PY2006-2008 Comprehensive Mobile Home Program
Process Evaluation
Final Report

Study Number SCE0280

Prepared for
Southern California Edison Company

Prepared by
Katherine V. Randazzo, Ph.D.
KVD Research Consulting

With

HMG Consulting
And
Thayone Jones

October 2009

Table of Contents

List of Tables

List of Figures

I. Executive Summary and Recommendations

SCE's Comprehensive Manufactured/Mobile Home Program (CMHP) is a direct install approach designed to provide a comprehensive energy efficiency program to mobile home. The program installs energy efficient products in the mobile home dwellings and common areas of mobile home parks. CMHP is delivered through a third party responsible for implementing all aspects of program marketing, participant enrollment, and product installation.

The measures installed under the PY2006-08 program were:

Air Conditioning Diagnostic and Tune-Up
Duct Test and Sealing
ENERGY STAR® Hardwired Fluorescent Fixtures
ENERGY STAR Screw-in Compact Fluorescent Light Bulbs (CFLs)

The process evaluation of the 2006-08 Program was based on four identified program goals, as well as consideration of the 2004-05 evaluation and its recommendations. The earlier evaluation combined process and impact assessments. That evaluation required a sample of individually-metered homes. The impact of this necessity was unknown at the time. The current study provides an opportunity to see some implications of that design. The results of the current evaluation are, when possible, compared to the earlier one with the idea of tracking progress in program design and implementation. However, those results have to be interpreted in the light of the differences in the samples involved.

The 2006-08 sample was composed of newer, somewhat smaller units, shorter-term residents, and fewer occupants. Overall, income was lower in the current sample, and somewhat more households were below the $30,000 mark in income than was true of the last program cycle. There were more seniors living in this sample of mobile home households than before. Independent of the prior sample (no information was available on these factors), the current sample tend to own their own homes. Most have central or room air conditioners, and most are educated and Caucasian. The majority of owners/managers both own and manage, with the largest number owning parks with between 120 and 200 units, and most are individually metered.

Following is a summary of the results of the current study, organized by program goals.

A. Goal 1: Reduce kWh and kW in mobile home parks through direct installation of energy efficiency measures

- The largest proportion of measures implemented as well as kWh savings were from CFLs (65%). But most kW come from HVAC measures.
- Lighting accounted for about 56% of costs; cost per kWh unit was lower for lighting; per kW unit cost was lower for HVAC measures.

- Concentration of program activity is strongly in areas with low-densities of mobile homes, and in cooler CEC Climate Zones (CZs).
- In absolute numbers, there were more participants in the hotter areas of CZs 14 and 15, though not 10.

B. Goal 2: Create spillover effects for savings beyond what is achieved by direct installations of program measures

- About 37% of air conditioners were recorded as *not* tested, but 11% of those respondents reported that they were. This may reflect a recordkeeping problem; in addition, it could include an effect of some participants being interviewed 2-3 years after participation.
- Of the air conditioners recorded as tested, 76% recalled this with prompting, though only 29% did without it. The pattern is similar for duct testing.
- More recalled receiving lights.
- A very large majority agreed that their confidence in energy efficiency reducing costs and improving comfort was increased by the program and awareness of other energy efficiency opportunities was increased by the program.
- Over 20% of resident participant claimed to have installed equipment due to the program, and 56% claimed to have changed practices due to the program's influence.
- For owners/managers 92% of CFLs installed in common areas were recalled, though only 2 measures (both lighting) were installed in common areas through the program. Only 44% of fixture installations were recalled.
- Among owners/managers, 38% made changes in equipment that they attributed to the program, and 37% changed practices they attributed to program.
- About 40% of owners/managers were considering purchasing CFLs, over 30% other lighting, and a smaller number were considering refrigerators, thermostats, furnaces, water heaters. About 60% considering "other" types of energy-efficient measures.

C. Goal 3: Generate participant satisfaction

1. Resident participants reported being most benefited by the energy conservation as a result of their participation (63%) followed by lowering utility bills (58%). Several other benefits were cited as well in open-ended answers.
2. Satisfaction was high (between 8.2 and 9.2 and on a 1-10 scale), and higher than in the previous program cycle.
3. They were least satisfied with the energy-saving tips (8.2), and this represented an improvement over the prior program cycle (7.7).
4. Where there was dissatisfaction, it tended to be with the lighting equipment itself, not services.
5. For owners/managers, satisfaction is high (9.0), though performance of equipment was slightly lower (8.7).

6. Participant suggestions fell into two categories:
    a. more program visibility
    b. more coordination with park management

D. Goal 4: Implement Program Policies

1. Inspections

- Records of 1200 QC inspections were provided to the evaluator. This constitutes 7% of participants, thus exceeding policy requirements.
- Inspections of the work of installers revealed a high (85%) pass rate for the work they did. However, many were really "partial" passes.
- Other inspections couldn't be done due to inaccessibility of equipment or other legitimate issues, but many were classified as passes. Efforts to determine if these cases were counted in savings were not possible since the inspection records are not connected to general participant records, and efforts to connect them by name and address were unsuccessful.
- Calculation of separate pass rates for inspections that did and did not include SCE inspectors wasn't possible as the presence of SCE inspectors was not systematically recorded in inspection records.

2. Program Personnel Views

SCE and Synergy personnel involved in this program uniformly consider it a success, and report continuous improvements over time. They report that customers love the program. They do identify some problems they would like to see addressed:

- Residents often don't like the showerheads and the outdoor light fixtures
- Residents tend to be confused by efforts to introduce them to other SCE programs
- There is no literature available to leave residents to explain the measures implemented
- Recordkeeping has not been digitized, though there is an effort to correct this
- There is confusion about how many CFLs can be installed in residents' homes

The interviewees had several suggestions for program improvement:

- Add measures to the list available for common areas
- Include extra CFLs for replacements, and lower Wattage ones for ceiling fans
- Institute an ongoing satisfaction survey
- Create a web site for customer signups
- Market the program with bill inserts

3. Verification Results

A verification study was conducted as part of this process evaluation to determine the accuracy of the implementation process and the savings impacts that any problems might

have. This was undertaken based on problems identified in the regular verification study conducted by SCE, the most recent being for the 2006 programs. The current study uncovered a number of errors in the recordkeeping of the program that should be addressed as they would entail reducing claimed savings between 5% and 15%, depending on the measure.

E. Recommendations

All of the recommendations from this work flow directly from study results. The are listed below, organized by recommendation focus, and each is accompanied by the data results on which the recommendation is based.

1. Program Design Considerations

1. Focus much more program activity in climate zones 10, 14, and 15.
    - For weather-sensitive measures, the kW and kWh savings are much higher in the hot climate zones. This is clearly seen in Table 16 and Table 17, especially in comparison to Table 15.
2. Focus much more program activity in areas with a high-density of mobile homes
    - A much larger proportion of units in low-density areas are served than in medium- or high-density areas (see Table 15, Table 16, Table 17, Figure 6, and
    -
    - Figure 7. Changing the concentration of program activity to high-density areas could produce substantial program efficiencies.
    - This pattern may reflect a tendency focus close to company headquarters. Section IV.C.2.a. revealed that over 80% of participants live within 50 miles of Synergy headquarters, and 8% live more than 100 miles away, and those were primarily in cool, coastal areas.
3. Consider adding more measures to what is offered under the program.
    - The California Long-Term Energy Efficiency Strategy Plan emphasizes a comprehensive approach to identifying energy efficiency opportunities and retrofits. Restricting measures to short lists that do not overlap with other programs is not consistent with that strategy.
4. Consider upgrading the lighting fixtures and showerheads offered by the program.
    - Customers, technicians, and inspectors report that many customers refuse the fixtures that are offered, free of charge, because they don't like them. Inspectors also report that the fixtures cause CFLs to burn out prematurely.
    - The problem may be systemic; similar findings come out of the MFEER program.

2. Program Process Considerations

5. A comprehensive review of QC controls should be undertaken, including recordkeeping and inspection processes.

- Many discrepancies were found in records of services performed and inspections conducted. Section IV.F.1 reveals that records of services and inspections could not be matched in many cases, and this resulted in the inability of the evaluator to calculate rates of success and failure.
- The verification study (See Appendix B) resulted in reductions in claimed savings due to inaccurate and incomplete records.

6. Digitize all participant records and integrate all aspects of records into one dataset, including inspection records
    - This would address the issues of matching service, appointment, and inspection information described above.
7. Add inspection status categories to reflect situations where some work by installers was good and some inadequate, and some work was impossible due to inaccessibility of equipment.
    - Section IV.F.1 indicated that there were numerous instances where the inspector noted that the technician should return to the site and make corrections, but the inspection was categorized as a "pass." This was usually because some part of the installation was passed, but other parts were not.
8. The choice of which sites to inspect should not be done subjectively, but by a systematic set of criteria and random process.
    - The current practice is for the inspector to make the decision about what sites to inspect. This method is not consistent with good sampling theory that yields accurate estimates of program results. Unbiased estimates, in sampling theory terms, results from random sampling techniques.
9. SCE inspectors should be able to do entirely independent inspections
    - Only a truly independent process can assure accurate checks on program processes.

3. Program Marketing Improvement

10. Conduct a comprehensive review of program marketing, and develop new strategies.
    - It was suggested by program personnel and customers that there are limitations to the program reach imposed by personal presentations to park owners/managers as the only means to program participation. (See Section IV.E.2)
11. Consider developing leave-behind literature to tell customers what was done and its benefits
    - Technicians report that customers are confused about how other programs are related to the CMHP or SCE, and customers report that program literature does not show SCE's name or contact information.
    - Program personnel indicate this literature is needed (See IV.F.2).
12. Consider marketing the program through bill inserts targeted at mobile home residents.
    - This is one option suggested by program personnel to deal with the limitations imposed by personal presentations to park owners/managers. (See Section IV.E.2).

13. Review the literature, process, and logic involved in promoting the LIEE or other programs. It should be made more customer friendly.
    - Technicians report that customers are confused about how other programs are related to the CMHP or SCE (See IV.F.2).

4. Training

14. Consider updating the training of program personnel.
    - Technicians and other personnel report different understandings of how many CFLs should be installed and left at the home (See IV.F.2).
    - The problems identified under Program Marketing Improvement about customer confusion about how this program and other SCE programs are related could also be addressed through training.
    - All of the issues of recordkeeping accuracy will need to be addressed through training as well as the development of new systems and standards.

II. Introduction

A. Program Description

SCE's Comprehensive Manufactured/Mobile Home Program (CMHP) is a direct install approach designed to provide a comprehensive energy efficiency program to mobile home. The program installs energy efficient products in the mobile home dwellings and common areas of mobile home parks. CMHP is delivered through a third party responsible for implementing all aspects of program marketing, participant enrollment, and product installation.

The measures installed under the PY2006-08 program were:

Air Conditioning Diagnostic and Tune-Up
Duct Test and Sealing
ENERGY STAR® Hardwired Fluorescent Fixtures
ENERGY STAR Screw-in Compact Fluorescent Light Bulbs (CFLs)

CMHP offers workshops to educate both mobile home park management and residents about the benefits from the measures offered and opportunities available through SCE's other energy efficiency programs and low-income programs.

A specified percentage (5%) of sites are inspected by non-installing Synergy technicians to assess the quality and appropriateness of the work completed. The program plans also call for inspections by SCE inspectors. During the PY2006-08 program cycle, SCE inspectors did not have the necessary equipment to complete adequate tests of duct systems. For this reason, rather than complete independent inspections, SCE inspectors accompanied Synergy inspectors in a percentage of their inspections. The theory behind this approach is that the failure rates recorded for inspections done by the Synergy/SCE team should be the same as for those completed by Synergy alone.

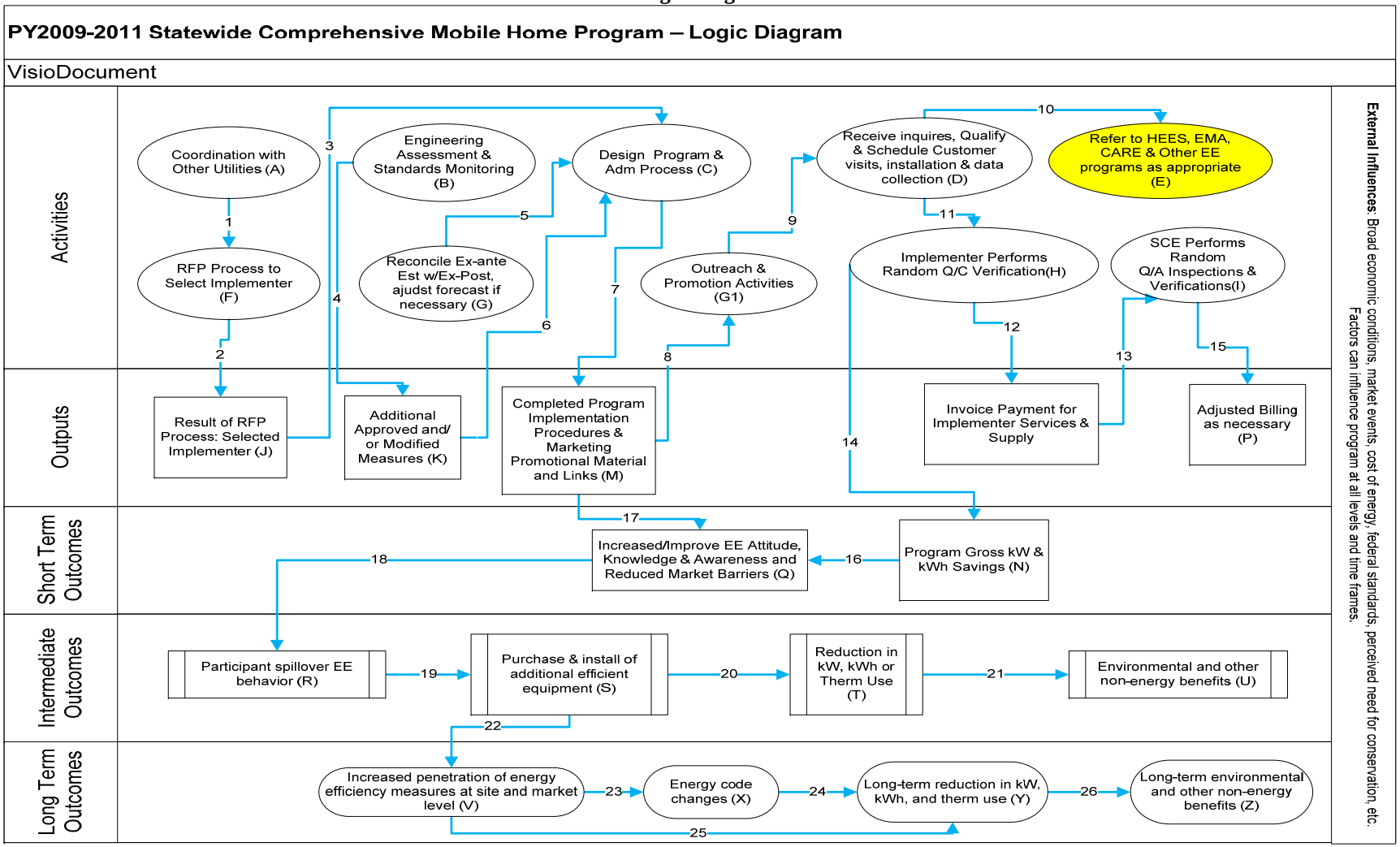
B. Barriers, Market Assumptions, and Strategies

While there was no program theory developed for this program for the 2006-08 program cycle, the basic elements of a theory were contained in the Program Implementation Plan (PIP). In addition, the program design and thinking represented in the PIP is consistent with the logic diagram prepared for PY09-11 (see Figure 1).

The PIP, together with conversations with program personnel, made it possible to describe market assumptions, market barriers, and strategies to overcome the barriers. Market barriers affecting this segment include first-cost issues and language barriers, as well as split incentives. The first-cost problem, though not a true market barrier, results from the fact that a majority of mobile home park residents have relatively low incomes, and/or are on fixed incomes. The split incentive barrier flows from the fact that many mobile home parks are master metered.

Both the first-cost issue and the split incentive barrier are addressed by providing program measures free of charge to residents and owner/managers of mobile home parks. The language barrier is addressed by employing multi-lingual technicians by the

Figure 1
PY2009-11 Logic Diagram for CMHP



implementing contractor, Synergy Companies. The study addresses the assumptions behind the specified market barriers as well as the goals and strategies to overcome them, described in the next section.

C. Program Goals

A program theory also specifies goals, both overarching and detailed. They are grouped here in a way that facilitates the organized presentation of results from this study.

1. Goal 1: Reduce kWh and kW in mobile home parks through direct installation of energy efficiency measures

This goal is not part of this evaluation, since it is a process evaluation, not an impact evaluation. However, the patterns of savings, by measure type were analyzed, based on savings reported by the program. Another component of achieving this goal involves targeting program activity to areas rich in savings opportunities. Thus, one evaluation goal is to analyze the efficiency of the program's targeting efforts. This analysis can be found in Section IV.C.2.

2. Goal 2: Create spillover effects for savings beyond what is achieved by direct installations of program measures

Two strategies appear to address this goal. First, information was provided to participants on other programs they might be qualified for; second, through both direct experience with savings, and by energy-savings tips provided by installation technicians, changes in awareness, attitudes, knowledge, and behavior (AKA-B) were intended. The evaluation goals associated with this program goal were to determine the effect of the program on AKA-B. This analysis can be found in Section IV.D. Part of this analysis is determining how well participants recall the services provided since it would be difficult to argue that spillover had occurred when the original service provided that was meant to inspire further actions is not recalled. This analysis is in Section IV.D.1

3. Goal 3: Generate participant satisfaction

While this goal is rarely stated directly, it is a perennial goal of energy efficiency programs. Correspondingly, a process evaluation usually assesses participant satisfaction on a number of dimensions, and this is no exception. Part of generating satisfaction is to be sure the participant understands the measures that were taken and can see the results. Another aspect of satisfaction assessment is that the quality of work is verified by an inspection process. Thus, the evaluation includes assessing the results of the inspection process. Of course the inspection process also serves the kWh and kW goals as well.

All three of the above program goals and their accompanying evaluation goals apply to both park residents and park owners and managers. Each group was addressed separately in the evaluation. One final goal is also addressed.

4. Goal 4: Implement Program Policies

In addition to addressing program goals, process evaluation goals generally include determining to what extent the program was implemented as planned and justified by program theory. This is a method for learning, from those who actually design and run the program, where improvements could be made, or where there may be conflicting understandings of policy. This constitutes the final evaluation goal.

III. Method

This section describes the methods used for addressing the evaluation goals noted above. They will be organized by the program goals identified above.

A. Goal 1: Reduce kWh and kW in mobile home parks through direct installation of energy efficiency measures.

The evaluation goals for this program goal include identifying the patterns of savings and targeting. The methods for addressing these goals are built into the program database, which, by policy, lists all participants, their addresses, the measures taken in each unit, including common areas, and the savings associated with each. Climate zone is also included. For the targeting goals, additional information was acquired on the file in the form of GIS coding and census information about the concentration of mobile homes by ZIP code.

In practice, the program tracking system is not consistently kept. Many telephone numbers were missing and kept in separate files that did not contain a matching identification number. To generate a complete list of participants with all contact information, hundreds of matches had to be completed manually. This is costly to the M&E budget, and increases errors in the database.

B. Goal 2: Create spillover effects for savings beyond what is achieved by direct installations of program measures.

The evaluation goals associated with this program goal involve assessing participant AKA-B. These concepts were measured by telephone interview, with separate samples and interviews for resident participants and owner/manager participants. The latter covered common areas only.

1. Samples

A power analysis revealed that a sample of 100 would provide 95% confidence in sample estimates within 10% of population parameters. This analysis, based on estimating means, assumed an alpha error level, two-tailed, of .05, a power of .80, and a coefficient of variation of .5 ($CV=\sigma/\mu$). A list of 1000 randomly-chosen residents was provided to the survey house for an interview pool. A final, complete sample of 100 was returned.

A similar power analysis for the owner/manager sample was based on a population of only 66, which reduced the need for 100 sample elements to 39, using the finite population correction factor. The 66 owner/managers were identified by using the

occurrence of "Common" in the Measure Group Name field of the program database. Because it is not feasible to successfully recruit over 50% of a sample list, it wasn't possible to achieve 39 complete owner/manager interviews. A total of 25 interviews could be completed by carrying out at least five follow-up calls to potential respondents, as needed.

2. The Interviews

An interview protocol for mobile home park residents was drafted and sent to program managers for review, then finalized. Interviews were completed during the first week of June 2009. The topics included establishing respondent recall of measures, an assessment of the benefits of the program, dimensions of satisfaction and dissatisfaction, AKA-B questions, habitation facts, and demographics.

The interview protocol for mobile home park owner/managers went through a similar process, and covered similar topics, but eliminated the habitation questions, and added questions about park characteristics, management, including whether it was master metered or individually metered, the experience of the respondent, and future energy efficiency plans.

C. Goal 3: Generate participant satisfaction

The sample and interviews on which to assess the program's results on this goal are the same as for Goal 2. Adding this goal simply meant adding satisfaction questions, including queries as to what the participant recalled about the services and products provided.

D. Goal 4: Implement Program Policies

One aspect of program implementation is revealed by the QC inspection process. This issue was addressed through an analysis of the program database.

Many implementation issues were addressed through interviews with program personnel. A total of 12 telephone interviews were completed with Synergy program staff using an open-ended format, as well as an interview with the SCE program manager who supervised the program during most of the PY2006-08 cycle. The 12 Synergy interviews included the program manager, 2 inspectors, 2 marketing staff, 2 administrative personnel, and 5 installers. The respondents to these interviews were all chosen randomly from within their job categories.

A third approach to assessing program implementation is through the process that SCE commonly uses to judge the adequacy of recordkeeping such that claimed savings will not be threatened by inadequacy in that area. Typically, SCE reviews a sample of program records and makes adjustments to claimed savings before making the claims. The most recent verification study conducted by SCE was for 2006 programs, in which substantial recordkeeping problems, requiring adjustments to claimed savings, were found for the Comprehensive Mobile Home Program. It was decided that the current process evaluation should follow up on this finding to determine whether improvements had been made. Therefore, this process evaluation conducted a verification study for this

program as a final method of evaluating the adequacy of the implementation of the program policies.

The interview protocols can be found in Appendix A, and the verification study can be found in Appendix B.

IV. Results

A. Responding to Prior Evaluation Recommendations

The evaluation of the PY2004-05 cycle combined a process evaluation together with an impact evaluation. Several recommendations were made at that time, stemming from both evaluation components. These recommendations are listed below, followed by a short summary of what has been done to address each.

- Do not offer Programmable Thermostats in future programs.
    - This measure was not offered in the 2006-08 program.
- Use the 2004-05 DEER Update Study to estimate future HVAC ex ante savings.
    - The updated estimates were in use for the current program cycle.
- Target weather sensitive (i.e., HVAC) measures by climate zone to improve the program performance.
    - This appears not to have been a focus of effort for the 2006-08 program cycle, but should be pursued for the next.
- Use the most recent CFL Metering Study for future CFL ex ante savings.
    - The most recent CFL savings were based on current estimates.
- Install CFLs with equal or higher lumen output. One of the most common reasons for removing an installed CFL was the lower light level.
    - The Synergy program director reports that the CFL lumens were increased starting in 2006.
- Make sure all CFLs are installed by ASC technicians and consider installing CFLs in hard to reach, high use fixtures.
    - A few participants and some technicians said some CFLs were left without installation by the Synergy Companies technicians. However, by and large, CFLs were installed by the installers.
- Mark Compact Fluorescent Lamps so that they can easily be distinguished from those installed before or after the program.
    - This recommendation was not implemented in the PY2006-08 cycle.
- Conduct follow-up phone surveys in the months immediately following the installations to ensure there were no problems with the installed measures.
    - Program personnel report that this was done for 20% of homes, but records were not kept of this activity.
- Work with local utility representatives to coordinate program marketing efforts. Increasing personal contacts, both face-to-face and over the telephone, between utility staff and customers has been reported as a factor in increasing program

participation. General utility customer service personnel should be made aware of third party programs so that customer inquiries can be properly addressed.
    - The SCE program manager for this program cycle reports that the SCE phone center is aware of the CMH program.
- For future program evaluations, whole building analysis (Option C) with 15-minute submetering in both individually metered and master metered parks should be considered. If the evaluation budget is a limiting factor, verification should be based on the most recent and accurate engineering savings estimates and on-site installation verification.
    - The program manager for this cycle reports that whole-building analysis and submetering were not used in this program cycle due to budget constraints.
    - Ex-ante savings were based on the most recent engineering savings estimates.
    - There is a QC process designed to perform verifications separately from the installation process. As reflected in the rest of the current report, improvements in the inspection process and recordkeeping are called for.

The remainder of this section will be organized by the program and evaluation goals stated in Section II.C. However, first, the background characteristics of the residents will be presented so the reader will understand what types of residents were being served and what types of residents were providing the answers to the interview questions. Also, because some program results can be compared to the results of the PY2004-05 evaluation, it will be important to also be aware of how the samples for this study compare to the earlier one. To facilitate this comparison, the characteristics where the same information is available from the earlier study will be shown in the same table that contains the results from the current evaluation. As is true in other sections of this report, the table headings reflect the year in which the interviews were completed rather than the program years associated with them.

B. Background Characteristics

1. Resident Participants

As seen in Table 1, over half of the current resident sample resides in mobile homes built before 1978. This is in dramatic contrast to the 2006 sample for the PY2004-05 evaluation, where less than 5% were in mobile homes this old. The current sample contains very few participants with mobile homes built from 1993 or more recently. The reason for this is clear: the last evaluation was of both process and impact, with the latter requiring a sample of individually-metered accounts. Individual metering was needed for the simulation models that were calibrated to the home's actual energy use, which requires that the individual home be individually metered. Over time, master metering has become much less common, so that individually metered homes are likely to be newer than master metered ones. This difference in home vintage can be important to impact evaluations conducted on this sector, but also for noting attitudes and behaviors of the residents.

Table 1
Mobile Home Vintage by Year

Mobile Home Vintage	2009 Sample (PY2006-08)	2006 Sample (PY2004-05)
Built before 1978	53.6%	3.3%
Built between 1978 and 1992	32.0%	23.7%
Built between 1993 and 2001	9.3%	38.8%
Built between 2002 and 2005	5.2%	34.3%
Built in or after 2006	0.0%	0.0%

χ^2 =166.01, p<.05

Table 2 shows the basic characteristics of the homes and their occupants. While significance tests weren't possible for this comparison, it is clear that the participants in this sample have lived at their current address for a shorter time period (11.62 years) than those in the earlier sample at 16 years. This may represent greater transience in the current sample. Also shown is a slightly smaller number of occupants and slightly fewer square feet in the home.

Table 2
Habitation Characteristics Summary by Year

Characteristic	2009 Sample (PY2006-08)	2006 Sample (PY2004-05)
Average Years at Current Address (SD)	11.62 Years (9.11)	16 Years
Ownership of Mobile Home (SD)	96%	97%
Average Number of Occupants (SD)	1.69 (.88)	1.75
Average Mobile Home Size (SD)	1281 ft^2 (440.63)	1,341 ft^2
Average Age of Mobile Home (SD)	30 Years (10.99)	

Note: Significance tests not possible because no SD given for 2006 sample

The income distribution of the 2009 respondents is quite different from the 2006 group. Table 3 shows the categories where there are significant differences. The current sample has substantially more participants with income less than $20,000 than was true of the earlier sample, and the earlier sample had many more households with incomes between $20,000 and $25,000, and between $30,000 and $40,000. Oddly, the current sample has more between $25,000 and $30,000. Neither sample has many participants with incomes above $50,000. The critical category for judging success in reaching hard-to-reach customers, in terms of income, is the percentage of participant households with incomes at or below $30,000. For the current evaluation, this was over 73%, and for the earlier sample it was less, at 68%. This must be counted as a success, although it is impossible to say that the program improved this targeting since the samples were drawn on different criteria across the two time periods. When the impact evaluation drove the sample (in the 2004-05 program period), it was necessary to eliminate the master-metered sites. This had a substantial impact on a number of sample descriptors.

Table 3
Household Income Distribution by Year

Income Category	2009 Sample	2006 Sample
Under $15,000	18.7%	2.1% *
$15,000 to less than $20,000	18.7%	9.9% *
$20,000 to less than $25,000	13.3%	29.2% *
$25,000 to less than $30,000	16.0%	3.9% *
$30,000 to less than $40,000	16.0%	30.0% *
$40,000 to less than $50,000	10.7%	17.2%
$50,000 to less than $75,000	2.7%	1.3%
$75,000 to less than $100,000	2.7%	6.4%
$100,000 to less than $150,000	1.3%	0.0%
Don't Know		
Refused		
Total	100.0%	100.0%

*p<.05

The final background information comparison with the 2006 sample that is available is on the distribution of ages in the sampled households. There is a trend for more of the current sample to be 60 or over (Table 4), although this difference is not statistically significant. Nevertheless, this fact, together with the others cited above, presents a picture of more seniors living in older mobile homes for a shorter time, with a lower income.

Table 4
Inhabitant Age Distribution by Year

Age Bracket	2009 Sample (PY2006-08)	2006 Sample (PY2004-05)
17 Years or Younger	7.7%	7.2%
18 to 59	19.0%	25.1%
60 or Over	73.2%	67.7%

χ^2 =1.54, ns

In the current sample, 96% of the participants own their own mobile home, but only 56% pay their own electric bills (not shown). The other 44% have these bills included in mortgage or rental payments. Finally, 76% of the participant homes have central air conditioning, and another 12% have room ACs. The remaining 12% either have no AC or indicate they don't know (Table 5).

Table 5
Type of Air Conditioner in Participant Home

Air Conditioner Type	Percent
Room AC	12.0%
Central AC	76.0%
No AC	9.0%
Don't Know	3.0%
Total	100.0%

The sample for this study is quite educated (see Table 6). Only 11% did not at least graduate from high school. On the other hand, 51% of the sample has at least some college. Table 7 shows that 87% of the sample is Caucasian.

Table 6
Respondent Education

Education Level	Percent
Less than High School	2.0%
Some Hight School	9.0%
High School Graduate	34.0%
Trade or Technical School	3.0%
Some College	28.0%
College Graduate	15.0%
Some Graduate School	2.0%
Graduate Degree	6.0%
Refused	1.0%
Total	100.0%

Table 7
Respondent Ethnicity

Ethnicity	Percent
Hispanic/Latino/Latina	4.0%
African American	1.0%
Caucasian	87.0%
Asian American	3.0%
Multi-racial	3.0%
Don't Know	1.0%
Refused	1.0%
Total	100.0%

2. Owner-Manager Participants

This section describes the characteristics of the mobile home parks represented by the owner/manager participant respondents, as well as the background of these participants in terms of their experience in the business. These figures include no comparisons with the prior evaluation sample as that study did not separate out the owners and managers from the residents.

Of the 25 mobile home parks represented by the owner/manager participant respondents, a plurality contain between 120 and 200 homes. About equal numbers have less than 120 and over 200 (see Table 8). Of those parks, Table 9 indicates 80% are individually metered.

Table 8
Mobile Home Park Size

No Homes in Park	Number	Percent	Percent
Less than 120 Homes	8	32.0%	32
120 to 200 Homes	10	40.0%	40
Over 200 Homes	7	28.0%	28
Total	25	100.0%	100.0

Table 9
Metering

Metering Arrangement	Number	Percent	Percent
Individually Metered	20	80.0%	80.0
Master Metered	5	20.0%	20.0
Total	25	100.0%	100.0

Only one respondent owns the property without managing it. The majority (Table 10) both own and manage the property, and there is a wide range of experience, as seen in Table 11, with the largest percentage have from 0 to 5 years of experience doing this work. According to Table 12 the range of other properties owned and/or managed is also wide, with the highest percentage be associated with 51 or more properties, followed by the 1 to 5 properties category.

Table 10
Relationship of Respondent to Park

Tenancy	Number	Percent
Own it Only	1	4.0%
Manage it Only	10	40.0%
Both Own and Manage it	14	56.0%
Total	25	100.0%

Table 11
Years of Experience

Time Category	Number	Percent
0-5 Years	9	36.0%
6-10 Years	8	32.0%
11-15 Years	3	12.0%
>15 Years	5	20.0%
Total	25	100.0%

Table 12
Other Properties Owned or Managed

No of Properties	Number	Percent
None	5	20.0%
1-5 Properties	7	28.0%
6-50 Properties	3	12.0%
51+ Properties	8	32.0%
Don't Know	2	8.0%
Total	25	100.0%

C. Goal 1: Reduce kWh and kW in mobile home parks through direct installation of energy efficiency measures

This is a process evaluation, so the focus is not on program impact. However, it is appropriate to show the claimed savings, and compare those with the program targets. After discussing those figures, the remainder of this section will be devoted to describing the patterns of savings, and how efficient the program activities were in achieving them. In addition, we can determine how targeted the program was during this cycle in terms of climate zone and mobile home density.

Table 13 shows the net and gross savings figures. These figures should not be seen as the official program impacts. They are presented as informal numbers meant to be used to facilitate policy and strategic thinking.

Table 13
Summary of Program Results

Measure Type	Quantity	Calculated Cost	Net kWh	Net kW
AC Diagnosis	9,629	1,449,453	2,439,048	3,188.38
Duct Testing	7,749	980,171	1,510,106	2,830.94
CFL-Exterior	2,128	32,745	539,296	0.27
CFL-Interior	95,418	1,233,330	2,927,871	256.36
Fixtures	33,740	1,793,060	3,489,534	83.49
Total	148,664	5,488,760	10,905,855	6,359.44

The savings goals for the program, over the three years of the 2006-08 program cycle, were 11,943,562 net kWh , and 7,004 net kW. The savings achieved, based on the program tracking system, fall slightly short of those goals, as seen in Table 13.

Table 14 derives from Table 13; it shows the cost per measure unit, per kWh savings achieved, and per kW reduction achieved. The HVAC measures clearly are more costly than the lighting measures in terms of units performed. The cost per kWh savings achieved is also somewhat higher. However, when considering what it costs for each kW reduction achieved, the HVAC measures seem very efficient, especially compared to exterior CFLs.

Table 14
Unit Costs

Measure Type	Cost Per Unit	Cost Per KWh	Cost Per KW
AC Diagnosis	150.5	0.59	454.6
Duct Testing	126.5	0.65	346.2
CFL-Exterior	15.4	0.06	119,648.6
CFL-Interior	12.9	0.42	4,811.0
Fixtures	53.1	0.51	21,476.4
Total	36.9	0.50	863.1

1. Savings Patterns

Figure 2 shows that when counted by quantity of measures installed or performed, the program is dominated by interior CFLs (65% of measures) with fixtures a distant second (23% of measures). The picture is very different when viewed through the lens of net kWh (Figure 3) where the results are more evenly distributed over the entire program. The most savings are achieved from lighting with 64% of program net kWh coming from that end use, and HVAC-related savings about half of that at 36%. The differences across measure types is dramatic for net kW reductions (Figure 4) as HVAC measures clearly dominate at about 95% of total program net kW. Figure 5 shows that a little more than half the program costs (about 56%) are attributable to the lighting measures.

Figure 2
Quantity of Each Measure

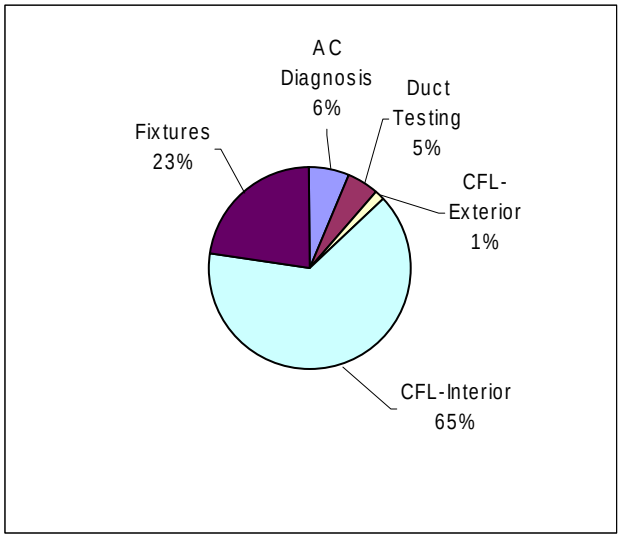


Figure 3
Net KWh Savings by Measure Type

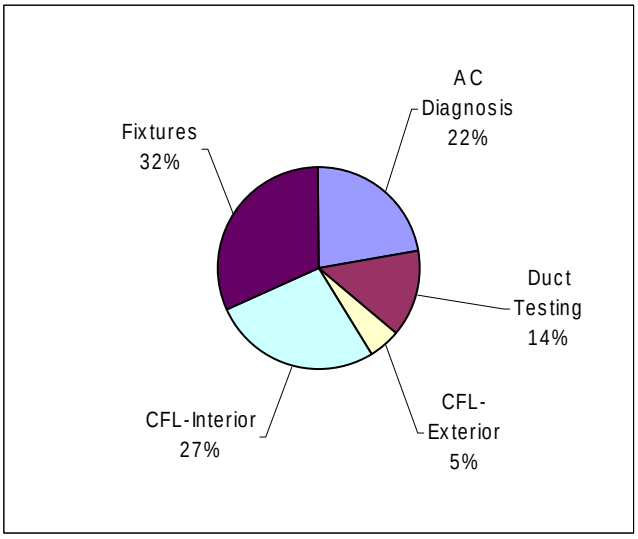


Figure 4
Net KW Savings by Measure Type

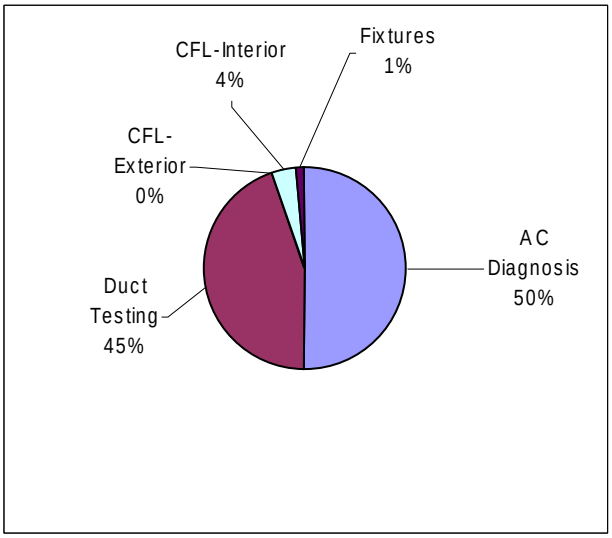
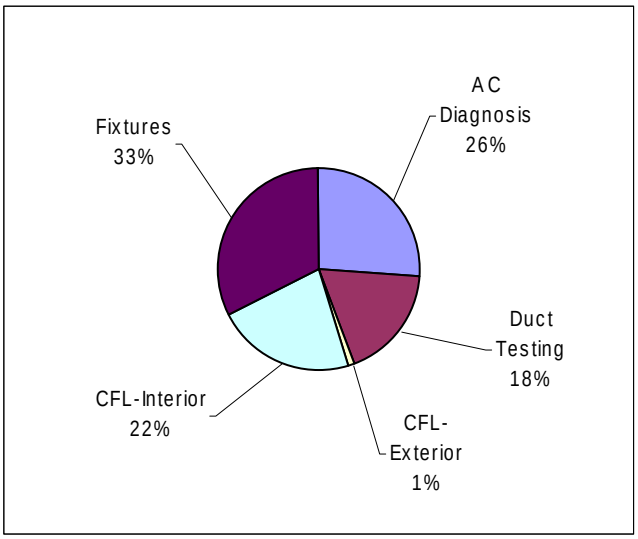


Figure 5
Cost by Measure Type



2. Geographic Targeting

Some areas of SCE territory have higher concentrations of mobile home units than others. In addition, program kWh and kW savings could be maximized by concentrating the HVAC activity in areas that have more extreme climates, especially in the summertime. To facilitate analysis of program targeting by mobile home potential, and for potential in maximizing kWh and kW savings, ZIP codes in the SCE territory were divided into groups with low (under 1,200 units) mobile home density, medium density (1,200 to 1ess than 10,000 units), and high density (10,000 or more units). In general, program activity could profitably concentrate in areas with higher densities of mobile homes. For HVAC measures specifically, it would be advantageous to focus on high-density areas with hot summers.

Table 15 shows that, in terms of participants served, program activity was focused on the low-density areas. There were more participants in zones 14 and 15 (the hottest zones) than in the others, though they too were primarily in the low-density areas. For viewing convenience, the figures are portrayed per 1000 mobile home units.

Table 15
Number of Participants per 1000 Mobile Home Units
by MH Density and Climate Zone

		Density of Mobile Home Units			
	Climate Zone	Low (0 to 1,200)	Medium (1,200 to 10,000)	High (over 10,000)	Total
6	Los Angeles	219	13	2	7
8	El Toro	235	11	3	5
9	Pasadena	321	9	2	19
10	Riverside	308	24	6	31
14	China Lake	544	30	1	21
15	El Centro	1,122	80	9	3
16	Mount Shasta	3	0	0	11
Total		309	16	4	4

Table 16 shows the net kWh savings achieved for the same areas. The advantage of the work in zones 14 and 15 can be seen in the disproportionate kWh for those areas compared to the number of participants and measures shown in Table 15. The same pattern is even more visible in Table 17, where kW is analyzed.

Table 16
Net KWh Savings per 1000 Mobile Home Units
by MH Density and Climate Zone

		Density of Mobile Home Units			
	Climate Zone	Low (0 to 1,200)	Medium (1,200 to 10,000)	High (over 10,000)	Total
6	Los Angeles	97,604	5,510	4,469	4,469
8	El Toro	130,633	6,218	3,942	3,942
9	Pasadena	222,221	5,966	3,278	3,278
10	Riverside	196,918	14,003	11,420	11,420
14	China Lake	425,739	21,012	23,630	23,630
15	El Centro	1,144,567	88,627	23,220	23,220
16	Mount Shasta	584	0	584	584
Total		201,734	10,023	7,052	7,052

Table 17
Net KW Reductions per 1000 Mobile Home Units
by MH Density and Climate Zone

Climate Zone		Density of Mobile Home Units: Low (0 to 1,200)	Medium (1,200 to 10,000)	High (over 10,000)	Total
6	Los Angeles	45.5	2.5	0.5	2.1
8	El Toro	103.0	4.8	1.1	2.9
9	Pasadena	126.4	3.3	0.9	1.9
10	Riverside	137.3	10.5	2.7	8.2
14	China Lake	268.2	13.7	0.3	14.9
15	El Centro	237.1	25.6	2.5	6.1
16	Mount Shasta	1.2	0.0	0.0	0.0
Total		123.0	5.9	1.4	1.2

Figure 6 reveals more dramatically the potential that may be missed by focusing so heavily on the low-density areas. It portrays only the number of participants in comparison to the number of units available in the low-, medium-, and high-density areas. A much larger proportion of units in low-density areas are served than in medium- or high-density areas.

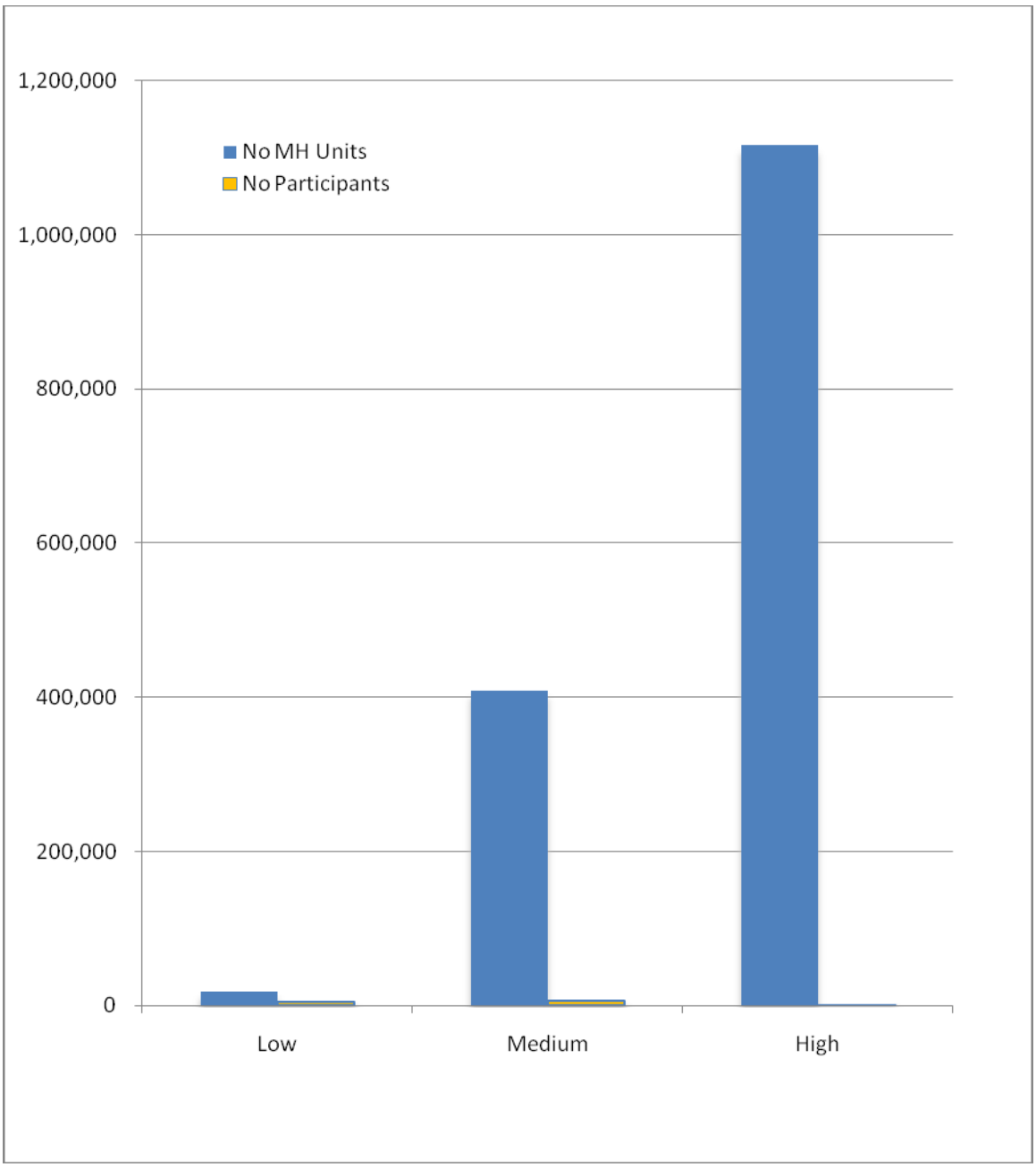


Figure 6
Number of Participants Compared to Number of Mobile Home Units by Mobile Home Density Areas

The next set of tables analyzes only the HVAC measures (duct testing and sealing and AC diagnosis and tune-up). Table 18 through Table 20, and

Figure 7 reflect the same analyses for this select group. They show a similar pattern, but more strongly as the HVAC measures are more weather sensitive, producing more savings, especially kW reductions in the hotter areas. Of course we see the pattern of focus on low-density, cooler areas repeated as before.

Table 18
Number of Participants Receiving HVAC Services
per 1000 Mobile Home Units by MH Density and Climate Zone

Climate Zone		Density of MH Units Low (0 to 1,200)	Medium (1,200 to 10,000)	High (over 10 ,000)	Total
6	Los Angeles	180	8	2	7
8	El Toro	195	9	2	5
9	Pasadena	254	7	2	4
10	Riverside	255	20	6	17
14	China Lake	415	23	1	23
15	El Centro	818	64	7	17
16	Mount Shasta	3	0	0	3
Total		254	12	3	9

Table 19
Net KWh from HVAC Services per 1000 Mobile Home Units
by MH Density and Climate Zone

Climate Zone		Density of MH Units Low (0 to 1,200)	Medium (1,200 to 10,000)	High (over 10 ,000)	Total
6	Los Angeles	5,579	226	49	209
8	El Toro	28,112	1,312	311	782
9	Pasadena	50,208	1,309	343	745
10	Riverside	72,917	5,613	1,596	4,726
14	China Lake	178,192	9,150	179	9,845
15	El Centro	700,943	63,126	6,097	15,405
16	Mount Shasta	282	0	0	282.1
Total		73,123	3,764	983	2,629.6

Table 20
Net KW from HVAC Services per 1000 Mobile Home Units
by MH Density and Climate Zone

Climate Zone		Density of MH Units Low (0 to 1,200)	Medium (1,200 to 10,000)	High (over 10 ,000)	Total
6	Los Angeles	53.9	2.2	0.5	2.0
8	El Toro	97.3	4.5	1.1	2.7
9	Pasadena	117.2	3.1	0.8	1.7
10	Riverside	131.8	10.2	2.9	8.5
14	China Lake	256.6	13.3	0.3	14.2
15	El Centro	212.3	24.4	2.3	5.7
16	Mount Shasta	1.2	0.0	0.0	1.2
Total		122.8	5.6	1.4	4.0

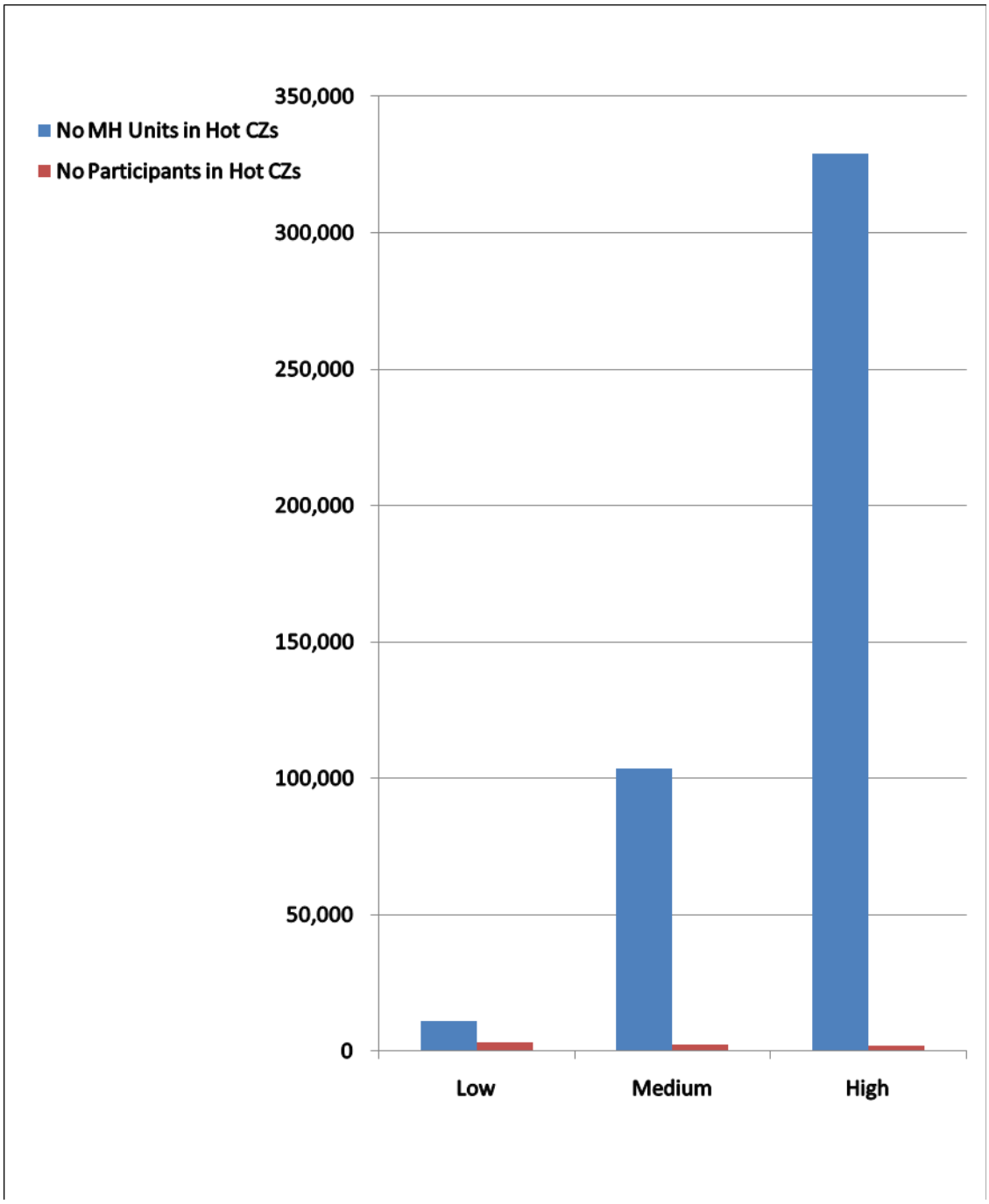


Figure 7
Number of Participants Receiving HVAC Services in Hot Climate Zones by Mobile Home Density

a. Travel Distances

To understand how travel distances from the program headquarters might affect program targeting, GIS coding was applied to determine the distance, in miles, between Synergy and each participant's home. Analysis of these distances revealed that over 80% of participants lived within 50 miles of headquarters, probably revealing a cost-based method of selecting mobile home parks for services. About 8% of participants lived over 100 miles from headquarters. Since the last evaluation report recommended targeting weather-sensitive measures to the hotter weather areas, and there were some participants in those areas, the longer-distance participants might have been in the hotter climate zones, revealing an effort to follow the earlier recommendation. However, an analysis of the long-distance participants revealed that most of them were in coastal areas. Only 46 participants were in Climate Zones 10, 14, or 15, and a few more were in CZ 9, which includes Ojai. Overall, however, the costlier trips to outlying areas did not seem focused on implementing the prior recommendation to maximize savings by targeting hotter climate zones.

In terms of program savings, and delivery efficiency, the higher-density, hotter areas would be most advantageous. The high-density areas of mobile home units in the hottest Climate Zones are:

Climate Zone 10

1. Alta Loma
2. Chino
3. Chino Hills
4. Corona
5. Highland
6. Homeland
7. Mira Loma
8. Moreno Valley
9. Montclair
10. Murrieta
11. Rancho Cucamonga
12. Redlands
13. San Bernardino

Climate Zone 14

1. 29 palms
2. Hesperia

Climate Zone 15

1. Blythe
2. Cathedral City
3. Desert Hot Springs
4. Palm Springs

D. Goal 2: Create spillover effects for savings beyond what is achieved by direct installations of program measures

The assessment of the program's success in meeting this goal was made based the two segments of the program: the resident participants and the owner/manager participants. Therefore, the results of this analysis will be presented separately for each.

1. Resident Participants

A necessary though not necessarily sufficient condition for motivating participants to engage in energy-efficient behaviors apart from the program would be to produce a change in awareness, knowledge and attitudes toward energy-efficient equipment. The interview was designed to assess these dimensions for resident participants. The program and research designs were not set up to measure AKA before and after program participation, nor to compare these measures to a control group to determine program attribution. In place of these approaches, participants were asked directly what the influence of the program has been.

Before addressing the issue of program influence on AKA and behavior, results of a more fundamental question will be presented. In order for a program to have a chance at influencing future behavior based on the positive experience of the program, the participant would likely need to recall what the program did for them. This is especially true for a program where there is no cost to the participant for receiving energy-efficient measures. If there is no recall of the measures, it would be difficult to argue that they changed the participants' views of energy efficiency to the extent of inspiring additional measures that could cost money.

Five measures were executed with resident participants. The recall rates of each will be reported, as the rates are different by measure. The interview first asked respondents what they recalled being done in their homes without prompting; this question was followed by a reminder of what the records showed had been provided. Thus, the unprompted and the prompted replies can be reported separately, and compared to what was recorded in Synergy records.

Table 21 shows that about 11% of the 37 air conditioners that were recorded as not tested were recalled as being tested by participants. Among the 63 tests that were recorded, 29% were recalled by participants without prompting, and this increased to 76% with prompting.

Table 21
Air Conditioner Test: Synergy Records versus Resident Participant Recall

Participant Recollection	Synergy Records		
	NoTest	Test Recorded	
	Unprompted Reports	Unprompted Recall	Prompted Recall
Not Recalled	33	45	15
	89.2%	71.4%	23.8%
Recalled	4	18	48
	10.8%	28.6%	76.2%
Total	37	63	63
	100.0%	100.0%	100.0%

Looking at Table 22 we can see that in 54 sample homes no test of ducts were recorded, and all of those residents agreed. Of the 46 that were recorded as tested, about 26% were recalled by participants without prompting, and this increased to about 78% with prompting.

Table 22
Duct Test & Seal: Synergy Records versus Resident Participant Recall

Participant Recollection	Synergy Records		
	NoTest	Test Recorded	
	Unprompted Reports	Unprompted Recall	Prompted Recall
Not Recalled	54	34	10
	100.0%	73.9%	21.7%
Recalled	0	12	36
	.0%	26.1%	78.3%
Total	54	46	46
	100.0%	100.0%	100.0%

Table 23 reveals that in 97 mobile homes, no exterior incandescent bulbs were replaced with CFLs. Slightly over half of those were recalled as being installed in contradiction to the records. Among the three that were in the records as installed, two, or 67% of the residents recalled this, and this went up to 100% with prompting.

Table 23
Replaced Exterior Incandescent bulbs with CFLs:
Synergy Records versus Resident Participant Recall

Participant Recollection	Synergy Records		
	No Replacement	Replacement Recorded	
	Unprompted Reports	Unprompted Recall	Prompted Recall
Not Recalled	48	1	0
	49.5%	33.3%	.0%
Recalled	49	2	3
	50.5%	66.7%	100.0%
Total	97	3	3
	100.0%	100.0%	100.0%

Table 24 indicates that only 11 of the sample resident homes were not recorded as receiving interior CFLs to replace incandescents; of those, about 36% of the residents recalled it that way. Of the 89 that were recorded as receiving interior CFLs, about 71% recalled this unprompted, while 97% did so when prompted.

Table 24
Replaced Interior Incandescent Bulbs with CFLs:
Synergy Records versus Resident Participant Recall

Participant Recollection	Synergy Records		
	No Replacement	Replacement Recorded	
	Unprompted Reports	Unprompted Recall	Prompted Recall
Not Recalled	4	26	3
	36.4%	29.2%	3.4%
Recalled	7	63	86
	63.6%	70.8%	96.6%
Total	11	89	89
	100.0%	100.0%	100.0%

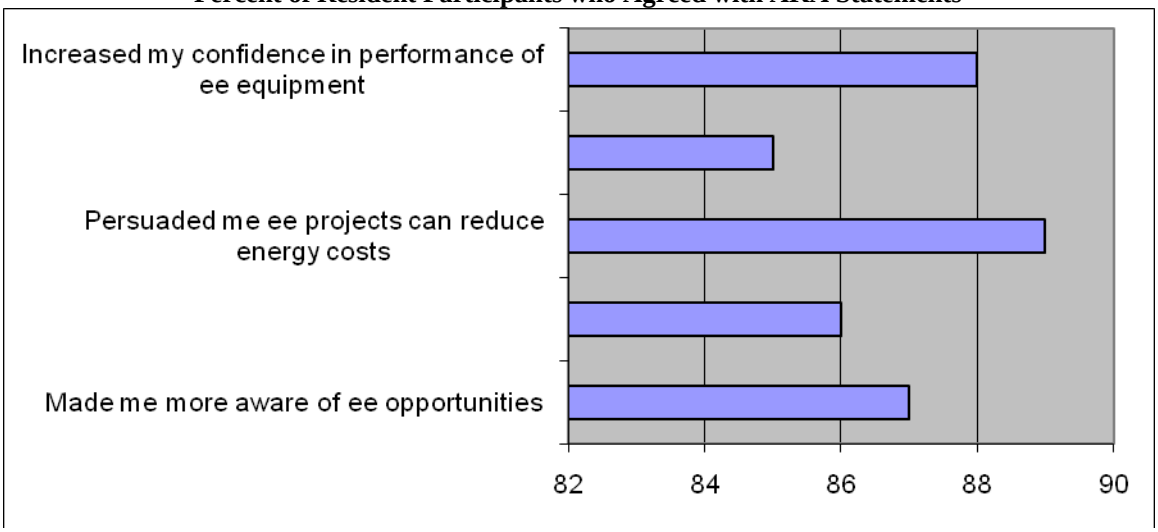
Finally, Table 25 shows that 18 sample homes were recorded as not receiving CFL fixtures, and only 28% disagreed with this. On the other hand, only about 37% recalled receiving a fixture when the records showed that they did. This figure increased to 79% with prompting.

Table 25
Replaced Incandescent with CFL Fixtures:
Synergy Records versus Resident Participant Recall

Participant Recollection	Synergy Records		
	No Replacement	Replacement Recorded	
	Unprompted Reports	Unprompted Recall	Prompted Recall
Not Recalled	13 72.2%	52 63.4%	17 20.7%
Recalled	5 27.8%	30 36.6%	65 79.3%
Total	18 100.0%	82 100.0%	82 100.0%

Another step in the process of determining the impact of the program on participants is to measure their AKA and how the program may have impacted it. Figure 8 shows that a very large majority of participants agreed that the CMHP project increased their confidence in energy-efficient equipment, confidence in the ability of such projects to increase comfort and reduce costs, and awareness of other energy efficiency opportunities. The smallest percentage agreement was 85%.

Figure 8
Percent of Resident Participants who Agreed with AKA Statements



The central question of this section is whether participants were influenced by the program to take additional energy efficiency actions after the program experience. As indicated above, this was addressed by asking participants directly whether they had installed equipment and whether they had changed their energy practices after the program intervention. When the respondents said, “yes” they were asked whether the actions they took were influenced by the program.

Figure 9 reveals that about 35% of resident participants report installing other energy-efficient equipment since the program, and that, of those, 45% were definitely influenced by the program, and another 20% were partially influenced. A higher percentage of respondents (65%) changed their energy practices, and over 70% of those changes were attributed to the program, another 10% were partially attributed to it.

Figure 9
Resident Participant Self-Reports of Energy-Efficient Actions Taken since Program and Program Influence: Yes or Partially Influenced

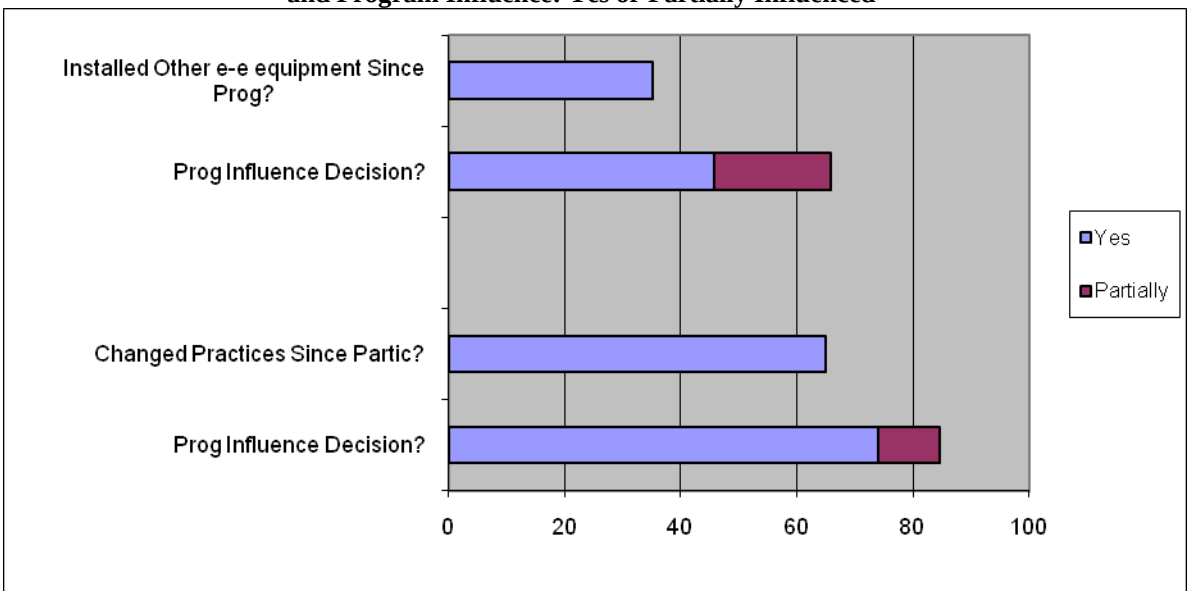
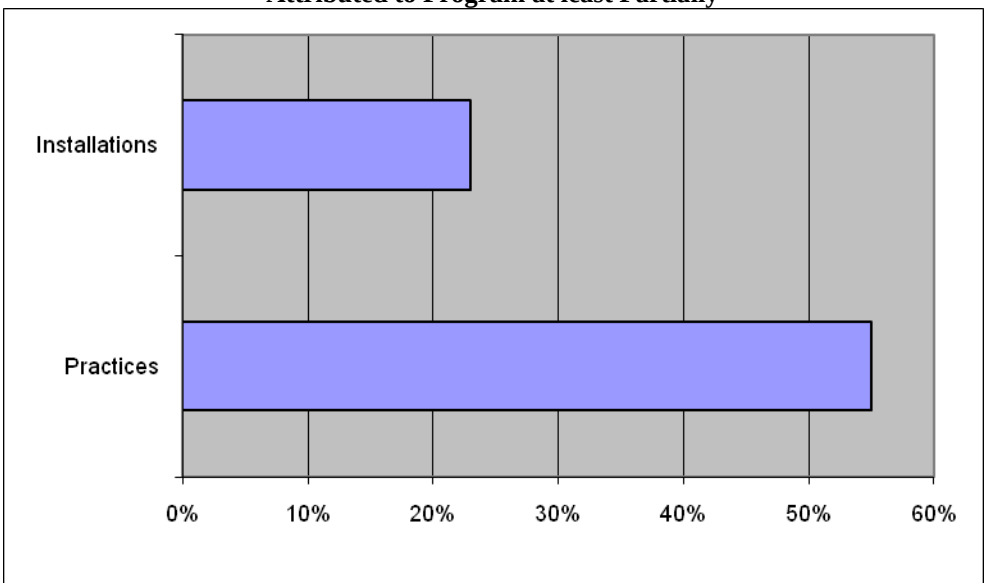


Figure 10 distills the information from Figure 9 into estimates of the percentage of participants who both made the changes and attributed them at least partially to the program's influence. For equipment installations, that is about 23%, and for practices it is about 50%.

Figure 10
Percent Resident Participants Taking Actions
Attributed to Program at least Partially



2. Owner/Manager Participants

Questions very similar to those asked of resident participants were asked of owner/manager participants, but in addition, a question was asked about their sources of information about projects such as these.

Recall that all work for these participants was in common areas. While there were more measure types available, only two were actually used during this program cycle: replacement of incandescent bulbs with CFLs, and replacement of fixtures.

As seen in Table 26, there were no sampled common areas that were not recorded as receiving CFL replacement, and 92% of those were recalled.

Table 26
Replaced Incandescent bulbs with CFLs:
Synergy Records
versus Owner/Manager Participant Recall

Participant Recollection	Synergy Records		
	Not Installed	Installed	Total
Not Recalled	0	2	2
	0.0%	8.0%	8.0%
Recalled	0	23	23
	0.0%	92.0%	92.0%
Total	0	25	25
	0.0%	100.0%	100.0%

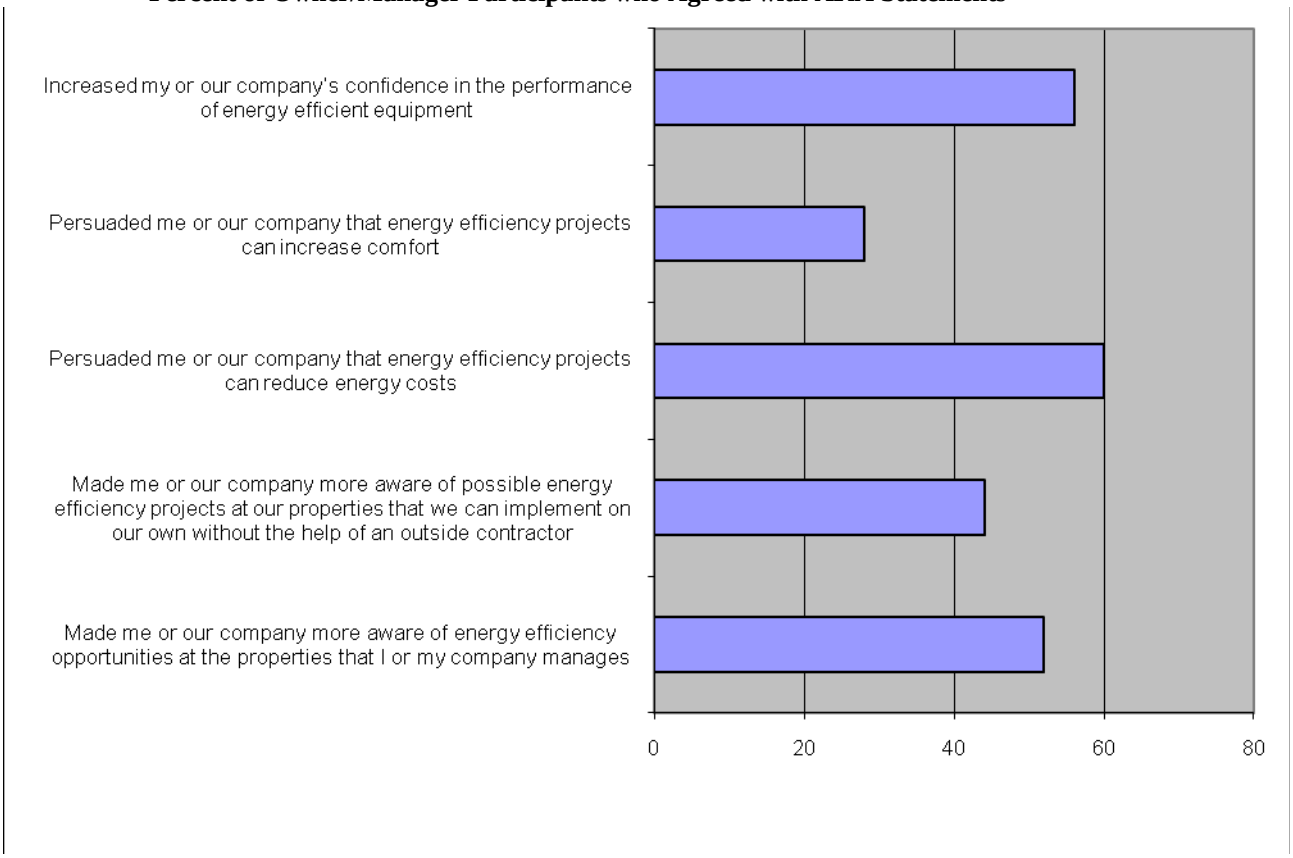
Table 27 shows that only 9 sites received fixture changes, and only 44.4% of those were recalled by owner/manager participants. On the other side of the table, we see that of the 16 sites where no fixture replacements were recorded, about 94% agreed with that. Only 1 person recalled a fixture replacement where Synergy records did not indicate that.

Table 27
Replaced Fixtures: Synergy Records
versus Owner/Manager Participant Recall

Participant Recollection	Synergy Records		
	Not Installed	Installed	Total
Not Recalled	15	5	20
	93.8%	55.6%	80.0%
Recalled	1	4	5
	6.3%	44.4%	20.0%
Total	16	9	25
	100.0%	100.0%	100.0%

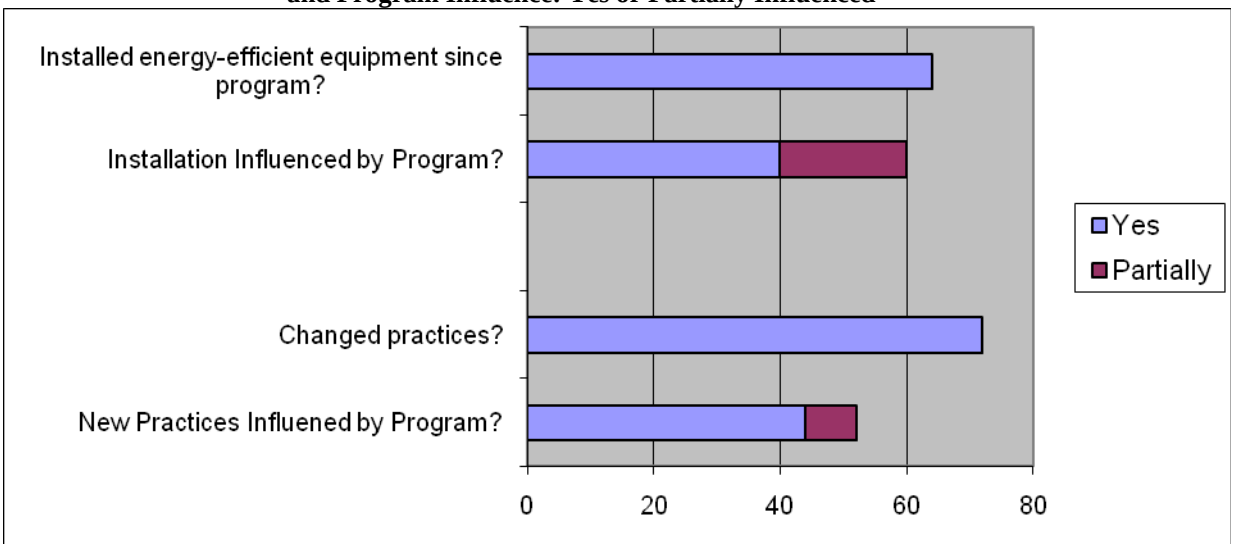
The owners and managers clearly agreed more with Synergy records of what was done than did the resident participants. Figure 11 displays that these participants' AKA was less influenced. The highest percentage of agreement with the statements was 60% with the statement that the project persuaded them that energy-efficient projects could lower energy costs, and the lowest was about 28% agreeing with the statement that the project had persuaded them that these projects can increase comfort. This makes sense given that the only measures involved were lighting.

Figure 11
Percent of Owner/Manager Participants who Agreed with AKA Statements



As with residents, owners and managers were asked if they had installed energy-efficient equipment since the program and if those actions were influenced by the program. They were also asked those questions about changing practices. They had done so at a somewhat higher rate (Figure 12) than the residents at about 64% for equipment, with 40% of those installations attributed to the program, and another 20% partially attributed. For practices, a little over 70% said they had changed their energy practices, and 44% attributed those changes to the program, plus another 8% partially attributing them to the program.

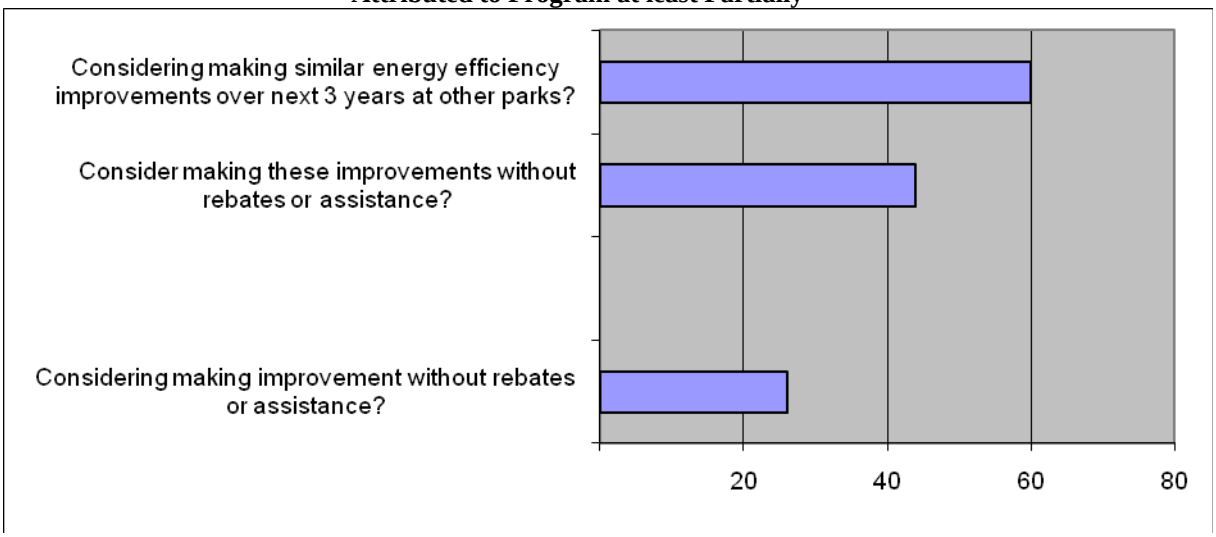
Figure 12
Owner/Manager Participant Self-Reports of Energy-Efficient Actions Taken since Program and Program Influence: Yes or Partially Influenced



Not shown here is the consolidation of the information in Figure 12, combining the information on the percentage of participants who made a change and their attribution of that change to the program, at least partially. The result of that analysis is that about 38% of participants made equipment changes that they attributed at least partially to the program, and 37% made such changes in their practices.

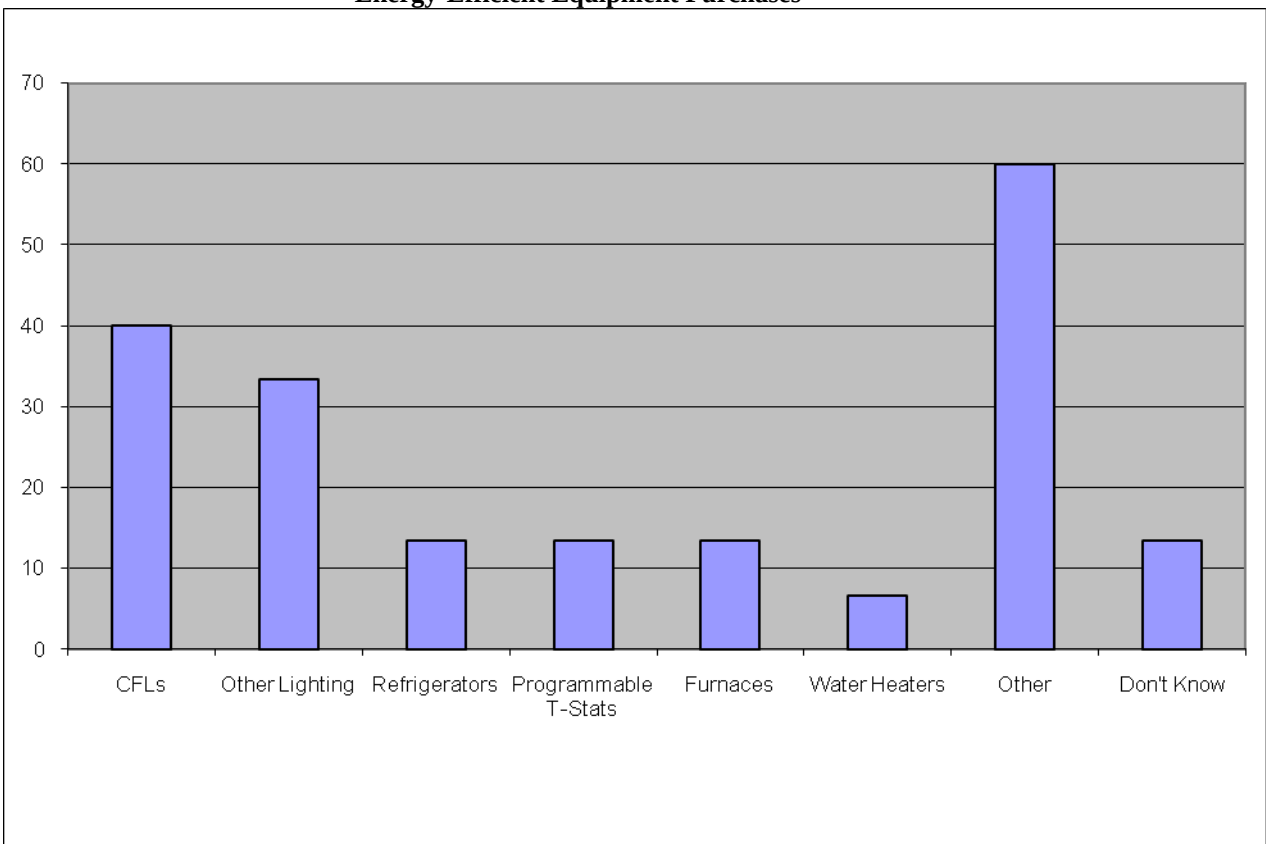
The owner/manager participants were also asked whether they were considering other energy efficiency improvements in other parks, and whether they would consider doing so without assistance. Figure 13 shows those results, including the combination of those two percentages. About 60% said they were considering making improvements, and of those, about 45% would consider doing this without assistance. Combining the two, about 26% indicated they are considering making energy efficiency improvements without outside assistance.

Figure 13
Percent Resident Participants Considering Taking Actions in Other Parks Attributed to Program at least Partially



For those considering further improvements, they were asked what types of equipment they were considering replacing. The responses are represented in Figure 14.

Figure 14
Percent of Owner/Manager Participants Considering Various Types of Energy-Efficient Equipment Purchases



E. Goal 3: Generate participant satisfaction

Both resident and owner/manager participants were asked a series of questions about the benefits they experienced from the program, their satisfaction, their dissatisfactions, reasons for dissatisfaction, and suggestions for program improvement. Each will be presented in this section.

1. Resident Participants

When residents were asked what the benefits of the program were for them, they were given three response options: Energy conservation, Lower utility bills, and Other. Table 28 shows that about 63% of resident participants chose energy conservation, 58% chose lower utility bills, and 13% chose other. They were asked to specify what they meant by "Other," and those verbatim responses are listed below the table.

Table 28
Perceived Benefits of Program Participation:
Resident Participants

Benefits Mentioned	N of Responses	Percent of Cases*
Energy conservation	57	62.6
My utility bills will be (are) lower	53	58.2
Other	12	13.2
Don't Know	3	3.3
Refused	1	1.1
Total	126	138.5

*Does not add to 100% because some respondents gave more than one response

"Other" program benefits mentioned:

- Better lighting
- Didn't have to replace appliances
- Fixing of the leaks helps you health wise
- Has sensor light outside
- Heater works better and swamp cooler keeps me cooler
- Helps eye sight
- It answered some questions about the duct system
- Just wanted to make sure everything was working
- Lights are nice
- Lights will last longer
- Save water
- They changed fixtures that needed to be fixed

Respondents were also asked directly about their satisfaction with four specific aspects of the program. Three of the four questions were also asked as part of the PY2004-05 program cycle. The results of that survey are included in the same table (Table 29) with the current survey results for easy comparison. However, standard deviations were not available for those figures.

Satisfaction levels with the areas measured, which covered services received, were uniformly high. During both years, the lowest rating was for the energy savings tips provided by the technicians, being at least one full point below the other ratings. However, there was a significant improvement in that rating in the 2006-08 program cycle compared to the 2004-05 cycle.

Table 29
Satisfaction Levels of Resident Participants (Scale=1-10)

Question	Statistic	SCE CMH 2009 (n=100)	SCE CMH 2006 (n=300)
Rate the Energy Savings Tips	Mean	8.2	7.7*
	S.D.	1.94	†
Rate the crew in terms of being courteous & professional	Mean	9.2	9.4
	S.D.	1.25	†
Rate the overall service you received	Mean	9.1	9.0
	S.D.	1.23	†
How satisfied with performance of the equipment installed by the technician(s)?	Mean	9.2	†
	S.D.	1.52	†

†Not Available
*Difference between means is statistically significant if variances assumed to be equal.

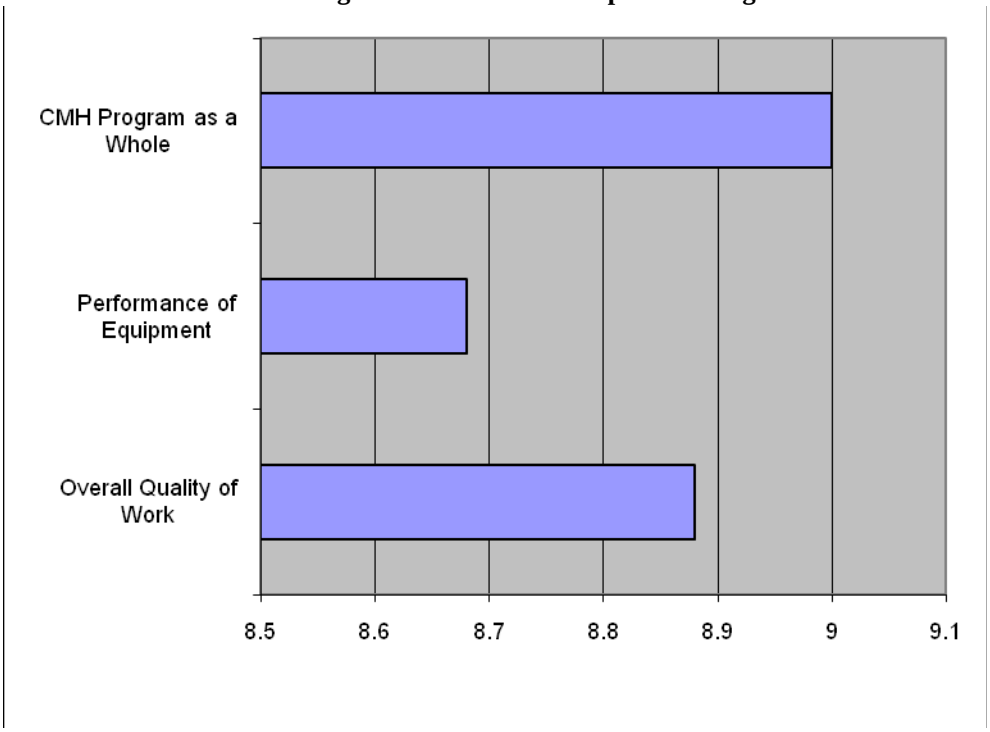
Those who provided ratings that reflected some dissatisfaction gave the following reasons:

- A bare wire was left loose
- I thought it was more to it besides the ducts
- Mercury in equipment
- The bulb didn't last long enough: 6 months at most
- The lights were too dim, and had to go back to a 3 way light
- They didn’t install anything
- We provided most of the stuff ourselves

2. Owner/Manager Participants

The owners and managers of the mobile home parks were asked somewhat different satisfaction questions. Also, it should be remembered that they were answering questions only referring to projects in the common areas, and these only included lighting during this program cycle, although more measures were theoretically available. They were asked about the quality of the work, the performance of the equipment, and their overall satisfaction with the program. Figure 15 shows, again, that the satisfaction level was high, particularly with the program as a whole, with an average rating of 9.0 out of a possible 10. The area with the lowest satisfaction rating was with the performance of the equipment (lighting), coming in at a rating of about 8.7. Respondents were asked to indicate why they were less than satisfied. For performance of the equipment, three respondents indicated that the equipment malfunctioned or broke down. Another two said that the equipment was not up to their standards. Of the four owners/managers who indicated they were not entirely satisfied with the quality of work, two said that the work was not up to their standards, and one said they job took too long.

Figure 15
Owner/Manager Satisfaction with Aspects of Program



The owners and managers were asked what suggestions they had for program improvement. Following are their responses, in their own words. Many suggestions had to do with how to market the program or recruit participants:

- Give us more information, more easily. (p) Oh, pamphlets or anything like that. (p) Saving money.
- The original flyer advertisement from Synergy should include information to contact them directly, and reference that it is a free program, and that management is aware of the program - that it is an approved flyer. It only said Synergy, not Southern California Edison, and the phone number wasn't direct and I had to go through several people to get the person who understood the program and flyer. So the community, when we sponsored this, we made our own back up flyer for the residents with a direct line. We participated first to see if it was for real.
- Somebody from the company should come in and have meetings with residents so they are aware of the program and what it can do for them.
- More advertisement time, more television.
- To get the word out as to what the program entails and what the benefits are.

Another group wanted to see improvements in how the program operates:

- They wouldn't do individual units, because they weren't park model trailers. It would be helpful if they included travel trailers, fifth-wheels, and motor homes.

- The different contractors must work in conjunction with on site management for an overall efficient installation of the product.
- Well, there has been a problem with an individual residence. (p) There was one lady who thought she could apply for an upgraded air conditioner because of her income level and Synergy said she didn't qualify for it because of her region, but did for a swamp cooler. Then the follow up could be improved. She has been working on it for about six months. (p) Well, I would like to go solar in our common area. I would like to upgrade our air conditioners in the common areas: The club house and manager's residence. The buildings are old.

One respondent had a complaint about the fixtures provided that echoed reports from technicians who reported some dissatisfaction with the fixtures among customers:

- Use a standard type replaceable light in the fixtures.

F. Goal 4: Implement Program Policies

There will be two sections for reporting results from this goal. The first addresses the policy of conducting inspections. The second reports the results of interviews with program personnel and their recommendations for program improvement.

1. Inspections

Part of maintaining customer satisfaction, as well as assuring that reported savings actually occur requires inspection of some installations by someone independent of the installers. As described in Section II.A, program policy calls for inspection of 5% of installations by non-installing technicians, and for some number of those to be accompanied by an SCE technician. The theory behind this approach is based on the fact that, for this program cycle, SCE technicians did not have equipment adequate to do the HVAC tests. The intention was to have SCE accompany some of the inspections so that the pass rate for those inspections could be compared to the pass rate for those conducted without SCE supervision. Thus, it was necessary to identify those sites where SCE did and did not participate in the inspection.

Unfortunately, it was not possible to calculate pass rates separately for those with SCE participation because only 19 applications were found in both SCE and Synergy records. Efforts were made to determine from program personnel why this might be the case, but the information was never provided.

The records that could be obtained showed 1200 inspections, which constitute about 7% of participants. This very likely reflects at least 5% coverage of measures. Of those, 1016 are recorded as passing, 1 as partially passing, and 28 had no designation. Most of those with no designation contained comments in the file that indicated that no one was home or inspection was refused.

A review of the inspection status results and the comments provided by the inspectors on the files indicate that more categories for inspection results are needed. There are numerous instances where the result indicates a pass when there were significant

problems with the original work noted in the comments. In addition, there were many instances of customers refusing work, refusing equipment, non-functional equipment, or inaccessible equipment. In these kinds of situations, it is understandable that the work was not completed, and it is laudable that these issues are recorded. However, these kinds of issues will be reflected the realization rate of the claimed savings, and should be systematically noted in inspection status codes that reflect this, so that adjustments can be made to ex-ante savings claims. In addition, these situations where work was not completed on all measures, not due to inaccessibility or non-functionality, should be recorded so that policymakers can accurately assess the true pass/fail rates and make program adjustments accordingly. When partial passes are recorded as overall passes, problems with specific types of equipment and processes will be masked.

In general, record keeping for inspections seems to be a problem. In addition to SCE presence generally not being recorded on Synergy inspection files, inspection information is kept separately from participant databases. This means that in a significant number of cases, inspection results cannot be tied to the general program database. Efforts were made to track inspection results to reported savings to determine whether savings adjustments had been made when work could not be performed by the original installer. However, often this could not be done. The application number does not appear on the inspection records, and attempts to match by name and address were often not successful.

2. Program Personnel Views of Implementation

The interviews with program managers and implementers form the basis for all descriptions and recommendations presented in this section.

a. History and Program Implementation

The CMHP has been and continues to be marketed by the implementer, Synergy Companies, through contacts with mobile home park managers. When allowed, Synergy either presents the program to residents at a community meeting, or goes door-to-door to talk with residents and leave flyers. Enrollments are made at the meetings and appointments with residents are made at company headquarters. Many residents forget the appointments, which are then re-scheduled. When the work is performed, installers discuss the measures with the resident, alert them to other energy efficiency programs available to them, and leave literature for the programs.

The program has evolved over time. SCE program personnel discovered some billing discrepancies, which led to the institution of systematic spot checks and inspections starting at the end of 2007. The current policy calls for 5% inspections, and 20% post-visit calls to be sure the installers had been there. SCE inspectors go on some of the inspection visits, but do not complete them independently due to a lack of appropriate equipment for HVAC testing. Synergy inspectors are a separate group of technicians from installers, and they decide which sites to visit. The general opinion was that the program is more consistent now, and customers like it.

b. Problems Identified by One or More Interviewees

1. The issue of how many CFLs should be installed in each residence was the subject of disagreement. Some installers believe the number specified by policy has gone up recently and others believe it has gone down. Some leave some uninstalled, and some don't.
2. Many customers don't like the showerheads and the outdoor fixtures. In addition, the fixtures seem to make the CFLs burn out in 18 months.
3. Customers often don't understand the distinction between programs that are offered by SCE, and so are confused by the cross-promotion of those programs.
4. No literature is available to leave residents concerning the measures.
5. Synergy-installed CFLs can't be distinguished from CFLs from other sources because they are not marked.
6. Records have been kept on paper, but there is a project to digitize them.

c. Recommendations from Interviewees

1. Add measures to common area improvements, e.g., vending machine lighting.
2. Institute an ongoing customer satisfaction survey
3. Recruit more qualified inspectors for SCE with necessary equipment for HVAC inspections.
4. Create a web site for customer signups.
5. Leave extra CFLs for replacements.
6. Market the program from SCE with bill inserts
7. Provide lower wattage CFLs for ceiling fans.

3. Verification Study of Program Records

This study, which reported in detail in Appendix B, revealed a substantial number of errors in recordkeeping. These findings, should they be applied to savings claimed by the program, would result in reductions of savings up to 15%, as shown in Table 30. The largest number of problems was found for the recording of exterior CFLs and fixtures.

Table 30
Adjustments to Savings Required by Verification Study

Measure	Sample	Verification Adjustment
AC Diagnostic/Tuneup	100	-6%
Duct Test & Seal	100	0%
CFL Interior	100	0%
CFL Exterior	62	-15%
Indoor & Outdoor Fixtures	100	-13%

V. Summary and Recommendations

The process evaluation of the 2006-08 Program was based on four identified program goals, as well as consideration of the 2004-05 evaluation and its recommendations. The earlier evaluation combined process and impact assessments. That evaluation required a

sample of individually-metered homes. The impact of this necessity was unknown at the time. The current study provides an opportunity to see some implications of that design. The results of the current evaluation are, when possible, compared to the earlier one with the idea of tracking progress in program design and implementation. However, those results have to be interpreted in the light of the differences in the samples involved.

The 2006-08 sample was composed of newer, somewhat smaller units, shorter-term residents, and fewer occupants. Overall, income was lower in the current sample, and somewhat more households were below the $30,000 mark in income than was true of the last program cycle. There were more seniors living in this sample of mobile home households than before. Independent of the prior sample (no information was available on these factors), the current sample tend to own their own homes. Most have central or room air conditioners, and most are educated and Caucasian. The majority of owners/managers both own and manage, with the largest number owning parks with between 120 and 200 units, and most are individually metered.

Following is a summary of the results of the current study, organized by program goals.

A. Goal 1: Reduce kWh and kW in mobile home parks through direct installation of energy efficiency measures

- The largest proportion of measures implemented as well as kWh savings were from CFLs (65%). But most kW come from HVAC measures.
- Lighting accounted for about 56% of costs; cost per kWh unit was lower for lighting; per kW unit cost was lower for HVAC measures.
- Concentration of program activity is strongly in areas with low-densities of mobile homes, and in cooler CEC Climate Zones (CZs).
- In absolute numbers, there were more participants in the hotter areas of CZs 14 and 15, though not 10.

B. Goal 2: Create spillover effects for savings beyond what is achieved by direct installations of program measures

- About 37% of air conditioners were recorded as *not* tested, but 11% of those respondents reported that they were. This may reflect a recordkeeping problem; in addition, it could include an effect of some participants being interviewed 2-3 years after participation.
- Of the air conditioners recorded as tested, 76% recalled this with prompting, though only 29% did without it. The pattern is similar for duct testing.
- More recalled receiving lights.
- A very large majority agreed that their confidence in energy efficiency reducing costs and improving comfort was increased by the program and awareness of other energy efficiency opportunities was increased by the program.

- Over 20% of resident participant claimed to have installed equipment due to the program, and 56% claimed to have changed practices due to the program's influence.
- For owners/managers 92% of CFLs installed in common areas were recalled, though only 2 measures (both lighting) were installed in common areas through the program. Only 44% of fixture installations were recalled.
- Among owners/managers, 38% made changes in equipment that they attributed to the program, and 37% changed practices they attributed to program.
- About 40% of owners/managers were considering purchasing CFLs, over 30% other lighting, and a smaller number were considering refrigerators, thermostats, furnaces, water heaters. About 60% considering "other" types of energy-efficient measures.

C. Goal 3: Generate participant satisfaction

7. Resident participants reported being most benefited by the energy conservation as a result of their participation (63%) followed by lowering utility bills (58%). Several other benefits were cited as well in open-ended answers.
8. Satisfaction was high (between 8.2 and 9.2 and on a 1-10 scale), and higher than in the previous program cycle.
9. They were least satisfied with the energy-saving tips (8.2), and this represented an improvement over the prior program cycle (7.7).
10. Where there was dissatisfaction, it tended to be with the lighting equipment itself, not services.
11. For owners/managers, satisfaction is high (9.0), though performance of equipment was slightly lower (8.7).
12. Participant suggestions fell into two categories:
    a. more program visibility
    b. more coordination with park management

D. Goal 4: Implement Program Policies

1. Inspections

- Records of 1200 QC inspections were provided to the evaluator. This constitutes 7% of participants, thus exceeding policy requirements.
- Inspections of the work of installers revealed a high (85%) pass rate for the work they did. However, many were really "partial" passes.
- Other inspections couldn't be done due to inaccessibility of equipment or other legitimate issues, but many were classified as passes. Efforts to determine if these cases were counted in savings were not possible since the inspection records are not connected to general participant records, and efforts to connect them by name and address were unsuccessful.
- Calculation of separate pass rates for inspections that did and did not include SCE inspectors wasn't possible as the presence of SCE inspectors was not systematically recorded in inspection records.

2. Program Personnel Views

SCE and Synergy personnel involved in this program uniformly consider it a success, and report continuous improvements over time. They report that customers love the program. They do identify some problems they would like to see addressed:

- Residents often don't like the showerheads and the outdoor light fixtures
- Residents tend to be confused by efforts to introduce them to other SCE programs
- There is no literature available to leave residents to explain the measures implemented
- Recordkeeping has not been digitized, though there is an effort to correct this
- There is confusion about how many CFLs can be installed in residents' homes

The interviewees had several suggestions for program improvement:

- Add measures to the list available for common areas
- Include extra CFLs for replacements, and lower Wattage ones for ceiling fans
- Institute an ongoing satisfaction survey
- Create a web site for customer signups
- Market the program with bill inserts

E. Recommendations

All of the recommendations from this work flow directly from study results. They are listed below, organized by recommendation focus, and each is accompanied by the data results on which the recommendation is based.

1. Program Design Considerations

9. Focus much more program activity in climate zones 10, 14, and 15.
    - For weather-sensitive measures, the kW and kWh savings are much higher in the hot climate zones. This is clearly seen in Table 16 and Table 17, especially in comparison to Table 15.
10. Focus much more program activity in areas with a high-density of mobile homes
    - A much larger proportion of units in low-density areas are served than in medium- or high-density areas (see Table 15, Table 16, Table 17, Figure 6, and
    -
    - Figure 7. Changing the concentration of program activity to high-density areas could produce substantial program efficiencies.
    - This pattern may reflect a tendency to focus close to company headquarters. Section IV.C.2.a. revealed that over 80% of participants live within 50 miles of Synergy headquarters, and 8% live more than 100 miles away, and those were primarily in cool, coastal areas.

11. Consider adding more measures to what is offered under the program.
    - The California Long-Term Energy Efficiency Strategy Plan emphasizes a comprehensive approach to identifying energy efficiency opportunities and retrofits. Restricting measures to short lists that do not overlap with other programs is not consistent with that strategy.

12. Consider upgrading the lighting fixtures and showerheads offered by the program.
    - Customers, technicians, and inspectors report that many customers refuse the fixtures that are offered, free of charge, because they don't like them. Inspectors also report that the fixtures cause CFLs to burn out prematurely.
    - The problem may be systemic; similar findings come out of the MFEER program.

2. Program Process Considerations

13. A comprehensive review of QC controls should be undertaken, including recordkeeping and inspection processes.
    - Many discrepancies were found in records of services performed and inspections conducted. Section IV.F.1 reveals that records of services and inspections could not be matched in many cases, and this resulted in the inability of the evaluator to calculate rates of success and failure.
    - The verification study resulted in reductions in claimed savings due to inaccurate and incomplete records.

14. Digitize all participant records and integrate all aspects of records into one dataset, including inspection records
    - This would address the issues of matching service, appointment, and inspection information described above.

15. Add inspection status categories to reflect situations where some work by installers was good and some inadequate, and some work was impossible due to inaccessibility of equipment.
    - Section IV.F.1 indicated that there were numerous instances where the inspector noted that the technician should return to the site and make corrections, but the inspection was categorized as a "pass." This was usually because some part of the installation was passed, but other parts were not.

16. The choice of which sites to inspect should not be done subjectively, but by a systematic set of criteria and random process.
    - The current practice is for the inspector to make the decision about what sites to inspect. This method is not consistent with good sampling theory that yields accurate estimates of program results. Unbiased estimates, in sampling theory terms, results from random sampling techniques.

15. SCE inspectors should be able to do entirely independent inspections
    - Only a truly independent process can assure accurate checks on program processes.

3. Program Marketing Improvement

16. Conduct a comprehensive review of program marketing, and develop new strategies.
    - It was suggested by program personnel and customers that there are limitations to the program reach imposed by personal presentations to park owners/managers as the only means to program participation. (See Section IV.E.2)
17. Consider developing leave-behind literature to tell customers what was done and its benefits
    - Technicians report that customers are confused about how other programs are related to the CMHP or SCE, and customers report that program literature does not show SCE's name or contact information.
    - Program personnel indicate this literature is needed (See IV.F.2).
18. Consider marketing the program through bill inserts targeted at mobile home residents.
    - This is one option suggested by program personnel to deal with the limitations imposed by personal presentations to park owners/managers. (See Section IV.E.2).
19. Review the literature, process, and logic involved in promoting the LIEE or other programs. It should be made more customer friendly.
    - Technicians report that customers are confused about how other programs are related to the CMHP or SCE (See IV.F.2).

4. Training

20. Consider updating the training of program personnel.
    - Technicians and other personnel report different understandings of how many CFLs should be installed and left at the home (See IV.F.2).
    - The problems identified under Program Marketing Improvement about customer confusion about how this program and other SCE programs are related could also be addressed through training.
    - All of the issues of recordkeeping accuracy will need to be addressed through training as well as the development of new systems and standards.

APPENDIX A

Interviews

SCE Mobile Home Study – Residential

CSRS #91791R
5/12/09

Introductory Script & Screener

May I please speak with _____?

Hello I am _____ from _____. I am calling on behalf of Southern California Edison. According to our records, starting in <INSTALLATION MONTH> <INSTALLATION YEAR> someone at your address had some energy efficiency improvements made at your property at <INSTALLATION ADDRESS>. These improvements were provided by Southern California Edison's Comprehensive Mobile Home program. Southern California Edison is trying to improve this program and I was hoping you could help us out by answering a few questions. Your individual responses will remain confidential.

According to our records, starting in <INSTALLATION MONTH> <INSTALLATION YEAR> you had some energy efficiency improvements made at your property at <INSTALLATION ADDRESS>. Are you familiar with these energy efficiency improvements?

[PROVIDE UTILITY CONTACT NAME IF NEEDED TO VERIFY STUDY: Davi Ibarra (626) 633-3048.

1 YES (ALL OR SOME)
2 NO → THANK AND TERMINATE CODE AS NQ.INTRO
8 DON'T KNOW → THANK AND TERMINATE CODE AS DK.INTRO
9 REFUSED → THANK AND TERMINATE CODE AS RF.INTRO

Awareness of Program & Benefits

AB1. What measures do you recall being completed in your home?
[DO NOT READ LIST]

1 TESTED YOUR AIR CONDITIONER
2 TESTED YOUR DUCTS
3 CHANGED **INTERIOR** INCANDESCENT BULBS TO COMPACT FLUORESCENT LAMPS
4 CHANGED **EXTERIOR** INCANDESCENT BULBS TO COMPACT FLUORESCENT LAMPS
5 CHANGED INCANDESCENT **FIXTURES**, NOT JUST BULBS
6 OTHER, SPECIFY _____
8 DON'T KNOW
9 REFUSED

AB2. Do you recall the following being completed in your home? PROGRAMMER INSTRUCTION: CHECK SAMPLE TO SEE WHAT MEASURES WERE COMPLETED AND ONLY ASK ABOUT THESE MEASURES IF NOT MENTIONED IN AB1.

IF AB1=1 SKIP TO INSTRUCTION ABOVE AB2b OTHERWISE CONTINUE

AB2a. Having your air conditioner tested

1 YES - REMEMBER
2 NO - DON'T REMEMBER
8 DON'T KNOW
9 REFUSED

IF AB1=2 SKIP TO INSTRUCTION ABOVE AB2c OTHERWISE CONTINUE

AB2b. Having your ducts tested

1 YES - REMEMBER
2 NO - DON'T REMEMBER
8 DON'T KNOW
9 REFUSED

IF AB1=3 SKIP TO INSTRUCTION ABOVE AB2d OTHERWISE CONTINUE

AB2c. Changing **interior** incandescent bulbs to compact fluorescent lamps

1 YES - REMEMBER
2 NO - DON'T REMEMBER
8 DON'T KNOW
9 REFUSED

IF AB1=4 SKIP TO INSTRUCTION ABOVE AB2e OTHERWISE CONTINUE

AB2d. Changing **exterior** incandescent bulbs to compact fluorescent lamps

1 YES - REMEMBER
2 NO - DON'T REMEMBER
8 DON'T KNOW
9 REFUSED

IF AB1=5 SKIP TO AB3 OTHERWISE CONTINUE

AB2e. Changing incandescent **fixtures**, not just bulbs

1 YES - REMEMBER
2 NO - DON'T REMEMBER
8 DON'T KNOW
9 REFUSED

AB3. Do you believe you have benefited from the program services?

1 YES
2 NO → SKIP TO AB5
8 DON'T KNOW → SKIP TO AB5
9 REFUSED → SKIP TO AB5

AB4. What do you believe the benefits are from these services? [ALLOW MULTIPLE RESPONSES]

1 Energy conservation
2 My utility bills will be (are) lower
3 Other, specify _____
8 DON'T KNOW
9 REFUSED

AB5. Did the technician explain that the work in your home was done free of charge?

1 YES
2 NO
8 DON'T KNOW

9 REFUSED

General Information

Q1. When did you move to this address? [IF NECESSARY RECORD BOTH MONTH AND YEAR]

_____ month or _____/_____/_____ date 8888=DON'T KNOW
9998=REFUSED

_____ year

Q2. Do you own or rent the mobile home at [INSERT ADDRESS]?

1 OWN
2 RENT
8 DON'T KNOW
9 REFUSED

Q3. In what year was your home built?

_____ year → SKIP TO Q5
8888=DON'T KNOW → CONTINUE
9999=REFUSED → CONTINUE

Q4. Was it built…?

01 Within the last 9 years (since 2000)
02 Between 1990 and 1999
03 Between 1980 and 1989
04 Between 1970 and 1979
05 Between 1960 and 1969
06 Between 1950 and 1959
07 Between 1940 and 1949
08 Before 1940
88 DON'T KNOW
99 REFUSED

Q5. Do you pay your own electric bill or is it included in your mortgage or rental payment each month?

1 Pay own electric bill
2 Included in mortgage or rental payment
8 DON'T KNOW
9 REFUSED

Q6. How many square feet of living space do you now have?

_____ square feet → SKIP TO Q8
8888=DON'T KNOW → CONTINUE
9999=REFUSED → CONTINUE

Q7. Is it…

01 Less than 800
02 800 to less than 1,000
03 1,000 to less than 1,250
04 1,250 to less than 1,500
05 1, 500 to less than 1,750
06 1,750 to less than 2,000
07 2,000 to less than 2,250
08 2,250 to less than 2,750
09 2,750 to less than 3,000
10 3,000 to less than 3,500
11 3,500 to less than 4,000
12 Or over 4,000
88 DON'T KNOW
99 REFUSED

Q8. Does your home have air conditioning?

1 YES
2 NO → SKIP TO S1
8 DON'T KNOW → SKIP TO S1
9 REFUSED → SKIP TO S1

Q8a. Is it room air conditioner(s) or central air conditioning?

1 ROOM AIR CONDITIONER(S)
2 CENTRAL AIR CONDITIONING
8 DON'T KNOW
9 REFUSED

Satisfaction Questions

S1. When **Synergy** technicians came to your home, did they arrive on time and properly identify themselves?

1 YES
2 NO
8 DON'T KNOW
9 REFUSED

S2. How would you rate the crew in terms of being courteous and professional on a scale from 1 to 10? Where 1 is low, 10 is high and you may use any number between 1 and 10.

_____ 88=DON'T KNOW 99=REFUSED

S3. Was the work scheduled and completed within a reasonable timeframe?

1 YES
2 NO
8 DON'T KNOW
9 REFUSED

S4. Did the crew walk you through your home and provide Energy Savings Tips?

1 YES
2 NO
8 DON'T KNOW
9 REFUSED

S5. How would you rate the Energy Savings Tips on a scale from 1 to 10? Where 1 is low, 10 is high and you may use any number in between 1 and 10.

_____ 88=DON'T KNOW 99=REFUSED

S6. To the best of your knowledge was everything installed correctly?

1 YES
2 NO
8 DON'T KNOW
9 REFUSED

S7. How would you rate the overall service you received on a scale from 1 to 10? Where 1 is low, 10 is high and you may use any number in between 1 and 10.

_____ 88=DON'T KNOW 99=REFUSED

S8. How satisfied are you with the **performance** of the equipment installed by the technician(s)? Using a scale from 1 to 10, where 1 is low, 10 is high and you may use any number in between 1 and 10.

_____ 88=DON'T KNOW 99=REFUSED

IF S8=8, 9 OR 10 SKIP TO S10 OTHERWISE CONTINUE

S9. Why were you less than satisfied with the performance of the equipment installed? [ACCEPT MULTIPLE RESPONSES]

1 The equipment broke down/malfunctioned
2 The quality of the equipment was not good enough
3 The quality of the installation was not good enough
4 I did not like the way the product looked
5 Other, specify_____
8 DON'T KNOW
9 REFUSED

S10. Did the technician(s) who installed this equipment provide you with any information about Southern California Edison's other programs that could be helpful to you?

1 YES
2 NO → SKIP TO S11
8 DON'T KNOW → SKIP TO S11
9 REFUSED → SKIP TO S11

S10a. What programs did they tell you about? RECORD VERBATIM

_____

_____

_____

S11. Did the technician(s) leave any CFLs that they didn't install?
IF NECESSARY: CFL=Compact Florescent Lamps

1 YES
2 NO
8 DON'T KNOW
9 REFUSED

S12. Were there any markings left on the CFLs that were installed?
IF NECESSARY: CFL=Compact Florescent Lamps

1 YES
2 NO
8 DON'T KNOW
9 REFUSED

Awareness, Knowledge and Attitude Questions

AKA1. I'm going to read a number of statements about the possible effects of this program on your knowledge and attitudes concerning energy efficiency. For each statement I read please indicate your level of agreement using a 10-point scale where 1 means strongly disagree, 10 means strongly agree and you may use any number between 1 and 10. [INTERVIEWER INSTRUCTION: REMIND RESPONDENT OF PROJECT TYPE IF NECESSARY] [POROGRAMMER INSTRUCTION: ROTATE STATEMENT]

A. This project has made me more aware of energy efficiency opportunities in my home.
_____ 88=DK 99=RF

B. This project has made me more aware of possible energy efficiency projects or equipment in my home.
_____ 88=DK 99=RF

C. This project has persuaded me that energy efficiency projects can reduce energy costs.
_____ 88=DK 99=RF

D. This project has persuaded me that energy efficiency projects can increase my comfort.
_____ 88=DK 99=RF

E. This project has increased my confidence in the performance of energy efficient equipment.
_____ 88=DK 99=RF

F. I feel guilty if I use too much electricity.
_____ 88=DK 99=RF

AKA2. People have different opinions about energy efficiency and the availability of natural resources such as energy. Using a 10-point scale, with a "1" meaning you "Strongly Disagree" and a "10" meaning you "Strongly Agree," please tell me how much you disagree or agree with each of the following statements. [ROTATE STATEMENT]

A. My life is too busy to worry about making energy related improvements to my home.
_____ 88=DK 99=RF

B. Scarce energy supplies will be a major problem in the future.

_____ 88=DK 99=RF

C. Instead of building new power plants, customers should use less electricity.
_____ 88=DK 99=RF

D. It is possible to save energy without sacrificing comfort by being energy efficient.
_____ 88=DK 99=RF

E. It is worth it to me for my household to use less energy in order to help preserve the environment.
_____ 88=DK 99=RF

F. Using energy in ways that preserve the environment is not worth it if it requires major lifestyle changes.
_____ 88=DK 99=RF

G. My energy use is too small to worry about in the grand scheme of things.
_____ 88=DK 99=RF

Questions about Spillover Actions

SP1. Have you installed any other energy efficiency equipment since participating in this program?

1 YES
2 NO → SKIP TO SP4
8 DON'T KNOW → SKIP TO SP4
9 REFUSED → SKIP TO SP4

SP2. What have you installed?

_____

_____

_____

_____

SP3. Did the program influence your decision to do this?

1 YES
2 PARTIALLY
3 NO
8 DON'T KNOW
9 REFUSED

SP4. Have you changed your energy use practices since participating in this program?

1 YES
2 SOMEWHAT
3 NO → SKIP TO SP7
8 DON'T KNOW → SKIP TO SP7
9 REFUSED → SKIP TO SP7

SP5. How have you changed your practices?

_____

_____

_____

_____

SP6. Did the program influence your decision to change your practices?

1 YES
2 PARTIALLY
3 NO
8 DON'T KNOW
9 REFUSED

SP7. Have you participated in any other SCE programs since participating in the Comprehensive Mobile Home program?

1 YES
2 NO → SKIP TO F1
8 DON'T KNOW → SKIP TO F1
9 REFUSED → SKIP TO F1

SP8. What program(s) have you participated in? Read List

1 Rebates [specify appliance/product _____]
2 Product give-away/turn-in event (cfls, torchieres)
3 Refrigerator turn-in/re-cycling
4 Energy survey (mail-in, in-home, telephone, online)
5 Low income program
6 CARE rate
8 DON'T KNOW
9 REFUSED

SP9. Did the CMH (Compare Mobile Home) program influence your decision to participate in other programs?

1 YES
2 PARTIALLY
3 NO
8 DON'T KNOW
9 REFUSED

Final Questions

F1. How many people live at this residence?

_____ number of people 88=DON'T KNOW → SKIP TO F3 99=REFUSED → SKIP TO F3

F2. What are the ages of the residents in your household? [INSERT NUMBER OF PEOPLE IN HOUSEHOLD]

A. How many are 17 years or younger? _____ 88=DON'T KNOW 99=REFUSED

B. How many are between 18 and 59? _____ 88=DON'T KNOW
99=REFUSED

C. How many are 60 or over? _____ 88=DON'T KNOW
99=REFUSED

F3. What is the approximate annual household income from all sources in 2008, before taxes? This information will be kept confidential.

01 Under $15,000
02 $15,000 to less than $20,000
03 $20,000 to less than $25,000
04 $25,000 to less than $30,000
05 $30,000 to less than $40,000
06 $40,000 to less than $50,000
07 $50,000 to less than $75,000
08 $75,000 to less than $100,000
09 $100,000 to less than $150,000
10 Over $150,000
88 DON'T KNOW
99 REFUSED

F4. What is the highest level of education you have completed? READ LIST IF NECESSARY

01 LESS THAN HIGH SCHOOL
02 SOME HIGH SCHOOL
03 HIGH SCHOOL GRADUATE
04 TRADE OR TECHNICAL SCHOOL
05 SOME COLLEGE
06 COLLEGE GRADUATE
07 SOME GRADUATE SCHOOL
08 GRADUATE DEGREE
88 DON'T KNOW
99 REFUSED

F5. Which of the following **best** describers your racial or ethnic background? ACCEPT ONLY ONE ANSWER

1 Hispanic/Latino/Latina
2 African American
3 Caucasian
4 Asian American
5 Native American
6 Multi-racial
7 OTHER (SPECIFY_____)
8 DON'T KNOW
9 REFUSED

F6. How did you learn about this program? ACCEPT MULITPLE RESPONSES. DO NOT READ LIST

1 COMMUNITY ASSOCIATION

2 WORD OF MOUTH
3 A LETTER/CALL FROM SYNERGY
4 OUTREACH PRESETATION [SYNERGY]
5 OTHER (SPECIFY _____)
8 DON'T KNOW
9 REFUSED

I would like to verify that I have reached you at (____) _____ - _____. Thank you for participating in our study. Those are all the questions that I have.

SCE Mobile Home Study – Property Managers/Owners
CSRS #91791OM
6/9/09

I1. Hello, may I please speak with [INSERT CONTACT NAME]?

1 CONTACT IS AVAILABLE → SKIP TO I2
2 CONTACT CURRENLY UNAVAILABLE → ARRANGE CALL BACK
3 NO CONTACT

I1a. I'd like to speak with the person responsible for managing property improvements, who would
that be?

INTERVIEWER RECORD NAME _____

1 PERSON RESPONSIBLE AVAILABLE
2 PERSON RESPONSIBLE CURRENTLY UNAVAILABLE → ARRANGE CALL BACK
3 NO PERSON RESPONSIBLE FOR PROPERTY MANAGEMENT OR MAINTENANCE → SKIP TO I7
8 DON'T KNOW → SKIP TO I7
9 REFUSED → SKIP TO I7

I2. Hello I am _____ from _____. I am calling on behalf of Southern California Edison. According to our
records, sometime in <INSTALLATION MONTH> <INSTALLATION YEAR> your mobile home park had
some energy efficiency improvements made at <INSTALLATION ADDRESS> under the utility-sponsored
Comprehensive Mobile Home Program. Improvements were made to individual residences and to
common areas. I want to talk about those in common areas. The utilities and their contractor, Synergy,
are trying to improve this program and I was hoping you could help us out by answering a few questions.
Your individual responses will remain confidential.

PROVIDE UTILITY CONTACT NAME IF NEEDED TO VERIFY STUDY: Davi Ibarra (626) 633-3048.

I4. According to our records, sometime in <INSTALLTION MONTH> <INSTALLATION YEAR> you had some
energy efficient lighting improvements made in the common areas at your property at <INSTALLATION
ADDRESS>. Are you familiar with these improvements?

5- 1 YES (ALL OR SOME)
2 NO
8 DON'T KNOW

9 REFUSED

I4a. Were you involved in the decision to participate in this program?

6- 1 YES (ALL OR SOME) → SKIP TO INTRO AT R1
2 NO
8 DON'T KNOW
9 REFUSED

I6. Do you know who is likely to be familiar with your company's decision to participate in this program?

1 YES RECORD NAME _____ → SKIP TO I1
2 NO
8 DON'T KNOW
9 REFUSED

I6b. [CHECK TO MAKE SURE ALL CONTACTS HAVE BEEN TRIED.]

1 NOT ALL CONTACTS HAVE BEEN TRIED → START OVER AGAIN WITH I1
2 ALL CONTACTS HAVE BEEN TRIED

I7. Thank you very much for your time today. Those are all the questions I have. → RECORD AS NO DECISIONMAKER CONTACT AVAILABLE

Information About Respondent And Property

First I would like to get some background information about you and the mobile home park at <INSTALLATION ADDRESS>.

R1. What is your position or job title at <INSTALLATION ADDRESS> or with the company that manages this
property? READ LIST IF NECESSARY

7- 1 OWNER OF PROPERTY
8- 2 PROPERTY/LEASING MANAGER/ASSOCIATE
9- 3 SENIOR PROPERTY MANAGER
10- 4 MAINTENANCE SUPERVISOR
5 SENIOR/REGIONAL MAINTENANCE SUPERVISOR
6 PURCHASING MANAGER
7 OTHER (PLEASE SPECIFY) _____
8 DON'T KNOW
9 REFUSED

R2. How many years have you been in the business of owning, managing, or maintaining mobile home
parks? [DO NOT ACCEPT RANGES]

11-12 _____ years 88=DON'T KNOW 99=REFUSED

R3. About how many units are located in the park at <INSTALLATION ADDRESS>?

13-15 _____ number of units 888=DON'T KNOW 999=REFUSED

R4. Are the residents at <INSTALLATION ADDRESS> responsible for paying their own utility bills,
utilities are included in the rent, or residents pay some utilities while others are included in rent?

16-
1 RESIDENTS PAY THEIR OWN BILLS
2 UTILITIES ARE INCLUDED IN THE RENT
3 RESIDENTS PAY SOME UTILITES WHILE OTHERS ARE INCLUDED IN RENT
4 OTHER (PLEASE SPECIFY)_____
8 DON'T KNOW
9 REFUSED

R5. Is the **electricity** for the mobile homes individually metered or master-metered?

17-
1 INDIVIDUALLY METERED
2 MASTER METERED
3 OTHER (PLEASE SPECIFY)_____
8 DON'T KNOW
9 REFUSED

R6. Is the **natural gas** for the mobile homes individually metered or master-metered?

18-
1 INDIVIDUALLY METERED
2 MASTER METERED
3 OTHER (PLEASE SPECIFY) _____
8 DON'T KNOW
9 REFUSED

R7. Is the **water** for the mobile homes individually metered or master-metered?

19-
1 INDIVIDUALLY METERED
2 MASTER METERED
3 OTHER (PLEASE SPECIFY) _____
8 DON'T KNOW
9 REFUSED

R8. Do you or your company own the property at <INSTALLATION ADDRESS>, do you manage it, or
do you both own and manage it? [ACCEPT ONLY ONE ANSWER]

20-
1 OWN IT ONLY
2 MANAGE IT ONLY
3 BOTH OWN AND MANAGE IT
8 DON'T KNOW

9 REFUSED

R9. Do you or your company, own or manage other properties?

21- 1 YES, OWN ONLY
2 YES, MANAGE ONLY
3 YES, OWN AND MANAGE
4 NO → SKIP TO P1
8 DON'T KNOW → SKIP TO P1
9 REFUSED → SKIP TO P1

IF R9=1 OR 3 CONTINUE OTHERWISE SKIP TO INSTRUCTION ABOVE R11

R10. How many other properties do you or your company own? _____ 88=DON'T KNOW
99= REFUSED 22-23

IF R9=2 OR 3 CONTINUE OTHERWISE SKIP TO P1

R11. How many other properties do you or your company manage? _____ 88=DON'T KNOW 99= REFUSED 24-25

Awareness and Motivation

P1. From where did you first learn about your utility-sponsored Comprehensive Mobile Home program?
[DO NOT READ LIST. ACCEPT MULTIPLE RESPONSES]

26-27 01 INSTALLATION CONTRACTOR OFFERING SERVICES
28-29 02 PREVIOUS PARTICIPATION IN PROGRAM
30-31 03 UTILITY WEBSITE
32-33 04 TRADE ASSOCIATION PRESENTATION
05 TRADE ASSOCIATION JOURNAL/NEWSLETTER
06 UTILITY BILL INSERT
07 OTHER UTILITY DIRECT MAIL PIECE
08 OTHER (PLEASE SPECIFY) _____
88 DON'T KNOW
99 REFUSED

P2. What was your primary reason for participating in the program? [ONLY SELECT ONE OPTION. READ
LIST IF NECESSARY]

34- 1 TO MAKE PROPERTY IMPROVEMENTS IN THE RESIDENT UNITS
2 TO MAKE PROPERTY IMPROVEMENTS IN THE COMMON AREAS
3 TO SAVE ENERGY
4 TO REPLACE BROKEN EQUIPMENT
5 OTHER (PLEASE SPECIFY) _____
8 DON'T KNOW
9 REFUSED

P3. Who came up with the idea for the energy efficient lighting improvements in the common areas at
<INSTALLATION ADDRESS>? Was it mainly your idea, mainly the contractor's idea, both or was it
mainly someone else's idea?

35- 1 Mainly your idea
2 Mainly the contractor's idea
3 Both
4 Mainly someone else's idea (SPECIFY PERSON) _____
8 DON'T KNOW
9 REFUSED

P4. Who installed the energy efficiency improvements? Was it the contractor, your own internal staff, or a
combination of both?

36- 1 Only the installation contractor
2 Only the internal staff
3 A combination of both
8 DON'T KNOW
9 REFUSED

P5. Do you recall what was installed in your common areas? [DO NOT READ]

37- 1 SCREW-IN COMPACT FLOURESCENT LAMPS
38- 2 TUBE FLUORESCENT LAMPS
3 REPLACED LIGHTING FIXTURES
4 OTHER (PLEASE SPECIFY) _____
8 DON'T KNOW
9 REFUSED

P6. Have you seen any benefits from the lighting installed under this program? IF NECESSARY: Such as
lower electricity bills or better lighting.

39- 1 YES
2 NO
8 DON'T KNOW
9 REFUSED

Spillover

IN1. Have you installed any energy-efficient equipment in common areas or in your own home since
participating in this program?

40- 1 YES
2 IN PROCESS
3 NO → SKIP TO IN3

8 DON'T KNOW → SKIP TO IN3
9 REFUSED → SKIP TO IN3

IN2. Was your decision to install this equipment influenced by your experience with the Comprehensive
Mobile Home Program?

41- 1 YES
2 PARTIALLY
3 NO
8 DON'T KNOW
9 REFUSED

IN3. Have you changed your energy-use practices to conserve energy since participating in this program?

42- 1 YES
2 NO → SKIP TO B0
8 DON'T KNOW → SKIP TO B0
9 REFUSED → SKIP TO B0

IN4. Was your decision to make these changes influenced by your experience with the Comprehensive
Mobile Home Program?

43- 1 YES
2 PARTIALLY
3 NO
8 DON'T KNOW
9 REFUSED

Plans and Barriers To Future Energy Efficiency Implementation

B0. Are you or your organization considering making similar energy efficiency improvements over the next
three years at the same or another mobile home park common areas?

44- 1 YES
2 NO → SKIP TO INSTRUCTION ABOVE B2a
8 DON'T KNOW → SKIP TO B3
9 REFUSED → SKIP TO B3

B1. What types of energy-efficient equipment are you now considering? [DO NOT READ. ALLOW MULTIPLE
RESPONSES]

45-46 01 COMPACT FLOURESCENT LAMPS
47-48 02 OTHER ENERGY EFFICIENT LIGHTING
49-50 03 HIGH EFFICIENCY WINDOWS

51-52 04 HIGH EFFICIENCY CLOTHES WASHERS
53-54 05 HIGH EFFICIENCY DISHWASHERS
06 HIGH EFFICIENCY REFRIGERATORS
07 PROGRAMMABLE THERMOSTATS
08 HIGH EFFICIENCY FURNACES
09 HIGH EFFICIENCY CENTRAL BOILERS
10 HIGH EFFICIENCY WATER HEATERS
11 OTHER (PLEASE SPECIFY) _____
88 DON'T KNOW
99 REFUSED

B1B. Would you or your organization consider making these improvements in the future without rebates or
assistance in installation from the Southern California Edison Comprehensive Mobile Home program?

55- 1 YES
2 NO
8 DON'T KNOW
9 REFUSED

IF B0=1 THEN SKIP TO B3 OTHERWISE CONTINUE

B2a. Why don't you have plans for making similar energy efficiency improvements over the next three
years? Is it because you already did all cost-effective energy efficient improvements?

56- 1 YES
2 NO
8 DON'T KNOW
9 REFUSED

B2b. Why don't you have plans for making similar energy efficiency improvements over the next three
years? Is it because you are unaware of/unable to identify measures?

57- 1 YES
2 NO
8 DON'T KNOW
9 REFUSED

B2c. Why don't you have plans for making similar energy efficiency improvements over the next three
years? Is it because you lack maintenance staff to install measures?

58- 1 YES
2 NO
8 DON'T KNOW
9 REFUSED

B2d. Why don't you have plans for making similar energy efficiency improvements over the next three
years? Is it due to lack of time/not a priority?

59- 1 YES
2 NO
8 DON'T KNOW
9 REFUSED

B2e. Why don't you have plans for making similar energy efficiency improvements over the next three
years? Is it because of financial limitations?

60- 1 YES
2 NO
8 DON'T KNOW
9 REFUSED

B2f. Why don't you have plans for making similar energy efficiency improvements over the next three
years? Is it due to lack of information on energy savings or costs?

61- 1 YES
2 NO
8 DON'T KNOW
9 REFUSED

B2g. Why don't you have plans for making similar energy efficiency improvements over the next three
years? Is it because you question the reliability of energy efficient equipment?

62- 1 YES
2 NO
8 DON'T KNOW
9 REFUSED

B2h. Why don't you have plans for making similar energy efficiency improvements over the next three
years? Is it because the energy savings estimates for equipment are unreliable?

63- 1 YES
2 NO
8 DON'T KNOW
9 REFUSED

B2i. Why don't you have plans for making similar energy efficiency improvements over the next three
years? Is it because fuel prices are low?

64- 1 YES
2 NO
8 DON'T KNOW
9 REFUSED

B2j. Why don't you have plans for making similar energy efficiency improvements over the next three years?
Is it because you are new to the park?

65- 1 YES
2 NO
8 DON'T KNOW
9 REFUSED

B2k. Why don't you have plans for making similar energy efficiency improvements over the next three
years? Is it because the technology is unavailable?

66- 1 YES
2 NO
8 DON'T KNOW
9 REFUSED

B2l. Why don't you have plans for making similar energy efficiency improvements over the next three years?
Is it because of timing?

67- 1 YES
2 NO
8 DON'T KNOW
9 REFUSED

B2m. Why don't you have plans for making similar energy efficiency improvements over the next three
years? Is it because you want to replace it on an as needed basis?

68- 1 YES
2 NO
8 DON'T KNOW
9 REFUSED

B2n. Why don't you have plans for making similar energy efficiency improvements over the next three
years? Is it because it is unnecessary?

69- 1 YES
2 NO
8 DON'T KNOW
9 REFUSED

B2o. Why don't you have plans for making similar energy efficiency improvements over the next three years? Is it because of something other than what I have already mentioned?

70- 1 YES (PLEASE SPECIFY) _____ 71-
2 NO 72-
8 DON'T KNOW 73-
9 REFUSED

80-1

B3. When purchasing or replacing energy-using equipment in your common areas what sources of information do you use to help you make a decision? [DO NOT READ. ACCEPT MULTIPLE RESPONSES]

5-6 01 INTERNAL MAINTENANCE STAFF
7-8 02 OUR REGULAR INSTALLATION CONTRACTOR
9-10 03 AN OUTSIDE INSTALLATION CONTRACTOR WE MAY HIRE OR CONSULT WITH OCCASIONALLY
11-12 04 EQUIPMENT DISTRIBUTORS/WHOLESALERS
05 EQUIPMENT MANUFACTURERS
06 EQUIPMENT DEALERS/RETAILERS
07 TRADE ASSOCIALTIONS (PRESENTATIONS AND NEWSLETTERS)
08 OUR ELECTRIC OR GAS UTILITY REPRESENTATIVE
09 OUR ELECTRIC OR GAS UTILITY WEBSITE
10 OUR OWN RESEARCH ON THE INTERNET
11 OTHER (PLEASE SPECIFY) _____
88 DON'T KNOW
99 REFUSED

Generic Awareness, Knowledge, and Attitude Questions

AKA1. I'm going to read a number of statements about the possible effects of this common area lighting project on your knowledge and attitudes concerning energy efficiency. For each statement I read please indicate your level of agreement with a 5-point scale where 5 equals "Strongly agree" and 1 equals "Strongly disagree." [REMIND RESPONDENT OF PROJECT TYPE IF NECESSARY]

A. This project has made me or our company more aware of energy efficiency opportunities at the properties that I or my company manages.

13- _____ 8=DON'T KNOW 9=REFUSED

B. This project has made me or our company more aware of possible energy efficiency projects at our
properties that we can implement on our own without the help of an outside contractor.

14- _____ 8=DON'T KNOW 9=REFUSED

C. This project has persuaded me or our company that energy efficiency projects can reduce energy costs.

15- _____ 8=DON'T KNOW 9=REFUSED

D. This project has persuaded me or our company that energy efficiency projects can increase comfort.

16- _____ 8=DON'T KNOW 9=REFUSED

E. This project has increased my or our company's confidence in the performance of energy efficient
equipment.

17- _____ 8=DON'T KNOW 9=REFUSED

Participant Satisfaction

INTERVIEWER INSTRUCTION: [EMPHASIZE WORDS IN ITALICS SINCE QUESTIONS S1, S3, S5, AND S8 ARE
ALL VERY SIMILAR]

S1. Now I am going to ask you about your satisfaction with the work done in the common areas. On a
scale of 1 to 10 where 1 is low, 10 is high and you may use any number in between. How satisfied
are you with the ***overall quality of the work performed by the contractor*** for the energy efficient
lighting improvements in the ***common areas*** at <INSTALLATION ADDRESS>?

18-19 _____ 88=DON'T KNOW 99=REFUSED

IF S1=8, 9, 10, 88 OR 99 SKIP TO S2A OTHERWISE CONTINUE

S2. Why were you less than satisfied with the quality of the contractor's work in the common areas? [ALLOW
MULTIPLE RESPONSES. READ LIST ONLY IF NECESSARY]

20-21 01 THE EQUIPMENT BROKE DOWN/MALFUNCTIONED
22-23 02 THE QUALITY OF THE EQUIPMENT WAS NOT UP TO OUR STANDARDS
24-25 03 THE QUALITY OF THE INSTALLATION WAS NOT UP TO OUR STANDARDS
26-27 04 WE DID NOT LIKE THE WAY THE PRODUCT LOOKED

05 THE INSTALLERS DID NOT MEET OUR STANDARDS
06 THE JOB TOOK TOO LONG
07 THE INSTALLERS WERE TO DISRUPTIVE, OR MESSY
08 OTHER (PLEASE SPECIFY) _____
88 DON'T KNOW
99 REFUSED

S2A. Did the contractors who installed this equipment in the common areas provide you with any information about Southern California Edison's other energy efficiency programs or about rebates for other energy-efficient products?

28- 1 YES
2 NO
8 DON'T KNOW
9 REFUSED

S3. On a scale of 1 to 10 where 1 is low, 10 is high and you may use any number in between. How satisfied are you with the ***performance*** for the equipment installed by the contractor in the ***common areas*** at <INSTALLATION ADDRESS>?

29-30 _____ 88=DON'T KNOW 99=REFUSED

IF S3=8, 9, 10, 88 OR 99 SKIP TO S5 OTHERWISE CONTINUE

S4. Why were you less than satisfied with the performance of the equipment in the common areas? [ALLOW MULTIPLE RESPONSES. READ LIST ONLY IF NECESSARY]

31-32 01 THE EQUIPMENT BROKE DOWN/MALFUNCTIONED
33-34 02 THE QUALITY OF THE EQUIPMENT WAS NOT UP TO OUR STANDARDS
35-36 03 THE QUALITY OF THE INSTALLATION WAS NOT UP TO OUR STANDARDS
37-38 04 WE DID NOT LIKE THE WAY THE PRODUCT LOOKED
05 THE INSTALLERS DID NOT MEET OUR STANDARDS
06 THE JOB TOOK TOO LONG
07 THE INSTALLERS WERE TO DISRUPTIVE, OR MESSY
08 OTHER (PLEASE SPECIFY) _____
88 DON'T KNOW
99 REFUSED

S5. Has the equipment been inspected by either Southern California Edison or Synergy since it was installed?

39- 1 YES
2 NO → SKIP TO S8
8 DON'T KNOW → SKIP TO S8
9 REFUSED → SKIP TO S8

S6. On a scale of 1 to 10 where 1 is low, 10 is high and you may use any number in between. How satisfied were you with the way the inspection was conducted?

40-41 _____ 88=DON'T KNOW 99=REFUSED

IF S6=8, 9, 10, 88 OR 99 SKIP TO S8 OTHERWISE CONTINUE

S7. Why were you less than satisfied with the inspection process? RECORD VERBATIM

_____

_____

_____

_____

S8. On a scale of 1 to 10 where 1 is low, 10 is high and you may use any number in between. How satisfied have you been with the <INSTALLATION MONTH> <INSTALLATION YEAR> Southern California Edison Comprehensive Mobile Home program as a whole?

42-43 _____ 88=DON'T KNOW 99=REFUSED

IF S8=8, 9, 10, 88 OR 99 SKIP TO S10 OTHERWISE CONTINUE

S9. Why were you less than satisfied with this program? RECORD VERBATIM

_____

_____

_____

_____

S10. Would you recommend this program to the owner/manager at another park?

44- 1 YES → SKIP TO S12
2 NO
8 DON'T KNOW → SKIP TO S12
9 REFUSED → SKIP TO S12

S11. Why not? RECORD VERBATIM

_____

_____

_____

_____

S12. Do you have any suggestions as to how the utility-sponsored Comprehensive Mobile Home program could be improved?

45- 1 YES
2 NO → SKIP TO ENDING
8 DON'T KNOW → SKIP TO ENDING
9 REFUSED → SKIP TO ENDING

S12a. What suggestions do you have on how the Comprehensive Mobile Home program could be improved?

_____

_____

_____

_____

80-2

Ending:

I would like to verify that I have reached you at (____) _____ - _____. Thank you for participating in our study. Those are all the questions that I have.

APPENDIX B

Verification Report

- January 12, 2009

MEMO

To: Caroline Chen, Katherine Randazzo, Phillip Jarvey
From: Josh Rasin, Cynthia Austin
Re: PY2006-2008 Comprehensive Mobile Home Program Verification

Southern California Edison (SCE) contracted with the HESCHONG MAHONE GROUP, INC. (HMG) to serve as a third party reviewer to verify and report results associated with SCE's PY2006-2008 Comprehensive Mobile Home Program.

The Comprehensive Mobile Home program (CMHP) targets mobile home customers, a market segment that consists of major users of HVAC equipment during the peak hours in the summer not reached by statewide mass-market programs, for lighting; duct sealing; and AC Diagnostic/Balance improvements. The program is a direct-install at no cost to the customer which will significantly reduce barriers for this customer base to make a decision to have the work completed. Applicants called a toll free hotline to schedule the work to be done in their home

The efficiency measures that were included in the program are listed below:

HVAC Diagnostics and Tune-up

Duct Test and Seal

CFL Exterior

CFL Interior

Hardware Fixture Interior & Exterior

Common Area Lighting

The study goal was to verify whether the program has sufficient documentation to support the claimed energy and demand reduction savings. The review process is a multi-step process. The first step was to develop an audit checklist of requirements for each program. Next, Katherine Randazzo drew a sample of project participants in order for HMG to review each of the sampled projects for completeness of the files. The study sample and the program-specific checklist were provided to the Edison project manager in order for them to pull the necessary documentation for each sampled customer application

Then, HMG reviewed each sampled case using the established criteria. A verification spreadsheet for each program measure was developed to record the results of the verification audit. Depending the study results, any serious errors required an adjustment, either up or down, in the number of participants as well as in the kWh and kW impacts. Below is a list of the verification criteria by measure.

CFL Interior

1. Customer has a valid SCE account number
2. Installation occurred in valid program year
3. Number of units installed is reported correctly

4. Application was paid or authorized to be paid in valid program year

CFL Fixture

1. Customer has a valid SCE account number
2. Installation occurred in valid program year
3. Number of units installed is reported correctly
4. Application was paid or authorized to be paid in valid program year

CFL Exterior

1. Customer has a valid SCE account number
2. Installation occurred in valid program year
3. Number of units installed is reported correctly
4. Application was paid or authorized to be paid in valid program year

AC Diagnostic

1. Customer has a valid SCE account number
2. Testing occurred in valid program year
3. Testing forms are included and savings are reported correctly
4. Application was paid or authorized to be paid in valid program year

Duct Testing

1. Customer has a valid SCE account number
2. Testing occurred in valid program year
3. Testing forms are included and savings are reported correctly
4. Application was paid or authorized to be paid in valid program year

The verification samples for each of the CMHP measures are presented in Table 1**Error! Reference source not found.**.

Measure	Sample	Verification Adjustment
AC Diagnostic/Tuneup	100	-6%
Duct Test & Seal	100	0%
CFL Interior	100	0%
CFL Exterior	62	-15%
Indoor & Outdoor Fixtures	100	-13%

Table 1 Verification Samples by Measure

AC Diagnostic /Tuneup

The verification sample contained 100 applications from the program. The self-audit indicated 6 errors in the 100 sampled accounts. 4 applications provided insufficient savings documentation. This meant that only one set of values were recorded where both

pre- and post-measure values were requested, or the diagnostic form has not been included. An additional 2 applications had addresses that did not match the addresses on file for the accounts. The detection of 6 errors in the sample means that we need to adjust downward by 6% the claimed savings for this measure.

Duct Test & Seal

The verification sample contained 100 applications from the program. The audit indicated 1 error in the 100 sampled accounts. The audit found one application with insufficient savings documentation. There were also instances of sloppy record-keeping, with duct testing forms lacking signatures, reading the wrong year, and addresses being written incorrectly. The detection of one error in the sample means that we do not need to adjust the claimed savings for this measure.

CFL Interior

The verification sample contained 100 applications from the program. The self-audit indicated 2 errors in reporting measures taken in the 100 sampled accounts. The detection of two errors means that we do not need to adjust the claimed savings for this measure.

CFL Exterior

The verification sample contained 62 applications from the program's paid component. The self-audit indicated 2 errors relating to the account or address, and 8 errors in reporting the # of units (one of which overlapped an address error) in the 62 sampled accounts. Although not one of pre-determined verification criteria and was not included as an official error, one application contained a signature dated February 2009, despite the installation taking place in 2007. The detection of errors in 9 applications in the sample means that we need to adjust downward by 15% the claimed savings for this measure.

Indoor & Outdoor Fixture

The verification sample contained 100 applications from the program's paid component. The self-audit indicated 11 errors in reporting the # of units in the 100 sampled accounts. The audit could not find documentation related to 2 records. There were an additional 3 instances of sloppy record keeping (form lacking a technician's signature, fixture information in the wrong place, and misspelling of customer name). The detection of 13 errors in the sample means that we need to adjust downward by 13% the claimed savings for this measure.

For many of these applications, there were discrepancies between the address visited by the technician and the address on file in the SCE database. The reason being, many of the mobile home parks are master-metered. SCE provided sufficient documentation that the address visited by the technician is included in the mobile home park master meter account.