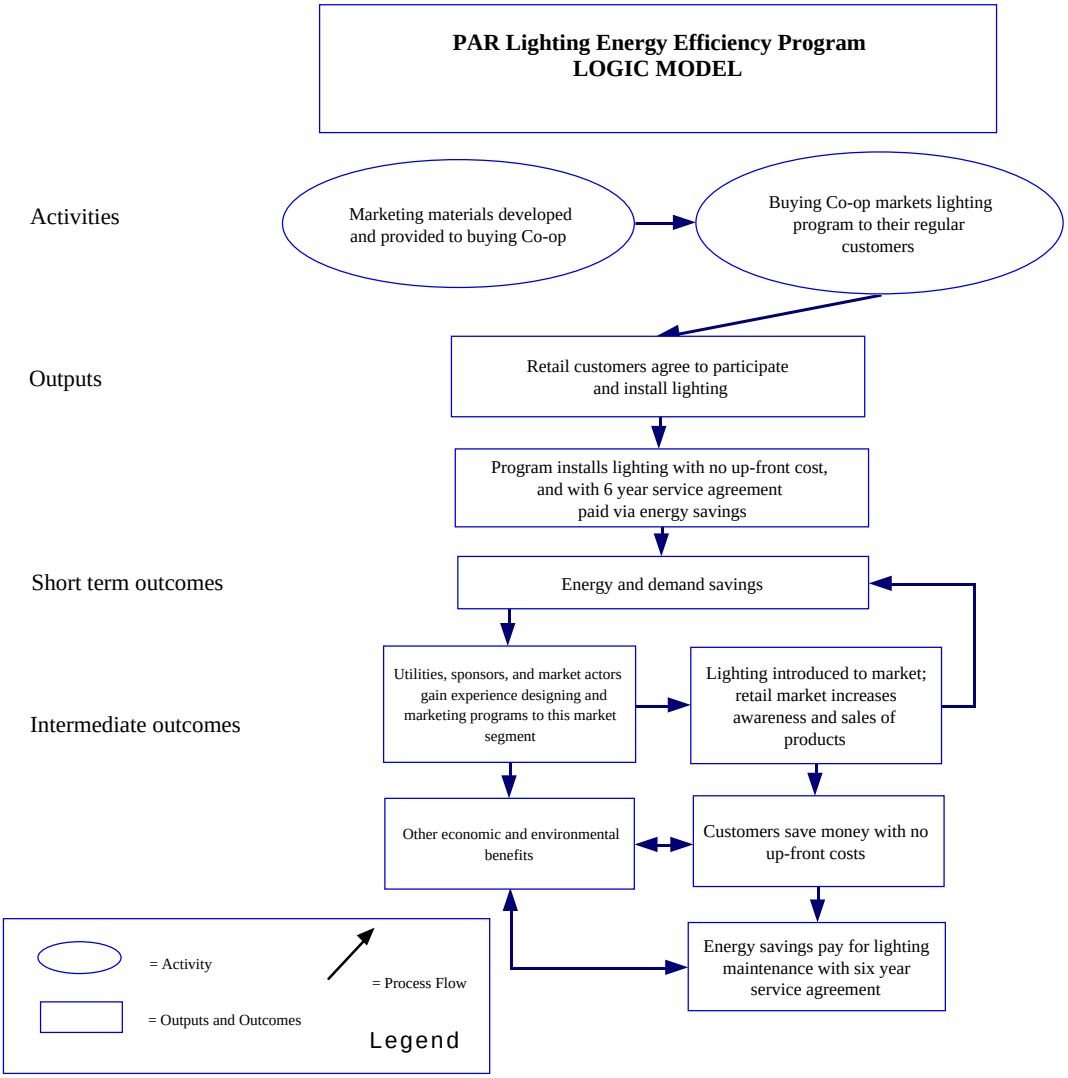
Further recommendations or next steps
No data logging was proposed by implementers. Since this is a new technology, post-installation monitoring is recommended (runtime data logging for three weeks). Suggested M&V plan has been proposed for this program.

Section 2. Program Theory and Logic Model

Program Theory

By introducing new PAR lighting technology to the retail sector, the program intends to increase market acceptance and market penetration of this technology. Commercial businesses will learn of the energy benefits and savings potential available with the new technology, lighting measures will be installed, and energy and demand savings will be achieved. The increased market penetration will further increase sales and mainstream the technology, achieving additional energy savings.

Figure 20. Logic Model



Section 3. Evaluability Assessment

Table 42. LEEP

QUESTION	COMMENT
1. Is there a description of the staff that will operate the program?	Proposed staff named I proposal. Final staff not specified, if different.
• How many staff and where are they located?	Location of all contactors and sub-contractors are specified in the proposal.
2. Is there an explicit program theory or logic model	No; implied, but not specified.
• Indicators of success	Not specifically, but can be gathered from proposal.
3. Is there a description of the target market?	Yes
• Is it possible to identify the potential population of participants and nonparticipants?	Yes. List of eligible retailers to be developed.
4. Is there a marketing plan?	Yes. Potential participants referred by retail buying cooperative (RETEX). Proposal refers to marketing to non-RETEX members, but marketing plan for those is not specified.
• How will potential participants be recruited once identified?	Telephone, site visits
• Is there a way to track participants?	Yes
• Is there a way to track nonparticipants?	Yes, from potential customer database developed by Contractor
5. Have proposers included an electronic tracking database in their plans?	Yes
• Does it include the elements needed to contact participants & non-participants of various program activities?	Yes.
• Does it include program forms, surveys and implementation back-up	No
• Are specific locations of measures being tracked? Can they be found?	No. Critical that this be done somehow.
• Are program assumptions being tracked on a site specific level (e.g., hours of operation)	Yes for operating hours for facilities. But operating hours for specific installations not tracked. Actual wattage of replaced bulbs nit tracked.
• Is the delivered energy saving service and/or installed retrofit being recorded?	Yes
• Does it include the outcome/result of the activities?	Yes
6. Will the program be delivered with trade allies?	Yes. Everything up to installation is done by the Contractor.
• What type of trade allies	Installation contractors
• Are the trade allies well enough defined to identify a potential group of participants and	They are named in the proposal.

nonparticipants?	
• Is there a way to track participating trade allies?	Yes
• Is there a way to track nonparticipating trade allies?	N/A
7. Are savings assumptions documented?	No
• DEER?	No DEER runs available
• If not, is the source of savings assumptions specified?	E3 lists measures as "emerging technologies." Measure life not specified, but lifetime savings spread over three years.
• Are the pre-retrofit or baseline parameters being recorded?	Not clear if they are recorded on a location – specific basis
• Does the database record the as-found values for parameters used to estimate ex-ante savings?	Unclear
• Does baseline monitoring need to take place?	No
• Can one of the impact evaluation methods specified in the CA Evaluation Protocols be used?	Yes, SEM, simple engineering methods are most appropriate
• Are there code compliance or program overlap issues for savings estimation?	None are apparent, unless this falls into a "major remodel" category and there is a watts-per-sq ft requirement.
Recommendations to improve evaluability:	The are two main variables in determining savings for this program: "delta watts" and hours of operation. Contractor should make these variables location specific, not building specific. For display lighting retrofits, hours of operation for the particular location should be used, not hours of operation for the facility (unless, of course they are the same). The lighting measure savings are dependent on the assumed on-to-one replacement, as proposed. A sample of actual wattage of replaced bulbs should be recorded. It may be analogous to normal CFL programs, where the replaced bulb is not the assumed baseline. Program proposes to refer Customers to other Edison programs. These referrals should be documented.

Section 4. Recommended QC Protocol

This is a direct install lighting program utilizing a new lighting product. The number of participants expected in this program is unknown (it may be small if each site installs a large number of lamps) and the number of lamps installed could be high (targeted 200,000 lamps).

Edison's QC should include a review of the implementer's reporting database and documentation for complete and reasonable data, identifying any oddities or entries out-of-range. Review ex-ante hours of operation; they should vary across participants. Confirm program activities are occurring as intended and specified in the SOW, including marketing through RETEX, audits, and customer enrollment. Contact 5% of the RETEX customers to determine if they received marketing materials.

The risk is high because of the potential to overestimate ex-ante hours (the sample database listed the same number of hours for each site) and concern about the quality of newly manufactured lamps. There was no baseline lighting collection planned and the location of the installations within a building may not be certain. The risk cannot be mitigated by increasing the number of inspections; what is being inspected and how well it is being inspected matters as well.

We recommend that Edison verify the pre- and post-installation parameters of the first ten projects. A ten percent sample inspection of participants, including 20% of measures installed, thereafter would be adequate. These are inspections of pre- and post-installation parameters. Since this is a direct install program, the implementers (and therefore, Edison) would know about signed up customers before the contractor commences implementation. A pre-installation inspection should be feasible to perform at this time. Some of the pre- and post-inspections should be carried out on the same project. Edison should independently verify the store/building size, operating hours, equipment count and equipment specifications (baseline and post lighting inventory including lamp/fixture types and wattage). Post-inspections should also look for the changes in quality of lighting and assess customer satisfaction.

Table 43. LEEP Recommended QC

PROGRAM	RISK	DOCUMENT REVIEW	PERCENT VERIFICATION	ONSITE VERIFICATION	WHAT TO VERIFY
PAR Lighting Energy Efficiency Program	High	Yes	First 10 sites, pre and post. Thereafter, 10% of participants, capturing 20% of measures installed	Yes	Review of the implementer's reporting database and documentation for complete and reasonable data, identifying any oddities or entries out-of-range. Confirm program activities are occurring as intended and specified in the SOW, including marketing through RETEX, audits, and customer enrollment. Contact 5% of the RETEX customers to determine if they received marketing materials. Verify the pre- and post-installation parameters of the first ten projects. A ten

					percent sample inspection of participants, capturing 20% of measures installed, of pre- and post-installation parameters thereafter would be adequate. Since this is a direct install program, implementers (and therefore, Edison) would know about signed up customers before the contractor commences implementation. A pre-installation inspection should be feasible to perform at this time. Some of the pre- and post-inspections should be carried out on the same project. Edison should independently verify the store/building size, operating hours, equipment count and equipment specifications (baseline and post lighting inventory including lamp/fixture types and wattage). Post-inspections should also look for the changes in quality of lighting and assess customer satisfaction.

Lights for Learning Program

Program Type - IDEEA Resource
Program Implementer - PECI
SCE 2546
PEPMA 05-10345

Section 1. Program Description and Status

The Lights for Learning CFL Fundraiser captures electric savings and furthers customer awareness of CFLs by working with schools, foundations and community youth organizations. Participants sell ENERGY STAR® qualified CFLs to raise funds for their school or organization.

The Lights for Learning CFL Fundraiser captures electric savings and furthers customer awareness of CFLs by working with schools, foundations and community youth organizations. Participants sell ENERGY STAR® qualified CFLs to raise funds for their school or organization.

Program Status as of 5/07
The first marketing materials went out Thanksgiving 2006, which was later than anticipated. PECI hired an outreach coordinator in March 2007, based in the LA area, to be available for travel, visiting schools, etc. The coordinator knows the area and can help refine the marketing. The Program delivered their first big order to a school in April 2007. Status reports are sent to Edison including the contacts made, schools signed on, interested parties, etc.
The program goal was originally designed around an established program and subsequently implementers found that the goal was too high for a start-up program. In May 2007 PECI and Edison began working together to adjust targets downward. Final adjustments were to be determined after additional experience was gained. At the end of the school year, PECI expected to change their marketing focus away from schools to focus on community based groups, churches etc. This change in focus was not spelled out in the SOW.

Significant EA Issues identified, including baseline/monitoring issues

1. There were issues with the structure of the data collection process which PECI was discussing with the Edison Program Manager in May 2007. The forms and process were burdensome and didn't fit well with the schools' volunteer-based delivery mechanism. The difficulty lay in collecting purchaser names, addresses, and account numbers to verify the CFL were installed in Edison territory.
2. There were no means to track the number of purchased CFL that were installed, the location of the installation, or wattage of lights removed. This information is needed for measure verification and savings estimates.
3. Nonparticipant schools and organizations should be clearly identifiable through targeting and contact lists kept by implementers. Many fundraisers plan one year ahead and could not participate in the current round.

Edison/Implementer contact history
Edison and PECI have been in close contact, and were discussing methods to verify installations with the least burden to the volunteer coordinators. Return postcards were discussed, where CFL buyers could document the number bought, the number installed, and the locations of the installations.

Issue resolution/results, current status
It appears the issue of measure verification is being resolved.

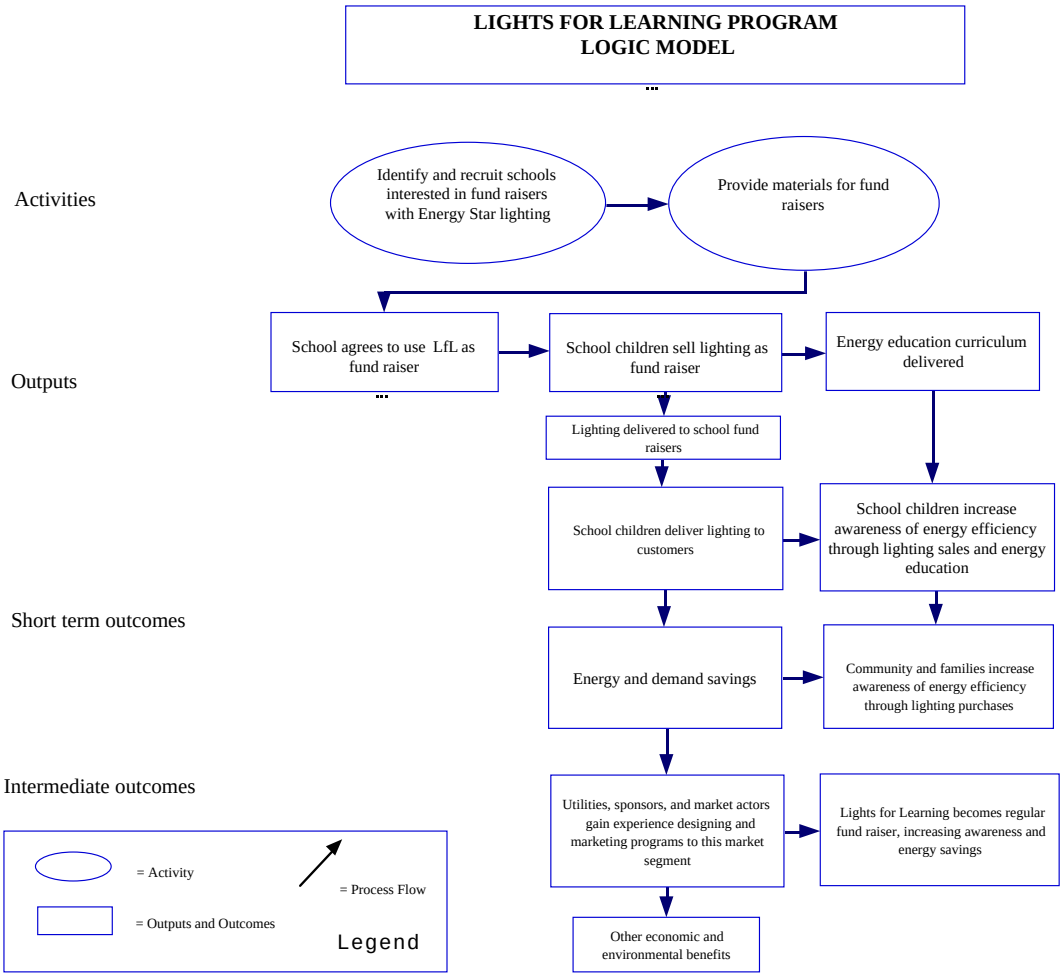
Further recommendations or next steps
This program will offer insights and lessons from implementing a new fund-raising program targeting CFL sales. The process evaluation should document changes in the installation goals and marketing changes with the change of focus at the end of the school year. The evolution in marketing and distribution process with school volunteer coordinators should be documented. Review postcards (if they are used) to determine how well they record measure verification data and if changes are needed.

Section 2. Program Theory and Logic Model

Program Theory

If the program is introduced to schools as a viable fund raising option, then school officials will learn about Energy Star lighting and choose this fundraising alternative. School children and their families will learn about energy efficient lighting, the children will sell Energy Star lighting in their community, and the purchasers of the lighting will achieve energy and demand savings. School children will receive an energy education curriculum and save more energy in their homes.

Figure 21. Logic Model



Section 3. Evaluability Assessment

Table 44. Lights for Learning

QUESTION	COMMENT
1. Is there a description of the staff that will operate the program?	No
• How many staff and where are they located?	Labor rates are provided but no names of key contacts, program mangers etc.
2. Is there an explicit program theory or logic model	No
• Indicators of success	Not as such
3. Is there a description of the target market?	Yes, though it is vague
• Is it possible to identify the potential population of participants and nonparticipants?	Not easily, there is an implication that schools will be targeted, but all nonprofit fundraisers are potentially eligible and there is no known list of this population and the only suggested way to reach them is through the Alliance to Save Energy's Green Schools Program.
• Is there a way to track participants?	Yes, the purchasers of CFLs will be identified with name, address, zip code, telephone number
• Is there a way to track nonparticipants?	Yes, PECI should will/should have information on all organizations that decline participation. Other nonparticiant categories are not required for the evaluation.
4. Will the program be delivered with trade allies?	Yes
• What type of trade allies	A manufacturer of CFLs will be selected for the program through a competitive process
• Are the trade allies well enough defined to identify a potential group of participants and nonparticipants?	The manufacturer is not identified but will be identified - a list of all bidding manufacturers may be obtainable
• Is there a way to track participating trade allies?	From PECI
• Is there a way to track nonparticipating trade allies?	Not required for the evaluation
• Program (implementer) data available electronically?	Unclear
5. Are savings assumptions documented?	Yes, for CFL's under Objective 2 If the additional program components are implemented (audits, etc) new savings estimates tracking criteria and evaluation plans will need to be developed
6. Are the savings assumptions reasonable?	Savings assumptions are generic – not tailored to specific program type: purchase for charity Number of unique participants assuming one six-pack CFL per customer may be as high as 38,000. This may be a stretch.
Recommendation for evaluability:	PECI should be asked to provide a list of key contacts and contact information for program implementation as well as the contact name and phone number for the

	selected manufacturer. PECI should be asked to provide a list of all bidding manufacturers. PECI should include a postage paid postcard with each CFL so that customers can report number of bulbs in storage, the location of the installed CFL and the wattage and type of the lamp removed. This could be addressed by the satisfaction survey is done early enough

Section 4. Recommended QC Protocol

Through this program, a proven lighting technology - CFLs - are being sold as a fund-raiser. The risk of achieving savings from this lighting program is low since purchasers are likely to install CFL. QC should confirm accuracy of databases and documentation provided by implementers. Verify the lights were sold and delivered to the schools coordinator, and thence delivered to the seller.

Table 45. Lights for Learning Recommended QC

PROGRAM	RISK	DOCUMENT REVIEW	PERCENT VERIFICATION	ONSITE VERIFICATION	WHAT TO VERIFY
Lights for Learning	Low	Yes	10%	No	Confirm accuracy of databases and documentation provided by implementers. Verify the lights were sold and delivered.

The line is somewhat blurred between M&V and QC. M&V will require a means to document installation in Edison's territory. Edison and PECI have discussed using postcards to document the number of purchased CFL, the number installed, the location of the installation, hours of operation, and wattage of lights removed. Postage paid postcards should be delivered to census of participants since the return rate will likely be low.

Commercial Real Estate Management Affiliates Partnership Group Program (MAP Energy)

Program Type - IDEEA Resource
Program Implementer - Energy Innovation Group
SCE 2537
PEPMA 05-10320

Section 1. Program Description and Status

The Program focuses primarily on commercial office building, retail department stores and other business buildings range in sizes from 20,000 to over 1 million square feet. The program is offered to property management companies to expand the use of emerging technologies with proven performance or enhancements of existing technologies, but which are not yet in general use in the market. The initial technologies proposed for MAP include, but are not limited to: Lighting Power Regulator for indoor and outdoor lighting; HVAC Cycle Manager for packaged HVACR; CO Sensing System for garage exhaust fans; CO2 sensing system for Demand Control Ventilation; and Turbocor Oil-Free Compressors. Rebates are .154 cents per gross kWh saved. In some cases the rebate will be >100% of cost, in which case EIG will determine whether to cover the cost or reduce the incentive so that the company makes a co-pay. These decisions appear to be on case-by-case basis if they come up.

The Program focuses primarily on commercial office building, retail department stores and other business buildings range in sizes from 20,000 to over 1 million square feet. The program is offered to property management companies to expand the use of emerging technologies with proven performance or enhancements of existing technologies, but which are not yet in general use in the market. Incentives pay for 80% of installed cost of demonstration projects. Remaining projects are paid at 16 cents/kWh.

Program Status as of 5/07
The program started to recruit participants in Oct. 2006, and went through a ramp up period. Implementers feel they have been able to adhere to the workplan and that they are on track. The monthly reports to Edison are quite extensive and detailed, recording the phase of the program each participant is in. Reports are generated from EIG's database which is used for tracking and management. Implementers reported that invoices to Edison include pre-installation baseline data including hours of operation and an economic summary.

In May 2007, CO sensing systems comprised 70% of the installations. No CO2 sensing systems for demand control ventilation or Turbocor oil-free compressors had been installed. Implementers conduct 100% verification inspections. Measures are installed according to SPC model/calculator to determine savings and verify estimates. Some baseline monitoring is being conducted by implementers.

Implementers are referring customers to other programs but not specifically tracking referrals by customer.

Significant EA Issues identified, including baseline/monitoring issues

1. Implementers should track the location of measures, number installed and baseline conditions. Baseline and M&V monitoring is suggested in attached M&V plan.
2. The monthly report indicates that every contact proceeds with participation. Implementers should track all nonparticipants, that is, businesses and management companies contacted who did not proceed to participate.
3. Nonparticipants should be tracked. Nonparticipants include people who were contacted about the program and chose not to participate.

Edison/Implementer contact history

EIG sends regular detailed monthly progress reports to Edison. The program is subscribing, but may be behind schedule according to the installation pace that the Edison PM projected to reach the program goals.

Issue resolution/results, current status

Edison is in contact with implementers regarding the enrollment pace and measure installation. Edison is also following up with implementers regarding documentation of the measure locations and M&V.

Further recommendations or next steps

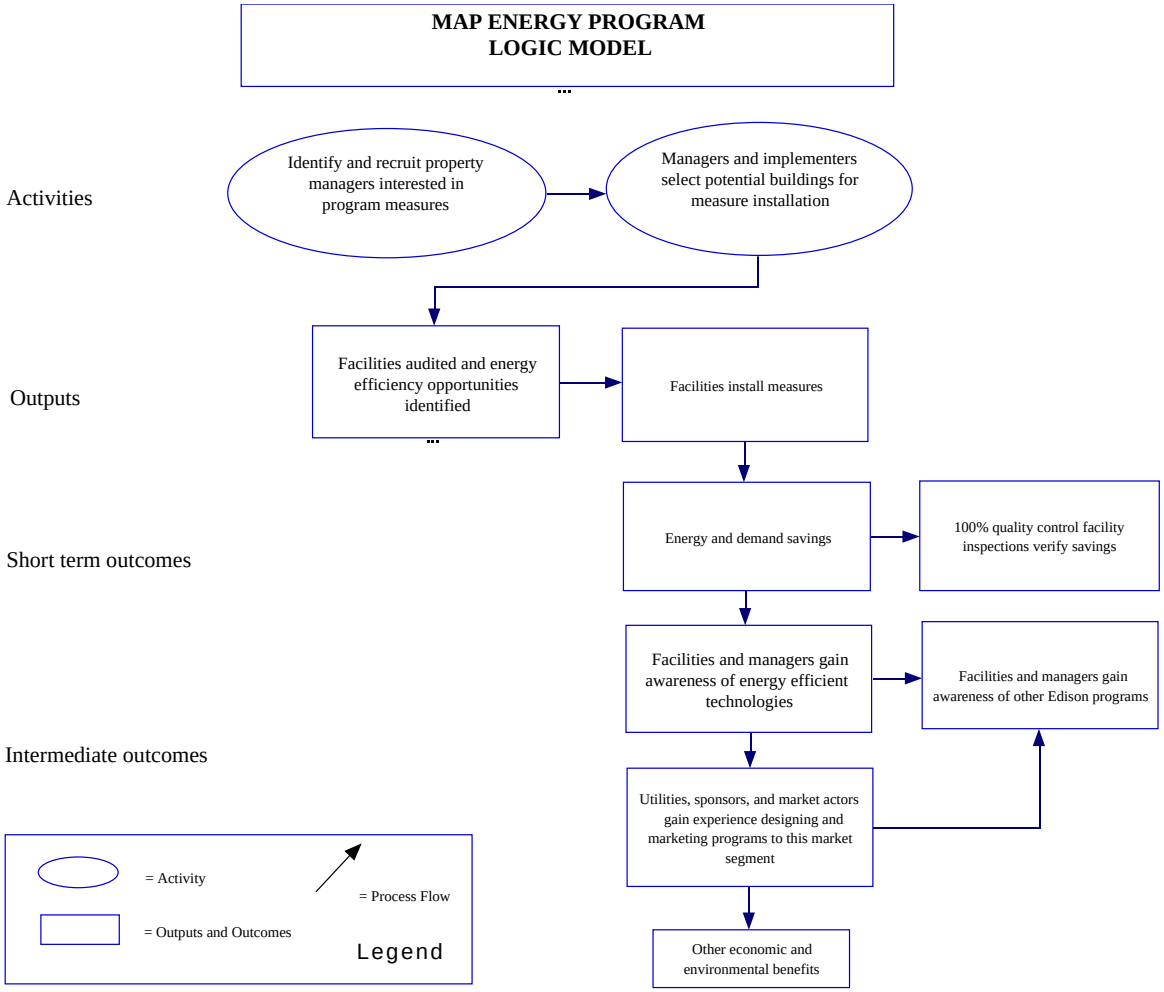
The measure mix could be assessed; some measures were not being installed (as of May 2007). Follow up with implementers to track nonparticipants, including participant and nonparticipant trade allies, and nonparticipant building owners/operators. Pre-installation conditions should be fully documented. Baseline and post-installation monitoring should be conducted on a sample of installations to verify savings and the method used to compute savings per measure.

Section 2. Program Theory and Logic Model

Program Theory

The program intends to increase market acceptance and market penetration of selected technologies. If property managers of commercial office buildings in the retail sector learn about the energy efficiency technologies and incentives offered through the program, they will understand the energy benefits and savings potential available with offered technologies. Choosing to participate, their facilities will be audited, identifying efficiency measures for installation, install measures with the incentives, and achieve energy and demand savings.

Figure 22. Logic Model



Section 3. Evaluability Assessment

Table 46. MAP Energy

Question	Comment
1. Is there a description of the staff that will operate the program?	Yes
• How many staff and where are they located?	Sic key staff identifies, in Pleasanton, CA
2. Is there an explicit program theory or logic model	Implied program theory; included "logic model" is a process flow, not a logic model
• Indicators of success	No
3. Is there a description of the target market?	Yes
• Is it possible to identify the potential population of participants and nonparticipants?	Yes
4. Is there a marketing plan?	General marketing plan
• How will potential participants be recruited once identified?	One-on-one communication; flyers, direct mail, web pages
• Is there a way to track participants?	Yes
• Is there a way to track nonparticipants?	Yes
5. Have proposers included an electronic tracking database in their plans?	Yes
• Does it include the elements needed to contact participants & non-participants of various program activities?	No
• Does it include program forms, surveys and implementation back-up	No
• Are specific locations of measures being tracked? Can they be found?	Not included
• Are program assumptions being tracked on a site specific level (e.g., hours of operation)	Not specified
• Is the delivered energy saving service and/or installed retrofit being recorded?	Yes
• Does it include the outcome/result of the activities?	Implied
6. Will the program be delivered with trade allies?	Both Primary Consultant and trade allies
• What type of trade allies	Auditors and installers (existing partners)
• Are the trade allies well enough defined to identify a potential group of participants and nonparticipants?	No
• Is there a way to track participating trade allies?	No
• Is there a way to track nonparticipating	No

trade allies?	
7. Are savings assumptions documented?	Yes in E3
• DEER?	Yes
• If not, is the source of savings assumptions specified?	SERA
• Are the pre-retrofit or baseline parameters being recorded?	No; not specified
• Does the database record the as-found values for parameters used to estimate ex-ante savings?	No; not specified
• Does baseline monitoring need to take place?	Yes
• Can one of the impact evaluation methods specified in the CA Evaluation Protocols be used?	Yes
• Are there code compliance or program overlap issues for savings estimation?	Referral to other SCE programs; possibility of demand response and self generation
Recommendations to improve evaluability:	Tracking of existing conditions/existing equipment tracked, if appropriate. This is the primary gap in the program proposal.
	Program induced participation in other SCE programs should be tracked
	Tracking of nonparticipants should be included
	Detailed program logic model and indicators of success should be developed
	Identification of billing data by meter

Section 4. Recommended Early M&V and QC Protocol

Recommended Early M&V: Data Collection/Baseline Monitoring Template
The table below summarizes risk and verification. The specifics regarding what to verify are included in the following paragraphs and second table.

Table 47. MAP Energy M&V Summary

TECHNOLOGY	RISK	DOCUMENT REVIEW	PERCENT VERIFICATION	ONSITE VERIFICATION	WHAT TO VERIFY
Lighting Power Regulator	Medium	Yes	10% of regulators installed	Yes	See table and discussion below
HVAC cycle manager for packaged HVACR	High	Yes	10% of the installation sites and all implemented measures at each site	Yes	See table and discussion below
CO Sensing System for garage exhaust fans	High	Yes	Census	Yes	See table and discussion below
CO2 sensing system for Demand Control Ventilation	High	Yes	Census	Yes	See table and discussion below
Turbocor Oil-Free Compressors	High	Yes	Census	Yes	See table and discussion below

Lighting Power Regulator
The recommended M&V approach for this program is a short-term monitoring plan per IPMVP, Option B, Retrofit Isolation, which requires measurement of all parameters. The measured parameters would be the connected lighting load, operating hours, and average lighting intensity for each lighting circuit being controlled. To determine the project savings, the pre and post data would be used in standard engineering algorithms to calculate the lighting power reduction factor to be applied to the connected lighting load and operating hours for each lighting circuit.
Risk - Medium. This technology involves short term monitoring and there is uncertainty in extrapolating annual data from short term data. 10% of the total number of regulators installed should be verified onsite.

HVAC cycle manager for packaged HVACR
The recommended M&V approach for this program is to adopt the implementer's methodology using site specific data for each controlled package unit, specifically the rated cooling capacity, ARI certified cooling efficiency rating (SEER), age, and monitored operating hours. Savings-factor claimed is 12.5%: implementers should provide documentation, Edison should test and validate claims.

Risk - High. Risk is high since expected savings are based on vendor's claimed savings may not have been validated by Edison, and operating hours vary by site. Since about 70% of measures

implemented in this program are HVAC cycle managers, we recommend verifying 10% of the installation sites and all implemented measures at each site.

CO Sensing System for garage exhaust fans
The recommended M&V approach for this program is a short-term monitoring plan per IPMVP, Option B, Retrofit Isolation, which requires measurement of all parameters. The measured parameters would be the exhaust fan power (kW) and operating hours for each controlled fan. It is anticipated that the pre-retrofit fan condition is constant speed, on-off operation, therefore the pre-retrofit fan power need only be a one-time measurement. The post-retrofit monitored operating hours may be used for the pre- condition. To determine the project savings, the pre and post data would be used in standard engineering algorithms to calculate the fan power reduction factor to be applied to the operating hours for each controlled fan.

Risk -- High. Risk is high for this measure because there is little published data for this application (enclosed parking garage). Performance is site specific, dependant on garage usage. Risk is mitigated by monitoring each site. Very few installations are anticipated, therefore, the census of installations should be field verified.

CO2 sensing system for Demand Control Ventilation
The recommended M&V approach for this program is a simplified, short-term monitoring plan per IPMVP, Option A, Partially Measured Retrofit Isolation, which requires measurement of some parameters, and allows stipulation of others. In this case, the stipulated parameters would be the baseline total supply air flow rate (cfm), the design allowable occupancy, the recommended CO2 level, and the heating and cooling system efficiencies. The pre and post measured parameters would be outside air, return air, and mixed air temperatures of the controlled air handler. To determine the project savings, the pre and post data would be used in standard engineering algorithms to calculate the hourly ventilation rate to apply to the heating and cooling energy calculations. Local weather data would then used be to extrapolate the results for the annual heating and cooling seasons. Additionally, the CO2 sensor should be monitored for compliance with the recommended level.

Risk -- High. Risk is high for this measure since few installations of the technology have been completed. Performance is site specific, dependant on cooling load profile. Risk is mitigated by monitoring each site. Very few installations are anticipated, therefore, the census of installations should be field verified.

Turbocor Oil-Free Compressors
The recommended M&V approach for this program is a simplified, short-term monitoring plan per IPMVP, Option A, Partially Measured Retrofit Isolation, which requires measurement of some parameters, and allows stipulation of others. In this case, the stipulated parameter would be chilled water flow rate (gpm), since this data is difficult and costly to obtain; and it should remain unchanged pre and post. The stipulated value would be from the post design flow rate, as specified. The measured parameters would be chilled water supply and return temperatures, compressor load (kW), and outside air temperature. To determine the project savings, the pre and post data would be used in standard engineering algorithms to calculate the hourly compressor

cooling output and associated efficiency for the monitoring period. Local weather data would then used be to extrapolate the results for the annual cooling season.

Risk -- High. Risk is high for this measure performance is site specific, dependant on cooling load profile, and few have been installed. Risk is mitigated by monitoring each site. Very few installations are anticipated, therefore, the census of installations should be field verified.

Table 48. MAP Energy M&V Approach

	PRE-INSTALLATION		POST-INSTALLATION	
Measure / Data Field	*Data Collection Method*	*Responsibility*	*Data Collection Method*	*Responsibility*
Lighting Power Regulator				
KW drawn: True power measurement	Measure true RMS power at lighting panel	Implementation contractor/host/EM&V by Edison or its contractor	Measure true RMS power at lighting panel	Implementation contractor/host/EM&V by Edison or its contractor
Measure light output (intensity)	Data logging for two weeks	EM&V by Edison or its contractor	Data logging for two weeks	EM&V by Edison or its contractor
Hours of operation	Site Interview	Implementation contractor	Runtime data logging for two weeks	EM&V by Edison or its contractor
HVAC cycle manager for packaged HVACR				
Savings-factor claimed is 12.5%: Provide documentation, test and validate claims	Pretest efficiency at critical performance	Implementation contractor provide documentation.		
Hours of operation	Site Interview	Implementation contractor	Runtime data logging for three weeks	EM&V by Edison or its contractor
Capacity and age	Name Plate, model, serial number, age	Implementation Contractor	Name Plate and recording changes	Implementation Contractor
CO Sensing System for garage exhaust fans				
KW drawn: True power measurement	Measure true RMS power at motor control panel (assumes constant speed motor)	Implementation contractor/host/EM&V by Edison or its contractor	Continuous measurement of true RMS power at motor control panel (assumes variable speed motor)	Implementation contractor/host/EM&V by Edison or its contractor
Hours of operation	Site Interview	Implementation contractor	Runtime data logging for three weeks (from above monitoring)	EM&V by Edison or its contractor

	PRE-INSTALLATION		POST-INSTALLATION	
Measure / Data Field	*Data Collection Method*	*Responsibility*	*Data Collection Method*	*Responsibility*
CO2 sensing system for Demand Control Ventilation				
Implementer reports Excel based savings calculator created	Copy of calculator; CO2 measurements should be required	Implementation contractor		
Ventilation CFM	(Assume constant ventilation rate) Design specifications for rated CFM; measurements of outside air, return air, mixed air temperatures. Calc % outside air.	Implementation contractor (data might be recorded by existing EMS)	If existing EMS trend log available, calculate pre and post ventilation rate and determine difference. If no EMS, continuous monitoring of air temperate points to compute ventilation CFM (variable ventilation rate). Monitoring 4 weeks; correlate to annual occupancy profile	EM&V by Edison or its contractor
CO2 HVAC system type and configuration will dictate number of measurements (minimum 1 measurement per air handler, or occupancy type)	ASHRAE recommendation based on building type & occupancy (max ppm)	Implementation contractor	Hourly measurement with installed sensors (ppm) (compare to ASHRAE recommendation for compliance)	EM&V by Edison or its contractor
HVAC equipment performance data	Name Plate, manufacturers data	Implementation contractor	Name Plate (no change in post)	Implementation contractor

	PRE-INSTALLATION		POST-INSTALLATION	
Measure / Data Field	*Data Collection Method*	*Responsibility*	*Data Collection Method*	*Responsibility*
Turbocor Oil-Free Compressor Implementer's equation assumes steady state, full load conditions. M&V recommendations account for partial cooling load conditions. Implementer notes Turbocor efficiency data based on prior installations and manufacturer's specs. Provide data for EM&V				
Compressor Hours of operation	Record compressor run time for 2 weeks during cooling season	EM&V by Edison or its contractor	Record compressor run time for 2 weeks during cooling season	EM&V by Edison or its contractor
Compressor capacity	Obtain part load performance curves from manufacturer; record hourly chilled water supply and return water temp's, compressor input kW, outside air DB and WB temp's using existing EMS. Obtain water flow rate (gpm) from design conditions, assume constant flow.	Implementation contractor /EM&V by Edison or its contractor	Obtain part load performance curves from manufacturer; record hourly chilled water supply and return water temp's, compressor input kW, outside air DB and WB temp's using existing EMS. Obtain water flow rate (gpm) from design conditions, assume constant flow.	EM&V by Edison or its contractor

Recommended QC Protocol

For all measures installed, Edison's QC should include a review of the implementer's reporting database and documentation for complete and reasonable data, identifying any oddities or entries out-of-range. Confirm program activities are occurring as intended and specified in the SOW, including marketing, audits, and customer enrollment. Contact 5% of the targeted property management companies by telephone to determine whether they received marketing materials or a presentation about the program. Risk is defined as the utility's risk in realizing claimed savings in the absence of verifying savings through M&V and QC. The table below summarizes risk and verification. The specifics regarding what to verify are included in the following paragraphs and second table.

Table 49. MAP Energy Recommended QC

TECHNOLOGY	RISK	DOCUMENT REVIEW	PERCENT VERIFICATION	ONSITE VERIFICATION	WHAT TO VERIFY
Overall program		Yes			Review implementer's reporting database and documentation. Confirm program activities are occurring as intended. Contact 5% of the targeted property management companies by telephone to confirm receipt of marketing materials.

NightBreeze Energy Efficiency Program

Program Type - InDEE -Resource
Program Implementer - Intergy Corporation
SCE 2552
PEPMA 05-10178

Section 1. Program Description

The NightBreeze Energy Efficiency Program will introduce and support the commercialization of the NightBreeze technology. The Program will install the Nightbreeze technology to integrate HVAC units with a fresh air ventilation system to save energy, improve indoor air quality, and enhance comfort in new construction homes located within Edison's service territory. In milder climates, the technology will eliminate the need for air conditioning, and in warmer climates, reduce the size of the air conditioner unit. The system will also maximize free night-time cooling through a smart ventilation system. The Consultant will perform outreach and marketing services to builders in Edison's service territory to promote and encourage the installation of this technology.

The NightBreeze Energy Efficiency Program (NEEP) will introduce and commercialize the NightBreeze technology by using an innovative marketing approach that leverages the Southern California Association of Government (SCAG) relationships with city administrations to reach local builders and encourage them to install NightBreeze units in new residences. The objective of the program is to mainstream this technology with the SCE residential new construction program offerings for 2007 and beyond.

Program Status as of 7/07
The program plans to install 150 units and expects to save 126,119 kWh in net annual energy savings and 361 kW in demand savings. Edison initially signed the contract for implementation through December 2007. The contract has since been extended through December 2008. As of May 2007, four NightBreeze units were delivered to a newly constructed neighborhood but none was installed. The implementation contractor had recruited one builder for participation in the program.

The implementation contractor has not started using the SMART tracking system. The contractor thinks of this program as a technology commercialization program, not a resource acquisition program. Therefore, Intergy has not thought much about estimating or reporting savings to Edison. Data collection forms were not available in May 2007. Intergy has planned to monitor two installations but have not developed specific plans on how they will select installations for monitoring. Of the two possible approaches the contractor has contemplated to monitor installations, i.e., recording weekly performance with NightBreeze unit on and off during alternate week or, finding two identical houses and using one as a control unit (this might be difficult), we prefer the first approach. A third option—comparing monitored sites with previously simulated data—will require identifying sites with similar characteristics. Monitoring

a site with the unit on or off on alternate week would work better since it eliminates cross-site comparison. This will require adjustments only for the outdoor temperature differences. Additional information on the contractor's monitoring plan is awaited.

Significant EA Issues identified, including baseline/monitoring issues:
In terms of data reporting, one difficulty the contractor foresees is lack of Edison account number in new construction. A significant risk to effective monitoring is the timing of installation. A typical home owner takes a month or two after closing to move in and then some more time bring a house to routine operation. Monitoring a sold but empty house without its internal gains will not tell the full story. If the first several installations are to be monitored to capture performance data during the summer 2007, delays in installations will affect monitoring plans. This risk might be somewhat mitigated because of an extension of the program which would allow collecting data during the 2008 summer season. However, it would not be possible to use the lessons learned from data collected initially and apply those to other installations.

Edison/Implementer contact history:
The implementation contractor and Edison are in regular contact over the status program implementation and other contract matters.

Issue resolution/results, current status:
The technology is to be commercialized through Edison's efforts; therefore monitoring should be carried out in a realistic representative manner giving every chance to this technology to demonstrate its performance, and set up this plan to record lessons learned, should it not meet initial expectations. The program might face significant barriers in the current residential real estate market over which Edison does not have any control. However, technical or adoption barriers should be recorded as they come up in review meetings with Intergy.

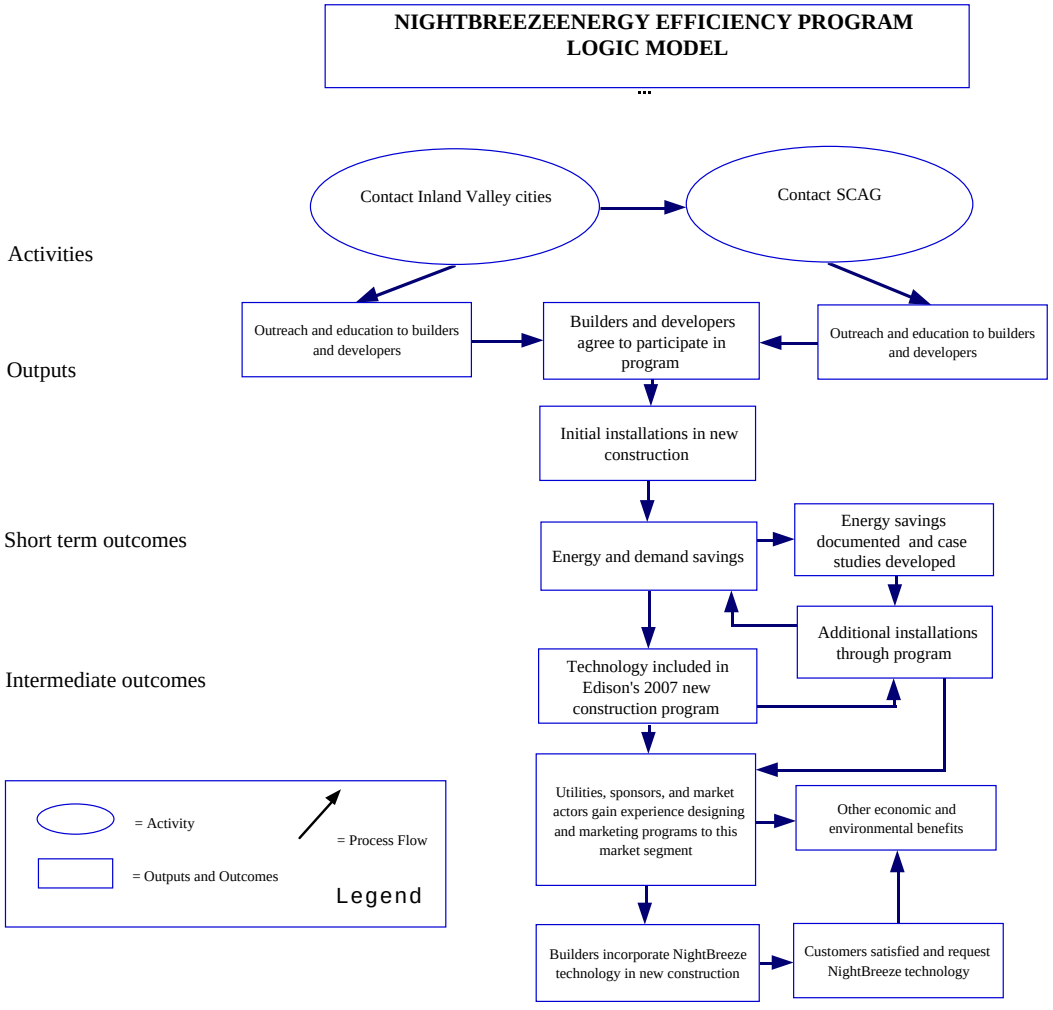
Further recommendations or next steps:
Edison should ensure that the base case used to estimate savings for two initial installations complies with the current building code and AC efficiency standard. Data on participants' building and equipment should be maintained by the implementation contractor.

Section 2. Program Theory and Logic Model

Program Theory

If the NEEP is successfully marketed to builders through the SCAG and city administrators, then the program will initially install two units, monitor and document the resultant energy savings, create case studies, gain customer acceptance, and then work to integrate the technology into the market. By working through the cities and SCAG, more influence will come to bear on the builders to adopt the superior energy saving technology. The technology will then be mainstreamed with the residential program (2007 New Construction) offerings and continue to achieve energy savings.

Figure 23. Logic Model



Section 3. Evaluability Assessment

Table 50. Nightbreeze

QUESTION	COMMENT
1. Is there a description of the staff that will operate the program?	Supervisors and administrators identified in proposal. Installation contractor identified by name only.
• How many staff and where are they located?	Unclear as to actual number, but all located all in California
2. Is there an explicit program theory or logic model	No. There is one implied, but the "program theory" is a restatement of the program process flow.
• Indicators of success	1500 installations. No intermediate indicators specified.
3. Is there a description of the target market?	Yes, builders and developers
• Is it possible to identify the potential population of participants and nonparticipants?	Yes
4. Is there a marketing plan?	Yes
• How will potential participants be recruited once identified?	Personal communication
• Is there a way to track participants?	Yes
• Is there a way to track nonparticipants?	Only if lists of potential participants id maintained
5. Have proposers included an electronic tracking database in their plans?	Yes
• Does it include the elements needed to contact participants & non-participants of various program activities?	For participants, but not explicitly for nonparticipants or contacts.
• Does it include program forms, surveys and implementation back-up	No
• Are specific locations of measures being tracked? Can they be found?	Yes
• Are program assumptions being tracked on a site specific level (e.g., hours of operation)	Post-installation monitoring will be done for two initial installations. Equipment and building data that were used to estimate savings for the case study may not be identical to those for program participants. Proposal makes no mention of the participants' equipment data that will be maintained.
• Is the delivered energy saving service and/or installed retrofit being recorded?	Probably. It is unclear how savings will be estimated and reported in the program flat file.
• Does it include the outcome/result of the activities?	Yes.
6. Will the program be delivered with trade allies?	One trade ally identifies as doing all the imstallations.
• What type of trade allies	HVAC contractor
• Are the trade allies well enough defined to	N/A

identify a potential group of participants and nonparticipants?	
• Is there a way to track participating trade allies?	N/A
• Is there a way to track nonparticipating trade allies?	N/A
7. Are savings assumptions documented?	Savings were estimated using on-site monitoring and DOE2 simulation for a case study installation. The proposal did not provide all assumptions used in that DOE2 simulation. The base case had assumed 10 SEER airconditioner (old code).
• DEER?	No
• If not, is the source of savings assumptions specified?	Yes, case study.
• Are the pre-retrofit or baseline parameters being recorded?	Not applicable. New construction data to be maintained is not specified.
• Does the database record the as-found values for parameters used to estimate ex-ante savings?	Not applicable. See comment above.
• Does baseline monitoring need to take place?	No.
• Can one of the impact evaluation methods specified in the CA Evaluation Protocols be used?	Yes, building simulation combined with on-site metering can be used.
• Are there code compliance or program overlap issues for savings estimation?	No.
Recommendations to improve evaluability:	Edison should ensure that the base case used to estimate savings for two initial installations complies with the current Title 24 and AC efficiency standard.
	Data on participants' building and equipment should be maintained by the implementation contractor.

Section 4. Recommended QC Protocol

Edison's QC should include a review of the implementer's reporting database and documentation for any oddities or entries out-of-range. Confirm program activities are occurring as intended and specified in the SOW, including marketing through SCAG, marketing to developers, case studies, and monitoring.

This program will install NightBreeze units in new homes; therefore, there is no risk of losing pre-installation data. The risk to program savings is low since installed equipment and parameters (home characteristics, temperature control setting, equipment nameplate data) can be verified during the ED's evaluation. To ensure that the installed equipment is working and data are recorded to simulate savings, a small number of on-site verifications are recommended (15, 10 percent of 150 installations planned).

Table 51. NightBreeze Recommended QC

PROGRAM	RISK	DOCUMENT REVIEW	PERCENT VERIFICATION	ONSITE VERIFICATION	WHAT TO VERIFY
NightBreeze	Low	Yes	Two monitored installations and ten percent thereafter	Yes	Review of the implementer's reporting database and documentation for any oddities or entries out-of-range. Confirm program activities are occurring as intended and specified in the SOW, including marketing through SCAG, marketing to developers, case studies, and monitoring. Two initial installations are planned to be monitored to estimate saving. Edison should verify compliance with monitoring protocols (still to be developed) and review monitored data and savings estimates. The inspection of the sample thereafter should focus on equipment functionality and verification of parameters that would be used to estimate savings. This sample should be split among installations in different climate zones.

Innovative Pool Pump Program

Program Type - InDEE - Resource
Program Implementer - Pentair/Advanced Energy
SCE 2550
PEPMA 05-10361

Section 1. Program Description and Status

The IntelliFlo pool pump allows for more precise control of the motor and pool pumping system by using a variable speed drive to run the pumping system at lower speeds to reduce both energy use and demand. Through marketing, training, verification and rebate, the program expects to provide significant benefits to EDISON's customers. The program goals are to install 775 IntelliFlo units in existing residential and new construction pools, and save 1,209,000 kWh in net energy savings and 1,003 KW in net peak demand.

The program rebates the Intellifo pool pump system that uses a variable speed drive, monitors the pool conditions and more precisely adjusts the pumping system operation as compared to the fixed speed system. By incorporating the variable speed drive technology, the pumping system can be run at lower speeds much of the time, reducing both energy consumption and demand.

Program Status as of 7/07
As of April 2007, the program had installed over 90 pool pumps. The original contract, valid through June 2007, has been extended through December 2007. Vendors market the program using prior relationship and methods such as hanging program information on a customer's door. Vendors maintain data only on participating customers; nonparticipant data and their responses are not tracked. The implementation contractor mentioned that vendors often have a service contract with their customers and they might replace equipment as part of a service call.

Vendors were not maintaining pre- and post-installation data on pool pumps. After our discussion with the implementation contractor, the Edison program manager has arranged to have vendors collect post-installation data, which now appear to include parameters required to estimate savings. It is not clear whether any pre-installation data on replaced pool pumps are being recorded. We expect significant difficulties in estimating savings without knowledge of the removed equipment (pump model and capacity) and baseline operating practice. The program may install pool pumps in new construction for which the baseline practice will have to be determined. The data on baseline installation practice in new construction are not available.

Significant EA Issues identified, including baseline/monitoring issues:
See notes above. The program does not maintain contact information for nonparticipants.

Edison/Implementer contact history:
The implementation contractor and Edison are in regular contact over the status program implementation and other contract matters.

Issue resolution/results, current status:
Data collection and nonparticipant information issues were discussed and resolved as best as we possibly could.

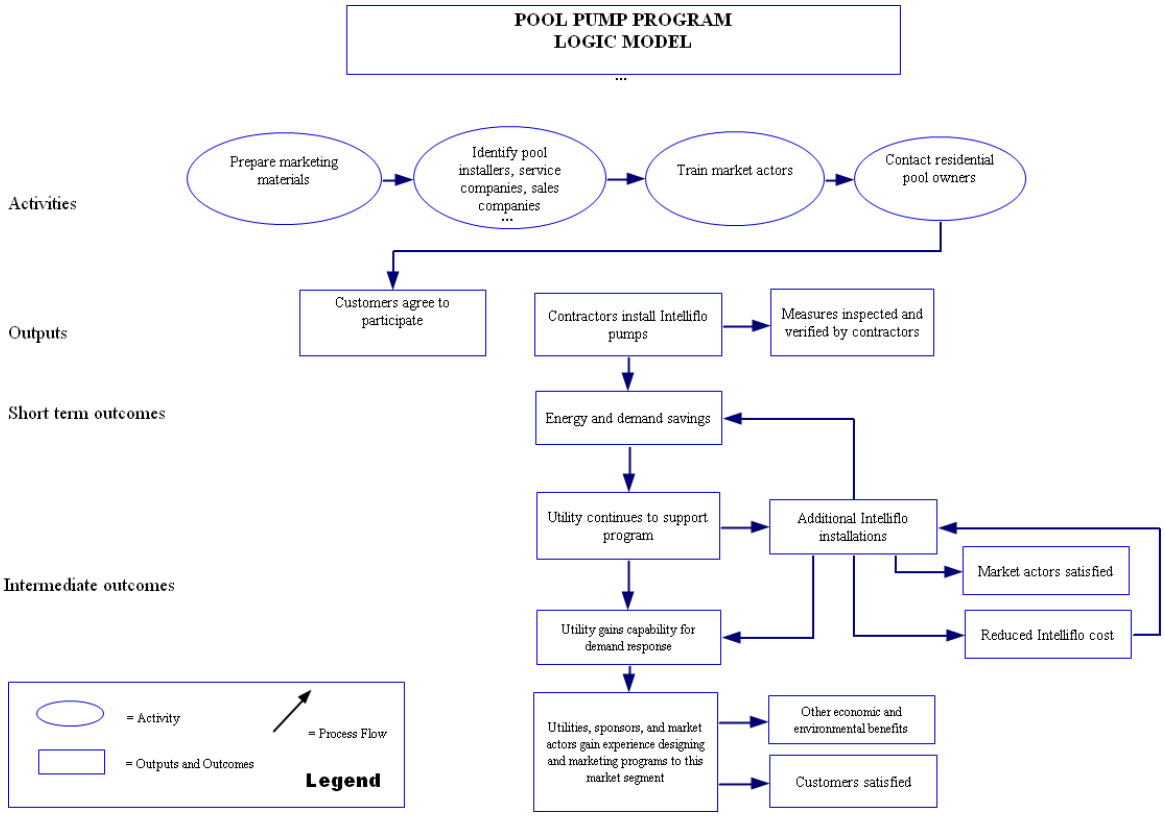
Further recommendations or next steps:
See notes above. We have no additional recommendations.

Section 2. Program Theory and Logic Model

Program Theory

By offering training to pool sales companies, pool installers, service companies and pool owners so that they understand the energy benefits and savings potential available with the new system, the program intends to increase market acceptance and market penetration of this technology. The increased market penetration will increase sales volume and Edison's support will help improve the impeller design and controller panel and reduce the cost of the Intelliflo pool pump system, making it competitive with two-speed pumping systems and deliver more energy savings. Installation of this controller technology would optionally allow SCE and other utilities to control the pool pump systems during demand response period and further reduce peak demand.

Figure 24. Logic Model



Section 3. Evaluability Assessment

Table 52. Innovative Pool Pump Technology

QUESTION	COMMENT
1. Is there a description of the staff that will operate the program?	No, just "Pentair"
• How many staff and where are they located?	Unknown
2. Is there an explicit program theory or logic model	No
• Indicators of success	Not specified Gives target # installations
3. Is there a description of the target market?	Program is directed to vendors & installers of pool pumps in residential retrofit and new construction pools
• Is it possible to identify the potential population of participants and nonparticipants?	Pool pump vendors & installers will identify potential participant end-users. Pentair is relying on vendors for this.
4. Is there a marketing plan?	Vague, Pentair will recruit vendors and installers of new and replacement pool pumps. Pentair will work with existing relationships & service agreements & supply chains. Installers must be trained & certified. Product marketing materials developed by Pentair, for customers, to be distributed through existing vendor channels.
• How will potential participants be recruited once identified?	Pool pump vendors & installers will use existing relationships and existing service channels. Pentair is relying on vendors for this.
• Is there a way to track participants?	Customers identified and enrolled will be entered in flat file
• Is there a way to track nonparticipants?	No, only if pool pump vendors track who they market to and who refuses
5. Have proposers included an electronic tracking database in their plans?	Participating customers will be entered in the flat file
• Does it include the elements needed to contact participants & non-participants of various program activities?	Yes
• Does it include program forms, surveys and implementation back-up	Inspection form & checklist developed for customer installation. Data collected from forms should be entered electronically in database.
• Are specific locations of measures being tracked? Can they be found?	Yes
• Are program assumptions being tracked on a site specific level (e.g., hours of operation)	Unclear
• Is the delivered energy saving service and/or installed retrofit being recorded?	Yes, partially.
• Does it include the outcome/result of the	Yes, instantaneous power measurement is proposed

activities?	after retrofit but baseline measurement is not proposed.
6. Will the program be delivered with trade allies?	yes
• What type of trade allies	Pool pump vendors & installers
• Are the trade allies well enough defined to identify a potential group of participants and nonparticipants?	Yes, but vague. Pentair will use existing relationships within the industry Pentair should define a population evaluators could independently access
• Is there a way to track participating trade allies?	Yes, Contact list of pool pump vendors & installers upon completion of training
• Is there a way to track nonparticipating trade allies?	Pentair will need to track all vendors & installers they contact, track who participates (both training and installations) & who doesn't (no response, not interested, trained but didn't install pumps)
7. Are savings assumptions documented?	No. Ex-ante energy savings are consistent with DEER but demand savings appear overestimated.
• DEER?	Not specifically mentioned.
• If not, is the source of savings assumptions specified?	No. Billing analysis is proposed by the implementation contractor (?).
• Are the pre-retrofit or baseline parameters being recorded?	Not mentioned
• Does the database record the as-found values for parameters used to estimate ex-ante savings?	Not mentioned
• Does baseline monitoring need to take place?	Yes, need information on the baseline of retrofitted pools and the market baseline practice for new construction.
• Can one of the impact evaluation methods specified in the CA Evaluation Protocols be used?	Yes, pre-and post-metering and billing analysis can be used.
• Are there code compliance or program overlap issues for savings estimation?	Yes, CA sanitation requirement may affect the pool operating hours. Local permit rules need to be reviewed by Edison because health-related issues are too sensitive to ignore code compliance. Licensed installation contractors should be used. A large scale statewide program to replace the motor-pump combination was implemented in 2001. The implementation contractor's two-speed motors and pumps were installed at that time at thousands of locations in SCE's territory. SCE should avoid prior participants because savings from change over from a two-speed motor to a VSD would be minimal.
Recommendations to improve evaluability:	The implementation contractor should document all assumptions made to estimate energy and demand savings, specify pre-and post-installation data to be maintained, and clarify measurement activities they propose to perform. An assessment of swimming pool motor installation practices will be required to establish the baseline for the new construction market. Database fields should be specified.

	Pentair should be asked to provide a list of key contacts and contact information for program implementation, training, and inspection staff. Pentair should be asked to provide a list of all contacted vendors and installers, including contact information (to survey non-participant trade allies). Participating vendors and installers should maintain database of customer contacts, indicating those who refused (to survey non-participant customers).

Section 4. Recommended QC Protocol

Edison's QC should include a review of the implementer's reporting database and documentation for any oddities or entries out-of-range. Confirm program activities are occurring as intended and specified in the SOW. Confirm installation of the pool pump for 10% of program participants, confirming equipment functionality, and verifying equipment schedule.

The program does not collect baseline data but post-installation data are now being collected. The program is driven by vendors who market and install Intelliflo pool pumps. Edison's verification should be done immediately after the installation inspection forms are available from the implementation contractor. This may increase the chances of contacted vendors recalling key details of the replaced equipment.

Table 53. Innovative Pool Pump Recommended QC

PROGRAM	RISK	DOCUMENT REVIEW	PERCENT VERIFICATION	ONSITE VERIFICATION	WHAT TO VERIFY
Pool Pump Program	Medium	Yes	10 percent	Yes	Post-installation data collected by the implementation contractor, equipment functionality, and equipment schedule should be verified. The sample may be allocated among new and existing homes. Edison's verification contractor may call vendors, who replaced pumps, to gather pre-installation equipment data and operating schedule.

School Modernization and New Construction Program

Program Type - IDEEA - Resource
Program Implementer - The Benningfield Group
SCE 2558
PEPMA No: 06-10003

Section 1. Program Description and Status

The Modernization and New Construction Efficiency Enhancement for Schools Program will increase the energy performance of new and modernized school buildings located in Edison's service territory by utilizing the Department of State Architects (DSA) review and approval process. The Consultant will work with DSA staff to flag and refer projects that just marginally exceed the energy code to the Consultant's automatic plan review technical assistance team who will review the project and identify potential energy-saving design modification opportunities and intervene during a time in the process where changes to customer's drawings occur. Incentives will be provided to the design team and to the school district for participating in the Program.

The energy savings will be captured through a design review and revision process that evaluates the relative value of measures that are deemed cost-effective but are not yet in the current design. The savings will be estimated two different ways: First, by a relative measure of 'above the code' performance utilizing EnergyPro, and second, by a tally of installed measures and their deemed energy savings via DEER estimates. Installation of measures will be assured through an automatic monitoring of final approved plans, change orders, and routine and final building inspections.

Program Status as of 5/07
The program plans to upgrade 27 projects and expects to save 1,167,466 kWh in net annual energy savings and 242 kW in demand savings. As of May 2007, the contractor had identified 39 potential projects, performed three Level I reviews but no customer was signed up. The PM communicates regularly with the implementation contractor, who has started populating the Smart Systems database.

The project review method has been changed to accelerate customer sign up. The implementation contractor now simulates specific measures instead of the entire building usage, which was taking too long to qualify and contact potential customers. Program marketing material is being modified to make DSA's logo less prominent. The implementation contractor has designed a Web site for customers to sign up for the program and track projects. The implementation contractor will record the reasons for nonparticipation.

The implementation contractor has provided information on expected activities over the next three months to Edison's program manager. They expect to meet the 2007 program goals as well as the overall program goals. No new barriers have been discovered; as expected, getting customers to sign up is difficult. The contractor has used Smart project tracking system and

identified a few problems with its design: (1) The Smart System is a “Be all, for all” database that is inappropriate for some programs. (2) The data transfer and multiple users of data files create complexity. (3) The design is file-driven, not database driven; therefore the flexibility is less and version control problems are compounded.

Significant EA Issues identified, including baseline/monitoring issues:
The measure simulation data, that include the initial design and final design data, are maintained electronically. Parameters such as fan capacity, AC capacity, economizer controls, etc. will be available. The implementation contractor plans to use eQuest or Energy-Pro simulation modeling on some projects, and also plans to run NC-Calc to assess how well the results match with the DEER measure savings data.

Edison/Implementer contact history:
The implementation contractor and Edison are in regular contact over the status program implementation and other contract matters.

Issue resolution/results, current status:
No serious issues emerged in discussion with the implementer. We have made the PM aware of minimal demand savings potential of VSDs and occupancy based PTAC sensor controls.

Further recommendations or next steps:
The program is a new construction design review; therefore, a careful review of the proposed measures is recommended to ensure that mandatory measures required by Title 24 are not encouraged. The program proposes to refer participants to other Edison programs. Although double-dipping is planned to be discouraged, this program and the referred program must record the referral and the source of lead, respectively, so that only one program claims savings.

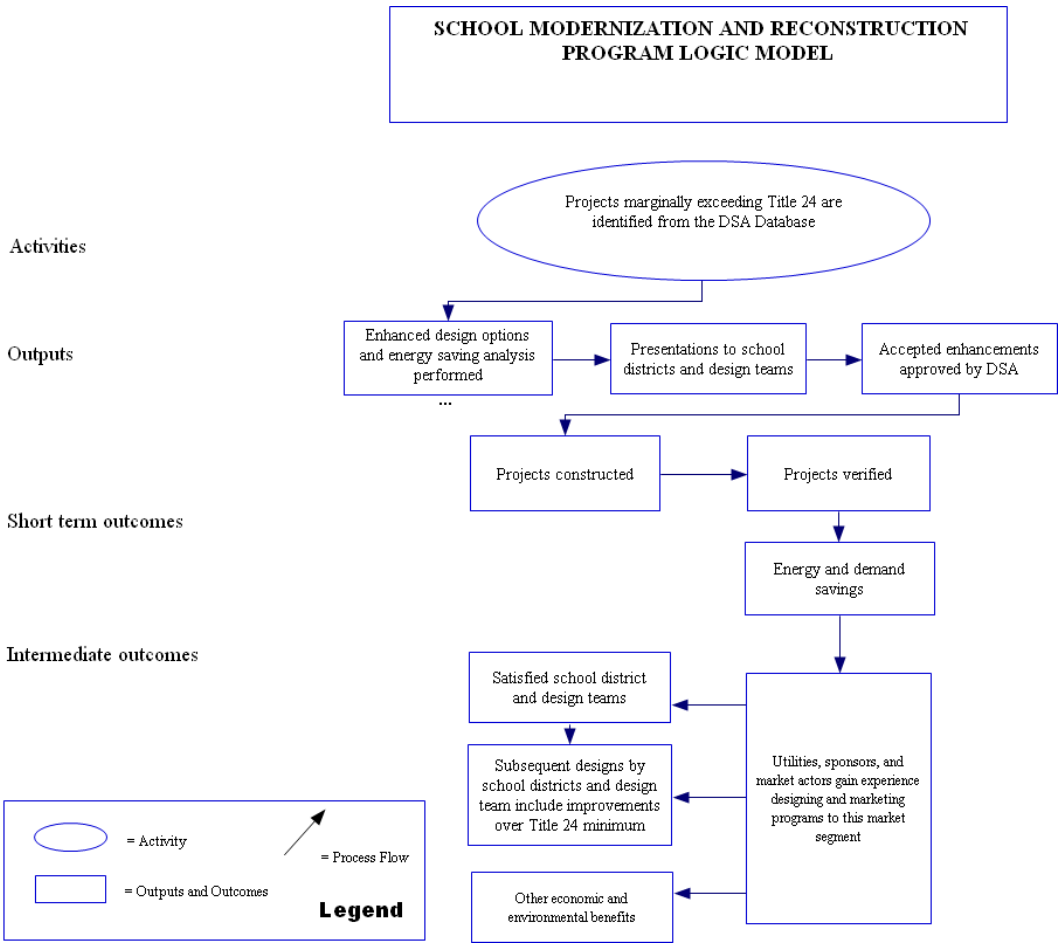
The program relies on one technology, Installation of VSDs on distribution boxes, for nearly 80 percent of the proposed savings. Edison should closely review the code requirement and the baseline usage and savings on an ongoing basis. Measures such as the installation occupancy sensors, VSDs, and occupancy sensors in PTAC equipment might not operate coincident with Edison’s peak summer period. Proposed projects should be reviewed to ensure that an appropriate demand diversity factor is used, and post-installation measurement carried out to establish coincident demand savings. Contractor should be required to maintain a DSA-referral database and invitation and attendance records at workshops.

Section 2. Program Theory and Logic Model

Program Theory

By automatically identifying all projects in the existing DSA approval pipeline when the design team is open to making changes and recommending enhancements to improve energy efficiency, the program expects to change initial designs of projects awaiting approval, and the design changes will achieve energy and demand savings. This program is then expected to influence the design of all subsequent projects produced from that district and design team, achieving additional energy and demand savings.

Figure 25. Logic Model



Section 3. Evaluability Assessment

Table 54. School Modernization

QUESTION	COMMENT
1. Is there a description of the staff that will operate the program?	No, implication is that they will do all the work
• How many staff and where are they located?	The contractor has a staff of 5, Located in Sacramento
2. Is there an explicit program theory or logic model	Yes, in the Proposal (v2)
• Indicators of success	Yes
3. Is there a description of the target market?	No, but the Title speaks for itself
• Is it possible to identify the potential population of participants and nonparticipants?	No; potential participants are handed to Contractor by DSA
4. Is there a marketing plan?	Attendance at conferences and workshops. But see note above
• How will potential participants be recruited once identified?	DSA
• Is there a way to track participants?	Yes
• Is there a way to track nonparticipants?	Contractor should be required to maintain a DSA-referral database and invitation and attendance records at workshops.
5. Have proposers included an electronic tracking database in their plans?	Yes, but contacts and non-paticipants are not included
• Does it include the elements needed to contact participants & non-participants of various program activities?	No
• Does it include program forms, surveys and implementation back-up	No
• Are specific locations of measures being tracked? Can they be found?	Yes
• Are program assumptions being tracked on a site specific level (e.g., hours of operation)	Yes, through a drawing design review and simulation
• Is the delivered energy saving service and/or installed retrofit being recorded?	Not applicable. The program encourages the installation of above code equipment and savings are estimated as the incremental difference with the proposed design.
• Does it include the outcome/result of the activities?	Yes
6. Will the program be delivered with trade allies?	No
• What type of trade allies	N/A
• Are the trade allies well enough defined to identify a potential group of participants and	N/A

nonparticipants?	
• Is there a way to track participating trade allies?	N/A
• Is there a way to track nonparticipating trade allies?	N/A
7. Are savings assumptions documented?	Yes
• DEER?	DEER RunID provided in the E3 calculator. Non-DEER sources are cited.
• If not, is the source of savings assumptions specified?	See response to the previous question.
• Are the pre-retrofit or baseline parameters being recorded?	This is not a retrofit program. The participant proposed design is being recorded as the baseline.
• Does the database record the as-found values for parameters used to estimate ex-ante savings?	Yes. The program database will inspect and record installed equipment.
• Does baseline monitoring need to take place?	Yes, selectively.
• Can one of the impact evaluation methods specified in the CA Evaluation Protocols be used?	The building simulation method can be used.
• Are there code compliance or program overlap issues for savings estimation?	The program has two issues. The program is a new construction design review; therefore, a careful review of the proposed measures is recommended to ensure that mandatory measures required by Title 24 are not encouraged. The program proposes to refer participants to other Edison programs. Although double-dipping is planned to be discouraged, this program and the referred program must record the referral and the source of lead, respectively, so that only one program claims savings.
Recommendations to improve evaluability:	The program relies on one technology, Installation of VSDs on distribution boxes, for nearly 80 percent of the proposed savings. Edison should closely review the code requirement and the baseline usage and savings on an ongoing basis. Measures such as the installation occupancy sensors, VSDs, and occupancy sensors in PTAC equipment might not operate coincident with Edison's peak summer period. Proposed projects should be reviewed to ensure that an appropriate demand diversity factor is used, and post-installation measurement carried out to establish coincident demand savings

Section 4. Recommended QC Protocol

The program relies on DSA inspections so the risk of noncompliant installations is minimal.

Review DSA inspection records, implementation contractor's savings algorithm results, and verify equipment and savings parameters. Edison should ensure that DSA inspections meet or exceed M&V requirements of EE programs.

Table 55. School Modernization and New Construction Recommended QC

PROGRAM	RISK	DOCUMENT REVIEW	PERCENT VERIFICATION	ONSITE VERIFICATION	WHAT TO VERIFY
School Reconstruction and Modernization	Low	Yes	First five projects and ten percent thereafter	Yes	The program relies on DSA inspections so the risk of noncompliant installations is minimal. Review of DSA inspection records, implementation contractor's savings algorithm results, and verification of equipment and savings parameters. Edison should ensure that DSA inspections meet or exceed M&V requirements of EE programs.

Sustainable Energy Efficiency Development (SEED)

Program Type - IDEEA Non-resource
Program Implementer – EnVinta
SCE 2540
PEPMA 05-10055

Section 1. Program Description and Status

SEED is an energy management program to improve the energy performance of manufacturers in the food processing industry. The SEED program contract was signed in late summer 2006 and marketing began in September. The first sessions were in November. The program has two components or phases. The first phase is a one-day session using the *One-2-Five* tool in combination with a walk-through technical audit. The result is a report on prioritized management business practices and energy opportunities for the plant. The second phase provides assistance to the firms to implement the priorities identified in the phase one meeting, and includes technical assistance and support to participate in Edison programs.

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SEED is an energy management program to improve the energy performance of large manufacturers in the food processing industry (e.g. > 0.5 MW load). The program has two components or phases. The first phase is a one-day session using the *One-2-Five* tool in combination with a walk-through technical audit. The result is a report on prioritized management business practices and energy opportunities for the plant. The second phase provides assistance to the firms to implement the priorities identified in the phase one meeting, and includes technical assistance and support to participate in Edison programs.

The program includes five primary steps. Within phase one are the first two steps including customer recruitment and an initial management diagnostic and a technical Site walk-through audit. Phase 2 includes detailed implementation support, a repeat diagnostic, and documentation, reporting and success story dissemination. Businesses receiving repeat diagnostics have received prior support and the repeat is intended to review business progress and generate an updated business energy management action plan intended to facilitate a process of continuous improvement.

Program Status as of 6/07

As of May 2007 there have been nine phase one sessions compared to a goal of 30 sessions. Phase one has been slow because of difficulty identifying contacts at the firms. The PM has been working with EnVinta to address this. SCE provided a list of 400-500 firms that had no contact names. The phase one goal of 30 sessions may need to be revisited. The PM believes that EnVinta needs to branch out and work with account executives other than those already known to the staff at EnVinta. Three of the nine phase one session participants have asked to proceed to phase two and a fourth is considering this. It appears the phase two goal of five sessions is likely to be achieved. The SMART project tracking system is just being used in late June 2007. EnVinta does not track nonparticipants, they have a list of potential contacts, but no call-log is kept on the results of calls. All of the forms and marketing material have been approved.

Significant EA Issues, Including Baseline/Monitoring Issues

1. The contractor needs to develop a way to track customers who are contacted but do not agree to participate in phase one or two.
2. There are no indicators of success that clearly define whether the process has actually resulted in changes in how the companies will address energy or improve their energy usage. The PM is working on this.
3. The technical walk-through should include documentation of recommendations in a form that can be directly tracked in a subsequent evaluation.
4. The support activities should be tracked so there is documentation of what the activities attempted to influence.

Edison/Implementer Contact History

The monthly and quarterly reports are on-time and generally complete. EnVinta has primarily been asking SCE PM to help reach other account executives. The PM finally got EnVinta to begin entering data into SMART in late June 2007.

Issue Resolution/Results, Current Status

Identifying contacts at the firms is an ongoing challenge that is partly responsible for the gap between the number of phase one participants and the goal for that number. Utility account reps could use their relationships to facilitate reaching the right person within a firm. EnVinta feels they have not been doing this, but he SCE PM feels that EnVinta is not leveraging them well enough. Some are not well versed on the program.

Further Recommendations or Next Steps

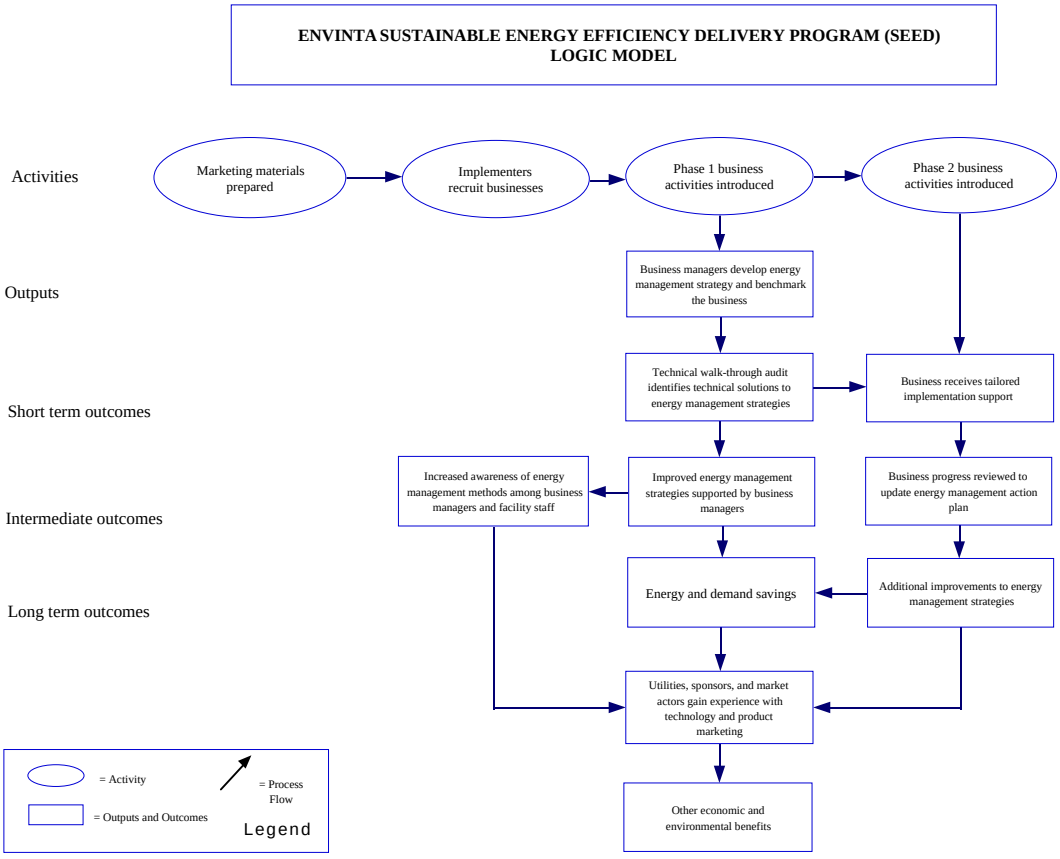
EnVinta does not track nonparticipants, the technical walk-through findings, or the support activities provided to the customers in phase two. These need attention.

Section 2. Program Theory and Logic Model

Program Theory

By engaging top management of large customers in the SEED program, enhanced business practices related to energy management and the application of continuous improvement in methodology will become integrated into core business practices. By engaging the top management, it will drive increased uptake of SCE's existing DSM programs and deliver energy efficiency and load response savings.

Figure 26. Logic Model



Section 3. Evaluability Assessment

Table 56. EnVINTA SEED

QUESTION	COMMENT
1. Is there a description of the staff that will operate the program?	No
• How many staff and where are they located?	Not described in SOW or in narrative
2. Is there an explicit program theory or logic model	There is a stated theory, but no logic model
• Indicators of success	The indicators are progress metrics and changes in the 'star' in the one-2-five diagnostic
3. Is there a description of the target market?	Yes
• Is it possible to identify the potential population of participants and nonparticipants?	At a gross level, Edison has a list of customers matching the SIC and a similar list of contacts could be purchased from a list development firm
4. Is there a marketing plan?	Yes
• How will potential participants be recruited once identified?	The marketing plan is for EnVINTA to coordinate with Edison account managers to locate potential participants as well as with industry associations and to recruit as they meet
• Is there a way to track participants?	Yes
• Is there a way to track nonparticipants?	Not explicit
5. Have proposers included an electronic tracking database in their plans?	Yes, they state they will have one
• Does it include the elements needed to contact participants & non-participants of various program activities?	Not clear for nonparticipants, participants will be tracked
• Does it include program forms, surveys and implementation back-up	Some: they indicate that they will have documentation of the diagnostic and the recommendations (there is a report) but it is not clear how they will track the results of the technical walk-through for phase 1 and the implementation support in phase 2
• Are specific locations of measures being tracked? Can they be found?	As a nonresource program it is not clear that they will be tracking the specific locations of the implementation support activities
• Are program assumptions being tracked on a site specific level (e.g., hours of operation)	Not clear
• Is the delivered energy saving service and/or installed retrofit being recorded?	nonresource
• Does it include the outcome/result of the activities?	nonresource
6. Will the program be delivered with trade allies?	NO
• What type of trade allies	NA

• Are the trade allies well enough defined to identify a potential group of participants and nonparticipants?	NA
• Is there a way to track participating trade allies?	NA
• Is there a way to track nonparticipating trade allies?	NA
7. Are savings assumptions documented?	NA
• DEER?	NA
• If not, is the source of savings assumptions specified?	NA
• Are the pre-retrofit or baseline parameters being recorded?	NA
• Does the database record the as-found values for parameters used to estimate ex-ante savings?	NA
• Does baseline monitoring need to take place?	NA
• Can one of the impact evaluation methods specified in the CA Evaluation Protocols be used?	NA
• Are there code compliance or program overlap issues for savings estimation?	NA
Recommendations to improve evaluability:	The contractor needs to develop a way to track nonparticipants – that is customers who are contacted but do not agree to participate in phase 1 or 2.
	There are no indicators of success that clearly define whether the process has actually resulted in changes in how the companies will address energy or improve their energy usage
	The technical walk-through should include documentation of recommendations in a form that can be directly tracked in a subsequent evaluation
	The support activities should be tracked so that there is documentation of what activities the activities attempted to influence

Section 4. Recommended QC Proposal

This is a non-resource program and the risk is low. Program Managers should review Envinta's database to ensure that accurate and complete data is being collected, including participant and nonparticipant contact data, and participant support activities. The technical walk-through audit forms should be reviewed to determine that recommendations have been documented in a form that can be directly tracked and verified in a subsequent evaluation. Ten percent of businesses receiving Phase 2 repeat diagnostics should be visited on-site to confirm reported recommendations have been implemented.

Table 57. EnVINTA SEED Recommended QC

PROGRAM	RISK	DOCUMENT REVIEW	PERCENT VERIFICATION	ONSITE VERIFICATION	WHAT TO VERIFY
Sustainable Energy Efficiency Development Program	Low	Yes	100% documentation, 10% Phase 2	Yes	Confirm accuracy of databases and documentation provided by implementers, including walk through audit data and recommendations. 10% of Phase 2 businesses should be visited on-site to confirm reported recommendations have been implemented.

Commercial Clothes Washer Laundry Program

Program Type - IDEEA Resource
Program Implementer - UCONS
SCE 2532
PEPMA 05-10086

Section 1. Program Description and Status

The Commercial CoinOp Program is a joint utility (Edison and SoCalGas) contract. The primary goal of the program is to promote the installation of Energy Star equivalent standards for commercial-grade clothes washers to replace inefficient commercial clothes washer's served by gas or electric water heaters in high-usage laundromats, institutions and multifamily facilities. Additional energy savings are projected by installing pipe wrap and lighting measures at no cost. Another objective of this program is the early retirement of existing inefficient machines. Implementers anticipate that over the next three years the program will be able to effect the replacement up to 30,000 existing, inefficient, top-loading machines with high-performance front loading machines. Many participants can qualify for both an energy ($130) and water rebates (ranging from $200-$630).

Multifamily apartment communities account for over 80% of existing commercial washing machines. This group is, in turn, strongly dominated by leased machines which are owned and placed by route operators. Route operators lease laundry room space from the multi-family property owners in return for a percentage of revenue collected. The route operators own and maintain the equipment, but the multi-family property owners pay the utilities bills. About one quarter of the equipment in multifamily settings is owned directly by the property owners.

The Commercial CoinOp Program is a joint utility (Edison and SoCalGas) contract. The primary goal of the program is to promote the installation of commercial-grade clothes washers with Energy Star equivalent standards, replacing inefficient commercial clothes washers served by gas or electric water heaters in high-usage laundromats, institutions and multifamily facilities.

Program Status as of 6/07
The program was in the field in September 2006. While it is making good progress, it may not reach its installation goals. The program has had difficulty finding electrically heated commercial laundry facilities but no problem finding gas heated facilities. All incentives initially allocated for lighting have been expended. UCONS and Edison are discussing the transfer of some electric washer incentives to lighting incentives so that more gas heated laundromats can have lighting retrofits completed.

Changes in marketing efforts were made. Originally implementers marketed to financial institutions financing washer purchase for commercial Laundromats. Efforts were shifted to market directly to the upstream actors-route operators, distributors, and manufacturers-

and to the downstream end users. The downstream end users must be convinced to purchase energy efficient washers, then contact their salesman (route operators or distributors) to purchase the machines. Upstream actors must also be convinced of the benefits of selling the efficient machines.

Significant EA Issues identified, including baseline/monitoring issues

1. There are few electrically heated commercial washers. Electric savings will occur largely from lighting retrofits. Contractors have not been collecting baseline data for existing fixtures (wattage, hours of operation). Only the replacement fixture data was recorded and verified.
2. Battelle is conducting baseline monitoring of a sample of the gas heated washers (the first round and report have been completed) but will not be monitoring electric washer retrofits. Only 33 electrically heated washers had been installed by June 2007. Implementers do collect baseline washer characteristics including washer type and vintage so that savings can be estimated. (Battelle notes that they completed metering of efficient washers for Edison in the late 1990s; this data may be useful to the impact evaluation.)
3. Implementers report that sales reps may be a market barrier. Salesmen must be convinced to market the efficient washers to their customers and to replace washers in Laundromats they operate.
4. Tracking participants and nonparticipants is handled by the subcontractors. ASC (prime marketing subcontractor) is working with RMC, which is marketing to the route operators and distributors. The subcontractors retain lists of contacts which will need to be requested to contact nonparticipants. All owners/potential participants who submit applications either complete installations or don't. These people will be easily tracked for future contact.

Edison/Implementer contact history

Implementers are in regular contact with their subcontractors and sponsoring utilities. Edison is aware that few electrically heated commercial washers have been identified and is working with implementers to change incentive allocations from washers to lighting.

Issue resolution/results, current status

We suggested that the installers collect baseline lighting information (existing lighting type and wattage was not recorded). ASC understood the need for baseline lighting data and stated they could have the installers collect that information.

ASC stated RMC could provide lists of their marketing contacts and that nonparticipants could be identified for process evaluation surveys. Lists of all who have been contacted and not participated will be needed to discuss market barriers.

Further recommendations or next steps

Market barriers will be an important area to explore in the process evaluation, including barriers to selling or purchasing the washers perceived by upstream and downstream market actors.

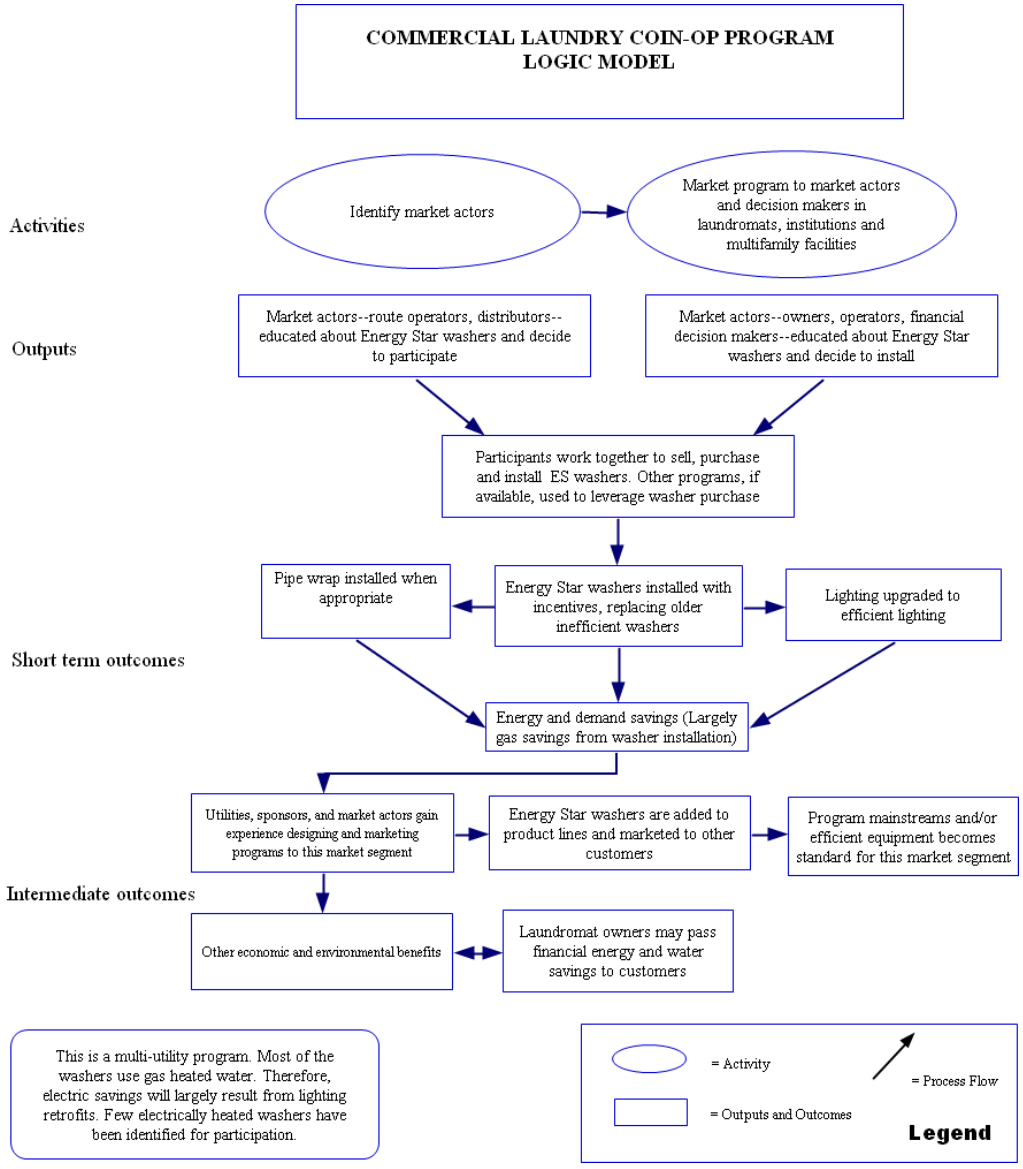
Implementers identified a potential programmatic issue and market barrier. Replacement washers are slightly wider than existing washers and sometimes a one-to-one replacement is not possible because of space limitations. One less machine means less revenue. Some operators choose not to replace washers for this reason. Other issues to consider in future program design: M & V using phone lines were initially proposed but cost and hassle led to a change in plan. Data is downloaded manually once per month and is coordinated with the installers. Metering locations were chosen where an attendant was present or the laundry room locked to avoid possible equipment vandalism.

Section 2. Program Theory and Logic Model

Program Theory

When owners, managers, leasing agents, and route operators (and other market actors) of commercial and multifamily residential laundries are identified, the multi-fuel program can be marketed to them. Market actors will be educated and gain awareness of efficient technologies. If decision makers accept incentives and agree to participate then inefficient washers will be retired and replaced with Energy Star washers and lighting will be upgraded to more efficient CFL and T-8 lighting. If efficient washers are installed then energy (gas or electric) and water savings will be achieved. If efficient lighting is installed then electric energy will be saved. In the longer term, more efficient equipment becomes standard for this market segment.

Figure 27. Logic Model



Section 3. Evaluability Assessment

Table 58. Innovative Coin-Operated Laundry Partnership Program

Question	Comment
1. Is there a description of the staff that will operate the program?	Not in the description, but contractor is expected to deliver a list of key personnel
• How many staff and where are they located?	NA
2. Is there an explicit program theory or logic model	No
• Indicators of success	NA
3. Is there a description of the target market?	Yes (owners of commercial laundry facilities)
• Is it possible to identify the potential population of participants and nonparticipants?	Unclear
4. Is there a marketing plan?	Yes
• How will potential participants be recruited once identified?	Contacting water districts and water agencies, meeting with leasing companies, equipment distributors and property management, meet with manufacturers of commercial washers.
• Is there a way to track participants?	Yes, customer agreement form
• Is there a way to track nonparticipants?	No
5. Have proposers included an electronic tracking database in their plans?	Yes
• Does it include the elements needed to contact participants & non-participants of various program activities?	No (does not clearly state contact name, phone)
• Does it include program forms, surveys and implementation back-up	Unclear
• Are specific locations of measures being tracked? Can they be found?	Can be found
• Are program assumptions being tracked on a site specific level (e.g., hours of operation)	Unclear but likely
• Is the delivered energy saving service and/or installed retrofit being recorded?	Yes
• Does it include the outcome/result of the activities?	Yes
6. Will the program be delivered with trade allies?	No
• What type of trade allies	Yes
• Are the trade allies well enough defined to identify a potential group of participants and nonparticipants?	water districts and water agencies, meeting with leasing companies, equipment distributors and property management, meet with manufacturers of commercial washers
• Is there a way to track participating trade allies?	Not clear

• Is there a way to track nonparticipating trade allies?	Not clear
7. Are savings assumptions documented?	No
• DEER?	No
• If not, is the source of savings assumptions specified?	No. Appears to be drawing from previous program designs and evaluations
• Are the pre-retrofit or baseline parameters being recorded?	Unclear but likely
• Does the database record the as-found values for parameters used to estimate ex-ante savings?	Unclear but likely
• Does baseline monitoring need to take place?	Yes. Battelle will conduct pre M&V in early stages
• Can one of the impact evaluation methods specified in the CA Evaluation Protocols be used?	The program emphasizes education but does not explicitly say that it is non-resource program. Standard indirect evaluation approach can be used.
• Are there code compliance or program overlap issues for savings estimation?	Yes, EnergyStar products will retire end-of-life laundry machines
Recommendations to improve evaluability:	Review prior evaluations to ensure that this program addresses already identified shortcomings. Early retirement emphasis could trigger above code savings only; EUL considerations need to be resolved. Lighting measures (CFL replacement and T8 Ballast change outs) are not giveaways. The contractor should record baseline equipment parameters. E3 calculator data says that savings are documented for water heater setback, machine replacement, and electric tank upgrade. These details are not included in the program design document. Need contractor to identify staff and contact information Need contractor to commit to tracking nonparticipants as well as participants Program theory will need to be articulated better. The program seems to be a bit of a shotgun approach.

Section 4. Recommended QC Protocol

The Commercial CoinOp Program is a joint utility (Edison and SoCalGas) contract. The risk to program savings is low since the electric savings from this program are coming largely from direct install lighting retrofits, installing T-8s and CFLs which are known and tested technologies. In addition, very few electrically heated washers will participate (in June 2007 there were 33).

Electrically heated washers are not being monitored since few are participating and Battelle monitored electric washers for Edison in a prior similar program. Monitored data should be used from that study and updated with information gleaned from the program's monitoring results of the gas heated washers, for example, electric consumption savings of the washer itself, if any.

Implementers are using stipulated DEER savings estimates for lighting savings. Hours of operation are not expected to change pre to post, but the hours of operation should be verified during installation. Baseline lighting was not collected in early installations; in a June 2007 conversation, implementers stated they would start to collect baseline lighting data. Baseline data should be collected for a sample of 10% of the installation sites; since implementation is complete for a number of sites, this may mean capturing the data for all remaining installation sites. Post-inspections should also look for the changes in quality of lighting and assess customer satisfaction.

Table 59. Commercial Clothes Washer Laundry Recommended QC

PROGRAM	RISK	DOCUMENT REVIEW	PERCENT VERIFICATION	ONSITE VERIFICATION	WHAT TO VERIFY
Commercial Coin-Op Laundry	Low	Yes	10% of installation sites	Yes	Verify the pre- and post-installation parameters of 10% of participant sites. Edison should independently verify the operating hours, equipment count and equipment specifications. Post-inspections should look for the changes in quality of lighting and assess customer satisfaction.