

**INTERIM EVALUATION:
CALIFORNIA BOARD FOR ENERGY
EFFICIENCY PY98 RESIDENTIAL STANDARD
PERFORMANCE CONTRACT PROGRAM**

PG&E Study ID #424A

Prepared For
Study Director
Ralph Prah, CBEE Technical Services Consultant

Prepared By
Robert M Wirtshafter, Robert Bordner, Virginia Kreitler, and
Lisa A. Skumatz

Wirtshafter Associates, Inc.
20 Camp Rockhill Rd.
Quakertown, PA 18951
215-538-7696
fax 215-538-3293
email: wirtino@aol.com

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EXECUTIVE SUMMARY

Early in the evaluation process for the PY98 program, it was suggested that immediate feedback on several critical areas of program design was desirable. As such, it was determined that a full and comprehensive evaluation, as initially planned for this program, would not meet the near-term needs of the CBEE. Given these time considerations, it was agreed that an interim report would be written to (1) summarize the history and current status of the program, (2) prioritize a disparate array of issues associated with the PY98 program, and (3) provide options and recommendations for the PY99 program.

Importantly, this is only the beginning of a much larger project to evaluate CBEE efforts to promote a residential energy-efficiency services industry. Pending development of the PY99 program, the scope of subsequent evaluation activities will be determined in the upcoming months.

ES.1 PY98 ASSESSMENT

Standing as we are at the beginning of the Res-SPC pathway, we are not prepared to announce definitively the ultimate fate of the program. We can, however, take a step back from the day-to-day operations of the program to note where a program is not meeting all of its goals, or where its direction is not consistent with overall long-term objectives.

From this perspective, it is clear that there are problems in the PY98 program. In several ways, our assessment indicates that the results of the PY98 program are not what were intended by the CBEE. For example:

- PY98 has restricted development of an independent EESP industry. The PY98 selection process kept EESPs wanting to participate out of the marketplace. The program announcement and application process meant that many potential EESPs never even applied. For those selected, the program contracting requirements have delayed program start-up such that, eight months into the implementation process, most projects are just now getting underway, and few customers have benefited from the program;
- Few projects, if any, will provide residential customers with the education and outreach to address their understanding of the potential energy-efficiency opportunities in their homes. None of the projects provides a comprehensive energy efficiency service package to the customers;
- The combined effect of the deemed-savings values and the lottery selection mechanism has severely limited market entry and led to the selection of a portfolio of projects that do not seem indicative of the degree of innovation possible within the marketplace.
- The program has neither a measured-performance component to it nor a contract that was standard enough, particularly with respect to M&V requirements, to avoid lengthy negotiations between most applicants and the interim administrators. None of the projects contracted will receive payments based upon a performance-measurement approach.

Everyone we have contacted in the course of this project recognizes that changes are needed in the PY98 program. Where there is not agreement is whether the program should continue and, if it does, how should it be changed. We have examined the

existing information, and interviewed a number of key stakeholders. In addition, we have collected new data from customers to explore issues germane to market acceptance of this program. Based on this information and our own experience, we are able to suggest modifications to the program that can redirect it closer to the wants and needs of the interim administrators, EESPs, and the customers, and bring Res-SPC more in line with the CPUC and CBEE objectives.

ES.2 RECOMMENDED PROGRAM CONCEPT

Importantly, the evaluation effort thus far has found enough common ground among the various public- and private-sector stakeholders to suggest that, with careful planning, it should be possible to construct a Res-SPC program that is more consistent with CPUC and CBEE market transformation goals. In the interest of moving forward the current policy debate, we have therefore provided below a potential concept for the PY99 program that addresses a number of the issues that have been examined thus far in this evaluation.

This recommended concept consists of three core elements that are designed to work together:

- **Industry Support** -- *Provide the EESP Industry with support that will build credibility and promote the industry.*
- **Customer Support and Information** -- *Provide customers with support that will aid in selecting qualified contractors and ensure consumer protection.*
- **Financial Incentives** -- *Provide a standard set of financial incentives to reward market transformation and exemplary energy savings.*

Table ES-1:**Market Transformation SPC Program Design Elements**

PROGRAM ELEMENT	DESCRIPTION OF ELEMENT
Program Design	Standardized statewide.
Contracts and / or Agreements	EESPs must execute a signed agreement form with customer. The agreement form lays out a binding arbitration process.
Administration	Single or multiple administrators.
Eligible EESPs	All EESPs, with certification at the individual auditor / installer level.
Training and Certification	Undertaken by CBEE or an independent body.
Customer Co-payment	Optional; determined in the marketplace, and driven largely by incentive structure. Option to vary incentives provides CPUC and CBEE with policy tool to encourage co-payments.
Market Event	Retrofit and equipment replacement; Audit and diagnostic testing.
Incentive Structure	(1) Prescriptive market transformation incentives, variable up or down as needed, with advance notice to the market; (2) Prescriptive energy savings incentive, in the form of a "deemed savings" payment, set at a fixed \$/kWh; (3) Performance-based energy savings incentive, set at a fixed \$/kWh for projected lifetime efficiency savings, available only for firms installing a minimum number of projects; (4) All incentive structures standardized statewide; (5) All prescriptive incentives must not exceed a set percentage of capital cost.
Measurement & Verification	Performance-measurement, if any, would be performed by an independent entity, on behalf of the program administrator, using control group data supplied by utilities. Since energy savings incentives would not necessarily be tied to avoided costs, M&E precision requirements may be relaxed substantially.
Allocation of Incentive Funds	Payment would be based upon work actually completed. Funds may not be encumbered in advance by any individual or firm. Incentive funds allocated on a first-come, first-served basis, as available. Market transformation incentives adjusted if annual budget being used too quickly or slowly.
Eligible Project Types	Direct install and retail sales.
Cooperative Marketing and Use of CBEE Logo	Available for firms that agree to conform with CBEE guidelines
Consumer Education	Linked directly to broad-based consumer education efforts.
Customer Sign-up / Marketing	Customers request information through 800 number or web site; customer option to have information forwarded to contractors.
Complaint Resolution	Binding arbitration process established jointly by CBEE and industry to resolve both customer complaints and potential disputes between the CBEE and industry parties.

ES.3 ACTION ITEMS FOR CBEE AND OTHER PARTIES

There is considerable work to be undertaken in the near-term regardless of the path chosen by the CBEE. From the perspective of the evaluation team, the current program has fundamental flaws and, if we are correct in our interpretation of the Commission's and CBEE's market transformation objectives, the recommended program design has a much better chance of achieving these objectives.

Importantly, the effort required to develop the recommended program design may actually be easier than correcting the flaws in the existing program. Our brief review of the steps that may be required to implement such a program is intended to build upon existing efforts already underway. If the Board concurs with our interpretation of these objectives, it is highly recommended that the existing program be fundamentally redesigned at this point in time rather than investing more time and effort in salvaging the existing program.

ES.3.1 First Steps

Action items in need of immediate action by the CBEE include:

- ***Issue a policy statement focusing specifically on the intended goals and objectives for the Residential SPC Program and the manner in which the Board envisions addressing these objectives.***
- ***Decide if the recommended program concept has merit and can/should be developed further for PY99 and, if so, undertake steps outlined below to implement this design***
- ***If the Res-SPC program is maintained, but the recommended program concept is not pursued, undertake steps outlined below to implement necessary minimum revisions to the existing program.***

ES.3.2 Steps toward Implementing a Recommended Program Design

If it is determined that the recommended program design has merit and is worth pursuing, steps that may be taken to advance the development of key program elements include:

- ***Develop and implement a framework to establish market transformation-based prescriptive incentives*** -- The development of a framework could be undertaken fairly quickly, perhaps with assistance from program design consultants. Agreement on appropriate values will need to be negotiated with numerous parties, however, the fact that these incentives may be adjusted up or down after implementation allows more room for compromise.
- ***Review existing training and certification efforts that may be leveraged in implementing the recommended program design*** -- The interim administrators already have some framework for training and certifying contractors, which may serve as models that could be expanded relatively easily in developing this program.
- ***Review and assess existing CPUC efforts in the area of consumer protection*** -- It is very possible that the efforts contemplated by the CBEE may fit well with consumer protection efforts already underway at the CPUC, thereby minimizing the work required to implement this element of the recommended program.

ES3.3 Minimum Steps to Revise Existing Program

If the CBEE elects to retain the existing program design, a number of revisions should be considered:

- ***If it is found desirable to develop a consistent statewide program design for PY99, agreement must be reached on what program changes will be made in:***
 - standard program design
 - incentives for deemed savings approaches
 - incentives for measured savings approaches
 - standard contract terms and conditions
- ***Regardless of whether or not PY99 program design is standardized, reassess and refine, as needed, the deemed savings values used in determining compensation to participants.***
- ***In place of the lottery mechanism used in PY98, develop new procedures for selecting participating energy service providers, or develop a full-participation option.***
- ***Identify legal barriers to accessing customer data and set parameters for access to data for M&V purposes.***

1 STUDY OBJECTIVES AND METHODOLOGY

This interim evaluation report provides an early review of the Residential Standard Performance Contract (Res-SPC) Program implemented at each of the four California investor-owned utilities¹ under the oversight of the California Board for Energy Efficiency (CBEE) in program year 1998 (PY98). We provide, below, an overview of the study objectives, the research methodologies employed, and an organizational overview of the report.

1.1 STUDY OBJECTIVE: EARLY FEEDBACK

Early in the evaluation process for the PY98 program, it was suggested that immediate feedback on several critical areas of program design was desirable. As such, it was determined that a full and comprehensive evaluation, as initially planned for this program, would not meet the near-term needs of the CBEE. Given these time considerations, it was agreed that an interim report would be written to (1) summarize the history and current status of the program, (2) prioritize a disparate array of issues associated with the PY98 program, and (3) provide options and recommendations for the PY99 program.

Importantly, this is only the beginning of a much larger project to evaluate CBEE efforts to promote a residential energy-efficiency services industry. Pending development of the PY99 program, the scope of subsequent evaluation activities will be determined in the upcoming months.

1.2 METHODOLOGY

The evaluation team for this project has, on an accelerated schedule, completed work on a number of research tasks that were set at a project initiation meeting held with the interim program administrators, the evaluation team, the Study Director, Ralph Pahl, and CBEE Board Member, Mike Messenger (CBEE Market Assessment and Evaluation Subcommittee Committee). Following this meeting, an in-depth review of project documents and associated literature was undertaken. In-depth interviews were conducted with each of the four current interim program administrators.

Primary research was undertaken with potential customers of this program, including: (1) a total of four focus groups² with homeowners, and (2) a total of six interviews with representatives from homeowners associations, mobile-home parks, and multi-family residential properties.

Additionally, input has been obtained from various participant and non-participant Energy Efficiency Service Providers (EESPs) through a combination of primary research via interviews with a number of EESPs, review of program memoranda, and participation in the September 17/18 1998 Res-SPC Sub-Committee to the CBEE Technical Advisory Committee (TAC) Workshop. This public workshop was held for interested parties and

¹ In their role with this program, the utilities are hereinafter referred to as the "interim administrators" in order to differentiate between the CPUC-directed implementation role of these companies and the utilities' role as local distribution companies and/or energy providers.

² Note that many of these activities, including the customer focus groups, will be documented more thoroughly in subsequent reports prepared as part of this program evaluation.

stakeholders to discuss the PY98 program and to recommend changes for a PY99 program.

1.3 REPORT ORGANIZATION

In the interest of providing timely and useful input to the PY99 Program planning process, this report is organized as follows:

- PY98 Goals and Objectives
- PY98 Program Design
- PY98 Program Results
- Residential Customer Preferences
- Issues that Posed Problems for the PY98 Res-SPC Program – Implications for PY99
- Recommended PY99 Program Design Elements
- Action Items for CBEE and Other Parties

There is a great deal of information and analysis that this evaluation has made available for review by interested parties. In an effort to make this information as accessible as possible, we have structured the report into a number of discrete and relatively short sections. More detailed information, including tables with detailed information on bids and projects accepted, a summary of focus groups, and a summary of interviews with multi-family and mobile-home representatives, is provided in the form of draft working papers that are attached as appendices.

It is important to remember that the research undertaken to date is necessarily qualitative in nature. This is not a complete analysis, and we recognize that there are limitations to this work, including areas that may need to be fleshed out in greater detail through further research efforts. While the data are qualitative and subject to change, the information seems to be potentially useful and actionable.

2. PY98 GOALS AND OBJECTIVES

Beginning with D. 97-02-014³ and continuing through D. 98-04-063, the California Public Utilities Commission (CPUC) has consistently articulated a two-part vision for Public Goods Charge (PGC)-funded energy-efficiency programs: (1) transfer of program administration away from utilities to independent administration; and (2) pursuit of market transformation as the unifying policy objective for these programs. In D. 97-12-103, the CPUC directed the utilities to initiate basic changes in their energy-efficiency programs consistent with the CPUC's market transformation objectives as identified in D. 95-12-063 and D. 97-02-014.

Consistent with the CPUC's directives, the overall goal of the Res-SPC program is to invest PGC funds over the next few years to stimulate a competitive, sustainable, and unsubsidized market for residential energy-efficiency products and services. Specific goals that have been articulated for this program include:

- Provide incentives for EESPs to build self-sustaining businesses that offer customers with consultation and installation of energy efficiency technologies in their homes.
- Provide manufacturers, distributors, and retailers an incentive to build market share for energy efficient products, which should increase production volume and reduce prices, and
- Provide education and outreach to residential customers to improve their understanding of the economic benefits associated with energy efficiency investments.

In addition to these stated goals, there is another implied by the name of the program, that is, to develop an approach that uses a standard contract where incentives paid are based on demonstrated energy-saving performance.

As evaluators, we place much importance on program goals and objectives, and we frame our investigation of programs from the perspective of whether the program's operation is meeting the stated goals. We also have to determine whether the progress of a specific program is consistent, not only with its own operational goals, but also the overall CPUC and CBEE market transformation objectives. This is, to say the least, a difficult task in that it is not always clear whether progress along a short-term goal pathway leads to the ultimate objective.

Standing as we are at the beginning of the Res-SPC pathway, we are not prepared to announce definitively the ultimate fate of the program. We can, however, take a step back from the day-to-day operations of the program to note where a program is not meeting all of its goals, or where its direction is not consistent with overall long-term objectives.

From this perspective, it is clear that there are problems in the PY98 program. In several ways, our assessment indicates that the results of the PY98 program are not what were intended by the CBEE. For example:

³ "Our focus for energy efficiency programs has changed from trying to influence utility decision makers, as monopoly providers of generation services, to trying to transform the market so that individual customers and suppliers in the future, competitive generation market will be making rational energy choices." (D. 97-02-014, Finding of Fact 1)

- PY98 has restricted development of an independent EESP industry. The PY98 selection process kept EESPs wanting to participate out of the marketplace. The program announcement and application process meant that many potential EESPs never even applied. For those selected, the program contracting requirements have delayed program start-up, such that eight months into the implementation process, most projects are just now getting underway, and few customers have benefited from the program;
- Few projects, if any, will provide residential customers with the education and outreach to address their understanding of the potential energy-efficiency opportunities in their homes. None of the projects provides a comprehensive energy efficiency service package to the customers;
- The combined effect of the deemed-savings values and the lottery selection mechanism has severely limited market entry and led to the selection of a portfolio of projects that do not seem indicative of the degree of innovation possible within the marketplace.
- The program has neither a measured-performance component to it nor a contract that was standard enough, particularly with respect to M&V requirements, to avoid lengthy negotiations between most applicants and the interim administrators. None of the projects contracted will receive payments based upon a performance-measurement approach.

Everyone we have contacted in the course of this project recognizes that changes are needed in the PY98 program. Where there is not agreement is whether the program should continue and, if it does, how should it be changed. We have examined the existing information, and interviewed a number of key stakeholders. In addition, we have collected new data from customers to explore issues germane to market acceptance of this program. Based on this information and our own experience, we are able to suggest modifications to the program that can redirect it closer to the wants and needs of the interim administrators, EESPs, and the customers, and bring Res-SPC more in line with the CPUC and CBEE objectives.

3. PY98 PROGRAM DESIGN

In this section, we provide a brief overview of the PY98 Program Design, including:

- Overview of the Program
- Eligible Projects
- Target Markets
- Eligible Measures
- Incentives
- Project Size Requirements
- Project Selection
- Measurement and Verification

3.1 OVERVIEW OF THE PROGRAM

The Res-SPC Program was developed by the investor-owned utilities of California as part of a public process under the auspices of the CBEE. The Res-SPC program offers a standard performance contract that provides Project Sponsors⁴ compensation based on their performance in achieving contracted energy savings from implementing energy efficiency retrofit measures.

Under the PY98 Res-SPC program, the interim administrators contract with sellers and installers of energy efficiency products and services for savings achieved in residential markets in their respective service areas. These performance contracts provide compensation based upon the amount of savings demonstrated by a project sponsor. Impacts may either be calculated using deemed energy savings⁵ amounts or measured according to approved protocols.

It is important to note that many of the planning decisions are derived from similar ones made for the non-residential SPC program. The CBEE directed the interim administrators to achieve consistency among the programs. However they also recognized that there was value in some experimentation and diversity and therefore did not believe that the programs should be uniform.⁶

As of the end of September, the four interim administrators had signed contracts for 14 projects committing \$12 million in PGC funds. PG&E and SCE each had four contracts in place. SoCal Gas and SDG&E each had three signed contracts. Each utility is currently negotiating 1-2 new contracts using additional funding allotments. Eleven of the signed contracts are with ESCOs (85% of the funds), and twelve of the total are direct install projects (two are retail). The savings estimates are incomplete because we only received kilowatt-hour and therms savings data for projects from three administrators. The partial total of energy savings is 41 million kWh and over 380 therms.

⁴ Project Sponsors are either energy efficiency service providers (EESP) or customers that contract with an interim administrator to provide energy savings under the Res-SPC program.

⁵ The term "deemed savings" is used to denote predetermined energy savings amounts for different measures and installation conditions. The deemed savings estimates are used to calculate financial incentives for installed measures.

⁶ A.97-10-001 et. al. Attachment 3, page 7.

3.2 ELIGIBLE PROJECTS

The programs provided for two types of projects: (1) direct install projects, and (2) retail projects. The direct install projects involve a project sponsor, usually an energy services company (ESCO), installing measures in a series of residences, or in the common areas of multi-family properties or mobile home parks. Retail projects, in contrast, focus on increasing retail sales of energy-efficient measures.

3.3 TARGET MARKETS

The Res-SPC program is designed to serve broad residential markets, including single family dwellings, multifamily dwellings and mobile homes. Both common areas and non-common areas are eligible for the multifamily and mobile home park segments. Institutional properties such as dormitories and lodging establishments are excluded from the program, as are new construction units. In addition, the projects funded under this program are not to target low-income applications specifically. This provision is intended to minimize possible conflicts with other programs to be developed and implemented by the Low Income Governing Board (LIGB) that will address the low-income population segments.

3.4 INCENTIVES

The Res-SPC program was designed to provide payments for demonstrated energy savings. Incentives are based on fixed value per unit of energy saved. The incentive levels were the same for project sponsors choosing either the deemed savings option or the measured savings option. The deemed-savings alternative was developed to provide incentives for eligible measures without necessitating post-installation measurement of energy savings. The deemed savings approach was determined to be necessary in order to reduce participation barriers for smaller firms that are not familiar with or experienced with measurement and verification (M&V) procedures.

3.5 ELIGIBLE MEASURES

For each of the programs developed by the interim administrators, separate eligibility criteria were established for retail projects and for direct install projects, with a greater number and range of measures eligible for the direct install projects.⁷ Table 1 summarizes the measures given deemed-savings values, in the program announcement workbooks, for each program under PY98 guidelines. Other measures and services were also eligible, however, the incentives were only available through the measured performance option, unless the parties were able to negotiate a deemed-savings value.

Table 1: Initial List of Measures with Deemed Savings Values by Program⁸

	PG&E	SDG&E	SCE	SoCal GAS
Direct	CFLs	CFLs	CFLs	Attic insulation
Install	Hard-wired EE Lighting	LED exit lights	Faucet aerators	EE windows
	LED exit signs	Efficient refrigerators	Low flow showerheads	EE doors
		Refrigerator removal	Infiltration reduction	Infiltration reduction

⁷ The PY98 programs excluded projects involving fuel switching, cogeneration, self-generation, or otherwise removing the customer from the utility's system. PG&E had additional exclusions for projects involving personal computers and home electronic equipment. SCE excluded routine repair and maintenance projects. SoCal Gas did not request retail projects in its RFP for the PY98 program.

⁸ Other measures have been added to this list via contract negotiations between interim administrators and project sponsors.

	Electronic ballasts	Low flow showerheads	Attic insulation	Low flow showerheads
	Water heater insulation		Duct insulation	WH controllers
	Pipe insulation		Duct sealing	EE DHW
	Low flow showerheads		Efficient central AC	EE furnaces
	Controls		Efficient central heat pump	Boiler controls
	Efficient refrigerators		Heat pump WH	
	Refrigerator turn-in		Efficient pool pump motors	
	Efficient dishwashers			
	Ceiling insulation			
	Wall insulation			
	Efficient windows			
	Duct insulation			
	Duct sealing			
	Effic.central AC			
	Efficient gas WH			
	Horizontal axis washers			
	Photocells			
	Timers			
Retail	CFLs	CFLs	CFLs	
	Efficient refrigerators	Efficient refrigerators		
	Horizontal axis washers			

3.6 PROGRAM SIZE REQUIREMENTS

Project eligibility was contingent upon a minimum project size of 200,000 kWh or 20,000 therms, or some combination of the two. Note that this 200,000 kWh requirement is identical to the minimum size provision in the Nonresidential SPC program (NRSPC). It is important to note that, due to time constraints during program development, this and several other program elements were adopted directly from the NRSPC program. Aggregation of projects or customers was allowed in meeting this threshold. Projects also were required to meet cost-effectiveness standards using the Total Resource Cost (TRC) test and the Utility Cost (UC) test.

To prevent monopolization of available funding, each participating EESP was capped at 30 percent of available funds for each interim administrator's program. (Affiliates of the utilities were capped at 15 percent). These provisions are the same size restrictions as stipulated in the Non-Res SPC. Projects that were receiving funding under other programs using PGC funds were ineligible for this program.

3.7 PROJECT SELECTION

In anticipation of strong interest in the program, it was decided that a lottery would be used as mechanism for project selection. In fact, all of the utility programs were oversubscribed during the period in which applications were accepted. Therefore, a lottery mechanism was used to select the winning applications for each interim administrator's program.

3.8 MEASUREMENT AND VERIFICATION

Savings for retail projects are estimated using the deemed savings values stipulated by each interim administrator. PG&E and SCE allow savings from direct-install projects to be assessed using either measured savings or deemed savings. SDG&E allows deemed savings to be used for a limited set of measures, (CFLs, LED exit signs, and low flow showerheads) and requires that measured savings must be used for other measures.

Measure persistence, generally defined as measure retention, is addressed in varying fashion across the utility programs. SDG&E requires that the project sponsor conduct a

persistence study or agree to use persistence factors stipulated by the Company. PG&E requires that persistence effects be factored in and may, at the Program Administrator's discretion, require that a persistence study be completed (with the Administrator responsible for conducting the study and the project sponsor responsible for its funding). In contrast, SoCal Gas's program does not require persistence research at all.

Numerous other differences exist in the M&V requirements of the program implemented by each of the interim administrators, including: (1) limitations on allowable methodologies, and (2) the application of verification findings to EESP compensation.

4. PY98 PROGRAM RESULTS

This section provides a summary of PY98 results to date, including:

- Applications Received
- Projects Selected
- Current Status of Projects Selected
- Assessment of Program Results to Date

More detailed information on program results, including applications received and bids selected, is included in Appendix A.

4.1 APPLICATIONS RECEIVED

Two of the four interim administrators retained all the applications submitted. These applications are summarized in a table in Appendix A.⁹ This table shows that PG&E received relatively more applications from small contractors, possibly due to concerted efforts by PG&E to specifically notify and recruit small local companies. The majority of submittals were received from out of state companies. Moreover, it appears that a number of different companies submitted identical project applications. This latter factor is, in large measure, a direct result of the lottery mechanism established by the interim administrators, and applicant's strategies to maximize their chances for selection under this set of rules.

With the exception of some of the smaller contractors, most of the proposals that were submitted requested the maximum amount of incentives allowed. Comparing the ratio of total project costs to incentives requested indicates that some firms submitting proposals expected to collect large customer co-payments, while others expected to offer the services for free and still receive net profits as high as 30 percent.

Lights and showerhead projects dominate the submittals and account for approximately 50% of the incentives requested for these two utilities. Exceptions include: a retail project and an appliance project.¹⁰ A number of very similar project applications proposed to do air sealing in mobile home parks. However, for the firms that were selected in the lottery that offered to do mobile home air sealing, this feature was dropped during contract negotiations.

4.2 CHARACTERISTICS OF PROJECTS ACCEPTED

To date, the first round of the PY98 Res-SPC program has led to 14 signed contracts for residential projects costing \$12 million in program funds or PGC incentive funds. Three contracts each were signed with SDG&E and SoCal Gas; four each were funded by PG&E and SCE. All but three of the contracts are with ESCOs (85% of funds) and the others are a non-profit, a manufacturer, and an engineering/contracting firm. Only two are retail programs – the remainder are direct install programs. All but one of the

⁹ One interim administrator did not supply information, and the other returned the non-selected applications unopened, to the submitting parties. Although we do not have the tables for the other two interim administrators, the interim administrators' program managers have noted that generally the same applications were received by all four interim administrators.

¹⁰ The retail appliance application was later withdrawn.

projects requested the maximum funding level, 30% of administrator funds. Each interim administrator's fourth project was partially funded (and some are not yet signed). Since the initial round, additional funding has been provided, and most of the interim administrators have 1-2 additional contracts very close to signature. Although we had incentive data from all four utilities, we were missing kWh and therms data from one. Based on this partial data, the signed projects at three of the utilities totals more than 41 million kWh and 380 therms.

The perception is that the Res-SPC became a "lights and showerheads" program. Although these represent a majority of the dollars, the signed contracts have resulted in the following distribution of funds:

- lighting measures (including some hardwire fixtures and screw-in CFLs): 42% of funds, over 60% of kWh (note that over 55% of the kilowatt hours in lighting are due to two retail programs),
- low flow showerheads: 17% of funds, 9% of kWh (with additional therms saved that were not available),
- water heating measures (mostly controllers): 6% of funds, or about 1% of kWh (therms saved are not available),
- heating/cooling measures (mostly programmable thermostats and A/C conversions): 16% of funds, 12% of kWh
- appliances (refrigerators and clothes washers): 10% of funds, 11% of kWh
- infiltration and pipe wrap measures: 8% of funds, 5% of kWh

When the measures associated with the second round of funding are included, the percentages shift somewhat toward a larger share for water heater measures (controllers). These percentages would also change with the addition of therms saved.

Many more applications were submitted than could be funded, and lotteries were used to select among the applications submitted on time. The fact that selection would be by lottery was known at the time applications were submitted, and review of the applications shows that very similar applications with various combinations of lead firms were submitted to increase chances of selection. A review of the unselected applications that were retained shows that they included, in the majority, ESCOs, as well as electric, HVAC, or insulation contractors; a retail firm; a land development corporation, manufacturers, and others.

Although applications were received and lotteries held in early spring, projects got a later start than initially anticipated. As of the end of September, one retail program has been underway for almost three months, and two direct install programs have retrofitted a total of about 70 dwellings. No other projects are yet in the field. The late start stemmed from a fairly extensive round of refinements and negotiations to turn the applications into contracts. Clarifications on requirements, on M&V, deemed savings values, and other modifications took several months.

The most common changes in the projects between initial submittal and ultimate acceptance were: moves to deemed savings from measured; and reductions in the list of measures included or sectors emphasized (e.g. elimination of duct measures that required higher M&V and combustion tests, among others).

Most of the projects are "back-loaded", and it will take 6-9 months for significant portions of the measures to be installed. The projects are expected to last 1-1/2 to 2 years, including M&V. Direct install projects are paid on the basis of 40% at the end of the first

year, 60% after M&V requirements are met; retail projects are paid 30% at the time goods are stocked, and 70% after sales are demonstrated.

4.3 ASSESSMENT OF PROGRAM RESULTS TO DATE

Having determined that PY98 program design has not elicited the desired response from the energy-efficiency services industry, three questions arise:

- What do customers want?
- What issues are associated with the results of this program?
- What program options are available to elicit the desired market response?

In light of the fact that the program has, from a variety of perspectives, not performed as desired, we concentrate the rest of this report on exploring these questions and finding solutions for the planning of PY99. In moving forward to the PY99 program, we do not find it necessary to scrutinize and debate every detail of the PY98 program or to assign blame to any individuals or organizations for specific problems in the design or implementation. We would prefer to address the issues that matter in PY99. Some of these are the same as they were before the PY98 implementation, and others have become known through this year's operations and research undertaken by the evaluation team. Below we address each of these issues from the various perspectives.

5. RESIDENTIAL CUSTOMER PREFERENCES

Several stakeholders have raised an important issue with respect to the design and implementation of this program, specifically: "*what is it that customers need and want from this program?*"

Because the answer to this question is central to any attempt to revise the design of the Res-SPC program, the evaluation team organized and conducted a series of four focus groups with homeowners in California. The evaluation team wanted the opinions of customers who had and had not participated in the Res-SPC. However, at the time of the focus groups, there were no participants. We therefore assembled a focus group of customers who had participated in a bidding program sponsored by SDG&E that provided services similar in nature to those that a majority of customers will be receiving under the proposals selected in PY98. We also conducted three more focus groups with homeowners in San Diego and Concord. A working paper on the summary of the focus groups is attached as Appendix C.

In addition, a limited number of telephone interviews were conducted with eligible property managers in the multifamily and mobile home market segments. These interviews asked respondents to offer opinions on the relative merits of three program design alternatives for PY99. A working paper on the summary of the interviews is attached as Appendix D.

As with any qualitative research, one must be particularly careful in reaching firm conclusions based upon a limited number of focus groups and individual interviews. Nevertheless, the opinions captured in this research represent the best-available information at this time, and there was enough consensus to suggest future directions for the Res-SPC program. A brief summary of information developed on relevant customer needs and preferences, as well as potential willingness to pay, is provided below.

5.1 RESIDENTIAL CUSTOMER NEEDS

Based upon the findings from these focus groups and interviews, customers want:

Comprehensiveness – *Participating customers are likely to value the option for more comprehensive installations.* Customers in all focus groups expressed a strong interest in program and service options that extended beyond direct installation of CFLs and low-flow showerheads. Additionally, many of the focus group participants who received treatment under the SDG&E bidding program expressed disappointment with the scope of services provided -- limited, in most cases, to CFLs and low-flow showerheads. Based upon these findings, as well as several comments to the effect that "we've already done that," it appears that customers simply expect something more in terms of energy-efficiency programs. There is also a feeling among some property managers that a mass-delivery, one-size fits all approach would not adequately meet their needs. Customers in this segment seek a more customized, broader scope approach to improving their facilities.

Credibility in Contractor Selection – *Many customers are extremely wary of contractors and would value assistance in selecting credible firms.* Overwhelmingly, customers in the focus groups voiced concerns (generally based upon previous experiences) about selecting credible contractors. Interviewed property managers were

more mixed in terms of having access to satisfactory contractors, but “horror stories” about DSM program-affiliated contractors cropped up in this research as well. If a contractor is supported by the CBEE, customers expect that there is some basis for this implicit endorsement.

When probed on this topic, customers in the focus groups noted that they wanted information as to what "selected," "approved," or "recommended" constituted. This topic can be divided into two important sub-topics, including (1) criteria used for contractor selection, and (2) the type of oversight maintained over approved contractors. Several persons familiar with the Better Business Bureau, for example, were concerned that being on the list was just a function of paying a fee. Customers want the CBEE to explicitly explain, as part of any selection or listing process, the process under which the contractor is approved. They felt that information about the contractor, including: training, years in business, technical qualifications, number of jobs completed in the program, and number of complaints registered should all be included in the contractor listing. If approval implied some type of qualification or certification, most customers wanted an outside, independent body to oversee the certification. Few felt an industry self-policing system would be adequate protection.

Knowledgeable staff -- *Customers want the ability to get answers to questions on available efficiency technology and measures appropriate for their dwelling.* Customers in the focus groups expressed a desire to interact with staff who are knowledgeable in all aspects of energy efficiency. Even in cases where the skills required for an installation are admittedly minimal, these customers nevertheless desire to be able to ask additional energy-related questions and obtain knowledgeable answers. Some property managers also expressed the desire for access to efficiency expertise. There is a desire, among some, for increased access to personnel who can assess facility conditions and needs for efficiency upgrades.

Professionalism on the Job – *Prior negative experiences with some installers in other DSM programs have left lasting impressions with some unfortunate customers.* Depending on the customer's inclinations or other retrofit experiences, these substandard encounters may or may not affect their willingness to consider additional energy-efficiency installations. Property managers and home association representatives expressed an expectation of advance coordination with facility decision-makers, obtaining the proper approvals up-front, and using flexibility and reasonable judgment about measure suitability to a specific application. They expect a level of performance on par with, or better than, what their own staff is capable of providing.

Training -- *There is a segment of customers considering making efficiency upgrades who value access to technical training.* One program option that both focus group participants and interview respondents were asked to consider was hands-on training through do-it-yourself retail outlets. This concept appealed to only a few of the respondents as initially described to them (i.e., to assist them in undertaking do-it-yourself projects). Many focus group participants felt they were unqualified and/or unwilling to take on do-it-yourself projects. Importantly, however, some customers (not do-it-yourselfers) voiced a desire for training in how to do the job so that they could hire and manage a contractor. Some had recently experienced the need to replace large measures, and did not have enough information to weigh the different proposals offered by the contractors. They certainly could not interpret the various energy savings claims presented to them.

This same interest in gaining access to training was spontaneously articulated by one of the apartment managers interviewed for this project. In this case, the respondent was

suggesting that a potential program for certification of servicemen and contractors be expanded to provide similar training programs for maintenance staff of apartment facilities. This respondent felt very strongly that there is a lack of training opportunities for maintenance personnel. Again, the possibility of using the new knowledge to better manage contractors was mentioned as a key value point. Additionally, the training would benefit property maintenance staff by providing greater confidence to undertake simple installations without the need to hire a contractor.

Objectivity -- *Customers value an unbiased source of information on new technology and appropriate retrofit applications.* When asked whether they would believe contractors or retail stores that gave them advice, focus group participants stressed that one had to weigh the value of advice given when the person offering the advice also stands to benefit if advice is taken. While some customers are comfortable assessing such objectivity, others expressed a clear preference for seeking advice from a clearly independent third party.

Non-Efficiency Benefits -- *Customers may desire energy efficiency and comfort, but they also value other product and service attributes.* Products and services that clearly provide both increased efficiency and other benefits are going to be better received by most customers. In the focus groups, discussions addressing the efficiency of duct systems quickly turned to issues of health and air quality, suggesting a barrier to the adoption of duct sealing services. In interviews with apartment managers it was clear that DSM installations which ignore resident preferences on factors such as minimum flow rates from showerheads, minimum lumen levels, or bulb sizing in existing fixtures lead to early retirement of the installed measures.

Program benefits (as contrasted with measure benefits) will also affect customer receptivity to any offering. For example, findings from the telephone interviews suggest that it will be crucial to implement programs so as to minimize the level of inconvenience to residents at apartment and condominium complexes and mobile home parks if there is to be noticeable success in penetrating this market segment.

Satisfying customer requirements will ultimately be a key driver of the achievability of market transformation goals with respect to both initial adoption rates and long term measure retention. This effect on retention rates is likely to be especially noticeable in the case of measures that are lower in cost and more easily removed for replacement.

With respect to customer preferences, it should be remembered that some customer segments have little or no motivation to pursue conservation retrofits. This was apparent in some of the interviews with managers of multifamily home facilities and mobile home parks. Other priorities take precedence over energy (or water) conservation, and there is an unwillingness to tolerate the inconvenience of installations that yield little tangible benefit to residents of the property. It seems unlikely that a direct install approach will ever penetrate these market segments.

Relationships with Local Utility – *There is evidence that many customers still prefer to do business with their utility.* Despite deregulation, or perhaps because of deregulation, it appears that many customers still place considerable trust in their local utility. These customers view their utilities as an objective source of information and as a trustworthy entity with which they are comfortable doing business.

Integrity -- *Customers want to know that whomever they rely upon for information has their best interests in mind.* As stated by one focus group participant:

"I think maybe also because we've all just been so used to [utility name], and this is a new era for us for energy that maybe people need to be educated on what this state board of energy [CBEE] is all about, what they represent and who they represent. And once that name gets put out there, people are more aware of what's going on. They're going to realize these people, I don't know, I'm guessing, that are here to help us and to educate us into trying to save energy and help our environment."

5.2 WILLINGNESS TO PAY

Customers in the focus groups were asked to give an idea as to how much they would be willing to pay for an energy audit that includes three lights, a showerhead, 1 to 1.5 hours of advice, and a computer analysis of savings. Some would pay only the known value of the lights received. In this way if the audit is unsuccessful, the respondent breaks even. Many indicated that they need to know what the potential savings might be before they could say what they would pay for the service. Most of the focus group participants indicated that they would not pay more than \$30 for the service even though they acknowledged the length of time spent at the site and the expertise of the auditor. These persons noted that the service used to be provided free of charge by the utilities. Several respondents did not think there was much of a market for the services.

Respondents to the telephone survey were similarly tested on their willingness to pay for direct installation services. This time, the scenario included installation of CFLs, low flow showerheads, weatherization and similar measures, but with no ancillary advice or analyses provided. Three price points were tested: free measures, measures at 20 percent below wholesale, and measures at wholesale prices. In each scenario, installation was provided at no cost. The responses indicate that some degree of price subsidization will be needed to penetrate certain portions of the property management market. Two reasons contribute to this lack of willingness to pay full price: current access to discounted equipment pricing (for large apartment complexes), and, more commonly, a relatively low priority given to conservation investments relative to other expenditures.

The interviews with managers of mobile home parks and multifamily properties suggest that there is a portion of the market that is unlikely to respond to direct install programs unless, and perhaps even if, the service is provided completely free. Even at no cost, there may be resistance to allowing retrofit activity due to the inconvenience involved and the lack of value given to energy efficiency by the residents of the facility. It is possible that these recalcitrant segments may be better penetrated through other avenues such as increasing the retail availability of, and the retail market support of, higher efficiency measures such as lighting and laundry appliances. Of course, such retail approaches would achieve gains more incrementally than comprehensively, but might ultimately prove more cost-effective for the delivery of efficient measures to the late adopters in the community.

5.3 SUMMARY

Although we highly recommend that additional customer-focused research be undertaken in support of PY99 program design efforts, these insights confirm the perception voiced by several stakeholders that customer satisfaction with direct installation services available under the PY98 programs is likely to be very limited. Moreover, we see indications that building CBEE credibility is likely to be very important as programs are

made available, particularly with respect to helping customers choose among contractors and ensure that quality work is completed.

6. ISSUES THAT POSED PROBLEMS FOR THE PY98 RES-SPC PROGRAM – IMPLICATIONS FOR PY99

6. ISSUES THAT POSED PROBLEMS FOR THE PY98 RES-SPC PROGRAM – IMPLICATIONS FOR PY99

In this section we outline a number of critical issues that have been raised with respect to the development and design of the Res-SPC program for PY98. For each issue we have endeavored to provide a concise definition of the issue, followed by an objective presentation of varying perspectives that have been voiced relative to the issue in question.¹¹ With respect to proposed modifications for a PY99 program we have summarized for each issue (1) changes which most parties agree would be beneficial, (2) questions which remain unresolved at this point in time, and (3) critical decisions required to resolve the remaining issues.

The issues discussed in this section include:

Program Development

- Limited Time for Program Development
- Limited Representation During Program Development
- Expedited Program Rollout

Incentive Structure

- Performance-Based Incentives vs. Market Transformation-Based Incentives
- Measured vs. Deemed Savings Approaches
- Retail vs. Direct Install Projects
- Measure Eligibility and Co-Payment Requirements

Program Administration

- Single vs. Multiple Administrators/Program Designs
- Contracting Process
- Measurement and Verification Protocols
- Criteria for Selecting and Qualifying Project Sponsors

Program Implementation Issues

- Access to Utility Data for Marketing Purposes
- Certification of Auditors, Installers and/or Firms
- Complaint Resolution

Other Issues

In many instances, these are not stand-alone issues. To the extent practicable, we have therefore tried to capture important inter-relationships among the issues and to highlight where potential solutions to one issue may have a direct or indirect impact upon other issues as well.

¹¹ It is important to remember that, although we have attempted to be as thorough as possible, given the time constraints under which this interim report has been prepared it is possible that additional perspectives exist as well.

6.1 PROGRAM DEVELOPMENT

6.1.1 Limited Time for Program Development

The planning and implementation process for PY98 was extremely rushed, taking place over a period of a few months in 1998. Many of the perceived problems associated with the PY98 program may have been avoided if more time had been spent during the planning stage. There is widespread agreement that, to the extent possible, a similar situation be avoided for PY99. If substantial changes are going to be made in the program, increased time and attention to objective setting, program design and review must be invested during the planning process.

6.1.2 Limited Representation During Program Development

A number of constituencies were arguably under-represented during program development for PY98: small contractors, residential customers, homeowners associations, multi-family property and mobile home park owners and managers, retailers and distributors of energy efficiency products, and public interest groups (e.g., environmental organizations). Although the process allowed opportunities for public input, the time commitment required of participants all but precluded participation from parties without the ability to dedicate staff full-time to the regulatory process. Most overarching program design recommendations came from the CBEE TAC Residential SPC Subcommittee and were made during meetings with the interim administrators. For the most part, the only interested parties able to commit personnel to the TAC Subcommittee have been large, national ESCOs. As a result, most decision-making for the PY98 program is the result of discussion and compromise between large ESCOs and the interim administrators.

6.1.3 Expedited Program Rollout

The short time period between program rollout and the deadline for application submittals may have limited participation in PY98 to established firms intimately familiar with the program during its planning stages. The interim administrators made significant efforts to disseminate information about the program and recruit potential participants to workshops held to explain the program and familiarize potential applicants with the program and application process. However, most small contractors interviewed for this evaluation indicated that they had not heard about the workshops in time to attend, or did not have time to prepare applications in the short period between the workshops and the application deadlines.¹²

6.1.4 Agreement Points

- Program planning and design should be given the time necessary to ensure that the program is fully developed and thought through prior to launch for PY99.
- It is desirable to take steps to ensure wider participation during program development and to enable a wider variety of EESPs to participate in the program.

6.1.5 Unresolved Issues

- Is the CBEE willing to set aside time for significant additional planning for this program? What level of program re-design is necessary, and what amount of time can realistically be allocated to this endeavor? Is the CBEE willing to provide

¹² As a notable exception, PG&E was successful in gaining participation from two smaller regional HVAC contractors after conducting outreach specifically designed to reach small companies.

- the level of input and guidance necessary to facilitate the development of a carefully designed program?
- How can the voices of all constituents be fairly and fully represented in the program planning process?
 - What steps can be taken to enable a wider variety of EESPs to participate in the program?

6.2 Incentive Structure

6.2.1 Performance-Based Incentives versus Market Transformation-Based Incentives

From the perspective of several stakeholders, the incentive payments associated with deemed savings options in the PY98 program do not reflect the market transformation objectives of the CBEE. This has to do with both the deemed savings values the interim administrators developed for PY98 and the incentive levels for energy savings (i.e., \$/kWh, \$/therm) set by the CBEE. If the CBEE wants the measures and services offered via the Res-SPC program to meet particular objectives, then it is important that the relative payments received by EESPs for installing different measures reflect these priorities.

Some have suggested that the CBEE should strengthen the market transformation effects of the program by more closely gearing the compensation and incentive structure to reflect the market transformation value of a measure. The new incentive structure could reflect both market transformation and energy savings/performance objectives. The incentive payment would be divided conceptually into two components: a portion related to the value of the expected energy savings of measures or services and another portion that serves as a bonus to incent EESPs to provide measures or services that the CBEE seeks to promote in order to transform the market. The program "market transformation bonus" could be used, for example, to promote blower door tests, duct blaster tests and sealing, very efficient appliances, and other new innovative measures and services that have not achieved market acceptance.

6.2.2 Measured Versus Deemed Savings Approaches

The time allotted to develop the PY98 programs was insufficient by all counts -- it was inevitable under the circumstances that some aspects of the PY98 program would be under-designed. All parties agree that the deemed savings values and M&V procedures developed for PY98 had flaws and that these important program design issues should be revisited more carefully for PY99.

All of the project sponsors participating in the PY98 program opted for compensation based on the deemed savings values, yet many representative from these firms say that they want to be compensated on a measured-performance basis. The M&V procedures developed for PY98 were different for each interim administrator's program, and were simultaneously too complex and too vague for applicants to plan viable projects based on the measured-savings option. There was also concern that the performance measurement approach for PY98 had the disadvantage of delaying payments for at least eight months. One result of this is that the projects for PY98 do not include measures or services (e.g., audits) for which deemed savings values were not proposed, because the project sponsors could not be compensated for doing the work. Furthermore, without a viable M&V option, quality work does not yield higher rewards for project sponsors than "merely acceptable" work.

Most parties agree that there should be both deemed savings and measured savings approaches available in PY99. The key is to establish a process, and allow enough time, to develop more thoughtful and satisfactory deemed savings provisions and a solid set of measurement protocols. A number of approaches to deemed and measured savings are possible within this general framework. At the September 17th and 18th TAC meeting, it was suggested that, for example, deemed values be set for the expected savings for known measures. Those firms selecting deemed savings would receive the guaranteed amount. Those opting for performance measure would receive the deemed amount, with an adjustment up or down after savings results are determined.

6.2.3 Retail Versus Direct Install Projects

The PY98 program was open to both direct install and retail delivery approaches. There has been some debate as to whether or not a retail component is compatible, in the same program, with a direct install component.

From the perspective of some ESCOs, retail sales of appliances should be in another program. One difference between the two delivery channels has to do with expected energy savings resulting from the projects. Assuming that energy savings is at least one criterion on which project sponsors are paid, savings are considered to be more certain with direct install projects than with retail projects. For example, a CFL is certainly saving energy if it is installed by an EESP and replaces an incandescent bulb whereas CFLs merely purchased from a retail facility may sit on a closet shelf for months or years before they are installed and begin to save energy. With other types of measures this distinction may be less important. For example, residential customers are unlikely to purchase a horizontal clothes washer and wait several years before using it. From the perspective of the appliance industry, there are no significant differences that preclude the participation of both retail and direct install programs under Res-SPC, even if incentive payments are somewhat lower for certain types of retail projects.

Another issue that arises if both retail and direct install operate in the same territory is how to control for potential double dipping and simultaneously ensure that project sponsors are compensated fairly for their efforts. If a participating auditor recommends, for example, installation of a horizontal-axis clothes washer, and the residential customer purchases one from a participating retailer, does the incentive for the clothes washer go to the auditor or to the retailer, or is it divided in some fashion? This issue is particularly difficult to resolve in instances where one or both parties has selected the measured savings incentive option. Though this situation has not arisen in PY98, the potential for such a conflict has been the subject of discussion among stakeholders. It is also theoretically possible that a similar situation could arise if more than one EESP provided services to a single customer, so this issue is not necessarily purely a result of having direct install and retail components to the program. No clearly viable resolution to the problem has been proposed at this time.

6.2.4 Measure Eligibility and Co-Payment Requirements

Measure Eligibility. Some stakeholders have suggested that certain measures should be excluded from the program. Others, primarily representatives of the ESCOs, have argued that all measures should be eligible. Much of the motivation for the exclusion of measures involves the perception that certain measures (e.g., low-flow showerheads) produce little if any measurable savings,¹³ and that the deemed savings values and incentive

¹³ It has been noted that requirements for low-flow showerheads installed under the program are very close to existing standards for these measures in California.

levels established for these measures are too high. The fact that many stakeholders believe the PY98 program yielded projects with “too many showerheads and CFLs” is fundamentally related to the fact that the deemed savings values for the PY98 programs were designed too quickly and were flawed. The deemed savings values and incentive levels for certain measures, e.g., showerheads and CFLs, were higher than they should have been in the view of many stakeholders. Project sponsors rationally proposed projects to maximize their profits and so in PY98 the projects consisted largely (though not entirely) of showerhead retrofits and CFL installations.

It will require time and effort to develop deemed savings estimates (and M&V protocols) that better reflect the CBEE’s goals for this program, but doing so will go far to ensure that projects undertake activities more consistent with the CBEE’s intent. While some measures may need to be excluded on a policy basis, such as fuel cells or other fuel-switching measures, limitations on other measures may be reflected most flexibly in the deemed savings values and/or the ability of an ESCO to measure actual energy savings.

Co-Payment. For market transformation to occur, customers must eventually be willing to pay the full cost for energy efficiency measures and services currently promoted by the program. The issue of customer co-payments has been raised as a problem for the PY98 program because, in the case of most projects being implemented,, no co-payments have been required. ESCOs have also argued that customer co-payments should not be taken into account (that is subtracted from) the incentive payments paid under the program. From their perspective, if they are able to charge more for a measure in certain cases than in other cases, then this profit should accrue to them. Similarly, if a customer contribution is lower than a certain level, they should absorb the cost. Price gouging was raised as a potential concern in extreme instances, as well as the implications that this might have on the credibility of the industry as a whole.

This problem is also, essentially, a result of the fact that the deemed savings values and incentive payments used in PY98 do not, in the view of many stakeholders, adequately reflect the CBEE’s goals for the program. Because these prices were inflated in some cases to a value greater than the cost of the measure, project sponsors could simply give the measures away and still earn a profit. As with related issues, this situation could be resolved if the incentive structure was more carefully designed to reflect the goals of the CBEE.

6.2.5 Agreement Points

- Most parties agree that there should be both a deemed savings and a performance measurement option. Most parties agree that the deemed value amount should be set at a level below full potential incentive, thus giving additional incentives for project sponsors willing to demonstrate, and be paid for, performance.
- The deemed savings incentive structure and the M&V protocols for PY98 were developed hastily and are flawed. This situation is the source of a number of important problems with the PY98 program. These key program design features should be subject to careful review and revision for PY99.

6.2.6 Unresolved Issues

- Is there any reason to separate the retail and direct install delivery mechanisms into distinct programs or to establish set-asides to achieve desired market-transformation objectives? What should be done to resolve the potential problem of multiple entities providing energy efficiency measures and/or services to the same customer?

- Is the CBEE willing to establish a process and a timeframe that will allow development of deemed savings values, incentive levels and M&V protocols that are well-designed, reflect the market transformation goals of the program, and provide appropriate incentives for EESPs? Is the CBEE willing to participate in this process to provide guidance on key policy issues when necessary?

6.3 PROGRAM ADMINISTRATION

6.3.1 Single Versus Multiple Administrators/Program Designs

The fact that multiple interim administrators implement the program has, by some accounts, limited the effectiveness of the program. Should a single interim administrator in PY99 administer the program, on an interim basis?

For PY98, the interim administrators were directed to keep some aspects of their programs consistent, but to stop short of having a uniform program at all four utilities. The CBEE had suggested that since the Res-SPC was a new program, there would be value to having some level of variation and experimentation in PY98. As a result, there were four administrators each with slightly different application procedures, contracts, deemed savings levels, measurement protocols, etc. A number of program participants have said that the PY98 program administration has been unnecessarily complicated and costly and claim that this has resulted in delays in getting the projects operational. This was particularly a burden on for firms that wished to participate in all four programs.

To resolve this problem some have suggested that a single interim administrator be appointed for PY99. As a first preference for some ESCOs, this administrator would be a non-utility entity. The ESCOs have suggested, for example, that the interim administrators could jointly contract with an independent administrator for the program. A second-best preference would involve the appointment of a single utility interim administrator during this time.

It is not clear whether it would be feasible to consolidate administration, as an interim step, prior to the appointment of a new program administrator. There may be legal complications such as limitations on the transfer of PGC moneys among interim administrators. The interim administrators have also not yet been directed to design programs for PY99 and are thus unsure if they can spend time developing the legal and regulatory infrastructure that would be necessary to have a single administrator. Even if interim administrators were directed to develop such an infrastructure, this process would likely take considerable time.

Most parties, including the interim administrators, agree that it would be beneficial to standardize features of the program to a greater degree than was done in PY98. This is a relatively simple matter for some design aspects, and may be complicated and/or contentions with respect to other aspects of the program. In order to standardize the programs as much as possible (or as much as is desired) for PY99, the CBEE would have to establish a process that allowed sufficient time to design the program more carefully than was done in PY98, and in light of lessons learned this year. The CBEE would need to be involved in this process to resolve policy decisions where they arise and to set priorities, e.g., decide whether or not to pursue absolute of all program features if instances arose in which legal or regulatory issues present a significant hurdle to doing so.

6.3.2 Contracting Process

The lengthy and complicated contract negotiations in PY98 were a source of dissatisfaction for all stakeholders – EESPs that were selected in the lottery and ones that were not, interim administrators, the CBEE, etc. For PY98, each interim administrator had its own unique contract that it required project sponsors to sign. Although each administrator developed one standard contract to be executed with the project sponsors, a significant amount of negotiation was required, including significant revisions to the original applications, before contracts could be signed. Many interested parties contend that these contracts are not truly “standard” in the sense that the contracts are extremely complex and in concept, the idea of a “standard” contract for performance was understood by many stakeholders to mean that the contracting procedures would be relatively more straightforward.

The Res-SPC contracting process for PY98 was based on the process for the Non-Res-SPC program. Applicants were asked to submit applications and those which were selected (in PY98 via a lottery) were reviewed by the interim administrator and subject to “requests for supplementary information” (RSIs). The interim administrators were charged with the responsibility of ensuring that the PY98 projects had adequate provisions for addressing and resolving customer complaints. The interim administrators are also responsible for ensuring that the projects meet strict and often complicated regulatory standards e.g., safety regulations. In instances where provisions outlined in the selected applications did not fully address these requirements, RSIs were issued as is done in the Non-Res-SPC program. The interim administrators worked with applicants to help them provide the detailed information necessary to meet legal and regulatory requirements and provide whatever additional information was necessary for a completed contract.

The delay in getting projects started has been a problem from the point of view of all involved. Another result of the lengthy contract negotiation process is that in many instances, the projects described in final contracts differed greatly from the projects proposed originally by applicants.

The following example will serve to illustrate the reason the contracting process took so long and the kinds of changes that were made to the projects as a result of the negotiation process. In this instance, an application selected via the lottery proposed to seal ducts in residential homes. Regulatory law requires combustion safety tests following procedures such as duct sealing and the original application did not have adequate provisions to meet this regulatory requirement. An RSI was issued asking the applicant to clarify plans to meet the safety testing requirement. Subsequently, the applicant judged that the duct sealing activities proposed in the original application were no longer part of a viable project for that applicant in light of the additional complication and expense that would be incurred to conduct the required safety tests. Instead, the applicant revised the proposed project to include a different set of measures.

The fact that many projects changed considerably from what was originally proposed in the application was seen as a problem by many stakeholders. Many thought it gave an unfair advantage to EESPs whose proposed projects and original applications were of a lower quality than EESPs who took the time to carefully plan the projects and prepare applications. One aspect of this problem has to do with the lottery mechanism that was used to select projects in PY98 – the application selection process will be addressed later in this chapter. However another aspect of the problem is that the regulatory and legal requirements the independent administrators are required to follow, and required to ensure are followed by project sponsors for the Res-SPC can be extremely complicated.

There was the sense during PY98 that private sector EESPs could not be entirely faulted for failure to understand the intricacies of some of these rules or for failing to fully address them in their original applications.

The solution to this problem is not clear. It may be possible for the interim administrators to develop a single contract and contracting process for PY99, or at least make the processes as similar as possible. With more time to plan the program for PY99, and given lessons learned in PY98, the interim administrators may be able to develop application instructions that more clearly explain certain legal and regulatory requirements to potential applicants. It is not clear, however, given these legal and regulatory requirements, that contracts to do the type of work envisioned for the PY98 Res-SPC program could be as simple, or "standard" as some stakeholders would like them to be in theory. Finally, if parties are able to agree on "objective" criteria for judging the quality of applications, and if projects are therefore selected on that basis rather than via a lottery, the length of the contracting process may be reduced under the assumption that better project applications would require fewer revisions. If so, contracts could be signed more quickly and projects could begin sooner.

6.3.3 Measurement and Verification Protocols

Measurement & Verification (M&V) requirements for PY98 are unique under the programs implemented by each of the interim administrators. These M&V protocols generally utilize billing analysis, with a treatment/comparison pre/post framework. Significantly, none of the projects selected in PY98 opted for payments based upon the measured performance of installed measures. Rather, each has selected the deemed savings option. The PY98 M&V requirements proposed by all four administrators were unattractive to project sponsors for a variety of reasons. This is an area that all parties recognize agree should be improved. The parties agree that all four interim administrators should use the same M&V protocols. Reaching agreement on acceptable protocols, however, will be more difficult to achieve, and will require significantly more time than was available during program development in PY98.

Interim administrators have noted that a requirement to perform sophisticated billing analyses and persistence studies as a condition for payment would serve as a barrier to participation by smaller contractors. The deemed savings estimate approach was developed as a simplified means of calculating savings for payment under the program, in large part to help reduce this potential barrier to participation

Some parties have suggested that the Measurement and Evaluation (M&E) protocols used in California for pre-1998 programs could be used. Other ideas have been to use protocols developed for some pre-1998 bidding programs, or to use the "International M&V Protocols" that have been used for some non-residential SPC programs. As a practical matter, any of these pre-existing protocols would require substantial revisions to be applicable for the Res-SPC program. It will take a significant commitment of time and effort from interested parties to develop good M&V protocols for the Res-SPC program. The CBEE would have to be involved in order to provide policy guidance where necessary.

Another issue that arises for M&V is which entity should be responsible for conducting the measurement? Many participating ESCOs have indicated a preference to conduct their own M&V studies. This poses the problem of developing what would likely be a complicated process for the independent administrators to review the studies to ensure that the studies were conducted properly. (It may be the case that such a process would have to be developed even if an entity other than project sponsors conducted

M&V). Moreover, while some of the larger ESCOs may have the personnel and expertise to conduct M&V studies, many smaller contractors and other EESPs do not. Allowing or requiring EESPs to conduct their own M&V studies may unfairly disadvantage smaller EESPs.

Finally, at the present time, billing analysis is considered to be the most suitable form of pre/post measurement for the types of projects conducted under the Res-SPC program. In order to achieve accurate results, energy usage data from a control group of residences that did not receive any measures or services through the program is a key input to the statistical analysis. This raises a legal issue, because it is not clear whether energy providers can legally release customers' energy use data to EESPs without the customer's prior written consent. While it would be possible to design the Res-SPC program so that customers who receive services through the program must agree to release their data, it would likely be extremely difficult to obtain such consent from the number of non-participants whose billing data would be required for accurate statistical modeling. These issues may be largely overcome if M&V is performed by a neutral, independent third-party entity hired by the interim administrators to conduct M&V on behalf of all project sponsors who select the M&V incentive option. SCE's PY98 program design made this type of provision for M&V.

6.3.4 Criteria for Selecting and Qualifying Project Sponsors

In the PY98 program, winning projects were selected through a lottery. The lottery mechanism has been a source of considerable dissatisfaction with the PY98 program. The lottery mechanism was implemented because it was anticipated, correctly, that each of the interim administrators' programs would be oversubscribed. When the Res-SPC program was being developed in 1998, the parties were unable to agree upon a more substantive set of criteria for allocating program funds, i.e., criteria for selecting the best applications and allocating funds first to the best projects. As a default, the parties agreed, without enthusiasm, to allocate funds via a lottery.

Applications did have to meet certain requirements to be included in the PY98 lottery. However, applications were not compared with one another based on quality. All applications received by the deadline met the minimum requirements and therefore all of the applications were eligible for the lotteries held by each interim administrator.

Program rules specified that the maximum allocation for a given project would be 30 percent of the funds available to the interim administrator. Most applicants proposed projects that requested the maximum amount of funding. As a result, via the lotteries, each of the administrators selected four winning projects – three that accounted for 30 percent of program funds each, and then a fourth project that could be partially funded and implemented with the remaining 10 percent of program funds. (Later in the year, some additional program funds became available and the interim administrators were able to add a few small projects.)

A different approach for selecting winning applications would have been for the interim administrators (or another entity) to review all of the applications received by the deadline, and to allocate program funds to the best projects. While this would seem intuitively to be the most reasonable approach for selecting projects, the parties could not agree (in the time available for PY98) on criteria that could be used to judge the applications. ESCOs voiced a good deal of concern about entrusting interim administrators to judge the applications fairly. Interim administrators were reluctant to become embroiled in a process in which they would undoubtedly suffer intense criticism from applicants whose projects were not selected.

All parties agree that a better approach would be to judge applications based on clear, objective criteria. The parties also agree that developing criteria that would satisfy all involved parties would not be simple, but that it is worth doing. Several options were discussed at the September 17th and 18th TAC meeting. The interim administrators could judge applications based on these criteria, or another entity could be selected to evaluate the applications. Criteria that have been proposed for judging the applications include (1) cost-effectiveness of the proposed project, (2) experience of project sponsor; (3) level of customer contribution; and (4) priority placed upon under-served areas or markets. If this approach were used, the CBEE would have to establish the criteria and the scoring mechanism in advance of the bidding process and ensure that the scoring methodologies established are as objective and quantifiable as possible. Having a clear set of guidelines by which to judge the projects would protect both the applicants and the interim administrators (or other entity charged with evaluating the applicants).

A second alternative to the above-described option would be to release a small amount of funds to every firm determined to be qualified. These firms would then have to provide evidence of completed installations before they could claim additional allocations of funds.

A third alternative would involve the use of site control. Under this approach, no money would be allocated up front. Funds would be committed only after the customer signed an agreement, or alternatively only after the job is completed.

6.3.5 Agreement Points

- It is desirable to have a consistent statewide program design for PY99, to the degree possible.
- It is desirable to develop better deemed savings values and to develop well-designed M&V protocols.
- It is desirable to allocate program funds based on the quality of applications received for the program.
- It is desirable to develop a fair and objective process for evaluating applications.

6.3.6 Unresolved Issues

- Is it realistic or necessary to have a single interim administrator for PY99?
- If there are four interim administrators in PY99, what steps can be taken to make the programs as consistent as possible? Are there legal or regulatory hurdles to having a single consistent program design?
- What steps can be taken to reduce the length and complexity of the contracting process?
- Is the CBEE willing to create a process for and commit time and resources to developing well-designed deemed savings values, M&V protocols and incentive levels for the program?
- If billing analyses are required, should M&V be undertaken by the ESCOs or by an independent third-party entity? How will legal issues regarding the release of customer data, in particular, non-participant data be resolved? If billing analyses are performed by an independent entity, who pays for this analysis and is there a minimum level of savings (per contractor) that is required for this option?
- Is the CBEE willing to commit time and resources to developing a set of objective criteria to judge applications for the PY99 program? Should the independent administrators or another entity evaluate the applications?

6.4 PROGRAM IMPLEMENTATION ISSUES

6.4.1 Access to Utility Customer Data for Marketing Purposes

ESCOs contend that access to customer data is necessary for them to identify and screen candidate customers. It is not clear whether energy providers are legally able to release this information without a customer's prior written approval. Customers who participated in focus groups were adamant that they did not want this information released without their consent.

6.4.2 Certification of Auditors, Installers and/or Firms

Formal certification of either companies or individuals working for energy-service companies may need to be considered as a condition for engaging in Res-SPC work. Residential customers who participated in the focus groups expressed a strong desire for a certification process and for access to information on which firms (or individuals) were certified, what training they had undergone, and information regarding the quality of the contractor's work. One issue is which entity should be responsible for this certification, and what process will be used to remove poorly performing firms and/or individuals once they are certified? If the CBEE or its designate is responsible, what are the legal and liability issues involved in certifying auditors and installers, or in certifying firms? This type of certification system will take time to resolve. What process should be developed to be used until it is operational?

6.4.3 Complaint Resolution

Consumers want a direct and pre-determined method for resolving complaints. EESPs have recommended that all complaints be subject to binding arbitration. It is in the program's interest to establish an arm of the CBEE or an independent body to resolve any disputes arising among customers and contractors.

6.4.4 Agreement Points

- Most parties agree that it is desirable for the CBEE to sponsor and promote participating contractors.
- Ensuring the highest quality work is necessary to develop long-term credibility for the ESCO industry.
- Most parties agree that it is desirable to have an independent body to resolve any disputes arising among customers and contractors.

6.4.5 Unresolved Issues

- Can customer data legally be released without that customer's prior written consent?
- What standards will be required in order for ESCOs and other program participants to qualify for an endorsement by the CBEE? Would the CBEE, the interim administrators or another entity (e.g., industry organizations) be responsible for certification? What legal issues would need to be resolved to implement a certification process?

6.5 OTHER ISSUES

6.5.1 CBEE Commitment to Res-SPC

Program funding commitments are, at this stage, renewed annually. Some interested parties believe that this factor limits the ability of potential new entrants to take a long-

term view toward developing a business strategy toward the Res-SPC program. Others suggest that this approach is appropriate at this time given the experimental nature of the program.

6.5.2 Unresolved Issues

- What length of commitment is CBEE willing to make to the Res-SPC program?

7. RECOMMENDED PY99 PROGRAM CONCEPT ELEMENTS

Importantly, the evaluation effort thus far has found enough common ground among the various public- and private-sector stakeholders to suggest that, with careful planning, it should be possible to construct a Res-SPC program that is more consistent with CPUC and CBEE market transformation goals. In the interest of moving forward the current policy debate, we have therefore provided below a potential concept for the PY99 program that addresses a number of the issues that have been examined thus far in this evaluation.

This proposal is based on a synthesis of the data gathered in connection with this study, the authors' understanding of the intended role of the program, and the authors' extensive experience in designing and evaluating programs. Our intent is to suggest a coherent program concept that is consistent with the intended role of the program and the results of this study. Moreover, this concept has been put forth by parties that have no material interests vested in the final program design for PY99.

A discussion of this recommended program concept is provided below and includes the following:

- Clarification of PY99 Program Goals
- Program Description
- Program Summary Table

7.1 CLARIFICATION OF PY99 PROGRAM GOALS

We think it is important to begin with discussing the intended purpose of our program concept. In the process of evaluating the PY98 program, we have observed that many of the problems and issues associated with this program stem, fundamentally, from conflicting interpretations of the specific market transformation goals and objectives for this program. We therefore believe it is imperative that the market transformation goals and objectives, specific to the CBEE's PY99 efforts to develop a residential energy efficiency services industry, be set forth as clearly as possible.¹⁴

As a starting point, we recommend that the goals for the PY99 Residential SPC Program concept described herein be to:

- Foster the development of market-driven transactions between customers and providers of energy efficiency products and services;
- Support private-sector businesses in the development of sustainable business strategies that will be viable in the absence of PGC-funded subsidies;
- Meet expressed customer needs by providing customers with the education and training necessary to make well-informed decisions and select among providers of energy-efficiency services and products.

¹⁴ While California's Policy rules do provide an explicit set of goals and objectives for PGC-funded programs and also contain a specific section on SPC programs, they do not appear to explicitly discuss the intended role of SPC programs in helping to meet overarching policy objectives.

7.2 PROGRAM DESCRIPTION

7.2.1 Overview

Fundamentally, this program concept would avoid many of the issues that have plagued PY98. The program concept we recommend would be open to participation by all customers and all EESPs. Financial incentives, designed to reward market transformation activities that are desired by the Commission and the CBEE, would be paid in the form of a bounty as work is completed.

This shift toward a market transformation-based incentive would represent a marked departure from an historical emphasis on avoided costs. Additional incentives would be available to reward EESPs who were able to achieve truly exemplary long-term energy efficiency improvements, based upon performance measurement completed by an independent entity.

Customers would be able to select EESPs from a potentially wide range of firms employing staff who have been trained and certified for competency in various skill areas. Similarly, homeowners' associations, apartment managers, etc. could implement projects under this concept. Consumer and EESP interests would be jointly protected through a binding arbitration process that would be mandatory for EESPs benefiting from the program incentives and/or cooperative marketing efforts.

This recommended concept consists of three core elements that are designed to work together:

- **Industry Support** -- *Provide the EESP Industry with support that will build credibility and promote the industry.*
- **Customer Support and Information** -- *Provide customers with support that will aid in selecting qualified contractors and ensure consumer protection.*
- **Financial Incentives** -- *Provide a standard set of financial incentives to reward market transformation and exemplary energy savings.*

Each of these elements is discussed in more detail, below

7.2.2 Industry Support

As a core element of the program, the CBEE should foster a climate where as many firms as possible may compete for the residential energy-service market. Firms will receive incentives after they complete an installation. Any attempt on the part of the CBEE to implement mandatory certification or otherwise pre-qualify eligible firms is, in the opinion of the evaluation team, likely to cause great controversy and will serve as a barrier to implementing an effective SPC program in a timely manner. In addition, excluding businesses wanting to enter a market is counter to basic market transformation principles.

Additionally, for the industry to secure long-term viability, it will need to increase the number of technically proficient auditors. We think it is critical that CBEE include a program to develop more trained auditors, and that standards be maintained to ensure that all auditors are qualified to provide accurate, complete, and safe advice to

customers. We think that CBEE should build the industry's credibility by providing quality control oversight. This includes an arbitration process to protect both firms and customers..

7.2.3 Customer Support and Information

A variety of program elements should be included to meet needs identified by customers. Specifically, concept elements should be included to meet needs expressed by customers for (1) a means by which they can identify quality contractors, (2) a means by which they can seek arbitration and necessary remedies for poor workmanship, (3) information to make decisions regarding energy-efficiency options, and (4) training for do-it-yourself installations as well as managing contractor-delivered installations.

7.2.4 Financial Incentives

Standard, consistent financial incentives should be available to any contractor, auditor, or retail outlet that installs or sells energy efficient equipment eligible under the program. The primary incentive should be based upon a measure's market transformation value to the CPUC and the CBEE. This incentive may be varied by the CBEE, thereby providing a powerful policy tool for use in achieving desired MT objectives. Additional prescriptive and/or performance-based incentives (not tied to avoided costs) may be made available for energy savings. Under this concept, all measures can be eligible, with a market transformation incentive varied to increase desired market penetration¹⁵. New or unproven measures, without an agreed-upon energy savings value, would be eligible for additional incentives under the performance-based option.

7.3 PROGRAM SUMMARY TABLE

Key program design elements are outlined in Table 2 on the following page.

¹⁵ It has been suggested by some, for example, that low-flow showerheads should be excluded from this program. We would suggest, instead, that any incentive for this measure be significantly lower to reflect expressed concerns that this is already an established measure and that the actual net energy savings are minimal.

Table 2:
Market Transformation SPC Program Design Elements

PROGRAM ELEMENT	DESCRIPTION OF ELEMENT
Program Design	Standardized statewide.
Contracts and / or Agreements	EESPs must execute signed agreement form with customer. The agreement form lays out a binding arbitration process.
Administration	Single or multiple administrators.
Eligible EESPs	All EESPs, with certification at the individual auditor / installer level.
Training and Certification	Undertaken by CBEE or an independent body.
Customer Co-payment	Optional; determined in the marketplace, and driven largely by incentive structure. Option to vary incentives provides CPUC and CBEE with policy tool to encourage co-payments.
Market Event	Retrofit and equipment replacement; Audit and diagnostic testing.
Incentive Structure	(1) Prescriptive market transformation incentives, variable up or down as needed, with advance notice to the market; (2) Prescriptive energy savings incentive, in the form of a "deemed savings" payment, set at a fixed \$/kWh; (3) Performance-based energy savings incentive, set at a fixed \$/kWh for projected lifetime efficiency savings, available only for firms installing a minimum number of projects; (4) All incentive structures standardized statewide; (5) All prescriptive incentives must not exceed a set percentage of capital cost.
Measurement & Verification	Performance-measurement, if any, would be performed by an independent entity, on behalf of the program administrator, using control group data supplied by utilities. Since energy savings incentives would not necessarily be tied to avoided costs, M&E precision requirements may be relaxed substantially.
Allocation of Incentive Funds	Payment would be based upon work actually completed. Funds may not be encumbered in advance by any individual or firm. Incentive funds allocated on a first-come, first-served basis, as available. Market transformation incentives adjusted if annual budget being used too quickly or slowly.
Eligible Project Types	Direct install and retail sales.
Cooperative Marketing and Use of CBEE Logo	Available for firms that agree to conform with CBEE guidelines
Consumer Education	Linked directly to broad-based consumer education efforts.
Customer Sign-up / Marketing	Customers request information through 800 number or web site; customer option to have information forwarded to contractors.
Complaint Resolution	Binding arbitration process established jointly by CBEE and industry to resolve both customer complaints and potential disputes between the CBEE and industry parties.

8. ACTION ITEMS FOR CBEE AND OTHER PARTIES

There is considerable work to be undertaken in the near-term regardless of the path chosen by the CBEE. From the perspective of the evaluation team, the current program has fundamental flaws and, if we are correct in our interpretation of the Commission's and CBEE's market transformation objectives, the recommended program design has a much better chance of achieving these objectives.

Importantly, the effort required to develop the recommended program design may actually be easier than correcting the flaws in the existing program. Our brief review of the steps that may be required to implement such a program is intended to build upon existing efforts already underway. If the Board concurs with our interpretation of these objectives, it is highly recommended that the existing program be fundamentally redesigned at this point in time rather than investing more time and effort in salvaging the existing program.

8.1 FIRST STEPS

Action items in need of immediate action by the CBEE include:

- ***Issue a policy statement focusing specifically on the intended goals and objectives for the Residential SPC Program and the manner in which the Board envisions addressing these objectives.***
- ***Decide if the recommended program concept has merit and can/should be developed further for PY99 and, if so, undertake steps outlined below to implement this design***
- ***If the Res-SPC program is maintained, but the recommended program concept is not pursued, undertake steps outlined below to implement necessary minimum revisions to the existing program.***

8.2 STEPS TOWARD IMPLEMENTING A RECOMMENDED PROGRAM DESIGN

If it is determined that the recommended program design has merit and is worth pursuing, steps that may be taken to advance the development of key program elements include:

- ***Develop and implement a framework to establish market transformation-based prescriptive incentives*** -- The development of a framework could be undertaken fairly quickly, perhaps with assistance from program design consultants. Agreement on appropriate values will need to be negotiated with numerous parties, however, the fact that these incentives may be adjusted up or down after implementation allows more room for compromise.
- ***Review existing training and certification efforts that may be leveraged in implementing the recommended program design*** -- The interim administrators already have some framework for training and certifying contractors, which may serve as models that could be expanded relatively easily in developing this program.

- **Review and assess existing CPUC efforts in the area of consumer protection** -- It is very possible that the efforts contemplated by the CBEE may fit well with consumer protection efforts already underway at the CPUC, thereby minimizing the work required to implement this element of the recommended program.

8.3 MINIMUM STEPS TO REVISE EXISTING PROGRAM

If the CBEE elects to retain the existing program design, a number of revisions should be considered:

- ***If it is found desirable to develop a consistent statewide program design for PY99, agreement must be reached on what program changes will be made in:***
 - standard program design
 - incentives for deemed savings approaches
 - incentives for measured savings approaches
 - standard contract terms and conditions
- ***Regardless of whether or not PY99 program design is standardized, reassess and refine, as needed, the deemed savings values used in determining compensation to participants.***
- ***In place of the lottery mechanism used in PY98, develop new procedures for selecting participating energy service providers, or develop a full-participation option.***
- ***Identify legal barriers to accessing customer data and set parameters for access to data for M&V purposes.***

APPENDIX A: SUMMARY OF APPLICATIONS

PACIFIC GAS AND ELECTRIC APPLICATIONS

Type of Firm	State	Type of Project/ Target	kWh saved	Therms saved	Total Cost of Project	Total Amount of Incentive Dollars Requested	Ratio of Incentives to Total Cost	Incentives Requested							
								Lighting	Shower-heads, Wraps	Insulation	Appliance	Air and Duct Sealing	Heating, AC System	Other	
Contractor	CA	MF	1,590,000	395,000	\$1,325,000	\$710,000	0.54	\$390,000	\$140,000	\$0	\$0	\$0	\$0	\$0	\$180,000
ESCO	CA	MF, SF mobile	2,641,750	434,360	\$1,016,000	\$1,199,850	1.18	ns	ns	ns	\$0	\$0	\$0	\$0	\$0
ESCO	NJ	MF, SF	1,436,000	27,500	\$920,000	\$1,200,000	1.30	ns	ns	\$0	\$0	\$0	\$0	\$0	\$0
Contractor	CA	direct install	59,690	14,031	\$258,000	\$45,600	0.18	\$0	\$0	\$14,400	\$0	\$6,300	\$18,000	\$6,900	\$0
Contractor	CA	direct install	148,516	5,297	\$441,000	\$66,217	0.13	ns	ns	ns	ns	ns	\$0	\$0	\$0
Contractor	CA	SF direct install	6,719,928	0	ns	\$1,199,826	ns	ns	ns	ns	ns	ns	ns	ns	Ns
Contractor	CA	SF direct install	0	198,900	\$751,500	\$159,120	0.21	\$0	\$0	\$159,120	\$0	\$0	\$0	\$0	\$0
Utility ESCO	CA	SF & MF	2,028,235	202,205	\$2,241,660	\$1,200,000	0.54	ns	ns	ns	\$0	ns	\$0	\$0	\$0
ESCO	NJ	MF, SF mobile	3,186,500	115,000	\$1,085,000	\$1,200,000	1.11	\$208,125	\$235,000	\$0	\$0	\$768,600	\$0	\$0	\$0
Contractor	CA	SF & MF	na	Na	ns	\$16,000	ns	\$0	\$0	\$16,000	\$0	\$0	\$0	\$0	\$0
Manufacturer	CA	retail	10,904,606	0	\$1,987,763	\$1,199,506	0.60	\$1,199,506	\$0	\$0	\$0	\$0	\$0	\$0	\$0
ESCO	NJ	direct install	2,500,000	70,000	\$1,200,000	\$1,200,000	1.00	ns	ns	ns	\$0	ns	\$0	\$0	\$0
Retail	VA	retail	207,440	0	ns	\$181,792	ns	\$0	\$0	\$0	\$181,792	\$0	\$0	\$0	\$0
ESCO	NJ	MF, SF mobile	3,186,500	115,000	\$1,085,000	\$1,212,000	1.12	\$208,125	\$235,000	\$0	\$0	\$768,600	\$0	\$0	\$0
ESCO	CA	MF, SF mobile	3,186,500	115,000	\$1,078,000	\$1,212,000	1.12	\$208,125	\$235,000	\$0	\$0	\$768,000	\$0	\$0	\$0
Contractor	CA	direct install	1,686,850	0	\$675,720	\$751,000	1.11	\$641,400	\$0	\$100,000	\$0	\$9,600	\$0	\$0	\$0
ESCO	MA	direct install	3,417,371	318,430	\$1,200,000	\$1,200,000	1.00	\$0	ns	\$0	\$0	\$0	\$0	\$0	Ns
ESCO	TX	direct install	na	Na	\$3,830,400	\$1,200,000	0.31	\$0	\$0	\$0	\$1,200,000	\$0	\$0	\$0	\$0
Distributor	NJ	direct install	4,000,000	0	\$950,000	\$1,200,000	1.26	ns	ns	\$0	\$0	\$0	\$0	\$0	\$0
ESCO	WA	MF, SF mobile	2,493,250	217,250	\$1,035,000	\$1,183,750	1.14	\$135,000	\$108,000	\$0	\$0	\$940,750	\$0	\$0	\$0

SOUTHERN CALIFORNIA EDISON

Type of Firm	State	Type of Project/ Target	kWh saved	Therms saved	Total Cost of Project	Total Amount of Incentive Dollars Requested	Ratio of Incentives to Total Cost	Incentives Requested									
								Lighting	Shower-heads, Wraps	Insulation	Appliance	Air and Duct Sealing	Heating, AC System	Other			
Manufacturer	CA	Retail	9,450,000	0	\$1,097,250	\$900,000	0.73	\$800,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Contractor	CA	direct install mf	3,800,000	na	\$999,000	\$900,000	0.90	\$900,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Non Profit ESCO	MA	retail/direct install	2,540,447	na	ns	\$569,385	ns	ns	ns	\$0	ns	\$0	ns	\$0	\$0	\$0	
ESCO	NJ	direct install	2,045,454	na	\$900,000	\$900,000	1.00	ns	ns	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
ESCO	CA	direct install	2,570,400	na	\$899,640	\$899,640	1.00	\$0	\$0	\$0	\$0	\$0	\$0	\$899,640	\$0	\$0	
ESCO	TX	direct install	2,500,000	na	\$1,445,580	\$900,000	0.62	\$38,400	\$28,080	\$522,000	\$0	\$39,000	\$209,700	\$0	\$0	\$0	
ESCO	WA	direct install – mobile	2,557,800	na	\$899,066	\$899,066	1.00	\$55,300	\$243,166	\$0	\$0	\$600,600	\$0	\$0	\$0	\$0	
Distributor	NJ	direct install	3,000,000	na	\$750,000	\$900,000	1.20	ns	ns	ns	\$0	ns	\$0	\$0	\$0	\$0	
Manufacturer	CA	Retail	7,463,500	na	\$915,750	\$800,000	0.87	\$800,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Contractor	NM	direct install	2,250,000	na	\$2,081,250	\$900,000	0.43	\$0	\$0	\$0	\$0	\$0	\$0	\$900,000	\$0	\$0	
Non Profit ESCO	CA	Retail	8,181,504	na	\$1,240,521	\$899,965	0.73	\$899,965	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Non Profit ESCO	MA	retail direct install	2,540,447	na	ns	\$569,385	ns	ns	ns	\$0	\$0	ns	\$0	\$0	\$0	\$0	
Manufacturer	MN	direct install	2,570,400	na	\$899,640	\$899,640	1.00	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$899,640	\$0	
Non Profit ESCO	MA	direct install/retail	2,540,447	na	ns	\$569,385	ns	ns	ns	\$0	\$0	ns	\$0	\$0	\$0	\$0	

Lead EESP	Date Signed/ Status	Size of Project (incentives)	End Uses/ Measures	Project Cost / PGC Incentive Levels						Program Type	Target Market	Changes from Original Submittal	Other Notes	Quarterly Milestones	
				Lighting	Shower-head/ Aerators	Water Heat Meas	HVAC	Insul, Sealing, Infiltr.	Appliances						Pipes, other
Pacific Gas & Energy															
Planergy, Inc.; no subs planned	no sign date given; completion date 7/31/99	\$1.2 million	appliances; 17% clothes washers (\$200K), 83% refrigerators (\$1M)							refrig and washers for 100%, \$1,200K	Direct install with customer contributions	SF&MF	no significant changes	bulk purchase through PNL, deemed savings; includes some appliance recycling	n/a
Honeywell / DMC	no date given; 9 month completion date; have completed 55 homes	\$1.2 million	programmable thermostats, with wraps, CFL, showerheads, tank wraps	\$3K	\$2K	\$2K	\$1,188K	programmable thermostats			Direct install; will program while there with customer	SF on contract; interviewed implied MF also; look for all electric; especially in severe climate zone	Originally, specific model not proposed, PG&E requested a higher end thermostat model. Significant negotiations to determine acceptable deemed savings, as original DMC estimates optimistic	deemed savings worked out	n/a

Lead EESP	Date Signed/ Status	Size of Project (incentives)	End Uses/ Measures	Project Cost / PGC Incentive Levels							Program Type	Target Market	Changes from Original Submittal	Other Notes	Quarterly Milestones	
				Lighting	Shower-head/ Aerators	Water Heat Meas	HVAC	Insul, Sealing, Infiltr.	Appliances	Pipes, other						
Cal-Ucons	no date given; 15 homes completed to date	\$1.2 million	mostly lighting (90%); mostly hardwired lighting, some CFL, pipe wrap, blankets, showerheads, duct sealing (MH only)	\$1,083K	\$37K	\$12K		\$61K			\$7K	direct install	Multifamily and mobile homes	Originally significantly more MH duct sealing; now minor role; originally MF hardwire lighting, LED exit signs, MH common areas, CFLs showerhead, hardwired fluorescent, w/h blankets, pipe wrap	Found that not so many MH's had both heating and cooling; some limited shift in measures allowed, but can't add very different measures. M&V issues because combustion test required with some measures originally proposed for MH; deemed savings	not provided
AM Conservation Group / NJ; many potential subcontractors listed; likely Delta, SESCO, and Winegard	PG&E awaiting return of signed contract from AM Conservation Group	\$400K	CFLs, Hardwire Fluorescent, exit signs, showerheads, water heater blankets, pipe wraps	\$375K	\$19K	\$3K					\$2K	direct install	SF, MF, MH	n/a	deemed savings	none provided

Lead EESP	Date Signed/ Status	Size of Project (incentives)	End Uses/ Measures	Project Cost / PGC Incentive Levels						Program Type	Target Market	Changes from Original Submittal	Other Notes	Quarterly Milestones		
				Lighting	Shower-head/ Aerators	Water Heat Meas	HVAC	Insul, Sealing, Infiltr.	Appliances other						Pipes, other	
Southern California Electric																
PECI; subs are ECOS consulting; manufacturer is Lights of America	7/2/98; project has been in field since July 4	\$857K	100% CFL distribution; 115,272 units of 13-30 watt CFLs; incentives: 13 Watt=\$4.55; 27 Watt=\$7.28; 30 Watt=\$12.23	100%, \$857K	0	0	0	0	0	0	0	retail	Home Depot	not significantly changed from original	no baseline on same models; will do inspections at Home Depots; may re-package existing models	Q1=0% Q2=25% Q3=30% Q4=45%
Sempra, formerly Energy Pacific	7/31/98	\$890K	Converting A/C	\$22K	\$23K	\$92K	\$762K	\$419K	\$15K	0	0	direct install, working with A/C contractors	SF; retrofit mostly; some that may want new install.	Reduced MF and MH installations; significant reductions in A/C, insulation. Original submittal tried to do all measures; got down to more realistic list -- (per utility suggestion) A/C mostly	deemed 85%	Q1=10%; Q2=20%; Q3=30%; Q4=30%
SESCO (with George Reeves Associates)	7/31/98	\$900K	Weatherization; attic, some duct, ceiling insulation (small), weatherstripping, caulk, pipe wrap, aerators, showerheads	\$275K; 18,000 units	\$191K	0	0	\$419K	\$15K	0	0	Direct install, own crews	MF and SF	EEESP want net to gross 100% for lighting.	n/a	

Lead EESP	Date Signed/ Status	Size of Project (incentives)	End Uses/ Measures	Project Cost / PGC Incentive Levels						Program Type	Target Market	Changes from Original Submittal	Other Notes	Quarterly Milestones	
				Lighting	Shower-head/ Aerators	Water Heat Meas	HVAC	Insul, Sealing, Infiltr.	Appliances other						Pipes, other
Winegard	7/31/98	\$902K	Weatherization	\$33K SF; \$266K MF/MH	\$172K SF; \$260K MF/MH			\$71K SF; \$65K MF/MH		\$14K SF; \$20K MF/MH	Direct install, own crews	1/3 SF; 2/3 MF and Mobile Home; 2500 MF; 500MH, 250 SF	n/a	-	Q1=1%; Q2=20%; Q3=35%; Q4=44%

Southern California Gas															
Free Lighting Corporation	contract signed, not available	\$930K	90% showerheads; 10% infiltration reduction (weather-stripping doors, windows, outlets)	\$680K			\$250K				Direct install; using subs / sister company of SESCO	MF for most measurements; SF on infiltration	no significant changes except measurement; deemed savings	-	n/a
AM Conservation Group / NJ	contract signed, contract not available	\$930K	water heater controllers (75% of budget), rest showerheads	\$233K	\$697K						Direct install by subs -- this is mostly a retail company	multifamily, to be paid per living unit (with limits to 200 units/device, installation); deemed savings	Big changes -- first proposed just showerheads; changed focus water heaters and not just more showerheads	in beginning, might have said no to so large a change, but happy to have water heaters and not just more showerheads	n/a
Proctor Engineering and Conservation Services Group	contract signed, contract not available	\$160K	showerheads (9,000)	\$160K							Direct install themselves; office in Hysperia Lake	not sure targets - may do SF first	merged two identical \$80K projects=160K; same as proposed	-	n/a

APPENDIX C: WORKING PAPER ON THE SUMMARY OF FOCUS GROUPS

BACKGROUND

As a very preliminary investigation of the situation, four focus groups were held to test the receptivity of homeowners to various energy efficiency delivery concepts. The first focus group, hereafter referred to as the Bidding Participant Group, was selected from participants in a San Diego Gas and Electricity residential bidding program. The other three groups, hereafter referred to as the Homeowner Groups, consisted of one focus group in San Diego and two in Concord composed of homeowners with incomes above \$20,000.

Customer Information Needs for Energy Efficiency

Customers from all four groups expressed a need for energy information. The most important need that was repeatedly emphasized was a source of unbiased information. They wanted to know what areas in their homes needed improvement. They specifically wanted to know how much energy would be saved and the payback period for measures or the actual appliances they have in their homes.

All four groups were asked where they would go to get energy efficiency. The vast majority of respondents look to the utility companies for energy-efficiency information. Many remember filling out questionnaires about their energy use. Others have had energy audits sponsored by the utilities. The issue of utility-competition was discussed, and who would serve this role in the future. One quote sums up the feelings of the groups.

"I think maybe also because we've all just been so used to [utility name], and this is a new era for us for energy that maybe people need to be educated on what this state board of energy [CBEE] is all about, what they represent and who they represent. And once that name gets put out there, people are more aware of what's going on. They're going to realize these people, I don't know, I'm guessing, that are here to help us and to educate us into trying to save energy and help our environment."

Respondents were asked whether they would believe contractors or retail stores that gave them advice. The respondents noted that one had to weigh the value of advice given when the person offering the advice also stands to benefit if advice is taken.

MARKETING TO CUSTOMERS

Respondents voiced a strong dislike for telemarketing and door-to-door sales. They only felt comfortable in a situation in which they initiate the contact. The Bidding Participation Group recalls sending in a reply to SDG&E, and then being contacted by the ESCO. Some said that they would not have let the contractors into their homes if SDG&E had not sponsored the program. The Homeowners Groups expressed that they would not want to be contacted by contractors unless they first requested the help.

Customers were adamant that they did not want the utilities giving billing information to these contractors without first getting the customer's approval.

AUDITOR CERTIFICATION

Customers were read the following concept and asked to comment.

Envision that you have been toying for the past few months with the idea of upgrading the lighting in your kitchen or installing new windows in your house. You decide that the time has finally come to get this work done, but you're either not interested or don't have the time to do it yourself. You therefore call a friend to see who installed their deck to see if they also "do windows." Your friend says that this particular contractor ONLY does decks, but that there is a web-site or 800 number that you can call to get a list of "approved energy efficiency contractors" who install energy efficient windows.

You then proceed to call the 800 number and find out that there are three (3) "approved energy efficiency contractors" in your area. Moreover, in addition to approved windows and lighting contractors, there are also "approved contractors" who can install energy efficient air conditioners, water heaters, and insulation for your home

Customers immediately wanted information as to what "approved" constituted. This information can be divided into how a contractor got on the list and what kind of oversight was there once the contractor was on the list. Several persons familiar with the Better Business Bureau were concerned that being on the list was just a function of paying a fee. Customers want the CBEE to explicitly explain, as part of the listing, the process under which the contractor is approved. They felt that information about the contractor should be included in the contractor listing, including: training, years in business, technical qualifications, number of jobs completed in program, number of complaints registered. If approval implied some type of qualification or certification, most customers wanted an outside, independent body to oversee the certification. Few felt an industry self-policing system would provide adequate protection.

Several wanted to keep the utilities offering audit services. They felt that if auditors gave advice and then did the service they would have a much harder time taking the action.

Respondent: *"I feel more comfortable having the evaluation separate than tied to a contractor."*

Moderator: *You'd rather have it separate.*

Respondent: *"If a guy tells me I need a tire that don't sell tires I'm going to buy a tire."*

"It goes back to the trust factor. Are you going to trust these people that they're being honest with you? I think a lot of the reason everybody liked the [utility name] thing so much was because they were selling us power and then they're coming out trying to help you figure out how to use less."

Customers felt it was essential to have some oversight of the contractors. They were familiar with earlier utility programs where the utility inspected contractors work, and made the contractor return until the job was done properly. They thought that the CBEE's reputation was on the line, and that they needed to resolve disputes or people would lose confidence in the program.

Several respondents mentioned services such as Consumers Reports and Value Star that are non-profit, unbiased services that screen businesses and recommend those with good service records.

IN STORE TRAINING

Customers were read the following concept and asked to comment.

Envision that you have been toying for the past few months with the idea of upgrading the lighting in your kitchen or installing new windows in your house (check to see if there are other, more relevant upgrades that participants are actually contemplating). It is Sunday morning, and you have just seen an ad in the paper for a two hour class offered on Saturday mornings at a home center store that will cover exactly what you're interested in doing -- installing new lighting in your kitchen or windows throughout your house. It starts at 9:30 AM, childcare will be provided, and there will be plenty of fresh coffee, fruit, and pastries. The class features a 20 minute video, followed by a hands-on session where you can see and touch a wide variety of equipment options (lights or windows), consult with designers, and learn about installation procedures and tips.

This concept appealed to only a few of the respondents. Many felt they were unqualified and/or unwilling to take on do-it-yourself projects. Everyone drew the line somewhere as to what types of projects they were willing to undertake. The skills involved, the time to complete the work, the difficulty of the work, and the potential money saved would all be factors in the decision process. Many of the customers rejected the idea completely either because they were not into do-it-yourselfers. Others already have the necessary skills or have completed the jobs and therefore would not take the time to attend a course.

Some customers, not do-it-yourselfers, voiced a desire for training in how to do the job so that they could hire and manage a contractor. Some had recently experienced the need to replace large measures, and did not have enough information to weigh the different proposals offered by the contractors. They felt particularly unable to interpret the various energy savings claims.

Time is a critical factor in this type concept. Many of the respondents were aware of training classes already offered at Home Depot and other stores. They were interested in classes but they never seemed to coincide with the available time or the respondent's immediate need to fix the problem. One respondent suggested that the CBEE develop videotapes that could be distributed at the stores and at libraries. Other noted that the Internet would be an easy way to make the information available to those connected.

Many people were concerned that the information given at the stores was affected by the desire of the store to sell products. When the idea of a rebate from CBEE was added to the concept, many voiced that the rebate should be usable at any store, not just the one at which the respondent attended the seminar.

EXPERIENCE WITH BIDDING PROGRAM

The Bidding Participant Group was asked their opinions about the program they participated in. This program operated in a manner similar to many of the bids submitted in the PY98 Res-SPC program. The program offered some customers compact fluorescent lamps and showerheads, while others received additional items and/or advice on energy saving measures. .

All customers who actually participated in the program¹⁶ voiced some disappointment with the types of service, and the quality of service received. Many customers were disappointed in that they only received lights and showerheads, and not the energy audit they had been led to believe they would be receiving. These customers wanted a more thorough assessment of their use of energy in the home. A few expressed problems with the technical expertise of the contractors. Many noted that they had taken out some of the equipment that had been installed.

I thought it was going to be an energy audit type situation. I didn't think we would be given light bulbs.

That's the way it was presented to me. As a survey reducing your energy bills. Actually when they came it was strictly a light bulb situation.

Two of the lights they managed to fit were the three way light bulbs. Lamps came out of there too, so I would say that 25% of the house still has them in.

My recollection of it was that they were going to come out ...bring some light bulbs, check the weatherstripping, check the flow on the water heads, a lot of different stuff. What I got was basically light bulbs. Only some of them [are still installed],

I almost got the feeling that this guy was new and just hired to do this, ... that he really didn't know what he was talking about. He was just told a few things, go in there and fit these where you could.

WILLINGNESS TO PAY FOR AUDITS

Customers were asked to give an idea as to how much they would be willing to pay for an energy audit that includes 3 lights, a showerhead, 1 to 1 1/2 hours of advice, and a computer analysis of savings. Some would pay only the known value of the lights received. In this way if the audit is unsuccessful, the respondent breaks even. Many need to know what the potential savings might be before they could say what they would pay for the service. Most would not pay more than \$30 for the service even though recognized the length of time and the expertise of the auditor. These persons noted that the service used to be provided free of charge by the utilities. One respondent did not think there was much of a market for the services.

"I am not interested, because I already had it done. You are left with people who didn't have this done when it was free. What would make them do it now that they have to pay for it."

¹⁶ One respondent, recruited from the general population, was placed in this focus group when she noted in the screener that she had "participated in a 1996-97 program where a company named **** came to your home and installed energy-efficient lights." As it turned out, she had in fact participated in a program offered by the San Diego Water Department. The respondent receive a one and one-half hour energy/water saving audit, water saving devices, CFLs, packets of information, seeds, landscaping advice, and other helpful advice. She was completely satisfied the services she received. Upon hearing this description from a fellow focus group participant, the other respondents voiced comments that they wish they had received those services instead of what they received.

APPENDIX D: WORKING PAPER ON INTERVIEWS OF MULTIFAMILY AND MOBILE HOME SEGMENTS

OVERVIEW AND APPROACH

Telephone interviews were used to elicit feedback from customers in multifamily residences or mobile home parks. The interviews covered baseline information - measures previously installed (either energy or water conservation measures), the influence of conservation programs on prior measure adoption, plans for additional measures - and reaction to three possible market transformation program designs. The programs tested in these interviews included:

- the EESP/ESCO program model with privately owned firms providing energy services to customers
- a retail approach described as involving CBEE contracting with retailers to provide in-store displays and promotion of efficient products along with advice and/or contractor services
- a training/certification program for contractors, servicemen, and repairmen

Respondents were asked for reactions to each concept individually as well as to contrast which approach they perceived as likely to be the most effective in promoting high efficiency measures. Each respondent was also asked to volunteer other suggestions for how to influence the California market for efficiency measures.

The interview guide used in conducting this research was used as a foundation from which to conduct the interviews. As relevant information was discovered in the course of the interview, these topics were explored with the respondent. For example, if a respondent mentioned prior program participation issues germane to design or delivery of Res-SPC, this subject was investigated through additional questions in the course of that interview.

The sample frames for this research were drawn from utility lists of Res-SPC Customer Workshop attendees (when available), and electronic yellow page listings. A selective sampling approach was employed, with an objective of gathering data from a mix of respondent types over a geographically dispersed area.

A total of six interviews were completed for this interim report. The characteristics of the respondents were as follows:

- 3 apartment management offices, 2 home association presidents, 1 mobile home park manager's office
- 1 Res-SPC workshop attendee, 5 non-attendees
- 1 in Albany, 1 in Palmdale, 1 in Port Hueneme, 1 in San Clemente, 2 in San Jose.

The following information on baseline adoption also reflects data from one partially completed interview with one additional mobile home park manager.

FINDINGS

Baseline Penetration

Predictably, the adoption behavior of one respondent versus another varied widely. Two of the respondents, one an apartment manager and one a president of a home association, reported extensive adoption of efficiency measures on multiple end uses. These respondents also differed from the other respondents in treating conservation retrofits as a regular, on-going part of their operations. Other respondents indicated little or no prior adoption and no plans for conservation investments. Reasons for this primarily centered on having other priorities (for management of the common areas) and having no direct authority over the decisions made by residents regarding installations in their homes.

The typical respondent was comfortable with the status quo, feeling that “there isn’t much more that we can do” or that their facility offered value to its residents in other ways. In addition, most respondents appeared to have no desire to make continued upgrades too frequently, especially if the improvements would entail obvious disruptions to normal facility operations.

Among the measures previously installed by these respondents, the installations most commonly addressed lighting and water use. Specific measures varied; for example lighting installations included CFLs (1 case), other high efficiency fluorescents (1), LED exit signs (2), conversion of security lighting to high pressure sodium lamps and reducing the wattage of halogen security lamps(1). Measures related to water use included installing low flow showerheads(3), low flush toilets(2), and faucet aerators(1), and irrigation system improvements including introduction of sprinkler heads and shortening the operating schedules, with consideration now being given to timeclocks and hosebibs(1).

Other measures mentioned included weatherization and fans (1), and solar heater for pools (1).

Despite the fact that some of the respondents have common area laundry facilities, none mentioned even giving consideration to high efficiency washing machines. Other measures that had been considered but dismissed included roof insulation. The respondent that mentioned this measure indicated that the roof design on the common area building was an impediment to installing insulation. The fact that this building was used only for day use was reported as limiting the range of applicable measures (presumably due to lower cost-effectiveness or lower perceived value for the investments).

Common Areas vs. Non-Common Areas

The responses in these interviews pointed to some significant differences in the market dynamics of investment decisions made for common areas versus those for made non-common areas.

Management of mobile home parks and home associations will typically involve themselves only with installation decisions affecting common areas, while apartment management will make decisions on installations in the dwelling units as well as the common areas. Consequently, there was a large difference in the number of units represented by a “yes” answer when low flow showerheads were reported installed by a home association representative versus an apartment manager. In the case of the home association, the showerheads were installed in poolside shower areas (for a total of less than twenty showerheads), while for an apartment building of 100+ units, over 100 showerheads were installed.

One apartment manager expressed a varying threshold of resistance to undertaking conservation installations in common areas as compared to non-common areas. Management's willingness to initiate an installation follows their expectations of residents' levels of tolerance toward the installations. The utility costs of common areas are borne by all residents, while electrical use in the dwelling units is individually metered. Therefore, residents are felt to be more tolerant of the inconveniences from installations in their own dwelling units where there is more certainty of being able to realize tangible benefits in their monthly costs. This apartment manager would require a virtually hassle free installation for any modifications made to common areas on their property.

Persistence of Measures

Two respondents indicated low persistence rates for some of the installations mentioned above. As it happened, these were both in apartment buildings; one involving measures installed in the dwelling units and one installation involving measures in a common area. The first case involved low flow showerheads in the individual apartments. The apartment manager indicated that the showerheads had been installed at the time of construction eight years earlier, but that "most" of them had been removed by occupants since that time.

The second case involved installation of CFLs in hallway areas through a utility-sponsored program. The installation was a failure in that it reduced lumen levels unacceptably (prompting resident complaints), and the bulbs protruded from the recessed fixtures in which they were installed, resulting in breakage as people moved furnishings up and down the hallways. In the end, management removed all of the bulbs installed.

Infrastructure Use

The respondents embodied a mix of choices with regards to use of the existing conservation infrastructure. Two respondents indicated that they had acted independently in making their installations. It is noteworthy that these installations were more modest in scale than those represented by the two respondents described below which relied on expertise outside of their own organizations. One respondent, with a home association, reported relying on the services of a consultant providing bill analyses and technical assistance in identifying cost-saving solutions appropriate for their site. This association had made no use of utility-sponsored programs. In contrast, the apartment manager who had experienced the problematic CFL installation reported that a great deal of their comprehensive conservation investment had been undertaken through participation in multiple utility-sponsored programs. This program participation experience had largely been quite satisfactory. In fact, this respondent had been looking into whether the Res-SPC program might afford new opportunities for their facility. (Ultimately, this customer decided not to participate.)

Interestingly, although none of the respondents directly indicated being influenced by EESP activity, evidence that ESCO marketing is occurring was discovered during the calling process. One recorded message on a home association's answering machine provided separate call handling instructions to ESCOs and financing companies.

REACTIONS TO PROGRAM CONCEPTS

Respondents were asked to comment on three program concepts: 1) an ESCO type delivery program, 2) a retail support program, and 3) a training and certification program. The following discussion highlights differences in perceived strengths and weaknesses of the three approaches. The reader is cautioned that while more respondents reported a preference for the direct install program type, this finding should be tempered by two considerations:

1) the articulated levels of dissatisfaction with poor prior direct installation experiences were fairly strong, and 2) some (about one-third) of the respondents were palpably indifferent to the program choices. This may suggest, if borne out in additional interviews, that the support for direct install programs is broad but shallow and easily influenced by negative experiences in the market. In contrast, there was more ardent support of the certification and training concept, albeit among a smaller proportion of the respondents.

ESCO Delivered Program

The ESCO type delivery program concept received the most support among the respondents interviewed. The reasons for the greater interest in this concept included customer desire for site-specific review and recommendations as well as the discounted pricing described in the interview.

This program was tested four ways: first the concept was presented without any information on pricing or types of measures installed. In the next scenario presented the respondent was told that the energy service company would offer to install CFLs, low flow showerheads, faucet aerators, weatherstripping, and caulking at no cost. In the succeeding scenarios, the pricing of the offer was increased first to 20% below wholesale and then wholesale cost for the measures, with free installation.

Based on the results of this small sample, it appears that discounted pricing would be a viable alternative to give-aways for portions of the multifamily and mobile home markets. Not surprisingly, the scenario offering free measures and free installation was viewed as acceptable by all respondents. Interest in the program dropped off somewhat as the cost rose, but the costliest of the scenarios - offering wholesale prices - was ruled out only by one respondent. Another respondent, representing a homeowners association, found all of the scenarios quite attractive. In a couple of cases, the respondents reported that other personnel would need to be brought in to the discussion before a participation decision could be made.

Even discounted pricing might be a barrier to some property managers. In particular, one respondent in an apartment management office indicated that they "watch every penny" because they have held rents steady for a number of years. Another respondent indicated that their apartment complex was already able to obtain below-wholesale prices on measures and, consequently, the only program version that was reported to be attractive for them was the one offering free measures as well as free installation. It is noteworthy, however, that this last respondent's facility had participated in multiple utility programs in the past.

Three concerns were raised regarding direct installation programs: 1) skill level of program-associated workmen, 2) effective coordination with the appropriate personnel at the property, and 3) minimization of any inconvenience to residents. Poorly handled jobs initiated through prior conservation programs left lasting impressions with two respondents. The first case, involving a retrofit perceived as unsuitable to the facility, was characterized in this way, "My maintenance man could have done a better job." The routinized, mass delivery approach taken to measure selection resulted, in this case, in the complete removal of the installation by the property manager. In the second case, the installation contractor failed to notify the relevant homeowners association of its intention to undertake retrofit activity. Consequently, "the roof was all torn up" before the association was able to intervene.

Retail Program

This program description indicated that CBEE would contract with selected home centers and hardware stores to provide in-store displays, do-it-yourself advice, and contractor services for promoting new energy efficiency products.

This program concept got the weakest support, especially with respect to influencing decisions made for common area installations. One respondent indicated that this program option would be an ineffective approach for influencing decisions made for their apartment complex due to the fact that their procurement process does not typically utilize home center or hardware stores.

Another respondent indicated that she has experienced difficulties in trying to get informed, in-store advice on appropriate products for her facility. This was not due to a lack of expertise at the retailers, but rather to communications difficulties between the customer and the salesperson. "It was like we were speaking a different language." This respondent would be interested in this retail support concept if it included the contractor services component and if this component included a site visit for diagnostic services. The on-site visit would eliminate the need for the customer to explain facility features, removing the communications barrier encountered in the past.

Certification Program

Training and certification were generally viewed positively, with one respondent commenting, "Then I'd know they know what they're doing." Most respondents had favorable reactions to this program concept, but one apartment manager cautioned that it might not alter their selection of contractors, as they tend to repeatedly turn to the same contractors. In contrast, two other respondents indicated that the certification might very well influence their selection of contractors.

One apartment manager who favored certification of servicemen and contractors also strongly favored some type of training course for their own property maintenance staff. This respondent indicated that "there is a great lack of training" available for maintenance personnel. Training of this sort would enable facility staff to undertake simpler or smaller scale projects with greater confidence and would provide a better knowledge base from which to negotiate with energy service providers on future contracts.

CONCLUSIONS

Baseline

Among this set of respondents, the end-uses most commonly targeted for conservation retrofits were lighting and water use. Space conditioning was seldom addressed, and only by a respondent having installed a fairly comprehensive array of measures. High efficiency appliances were not addressed by any of the interviewed respondents.

It was found that low flow showerheads suffered from poor persistence in one apartment complex, due to occupant removal of this measure. As has been repeatedly documented in the DSM literature, renters are generally slow to invest in changes in measures affecting energy use in their dwelling units. In this light, it is noteworthy that a large fraction of renters were reported to have removed a conservation measure from their dwellings. It would appear that the low price of these items, the wide availability of replacements, and the ease of replacement contribute to the low persistence of this measure.

Program Preferences

The broadest support was for a direct install type of program, but the most ardent support was for training and certification. Program characteristics that respondents valued included:

- free or discounted equipment or services,
- site-specific equipment selection by knowledgeable contractors or installers,
- education for their own staff,
- reduced information barriers, and
- the reassurance of being able to select qualified/certified servicemen.

When one of the three program types was viewed as offering one or more of these benefits, the respondent was favorable toward that design alternative. Conversely, when a program type was seen as being weak on one or more of these attributes, this program type was rejected.

A synopsis of customer-reported strengths and weaknesses by program type appears below.

Direct Install Programs

- *Strengths:* site visit (with the expectation of site-specific equipment selection), free/discounted equipment and services
- *Weaknesses:* cookie cutter equipment selection, poor coordination with key decisionmakers

Retail Support Program

- *Strengths:* accessibility
- *Weaknesses:* communications barriers, lack of site-specific information in the selection/recommendation process

Training and Certification

- *Strengths:* education for own staff, reassurance of being able to select qualified/certified servicemen
- *Weaknesses:* certified servicemen may differ from customer's preferred vendors