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BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA

Application of Southern California Edison Company (U338E) for Approval of its 2012-2014 California Alternate Rates for Energy (CARE) and Energy Savings Assistance Programs and Budgets.	Application 11-05-017 (Filed May 16, 2011)
And Related Matters.	Application 11-05-018 Application 11-05-019 Application 11-05-020

ADMINISTRATIVE LAW JUDGE'S RULING ADMITTING THE LOW INCOME NEEDS ASSESSMENT STUDY

The attached final Low Income Needs Assessment Study, dated December 16, 2013, is ruled into the record of the above-captioned consolidated proceeding, for the Commission's consideration.

IT IS SO RULED.

Dated August 1, 2014, at San Francisco, California.

/s/ KIMBERLY KIM
Kimberly Kim
Administrative Law Judge

ATTACHMENTS:

ESA CARE Low Income Needs Assessment Final Report - dated December 16, 2013

Volumes 1, 2 and 3

EVERGREEN ECONOMICS

Needs Assessment for the Energy Savings Assistance and the California Alternate Rates for Energy Programs

Volume 1: Summary Report

Final Report

December 16, 2013

Prepared for: Southern California Edison, Pacific Gas and Electric, Southern California Gas, San Diego Gas and Electric and the California Public Utilities Commission

EVERGREEN
ECONOMICS

Table of Contents

EXECUTIVE SUMMARY ..... **III**

BACKGROUND III
OVERVIEW OF STUDY OBJECTIVES AND APPROACH III
SUMMARY OF KEY FINDINGS AND RECOMMENDATIONS IV

1 INTRODUCTION **1-1**

1.1 BACKGROUND 1-1
1.1.1 CARE Program *1-1*
1.1.2 ESA Program *1-5*
1.2 STUDY OBJECTIVES 1-7
1.3 ORGANIZATION OF REPORT 1-8

2 STUDY METHODS **2-1**

2.1 OVERVIEW OF STUDY APPROACH 2-1
2.2 LITERATURE REVIEW 2-5
2.3 PROGRAM STAFF AND CONTRACTOR IN-DEPTH INTERVIEWS 2-5
2.4 SECONDARY DATA ANALYSES 2-6
2.5 CUSTOMER TELEPHONE SURVEY 2-7
2.6 CARE AND ESA MODELING 2-9
2.6.1 CARE Modeling *2-9*
2.6.2 ESA Modeling *2-12*
2.7 CONJOINT ANALYSIS 2-15
2.8 IN-HOME VISITS 2-15
2.9 LOW-INCOME PROGRAM REVIEW 2-19

3 SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS **3-1**

3.1 OVERVIEW OF SOURCES 3-1
3.2 OVERVIEW OF LOW-INCOME POPULATION CHARACTERISTICS 3-2
3.3 PROGRAM ACCESSIBILITY AND BARRIERS TO PARTICIPATION 3-8
3.3.1 Program Penetration Findings *3-8*
3.3.2 Program Outreach Findings *3-9*
3.3.3 Program Participation Characteristics and Barriers to Participation Findings *3-10*
3.3.4 Conclusions *3-18*
3.3.5 Recommendations *3-20*
3.4 ENERGY NEEDS 3-27
3.4.1 Energy Burden *3-27*
3.4.2 ESA Measure Benefits *3-31*
3.4.3 Addressing Energy Needs *3-32*
3.4.4 Conclusions *3-39*
3.4.5 Recommendations *3-43*

Executive Summary

Background

This study was conducted for the joint California investor-owned utilities (IOUs): Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas and Electric Company and Southern California Gas Company, and the Energy Division of the California Public Utilities Commission. The findings and recommendations are intended to provide the study sponsors with information that may be used to plan and implement the next cycle of low-income energy efficiency programs, the Energy Savings Assistance (ESA) and the California Alternate Rates for Energy (CARE) programs.

The CARE program is offered by all four investor-owned utilities and provides a monthly discount on energy bills for income-qualified households and housing facilities. The ESA program is offered by all four investor-owned utilities and provides no-cost weatherization services to low-income households who meet the income and program guidelines. Services provided include attic insulation, energy efficient refrigerators, evaporative coolers, air conditioners, weatherstripping, caulking, low-flow showerheads, water heater blankets, and door and building envelope repairs. The program also provides energy efficiency education and referrals to other income-qualified programs. The program's objective is to help income-qualified customers reduce their energy consumption and energy bills while increasing their health, comfort and safety in the home.

Overview of Study Objectives and Approach

The overall study objective is to provide updated information to support important program and regulatory decisions related to better addressing the needs of the low-income customers who are eligible for the ESA and CARE programs.

The specific study objectives are to:

1. Report the most recently available estimates of eligible households;
2. Explore the accessibility of the programs to eligible low-income customers;
3. Obtain participating customers' perceptions of the programs;
4. Assess eligible non-participating low-income customers' willingness and barriers to participate;
5. Assess the energy-related needs of low-income customers, which includes an examination of customers' needs for specific energy efficiency measures;
6. Provide data that can be used to support updates of estimates of the energy savings potential remaining among eligible low-income customers' homes;
7. Collect data on energy burden and insecurity from eligible low-income customers; and
8. Assess the non-energy benefits that participants receive from participating in the ESA program.

We used numerous data and information sources for this study including primary and secondary research:

- Literature Review and Program Staff and Contractor In-Depth Interviews;
- Secondary Data Analyses;
- Customer Telephone Survey;
- Multivariate Analyses;
- In-Home Visits; and
- Low-Income Program Review.

Summary of Key Findings and Recommendations

This subsection summarizes the conclusions and recommendations that are presented in more detail in Section 3. In Section 3, we also provide cross-references to the relevant detailed report findings in Volume 2 that supported the development of the conclusions and recommendations.

Below we present the high level results and recommendations as they relate to the key study research questions, which are enumerated below.

1. *What is the current program penetration rate? How many eligible customers have not yet been served?*

Based on 2012 Athens Research data, 32 percent of California IOU households are technically and income-eligible for CARE and ESA. 95 percent of eligible IOU households were enrolled in CARE as of the end of 2012[1], leaving 5 percent or 207,000 California IOU households not enrolled.

59 percent of 2012 eligible California IOU households have been treated by ESA during the period of 2002-2012,[2] leaving 41 percent or 1.7 million untreated California IOU households.[3]

2. *How do most customers get reached by the programs? What methods are the most effective? How does that differ by customer segment?*

Most ESA participants learn about the program from either friends/family/colleagues or from IOU outreach methods, based on our telephone survey. Non-participants who recently became income-eligible for the programs due to a life event were most likely to learn about the

[1] Note that as the IOUs increase post-enrollment verification, the penetration rate is going down as more households are removed from the program.
[2] This estimate includes about 20,000 customers that SCE reported as treated in 2012 that were only enrolled and not treated (since they failed the 3 measure minimum rule). They reported that 68,859 were enrolled and 49,026 were treated.
[3] Note that the 2020 goal for ESA removes homes that have been treated by the Department for Community Services and Development and estimated unwilling homes (which was 5% based on the prior KEMA LINA study.)

program from a social worker or other professional who referred them to support programs, based on our qualitative in-home results. Low-income households learn about the CARE program based on the same methods as ESA, but with IOU bill inserts being more common than learning about the program from friends/family/colleagues. Based on our telephone survey, low-income households overwhelmingly prefer to be reached by mail (this finding does not differ significantly by low-income household segment).

3. *What are the characteristics of eligible customers that have not been reached by CARE and ESA? How do those differ from those who have? Are there concentrations of certain geodemographic characteristics of underserved customers?*
4. *What fraction of ESA non-participants is willing to participate in ESA?*
5. *What are the main barriers preventing ESA non-participants from participating? What were the main drawbacks for ESA participants?*

Based on our modeling effort, the CARE program has been successful in reaching low-income households in areas with higher rates of single-parent households, Spanish-speaking households, households with seniors, larger households, non-English/non-Spanish-speaking households, African-American households and higher population density. The CARE program has been less successful in reaching low-income households in areas with higher rates of renters, households at or below 100 percent of the federal poverty level and higher energy usage[4].

The ESA modeling results indicated that the ESA program, like CARE, has been successful reaching some segments of customers that might have greater needs and/or barriers: seniors, single-parents, the very poor, non-English speakers (Spanish more than other languages) and African-American households. Also like the CARE model, with the exception of PG&E, rural households are less likely to participate than urban households. (Note that only 2 percent of low-income households are in rural areas within the other IOUs' service territories.) Likewise, older homes, households participating in other low-income programs, households on medical baseline and those with longer tenure on CARE and in their present home are also more likely to participate in ESA.

CARE participants who have recertified are more likely to participate in ESA, which may reflect that such customers are more likely to be truly income-eligible. Single-family homes,[5] households located in climate zones where cooling loads are greatest, inland households, households with both electricity and gas service from the IOU(s) and households with electric IOU service (if a SoCalGas or PG&E customers) are more likely to participate in ESA. These results may reflect targeting by the program where the need and/or energy-savings opportunity is perceived to be greater.

[4] Note we looked at CARE customer usage.
[5] Note that this variable was only available for SCE.

Based on our ESA modeling results, the most important drivers of and barriers to ESA participation are:

- (Barrier) Trusting a contractor;
- (Barrier) Getting the landlord's approval;
- (Barrier) Being home for appointments; and
- (Driver/Barrier) Needing something the program offers.

Note that we could not test whether the driver of saving energy was important in the ESA model, because almost every household said that was important. However, other findings presented in this study suggest that saving energy is a primary driver of participation.

Based on multiple methods, we estimate that the willingness to participate in ESA among non-participants is 52 percent. This estimate is adjusted to attempt to correct for the non-response bias inherent in the telephone survey. (The original telephone survey self-report estimate is 72 percent.) Note that if these estimates are used to update ESA program treatment goals, the reasons for not being willing to participate should be factored in. For example, there are customers who are not willing because they do not want to ask their landlord for permission (23% of the 29% of unwilling customers, or about 7% of ESA non-participants), which the program could try to address, along with other barriers identified in this report.

6. *Are the programs designed effectively to reach and enroll non-participants based on their characteristics?*

The ESA and CARE programs are reaching many segments of the low-income population that might be considered hard-to-reach, as described above. The CARE program is not reaching as many renters and rural areas, all else constant, suggesting the CARE program could improve its outreach to these customers. The CARE program may not be reaching as many households that are very low-income, and there may also be customers enrolled in CARE that are not income-eligible, as some of our research may suggest. The ESA program is not reaching households with single-fuel IOU service and households that have been in their homes a shorter period time, all else constant, suggesting the ESA program could improve its coordination across IOUs and its outreach to these customers.

7. *Are the programs designed effectively to reach and enroll non-participants based on their preferences and information channels?*
8. *Are the programs using the appropriate channels to reach all segments of eligible Customers?*

The programs use many methods to reach eligible low-income households, which are consistent with what low-income households say are their preferences for being reached based on our telephone survey. Low-income households overwhelmingly prefer receiving information by mail and prefer to pay their energy bills by mail.

9. *Is the ESA program designed effectively to overcome non-participant barriers? And take advantage of what might drive future participation? And to improve the experience for participants?*
10. *Are enrollment and eligibility requirements preventing participation?*

The ESA program is all else constant, reaching fewer renters, especially multi-family renters, and renters that are concerned about seeking permission from their landlord (particularly those in buildings with 11 or more units). As mentioned below, multi-family have fewer energy needs and lower energy burden due to having less energy-using equipment, smaller homes and lower energy bills. As such, they may be less interested in participating.

Households that only have IOU service for a single fuel[6] are less likely to be treated by the ESA program, though our research did not assess the extent to which other programs such as the Low Income Home Energy Assistance Program (LIHEAP) are able to fill that gap. Some contractors that provide service in overlap areas may contract with both IOUs, but not all do. Additional barriers that impact ESA participation are households having trouble being home for multiple appointments and trusting contractors to be in the home. Our research did not conclusively determine whether having access to and/or being willing to show income documents and trusting the IOU are barriers.

11. *What sources could the programs leverage or leverage more to increase participation?*
12. *What improvements could be made to reduce barriers and increase and improve ESA participation?*
13. *What are the pros and cons of modifying ESA program requirements that might be impeding participation?*

We offer the following recommendations:

- The programs should continue past successful approaches that have lead to higher penetration rates among many hard-to-reach segments.
- The programs should consider ways to overcome barriers to participate for renters, particularly sing-family renters (which have greater energy burden, as explained below) and rural areas, which have unique issues.
- The ESA program should continue the combination campaigns that do outbound calls/direct mail and then door-to-door canvassing.
- To ensure that the newly low-income households are aware of the program, the IOUs could explore how to expand efforts that promote the CARE program through social workers, hospitals, low-income law centers and other agencies that interact with individuals who are going through life changes that might be associated with reductions in household income.

[6] About 74 percent of SCE and 63 percent of SoCalGas's CARE-eligible customers are served by the other single-fuel IOU. Roughly 650,000 CARE-eligible SoCalGas customers do not have IOU electric service.

- The CARE program should explore how to increase the penetration rate in very high poverty areas.
- The ESA program should be able to skip over treating households that do not want to participate in the program because they do not need it or want anything that is offered, such as for multi-family homes that have relatively lower energy burden. The treatment goal for ESA should be updated to make use of the new data provided by this study.
- The ESA program could try to target households that re-enroll in CARE after moving to ensure that the highly transient population (such as renters) participate in the program in greater numbers.
- The ESA program could continue refining its outreach strategies to try to overcome the barrier of households who do not want a "hand out".
- The ESA program could continue refining its implementation strategies to reduce the number of visits so that households that have trouble being home for multiple visits participate in greater numbers.
- The ESA program should continue coordinating with community organizations and contracting with them to conduct outreach to overcome barriers related to lack of trust in contractors.
- The IOUs should continue to coordinate with each other and improve the experience of households that have service with two different IOUs, and coordinate with LIHEAP to improve treatment of homes that use a non-IOU heating fuel source.
- The IOUs should continue to promote the ESA program based on saving energy and improving comfort.
- The program should consider establishing a clearer identity and brand for ESA, by which customers consistently hear about the program and are able to refer to it when discussing with their friends, family and neighbors.
- The IOUs should continue the use of data and targeted post-enrollment verification for the CARE program to reduce incidences of households being on the rate who are not income-qualifying, while not removing customers who truly qualify.
- The IOUs and CPUC should consider focusing resources for a future low-income Needs Assessment study on non-English/non-Spanish speaking low-income households that were excluded from this study's survey research (we estimate to be around 16 percent of the low-income population.) Note that the secondary research is based on population data that includes this segment.

14. *What is the extent of the energy burden among eligible customers? How has that changed since the last LINA study? What segments have the most burden and experience the most insecurity? How do ESA participants v. non-participants differ in terms of their burden?*

The mean energy burden, which is the ratio of energy cost (based on IOU billing data) to reported income (from the telephone survey) for the low-income population is estimated at 8.0 percent.[7] This is likely a higher bound estimate since, relative to the general population,

[7] Based on taking the mean of customer-level ratios of energy burden.

the low-income population tends to have a greater proportion of their essential expenses addressed by subsidies such as government assistance for housing, health care, child care and/or food and earned income credit. The mean energy burden for the low-income population is statistically unchanged from 2007, based on the prior LINA study. The low-income mean energy burden is estimated at 1.8 times the general population's mean energy burden.

Regions with higher mean energy burden among low-income households are:

- The Central Valley (climate zones 11 – 13)
- PG&E's service territory, which has the climate zones and regions with the relatively higher burdens
- The North Coast (climate zones 1-5)
- Households that said that climate or weather was a barrier to saving energy in their home.

Demographic characteristics associated with higher mean energy burden among low-income households are:

- The very poor (by definition, since burden is based on income) – income less than $15,000
- African-American
- Single-family renters
- Speaks a non-English/non-Spanish language[8].

Household characteristics associated with higher mean energy burden among low-income households:

- Reports being sick often due to home conditions
- Income has changed recently due to loss of job or fewer hours
- Presence of a disability.

The mean burden for ESA participants is 9.1 percent, compared to 6.7 percent for ESA (income-eligible) non-participants, due to higher non-participant income. (Non-participant income is on average 30% higher than participants, and non-participant energy usage is 2.5% higher than participants'.)

15. Which ESA measures contribute to the most benefit?

[8] We remind the reader that this is a biased sample of non-English/non-Spanish speakers, since to respond to our survey someone in the household must have spoken English or Spanish. Our survey does not include households that only speak a non-English/non-Spanish language.

A majority of ESA participants said they noticed changes (either "a lot" or "somewhat") in their safety and comfort and reduced bills as a result of ESA participation. We found that HVAC and weatherization measures are most likely to generate improvements in health, comfort and safety. We also found that HVAC and weatherization measures were the most common measures that generated self-reported energy savings and health, comfort and safety benefits among participants and prospective non-participants. The next most beneficial measure was a refrigerator.

16. *What support and services (including energy efficiency measures) do customers need to address their energy-related needs? What is needed most? Do the needs differ by customer segment/characteristics? Which needs are the highest priorities?*

The bulk of the study results related to this research question are too detailed to provide in this synthesis. We refer the reader to Section 3.4.3.1 below and Sections 4.3, 5.5.3 and 5.5.4 in Volume 2 of this report.

Based on telephone survey results, there are few major health, comfort and safety needs among the low-income population[9], though the ESA program makes a notable difference in health, comfort and safety needs among participants.

17. *How are the programs helping low-income customers address their energy burden and insecurity issues?*

The average CARE customer saves $29/month (33% savings) on their electric bill and $6/month (18% savings) on their gas bill. The ESA program results in 81 percent of participants noticing a reduction in their energy bills[10], with 64 percent noticing improvements in safety and 65 percent in comfort, and 44 percent noticing improvements in the health of household members. The energy savings results are consistent with actual changes in bills.

18. *How well aligned are the needs and the measures that are installed by ESA among eligible customer segments?*
19. *Is the ESA program designed effectively to address the needs? Is the ESA program designed effectively to address the needs of the customer segments that have the greatest need?*

ESA currently offers a range of measures that tend to align with what customers need and what they find helpful, with a major focus on weatherization measures, which lead to the greatest benefits. Renters are unable to receive all ESA measures unless they get their landlord's cooperation – the ESA program does not allocate ratepayer funds to subsidize

[9] Households that have major non-response barriers that are largely excluded from the telephone and in-home survey analysis on which this particular need is assessed, who did not respond to our survey, may have different or greater health, comfort and safety issues.
[10] The self-reported change in energy bills was consistent with the change in actual bills, and also with the ESA impact evaluation that found that while many households saved energy, some actually increased their usage.

landlord needs. However, there may be opportunities to expand efforts to address barriers for renters, including gaining more approvals from landlords. Single-family renters in particular have greater barriers, more burden and energy savings potential.

Some customers may have missed opportunities for receiving HVAC and weatherization measures if their heating fuel does not match the fuel of the IOU providing the outreach. There may be additional opportunities in IOU overlap areas (which is the majority of SCE and SoCalGas's CARE-eligible population) for the IOUs to coordinate more. There are additional study results that relate to these research questions, which are too detailed to provide in this synthesis. We refer the reader to Section 3.4.4.2 below and to Section 5.5.5 in Volume 2 of this report.

20. What data are available that may be used to determine the remaining energy savings potential among eligible households?

We estimate based on Navigant Consulting's[11] recent energy efficiency potential study combined with our study's estimates of willingness to participate[12] that:

- Total ESA electric savings potential = 208 kWh x 52% (WTP) x 3,133,942 income-eligible electric IOU customers = 339 MWh.
- Total ESA gas savings potential = 9 therms x 52% (WTP) x 3,714,462 income-eligible gas IOU customers = 17.4 million therms.

21. What could the programs add or modify to better serve the needs?

We offer the following recommendations:

- ESA could explore the tradeoffs associated with screening customers based on energy usage, estimated energy burden and health, comfort and safety criteria to determine priorities for treatment and/or tailor its services to the home.
- The CARE program should continue to require ESA participation for high users and automatic post-enrollment verification for households on CARE that exceed some limit of usage for their region.
- The ESA program should ensure that it is effectively coordinating with the LIHEAP program to address a gap in service to customers that do not use an IOU fuel source for their heating and to offer customers additional measures that ESA does not currently offer.

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[11] Analysis to Update Energy Efficiency Potential, goals and Targets for 2013 and Beyond – Track 1 Statewide Investor-Owned Utility Energy Efficiency Potential Study. Prepared for the California Public Utilities Commission. Navigant Consulting, Inc. and Heschong Mahone Group, March 19, 2012.

[12] We are using the estimated willingness to participate from the telephone survey, which does not include some unwilling non-participants whose barriers could be addressed by the program, such as renters who do not want to ask their landlord for permission.

- The IOUs should ensure that in IOU overlap areas (especially SCE and SoCalGas) that as many customers as possible are screened for both IOU measures in an efficient manner to increase the number of customers that pass the modified three measure minimum rule and to provide comprehensive treatment.
- The ESA program should explore the tradeoffs associated with providing energy efficiency education and basic measures during the outreach and assessment visit for homes that are income-qualified but fail the modified three measure minimum rule[13].
- The ESA program should explore the tradeoffs associated with offering certain targeted customers expanded measure eligibility criteria based on the prior recommendation where customers are screened based on higher energy burden and insecurity.
- The ESA program should continue to explore adding additional measures such as solar water heaters, light emitting diode (LED) lamps and fixtures and lighting controls.
- The ESA program should explore the tradeoffs from going back to homes that have received ESA treatment since 2002 to provide additional measures.
- The ESA program should explore the tradeoffs from offering replacement of a second refrigerator, such as for households that demonstrate a need for it (e.g., based on size of household or medical need.) For those that have a second refrigerator that is not needed, the program could offer a significant rebate for surrendering the unit for recycling.
- The IOUs should explore the tradeoffs from lowering the threshold for income self-certification for ESA.
- The IOUs should explore how to increase ESA participation among single-family renter households.
- The IOUs and CPUC should consider conducting an on-site survey with non-participants to collect detailed energy equipment information and energy efficiency values that may be used to develop estimates of remaining potential.
- The IOUs and CPUC should consider augmenting the assessment of energy insecurity in future low-income needs assessment studies.
- This data on varying levels of energy burden and insecurity should be used for future study of the CARE program, since it may be used to help the IOUs and the CPUC to explore the tradeoffs of offering varying rate assistance.

[13] See Section 5.4.1 in Volume 2 of this report for an explanation of this rule.

1 Introduction

This document is Volume 1 (Summary Report) of the Needs Assessment study that Evergreen Economics conducted for the Energy Savings Assistance (ESA) and the California Alternate Rates for Energy (CARE) programs for the joint California investor-owned utilities (IOUs): Pacific Gas and Electric Company (PG&E), Southern California Edison Company (SCE), San Diego Gas and Electric Company (SDG&E) and Southern California Gas Company (SoCalGas), and the Energy Division of the California Public Utilities Commission (CPUC). Our team includes Evergreen Economics, the Energy Center of Wisconsin, Tetra Tech and Wirtshafter Associates (the Evergreen Team).

1.1 Background

On August 23, 2012, the CPUC issued Decision 12-08-044, approving approximately $5 billion for the IOUs' 2012-2014 ESA and CARE programs. The same Decision mandated that the IOUs conduct this Needs Assessment. The CARE program is funded by the public purpose program surcharge that is only applicable to customers who are not on CARE. The ESA program is funded by the public purpose program surcharge on all customers. The CPUC approves budgets and directs the IOUs' administration of the programs, and monitors progress towards the California Long-Term Energy Efficiency Strategic Plan[14] (Strategic Plan) goals.

1.1.1 CARE Program

The CARE program is offered by all four IOUs and provides a monthly discount on energy bills for income-qualified households and housing facilities.

Table 1 shows the current income and household eligibility requirements for CARE, which is based on 200 percent of federal poverty guidelines. To enroll in the program, customers must self-certify that they meet the income and household eligibility requirements on a CARE program application. Customers can enroll online, by mail, over the telephone or through a community based organization (CBO). Through categorical eligibility, customers who are enrolled in one of several public assistance programs, including Medicaid/Medi-Cal, Supplemental Security Income and CalFresh/SNAP (food stamps), are also eligible for automatic enrollment in CARE, regardless of whether they meet the income guidelines. Participants must recertify their eligibility every two years, or every four years if they are on a fixed income. The IOUs are mandated to verify a certain percent of the total CARE residential population annually to ensure that households enrolled do meet the program's income guidelines. Documentation regarding income and/or participation in categorically eligible programs are required as part of this process.

[14] California Energy Efficiency Strategic Plan, California Public Utilities Commission, September 2008. http://www.cpuc.ca.gov/NR/rdonlyres/D4321448-208C-48F9-9F62-1BBB14A8D717/0/EEStrategicPlan.pdf

The CPUC approved nearly $4 billion for the 2012-2014 CARE program cycle, which includes both the subsidy and the operational costs to administer the program. Table 2 below shows the program expenditures for 2012 based on the 2012 IOU CARE Annual Reports.

Table 1: CARE Eligibility Requirements (Effective June 1, 2013 to May 31, 2014)

Size of Household	Income limit (must be at or below)
1	$22,980
2[1]	$31,020
3	$39,060
4	$47,100
5	$55,140
6	$63,180
7	$71,220
8	$79,260
Each Additional Person Add	$8,040

Source: IOU ESA and CARE Programs 2012 Annual Reports

[1] Assembly Bill 327 requires that 1-2 person households qualify at the 2-person income criteria, effective January 1, 2014.

Table 2: 2012 CARE Program Expenditures

IOU	Expenditures
PG&E	$710,765,680
SCE	$346,208,897
SDG&E	$66,925,052
SoCalGas	$111,854,554
Total	$1,235,754,183

Source: IOU ESA and CARE Programs 2012 Annual Reports

There is a 90 percent penetration goal set for the CARE program, which was originally established in CPUC Decision 08-11-031, and retained in Decision 12-08-044. In 2011 and

2012, the IOUs collectively reached the goal, as shown in Table 3 and **Table 4** below. As shown in the tables, PG&E, SCE and SoCalGas met or exceeded the goal, while SDG&E achieved an 85 percent penetration rate.

Table 3: 2011 CARE Penetration Rate

IOU	Eligible Participants	Participants Enrolled	Penetration Rate
PG&E	1,699,660	1,532,692	90%
SCE	1,451,325	1,437,537	99%
SDG&E	362,551	308,596	85%
SoCalGas	1,847,296	1,716,495	93%
Total	5,360,832	4,995,320	93%

Source: CPUC Decision 12-08-044

Table 4: 2012 CARE Penetration Rate

IOU	Participants Enrolled	Eligible Participants	Penetration Rate
PG&E	1,491,413	1,663,059	90%
SCE	1,402,052	1,456,590	96%
SDG&E	309,605	364,424	85%
SoCalGas	1,649,360	1,830,118	90%
Total	4,852,430	5,314,191	91%

Source: IOU ESA and CARE Programs 2012 Annual Reports

Given high penetration rates and questions regarding the remaining potential population, CPUC Decision 12-08-044 identifies the need to attend to and more proactively monitor the eligibility of enrolled customers over time. As part of this effort, the IOUs have enhanced their verification and recertification processes. These processes have resulted in some attrition whereby customers who were formerly on the rate are no longer on the rate.

SDG&E noted in its 2012 Annual Report that 64,000 CARE customers were lost to attrition, either requesting removal or not responding to post enrollment verification requests or recertification requests, and that they are struggling to increase enrollments to exceed that rate. They speculate that the improving economy reduces the likelihood a customer will respond to CARE outreach or a recertification request. Penetration rates for the other IOUs are also expected to decrease given newly implemented practices associated with the verification and recertification processes. The research conducted as part of this study will assist in providing more information to assist the CPUC and the IOU programs in understanding how to best identify and serve the eligible population.

Customers who are on CARE receive at least a 20 percent discount on their electricity and gas bills and are charged a lower rate for electricity usage above baseline. A recent presentation at the California Low-Income Oversight Board meeting[15] noted that these discounts ranged from 30 to 47 percent. Table 5 shows the average monthly electricity bill amount for CARE and non-CARE customers. The average CARE customer uses 547 kWh, pays $58 (after the CARE discount) and saves $29 per month. PG&E CARE customers use more electricity than non-CARE customers,[16] while the other electric IOU CARE customers use less electricity than non-CARE customers.

Table 5: 2012 CARE Electricity Bill Amount (CARE v. Non-CARE) and Average CARE Bill Savings

IOU	CARE				Non-CARE	
	Average Usage (kWh/month)	Average Electricity Bill ($/month)	Average Savings on CARE ($/month)	Average Percent Savings on CARE	Average Usage (kWh/month)	Average electricity bill ($/month)
PG&E	576	$55	$40	42%	546	$101
SCE	540	$62	$20	24%	598	$107
SDG&E	437	$53	$14	21%	511	$98
Overall Average	547	$58	$29	33%	Not available	

Source: IOU ESA and CARE Programs 2012 Annual Reports

Table 6 shows the average gas monthly bill amount for CARE and non-CARE customers. The average CARE customer uses 31 therms, pays $27 (after the CARE discount) and saves $6 per month on their monthly bill. CARE customers use less gas than non-CARE customers.

[15] Low-Income Oversight Board Meeting, CPUC Residential Rate Structure Rulemaking R.12-06-13 Status Update Presentation by Gabe Petlin, Energy Division, August 21, 2013 at the CPUC, San Francisco, California.

[16] PG&E average CARE kWh usage was around 5 percent higher than non-CARE in 2012. Excluding the approximately 70,000 high usage (above 400% of baseline in any monthly billing cycle) customers who will be required to complete the enhanced verification process over the next year, the PG&E average CARE kWh usage drops to around 4 percent lower than non-CARE.

Table 6: 2012 CARE Gas Bill Amount (CARE v. Non-CARE) and Average CARE Bill Savings

IOU	CARE				Non-CARE	
	Average Usage (therms/ month)	Average gas bill ($/month)	Average Savings on CARE ($/month)	Average Percent Savings on CARE	Average Usage (therms/ month)	Average gas bill ($/month)
PG&E	34	$29	$7	20%	38	$42
SDG&E	23	$19	$5	20%	26	$29
SoCalGas	30	$26	$5	16%	40	$34
Overall Average	31	$27	$6	18%	Not available	

Source: IOU ESA and CARE Programs 2012 Annual Reports

1.1.2 ESA Program

The ESA[17] program is offered by all four IOUs and provides no-cost weatherization services to low-income households who meet the income and program guidelines. Services provided may include attic insulation, energy efficient refrigerators, evaporative coolers, air conditioners, weatherstripping, caulking, low-flow showerheads, water heater blankets, and door and building envelope repairs. The program also provides energy efficiency education and referrals to other income-qualified programs. The program's objective is to help income-qualified customers reduce their energy consumption and costs while increasing their health, comfort and safety in the home. The ESA program provides services to both qualified renters and homeowners, in all housing types.

According to Public Utilities Code Section 382(e), the ESA program shall "by no later than December 31, 2020, ensure that all eligible low-income electricity and gas customers are given the opportunity to participate in low-income energy efficiency programs, including customers occupying apartments or similar multiunit residential structures." The ESA program is also intended to evolve into a resource program that garners significant energy savings.

The CPUC approved just over $1 billion for the 2012-2014 ESA program cycle. Table 7 below shows the expenditures for 2012 based on the 2012 IOU ESA Annual Reports.

[17] Prior to 2011, ESA was known as the Low-Income Energy Efficiency program, and was marketed to customers differently by each IOU. Starting in 2011, the program is consistently marketed to customers as the Energy Savings Assistance program.

Table 7: 2012 ESA Program Expenditures

IOU	Expenditures
PG&E	$131,145,519
SCE	$39,378,995
SDG&E	$21,046,806
SoCalGas	$82,252,135
Total	$273,823,455

Source: IOU ESA and CARE Programs 2012 Annual Reports

The CPUC projected that the ESA program should treat 1,093,442 homes during the 2012-2014 program cycle, which is one-third of the remaining untreated homes,[18] with two more program cycles (2015-2017 and 2018-2020) to reach the 2020 goal. Table 8 shows the number of homes that each IOU targeted to treat and the number they actually reported treating in 2012 in their Annual Reports. As shown, the IOUs treated 83 percent of the projected homes target. SDG&E exceeded the number of projected homes target, and PG&E treated 96 percent of the projected homes target. SCE[19] and SoCalGas treated 79 and 71 percent of projected homes target, respectively. SoCalGas attributed this in its Annual Report to uncertainty about program funding during the delay between the end of the previous program cycle (2009-2011) and the approval of the current program cycle (2012-2014). SoCalGas treated a record number of homes in 2011 (161,020), and reportedly, its network of contractors needed time to ramp back up in 2012 once the programs were approved. SCE similarly reported not meeting its 2012 goal of treated homes due to the CPUC delay in issuing the decision that authorized the 2012-2014 programs, creating uncertainty and a late ramp-up of the program year.

[18] Estimated at 2,534,461 in CPUC Decision 12-08-044 (Appendix F).

[19] SCE counts 19,833 homes that were assessed but failed the modified three measure minimum rule, which we describe in Section 5.4.2.1 of Volume 2 of this report.". Excluding those homes, 49,026 were treated. The homes that failed the three measure minimum rule will be eligible for electric measures if SoCalGas provides gas measures to them, and they will be treated by SCE as go-back visits in 2013.

Table 8: 2012 ESA Number of Homes Treated - CPUC Projected versus Actual

IOU	CPUC Projected Number of Homes to be Treated	Actual Number of Homes Treated	% of Planned
PG&E	119,940	115,229	96%
SCE	87,389	68,859	79%
SDG&E	20,316	22,415	110%
SoCalGas	136,836	96,893	71%
Total	364,481	303,396	83%

Sources: CPUC Decision 12-08-044 and IOU ESA and CARE Programs 2012 Annual Reports

Table 9 shows the savings claimed by each IOU for the 2012 ESA program, including energy, demand and gas. The IOUs reported that the ESA program saved a total of 66 million kWh, 15,000 kW and 2.5 million therms in 2012.

Table 9: 2012 ESA Program Savings Claims

IOU	Energy (kWh) Savings	Demand (kW) Savings	Gas (therm) Savings
PG&E	37,479,398	7,824	1,208,745
SCE	19,185,248	6,493	-
SDG&E	8,962,474	642	311,324
SoCalGas	-	-	999,408
Total	65,627,120	14,959	2,519,477

Source: IOU ESA and CARE Programs 2012 Annual Reports

1.2 Study Objectives

The overall study objective is to provide updated information to support important program and regulatory decisions related to the needs of the low-income customers who are eligible for the ESA and CARE programs.

The specific study objectives are to:

1. Report the most recently available estimates of eligible households for CARE and ESA;
2. Explore the accessibility of ESA and CARE programs to eligible low-income customers;
3. Obtain participating customers' perceptions of the CARE and ESA programs;
4. Assess eligible non-participating low-income customers' willingness and barriers to participate;
5. Assess the energy-related needs of low-income IOU customers, which includes an examination of customers' needs for specific energy efficiency measures;

6. Provide data that can be used to support updates of estimates of the energy savings potential remaining among eligible low-income customers' homes;
7. Collect data on energy burden and insecurity from eligible low-income customers; and
8. Assess the non-energy benefits that participants receive from participating in the ESA program.

1.3 Organization of Report

The remainder of Volume 1 of this report contains the following sections:

- Section 2: Study Methods
- Section 3: Summary of Findings, Conclusions and Recommendations

Volume 2 (Detailed Findings Report) of this report contains the following sections:

- Section 4: Low-Income Population and Program Characterization
- Section 5: Low-Income Population and Program Assessment

Volume 3 (Technical Appendix) contains the following:

- Section 6: Energy Needs Detailed Results
- Section 7: Low-Income Population Characterization Detailed Results
- Section 8: Telephone Survey Detailed Results
- Section 9: Detailed Modeling Results
- Section 10: In-Home Interview Detail
- Section 11: Low-Income Program Review Detail
- Section 12: Study Methods Detail
- Section 13: Research Instruments

2 Study Methods

This section describes the methods we used to conduct each of the study research and analysis tasks. More detail is provided in Volume 3 – Section 12.

2.1 Overview of Study Approach

We used numerous data and information sources for this study including primary and secondary research:

- Literature Review and Program Staff and Contractor In-Depth Interviews - We reviewed relevant reports and program information, combined with interviews with program staff and contractors, to provide background on the program and to obtain perspectives from implementers on some of the key study objectives.
- Secondary Data Analyses - We gathered and analyzed secondary data from the U.S. Census and American Community Survey, IOU ESA and CARE program tracking data, IOU customer billing data, Athens Research estimates of CARE and ESA eligibility, geographic data for California IOU and climate zone boundaries, California Residential Appliance Saturation Survey data,[20] and California Lighting and Appliance Saturation Survey data.[21]
- Customer Telephone Survey – We conducted 1,028 surveys with households enrolled in CARE, stratifying CARE enrollees by their ESA participation status (their home was treated by ESA since 2010, their home was treated by ESA between 2002-2009, or their home has not been treated by ESA since 2002[22]) and whether they were aware of the ESA program.
- CARE and ESA Modeling – We developed statistical models to understand drivers of and barriers to enrollment in CARE and participation in ESA.
- Conjoint Analysis – We conducted a conjoint survey to inform our understanding of drivers of and barriers to ESA participation.
- In-Home Visits – We conducted 88 in-home visits with current CARE enrollees whose homes had not been treated by ESA since 2002.
- Low-Income Program Review – We reviewed several low-income energy efficiency programs operating across the country to review enrollment, eligibility and marketing and outreach procedures in an attempt to identify ways in which the California IOU ESA and CARE programs could expand participation and enrollment, reduce barriers and/or increase participating customer benefits.

Table 10 illustrates the study approach, with columns indicating the source (secondary data, primary research, analysis), and rows indicating the detailed results that are reported in

[20] California Statewide Residential Appliance Saturation Study, RASS Reporting Center, KEMA, Inc. http://websafe.kemainc.com/rass2009/

[21] Draft onsite data files provided by KEMA, Inc., to the CPUC on April 9, 2013.

[22] We chose 2002 as a cut-off period since that year is being used as a baseline from which to measure cumulative ESA participation and penetration towards the state's Strategic Plan goal.

Sections 4 and 5 of this report (which are summarized in Sections 3.2 and 3.3). The final column indicates the numbered study objectives that were listed above in Section 1.2. In the table, "LI" refers to "Low-Income" customers.

Table 10: Overview of Study Approach

Report Section:	Data Sources													Study Objectives
	Secondary data						Primary research				Analysis			
	CLASS	RASS	Census, ACS	IOU program data	IOU billing data	Athens	In-home	LI program review	Program staff/ contractor INTVs	Phone survey	CARE model	ESA models	Conjoint survey	
4 - LI Pop and Program Characterization														
4.1 - Eligible Population for CARE and ESA				X		X								1
4.2 - CARE and ESA Participation														
4.3 - LI Population Characteristics	X	X	X		X	X				X				
4.3.1 - Demographic Characteristics														
4.3.2 - Home and Equipment Characteristics														
4.4 - ESA Program Measures				X										
4.5 - Remaining ESA Program Energy Savings POTN						X								6
5 - LI Pop Needs and Program Assessment														
5.1 - Overview of Sources														
5.1.1 - Sample Representation														
5.2 - ESA Program Accessibility							X	X	X	X				2
5.2.1 - Overview of ESA Marketing and Outreach														
5.2.2 - Customer Telephone Survey														
5.2.3 - In-Home Visits														
5.3- CARE Program Accessibility									X	X	X			2
5.3.1 - Overview of CARE Program Marketing and Outreach														
5.3.2 - Program Staff Interviews														
5.3.3 - Contractor Interviews														

Report Section:	Data Sources													
	Secondary data						Primary research				Analysis			
	CLASS	RASS	Census, ACS	IOU program data	IOU billing data	Athens	In-home	LI program review	Program staff/ contractor INTVs	Phone survey	CARE model	ESA models	Conjoint survey	Study Objectives
5.3.4 - Customer Telephone Survey														
5.3.5 - In-Home Visits														
5.3.6 - CARE Modeling Results														
5.4 - ESA Participation Drivers and Barriers														
5.4.1 - Overview of Customer Enrollment and Assessment														
5.4.2 - Program Staff Interviews														
5.4.3 - Contractor Interviews														
5.4.4 - Customer Telephone Survey														
5.4.5 -ESA Modeling Results												X		4
5.4.6 - Conjoint Analysis Results														
5.4.7 - In-Home Visits														
5.4.8 - LI Program Review														
5.5 - Energy Needs and LI Program Benefits														
5.5.1 - Energy Insecurity							X							7
5.5.2 - Energy Burden					X									7
5.5.3 - Non-Energy Benefits							X		X	X				8
5.5.4 - Energy Efficiency Measures							X		X	X				5
5.5.5 - CARE Program Benefits										X				3

2.2 Literature Review

We reviewed relevant reports and program documents to inform our understanding of the ESA and CARE programs and our research approach. In particular, we focused on the following sources:

- **The latest ESA (formerly LIEE) program process evaluation** – 2009-2010 Low-Income Energy Efficiency (LIEE) Program Process Evaluation, conducted by Research Into Action for the IOUs and the CPUC, June 10, 2011.
- **The prior low-income needs assessment study** – Final Report on Phase 2 Low-Income Needs Assessment (LINA), prepared by KEMA, Inc., for the CPUC, September 7, 2007.
- **A recent low-income household segmentation research study –** Low-Income Energy Efficiency Household Segmentation Research, prepared by Hiner & Partners, Inc., for Southern California Edison Company and Pacific Gas and Electric Company, December 2011.
- **A recent low-income high usage needs assessment study –** Low-Income Energy Efficiency Household High Usage Needs Assessment, prepared by Hiner & Partners, Inc., for Southern California Edison Company, September 2011.
- **ESA and CARE IOU program monthly and annual reports and CPUC Decisions.**

2.3 Program Staff and Contractor In-Depth Interviews

Evergreen conducted interviews with ESA and CARE program staff and contractors to gain background information on ESA and CARE and obtain implementer perspectives on the study research questions.

Senior staff from Evergreen Economics conducted telephone interviews with each of the four IOU program staff for CARE and ESA in April 2013. Each interview lasted between one and two hours and included the program manager, relevant support staff and the LINA study team IOU representative. These interviews were conducted to provide background information on ESA and CARE and to obtain program staff perspectives on the study research questions.

Evergreen staff completed 17 total in-depth interviews with ESA outreach and assessment[23] and CARE outreach contractors in May and June of 2013, and Table 11 shows how the interviews were distributed by IOU and program. Each interview lasted between 30 minutes and one hour and they were typically conducted with program managers with broad knowledge of program operations, challenges and successes. In some cases, additional information was provided in brief follow-up emails.

[23] We did not interview any ESA installation or inspection contractors.

Table 11: LINA Contractor Interviews Completed

IOU	ESA Program Completions	CARE Program Completions
PG&E	3	1
SCE	3	3
SoCalGas	3	1
SDG&E	2	1
Total	11	6

2.4 Secondary Data Analyses

Evergreen assembled several existing data sources to leverage for the study analyses, from a variety of sources.

- **Athens Research estimates of 2013 ESA and CARE eligibility** – Athens Research provided estimates of the number of IOU customers that are eligible for CARE and ESA in 2013. Athens Research developed these estimates in early 2013 using data from the American Community Survey 2011, the Current Population Survey, and labor market information data from the Employment Development Department. Evergreen received these data from Athens Research on April 11, 2013. We used the Athens data as the primary data source for our CARE modeling task, to estimate the eligible low-income population for CARE and ESA, and for the low-income population characterization.
- **The California Residential Appliance Saturation Survey (RASS) –** The California Energy Commission and the IOUs sponsored a large-volume residential mail survey in 2009/2010 conducted by KEMA, Inc., that provides self-reported demographic, home and equipment information from a representative sample of residents in the California IOU service territories, including low-income residents. The data are available online and may be queried by IOU service territory, by Title 24 climate zone and by various demographic categories including income level and number of people in the home. We used the RASS data to support the ESA modeling effort and the low-income population characterization.
- **The California Lighting and Appliance Saturation Survey (CLASS)** – The CPUC and the IOUs sponsored a comprehensive on-site appliance saturation survey in 2013 that is currently being finalized by KEMA, Inc. The CPUC provided our team with the raw data files from this effort that included IOU service territory and various demographic categories including income level and number of people in the home, which allowed us to approximate whether each sampled home was eligible for CARE and ESA. We used the CLASS data to support the low-income population characterization.
- **US Census and American Community Survey Data (ACS)** – We utilized three data sources available from the US Census Bureau: the 2010 US Census, the 2011 ACS and the 2004 and 2011 ACS Public Use Microdata Sample (PUMS). We compiled demographic and housing characteristic data from the standard pre-tabulated data available for the 2011

ACS and 2010 US Census via the American Fact Finder portal. We used these data to supplement the Athens, RASS, and our study phone survey sample demographic data for the ESA and CARE modeling. The standard pre-tabulated data for the 2011 ACS and 2010 Census did not provide the granularity required for the low-income population characterization task. For this task, we made use of the 2004 and 2011 ACS/PUMS database. The PUMS database is a set of untabulated responses to the ACS about individual people or households from a subset of the total ACS respondents. The structure of the database allowed us to characterize the low-income population by IOU service territory,[24] urban or rural county, primary language and housing type.

- **IOUs' Customer Information System data** – We obtained billing data from each IOU including CARE status, energy usage and cost, and payment and arrearage history. We used these data for the energy burden analysis, for the CARE and ESA models and to characterize the energy usage for the low-income population characterization.
- **ESA program tracking data (2002-2012)** – We obtained historic ESA tracking data going back to 2002. For the period 2010-2012, we obtained measure detail, and for 2002-2010, only basic descriptive information about the homes that were treated. We used these data for the phone survey sample design and the ESA measure characterization.

2.5 Customer Telephone Survey

Tetra Tech conducted 1,028 phone surveys with IOU customers that are on the CARE rate, as a proxy for being income-qualified for both CARE and ESA. Due to the reportedly very high CARE penetration rate (91%, based on the IOU ESA and CARE Programs 2012 Annual Reports), we did not attempt to conduct surveys with CARE non-participants.

We stratified the CARE population based on whether their home had been treated by the ESA program since 2002, with 300 sample points allocated to "Recent ESA Participants (2010-2012)", 315 to "Prior ESA Participants (2002-2009)" and the remaining 385 sample points to "ESA Non-Participants".

Table 12 shows the telephone survey sample allocation. We used the IOU billing and ESA tracking data to develop the telephone survey sample frame. We also stratified by awareness of the ESA program, based on the phone survey screening questions, to ensure a balanced sample. Finally, we stratified by IOU service territory, allocating 375 to PG&E and SCE, 200 to SDG&E and 50 to SoCalGas-only customers. We expected to achieve a much greater number of SoCalGas completes since the majority of SCE customers also have SoCalGas service.

[24] ACS/PUMS geographically identifies households by assigning them to one of 233 Public Use Microdata Areas (PUMAs) in the state of California. We assign ACS/PUMS households to IOU service territory at the Public Use Microdata Area level using information provided in the Athens Research eligibility estimate data.

Table 12: LINA Telephone Survey - Sample Allocation

IOU	Aware of ESA	Recent ESA Participants	Prior ESA Participants	Non-participants	Total
PG&E	Yes	75	75	85	375
	No	35	35	70	
SCE	Yes	75	75	85	375
	No	35	35	70	
SoCalGas only	Yes	10	10	10	50
	No	5	5	10	
SDG&E	Yes	40	40	40	200
	No	20	20	40	
Total		295	295	410	1000

Tetra Tech conducted the surveys in both English and Spanish during the months of July and August, 2013. 93 percent of California's low-income population speaks either English or Spanish, based on our analysis of 2011 ACS/PUMS data (reported below in Section 3.2 and also in more detail in Volume 2 – Section 4.3.1.). Table 13 shows the final disposition of telephone survey completes (1,028 surveys). Awareness of the ESA program was a lot higher than expected, so we increased the quota for "aware of ESA" for all categories.

Table 13: LINA Telephone Survey - Completes

IOU	Aware of ESA	Recent ESA Participants	Prior ESA Participants	Non-participants	Total	Total – SoCalGas Customers
PG&E	Yes	80	78	113	271	0
	No	32	38	48	118	0
SCE	Yes	87	88	91	266	264
	No	25	28	65	118	116
SoCalGas only	Yes	7	12	11	30	30
	No	8	5	9	22	22
SDG&E	Yes	46	42	51	139	0
	No	16	18	30	64	0
Total		301	309	418	1,028	432

2.6 CARE and ESA Modeling

2.6.1 CARE Modeling

We developed and estimated statistical regression models to examine two aspects of the CARE program. The participation (first) model is based on the ratio of CARE customers to total customers in a given census block group. The penetration (second) model is based on the ratio of CARE customers to CARE-eligible customers in a given census block group. The observations are Census block groups (rather than customers). The models are looking at variations in participation and penetration ratios across census block groups, and what variables (that we may observe at the Census block group level) might predict higher or lower rates, all else constant.

- **CARE Participation:** The CARE *Participation* model examines the relationship between the rate of CARE participation at the Census block group level and the demographic and economic characteristics of that block group. We define CARE Participation as the ratio of the number of households on the CARE rate to the total number of households in the block group.

- **CARE Penetration:** The CARE *Penetration* model examines the relationship between the tendency of CARE-eligible households to participate in CARE, also at the block group level. We define CARE Penetration as the ratio of the number of households on the CARE rate to the total number of CARE-eligible households in the block group.

We estimated the regression models using block-group level data provided by the IOUs and produced by Athens Research, as well as data obtained from the U.S. Census Bureau.[25]

Table 14 describes the types of variables we considered for their explanatory contribution in the CARE participation and CARE penetration models, respectively. The final set of explanatory variables included in the regression models are a subset of these variables and were included in the models based on their incremental relationship to the respective dependent variable. Many pairs of variables within the Athens and Census data sets are highly correlated—i.e., have a strong positive or negative linear relationship. Because of this, they have the same or very similar relationship with the dependent variable, which can lead to problems in the estimation of the econometric model.[26] For example, the percent of households with income below 100 percent of the Federal Poverty Level (FPL) is highly correlated with the percent of households below 150 percent of the FPL. Including both of these variables in the regression model would not only be unnecessary, but would likely result in large variances on the coefficient estimates of the collinear variables because the variables provide essentially the same information for predicting the dependent variable (proportion of households on a CARE rate).

[25] A block group is a geographical designation used by the U.S. Census Bureau that consists of a cluster of census blocks having the same first digit of their four-digit identifying numbers within a census tract. Block groups generally contain between 600 and 3,000 people, with an optimum size of 1,500 people. Block groups never cross the boundaries of states, counties, or statistically equivalent entities, except for a block groups delineated by American Indian tribal authorities, and then only when tabulated within the American Indian hierarchy. Block groups never cross the boundaries of census tracts. Source: http://www.census.gov/geo/www/geo_defn.html [May 29, 2012]

[26] The estimation problem, multicollinearity (or simply collinearity), is a condition occurring when two or more independent variables in the same regression model contain high levels of the same information and, consequently, are strongly correlated with one another. When significant collinearity is present, the coefficients of the independent variables in the regression model can be unstable, and even the signs of these coefficients may change when different variables are included, making it difficult to interpret the regression coefficients. In addition, standard errors may be inflated, resulting in insignificant t-statistics and incorrect conclusions regarding the statistical significance of the coefficients.

Table 14: Potential Explanatory Variables for the CARE Penetration Model, Census Block Group

Variable	Source	Description
Income distribution variables	Census/Athens	Summary and descriptive household income statistics (e.g. % of household at or below 100% of poverty)
Population Density and Rural/Urban designations	Census/Athens	Population per square mile; Athens data includes various rural statistics
Household Member Demographics	Census/Athens	Such as persons per home, race/ethnicity, seniors, children and disabled member information, primary languages
Participation in non-energy low-income assistance programs	Census/Athens	Public assistance income, SSI income, food stamp recipients, etc.
Housing stock and related economic data	CIS, Census/ Athens, housing authority	Home type, home size, home vintage, housing starts, vacancy rates, own versus rent, rental rates ($s)/home prices and recent trends, housing starts
Energy use data: gas and electric	CIS/billing	Average usage, usage per square foot, per household member, metrics of seasonal burden/variance (relationship to HDD/CDD)
IOU service territory (elec/gas) and IOU CARE marketing data	CIS	Available data regarding mass market or geographically focused CARE marketing over last three years
IOU Rate and billing information	CIS/billing	Percent of customers on FERA, Medical Baseline. Statistics reflecting rates of billing arrearages and service interruptions
Population eligible for CARE - number and percent of household	Athens	As documented in Athens research

The model results are presented in Section 5.3.6 and details on CARE model specification are provided in Section 12.2.

2.6.2 ESA Modeling

We developed statistical models that will assist the IOUs in better understanding the factors that affect participation in the ESA program. Our modeling approach included individual "Stage 1" models based on large samples of CARE participants for each of the four IOUs and a single "Stage 2" model, which included information on only those 1,028 CARE participants that responded to the phone survey.

For the Stage 1 models, we used logistic regression to develop models that predict the likelihood that a customer on CARE has either participated in the ESA program or lives in a home that was treated through the ESA program. Logistic regression is used when the dependent variable is binary (i.e., is equal to either 0 or 1). It is a non-linear, S-shaped distribution, which constrains the estimated probabilities to lie within the interval zero to one and is by far the most popular method for estimating statistical models when the dependent variable is binary. The dependent variable in each of the four Stage 1 models is equal to "1" for any customer living in a premise that was treated through the ESA program—regardless of whether the current customer is responsible for participation or the premise was treated prior to the current customer living in the home. The dependent variable is equal to "0" if the home has not been treated through the ESA program. Because most customers who are eligible for ESA are also on a CARE rate,[27] the samples of data used for each of the four Stage 1 models include only CARE customers.

We also used logistic regression to estimate the Stage 2 model. The dependent variable was the same as for the Stage 1 models; however, the Stage 2 model differs in that it is based largely (but not entirely) on information provided by respondents to the phone survey. The objective of the Stage 2 model was to explain ESA participation based on attitudinal and behavioral characteristics of customer otherwise unknown to the IOUs.

Table 15 and Table 16 describe the types of variables we considered as explanatory variables in the Stage 1 and Stage 2 ESA participation models. The final set of explanatory variables included in the regression models are a subset of these variables and were included in the models based on their ability to predict the dependent variable (i.e., that a residential premise was treated through the ESA program). Many pairs of variables within the data set are highly correlated—i.e., have a strong positive or negative linear relationship. Because of this, they have the same or very similar relationship with the dependent variable, which can lead to problems in the estimation of the econometric model.[28] Including two (or more) highly correlated explanatory variables in the regression model would not only be unnecessary, but would likely result in large variances on the coefficient estimates of the collinear variables

[27] It is possible, though not likely, that some ESA participants can decline to be on CARE.
[28] Ibid.

because the variables provide essentially the same information for predicting the dependent variable (likelihood that a residence participated in the ESA program).

Table 15: Potential Explanatory Variables for Stage 1 ESA Participation Models

Variable	Source	Level	Description
Location and climate	Census/Athens	Census Block Group	Population per square mile; rural/urban distinctions and climate zone
Household demographic & income, Workforce	Census/ Athens	Census Block Group	Such as persons per home, race/ethnicity, seniors, children and disabled member information, primary languages; median household income; employment statistics
Participation in non-energy low income assistance programs	Athens, Census	Census Block Group	Public assistance income, SSI income, food stamp recipients, etc.
Housing stock and related economic data	CIS, Census, Athens, housing authority	Customer and Census Block Group	Distributions of home type, home size, home vintage, own versus rent,
Energy Usage and IOU territory	CIS/billing	Customer	Monthly kWh and therm consumption, Serviced by kWh/Gas IOU
IOU tariff/rate and payment information	CIS/billing	Customer	FERA, Medical Baseline. Arrearages and service interruptions
ESA Participation	ESA data	Customer	If and when home was –treated through ESA
CARE enrollment characteristics	CARE data	Customer	Household is currently enrolled in CARE; timing of current enrollment; enrollment type (categorical versus income)

Table 16: Potential Explanatory Variables for Stage 2 ESA Participation Model

Variable	Source	Level	Description
IOU service territory	CIS	HH	Electric and Gas utility
Income	Survey	HH	Annual household income, dollar value or range. May be adjusted for local cost of living.
Documentation barriers	Survey	HH	Need for and access to income eligibility documentation (cash wages, no income); is right name on bill; renter/ landlord MM documentation requirements
Scheduling barriers	Survey	HH	Time and flexibility to be home during weekdays/for ESA appointments.
Cultural attributes	Survey	HH	Language isolation and English literacy, trust in IOU/gov't programs, perceptions of LI assistance. Affiliation/membership/participation with CBOs/events
Energy efficiency motivation	Survey	HH	Awareness and knowledge of energy efficiency measures and practices; EE behaviors and recent actions (e.g. turn off lights/TV, buy CFLs, Energy Star appliances); control over energy bill
Household demographics	Survey	HH	Detailed household demographics (persons/home, ages, race/ethnicity, disability, languages), length of time in home
Selected home characteristics	Survey	HH	Home type, vintage, size, pool/spa
Selected home inventories	Survey	HH	CFLs, number of televisions, internet, home computer, air conditioning, heating type/fuel source, age of refrigerator.
Home-related health	Survey	HH	Perceptions and concerns regarding condition of home and operations of

and safety concerns			equipment. E.g.- heating/cooling, window/doors
Energy consumption/ patterns	CIS/billing	HH	kWh and therm consumption, usage per square foot, per HH member, metrics of seasonal energy burden
Energy Burden	Survey/billing	HH	Energy bills as a percent of income, self-reported

2.7 Conjoint Analysis

The primary goal of the conjoint analysis was to collect information on customer preferences for participating in the ESA program. This information identifies participation drivers and barriers and determines the relative importance of several factors that affect willingness to participate.

The conjoint analysis results may also be used to calculate the probability that a customer is willing to participate in the ESA program, and then see how this probability varies with changes in program characteristics. Note that since this probability is estimated using stated preference data on a limited number of factors influencing the participation decision, it has limited value for estimating potential market share. Nevertheless, the nature of conjoint analysis that focuses on tradeoffs made across program attributes makes it a useful tool for gauging the relative importance of various program characteristics.

We developed an online conjoint analysis survey, where respondents were asked to rank various ESA program options. Tetra Tech recruited respondents for the conjoint analysis from the phone survey, offering a $10 gift card for completing the online survey. Phone survey respondents who indicated they were willing to take the conjoint survey provided Tetra Tech with their email addresses, and Evergreen sent them a separate email directing them to the conjoint website including a unique web link. The Energy Center of Wisconsin (ECW) also conducted a small number of conjoint surveys in conjunction with the in-home visits, which are described below. A total of 53 responses were used in the conjoint analysis.

2.8 In-Home Visits

The Energy Center of Wisconsin (ECW) conducted 88 in-home interviews and site visits with ESA non-participants who are enrolled in CARE (and thus likely income-eligible for ESA[29])

[29] Note that to be enrolled in CARE, customers must self-certify their income. A sample of enrolled customers are required to verify their income. To participate in ESA, most customers must show documentation to prove their income. Thus, there may be some households in our sample that may not actually qualify for ESA due to lack of documentation or their income is too high. We relied on self-reported income and number of household members to confirm ESA eligibility from the phone survey for screening in-home visit participants.

July – September 2013. All of the completed visits were with customers who had also completed a telephone survey. The primary purpose of these interviews and site visits was to better understand ESA non-participants who are likely income-eligible to provide insights about the ways they can best be reached and served by the ESA and CARE programs. The in-home visits also afforded an opportunity for a simple walk-through assessment of energy-saving opportunities in the home.

Interview participants were offered a $100 incentive for participating in the 1.5 to 2-hour interview and home walk-through. Our sample frame comprised income-qualified households (i.e., enrolled in CARE) that had not participated in ESA from 2002 through 2012, the ESA participation period we studied.[30] Within this population, we developed a sampling approach to achieve the following objectives:

1. Distribute in-home visits among the service areas of the California IOUs
2. Achieve scheduling efficiencies (i.e., leveraging the phone survey respondents)
3. Achieve travel efficiencies (i.e., cluster in-home visits within geographic boundaries)
4. Conduct interviews in Spanish to willing households that prefer to communicate in Spanish
5. Include a broad range of income-qualified ESA non-participants (i.e., use Census data to inform the selection of geo-demographic clusters to select the sample frame)

Statewide, we targeted about 60 homeowners residing in single-family homes, 15 renters residing in single-family homes and 25 renters residing in multi-family households. We gave preference to moderate and high-energy users, seeking to avoid those with the lowest comparative energy consumption (33th percentile and lower), as they have less opportunity to save through efficiency measures and face a relatively lower energy burden. We targeted between 15-18 Spanish language interviews, though we conducted a higher number of interviews in homes that use Spanish (but speak some English). Spanish interviews were conducted across the clusters (defined below) where there are higher concentrations of Spanish-only homes.

Within the IOU-specific quotas, we identified geo-demographic clusters that, based on Census and IOU data, contain higher densities of low-income residents, represent a variety of geo-demographic characteristics (e.g., inland versus coastal, urban higher density versus suburban or rural) and allow for reasonably efficient travel between interviews. However, we expanded those clusters greatly during recruiting when it became apparent that we would not be able to fill our quotas with tight geographic clusters.

[30] Nevertheless, we encountered 16 households that appeared to have gotten ESA treatments at their present home (or participated in a program that the households said matched our description of ESA), mostly in the months immediately prior to our visit.

We completed 88 in-home visits across the IOU service areas as described in Table 17 below. These in-home visits were conducted by three trained ECW interviewers between August 13 and September 27, 2013.

Table 17: Targeted and Completed In-Home Visits by IOU

IOU	Target Completions	Completed Visits	Targeted Geographic Clusters
PG&E w/out SCE	22-33	28	Bay Area, northern Central Valley, Fresno
PG&E w/ SCE		1*	
SCE with SoCalGas	22-33	30	Los Angeles County, western Riverside County
SCE w/out SoCalGas		6	
SoCalGas-only	(no target set)	7	Los Angeles (city & county), western Riverside County
SoCalGas - total	22-33	37*	
SDG&E	11-22	17	San Diego, Chula Vista
Statewide	100	88	

* Not counted in total because these sites also appears in SCE and/or SoCalGas-only tally

Recruitment challenges, participant cancellations, and no-shows left us with 88 completions by the end of September. To facilitate timely reporting, the team chose to end fieldwork and shift to analysis and reporting at that time.

Figure 1 illustrates the geographic distribution of the in-home visits by housing type and language in which the interview was conducted. In all, we completed visits to 49 single-family homes, 36 multi-family homes and 3 mobile homes. 36 of the single-family homes were owner-occupied; 13 were rented. 72 of our visits were conducted in English, and 16 were completed in Spanish. Table 18 shows housing types by language in which the interview was conducted.

Figure 1: Distribution of In-Home Visits by Housing Type and Language

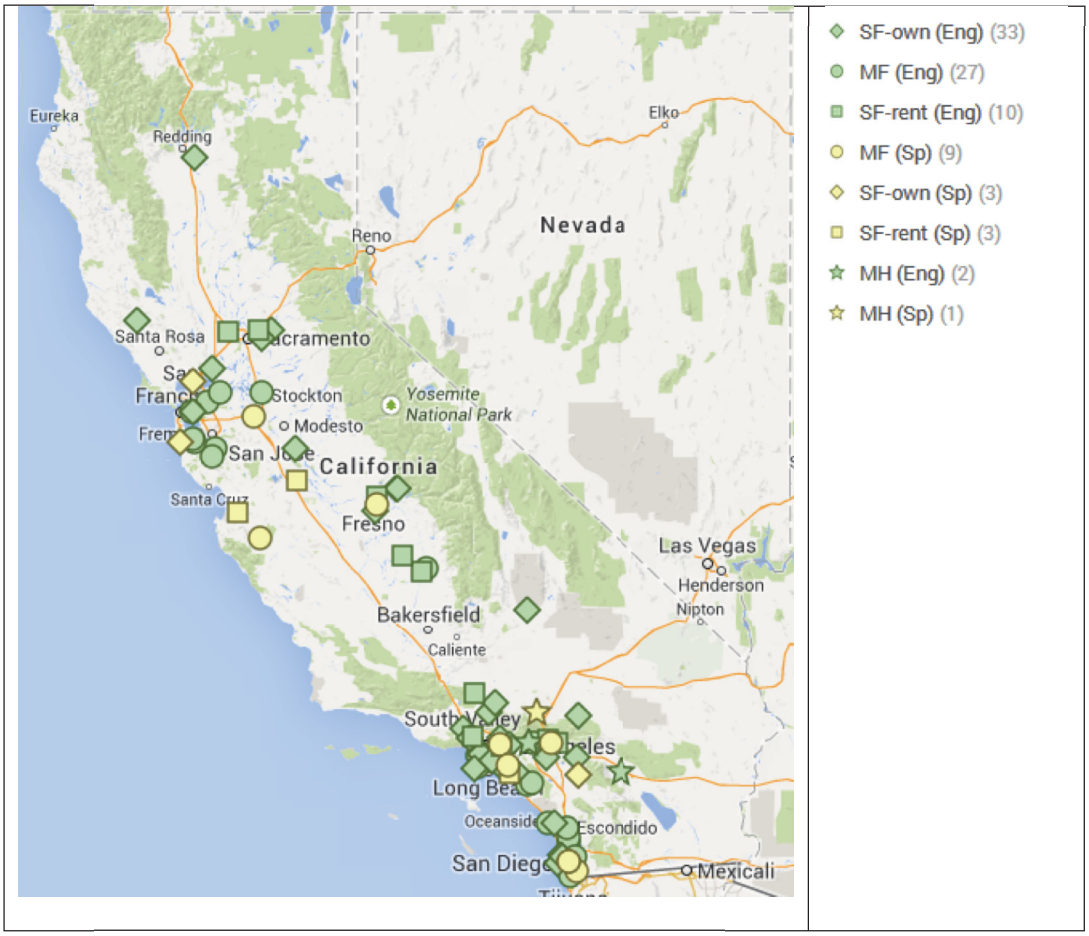


Table 18: In-Home Visits: Housing Types and Language

Home Type	Ownership	Language	Total
Single family	Owner-occupied	English	33
		Spanish	3
	Rented	English	10
		Spanish	3
Multi-family		English	27
		Spanish	9
Mobile home		English	2
		Spanish	1
Total		English	72
		Spanish	16
		All	88

2.9 Low-Income Program Review

The Energy Center of Wisconsin (ECW) conducted a low-income program review based primarily on secondary research and program staff interviews about selected parameters of low-income programs that are considered to be well-designed and effective at obtaining broad participation and reducing energy burden for low-income customers through efficiency interventions. The main purpose of the program review was to provide context and perspectives for interpreting results from this study and for framing recommendations. Emphasis of the program review was on programs that perform efficiency interventions (i.e.,

that are similar to the ESA program) rather than those that only reduce bills or help to offset them through cash transfers (i.e., the CARE program).

We focused primarily on customer eligibility and enrollment issues and program offerings (such as measures) with a secondary focus on outreach/marketing, program delivery and performance. We also attempted to identify best practices based on the success of these programs. We developed a matrix of program characteristics along one dimension and example programs along another. The program characteristics we tracked are:

- Primary Priority:
    - Program eligibility criteria;
    - Participant enrollment process and requirements, including eligibility verification;
    - How eligible measures are/were selected for inclusion in the program (i.e., measure inclusion at the program level); and
    - How measures are selected for individual homes (i.e., measure selection at the participant level).

- Secondary Priority:
    - Program outreach and marketing;
    - Other programs that exist alongside (for context);
    - Coordination with other programs (if at all);
    - How delivery models are used; and
    - Where their main energy savings or other impacts come from (measures or types of homes, etc.).

Our process for conducting the program review comprises three steps:

- Identifying exemplary programs;
- Reviewing publicly available documentation that describes the programs; and
- Interviewing program staff to fill in information not available from public documents.

We identified exemplary programs based on (1) our knowledge of low-income energy efficiency programs from ECW's work on the national Weatherization Assistance Program evaluation, (2) nominations from our partners and contacts who conduct many of the state- and utility-specific low-income evaluations, and (3) recommendations from program staff we interview. We developed an initial list of 5-10 programs that provide efficiency interventions in the homes of low-income households.

For the selected programs, a member of our research staff identified publicly available documentation to begin to populate the matrix described above. Mostly, this step was an online search of program documentation posted by the program itself or its funders.

Thereafter, the research staff person called the program director or other applicable program staff to conduct a telephone interview that provided any information in the matrix not sufficiently explained in program materials. We leveraged the relationships we already had with all state weatherization programs and many local agencies throughout the country as an entry point or to obtain a referral to the appropriate contact to interview. The interview was conversational in nature (i.e., not scripted) and focused on understanding the program's characteristics and approaches to the issues of interest. In these interviews, the researcher also inquired about the program representative's perceptions about the key drivers of the program's success. In some cases we collected additional documents available from our program contact. The research staff person completed the matrix based on the information provided by program staff. In total, we contacted seven program staff, obtaining information for a total of six programs.

3 Summary of Findings, Conclusions and Recommendations

This section presents a summary of the study findings, conclusions and recommendations. The discussion is organized around 21 sets of research questions that were identified in the study research plan as the focus on this study. For more detailed study findings, please see Volume 2 of this report.

3.1 Overview of Sources

We used a variety of sources to develop the study findings, described below along with important caveats to consider when reviewing the findings.

- **2004 and 2011 ACS/PUMS data** that provide demographic characteristics based on a large sample of the state's general and low-income population.
- **2013 CLASS data** that provide household and energy-using equipment characteristics of the state's general and low-income population based on a sample of on-site surveys conducted by KEMA, Inc.
- **1,028 telephone surveys of CARE customers**[31] including ESA participants (from 2002–2012) and ESA non-participants. We conducted both English and Spanish language surveys, representing 93 percent of the state's low-income population (the remaining 7 percent do not speak English or Spanish). The sample is biased, where respondents represent English and Spanish-speaking customers who are willing to talk with a surveyor on the phone about energy issues. The CARE and ESA modeling (Stage 1), described below, are based on the low-income population and are used in conjunction with the telephone survey results to address the study objectives.
- A nested sample of **88 in-home visits** within the ESA non-participant telephone survey sample, providing a fuller picture of ESA non-participants' characteristics and energy needs. These findings are qualitative due to the small sample size, and have similar bias issues as the telephone survey.
- **A review of several low-income programs** similar to ESA offered in other states, providing insights from other similar programs; and
- **Modeling and analysis** of IOU, Athens Research and Census data, informing CARE program participation and penetration, ESA participation and ESA willingness to participate.
    - **CARE modeling**: We developed statistical regression models to understand the drivers of and barriers to CARE program participation based on Athens Research data. The models examine variations in participation and penetration ratios across census block groups, and what variables (that we may observe at the Census block group level) might predict higher or lower rates, all else constant.

[31] Due to the CARE program's high penetration rate (see Section 2.1.1) and the consistent income and household size eligibility criteria for CARE and ESA (see Section 2.1), CARE customers are a proxy for customers who are income-eligible for both CARE and ESA.

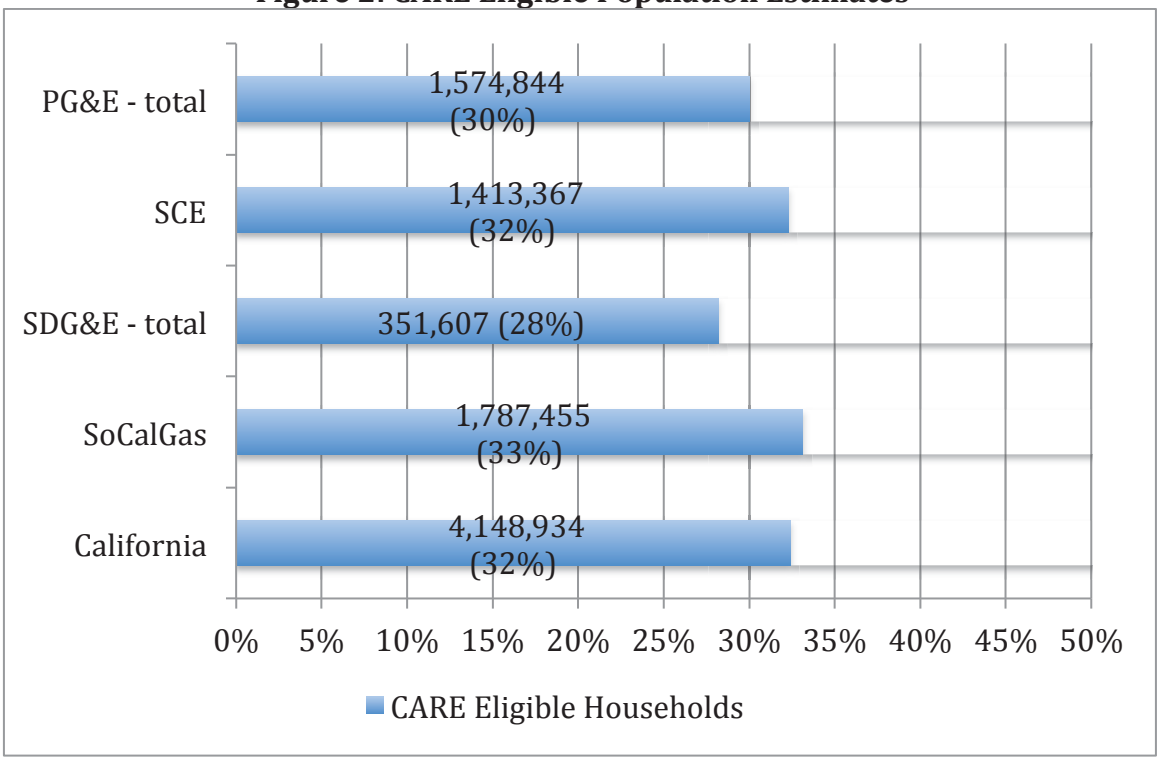
- **ESA modeling**: Similar to the CARE modeling, we developed regression models to understand drivers of and barriers to ESA program participation. We used customer level data from the IOUs (Stage 1) supplemented with telephone survey data (Stage 2).
- **Conjoint analysis:** We used a stated preference survey technique that involves having respondents sort through and rank options that reflect different choices. For this analysis, participants responded to an online/onsite survey where they were first asked to rank choices that reflected different types of ESA program scenarios. For all these scenarios, each choice was defined by several attributes, and respondents were asked to rank the options from most to least preferred based on these attributes, and then to indicate which scenarios they would actually participate in.

3.2 Overview of Low-Income Population Characteristics

This subsection provides a summary of the demographic characterization that is presented in Volume 2 – Section 4.3.1.

Figure 2 below shows the number and percent of households in each IOU service territory, and for the state, that are estimated as eligible for CARE based on Athens Research analysis. Statewide, 32 percent (4.1 million households) are technically and income-eligible for the CARE program.

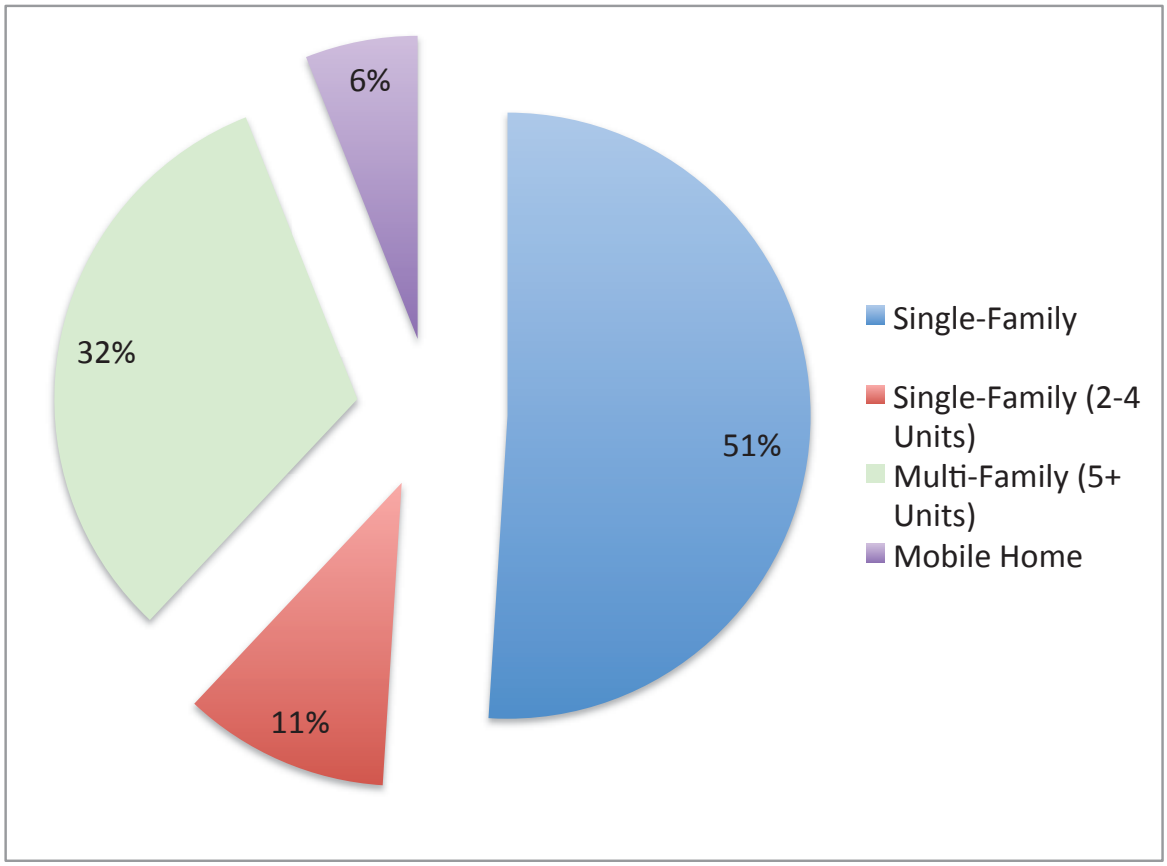
Figure 2: CARE Eligible Population Estimates



Source: 2012 data developed by John Peterson of Athens Research under subcontract to the IOUs.

As shown in Figure 3 below, 32 percent of the low-income market resides in multi-family dwellings (as defined by the ESA program as having 5 or more units.) 62 percent reside in single-family dwellings (11% in 2-4 unit buildings and 51% in single-unit structures.) The remainder (6%) live in mobile homes.

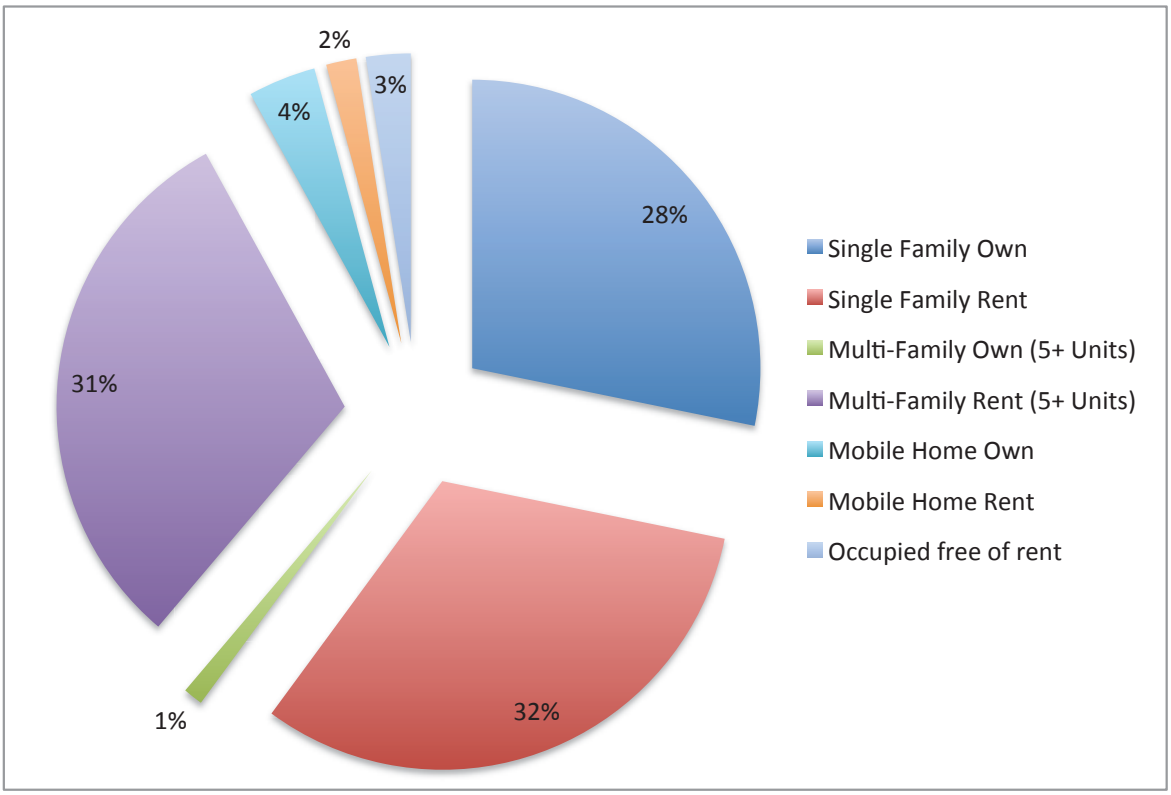
Figure 3: Home Type for California Low-Income Population



Source: 2011 PUMS.

64 percent of low-income households rent their homes, compared to 55 percent of the general population. The renter market is about evenly split between multi-family (5 units or more) and single-family dwellings (including homes in 2-4 unit buildings), as shown in Figure 4 below. Single-family renter homes comprise the largest segment of the low-income market (at 32%), followed closely by multi-family rented homes (at 31%) and single-family owned homes (at 28%).

Figure 4: Home Ownership by Type for California Low-Income Population

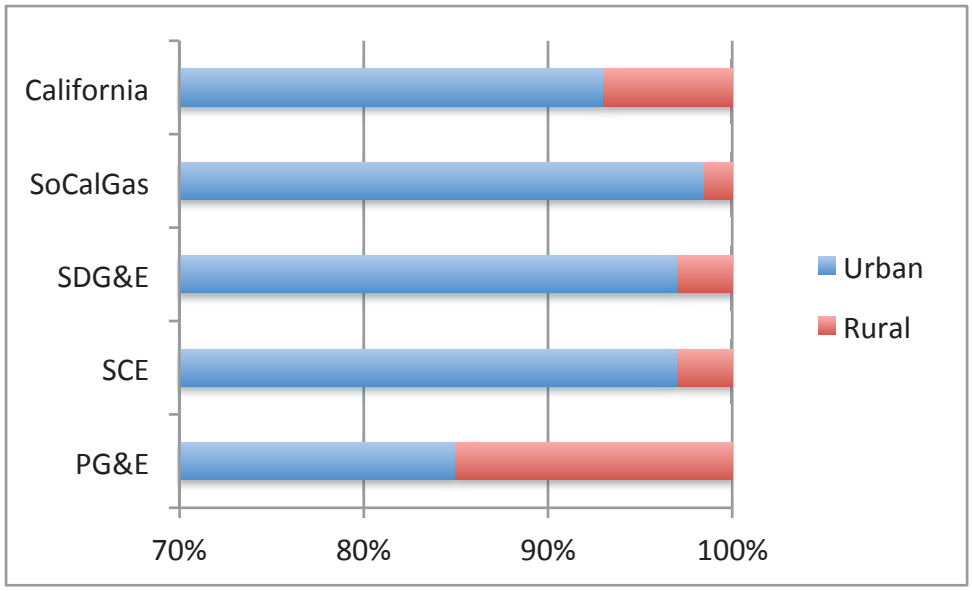


Source: 2011 PUMS.

As shown in Figure 5 below, 93 percent of the state's low-income households reside in counties that are classified as urban, and 7 percent are in rural counties.[32] This varies by IOU service territory, with PG&E having a higher percentage of low-income homes located in counties designated as rural (15%).

[32] If a home was in a county that was in a metropolitan area with population of 250,000 or greater, as identified by the 2013 USDA Rural Urban Continuum Code, the home was considered to be in an urban area. Otherwise it was considered rural. We defined rural based on county since that was the lowest geographic area available in the ACS/PUMS that could be associated with a rural or urban designation. This approach may lead to an under statement of rural residents.

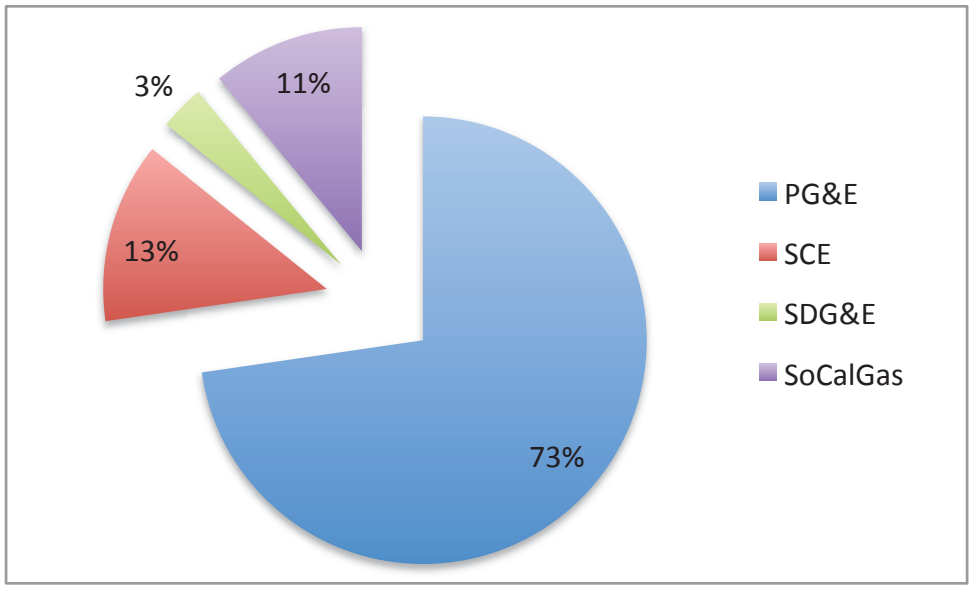
Figure 5: Urban Versus Rural for California Low-Income Population



Source: 2011 PUMS.

Figure 6 below shows how the rural[33] low-income population is distributed by IOU service territory, with 73 percent located within PG&E's service territory.

Figure 6: Distribution of Rural Low-Income Population By IOU Service Territory

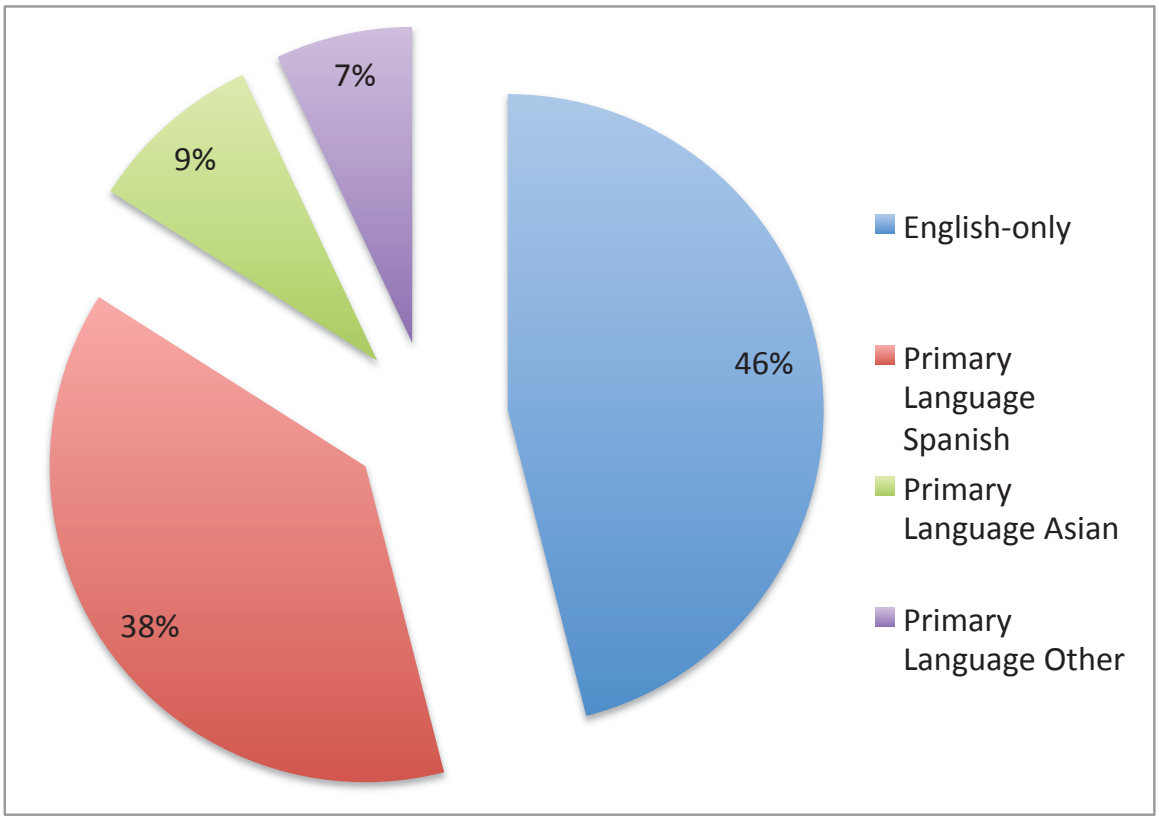


Source: 2011 PUMS.

[33] Ibid.

The majority of low-income households speak a language other than English, with 46 percent only speaking English. As shown in Figure 7 below, 38 percent use Spanish as the primary language, followed by 9 percent that use an Asian language primarily.[34] A complementary finding that we report on in Volume 2 – Section 4.3.1 is linguistic isolation, which is defined a household in which no one in the household aged 14 and over speaks English only or English very well. 20 percent of low-income households are linguistically isolated, as compared to 10 percent of the general population.

Figure 7: Languages Spoken in Household for California Low-Income Population

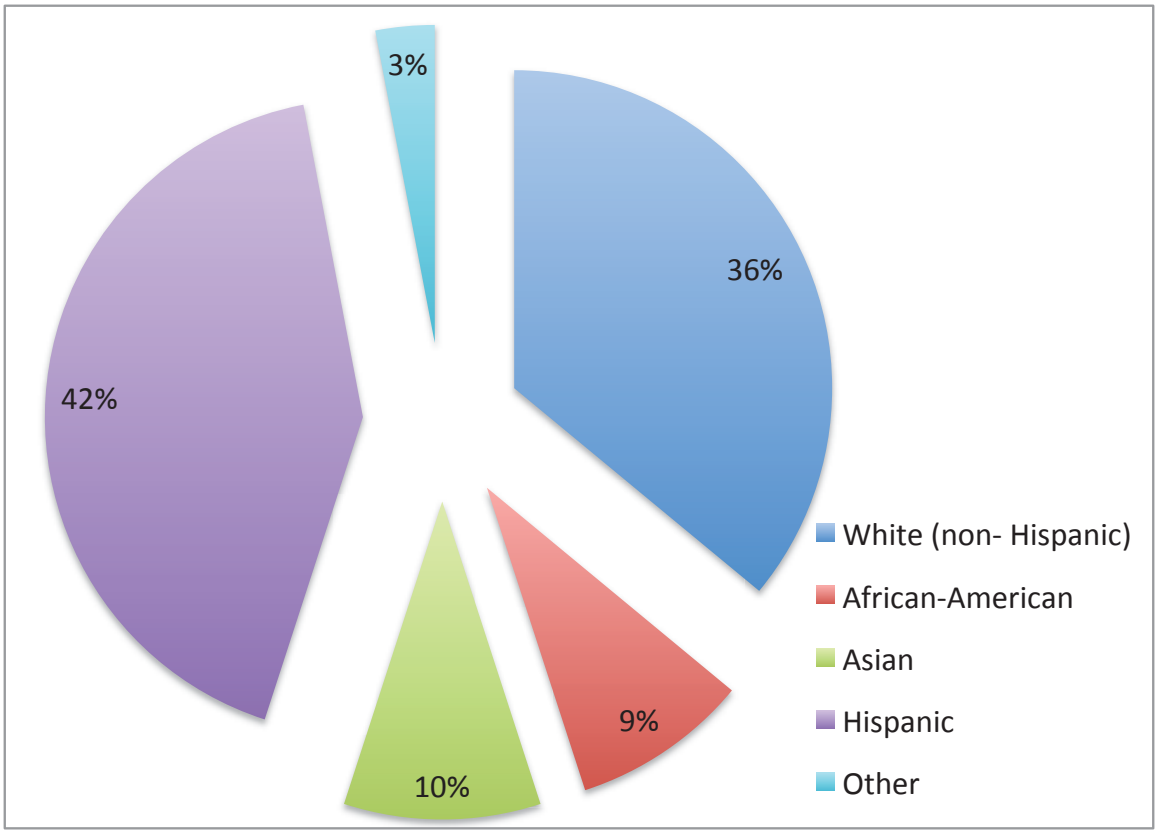


Source: 2011 PUMS.

There is no majority race among California low-income households as shown in Figure 8 below. 42 percent of heads of households reporting Hispanic ethnicity, followed by 36 percent white and 10 percent Asian.

[34] The ACS asks respondents if they speak a language other than English, and if so, what language (allowing only one).

Figure 8: Ethnicity of Head of Household for California Low-Income Population

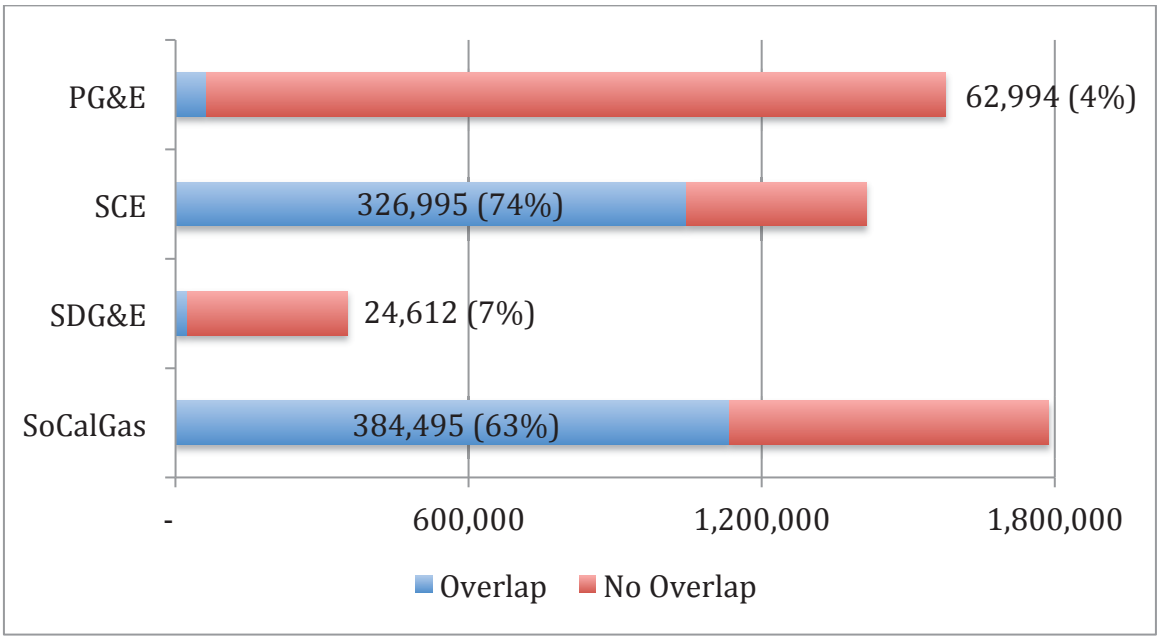


Source: 2011 PUMS.

Figure 9 shows the number and percent of the CARE eligible population for PG&E, SCE and SDG&E that overlaps with SoCalGas; and for SoCalGas, the number and percent that overlaps with the other three IOUs. (The overlap between PG&E, SCE and SDG&E is relatively miniscule[35]). 4 percent of PG&E's, 74 percent of SCE's and 7 percent of SDG&E's CARE-eligible population has gas service with SoCalGas. 78 percent of SoCalGas's CARE-eligible population has electric service with another IOU, predominantly SCE.

[35] Based on our analysis of utility service territories by census block group, the overlap between SCE and PG&E is 1 percent and the overlap between SDG&E and SCE is less than 0.5 percent. There is no overlap between PG&E and SDG&E.

Figure 9: Overlap of IOU Service Territories for CARE Eligible Population



Sources: Athens Research data (for CARE eligible population) and KEMA Inc. RASS data (for percent of households that overlap with SoCalGas service territory)

3.3 Program Accessibility and Barriers to Participation

This subsection summarizes findings and presents conclusions and recommendations related to ESA and CARE program access and barriers. The next and final subsection addresses energy needs.

3.3.1 Program Penetration Findings

This section answers the research questions:

1. *What is the current program penetration rate? How many eligible customers have not yet been served?*

The detailed results are found in Volume 2 – Sections 4.1 and 4.2.

Based on 2012 Athens Research data, 32 percent of California IOU households are technically and income-eligible for CARE and ESA. 95 percent of eligible IOU households were enrolled in CARE as of the end of 2012[36], leaving 5 percent or 207,000 California IOU households not enrolled.

[36] Note that as the IOUs increase post-enrollment verification, the penetration rate is going down as more households are removed from the program.

59 percent of 2012 eligible California IOU households have been treated by ESA during the period of 2002-2012,[37] leaving 41 percent or 1.7 million untreated California IOU households.[38]

3.3.2 Program Outreach Findings

This section answers the research questions:

2. *How do most customers get reached by the programs? What methods are the most effective? How does that differ by customer segment?*

The detailed results are found in Volume 2 – Section 5.2.

3.3.2.1 Program Awareness

Prompted ESA awareness has increased significantly over time based on our phone survey; 68 percent of low-income households are aware of the ESA program and the services it provides (based on a prompted question that included a general program description)—up from 27 percent in 2007, based on the prior LINA study. There is higher awareness of the ESA program and its services among low-income households where English is the primary language based on our telephone survey (73% versus 57% among low-income households where English is not the primary language). However this study's modeling results, discussed below in Section 3.3.3.4, indicate that this does not translate to higher participation.

There is low awareness of the specific brand "Energy Savings Assistance" based on our phone and in-home surveys, which is not surprising given that it is a fairly new name. However, there is much higher awareness of the services offered by the program. Based on the in-home results, ESA non-participants who are not located within low-income communities and lack social contacts are much less likely to know about ESA program services. This finding is consistent with related findings that will be discussed below in Section 3.3.3.1, that rural households[39] are less likely to enroll in CARE based on the CARE penetration model and participate in ESA (with the exception of PG&E) based on the ESA population model.

We could not assess CARE awareness among the low-income population since the sample frame of the telephone survey was based on CARE enrollees. However, we did find that 77 percent of those on the CARE rate are aware of it, with households whose primary language is English having slightly higher awareness of the rate (84% v. 65% among low-income

[37] This estimate includes about 20,000 customers that SCE reported as treated in 2012 that were only enrolled and not treated (since they failed the 3 measure minimum rule). They reported that 68,859 were enrolled and 49,026 were treated.

[38] Note that the 2020 goal for ESA removes homes that have been treated by the Department for Community Services and Development and estimated unwilling homes (which was 5% based on the prior KEMA LINA study.)

[39] The definition of urban and rural is based on county, since that is the geographic information provided for the PUMS data. If a home was in a county that was in a metropolitan area with population of 250,000 or greater, the home was considered to be in an urban area. Otherwise it was considered rural.

households where English is the primary language). Some households have been on the rate for some time, and may not recall that they are still on it, or someone else in the household is enrolled.

3.3.2.2 Program Outreach

Most ESA participants learn about the program from either friends/family/colleagues or from IOU outreach methods, based on our telephone survey. Non-participants who recently became income-eligible for the programs due to a life event were most likely to learn about the program from a social worker or other professional who referred them to support programs, based on our qualitative in-home results.

Low-income households learn about the CARE program based on the same methods as mentioned above for ESA, but with IOU bill inserts being more common than learning about the program from friends/family/colleagues.

Program staff say that with such high CARE penetration rates, it is difficult to find the pockets of remaining eligible customers where they are increasingly relying on data to locate customers and inform targeted marketing strategies. But contractors and program staff report that many of the hardest to reach are often not home and are very difficult to contact. The CARE modeling results, presented below in Section 3.3.3.1, have a consistent finding where penetration is relatively lower in the highest poverty census blocks, where barriers are greatest.

Based on our telephone survey, low-income households overwhelmingly prefer to be reached by mail (this finding does not differ significantly by low-income household segment). This finding is supported by the additional telephone survey result that 82 percent of low-income households receive a paper bill and 62 percent of CARE enrollees mailed in their application. Though these trends may shift due to IOU efforts to expand online bill pay, only a small percentage of low-income households currently pay their bill online or go to the IOU website.

3.3.2.3 Motivations for ESA Participation

Low-income households are most likely to have participated or want to participate in ESA to save money and/or lower their energy bills, based on our telephone survey. The second most common driver is the need for something the program offers.

3.3.3 Program Participation Characteristics and Barriers to Participation Findings

This section answers the research questions:

3. *What are the characteristics of eligible customers that have not been reached by CARE and ESA? How do those differ from those who have? Are there concentrations of certain geodemographic characteristics of underserved customers?*
4. *What fraction of ESA non-participants is willing to participate in ESA?*

5. *What are the main barriers preventing ESA non-participants from participating? What were the main drawbacks for ESA participants?*

The detailed results are found in Volume 2 – Section 5.3 and 5.4.

3.3.3.1 CARE Participation Characteristics and Barriers to Participation

As mentioned above, we developed two models to examine access to the CARE program. We used Athens Research data at the Census block group level that contained rates of CARE eligibility and participation and demographic information. The CARE models examined differences in demographic characteristics of Census block groups that had varying rates of CARE participation and penetration (which is equal to the ratio of participating to eligible customers). The modeling allows the examination of each characteristic, while holding all other characteristics constant. This is a useful tool since many of the characteristics we are attempting to explore are correlated with each other. The modeling helps to tease out what is the most important factor.

We found that census block groups with higher concentrations of the following households have, all else constant, relatively higher CARE participation rates:

- Single-parent households,
- Spanish-speaking households,
- Households with seniors,
- Poverty-level households (income less than 100% of federal poverty level),
- Larger households,
- Non-English/non-Spanish-speaking households,
- Households on public assistance, and
- African-American households.

Census block groups with relatively higher concentrations of higher-income households (with annual incomes of $200,000 and greater) and homeowners have, all else constant, relatively *lower* CARE participation rates. This first model largely reflects characteristics of census block groups that are 200 percent of federal poverty level or below, which is the CARE income-eligibility threshold. The results are not surprising, but do show the program has enrolled larger percentages of customers in census block groups that have characteristics that may be associated with greater needs and/or barriers.

A second model that examined CARE penetration by census block group (the rate of enrolled customers to eligible customers) found that census block groups with a higher percentage of the following households had higher CARE penetration rates:

- Single-parent households
- Spanish-speaking households,
- Households with seniors,
- Larger households,

- Non-English/non-Spanish-speaking households,
- African-American households,
- Households in higher population density areas, and
- Homeowners.

Census block groups with a higher percentage of the following households had *lower* penetration rates:

- Higher-income households (with annual incomes of $200,000 and greater),
- Households at or below 100 percent of the federal poverty level, and
- Higher CARE customer energy usage.

This second model reflects characteristics of census block groups that have higher CARE penetration rates. Some of the characteristics are consistent with the first model; for example, the results suggest that the CARE program has had success enrolling eligible customers that speak non-English languages, likely due to its broad outreach approaches.

However, the second model indicates that the program may need to focus on areas with higher rates of renters (who tend to be more transient and may not pay as close attention to their energy bills and advertising about energy programs such as CARE). However, as we explain below, multi-family renters have relatively lower energy burden and need for the program and may be aware and just not interested in participating since they lack the need.

There may be a need for the program to focus on rural households (who may be less trusting of the IOU and less likely to know they are eligible and/or take assistance) and households at or below 100 percent of the federal poverty level (who may have greater barriers to participating, be less likely to read their energy bills and follow through with a CARE application).

The results also identify that the CARE program may not be reaching as many households that are very low-income. Also, there are areas with high CARE participation rates relative to eligibility (which are by definition medium and higher-income areas) that could warrant further study to ensure enrolled households are actually eligible.

3.3.3.2 ESA Program Willingness to Participate

Based on the telephone survey, we estimate that 52 percent of current ESA non-participants are willing to participate in ESA. This estimate is adjusted to attempt to correct for the non-response bias inherent in the telephone survey. (The original telephone survey self-report estimate is 72 percent.)

The conjoint analysis, based on an addition web-based survey administered to a smaller sample of telephone survey respondents, estimates willingness to participate at 60 percent.[40]

The in-home visits with ESA non-participants estimated that about 66 percent or two-thirds would be willing to participate in ESA. These samples are even more biased than the telephone survey, since telephone survey respondents selected themselves into follow-up surveys. However, they help corroborate the range of estimates from the telephone survey.

Note that if these estimates are used to update ESA program treatment goals, the reasons for not being willing to participate should be factored in. E.g., there are customers who are not willing because they do not want to ask their landlord for permission (23% of the 29% of unwilling customers, or about 7% of ESA non-participants), which the program could try to address, along with other barriers identified in this report. Whereas the CPUC could consider whether customers that do not have a need for the program that are unwilling (which accounts for the vast majority of the remaining unwilling non-participants) could be skipped.

3.3.3.3 ESA Participation Characteristics

We compared the characteristics of ESA participants v. non-participants based on telephone survey self-reported demographics. Households occupying homes that have been treated by ESA[41] are more likely to be or have the following characteristics as compared to households occupying homes that have not been treated by ESA:

- Hispanic
- Lower-income
- Have one or more disabled member(s)
- Lower education
- Longer tenure
- Seniors

Note that 63 percent of participants said they have a disabled member(s) in the home (compared to 54 percent of non-participant homes) – a much higher percent than what is reported by the ESA program (less than 15%). This may be an upper bound based on an expansive definition (see Section 13 for the telephone survey instrument, questions D15a-15e), but it helps illustrate the difference between what a contractor is able to report based on the current rules and the actual disabled rate (which we reported as 31%, in Section 4.3, based on 2011 ACS/PUMS, compared to 34% in 2004).[42]

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[40] Based on an expectation of $10 savings per month, which is about twice the savings that the average participant realized based on the 2013 ESA Impact Evaluation Study (Evergreen Economics).
[41] For the purpose of this study, "treated by ESA" is defined as treated through the ESA program since 2002.
[42] As reported in Section 5.2.1.2, the prior KEMA LINA study estimated that 14 percent of LI households have disabled members and an additional 13 percent have both elderly and disabled members for a total of 27 percent of households that have disabled members. (Based on the study's on-site survey that looked at physical,

There are no statistically significant differences in home ownership, home age, population density, building type, children, number of members in the household, language spoken and employment status.

Note that this is a simple two-dimensional analysis, with many variables being correlated with one another. The ESA modeling results, presented below in the next subsection, help tease out the most important drivers of variation in ESA participation. We also remind the reader that the telephone survey results do not include non-English/non-Spanish speakers.

3.3.3.4 ESA Barriers to Participation

According to our telephone survey, the main reasons that non-participants are not interested in participating in ESA are:

- Needing their landlord's permission, which is reported more often by multi-family renters than single-family renters (more often reported by multi-family residents in buildings with 11 or more units, which might indicate that the issue is related to landlords of larger buildings, or residents of larger buildings).
- No need for the program/appliances are working well, which is reported mostly by single-family homeowners and mobile home occupants.
- Trust/skepticism, which is reported mostly by households in mountain and/or rural areas.

The most commonly cited barriers to participation reported by participants and non-participants who were willing to participate based on the phone survey are:

- Being home during the day/taking time off work, which is reported more often by Spanish-speakers, single-family homeowners and mobile home occupants.
- Having contractors in the home.
- Trusting the contractor, which is reported more often by multi-family renters as compared to single-family renters (which may be because multi-family occupants are less likely to have experience with a contractor).
- Getting landlord's permission, which is reported more often by multi-family renters than single-family renters.

Trusting the IOU and trouble producing income documents were reported as problems the least often. However, these barriers might impact those who did not respond to our telephone survey the most. The ESA population modeling could not explicitly include these barriers since these are not things we could observe from the population data.

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emotional and mental disabilities.) We think that these results may have been misinterpreted, such that the 14 percent estimate of LI households that have disabled members but do not have elderly members was used to support the development of the 15 percent target.

Anecdotally, the in-home non-participant surveys suggested that some non-participants have trust issues, had difficulty keeping their appointments and/or letting someone in their home. These issues were more likely to be observed in our small sample among PG&E customers, seniors and women living alone. The in-home non-participant sample respondents had very positive attitudes towards IOUs (though the sample is biased towards households who are willing to conduct surveys related to IOU energy programs).

The ESA modeling Stage 1 results, based on customer-level population data, allow us to examine each characteristics that might impact ESA participation one by one, holding all other characteristics constant. This approach allows us to determine which factors matter most, since many of the variables that might predict participation are correlated with one another. We are using population data in this analysis, thus we may represent all low-income households. The limitation is that there are only so many variables we may observe in the population data, based on Athens Research, Census and IOU data. The Stage 2 results incorporate self-reported survey data on barriers to participate, but those results do not reflect the population. Together, however, the two sets of modeling results provide a fairly comprehensive picture of barriers to ESA participation. (We offer recommendations for future research to address this study's gaps in Section 3.3.5.)

The Stage 1 modeling results suggest that the ESA program, like CARE, has been successful reaching some segments of customers that might have greater needs and/or barriers: seniors, single-parents, the very poor, non-English speakers (Spanish more than other languages), African-American. Also like the CARE model, with the exception of PG&E, rural households are less likely to participate than urban households. (7 percent of low-income homes are in rural areas, 73 percent of which are in PG&E's service territory. We assume it is likely that that PG&E has had more success reaching rural low-income customers in its service territory because there are many more of them, so it may have been more of a priority. The other IOUs have few rural low-income customers.)

The ESA Stage 1 model also offers some common sense observations about program targeting, with older homes, households participating in other low-income programs, on medical baseline and those with longer tenure on CARE and in their present home being more likely to participate.

CARE participants who have recertified are more likely to participate, which may reflect that such customers are more likely to be truly income-eligible. Higher electricity usage customers are less likely to participate, which might reflect regional or housing stock variables that we were not able to include in the model.

ESA Stage 1 results relating to the housing stock include single-family homes,[43] households located in climate zones where cooling loads are greatest, inland households, households with

[43] Note that this variable was only available for SCE. The Stage 2 model included a variable across all IOUs based on the survey data with home type, but was not statistically significant. We do note that the Stage 2 model is

both electricity and gas service from the IOU(s) and households with electric IOU service (if a SoCalGas or PG&E customers) being more likely to participate. These results may reflect both targeting by the program where the need and/or energy-savings opportunity is perceived to be greater.

There are some inconsistent results related to bill payment delinquency, with customers having a higher number of disconnects and failed payments (except for PG&E) being less likely to participate in ESA, and those with higher numbers of overdue payments, IOU calls related to payment issues and for PG&E, failed payments, being more likely to participate in ESA. We obtained these data late in the study schedule, and with more time we could have analyzed the underlying data to better understand these results. For example, there are very few disconnects and failed payments by CARE participants reported by PG&E and SDG&E (mean of 0.1 or less), but much higher incidence of failed payments reported by SCE (mean of 2.3). SDG&E reports a much higher number of overdue payments (mean of 8.8) compared to SCE (mean of 2.3.

The ESA modeling Stage 2 results are based on the survey data sample, so we can incorporate self-reported information that we lacked in the Stage 1 model. However, this model has the same non-response bias issues as the telephone survey on which it is based. These results are reported in conjunction with the Stage 1 results to try to retain the best of both modeling approaches and reduce the impact of the phone survey bias.

In this model that accounts for self-reported barriers such as lack of trust of a contractor, difficulty being home for appointments and providing income documents, we did not find that non-English speakers, African-American, single-family and single-parent households participate at higher levels. These results may suggest that once those barriers are accounted for, there are no significant differences in treatment rates (even after accounting for self-reported barriers) amongst these segments. The exception is that households that took our Spanish language survey were found to be less likely to participate than those that took the English survey.

However, we did find that "other race" households (Native Hawaiian, Other Pacific Islander, American Indian or Alaskan Native, Guamanian or Chamorro, Samoan or some other race) are more likely than White, Asian and Hispanic households to participate. Similar to the CARE and ESA Stage 1 models, lower-income households (of all households on the CARE rate) and larger households were more likely to participate, and again, lower electricity usage was correlated with enrolling in CARE.

Households that have a member with a chronic medical condition are more likely to participate in ESA, likely due to the effort of the program to target disabled customers. Respondents that said they turn down the heat or cooling to keep their bill down were more

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based on the phone survey data that excludes non-participants who would not respond to a telephone survey, so home type may be an important barrier, though our results are not conclusive.

likely to participate in ESA, complementing the telephone survey results presented previously showing that the program is having a substantial impact on improving participants' home comfort.

Consistent with the ESA Stage 1 model result related to length of time being on the CARE rate, we found that tenure predicts participation, with a greater likelihood of participating for households that have been in their home longer.

The most important drivers of and barriers to ESA participation, based on the Stage 2 modeling results, are:

- (Barrier) Trusting a contractor;
- (Barrier) Getting the landlord's approval;
- (Barrier) Being home for appointments; and
- (Driver/Barrier) Needing something the program offers – if the household perceives the program offers something they need, this is a driver of participation, while this factor may be a barrier to those who do not perceive (correctly or not) that the program will provide them with something they believe they need.

Note that we could not test whether the driver of saving energy was important, because almost every household said that was important. While we are not able to say in the context of this particular ESA modeling effort how important saving energy is as a driver, the survey result itself, in addition to other complementary findings presented in this study, suggests that saving energy is a primary driver of participation. (There is just no variation to explore in the model.) However, we did not examine how much energy savings is worth the hassle factor of participating.

The conjoint modeling is a complementary effort to help tease out the motivations and barriers to ESA program participation. It is based on a smaller sample of telephone survey respondents (all ESA non-participants) who agreed to respond to a web-based survey. It has non-response bias issues, but helps to corroborate the previous findings on barriers to participation. The analysis requires respondents to trade off attributes of participation based on a consistent metric—in this case, dollar savings. The respondent is presented with sets of options, and is essentially forced to determine which are the one or two most important factors that they care about.

In this analysis, we found that energy savings and increased comfort are the primary drivers, which is consistent with the phone survey results of ESA motivations for participating. Note that we did not include options that varied the measures that the program would provide, which is not part of the conjoint analysis of potential drivers and barriers.

Providing income documents was not found to be a major barrier among this sample, which is consistent with the phone survey and ESA modeling Stage 2 results. But these are not conclusive results that this is not a barrier; this issue may be important among non-

participants that were less likely to respond to our surveys (above, we mentioned that anecdotally program staff and contractors mentioned this as a barrier to ESA participation).

The ESA non-participant in-home surveys also explored barriers to participation in our smaller qualitative sample. The primary barrier in that sample was lack of program awareness. Though the program has not had problems having enough leads (the IOUs are restricted by budgets each year), this barrier has not been a problem. As penetration increases in the near and mid-term, this could become an issue.

The second most important barrier was lack of perceived need—respondents who did not use much energy, lived in homes that were already efficient, or sometimes had a non-IOU heating source. This barrier was also noted in the phone survey and program staff and contractor interviews, but is not a true barrier for homes that do not need the program. It is more of an explanation as to why some homes are unwilling to participate. However, homes that use a non-IOU heating source do face real barriers, and the ESA Stage 1 modeling results reinforce this finding.

The in-home surveys found that renters mentioned issues with getting their landlord's permission, consistent with the other research methods, and that providing income documents would not be a barrier. Though as we mentioned previously, households that would not respond to our surveys may have trouble providing documentation; this barrier should be not be dismissed based on our research.

Finally, being home for multiple visits was cited as a potential barrier by non-participants in our in-home sample. This result is consistent with the ESA stage one modeling results.

3.3.4 Conclusions

We offer conclusions on ESA and CARE program accessibility below in the following three subsections, organized around five research questions.

3.3.4.1 ESA and CARE Program Participation by Low-Income Population Characteristics

This section answers the following research question, based on our population models, which are not biased:

6. *Are the programs designed effectively to reach and enroll non-participants based on their characteristics?*

The ESA and CARE programs are reaching many segments of the low-income population that might be considered hard-to-reach such as non-English speakers, African-American households, seniors, larger households, single-parents, and, for ESA, reaching those with a

chronic medical condition, suggesting that the programs are effectively designed to reach those segments.

The CARE program is not reaching as many renters and rural areas, all else constant, suggesting the CARE program could improve its outreach to these customers. Note that two-thirds of low-income renter households reside in multi-family properties, which is 41 percent of the total low-income population (including residents in 2-4 unit buildings).[44] Renter-occupied households are less likely to read their IOU bill inserts and also less likely to stay in their home for as long as homeowners (average tenure of around 6 years compared to 17 years for homeowners). Multi-family renters also have relatively lower energy bills and energy burden, and may less motivated to respond to an IOU request to participate. Rural residents have greater trust issues and also may not be as likely to accept assistance or to know they are qualified.

The CARE program may not be reaching as many households that are very low-income (i.e., households living in small areas with high percentages of households that are below 100% of federal poverty), which might have more major barriers to reaching them (e.g., characteristics we could not include in our CARE model, not related to race, language and household composition, but may be related to immigration status, fear or trust issues). There may also be customers enrolled in CARE that are not income-eligible, as some of our research may suggest.

The ESA program is not reaching as many rural households (except PG&E, which accounts for the nearly three-quarters of the low-income rural population), households with single-fuel IOU service, and households that have been in their homes a shorter period time, all else constant, suggesting the ESA program could improve its outreach to these customers.

The ESA program is reaching many more disabled customers than is being reported (67% of participants report having a disabled household member), suggesting the program is much more successful in reaching households with disabled members than it is able to report.

3.3.4.2 ESA and CARE Program Outreach and Marketing Strategies

This section answers the research questions:

7. *Are the programs designed effectively to reach and enroll non-participants based on their preferences and information channels?*
8. *Are the programs using the appropriate channels to reach all segments of eligible Customers?*

The programs use many methods to reach eligible low-income households, with friends/family/colleague and IOU outreach methods being the most common way that low-

[44] Classifying 2-4 unit buildings as "single-family", about half the renter low-income households reside in multi-family properties, which is 31 percent of the total low-income population.

income households learn about CARE and ESA. The broader marketing methods likely build a foundation of awareness, such that once a direct IOU outreach method is used, the customer is more likely to respond. The programs also coordinate with community organizations, and some IOUs contract with community organizations and private contractors to do targeted door to door outreach. These methods are consistent with what low-income households say are their preferences for being reached based on our telephone survey. However, we do not know if this is true for non-English/non-Spanish speaking households. However, both the ESA and CARE programs have successfully reached those other language speakers, based on the population model results.

3.3.4.3 Addressing Barriers to ESA Participation

This section answers the research questions:

9. *Is the ESA program designed effectively to overcome non-participant barriers? And take advantage of what might drive future participation? And to improve the experience for participants?*
10. *Are enrollment and eligibility requirements preventing participation?*

The ESA program is all else constant, reaching fewer renters, especially multi-family renters, and renters that are concerned about seeking permission from their landlord (particularly those in buildings with 11 or more units). The program is also reaching fewer low-income rural residents in SCE, SoCalGas and SDG&E service territories (which only account for 2 percent of the total low-income population). Households that only have IOU service for a single fuel[45] are less likely to be treated by the ESA program, though our research did not assess the extent to which other programs such as LIHEAP are able to fill that gap. Some contractors that provide service in overlap areas may contract with both IOUs, but not all do.

Additional barriers that impact ESA participation, based on the Stage 2 modeling results, are households having trouble being home for multiple appointments and trusting contractors to be in the home.

Our research did not conclusively determine whether having access to and/or being willing to show income documents and trusting the IOU are barriers. This is a gap in our study that we recommend a future study address, below.

3.3.5 Recommendations

We offer recommendations on ESA and CARE program accessibility below in the following three subsections, addressing the following three research questions:

11. *What sources could the programs leverage or leverage more to increase participation?*

[45] About 74 percent of SCE and 63 percent of SoCalGas's CARE-eligible customers are served by the other single-fuel IOU. Roughly 650,000 CARE-eligible SoCalGas customers do not have IOU electric service.

12. *What improvements could be made to reduce barriers and increase and improve ESA participation?*
13. *What are the pros and cons of modifying ESA program requirements that might be impeding participation?*

3.3.5.1 General Program Outreach Methods

We offer the following recommendations related to program outreach that apply to both programs.

- The programs should continue past successful approaches that have lead to higher penetration rates among many hard-to-reach segments.

The programs have conducted marketing and outreach using a wide variety of channels, attempting to reach customers who speak different languages and those with disabilities that may have additional barriers to accessing the programs. Our research, based on population data, indicates that the programs have been successful in enrolling many hard-to-reach low-income population segments including those that speak non-English languages, African-American households, single-parent households and households with seniors.

- The programs should consider expanding outreach channels to address renters, particularly sing-family renters (which have greater energy burden, as explained below) and rural areas, which have unique issues.

The ESA program is already aware of the barriers to reaching renters, and they are working to improve landlord and tenant forms. Some IOUs offer renters basic measures even if they lack permission from their landlord. We offer recommendations around attempting to better meet the energy-related needs of renters in Section 3.4.5. We specifically focus on single-family renters, since they have a higher energy burden (presented in Section 3.4.1) than multi-family households and also because a concurrent study has just been released on the multi-family low-income sector that offers recommendations specifically for that sector.

Renters move around more than homeowners (average tenure of around 6 years compared to 17 years for homeowners), and the IOUs could explore increasing the follow-up with households on CARE that move. They could do research to determine if it would be effective to automatically enroll a household that moves, and then do post-enrollment verification for households that moved into an area with a higher average income than the area in which they previously lived. Since renters are less likely to read their bill inserts, the IOUs could look into outreach campaigns specifically for renters, or at least bill inserts that are targeted to renters.

For CARE, to reach rural residents may require more outreach with churches and senior centers (rural low-income households attend church more frequency than urban low-income households), since the low-income residents in lower population density areas are spread out and may not hear about the program via word-of-mouth as often. Rural residents also tend not to trust the IOU as often, tend to be unaware they are eligible and are less likely to accept assistance.

For ESA, since the majority of rural low-income households are located in PG&E's service territory (only 2 percent of low-income households live in rural areas served by IOUs other than PG&E), there may be a low priority placed on the other IOUs to reach the remaining rural low-income residents.

- The ESA program should continue the combination campaigns that do outbound calls/direct mail and then door-to-door canvassing, since those are common methods that participants learned about the program, and could be a good strategy to reach "pockets" of low-income households that are outside the more core areas that are reached by low-income community-based organizations.

Our study showed low-income households in general prefer to be contacted by mail about programs such as ESA. Also, we found that participants learn about ESA based on word of mouth, IOU bill inserts, phone calls and visits. The IOUs have increasingly relied on combination campaigns that make use of data such as recent CARE enrollments to identify potential ESA participants. The IOUs have not had a problem identifying enough prospective customers to meet their goals. The logistics of implementing ESA are more of a constraint, and the IOUs have honed their methods for effectively managing program implementation.

- To ensure that the newly low-income households are aware of the program, the IOUs could explore how to expand efforts that promote the CARE program through social workers, hospitals, low-income law centers and other agencies that interact with individuals who are going through life changes that might be associated with reductions in household income.

Through our in-home visits, we found some ESA non-participants that had learned about the CARE program from a social worker or other agency worker that they had encountered while getting assistance for a major life change such as a death in the family or a divorce. These channels may not lead to major increases in enrollment, but could provide assistance to needy households. It also may help address low-income households that are in rural areas or otherwise outside the urban core, where they would be less likely to learn about assistance programs based on word of mouth.

3.3.5.2 Overcoming CARE Barriers to Participation

We offer the following recommendation related to addressing remaining barriers to CARE participation.

- The CARE program should explore how to increase the penetration rate (i.e., the ratio of the number of customers enrolled to the number that are estimated eligible) in very high poverty areas.

This study found that the quartile of census block groups with the highest rates of households below the federal poverty level have the lowest CARE penetration rates. (Note that they have the highest participation rates, but the lowest penetration rates.) There may be greater barriers to reaching these customers, including safety issues for contractors doing outreach.

The IOUs already partner with many community groups, but they could explore ways to increase the impact that those partnerships have. The IOUs could continue or perhaps expand the use of the Athens Research data to identify specific census block groups that have high poverty but relatively lower penetration rates and determine characteristics that might inform marketing and outreach strategies. These strategies could be tested, measuring success by increases in penetration rates for those targeted areas.

Below we recommend further research be conducted to fill the gaps that were not addressed by this study (i.e., non-English/non-Spanish speakers and those with major outreach barriers), and such research might be helpful to provide more detail on the barriers associated with very high poverty areas.

Two of the IOUs are using paid contractors for CARE canvassing, providing the contractors with data on which customers are enrolled or not. We did not assess the effectiveness of this strategy. It might be useful to explore the cost-effectiveness of using contractors to increase CARE participation in specific areas. (The IOUs all informally coordinate with many community-based organizations, and pay a "capitation" fee for enrollments, but organizations do not formally contract with the IOUs and receive IOU data. Thus the impact of this arrangement is not significant, but anecdotally was much greater in the past when penetration rates were lower. However, we do not recommend any changes to it since it is an approach that seems to strike an appropriate balance: the organizations have one more program to offer their clientele, yet they do not have to meet rigorous data or other contractual requirements with the IOUs, that might limit the participation of organizations or take away from their broader missions.)

- The IOUs could research higher user customers, which have lower rates of CARE enrollment relative to estimated eligibility.

We found that higher usage customers were less likely to enroll in CARE relative to the eligibility rates that were predicted in small areas. When we examined this issue, we found it was the top 10 percent of higher users that were associated with lower penetration rates, so it may be anomalous situations that do not lend themselves to easy (and cost-effective) solutions. In Section 3.4.1, we present results on energy burden, which incorporates income, and is probably a better way to screen customers for program need.

3.3.5.3 Overcoming ESA Barriers to Participate

We offer the following recommendations related to addressing remaining barriers to ESA participation.

- The ESA program should be able to skip over treating households that do not want to participate in the program because they do not need it or want anything that is offered, such as for multi-family homes that have relatively lower energy burden. The goal for ESA treatment should be updated to make use of the new data provided by this study.

Willingness to participate in ESA is estimated at 52. Some of these households are not willing to participate due to barriers the ESA program could try to address, such as getting permission from the landlord (7% of non-participants). But there are other households who say they do not need the program that should be skipped. There are also households that though they may qualify, have a lower energy burden, and the program could consider that when developing priorities for treatment. We offer a more comprehensive set of recommendations around energy burden in Section 3.4.5.

The IOUs are already starting to track refusals, though such data was not available for this study, it could be used in the future to refine goals and program strategies for addressing barriers.

- The ESA program could try to target households that re-enroll in CARE after moving to ensure that those that move around a lot (such as renters) participate in the program in greater numbers.

These households could be placed higher on the ESA treatment queue to ensure that households that move get more equitable treatment.

- The ESA program could continue refining its outreach strategies to try to overcome the barrier of households who do not want a "hand out".

Our qualitative research based on program staff interviews and in-home visits with ESA non-participants found that this is a barrier, and the IOUs have tried to market the program as providing benefits (i.e., saving energy and the environment) that will benefit everyone. These efforts should be continued. Sharing information about how many homes in their neighborhood have participated and how much energy has been saved might also be explored, since often people are motivated to do what they perceive is the norm.

- The ESA program could continue refining its implementation strategies to reduce the number of visits so that households that refuse to enroll due to difficulties being home for subsequent visits may participate in greater numbers.

The IOUs have honed their implementation strategies over the years to try to reduce the number of visits, but there are still households that may refuse enrolling if there is going to be one or more follow-up visits. Our telephone survey research found that this was the most commonly cited difficulty associated with participation, based on participants' actual experience and non-participants' expectation of participation after we described the program. The ESA modeling also found that being home for visits was a potential barrier to participation.

The IOUs could explore offering those households more limited participation based on measures that could be installed during their outreach visits, such as energy education, lighting and basic weatherization measures. Such homes could be recorded as partially

treated and put on a list for contact to try to schedule follow-up visits. The IOUs could track data to determine the cost-effectiveness of such a practice.

- The ESA program should continue coordinating with community organizations and contracting with them to conduct outreach to overcome barriers related to lack of trust in contractors.

The IOUs use both private and non-profit contractors to implement the ESA program, and they should continue their partnerships with community-based organizations for outreach to help reach households who lack trust in contractors and are more likely to sign up with a trusted individual from their own neighborhood. Co-branding with the IOUs should continue, since at least among our telephone survey sample, trust of the IOU was not found to be a barrier.

- The IOUs should continue to coordinate with each other and improve the experience of households that have service with two different IOUs, and coordinate with LIHEAP to improve treatment of homes that use a non-IOU heating fuel source.

This recommendation is further fleshed out in Section 3.4.5.

3.3.5.4 ESA Messages for Marketing

We offer the following recommendation related to ESA marketing.

- The IOUs should continue to promote the ESA program based on saving energy and reducing energy bills/cost, since our study found that to be the main participation driver. Marketing messages should also emphasize comfort and the measures that the program offers, which are also perceived as benefits by participants and are participation drivers.

Though it is difficult to market the program based on measures, since it is never clear which measures the customer will be eligible for until after an individual assessment, the programs could market the programs based on tangible benefits of reducing their energy bills and improving the comfort of their home.

3.3.5.5 ESA Brand Awareness

We offer the following recommendation related to ESA brand awareness.

- The program should consider establishing a clearer identity and brand for ESA, by which customers consistently hear about the program and are able to refer to it when discussing with their friends, family and neighbors.

The most common way that customers learn about ESA is through word of mouth, but awareness of the actual program name is low. Once explained about the program, awareness is high. Currently the programs are not suffering for lack of leads, but that could change as penetration increases. And such marking efforts take time to build effectiveness, so once it becomes an issue it may be too late to build an effective marketing campaign.

It may have been shortsighted to change the name of the program to something consistent statewide that is difficult for contractors, program staff and likely customers to refer to. We found that only one stakeholder during our research effort used the full name of the program (and only once, when informing us that the program is not supposed to be referred to by its acronym), while all others that we interacted with (the researchers included) used the acronym "ESA".

3.3.5.6 ESA Disabled Target

We offer the following recommendation related to the ESA disabled target.

- The program should consider updating its ESA disabled target based on this study's data. However, any goal for reaching disabled customers should also take into account the discrepancy our study reveals between what the program reports (which is based on observation of an obvious disability during assessment) versus what a participating household reports about all the members in the home.

Our study reports that 31 percent of low-income household have one or more members that are disabled, based on the ACS/PUMS data (Section 4.3.1). The program goal is currently 15 percent, and the program has not quite met that goal. Our participant telephone survey results indicate that 63 percent of households treated by ESA since 2002 report that they have at least one or more member who the respondent reported as disabled.

3.3.5.7 ESA High Users

We offer recommendations related to high users in Section 3.4.5.

3.3.5.8 CARE Post Enrollment Verification

We offer the following recommendations related to CARE post enrollment verification (PEV):

- The IOUs should continue the use of data and targeted post-enrollment verification for the CARE program to reduce incidences of households being on the rate who are not income-qualifying, while not removing customers who truly qualify.

There is a balance that must be struck to try to remove customers who do not qualify, while not impeding the participation of customers who do qualify. The IOUs are increasingly relying on data and more sophisticated verification of CARE enrollees. These efforts should be continued and their effects monitored. It is very difficult to do research with customers who do not respond to such requests, but the IOUs could consider conducting research with customers who do not respond to PEV requests to better understand the implications of verification efforts (e.g., how many actually qualify for the program of those that do not respond to requests) to inform future efforts.

3.3.5.9 Further Study of Barriers to Participate in ESA

We offer the following recommendations related to further study to address gaps in this study.

- The IOUs and CPUC should consider focusing resources for the next low-income needs study on non-English/non-Spanish speaking low-income households that were excluded from this study's primary research (around 16 percent of the low-income population.)

While our population modeling efforts addressed all low-income customers, we could not include telephone survey results on self-reported barriers for the ESA program for non-English/non-Spanish low-income households, which comprise 7 percent of the state's low-income population.[46] These customers may have unique barriers that were not identified by this study. For example, contractors and program staff indicated that lack of or unwillingness to provide income documentation is a barrier for some households, which we did not corroborate with our primary research. This is anecdotal evidence that this is a barrier at least for some low-income households that we did not uncover with our study approach.

We excluded these customers from our primary research due to the cost and time required to address the many languages that low-income households speak in California, so such research will be relatively expensive and require more time than this study's approach.

- Future research efforts could consider including a general population survey, which our study did not include.

Such a survey could allow for comparisons with low-income households for such issues as energy insecurity (presented in Section 3.4.1) and also include some CARE non-participants. However, for the latter issue, it may not be a representative sample unless considerable efforts are made to address non-response bias since the CARE penetration rate is so high (even if it is actually lower than reported, it is still a relatively high rate among the eligible population for this type of research).

3.4 Energy Needs

This final subsection summarizes findings and presents conclusions and recommendations around energy needs, including energy burden.

3.4.1 Energy Burden

This section answers the research questions:

14. *What is the extent of the energy burden among eligible customers? How has that changed since the last LINA study? What segments have the most burden and experience the most insecurity? How do ESA participants v. non-participants differ in terms of their burden?*

[46] This is based on combining the linguistic isolation variable (which is households where no one over 14 speaks English very well) with the primary language variable from the ACS/PUMS to identify households that are linguistically isolated and whose primary language is not Spanish.

The detailed results are found in Volume 2 – Sections 5.5.1 and 5.5.2.

There are three different sources from our study that inform energy burden and energy insecurity: two sources based on the phone survey sample, and a third source from the ESA non-participant in-homes.

First, we calculated mean energy burden for the phone survey sample (weighted to reflect the low-income population) based on self-reported annual income and IOU billing data, equal to the ratio of energy cost to reported income. Second, we assessed energy insecurity for the phone survey sample (weighted to reflect the low-income population) based on respondent self-reported incidence of behaviors that demonstrate the extent to which the household is facing a hardship due to the cost of their energy usage. Third and finally, ECW qualitatively assessed the degree of financial constraints based on observation and respondent self-report for the sample of ESA non-participant in-homes.

The methods are internally consistent:

- Low-income households that we classified as "highly" energy insecure based on their responses to an energy insecurity battery have a higher mean burden (13.4% compared to the average of 8.0%).
- Respondents to the in-home survey who had greater self-reported and observed "financial constraints" had higher levels of both burden and insecurity.

3.4.1.1 Mean Energy Burden

We calculated the mean energy burden for low-income customers by calculating the ratio of energy expenditures (based on actual IOU billing data) to self-reported annual income based on our study's telephone survey.[47]

The mean energy burden for the low-income population is estimated at 8.0 percent.[48] This is likely a higher bound estimate since the low-income population would tend to have a greater proportion of their expenses covered by subsidies such as government assistance for housing, child care and/or food and earned income credit.

The mean energy burden for the low-income population is statistically unchanged from that reported in the prior LINA study published in 2007.[49] The low-income mean energy burden is estimated at 1.8 times the general population's mean energy burden.[50]

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[47] The telephone survey collected income in ranges. That is, customers reported having an annual household income in a range (e.g. "Less than $5,000 per year"). Please see telephone survey in Volume 3 Section 13, Question D12 for question wording and income range categories.
[48] Based on taking the mean of customer-level ratios of energy burden.
[49] Although the prior LINA was published in 2007, the data reported therein were collected in 2005.
[50] We calculated the general population's energy burden based on Census income data and IOU billing data at the zip code level.

The mean burden for ESA participants is 9.1 percent, compared to 6.7 percent for ESA (income-eligible) non-participants, due to higher non-participant income. Non-participant income is on average 30% higher than participants, and non-participant energy usage is 2.5% higher than participants'. This difference may also be due to participants "self-selecting" themselves for participation in ESA based on having a higher energy burden and thus a greater need for the program.

We also found that households that try to save energy in their home "most or all of the time" have about the same mean energy burden than households that try "sometimes" (7.6 percent).

Regions with higher mean energy burden among low-income households are (as compared to 8.0% across the low-income population):

- The Central Valley (climate zones 11-13) (11.2% annual, 13.6% winter)
- PG&E's service territory, which has the climate zones and regions with the relatively higher burdens (9.9% annual burden)
- The North Coast (climate zones 1-5) (9.7% winter burden)
- Households that said that climate or weather was a barrier to saving energy in their home (19.5% annual burden).

Demographic characteristics associated with higher mean energy burden among low-income households are:

- The very poor (by definition, since burden is based on income) – income less than $15,000 (16.4%)
- African-American (10.7%)
- Single-family renters (9.7%)
- Speaks a non-English/non-Spanish language[51] (9.1%).

Household characteristics associated with higher mean energy burden among low-income households:

- Reports being sick often due to home conditions (13.6%)
- Income has changed recently due to loss of job or fewer hours (9.4%)
- Presence of a disability (9.3%).

3.4.1.2 Energy Insecurity

We developed a summary energy insecurity measure based on the frequency with which respondents said they or others in their home do the following – a lot, sometimes or never:

[51] We remind the reader that this is a biased sample of non-English/non-Spanish speakers, since to respond to our survey someone in the household must have spoken English or Spanish. Our survey does not include households that *only* speak a non-English/non-Spanish language.

- Cut back on food or medicine in order to pay utility bill.
- Borrow money to pay utility bill.
- Receive a disconnection notice for utility service.
- Had utility service shut off.
- Use heat or cooling less than needed to keep utility bill lower.
- Use kitchen stove or oven to heat home.

We classified a household as having "high" energy insecurity if they said they experience at least two of the insecurity measures "a lot" and "never" experience two or fewer measures. We classified a household as having "low" energy insecurity if they said they "never" experience at least three of the measures and did not say they experience any of the measures "a lot". The remainder is classified as having "medium" energy insecurity.

Based on this classification, we estimate that 6 percent of the low-income population is highly energy insecure, 37 percent has "medium" levels of energy insecurity and 57 percent have low energy insecurity. While we could compare energy burden to the general population, we could not do so for energy insecurity since the study did not include a general population survey.

Similar to energy burden, participants are more likely to be highly energy insecure – 7 percent v. 4 percent of non-participants (another 41% of participants have medium energy insecurity v. 33% of non-participants).

Segments within the low-income population that have higher insecurity are:

- Single-family renters are more likely to be insecure (7% are highly insecure and 39% have medium insecurity).
- "Other" language speakers[52] are more likely to be insecure (10% are highly insecure and 48% have medium insecurity).

3.4.1.3 Qualitative Assessment of In-Home Non-Participant Sample

We assessed the degree to which ESA non-participants experienced financial constraints based on a combination of self-report and auditor observation. We developed three categories based on this combination. The in-home visits with ESA non-participants estimated that just over half faced "elevated financial constraints"; 20 percent had a "substantially elevated level of financial distress" and about 25 percent "appeared more like a middle class household than a low-income one". We compared this assessment with phone survey burden and insecurity analyses for the same sample:

- Those with no financial constraints had an average energy burden of 6 percent, none were highly energy insecure and 10 percent had medium insecurity.

[52] Ibid.

- Those with small financial constraints had an average energy burden of 7 percent, 5 percent were highly energy insecure and 34 percent had medium insecurity.
- Those with medium financial constraints had an average energy burden of 10 percent, 5 percent were highly energy insecure and 47 percent had medium insecurity.
- Those with large financial constraints had an average energy burden of 6 percent, 7 percent were highly energy insecure and 43 percent had medium insecurity. This somewhat inconsistent result (with lower energy burden for households with larger financial constraints) is due to two outlier households that have very high burden that are in the moderate category. The median burden across the two groups is about the same (and is higher for the large financial constraint group, if the two outliers are removed).

Characteristics of ESA non-participants that we found to be correlated with higher financial distress, based on our qualitative assessment of the in-home sample, are:

- Presence of medical condition or disability
- Large number of children
- Multi-family[53]
- Households with seniors
- Households managed by young adults.

3.4.2 ESA Measure Benefits

This section answers the research question:

15. Which ESA measures contribute to the most benefit?

The detailed results are found in Volume 2 – Section 5.5.3.

A majority of ESA participants said they noticed changes (either "a lot" or "somewhat") in their safety (64%) and comfort (65%) and reduced bills (81%) as a result of ESA participation. 44 percent said they noticed an improvement in their health as a result of participating in ESA.

We found that HVAC and weatherization measures are most likely to generate improvements in health, comfort and safety. Larger households and homes with children were more likely to

[53] Multi-family households have lower incomes than single-family households, but they also have lower energy usage due to less energy-using equipment and smaller sized homes as reported below in Section 3.4.3.1 and in more detail in Volume 2 – Section 4.3.2, resulting in multi-family households having lower energy burden than single-family households (with single-family renters having the highest energy burden compared to single-family homeowners and multi-family low-income households). As noted above, energy insecurity was also highest for single-family renters compared to the other home type/ownership segments.

mention they noticed these benefits. (There are more members to experience benefits, and as presented in the next section, there are greater energy needs among larger households.)

We also found that HVAC and weatherization measures were the most common measures that generated benefits among participants and prospective non-participants. The next most beneficial measure was a refrigerator. There were no measures that ESA offers that we found were not beneficial based on our research methods, either to those who participated and received them, or non-participants who responded about the usefulness. (We did not look at measure cost-effectiveness. Our assessment of "needs" and "benefits" was also largely based on self-report with some observation by in-home auditors, but it was not a robust effort.) We did find in the low-income home and equipment characterization that there not much need for water heater replacement, with only 78 percent less than 10 years old.

3.4.3 Addressing Energy Needs

This section answers the research questions:

16. *What support and services (including energy efficiency measures) do customers need to address their energy-related needs? What is needed most? Do the needs differ by customer segment/characteristics? Which needs are the highest priorities?*

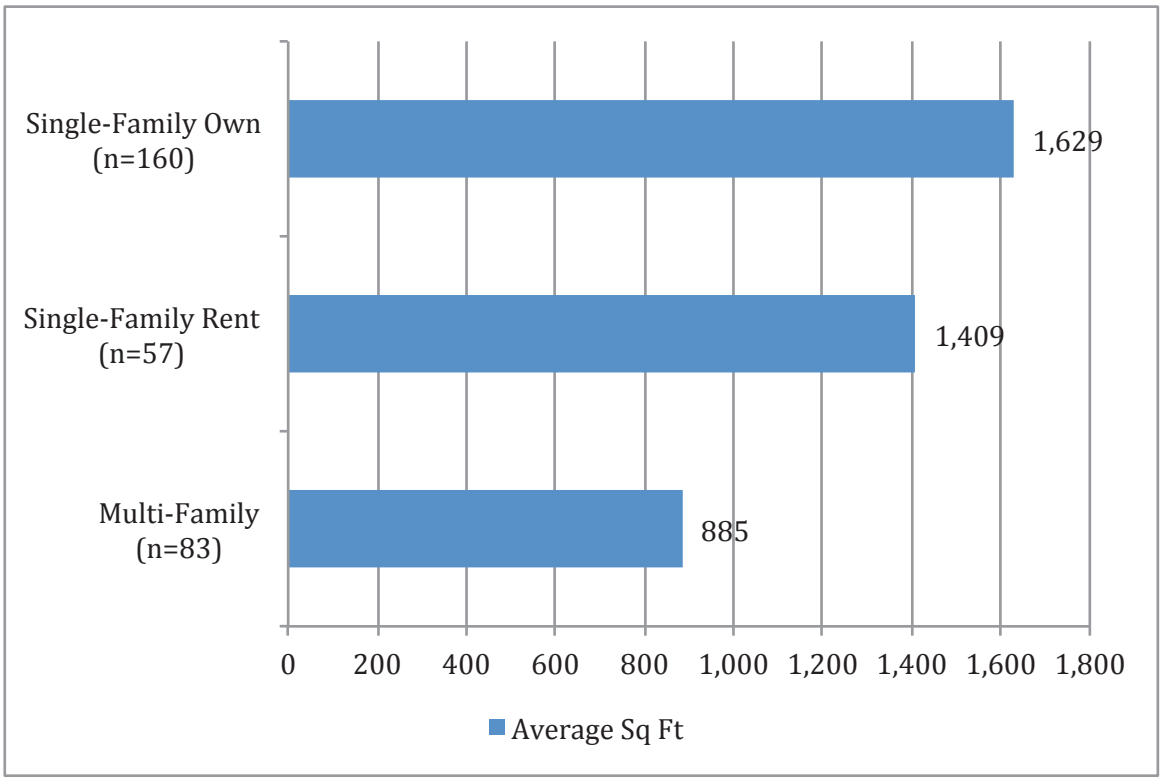
The detailed results are found in Volume 2 – Sections 4.3, 5.5.3 and 5.5.4.

3.4.3.1 Characterization of Low-Income Homes and Energy-Using Equipment

Based on our analysis of KEMA's on-site survey CLASS data, we were able to characterize the major energy-using equipment for the IOUs' low-income population. We supplemented these findings with additional information from our telephone survey.

We used these data to estimate the average home square footage for the low-income population, which is 1,311 square feet, compared to 1,643 square feet for the state's general population. As shown in Figure 10 below, single-family homes are larger than multi-family homes, with single-family homeowners having the largest homes.

Figure 10: Average Square Footage of Home – By LI Home Type For California LI Population



Source: 2013 CLASS.

Below we summarize the main findings from Section 4.3.2 to provide context to the assessment of energy needs. Note that the equipment age data is based on 2013 research (the CLASS and our study's telephone survey). We often used 10 years as a category of equipment age to report, even though the effective useful life of most equipment is longer. This is because many decisions that are made about measures do not impact programs right away, so we wanted to include all the potential equipment that could be considered for replacement over the mid- to long-term.

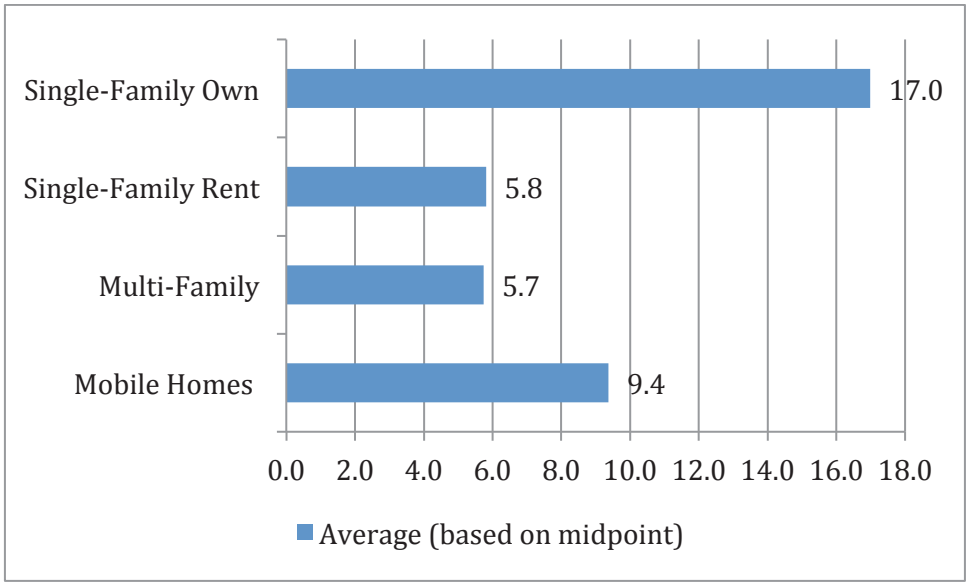
- Heating systems:
  - 11 percent of low-income household's primary heating systems are electric which is equivalent to the general population, with SDG&E having a higher proportion (25%) and SoCalGas having very few (3%) low-income households with electric primary heat.
  - Multi-family households are more likely to have electric primary heating.
  - Almost half low-income households (47%) use a natural gas furnace compared with 61 percent in the general population.
  - 27 percent of low-income households use a natural gas space or wall heater compared with 14 percent in the general population.

- 6 percent of low-income households use propane, wood or coal for their primary heat versus 5 percent in the general population.
- Based on our telephone survey, more than half of low-income homes have a furnace that is over 10 years old – suggesting some energy savings potential for early furnace replacement, though programs have found that measure not to be cost-effective.

- Cooling systems:
  - 32 percent of low-income households have central air conditioning and another 25 percent have room air conditioning (most prevalent in SCE and SoCalGas service territories), about half (53%) of which is over 10 years old as of 2013.
  - This compares with 47 percent of general population households with a central air conditioning and 15 percent with a room AC, with 60 percent over 10 years old.
  - Single-family owners most likely to have central air conditioning (45% v. 26% of single-family renters), but combining central and room air conditioning, it is about the same across single-family renters v. owners (around 75%).
  - Multi-family households are less likely to have central air conditioning (23%) and room air conditioning (24%).
  - Evaporative coolers are primarily found in single-family homes – 9% (1% of multi-family homes have evaporative coolers).
- Water heating:
  - 81 percent of low-income households use natural gas for water heating compared to 84 percent in the general population (of those that have their own system) with 8 percent using electric in low-income households versus 6 percent in the general population.
  - 22 percent of low-income household water heating units is 10 years old or older versus 16 percent in the general population.
  - 1 percent uses solar water heating, which is equivalent to the general population.
- Insulation:
  - 35 percent of low-income households have no wall insulation (note this particular result is based on a small and possibly biased sample size), compared to 26 percent in the general population.
  - 46 percent of low-income single-family renter homes and 32 percent of multi-family homes have no wall insulation. (Note that multi-family homes are less of a concern since most are interior walls).
- Refrigerators:
  - 22 percent of low-income households have 2 or more refrigerators compared with 29 percent in the general population.
  - 18 percent of all refrigerators, including both primary and secondary units, are between 11-15 years of age and 13 percent are 16 years of age or older.
  - Refrigerators in the general population tend to be slightly older with 24 percent between 11-15 years old and 16 percent older than 16 years old in 2013.

- Appliances:
    - 50 percent of low-income households have a dishwasher (74% in general population), 68 percent have a clothes washer (81% in general population) and 66 percent have a clothes dryer (79% in general population) – mostly fueled by natural gas.
    - Based on the telephone survey, about half of these appliances are likely more than 10 years old.
- Lighting:
    - 41 percent of bulbs in low-income households are CFLs – more than in the general population (34%). This is corroborated by phone survey results, where 47 percent of low-income homes reported that they have more than half or all CFLs.
    - Even though the saturation is fairly high among low-income households, there is still potential to install CFLs (or potentially LEDs), since an estimated 41 percent are incandescent.
    - There exists potential for lighting controls including dimmer switches, occupancy sensors and timers, since 86 of fixtures in low-income homes lack controls.
- Windows/doors:
    - Based on our telephone survey, 37 percent of low-income population says one or more windows are either not working or in need of repair.
    - Based on our telephone survey, 30 percent of low-income population says one or more doors are either not working or in need of repair.
- Cooking:
    - Based on our telephone survey, 25 percent of low-income population says their stove and/or oven are either not working or in need of repair.
    - Based on our telephone survey, 16 percent of low-income population says their microwave oven is either not working or in need of repair.
- Tenure:
    - Average tenure for low-income households is 9.2 years compared to 9.5 years for the general population based on the ACS/PUMS data. Figure 11 below shows how that varies significantly by home type and ownership. Homeowners in general have the longest tenure.

Figure 11: Length of Time Residing at Present Address - By Housing Type and Ownership For California LI Population



Source: 2011 PUMS.

Based on our telephone survey, ESA participants still have remaining unmet needs:

- Between 20 and 40 percent of ESA participant homes have windows, doors, stove/oven, furnace, microwave ovens, refrigerators that they say need repair or are not working.
- Between 10 and 20 percent of ESA participant homes have clothes washers, central air conditioning, water heaters, dishwashers, clothes dryers or room air conditioners that need repair or are not working.

We found that single-family renters have greater energy-related needs and barriers to participation, based on our telephone survey and population models. Also, our modeling results found that renters who feel that getting their landlord's permission is a barrier are less likely to participate in ESA, all else equal. Multi-family tenants also have barriers since they are renters – but they have lower energy usage, energy insecurity and mean energy burden since they have smaller homes, their systems are more likely to be centrally provided and there is less need for insulation at least for interior units. (Average annual fuel costs based on the ACS/PUMS data, which uses a representative sample, for multi-family low-income households is $918 compared to $1,699 for single-family renter low-income households.) The Multi-Family Segmentation Study that is being released this year provides greater characterization and assessment of multi-family low-income households' needs.

Below we provide a summary of characteristics of the renter low-income population, and specifically for single-family renters, based on the CLASS and ACS/PUMS data reported in

Section 4.3 of Volume 2 of this report (with more detail provided in Sections 7 and 8 of Volume 3 of this report.)

- 64 percent of low-income households are renter-occupied compared with 44 percent in the general population; 23 percent of low-income homes are renters in single-family homes and 41 percent are renters in multi-family homes.
- Single-family renters annual fuel costs are among the highest (with single-family owners).
- Single-family renters have older homes on average (46.5 v. 41.7 in the low-income population and 40 years in the general population as of 2011) and have much shorter tenure than single-family owners and mobile homes – multi-family and single-family renters have been at their homes on average 6 years v. 17 years for single-family own and 9 years for mobile homes as of 2011). They are a more transient population that is harder to reach.
- Single-family renters and multi-family more likely to have space/wall heating than a central heater (26% and 40% v. single-family own 15%) – which may be more difficult to provide comfort throughout the home, and may cost more to heat the home if they aren't in all the zones
- Single-family renter low-income households have a larger fraction of Hispanic household members (52% v. 42% in all low-income households v. 28% in general population households).
- Single-family renters are twice as likely to be linguistically isolated than the general population (19% v. 10%) but slightly less likely to be linguistically isolated than the low-income population in total (19% v. 20%), more likely to speak Spanish (46% v. 38% in the low-income population and 25% in general population).
- Multi-family households even more likely to be linguistically isolated (25% v. 20% in low-income population).
- Single-family renters have larger household sizes – 3.78 (v. 2.98 in the low-income population and 2.77 in the general population) and are much more likely to have children (65% v. 46% in the low-income population v. 37% in the general population). Our telephone survey indicated that larger households accrue more energy benefits from participating in ESA, a consistent finding.
- Single-family renter households much less likely to have senior(s) in the home (13% v. 26% in the low-income population and 25% in the general population), slightly less likely to have disabled member(s) (28% v. 31% in low-income population v. 22% in the general population) and the head of household is more likely to be working (50% v. 43% v. 63% in the general population). These households are probably less likely to be home and harder to reach.
- Single-family renters' head of households have less education than the other home types except mobile homes (9% have their bachelor's degree or higher v. 14% of all low-income households v. 34% in the general population).

Our population modeling results found that rural households are less likely to participate in CARE and outside of PG&E's service territory, less likely to participate in ESA. Characteristics of rural households are provided below.

- Rural households are more likely to reside in single-family homes (60% v. 51%) and less likely to be rent their homes (53% v. 64%).
- Rural households are much more likely to be English-only (71% v. 46%) – only 9 percent are linguistically isolated (v. 20%) – 61% are white v. 20%.
- Rural households are less likely to have children in the home (39% v. 46%), more likely to have a disabled household member (40% v. 31%).
- Rural households have much higher fuel costs ($1731 v. $1425), only 39% have natural gas heating – v. 59% - harder for IOUs to serve.

Since our telephone survey excluded non-English/non-Spanish speaking households, we summarize the unique characteristics of linguistically isolated households[54] from the ACS/PUMS data. Twenty-percent of low-income households are linguistically isolated, versus 10 percent of the general population.

- The majority of linguistically isolated low-income households lives in multi-family homes (55% v. 43% in low-income population vs. 31% in the general population) and are renters (76% v. 64% in low-income population v. 44% in the general population).
- 64 percent of linguistically isolated households are Hispanic / Spanish speaking.
- Linguistically isolated low-income households have slightly more employed heads of household (46% v. 43% in the low-income population) and fewer unemployed (8% v. 11% in the low-income population).
- Linguistically isolated households have significantly less formal education with 58 percent having less than a high school graduate level of education as compared to 31 percent in the low-income population and 15 percent in the general population.
- Linguistically isolated household energy costs are less than the average low-income home ($1,097 v. $1,425), likely reflecting that the majority live in multi-family homes, which tend to have lower energy costs ($918).
- A higher proportion of linguistically isolated homes use no heating fuel (8% v. 5% in the low-income population).

3.4.3.2 Energy Needs

Our assessment of energy needs is based on the telephone and in-home survey results. Based on telephone survey results, there are no major health, comfort and safety needs among the low-income population – with 10 percent or less saying they experienced health, comfort and

[54] A linguistically isolated household is a household in which no one in the household aged 14 and over speaks English only or English very well.

safety issues "a lot". However, we did find that the improvement in comfort associated with ESA participation may help sell the program (based on the conjoint analysis and telephone survey results). Even though there may not be major needs in this area, low-income households report benefits from improvements in comfort that ESA provides and non-participants report that that their health, comfort and safety would benefit from participating.

Households that have major non-response barriers that are largely excluded from the telephone and in-home survey analysis on which this particular need is assessed, who did not respond to our survey, may have different or greater health, comfort and safety issues.

We did not find a difference in health, comfort and safety needs across ESA participants and non-participants, but participants told us they noticed improvements in health, comfort and safety as a result of participating in ESA. These results might support a prior finding that non-participants have lower energy burden and insecurity than participants (i.e., participants had more health, comfort and safety issues before participating in ESA). This is an important point to consider, that we are comparing participants after they have been treated by ESA to non-participants who have not been treated.

We found that presence of energy-related health issues that could be addressed by ESA as reported by telephone survey non-participants and participants that did not recall participating, is correlated with certain characteristics: households with non-English speakers, elderly, no children, no disabled members, larger households and mountain areas. The potentially surprising finding that households with disabled members may not notice a substantial difference in their health due to energy-related issues may be because the impact from energy-related issues may be small compared to more significant day to day challenges they are facing.

The in-home visits with ESA non-participants found comfort issues in one-third of homes based on interview identification or respondent self-report. We found that those with comfort issues were much more likely to have higher energy insecurity and energy burden. However, homes that responded to our in-home may have more issues than the phone survey sample, since they are more motivated to discuss energy issues and low-income assistance programs as evidenced by their willingness to participate in our in-home survey, since they may have greater need for them. The in-home assessment suggested that cultural issues may be at play, with recent immigrants and Spanish-speaking households less likely to mention comfort issues.

The in-home assessment found that ESA non-participants are most likely to need water heater wrap, pipe insulation, CFLs and faucet aerators, based on our in-home basic assessment.

3.4.4 Conclusions

We offer conclusions on energy needs below in the following three subsections, organized around four research questions.

3.4.4.1 Reducing Energy Burden

This section answers the research question:

17. How are the programs helping low-income customers address their energy burden and insecurity issues?

More detailed results are provided in Volume 2 - Section 5.5.5.

The average CARE customer saves $29/month (33% savings) on their electric bill and $6/month (18% savings) on their gas bill, based on the 2012 IOU CARE Annual Report (previously reported in Section 1.1.1 of this volume). Twenty-five percent of low-income households on CARE say their bill is "a lot less" after being on CARE, and 52 percent say "somewhat less", based on our telephone survey.

Low-income households that reported higher energy insecurity are less likely to notice an impact from CARE (11% of highly energy insecure households said their bill is "a lot less" and 56% said their bill is "somewhat less"). It may be that since they are facing a greater hardship due to energy costs, the discount is not making as much of an impact as for those that have less hardship.

The ESA program results in 81 percent of participants noticing a reduction in their energy bills, with 64 percent noticing improvements in safety and 65 percent in comfort, and 44 percent noticing improvements in the health of household members.

The energy savings results are consistent with actual changes in bills based on our analysis of IOU billing data, with participants that said they noticed their bills going down "a lot" experiencing a 10 percent decrease; those that said "somewhat" a 4 percent decrease; those that said "no change" a 11 percent increase; and those that said "bills have gone up" having a 41 percent increase in their bills. These results are also consistent with the recent ESA impact evaluation, which found net positive average savings from ESA participation, but variations across participants with some experiencing an increase in energy usage after participation.

3.4.4.2 Addressing Energy Needs

This section answers the research questions:

18. How well aligned are the needs and the measures that are installed by ESA among eligible customer segments?
19. Is the ESA program designed effectively to address the needs? Is the ESA program designed effectively to address the needs of the customer segments that have the greatest need?

ESA currently offers a range of measures that tend to align with what customers need and what they find helpful, with a major focus on weatherization measures. ESA participants experienced improvements in their health, comfort and safety more often due to weatherization and HVAC measures, while non-participants stated those types of measures as

likely to be the most helpful. The program is constrained based on budgets and cost-effectiveness to offer more measures such as early furnace replacement that could benefit a significant number of households (since half of the low-income households said their furnace is 10 years or older, based on our telephone survey). Also, not all IOUs offer all appliances, and there are climate zones where certain equipment such as central air conditioning is not available but could be useful for certain customers.

Renters are unable to receive all ESA measures unless they get their landlord's cooperation – the program does not allocate ratepayer funds to subsidize landlords. However, there may be opportunities to expand efforts to address barriers for renters, including gaining more approvals from landlords. Single-family renters in particular have greater barriers and burden and energy savings potential.

Maintenance measures may be useful for all customers on their heating and cooling systems combined with education about how to use their systems optimally. The program offers maintenance for cooling and heating equipment, but not all IOUs offer both types of tune-ups. As mentioned above, half of low-income households said their furnace is 10 years or older, and KEMA observed a similar percentage with 10-year or older cooling equipment.

Some customers may have missed opportunities for receiving HVAC and weatherization measures if their heating fuel does not match the fuel of the IOU providing the outreach. The program cannot address insulation needs of a house that uses only wood for heating. But there may be opportunities to expand coordination with the LIHEAP program to addresses this gap. Assessing how well ESA is coordinated with LIHEAP was outside the scope of this study. There may be additional opportunities in IOU overlap areas (which is the majority of SoCalGas and SCE service territories) for the IOUs to coordinate more. There have been major efforts along this front especially between SCE and SoCalGas – likely much of what can be done within IOUs has been done or assessed. However, contractors that provide service in these areas have asked for a single assessment form to be used for both IOUs, which could be explored. And contractors that work in the overlap areas who only assess for a single IOU could be encouraged (or barriers removed) to contract with both IOUs to eliminate the gap or at least the inefficiencies or delays associated with treating these customers by referrals cross-IOU.

We found that ESA participants have remaining unmet needs that could be met by going back to the home, if budget was available. This may not be a high priority at this time, but there may be screening that could be done to identify participants that have the most pressing needs. When new measures are added, their equipment ages enough to become eligible for replacement, or other changes are made to rules that would open up more measures for those households, they could be targeted identified.

We also found that there is a need among between 5 and 10 percent of low-income households that have a second refrigerator older than ten years old to replace or surrender

their second unit. The program does not currently allow replacement of secondary refrigerators.

There may also be a need for furnace repair and replacement beyond what is currently done by the program to address old or broken furnaces. The program currently only repairs or replaces a furnace for safety reasons. The measure was not found to be cost-effective, so adding this measure would be based on need, not cost-effectiveness. About half of furnaces in low-income households are ten years or older.

There may be a need for more expansive window and door repair and replacement, with 30 percent of low-income households that responded to our telephone survey saying they have one or more doors that need repair or replacement, and 37 percent saying that about one or more windows. Currently, the program does minor repairs such as if window glass is broken in conjunction with installing weatherization measures. These measures have not been found to be cost-effective in the past, so expanding window or door replacement would have to be considered for other reasons besides saving energy cost-effectively.

Lighting controls and solar water heaters are measures that could be tested for feasibility, since there is energy savings potential for these measures. Solar water heaters require technical installation skills and the specifications vary depending on the household. The state of Hawaii installs solar water heaters for low-income households, since there is a lack of need in that state for heating or cooling measures, and the program could be reviewed to see how it overcame issues related to customized installation specifications.

3.4.4.3 Energy Savings Potential

This section answers the research question:

20. *What data are available that may be used to determine the remaining energy savings potential among eligible households?*

More detailed results are provided in Volume 2 - Section 4.5.

This study provides data on the number of eligible and willing non-participating low-income households and the types of equipment that they have in their homes. The recent ESA impact evaluation provides current energy savings estimates that together could be used to inform estimates of energy savings potential.

We can also combine the technical potential estimates from Navigant Consulting's recent energy efficiency potential study[55] with our study's estimates of willingness to participate to yield estimates of energy savings market potential. For low-income households, market

[55] Analysis to Update Energy Efficiency Potential, goals and Targets for 2013 and Beyond – Track 1 Statewide Investor-Owned Utility Energy Efficiency Potential Study. Prepared for the California Public Utilities Commission. Navigant Consulting, Inc. and Heschong Mahone Group, March 19, 2012.

potential is the technical potential[56] per household multiplied by the fraction of households that would be willing to participate (WTP)[57] in the ESA program. Based on this approach, we estimate that:

- Total ESA electric savings potential = 208 kWh x 52% (WTP) x 3,133,942 income-eligible electric IOU customers = 339 MWh.
- Total ESA gas savings potential = 9 therms x 52% (WTP) x 3,714,462 income-eligible gas IOU customers = 17.4 million therms.

Note that the energy savings estimates underlying Navigant's technical potential estimates may not reflect what remaining non-participants homes will save, since impacts have declined over time. A more reliable estimate of technical potential would be based on on-site research with current ESA non-participants, which was not part of this study due to resource constraints. We offer a recommendation (below) to address this issue by conducting more research.

3.4.5 Recommendations

We offer recommendations on how the programs can better meet low-income households' energy needs below in the following two subsections, addressing this research question:

21. What could the programs add or modify to better serve the needs?

We also offer a recommendation on gathering more data to inform questions about the remaining energy-savings potential and on energy insecurity in a third (and final) sub-section below.

3.4.5.1 Reducing Energy Burden

We offer the following recommendations related to reducing low-income customers' energy burden.

- The ESA program could explore the tradeoffs associated with screening customers based on energy usage, estimated energy burden (e.g., using Census data on income combined with IOU billing data) and health, comfort and safety criteria (e.g., based on individual household screening) to determine priorities for treatment and/or tailor its services to the home. These types of approaches might focus resources to homes that

[56] Technical potential is defined as the amount of energy savings that would be possible if all technically applicable and feasible opportunities to improve energy efficiency were taken, including retrofit measures, replace-on-burnout measures, and new construction measures. It does not take into account whether such retrofits are economically feasible (economic potential) or what fraction would be likely to occur given the current market conditions (market potential).

[57] We are using the estimated willingness to participate from the telephone survey, which does not include some unwilling non-participants whose barriers could be addressed by the program, such as renters who do not want to ask their landlord for permission.

need it most. However, these approaches are not equitable across homes and have tradeoffs that must be considered. There are also two assumptions that would need to be tested: that the IOU data may be used to effectively screen and target customers, and that the ESA program can provide assistance that lowers customers' energy burden.

Currently, the ESA program is required to treat every eligible home, and offers that home a set of measures based on eligibility criteria that is consistent within each IOU. The program is not –expected to prioritize homes based on need or energy savings criteria, though those issues are factored into the measure eligibility.

Based on the research presented in this study, there are homes that have a greater energy burden that could be screened based on location and/or energy usage. These homes could be prioritized for treatment under the existing measure eligibility criteria, and/or offered an expanded set of measures based on greater need and/or energy savings potential. There are tradeoffs associated with this approach. The upside is that homes with greater need and energy savings potential will be prioritized. The downside is that this approach may not be considered equitable, and may even reward some households for not conserving.

Based on the research in this study, there are varying degrees of energy insecurity and health, comfort and safety. The ESA program could screen households on an individual basis based on their level of insecurity and/or health, comfort and safety to identify households who are in greater need for program support, such as by delivering a household questionnaire that adapts this study's survey batteries related to insecurity and health, comfort and safety. The program could then offer an expanded set of measures (e.g., such as relaxed measure eligibility criteria) to improve their health, comfort and safety. There are also tradeoffs associated with this approach. The upside is that homes that have sacrificed to keep their energy usage low, who would not be rewarded by the higher energy burden screening recommended above, would receive help. The downside is that this type of approach may not be cost-effective and in fact may be associated with negative energy savings.

These approaches could tested together and research conducted on the targeted households to determine whether the first approach leads to greater energy savings per household, which might offset the negative (or at least lower) energy savings associated with the second approach. There may be the potential for striking a balance between the two approaches to address the burden and insecurity issues, while preserving some level of equity and cost-effectiveness. The test would also help the IOUs determine how well their data may be used to screen effectively.

- The CARE program should continue to require ESA participation for high users and automatic post enrollment verification for households on CARE that exceed some limit of usage for their region.

This practice should help ensure that high users on CARE are provided with ESA program assistance to help them try to address their energy burden and also ensure that the CARE program is providing assistance to households that are truly eligible. Our research indicated that there are census block groups that are on average above the CARE income requirements that have many more households than are estimated as eligible on the rate. This practice is one way to attempt to address that issue.

3.4.5.2 Addressing Energy Needs

We offer the following recommendations related to how ESA addresses low-income customers' energy needs.

- The ESA program should ensure that it is effectively coordinating with the LIHEAP program to address a gap in service to customers that do not use an IOU fuel source for their heating and to offer customers additional measures that ESA does not currently offer.

Our research shows that are is a small but significant number of low-income households who use non-IOU fuel sources for their heating. Many of these customers are located in rural areas that we found to be under-served (except for PG&E service territory) and in climate zones that we found to have higher energy burden.

The LIHEAP program offers some measures that ESA does not, and provides an opportunity to provide additional measures to households that have a need.

Our study did not examine the extent to which ESA coordinates with LIHEAP, though we know from talking to program staff and contractors that there is coordination.

- The IOUs should ensure that in overlap areas (especially SCE and SoCalGas) that as many customers as possible are screened for both IOU measures in an efficient manner to increase the number of customers that pass the modified three measure minimum rule[58] and to provide comprehensive treatment.

Our study did not extensively study this issue, however we did identify that there are significant numbers of low-income customers living in the overlap area (the majority of SCE and SoCalGas CARE-eligible customers). We also identified that not all contractors that work for the IOU(s) in the overlap areas assess measures for both IOUs. There are processes where the IOUs share data and homes that are treated by only one IOU are put into a list for the other IOU to later treat, but it is unclear how quickly the home is treated by the other IOU. We also heard anecdotally from contractors that customers in overlap areas can fail the modified 3 measure minimum rule based on a single fuel.

[58] See Section 5.4.1 in Volume 2 of this report for an explanation of this rule.

- The ESA program should explore the tradeoffs associated with providing energy efficiency education and basic measures during the outreach and assessment visit for homes that are income-qualified but fail the modified three measure minimum rule.

Our study did not assess whether it would be cost-effective, but we did identify that there are many homes being income-qualified but not receiving any measures based on SCE's recording of this information. It may be found to be cost-effective to install basic measures on that first visit and/or deliver energy efficiency education. The costs of such services should be looked at incrementally to the outreach visit (i.e., just the cost of the measures and the contractor's labor), since the costs of identifying and income qualifying the customer is already sunk.

- The ESA program should explore the tradeoffs associated with offering certain targeted customers expanded measure eligibility criteria based on the prior recommendation where customers are screened based on higher energy burden and insecurity.

Our research found that there are significant numbers of customers with older furnaces who might benefit from repair or replacement. Currently, this measure is not cost-effective and only offered for safety purposes. The IOUs could explore if there are certain customers where this measure might be cost-effective, such as based on a certain level of winter gas usage, or for customers living in certain regions where heating degree days exceed a certain threshold.

There may also be different criteria where this measure is offered to customers solely based on need (e.g., based on a health, comfort and safety and/or energy insecurity screening.) The IOUs could track such services in a separate database so that the impact evaluation does not include these homes, bringing down the whole program's cost-effectiveness.

The same approach could be considered for central air conditioning replacement outside the climate zones where it is currently allowed, and for more extensive window and door replacement work. These measure restrictions are currently based on cost-effectiveness, but that has not been based on attempting to screen higher-energy savings potential customers, which could be justified based on cost-effectiveness. This measure could also be based on need, which would have to be evaluated based on different criteria.

- The ESA program should continue to explore adding additional measures such as solar water heaters, light emitting diode (LED) lamps and fixtures and lighting controls.

The program has not added solar water heaters, even though there may be some customers that could benefit and the measure might be cost-effective in some areas, because it requires technical installation that varies from household to household. The state of Hawaii currently offers solar water heaters to low-income customers in conjunction with the state's weatherization assistance program. They partner with the energy efficiency program administrator, who provides inspections of the installations. These programs could be examined to see if the California IOUs could try a pilot program to test feasibility and cost-

effectiveness. The individualized installation requirements could be justified for certain regions and/or to help reduce high energy burden.

Even though the saturation of CFLs among low-income households is high, there are still opportunities to replace inefficient lighting. As the federal lighting legislation continues to phase in and CFLs become the baseline for more wattage categories, the IOUs could explore whether LED replacement lamps and/or fixtures are cost-effective. The prices are coming down rapidly, improving cost-effectiveness for energy efficiency programs. The program could also explore whether there are lighting control measures that could be used to save energy, such as for households where occupants are home all day and who use a lot of lighting. Our study found there are few low-income households who use controls.

- The ESA program should explore the tradeoffs from going back to homes that have received ESA treatment since 2002 to provide additional measures, either as new measures are added to the program, eligibility requirements are modified and/or the treated homes' equipment ages to now be qualified for replacement.

Currently, the program goes back to previously treated homes only very rarely, with a focus on meeting the 2020 goal of treating all eligible homes. However, there may be cost-effective energy savings from going back to homes and providing new measures (e.g., that are added to the program or where eligibility requirements have been expanded) and/or the treated homes' equipment ages to now be qualified for replacement. The program may need to collect additional data or improve how it records and accesses that data to be able to do this. The program could test this approach to determine the cost-effectiveness.

- The ESA program should explore the tradeoffs from offering replacement of a second refrigerator, such as for households that demonstrate a need for it (e.g., based on size of household or medical need.) For those that have a second refrigerator that is not needed, the program could offer a significant rebate for surrendering the unit for recycling.

Our study indicated there are significant numbers of low-income households that have second refrigerators, many of which are older than ten years. Some households may need the second unit due to a large household or medical need for additional refrigeration. The older units in those cases could be replaced and offer energy savings opportunity. Other households that use the unit mostly for convenience could be offered a rebate to recycle the unit. The IOUs' energy efficiency programs typically have such a program, which could be tapped or augmented with an additional rebate.

- The IOUs should explore the tradeoffs from lowering the threshold for income self-certification.

Currently, customers are allowed to self-certify their income in census block groups where 80 percent or more households are estimated as eligible for the ESA program. Based on anecdotal interviews with program staff and contractors, this currently impacts only a small number of

customers. The IOUs could look at whether the threshold should be lowered and identify the tradeoffs.

Our research did not identify that providing income documents is a significant barrier to ESA participation, however the research that explored such barriers was based on the telephone survey sample, which excludes households that do not speak English or Spanish and those that have major outreach barriers. Anecdotally, contractors and program staff said that providing income documents is a barrier for some households.

In the previous subsection, we recommended further research to try to understand more of the barriers among households that are the most difficult to reach, which could inform this issue.

- The IOUs should explore how to increase the participation among single-family renter households.

Our research showed that this segment of the low-income population has barriers associated with being a renter, but also faces greater energy burden and need for measures due to larger homes and more energy-using equipment.

The program could look at developing a package of measures across the low-income and energy efficiency programs that could be offered to landlords to increase the likelihood of engaging with the ESA program.

The program could also look at whether it could expand the basic measures that can be installed without landlord agreement. We did not study this program design issue thoroughly, but we did hear anecdotally that at least some IOUs install CFLs and other basic measures, and refrigerators that are owned by the tenant. The program has tried and should continue to strike a balance between helping renters with their energy burden, but not using ratepayer funds to subsidize improvements to private property owned by non-low income landlords.

- The IOUs that do not offer clothes washers, PG&E and SoCalGas, should explore the tradeoffs of adding this measure.

Our study found that many low-income households have clothes washers and a significant fraction are 10 years or older. There may be energy-savings potential to expand this measure to the other IOUs.

We heard anecdotally that PG&E did a pilot test with this measure and found it not to be cost-effective. However, if screening is allowed, households that have very old clothes washers or a large number of residents might lead to cost-effective energy savings. This measure could also be considered for households that pass a health, comfort and safety and/or energy burden/insecurity screening to help reduce their burden, even though it may not provide cost-effective energy savings.

3.4.5.3 Further Study of Energy Needs

We offer the following recommendations related to addressing the gap in data to inform energy savings potential for the ESA program.

- The IOUs and CPUC should consider conducting an on-site survey with low-income ESA non-participants, as representative as possible, to collect detailed energy equipment information and energy efficiency values that may be used to develop estimates of remaining potential.

This study did not have enough resources to include this component. A future study could focus on collecting data from a representative sample of income-qualified ESA non-participants, possibly including income verification. It is very difficult to address the non-response bias issue, though, as we have described in this study. The study design could include resources to attempt to address it partially, but the sponsors should be advised that non-response bias efforts are very expensive on a per unit basis. Moreover, any such efforts would probably still exclude the very hard-to-reach, who may have different equipment holdings and barriers than those that respond to a non-response follow-up effort. However, such households will probably also not ever respond to an ESA outreach contractor so could be excluded from the study without major implications.

- The IOUs and CPUC should consider augmenting the assessment of energy insecurity in future low-income needs assessment studies.

We did not include a general population survey, which could provide a comparison to the low-income levels of energy insecurity. A future study could also try to analyze the IOU delinquency data. We collected such data but lacked sufficient time and budget to make full use of it. The energy insecurity summary measure could include actual IOU delinquency data. The insecurity battery could also include questions about the household's lifestyle to understand the context with which they are making sacrifices to pay their energy bill.

- This data on varying levels of energy burden and insecurity should be used for future study of the CARE program, since it may be used to help the IOUs and the CPUC to explore the tradeoffs of offering varying rate assistance.

The CARE program currently offers tiered rate assistance that combines a flat rate discount plus a reduction in the impact of higher-usage tiers. This design offers varying rate assistance based on customers' usage, as indicated in this study (e.g., the average electricity rate reduction is 33%).

Even with the rate assistance, a small percentage (6%) of households report being highly insecure. Likewise, there are regions whose low-income households have a relatively higher burden due to climate. Conversely there are households on CARE that report little to no energy insecurity and households with very low energy burden.

There are tradeoffs to providing less assistance to lower burden households or greater additional assistance to higher burden households. If more assistance was to be provided to those with higher energy burden, the upside is that households that live in more extreme climates and/or have greater energy needs will get more support that would lower their energy burden (i.e., by increasing their CARE subsidy). The downside is that some households that have increased energy usage will be rewarded for using more, and households that have a lower burden based on sacrificing health, comfort and safety may not get the additional assistance.

We note that our study does not support a recommendation to *increase* CARE assistance. Instead, our research identified a range of burden and insecurity among low-income households who are enrolled in CARE, which we noted could be used to further study how the CARE program helps customers to reduce their energy burden. There are questions that our data can not answer, such as does equitable treatment mean that every household gets the same level of assistance, or does it mean that households with relatively higher energy burden and/or insecurity get relatively more assistance. And conversely, that households with relatively lower (or no) energy burden and/or insecurity get relatively less or even no assistance.

There are additional considerations to incorporating energy usage, burden and/or insecurity in the consideration of CARE rate assistance, including verification of eligibility and the reliability and accuracy of measures of energy insecurity and burden. The ability of the IOUs to confirm assistance goes to those who are truly eligible and of measuring true energy burden both impact the equity considerations mentioned above.

The purpose of this recommendation is to ensure that the CPUC and the IOUs make use of the data to consider such questions, if they are a priority for planning of the next program cycle.

EVERGREEN ECONOMICS

Needs Assessment for the Energy Savings Assistance and the California Alternate Rates for Energy Programs

Volume 2: Detailed Findings

Final Report

December 16, 2013

Prepared for: Southern California Edison, Pacific Gas and Electric, Southern California Gas, San Diego Gas and Electric and the California Public Utilities Commission

Table of Contents

4 LOW-INCOME POPULATION AND PROGRAM CHARACTERIZATION 4-1

4.1 ELIGIBLE POPULATION FOR CARE AND ESA 4-1
4.2 CARE ENROLLMENT AND ESA PARTICIPATION 4-3
4.3 LOW INCOME POPULATION CHARACTERISTICS 4-8
4.3.1 Demographic Characteristics 4-9
4.3.2 Home and Equipment Characteristics 4-37
4.4 ESA PROGRAM MEASURES 4-51
4.5 REMAINING ESA PROGRAM ENERGY SAVINGS POTENTIAL 4-57

5 LOW-INCOME POPULATION NEEDS AND PROGRAM ASSESSMENT 5-1

5.1 OVERVIEW OF SOURCES 5-1
5.1.1 Sample Representation 5-3
5.2 ESA PROGRAM ACCESSIBILITY 5-5
5.2.1 Overview of ESA Marketing and Outreach 5-6
5.2.2 Customer Telephone Survey 5-8
5.2.3 In-Home Visits 5-16
5.3 CARE PROGRAM ACCESSIBILITY 5-20
5.3.1 Overview of CARE Program Marketing and Outreach 5-20
5.3.2 Program Staff Interviews 5-22
5.3.3 Contractor Interviews 5-23
5.3.4 Customer Telephone Survey 5-25
5.3.5 In-Home Visits 5-30
5.3.6 CARE Modeling Results 5-30
5.4 ESA PARTICIPATION DRIVERS AND BARRIERS 5-35
5.4.1 Overview of Customer Enrollment and Assessment 5-35
5.4.2 Program Staff Interviews 5-37
5.4.3 Contractor Interviews 5-40
5.4.4 Customer Telephone Survey 5-42
5.4.5 ESA Modeling Results 5-56
5.4.6 Conjoint Analysis Results 5-69
5.4.7 In-Home Visits 5-73
5.4.8 LI Program Review 5-77
5.5 ENERGY NEEDS AND LI PROGRAM BENEFITS 5-77
5.5.1 Energy Insecurity 5-77
5.5.2 Energy Burden 5-84
5.5.3 Non-Energy Benefits 5-100
5.5.4 Energy Efficiency Measures 5-107
5.5.5 CARE Program Benefits 5-141

This document is Volume 2 (Detailed Findings Report) of the Needs Assessment study that Evergreen Economics conducted for the Energy Savings Assistance (ESA) and the California Alternate Rates for Energy (CARE) programs for the joint California investor-owned utilities (IOUs).

This volume contains the following sections:

- Section 4: Low-Income Population and Program Characterization
- Section 5: Low-Income Population Needs and Program Assessment

The study report contains three volumes. Volume 1 is the Summary Report and Volume 3 is the Technical Appendix.

4 Low-Income Population and Program Characterization

This section characterizes the state of California's low-income (LI) population, and measures and savings potential for the ESA program. First, we estimate the eligible population for the CARE and ESA programs in Section 4.1. Next, we characterize cumulative CARE and ESA participation and estimate 2012 program penetration in Section 4.2. In Section 4.3, we present an updated characterization of the LI population including demographics and home and equipment characteristics. In Section 4.4, we discuss the ESA program measure eligibility and provide current energy savings estimates by measure category. Finally, in Section 4.5 we discuss how much of the data in this section could be used to inform questions about the remaining ESA program energy savings potential, identify caveats to using the available data and recommend research that could be conducted to fill critical data gaps.

4.1 Eligible Population for CARE and ESA

We used Athens Research data, introduced in Section 3.4 above, to generate the eligible population for both the 2012 CARE and ESA programs. Athens Research produced estimates for the California IOUs based on analysis of Census and other data sources. As shown in Table 1 and Table 2, Athens Research produced estimates of the total number of households that are technically eligible for each program, followed by the number and percent of households that meet certain thresholds of federal poverty levels. Currently, both CARE and ESA are using 200 percent of the federal poverty level (the fourth columns in the tables below) to be income-eligible for the programs. Statewide, 32 percent (4.1 million households) are technically and income-eligible for the CARE and ESA programs.

Table 1: CARE Eligible Population Estimates for IOUs (2012)

	Total Households Technically Eligible for CARE [1]	CARE Eligible Households				Percent of Total Households Eligible for CARE			
		175% of Poverty	200% of Poverty	225% of Poverty	250% of Poverty	175% of Poverty	200% of Poverty	225% of Poverty	250% of Poverty
Statewide [2]	12,811,083	3,597,993	4,148,934	4,668,707	5,163,877	28%	32%	36%	40%
PG&E (total)	5,246,113	1,361,181	1,574,844	1,782,675	1,978,906	26%	30%	34%	38%
PG&E (electric and gas)	3,269,167	809,149	934,939	1,058,830	1,174,837	25%	29%	32%	36%
PG&E (electric only)	1,183,408	328,958	380,410	430,133	476,620	28%	32%	36%	40%
PG&E (gas only)	793,538	223,073	259,495	293,713	327,448	28%	33%	37%	41%
SCE	4,379,538	1,214,701	1,413,367	1,599,507	1,777,677	28%	32%	37%	41%
SCG	5,393,233	1,545,847	1,787,455	2,009,173	2,224,406	29%	33%	37%	41%
SDG&E (total)[3]	1,246,898	303,793	351,607	397,987	442,194	24%	28%	32%	36%
SDG&E (electric accounts)	1,246,898	303,793	351,607	397,987	442,194	24%	28%	32%	36%
SDG&E (gas accounts)	838,523	202,514	234,813	266,275	296,395	24%	28%	32%	35%

[1] Technical eligibility refers to household eligibility based on the home metering arrangement, irrespective of other eligibility requirements. The CARE and ESA programs have different technical eligibility requirements for sub-metered and master metered households. Master metered, sub-metered and individually metered households are technically eligible for the ESA program. Only sub-metered and individually metered households are eligible for the CARE program. Athens Research cannot distinguish differences in technically eligible households at the statewide level but do provide this distinction for each utility.

[2] The statewide estimates of eligible households for CARE (Table 17) and ESA (Table 18) are equal. The Athens Research statewide estimates are developed by aggregating third party vendor data for all regions of California including areas served by non IOU utilities. Unlike the utility specific estimates, this data does not make the distinction between households technically eligible for ESA and the smaller number technically eligible for CARE. This results in the same number of households technically eligible for both programs in the statewide results.

[3] The SDG&E total is based on electric tariff counts.

Source: 2012 data developed by John Peterson of Athens Research under subcontract to the IOUs.

Table 2: ESA Eligible Population Estimates for IOUs (2012)

	Total Households Technically Eligible for ESA [1]	ESA Eligible Households				Percent of Total Households Eligible for ESA			
		175% of Poverty	200% of Poverty	225% of Poverty	250% of Poverty	175% of Poverty	200% of Poverty	225% of Poverty	250% of Poverty
Statewide [2]	12,811,083	3,597,993	4,148,934	4,668,707	5,163,877	28%	32%	36%	40%
PG&E (total)	5,767,701	1,523,992	1,758,164	1,986,244	2,200,969	26%	30%	34%	38%
PG&E (electric and gas)	3,533,851	885,098	1,020,618	1,154,003	1,278,602	25%	29%	33%	36%
PG&E (electric only)	1,010,746	285,079	330,480	374,234	415,183	28%	33%	37%	41%
PG&E (gas only)	1,223,104	353,815	407,066	458,006	507,184	29%	33%	37%	42%
SCE	4,408,691	1,225,731	1,425,901	1,613,339	1,792,693	28%	32%	37%	41%
SCG	5,970,138	1,759,003	2,027,605	2,273,100	2,511,005	30%	34%	38%	42%
SDG&E (total)[3]	1,261,216	308,534	356,943	403,916	448,645	25%	28%	32%	36%
SDG&E (electric accounts)	1,261,216	308,534	356,943	403,916	448,645	25%	28%	32%	36%
SDG&E (gas accounts)	904,151	224,208	259,173	293,234	325,642	25%	29%	32%	36%

[1] Technical eligibility refers to household eligibility based on the home metering arrangement, irrespective of other eligibility requirements. The CARE and ESA programs have different technical eligibility requirements for sub-metered and master metered households. Master metered, sub-metered and individually metered households are technically eligible for the ESA program. Only sub-metered and individually metered households are eligible for the CARE program. Athens Research cannot distinguish differences in technically eligible households at the statewide level but do provide this distinction for each utility.

[2] The statewide estimates of eligible households for CARE (Table 17) and ESA (Table 18) are equal. The Athens Research statewide estimates are developed by aggregating third party vendor data for all regions of California including areas served by non IOU utilities. Unlike the utility specific estimates, this data does not make the distinction between households technically eligible for ESA and the smaller number technically eligible for CARE. This results in the same number of households technically eligible for both programs in the statewide results.

[3] The SDG&E total is based on electric tariff counts.

Source: 2012 data developed by John Peterson of Athens Research under subcontract to the IOUs.

4.2 CARE Enrollment and ESA Participation

We used IOU reports combined with the previous LINA study to generate annual CARE enrollment and ESA participation estimates from 1993 to 2012. The IOUs have ramped up enrollment in the CARE program over time, as shown in Table 3 below, reaching a peak during the last two to three years. As discussed previously in Section 2.1.1, the CPUC set a 90 percent penetration goal for the CARE program in Decision 08-11-031. The IOUs achieved that goal in 2011 and 2012 across the IOU service territories.

Table 3: Summary of Annual CARE Program Participation by IOU (1993-2012)

Year	PG&E	SCE	SCG	SDG&E
1993	328,491	326,526	441,831	111,510
1994	350,605	414,828	610,170	103,672
1995	344,149	455,188	737,410	111,218
1996	317,998	466,296	673,553	129,831
1997	282,701	491,045	614,942	119,508
1998	257,945	507,188	533,362	120,548
1999	284,276	496,271	519,511	123,137
2000	350,194	542,175	549,158	145,764
2001	545,175	729,367	655,446	151,121
2002	731,107	817,637	790,592	170,815
2003	812,204	899,148	957,602	181,028
2004	900,264	977,760	1,049,767	193,524
2005	1,037,618	972,188	1,148,334	203,292
2006	1,133,663	1,055,710	1,264,264	220,010
2007	1,107,733	1,024,148	1,332,614	229,759
2008	1,136,237	1,104,556	1,435,938	241,196
2009	1,351,415	1,235,123	1,560,543	269,517
2010	1,499,942	1,381,109	1,720,017	296,430
2011	1,532,692	1,437,537	1,716,495	308,596
2012	1,491,413	1,402,052	1,649,360	309,605

Sources: LINA Study (KEMA 2007) for data through 2006, IOU ESA and CARE Annual Reports for data from 2007-2011, and IOU ESA and CARE Monthly Reports for 2012 data.

Table 4 below presents CARE annual program participation by small multi-jurisdictional utilities (SMJUs). Program participation increased over the last few years for the SMJUs, in conjunction with similar increases achieved by the IOUs.

Table 4: Summary of Annual CARE Program Participation by SMJU (2003-2011)

	Alpine Natural Gas	Bear Valley Electric	PacifiCorp	Sierra Pacific	Southwest Gas	West Coast Gas
2003	23	1,569	3,336	1,108	22,576	40
2004	26	1,559	4,445	1,277	25,487	45
2005	31	1,302	5,346	1,507	32,200	38
2006	38*	1,059	7,576	1,604	38,939	34
2007		1,062	8,917	2,364	37,266	41
2008		1,477	10,500*	2,496*		46*
2009	68	2,181	9,149	3,147*		50*
2010		2,405	10,224	3,023	50,888	54*
2011		2,599	10,442	2,889*	53,804	58*

*Estimates.
Sources: LINA Study (KEMA 2007) for data through 2006, 2007 – 2011 data from the Low Income Oversight Board website (www.liob.org/documents).

Table 5 below presents annual IOU ESA program participation from 1994 through 2012. The IOUs ramped up participation for ESA during the same timeframe that the CARE program experienced increased enrollment. As described previously in Section 2.1.2, the IOUs were responding to the long-term vision of the ESA program outlined in the state's Strategic Plan: to have 100 percent of all eligible and willing LI customers receive all cost-effective ESA program measures by 2020. CPUC Decision 12-08-044, which approved the 2009-2011 program cycle, set ESA participation goals equal to one-third of the remaining untreated homes (1,093,442 homes). The expectation was that the IOUs would treat the remaining two-thirds of untreated homes in the next two program cycles. The IOUs treated 303,396 homes in 2012, 83 percent of the 364,481 projected for that year by the CPUC.

Table 5 shows annual average and cumulative participation counts during the entire period and also for the period 2002-2012. The year 2002 is being used as a baseline from which to measure cumulative ESA participation and penetration towards the state's Strategic Plan goal. During the period 2002-2012, the IOUs treated 2,444,679 homes.

Table 5: Summary of Annual ESA Program Participation by IOU (1994-2012)

Year	PG&E	SCE	SCG	SDG&E
1994	42,189	95,896	16,075	9,453
1995	41,837	42,977	16,327	7,395
1996	45,015	69,236	20,664	9,824
1997	45,033	69,569	21,073	9,931
1998	30,391	68,056	21,686	10,838
1999	40,604	74,694	25,390	10,993
2000	42,038	81,401	22,429	13,660
2001	32,740	85,509	28,457	19,315
2002	56,698	29,685	42,667	14,089
2003	38,631	33,348	46,900	15,706
2004	42,380	37,341	54,221	17,431
2005	52,648	36,419	40,477	11,266
2006	58,250	53,004	36,852	13,965
2007	63,319	44,323	44,048	13,074
2008	61,034	54,635	58,773	20,804
2009	81,308	61,834	83,493	20,927
2010	133,329	121,016	120,358	21,593
2011	128,071	93,771	161,020	22,575
2012	115,229	68,859*	96,893	22,415
Annual Average (1994 – 2012)	60,565	64,293	50,411	15,013
Cumulative Total (1994 – 2012)	1,150,744	1,221,573	957,803	285,254
Annual Average (2002 – 2012)	75,536	57,658	71,427	17,622
Cumulative Total (2002 – 2012)	830,897	634,235	785,702	193,845

*49,026 customers were treated; 68,859 customers were enrolled.
Sources: LINA Study (KEMA 2007) for data through 2006, 2007 – 2011 data from the Low Income Oversight Board website (www.liob.org/documents).

Table 6 below presents annual ESA program participation for the SMJUs, where the data were available. Participation levels are fairly low, but increasing, for most SMJUs.

Table 6: Summary of Annual ESA Program Participation by SMJU (2003-2011)

	Alpine Natural Gas	Bear Valley Electric	PacifiCorp	Sierra Pacific	Southwest Gas	West Coast Gas
2003	n/a	n/a	92	160	843	n/a
2004	14	65	15	119	913	n/a
2005	16	85	70	119	738	n/a
2006	Not available	6	29	84	798	n/a
2007	45*	70	81	150	Not available	n/a
2008	54*	105*	90*	115*	Not available	n/a
2009	Not available	163*	110*	125*	Not available	n/a
2010	Not available	163*	115*	140*	Not available	n/a
2011	Not available	163*	120*	150*	Not available	n/a

* Participation projections from program applications.
n/a=The ESA programs for Alpine Natural Gas and Bear Valley Electric were not in effect until 2004. West Coast Gas does not offer the ESA program.
Sources: LINA Study (KEMA 2007) for data through 2006, 2007 – 2011 data from the Low Income Oversight Board website (www.liob.org/documents).

Table 7 below presents CARE and ESA program penetration rates for 2012, based on a combination of participation and eligibility data presented earlier in this section. These data compare to the 2006 penetration data reported in the previous KEMA LINA study (below in Table 8) for the LIEE program (as the ESA program was formerly known). As shown, both programs have experienced a major increase in penetration rates (doubling for ESA/LIEE and increasing by 22 percent for CARE).

Table 7: Estimates of Annual CARE and ESA Program Penetration (2012)

	CARE Eligible Households (200%)	CARE Participants	Annual CARE Penetration	LIEE Eligible Households (200%)	LIEE Participants	Annual LIEE Penetration
PG&E	1,574,844	1,491,413	95%	1,758,164	115,229	7%
SCE	1,413,367	1,402,052	99%	1,425,901	68,859	5%
SoCalGas	1,787,455	1,649,360	92%	2,027,605	96,893	5%
SDG&E	351,607	309,605	88%	356,943	22,415	6%
Total	5,127,273	4,852,430	95%	5,568,613	303,396	5%

Sources: Participant data from CARE Programs 2012 Annual and Monthly Reports and eligibility data from 2012 data developed by John Peterson of Athens Research under subcontract to the IOUs.

Table 8: Estimates of Annual CARE and LIEE Program Penetration (2006)

	CARE Eligible Households (200%)	CARE Participants	Annual CARE Penetration	LIEE Eligible Households (200%)	LIEE Participants	Annual LIEE Penetration
PG&E	1,601,238	1,133,663	71%	1,868,594	58,250	3%
SCE	1,351,845	1,055,710	78%	1,365,633	53,004	4%
SCG	1,762,569	1,264,264	72%	2,005,118	36,852	2%
SDG&E	335,015	220,010	66%	394,242	13,965	4%
Total	5,050,667	3,673,647	73%	5,633,587	162,071	3%

Source: LINA Study (KEMA 2007).

4.3 Low Income Population Characteristics

This section presents characteristics of the state's LI population[1] as compared to the total population, and by IOU service territory. We also compared characteristics across LI population segments such as by home type and ownership, depending on data availability.

We used a number of sources[2] to develop the estimates in this subsection, which were introduced in Section 3.4:

- 2004 and 2011 ACS/PUMS data, and
- 2013 CLASS data.

Section 7 in this report's appendix presents more detail on these results, including results on weather-sensitive energy-using equipment by climate zone from the 2010 California RASS.

Section 4.3.1 presents the demographic results from the ACS/PUMS data. Section 4.3.2 presents the home and equipment characteristics results from the CLASS data. In each subsection, for each result, we present up to two exhibits. First, we present a table that shows the result for the California population, the overall California LI population and by IOU (for the LI population). For only the demographic data, we provide time series data from 2004 for the

[1] 2004 and 2011 ACS/PUM, CLASS and RASS data households are considered low income if their household income below 200% of Federal Poverty Guidelines. We provide more detail on how this was determined for each data source in section Section 7.1.

[2] As described in more detail in Section 7.1.2, we compared the demographic characteristics of each source's LI sample. We assumed that the ACS/PUMS data were the most reliable, including the most robust sample sizes. We found that the RASS and CLASS LI sub-samples have more homeowners than the PUMS LI sub-sample, with nearly half the sample owning their home compared to 33 percent in PUMS. The CLASS also over-represents households whose primary language is English (this variable was not available for RASS). We did not adjust the RASS and CLASS samples, but we do provide all the home and equipment characteristic results by homeowner versus renter and for households whose members speak Spanish or another non-English language in Section 7.3.

overall state and LI population. Next, we include a chart that highlights any substantial differences that we noted across additional segments of the LI population, including home type and ownership, language and urban versus rural.[3] If we did not find any substantial differences across any segments, we do not include a follow-up chart.

Any differences across segments that we describe in the text are statistically significant[4] unless indicated otherwise.

4.3.1 Demographic Characteristics

We used 2004 and 2011 ACS/PUMS data to describe the California total and California LI population's demographic characteristics. We included 2004 data to allow for comparisons over time.[5] The columns of the first table of each result, and the PUMS sample size, are:

- Percent of California population – 2011 (n=146,280);
- Percent of California population – 2004 (n=43,413);
- Percent of California LI population – 2011 (n=38,293);
- Percent of California LI population – 2004 (n=11,046);
- All remaining columns are for 2011:
    - Percent of PG&E's California LI population (n=16,786);
    - Percent of SCE's California LI population (n=26,033);
    - Percent of SDG&E's California LI population (n=8,052); and
    - Percent of SoCalGas's California LI population (n=26,382).

The segments that we selected within the PUMS 2011 LI sub-sample are home type, home ownership, language and rural versus urban. The specific segments we reviewed, and the PUMS sample size for each segment, are:

- Single-family home occupied by homeowners (n=13,696);
- Single-family home occupied by renters (n=7,850);
- Multi-family homes[6] (n=14,683);
- Mobile homes (n=1,000);
- English-only (n=17,973);

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[3] The rural versus urban distinction was available only for the ACS/PUMS data.
[4] We referred to the approximate sampling error estimates for each source (shown in Section 7.1) for PUMS. For the CLASS data, we calculated confidence bounds or referred to standard errors for means for each result noted in the text.
[5] The prior needs assessment study conducted the majority of its primary research with 2004. In Section 5, we make some comparisons to the prior study, so we chose 2004 for the time series data in this section for consistency.
[6] Multi-family homes are defined as any housing structure with two or more units. This differs from the 2007 KEMA study were multi-family homes are defined as housing structures with five or more units. This also differs from the concurrent Cadmus multi-family LI study which also defines multi-family homes as housing structures with five or more units.

- Spanish[7] (n=14,087);
- Other language (n=6,233);
- Urban[8] (n=35,269); and
- Rural (n=3,024).

In selected exhibits, we also include results for the linguistically isolated segment of the population. The ACS defines a linguistically isolated household as a household in which no one in the household of age 14 and over speaks English only or English very well.

For most results, we present a follow-up chart that compares results across one or more of these segments of the LI population, where we identified substantial differences. Sampling error information is provided in Section 7.1.1 and standard errors for means is included in the detailed results in Section 7.2.

Table 9 below shows the distribution of home types for the state as a whole, for the state's LI population, and for the LI population by IOU service territory. About half of LI homes are single-family, a smaller proportion than the total population. PG&E has a larger fraction of single-family LI homes than the other IOUs.

Figure 1 presents the distribution of LI home types within the primary language segments of the population, households that speak primarily English, primarily Spanish or primarily some other non-English language, and the rural and urban segments of the population. There is a slightly higher proportion of LI single-family homes in rural areas and among homes whose primary language is Spanish or English, while there is a lower proportion (39%) of LI single-family homes among linguistically isolated households.

[7] The ACS asks respondents if they speak a language other than English, and if so, what language (allowing one response per household member). The PUMS data includes a household language variable that has rolled up the individual household member data into the household level (allowing one response per household).
[8] The definition of urban and rural is based on county, since that was the lowest geographic area available in the ACS/PUMS that could be associated with a rural or urban designation.. If a home was in a county that was in a metropolitan area with population of 250,000 or greater, the home was considered to be in an urban area. Otherwise it was considered rural. This approach may lead to an under statement of rural residents.

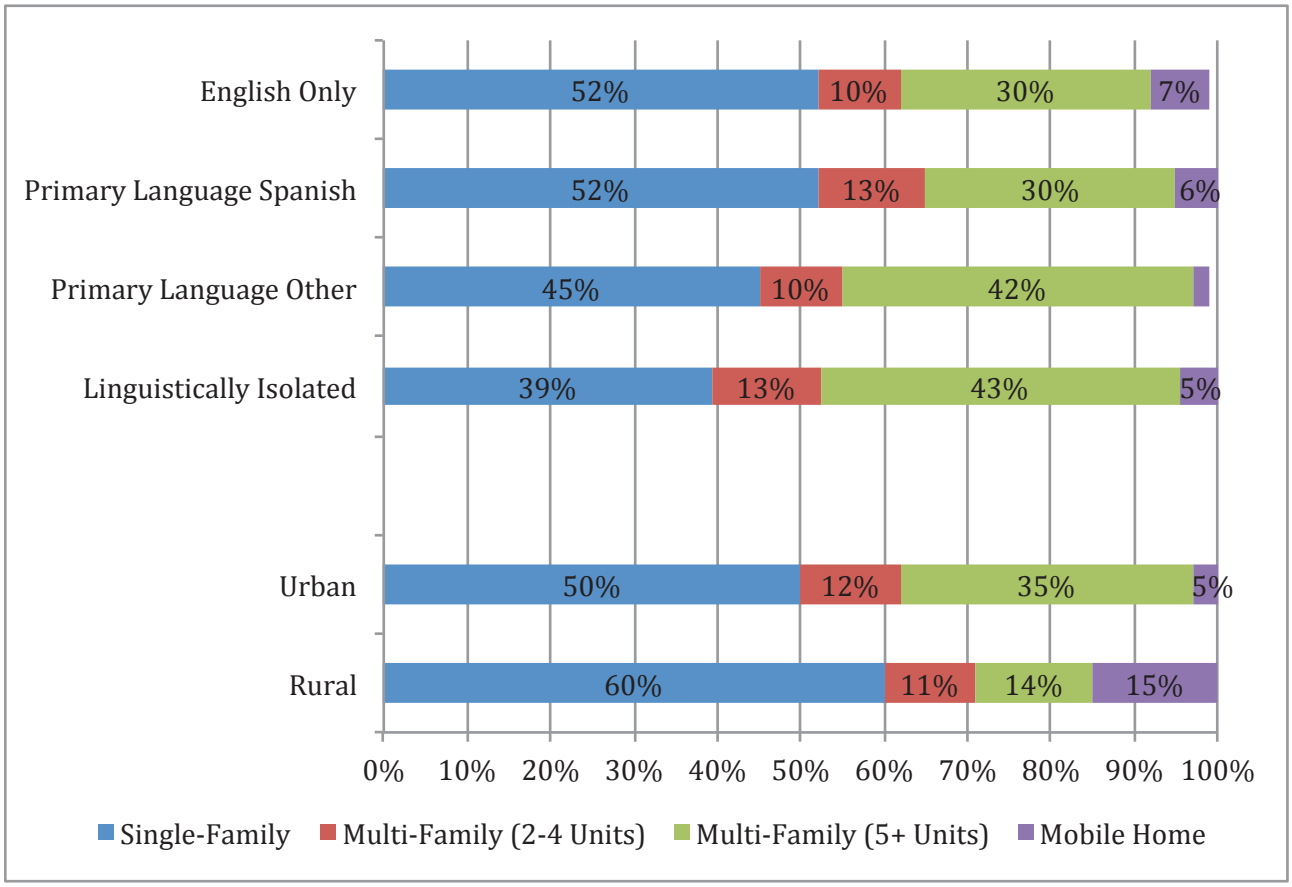
Table 9: Housing Type - By Population and IOU[9]

	Percent of California Population		Percent of California Low Income Population		Percent of California Low Income Population			
Year	Total 2011	Total 2004	Total 2011	Total 2004	PG&E 2011	SCE 2011	SDG&E 2011	SoCalGas 2011
Single-Family	66%	66%	51%	49%	55%	51%	45%	50%
Multi-Family (2-4 Units)	8%	8%	11%	12%	13%	11%	10%	11%
Multi-Family (5+ Units)	23%	22%	32%	32%	26%	32%	40%	33%
Multi-Family (Total)*	31%	30%	43%	44%	39%	43%	50%	44%
Mobile Home	4%	4%	6%	6%	7%	6%	5%	6%

* The definition of multi-family homes in this study is a housing structure with 2 or more units. In this table, we provide a sub-total for housing structures with 5 or more units to allow for comparison with the 2007 KEMA Low Income Needs Assessment and the concurrent Cadmus LI multifamily study.
Sources: 2004 and 2011 PUMS.

[9] We compared our estimates to the Multifamily LI Study being concurrently conducted by Cadmus, and found that our statewide estimate of the percent of LI households that are in multi-family homes with 5+ Units is within 1 percent. The IOU estimates are within 2 percent for all IOUs but SCE, where we are within 5 percent. We used ACS/PUMS as did Cadmus, however they used both the 3-year and 5-year data, while we used only 3-year data. Each team used a slightly different approach to access the data for LI households by geographic segments such as IOU service territories. Our results are estimates with associated error, and we believe that the two sets of results are consistent and differences are within expected error bounds.

Figure 1: Housing Type - By Language and Urban/Rural For California LI Population



Source: 2011 PUMS.

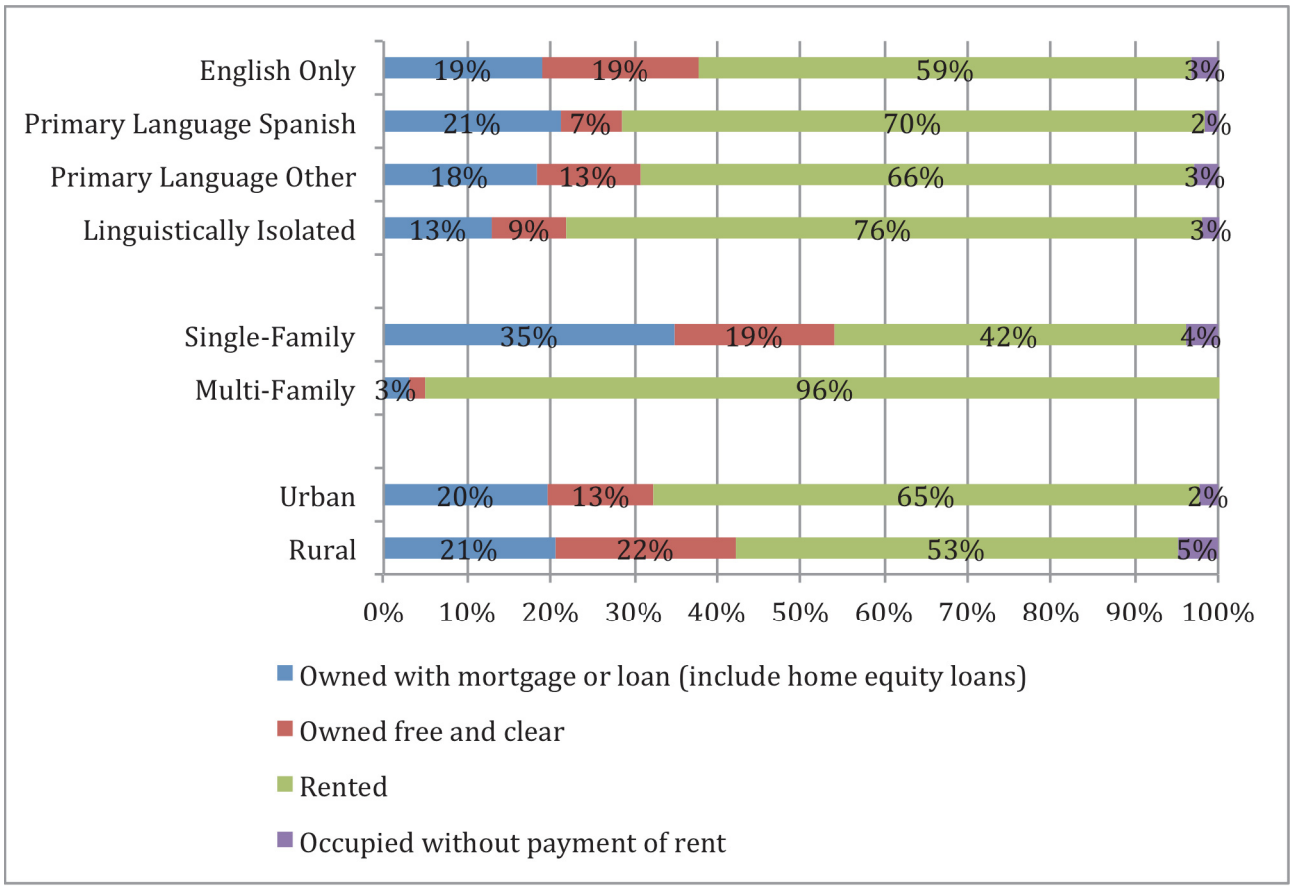
Table 10 below shows the distribution of home ownership for the state and its LI population. Only 33 percent of LI homes are owned as compared to 55 percent of all homes. There is little difference across IOUs in the rate of LI home ownership. Figure 2 shows the same distribution by LI primary language and urban versus rural segment, with English-only and rural LI homes being more likely to be owned and linguistically isolated homes more likely to be rented.

Table 10: Home Ownership - By Population and IOU

	Percent of California Population		Percent of California Low Income Population		Percent of California Low Income Population			
Year	**Total 2011**	**Total 2004**	**Total 2011**	**Total 2004**	**PG&E 2011**	**SCE 2011**	**SDG&E 2011**	**SoCalGas 2011**
Owned with mortgage or loan (include home equity loans)	41%	44%	20%	20%	20%	22%	19%	21%
Owned free and clear	14%	15%	13%	14%	16%	13%	13%	12%
Rented	44%	40%	64%	63%	62%	63%	65%	65%
Occupied without payment of rent	2%	1%	3%	2%	3%	2%	2%	2%

Sources: 2004 and 2011 PUMS.

Figure 2: Home Ownership - By Language, Home Type and Urban/Rural For California LI Population



Sources: 2011 PUMS.

Table 11 shows the distribution of urban and rural homes, with 93 percent of LI homes located in urban areas, similar to the 94 percent of total homes. As described above in the introduction to this section, the definition of urban and rural is based on county, since that is geographic information provided for the PUMS data. If a home was in a county that was in a metropolitan area with a population of 250,000 or greater, the home was considered to be in an urban area. Otherwise, it was considered rural.

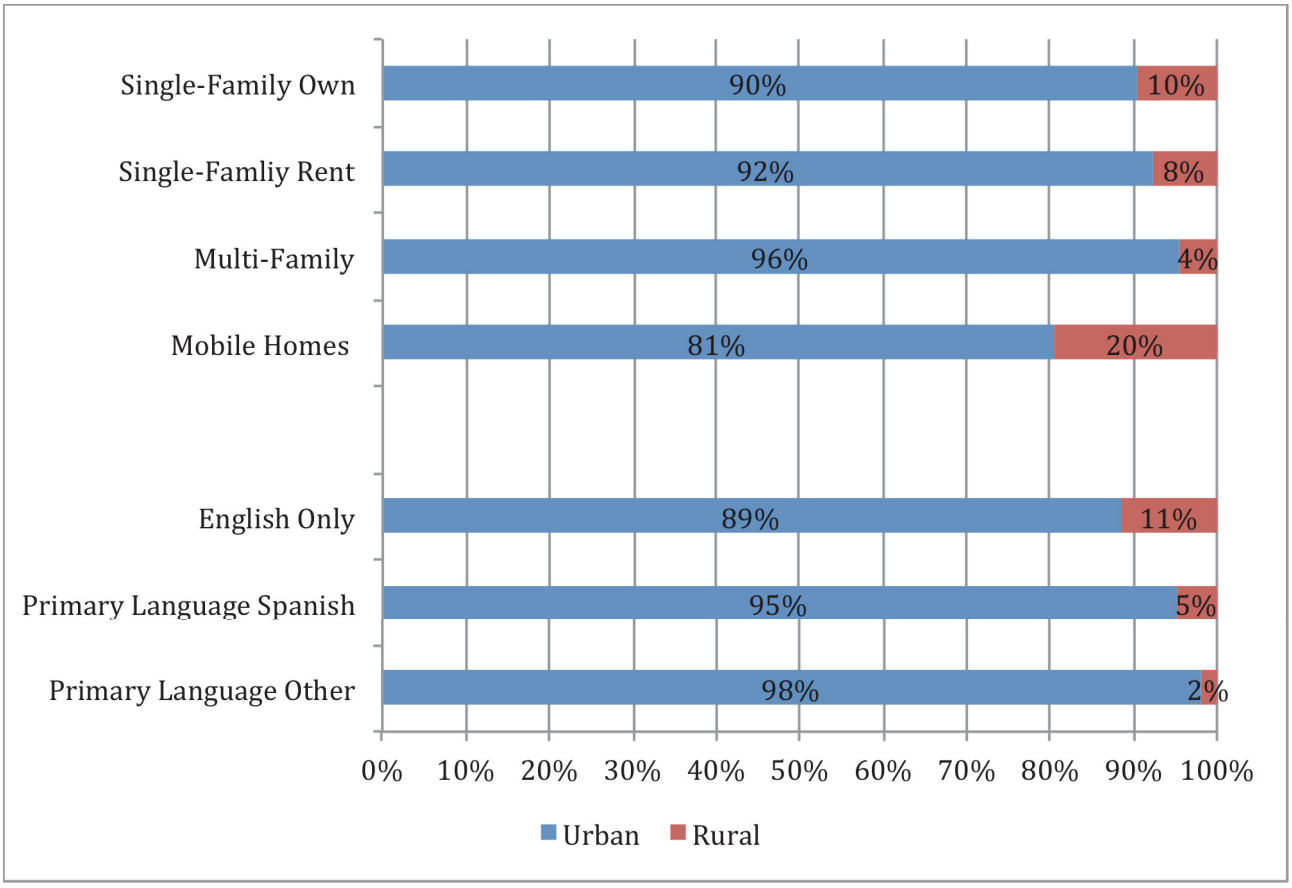
PG&E has a greater proportion of rural LI homes (15%). Figure 3 shows the distribution by home type, ownership and primary language segment. As shown, there are greater proportions of mobile homes and English-only homes in rural areas.

Table 11: Urban/Rural Status – By Population and IOU

	Percent of California Population		Percent of California Low Income Population		Percent of California Low Income Population			
Year	Total 2011	Total 2004	Total 2011	Total 2004	PG&E 2011	SCE 2011	SDG&E 2011	SoCalGas 2011
Urban	94%	N/A	93%	N/A	85%	97%	97%	99%
Rural	6%	N/A	7%	N/A	15%	3%	3%	2%

Sources: 2004 and 2011 PUMS.

Figure 3: Urban/Rural Status – By Language and Urban/Rural For California LI Population



Source: 2011 PUMS.

Table 12 shows the language spoken in homes, either English-only, or if a non- English language is spoken, the primary non-English language. As mentioned above in the introduction to this section, the ACS asks respondents if they speak a language other than English, and if so, what language (allowing only one). The PUMS data includes a household language variable that assigns a single language to each household. Where one or more people in a household reported speaking a language other than English at home, the non-English language spoken by the first person in a preassigned ranking system was assigned to the household as the household language. The ranking scheme listed household members in the following order: householder, spouse, parent, sibling, child, grandchild, other relative, stepchild, unmarried partner, housemate or roommate, and other non-relatives[10].

There is a lower proportion of LI English-only speaking homes (46%) as compared to all homes (58%). PG&E has fewer Spanish-speaking LI homes than the other IOUs. There has been a slight increase in homes speaking other languages besides English since 2004, among LI and all homes.

Figure 4 below shows the same distribution by LI home type and rural versus urban segment, with more LI urban, single-family, renter-occupied and multi-family homes speaking a primary language other than English.

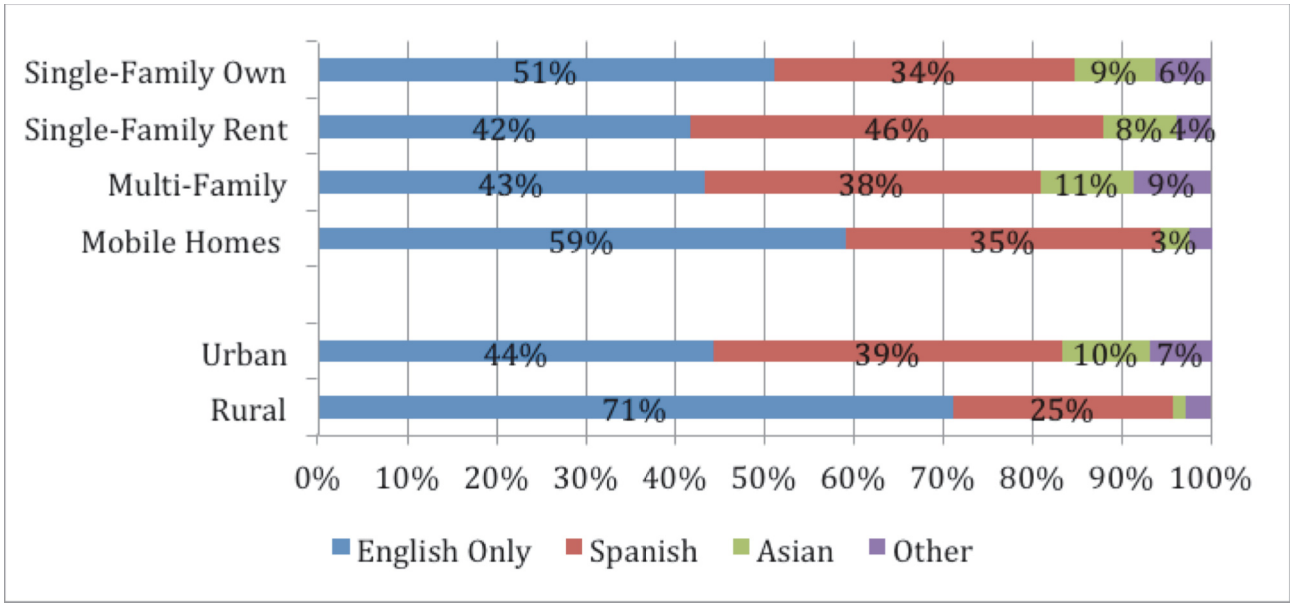
Table 12: Language Spoken in Household - By Population and IOU

	Percent of California Population		Percent of California Low Income Population		Percent of California Low Income Population			
Year	Total 2011	Total 2004	Total 2011	Total 2004	PG&E 2011	SCE 2011	SDG&E 2011	SoCalGas 2011
English-only	58%	61%	46%	48%	55%	41%	52%	40%
Spanish	25%	24%	38%	37%	30%	45%	32%	46%
Asian	10%	9%	9%	9%	10%	8%	7%	8%
Other	7%	6%	7%	6%	6%	6%	9%	6%

Sources: 2004 and 2011 PUMS.

10 Social Explorer; U.S. Census Bureau; American Community Survey 2011 Summary File: Technical Documentation.
http://www.socialexplorer.com/data/ACS2011/documentation/49d2e728-46a6-430c-aef7-2b4282b76327#88f99dfa-a802-4151-a52e-3334e65af9b4

Figure 4: Language Spoken in Household – By Housing Type and Urban/Rural For California LI Population



Source: 2011 PUMS.

Table 13 below presents the proportion of households that report being linguistically isolated. As described above, a linguistically isolated household is a household in which no one in the household aged 14 and over speaks English only or English very well. Double the proportion of LI to total households are linguistically isolated (20% compared to 10%). This percentage has dropped slightly since 2004, from 23 percent for LI and from 11 percent for the total population, even though as reported above there are more non-English speakers. This result suggests that the additional households that speak a language other than English are more likely to also speak English. Slightly more SCE and SoCalGas LI households are linguistically isolated compared to the other IOUs.

Table 13: Linguistic Isolation - By Population and IOU

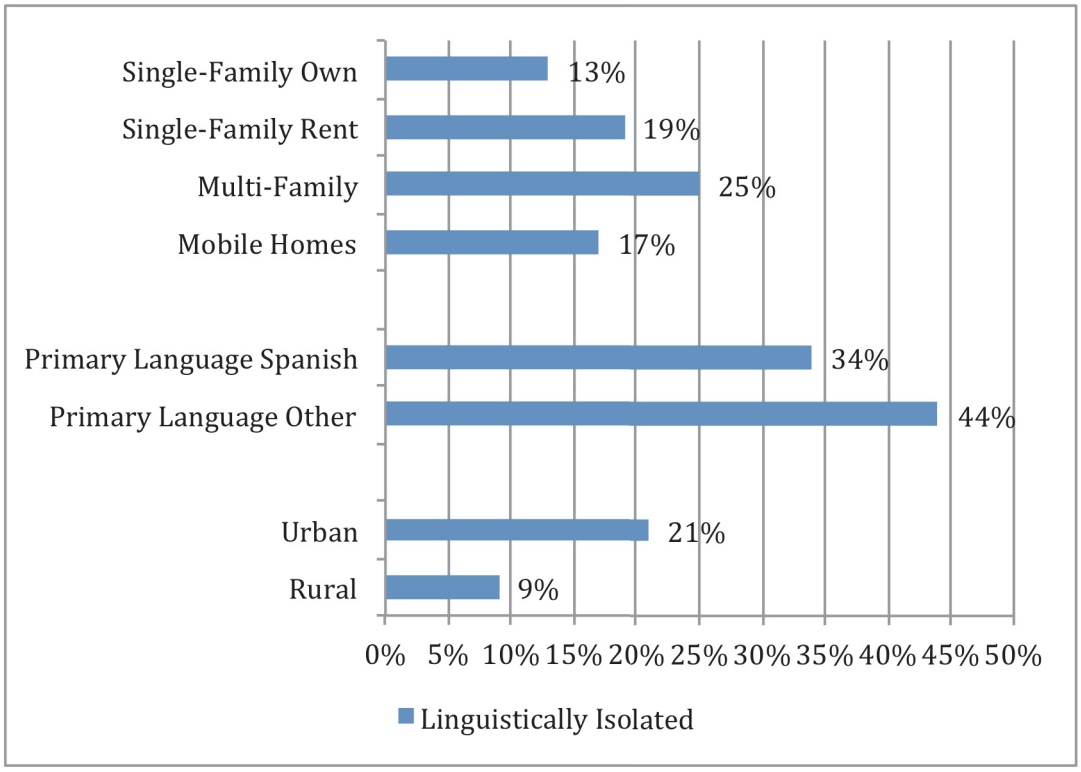
	Percent of California Population		Percent of California Low Income Population		Percent of California Low Income Population			
Year	Total 2011	Total 2004	Total 2011	Total 2004	PG&E 2011	SCE 2011	SDG&E 2011	SoCalGas 2011
Linguistically Isolated	10%	11%	20%	23%	17%	21%	18%	22%

Sources: 2004 and 2011 PUMS.

Figure 5 below shows linguistic isolation by LI home type, primary language and rural versus urban segments, with a greater proportion of multi-family and urban homes reportedly isolated. The language segments represent the portion of the population of households whose

primary language is Spanish or another non-English language. These segments are correlated with linguistic isolation. 34 percent of households with Spanish as the primary language are linguistically isolated. 44 percent of households with another non-English language are linguistically isolated.

Figure 5: Linguistic Isolation - By Housing Type, Language and Urban/Rural For California LI Population



Source: 2011 PUMS.

Table 14 below presents the distribution of ethnicities of the head of household, with 20 percent of LI homes in the state lead by a White householder, compared to 40 percent of all homes. 42 percent of LI homes are led by a Hispanic householder, compared to 28 percent of all homes. The ethnicities of California households have shifted since 2004, with more homes led by Hispanic householders. PG&E and SDG&E have greater proportions of White LI households compared to the other IOUs. Both SCE and SoCalGas have approximately 50 percent (49% SCE, 50% SoCalGas) of LI households headed by a Hispanic.

Table 14: Race/Ethnicity of Householder - By Population and IOU

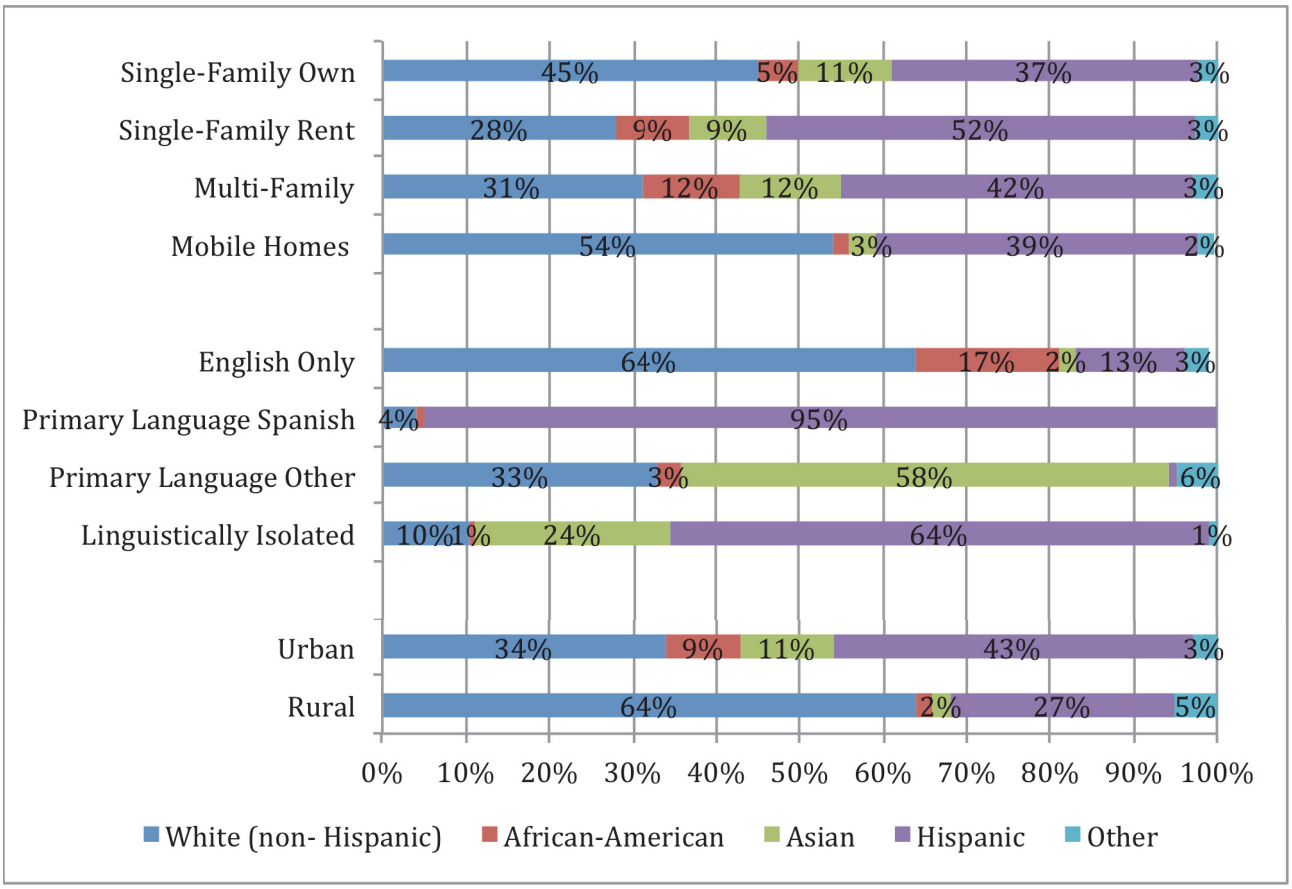
	Percent of California Population		Percent of California Low Income Population		Percent of California Low Income Population			
Year	Total 2011	Total 2004	Total 2011	Total 2004	PG&E 2011	SCE 2011	SDG&E 2011	SoCalGas 2011
White (non- Hispanic)	51%	62%	36%	46%	44%	31%	48%	30%
African-American	6%	5%	9%	7%	8%	9%	6%	9%
Asian	12%	11%	10%	10%	11%	9%	8%	9%
Hispanic	28%	20%	42%	33%	34%	49%	36%	50%
Other	3%	2%	3%	4%	3%	3%	3%	3%

Sources: 2004 and 2011 PUMS.

Figure 6 presents ethnicity by LI home type, primary language and rural versus urban segment, showing pronounced differences by home type, ownership, language and urban versus rural.

- The majority of single-family rental households are Hispanic (52%), with 28 percent White.
- Of LI homes speaking a primary language other than Spanish or English, 58 percent are Asian.
- 61 percent of rural LI homes are White, compared to only 18 percent of urban LI homes.

Figure 6: Race/Ethnicity of Householder - By Housing Type, Language and Urban/Rural For California LI Population



Source: 2011 PUMS.

Table 15 shows the distribution of household size, with 30 percent of LI homes having a single resident compared to 25 percent for the state. LI homes have slightly more occupants on average than all homes. PG&E and SDG&E LI homes have slightly fewer occupants on average than the other IOUs. Household size has remained stable over time.

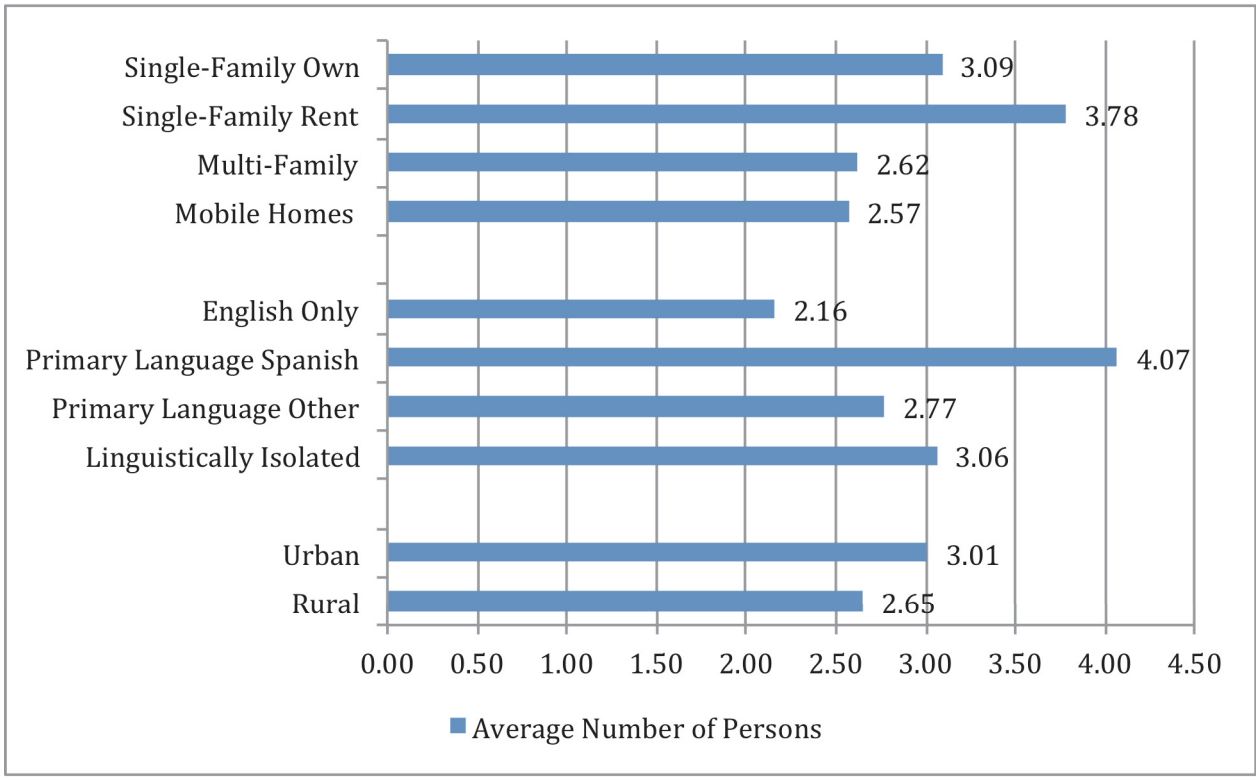
Table 15: Number of Persons per Home - By Population and IOU

	Percent of California Population		Percent of California Low Income Population		Percent of California Low Income Population			
Year	Total 2011	Total 2004	Total 2011	Total 2004	PG&E 2011	SCE 2011	SDG&E 2011	SoCalGas 2011
1 person	25%	25%	30%	29%	32%	27%	32%	27%
2 persons	30%	30%	21%	21%	22%	20%	24%	20%
3 or more persons	46%	45%	50%	49%	46%	53%	44%	53%
Average Persons	2.77	2.75	2.98	2.98	2.85	3.15	2.73	3.15

Source: 2004 and 2011 PUMS.

Figure 7 shows the same distribution by LI home type, primary language and rural versus urban segment, with single-family renters, urban and Spanish speakers having the largest number of occupants.

Figure 7: Number of Persons per Home – By Home Type, Language and Urban/Rural For California LI Population



Source: 2011 PUMS.

Table 16 shows the household composition, with a greater proportion of LI households having children in the home (46% compared to 37% of all households). There has been a small increase (2%) in the proportion of homes with children since 2004 across LI and all households.

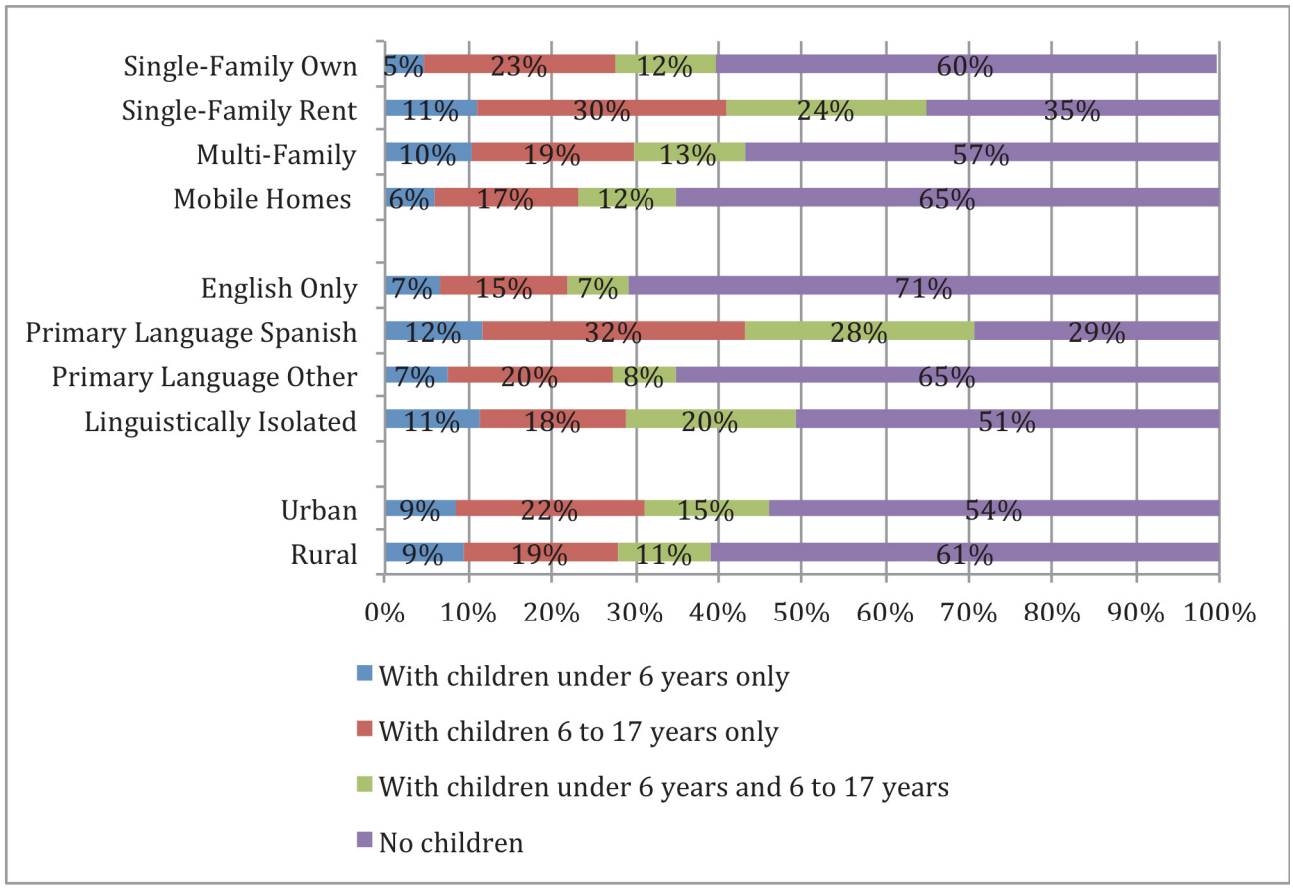
Table 16: Presence of Children in Home - By Population and IOU

	Percent of California Population		Percent of California Low Income Population		Percent of California Low Income Population			
Year	Total 2011	Total 2004	Total 2011	Total 2004	PG&E 2011	SCE 2011	SDG&E 2011	SoCal Gas 2011
With children under 6 years only	8%	8%	9%	10%	9%	9%	8%	9%
With children 6 to 17 years only	20%	21%	22%	22%	20%	24%	22%	24%
With children under 6 years and 6 to 17 years	9%	9%	15%	16%	14%	16%	12%	16%
No children	63%	61%	54%	52%	56%	51%	59%	51%

Sources: 2004 and 2011 PUMS.

Figure 8 below presents household composition by LI home type, primary language and rural versus urban segment, with major differences based on home ownership and primary household language. 65 percent of single-family renter-occupied homes have children, compared to only 40 percent of single-family owner-occupied homes. Households that speak Spanish primarily are much more likely than other households to have children (71%). There is a small but significant difference in household composition between urban and rural households, with urban households more likely to have children (46% compared to 39%).

Figure 8: Presence of Children in Home - By Housing Type, Language and Urban/Rural For California LI Population



Source: 2011 PUMS.

Table 17 below presents the proportion of homes with either an elderly or disabled[11] household member, with a similar proportion of elderly household members across LI and all homes, but more LI homes (22% compared to 31%) with disabled members. As shown in Figure 9, these proportions vary substantially and consistently by LI segment, with some exceptions:

- Single-family owner-occupied LI homes are much more likely to have elderly members.
- LI households living in mobile homes are more likely to have disabled members, but are not as likely to have elderly members.
- Other primary language speaking LI households are the most likely to have an elderly member.
- There are only small differences between the proportions of elderly household members but there are more disabled household members across rural LI homes than in urban LI homes.

Table 17: Elderly or Disabled Household Member - By Population and IOU

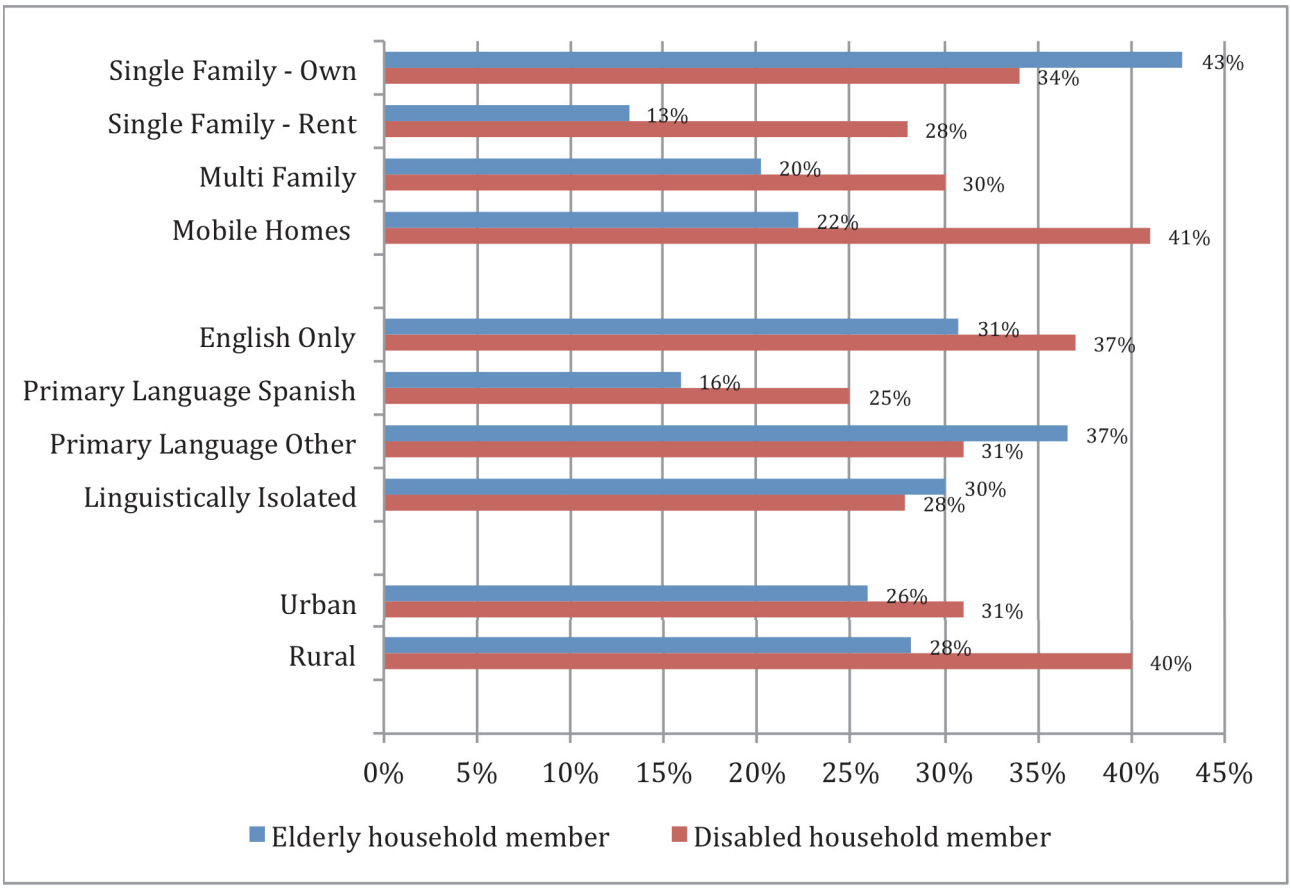
	Percent of California Population		Percent of California Low Income Population		Percent of California Low Income Population			
Year	Total 2011	Total 2004	Total 2011	Total 2004	PG&E 2011	SCE 2011	SDG&E 2011	SoCalGas 2011
Elderly household member	25%	22%	26%	24%	26%	26%	25%	26%
Disabled household member	22%	25%	31%	34%	33%	31%	27%	30%

Sources: 2004 and 2011 PUMS.

[11] The ACS/PUMS classifies a household as having (a) disabled member(s) if anyone in the household said yes to any of the following questions:

Is this person deaf or does he/she have serious difficulty hearing?
Is this person blind or does he/she have serious difficulty seeing even when wearing glasses?
Because of a physical, mental, or emotional condition, does this person have serious difficulty concentrating, remembering, or making decisions? (5 years of age or over)
Does this person have serious difficulty walking or climbing stairs?
Does this person have difficulty dressing or bathing? (15 or over).

Figure 9: Elderly or Disabled Household Member – By Housing Type, Language and Urban/Rural For California LI Population



Source: 2011 PUMS.

Table 18 below presents the average household income for LI and all California homes. We defined LI homes based on 200 percent of the federal poverty level, which varies based on the size of the household (see Section 1.1.1.). The average income of homes that are at or below 200 percent of the federal poverty level is $20,621, almost equal to the 2004 average. In contrast, the average household income for the state has increased from $69,596 to $80,684.

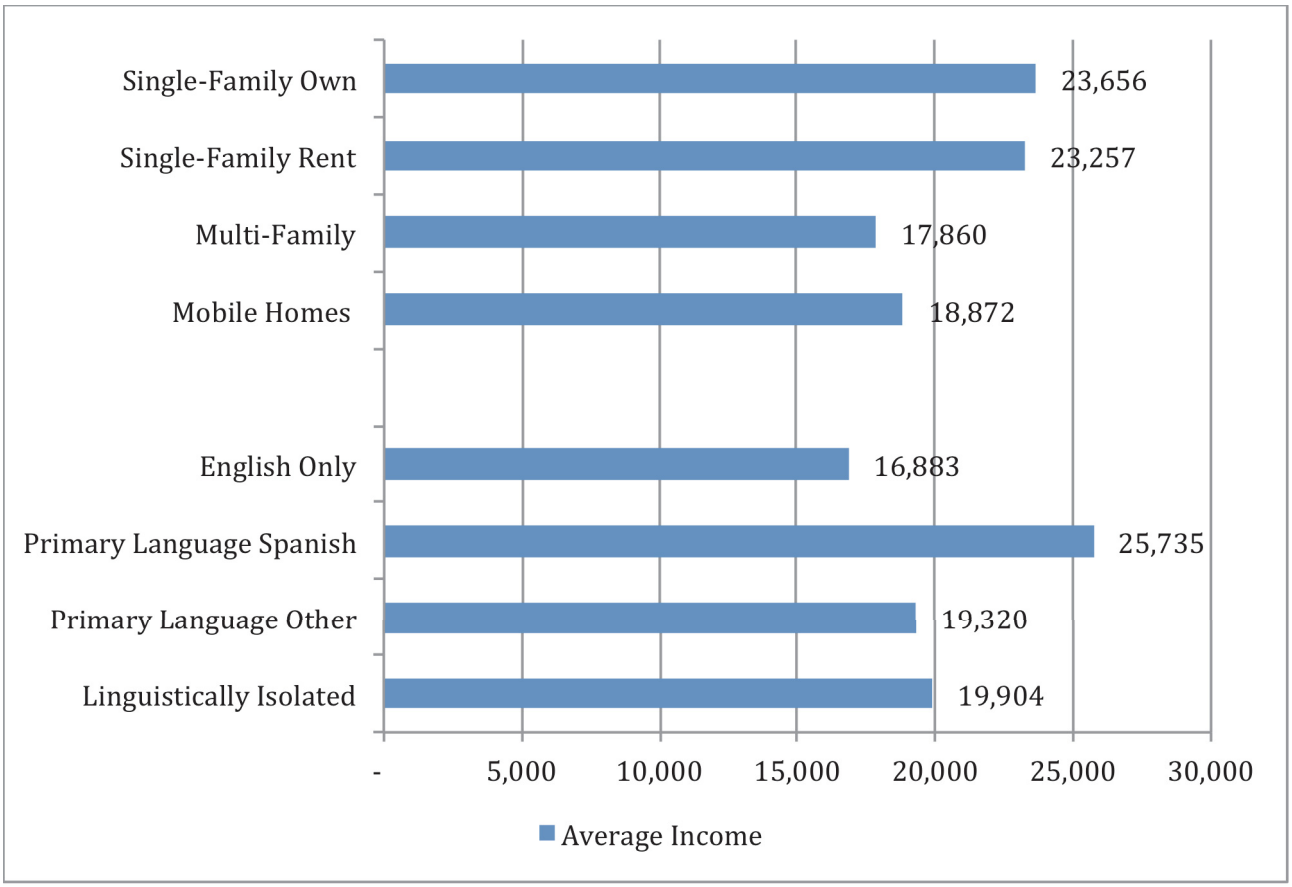
Table 18: Average Household Income - By Population and IOU

	Percent of California Population		Percent of California Low Income Population		Percent of California Low Income Population			
Year	**Total 2011**	**Total 2004**	**Total 2011**	**Total 2004**	**PG&E 2011**	**SCE 2011**	**SDG&E 2011**	**SoCalGas 2011**
Average Household Income	$80,684	$69,596	$20,621	$20,427	$20,075	$21,446	$18,607	$21,432

Sources: 2004 and 2011 PUMS.

Figure 10 shows the average household income by LI home type, primary language and rural versus urban segment. Much of the differences observed are due to differences in the number of occupants by segments (as shown in Figure 7 above), with single-family and Spanish-speaking homes having the highest average income. As reported elsewhere in this section, Spanish-speaking households have relatively more occupants, on which the income requirements are based.

Figure 10: Average Household Income ($) - By Housing Type and Language For California LI Population



Source: 2011 PUMS.

Table 19 presents employment status of the head of household, with a much higher proportion of LI householders being unemployed as compared to the overall population. The rate of employment has dropped since 2004 as a result of the recession, impacting LI households slightly more than the population as a whole.

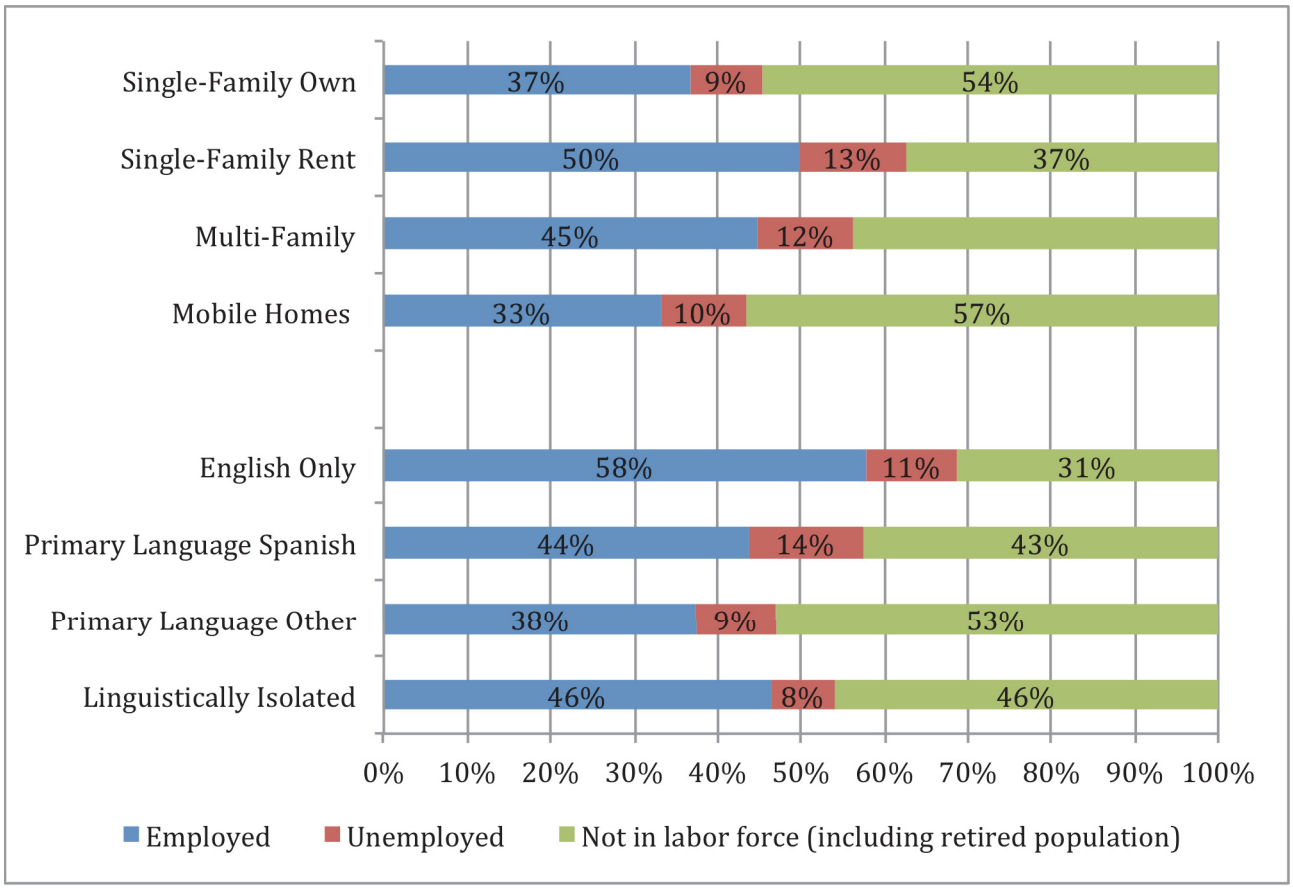
Table 19: Employment Status of Head of Household - By Population and IOU

	Percent of California Population		Percent of California Low Income Population		Percent of California Low Income Population			
Year	**Total 2011**	**Total 2004**	**Total 2011**	**Total 2004**	**PG&E 2011**	**SCE 2011**	**SDG&E 2011**	**SoCalGas 2011**
Employed	63%	65%	43%	46%	41%	40%	42%	45%
Unemployed	6%	4%	11%	7%	12%	11%	10%	11%
Not in labor force (including retired population)	30%	31%	46%	47%	47%	46%	50%	45%

Sources: 2004 and 2011 PUMS.

Figure 11 shows employment status by LI home type and primary language segments, with single-family renters and multi-family households more likely to be employed, likely because single-family homeowners (and mobile home dwellers) are more likely to be retired. Households speaking languages other than English have lower employment rates than English-only households, and households speaking another language besides Spanish have the largest proportion of heads of household out of the labor force.

Figure 11: Employment Status of Head of Household - By Housing Type and Language For California LI Population



Source: 2011 PUMS.

Table 20 presents the distribution of education reported by the head of household, with a substantial difference in the highest level achieved for LI versus all heads of household. While one-third of California heads of household have a bachelor's degree or higher, only 14 percent do of LI households. There has been a slight increase in education since 2004, with a greater increase occurring among non-LI households.

SCE and SoCalGas LI households on average have the lowest educational attainment across the IOUs, where 35 percent of householders have not graduated from high school, compared to 31 percent for the average LI householder.

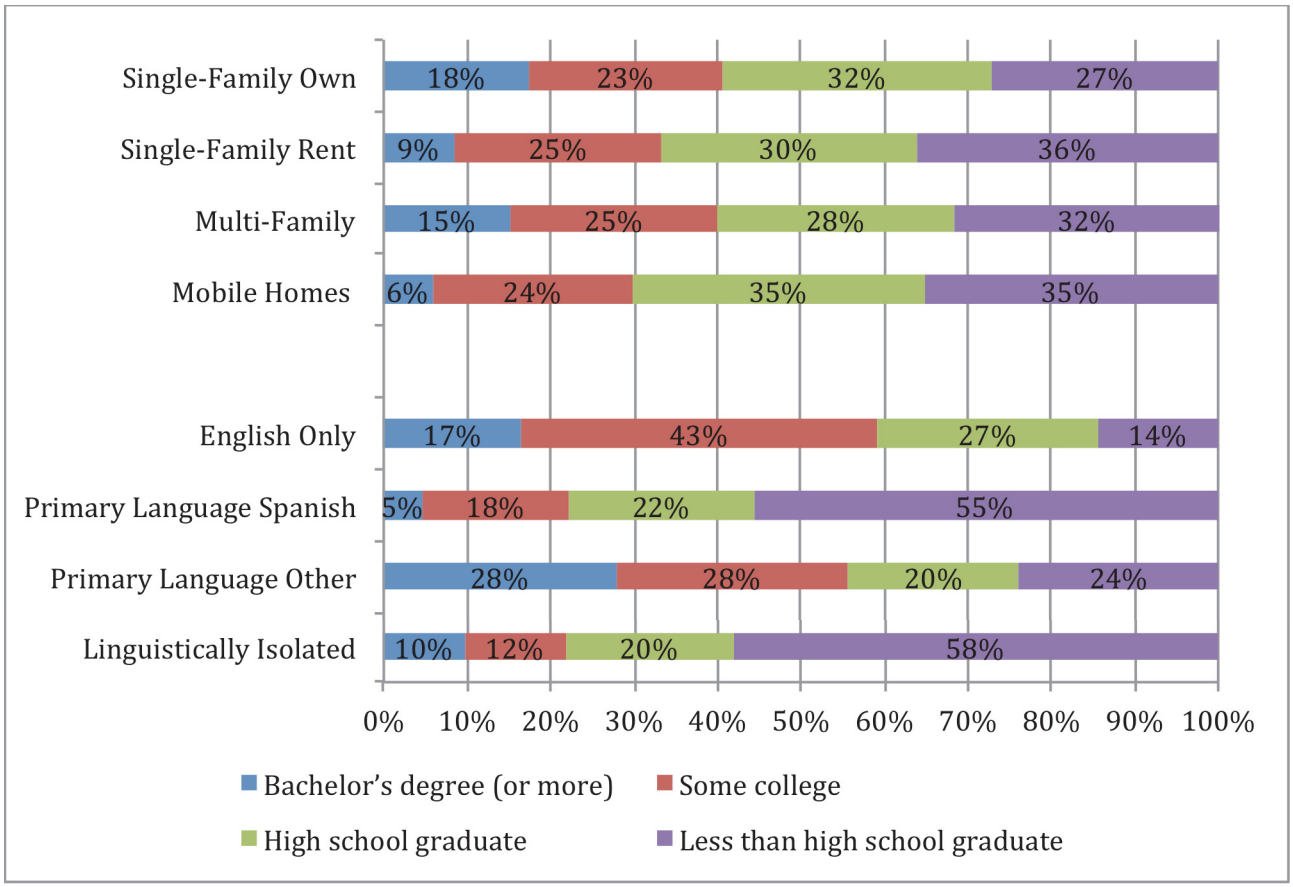
Table 20: Education of Head of Household - By Population and IOU

	Percent of California Population		Percent of California Low Income Population		Percent of California Low Income Population			
Year	**Total 2011**	**Total 2004**	**Total 2011**	**Total 2004**	**PG&E 2011**	**SCE 2011**	**SDG&E 2011**	**SoCalGas 2011**
Bachelor's degree (or more)	34%	31%	14%	13%	14%	13%	20%	13%
Some college	32%	32%	31%	28%	33%	29%	35%	29%
High school graduate	18%	20%	24%	25%	25%	24%	22%	23%
Less than high school graduate	15%	16%	31%	34%	28%	35%	23%	35%

Sources: 2004 and 2011 PUMS.

Figure 12 below shows education by LI home type and primary language segment, with some pronounced differences. The LI segments with the highest proportion of heads of households that have a bachelor's degree are single-family owner-occupied, multi-family and other language (besides Spanish) speakers. The primary language Spanish and linguistically isolated segments are more likely to be headed by someone with less than a high school graduate education.

Figure 12: Education of Head of Household - By Housing Type and Language For California LI Population



Source: 2011 PUMS.

Table 21 below shows the average annual household self-reported energy costs as reported by ACS respondents. Since 2004, self-reported energy costs have risen 19 percent since 2004, to an average of $1,782 for all households and $1,425 for LI households. PG&E LI households report the highest energy costs, and SDG&E the lowest. Section 5.5.2 reports on the energy burden (the ratio of energy costs to income) for the LI population compared to the total population, based on actual IOU billing data, self-reported income for our telephone survey respondents and self-reported income at the Census block group level for the population.

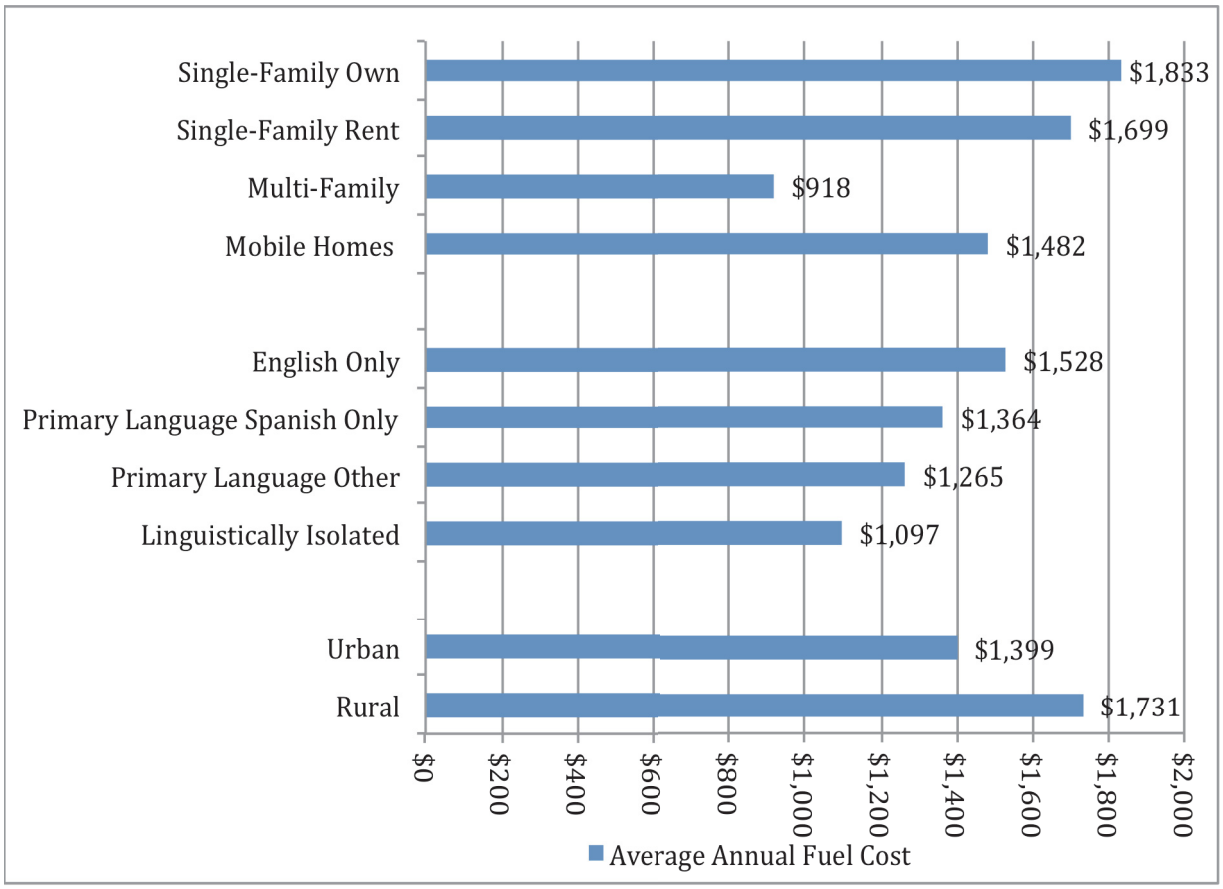
Table 21: Annual Household Energy Costs - By Population and IOU

	Percent of California Population		Percent of California Low Income Population		Percent of California Low Income Population			
Year	Total 2011	Total 2004	Total 2011	Total 2004	PG&E 2011	SCE 2011	SDG&E 2011	SoCalGas 2011
$1 – $249	2%	2%	4%	5%	5%	3%	7%	3%
$250 – $499	9%	9%	13%	15%	12%	11%	21%	11%
$500 – $749	12%	14%	16%	18%	14%	16%	20%	16%
$750 – $999	12%	14%	14%	15%	13%	16%	14%	15%
$1,000 – $1,249	11%	12%	12%	12%	12%	12%	10%	12%
$1,250 – $1,499	9%	9%	8%	8%	8%	9%	6%	9%
$1,500 – $1,999	14%	14%	12%	11%	13%	13%	7%	13%
$2,000 or greater	32%	25%	21%	16%	24%	21%	14%	21%
Average Annual Energy Cost	$1,782	$1,502	$1,425	$1,200	$1,483	$1,437	$1,110	$1,446

Source: 2004 and 2011 PUMS.

Figure 13 shows the variation in self-reported energy costs by LI home type, primary language and rural versus urban segment, with higher costs for single-family homes (which are generally larger and do not use shared systems), rural homes and English-only speaking households. Linguistically isolated homes tend to have lower energy costs, which we would expect, given the high proportion of linguistically isolated households that live in multi-family structures (Figure 2) and who are renters (Figure 3).

Figure 13: Annual Household Fuel Costs – By Housing Type, Language and Urban/Rural For California LI Population



Source: 2011 PUMS.

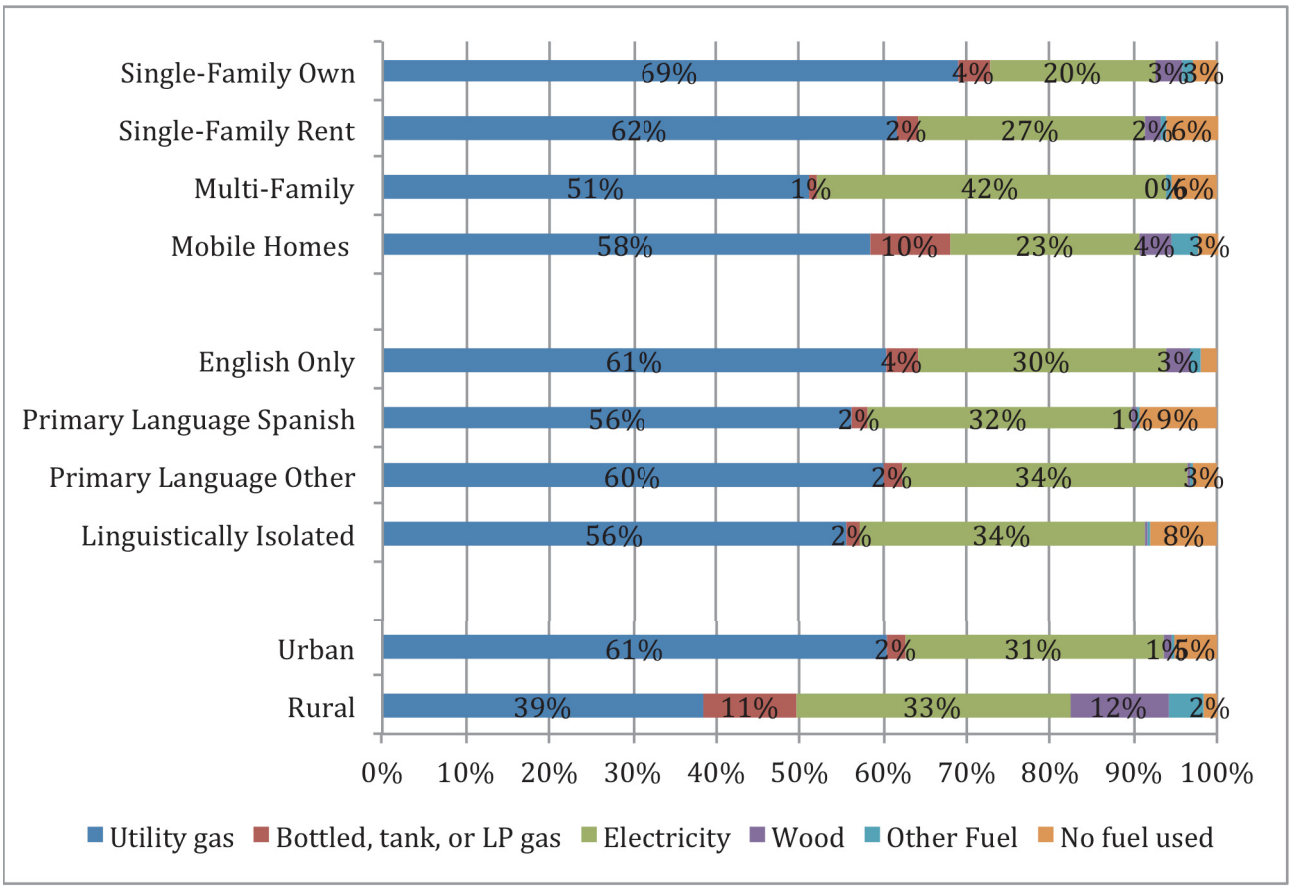
Table 22 shows the fuel that is used most for heating homes, with some differences in the use of heating fuels between the LI and total population and for the LI population, across IOUs. The majority of homes use natural gas (or utility gas, per the ACS survey) to heat their homes—66 percent of all homes and 59 percent of LI homes. This proportion has dropped by 7 percent for all homes since 2004 (and by 5% for LI homes). As shown in Figure 14, rural homes are much less likely to use natural gas to heat their homes, likely because natural gas service is not offered as often in remote and/or mountain locations.

Table 22: Heating Fuel Type - By Population and IOU

	Percent of California Population		Percent of California Low Income Population		Percent of California Low Income Population			
Year	Total 2011	Total 2004	Total 2011	Total 2004	PG&E 2011	SCE 2011	SDG&E 2011	SoCalGas 2011
Utility gas	66%	69%	59%	64%	56%	62%	52%	63%
Bottled, tank, or LP gas	3%	4%	3%	3%	4%	3%	2%	2%
Electricity	25%	22%	31%	25%	33%	27%	40%	27%
Wood	2%	2%	2%	2%	3%	1%	1%	1%
Other Fuel	1%	1%	1%	1%	1%	1%	1%	1%
No fuel used	3%	2%	5%	5%	2%	7%	4%	7%

Source: 2004 and 2011 PUMS.

Figure 14: Heating Fuel Type - By Housing Type, Language and Urban/Rural For California LI Population



Source: 2011 PUMS.

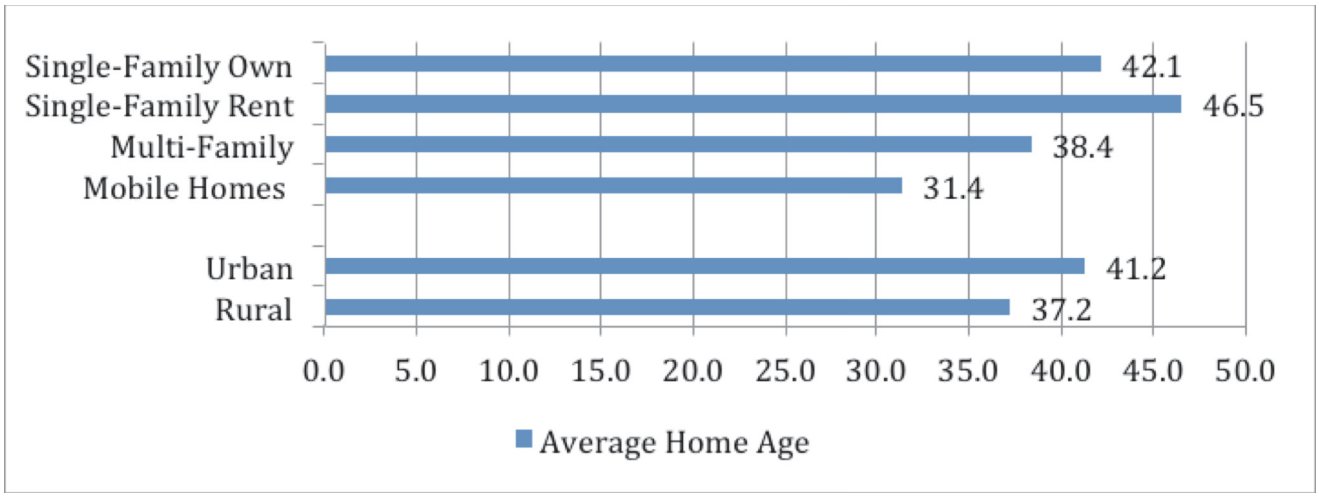
Table 23 shows the distribution and average age of homes, with only small differences between home vintage for LI versus all homes (LI homes are on average 42 years old compared to all homes, which are on average 40 years old). SDG&E's LI housing stock is the youngest, with an average age of 36 years. There are some differences in vintage across LI segments as shown in Figure 15, with renter-occupied single-family homes an average of five years older than owner-occupied single-family homes, and urban homes an average of four years older than rural homes.

Table 23: Age of Home - By Population and IOU

	Percent of California Population		Percent of California Low Income Population		Percent of California Low Income Population			
Year	Total 2011	Total 2004	Total 2011	Total 2004	PG&E 2011	SCE 2011	SDG&E 2011	SoCalGas 2011
1949 or earlier	16%	17%	17%	20%	16%	18%	8%	18%
1950 to 1969	28%	30%	29%	32%	26%	31%	26%	31%
1970 to 1989	33%	37%	34%	36%	35%	33%	45%	32%
1990 to 1999	11%	11%	9%	9%	10%	9%	11%	9%
2000 to 2011*	12%	5%	10%	3%	12%	9%	10%	9%
Average Home Age	39.9	N/A	41.7	N/A	40.1	42.5	35.9	42.6

Sources: 2004 and 2011 PUMS.

Figure 15: Age of Home – By Home Type and Urban/Rural For California LI Population



Source: 2011 PUMS.

Table 24 below shows the length of time households have resided at their current residence (tenure), with LI households reporting tenure 2 years shorter than the overall average (9 versus 11 years). Tenure has changed over time, but in a different direction for LI versus non-LI homes. LI homes have a shorter average tenure (by one year) compared to 2004, while the average for all homes is longer (by one year).

Table 24: Length of Time Residing at Present Address - By Population and IOU

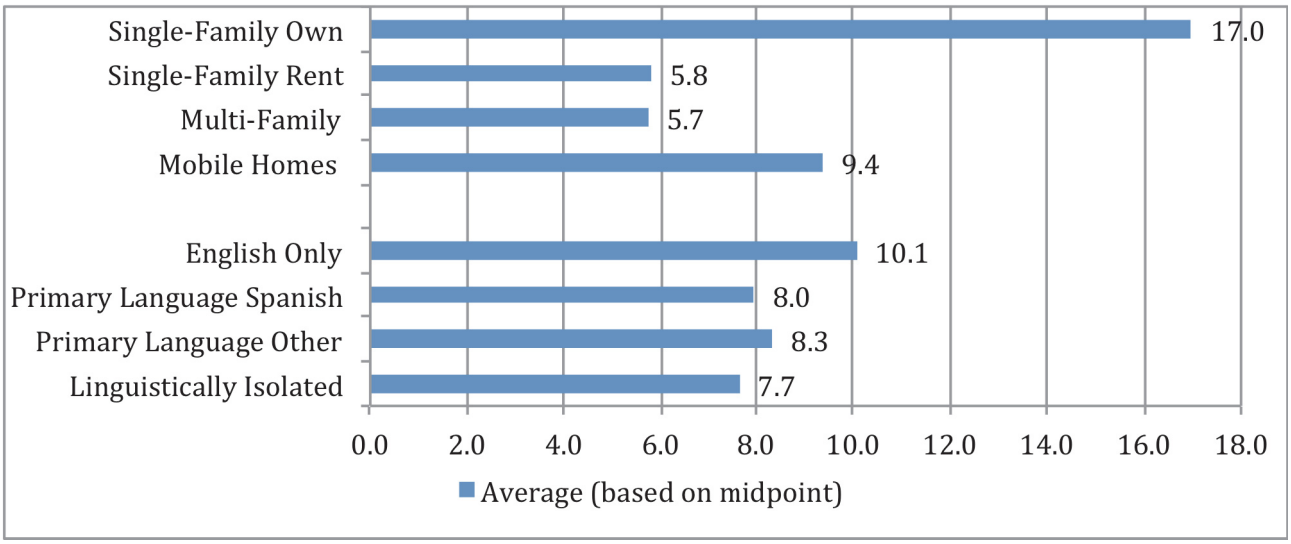
	Percent of California Population		Percent of California Low Income Population		Percent of California Low Income Population			
Year	Total 2011	Total 2004	Total 2011	Total 2004	PG&E 2011	SCE 2011	SDG&E 2011	SoCalGas 2011
23 months or less	23%	25%	28%	25%	30%	26%	29%	26%
2 to 4 years	19%	22%	22%	22%	22%	21%	25%	21%
5 to 9 years	19%	19%	18%	19%	17%	19%	19%	19%
10 to 19 years	20%	18%	17%	18%	16%	19%	15%	19%
20 to 29 years	9%	8%	7%	8%	7%	7%	6%	7%
30 years or more	9%	8%	8%	8%	9%	8%	7%	8%
Average (based on midpoint)	10.6	9.5	9.2	9.5	9.3	9.5	8.5	9.5

Source: 2004 and 2011 PUMS data.

Figure 16 shows tenure by LI segment, with single-family homeowners having a much longer average tenure than single-family renters and multi-family dwellers. Households speaking a

primary language other than English have a shorter average tenure than English-speaking households.

Figure 16: Length of Time Residing at Present Address - By Housing Type and Language For California LI Population



Source: 2011 PUMS.

4.3.2 Home and Equipment Characteristics

We used the 2013 CLASS data to describe the California total and California LI population's home and equipment characteristics. (In Section 7.3.2, we also present RASS equipment characteristic data by climate zone categories.) The columns of the first table of each result are:

- Percent of California population (including the LI population);
- Percent of California LI population;
- Percent of PG&E's California LI population;
- Percent of SCE's California LI population;
- Percent of SDG&E's California LI population; and
- Percent of SoCalGas's California LI population.

The segments that were relevant to this study, and were available and had sufficient sample sizes within the 2013 CLASS LI sub-sample are home type, home ownership and language. The specific segments we reviewed are:

- Single-family home occupied by homeowners;
- Single-family home occupied by renters;

- Multi-family homes;[12]
- Spanish is the primary language; and
- English-only.[13]

For most results, we present a follow-up chart that compares results across one or more of these segments of the LI population, where we identified substantial differences. The sample size (n) for the LI population segment is indicated in the caption of each exhibit. The sample size for each LI segment is indicated in the label for each segment within each chart.[14] More detailed sample size information (including standard errors for means) is provided in Section 7.3.

Table 25 below presents the average home size, with LI homes being an average of 332 square feet smaller than the average California home. Figure 17 compares the average LI home size by home type and ownership, with single-family homes occupied by owners being the largest, and multi-family homes being the smallest.

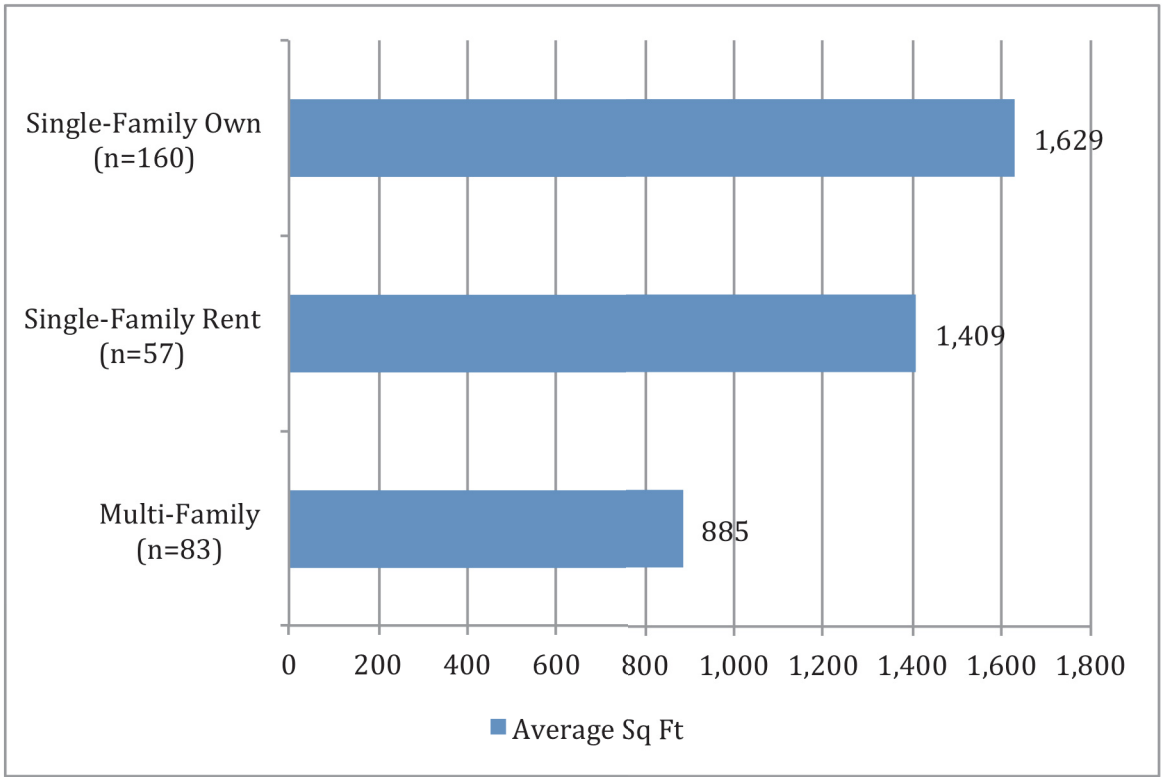
Table 25: Average Square Footage of Home – By Population Segment and IOU (LI Population n=311)

	Percent of California Population	Percent of California Low Income Population	Percent of California Low Income Population			
	Total	Total	PG&E	SCE	SDG&E	SoCalGas
Average Sq Ft	1,643	1,311	1,332	1,298	1,292	1,330

Source: 2013 CLASS.

[12] Multi-family homes are defined as any housing structure with two or more units. This differs from the 2007 KEMA study were multi-family homes are defined as housing structures with five or more units. This also differs from the concurrent Cadmus multi-family LI study which also defines multi-family homes as housing structures with five or more units. We excluded mobile homes as a segment category due to the small sample size in CLASS.
[13] The non-English/non-Spanish sample was too small to include as a segment for the CLASS data.
[14] Please note, in some cases the sum of the sample sizes of the LI segments do not match the total LI sample size as some categories in each segment were excluded, for example, mobile homes or other languages.

Figure 17: Average Square Footage of Home – By LI Home Type (LI Population n=311) For California LI Population



Source: 2013 CLASS.

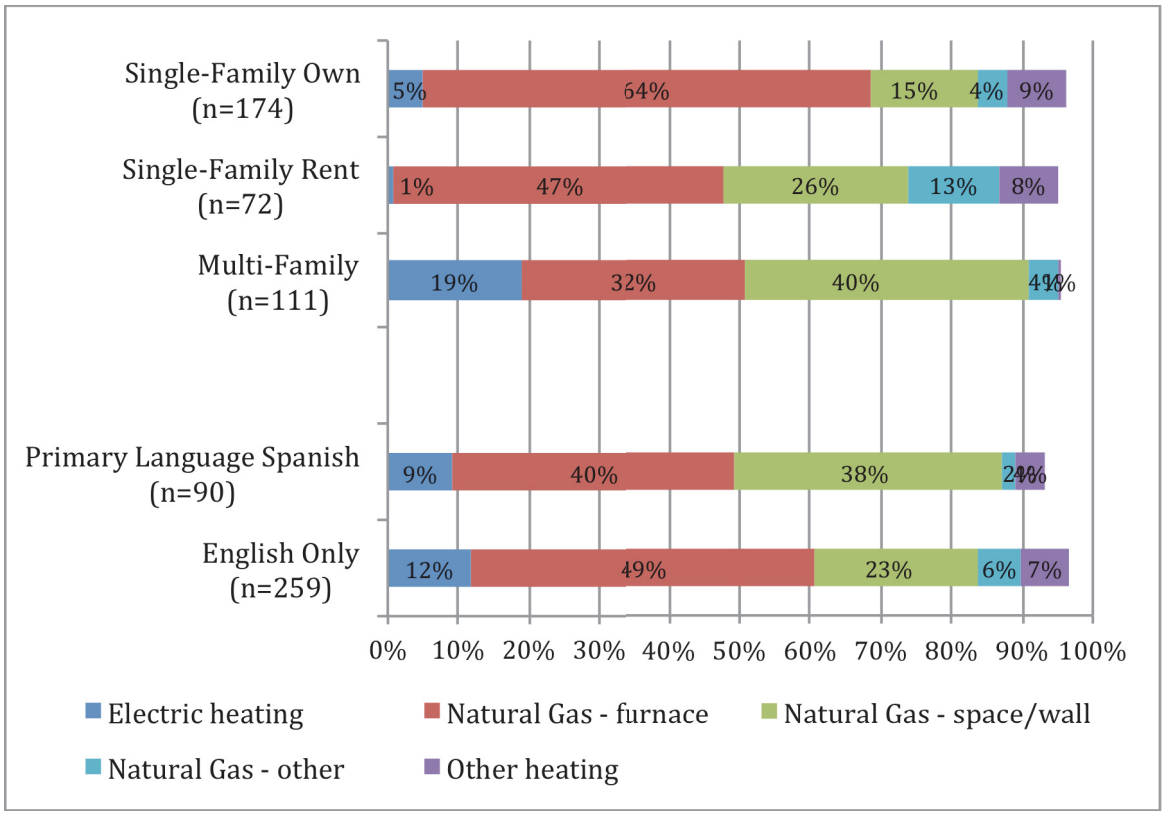
Table 26 shows the type of heating equipment and fuel used by California homes. The majority of equipment uses natural gas, with furnaces being the most common equipment type. As shown, LI homes are more likely to use wall or space heaters as compared to all California homes. SDG&E LI homes are less likely to use central heating and more likely to use portable or wall/baseboard heating, likely due to relatively milder winters. Figure 18 compares heating equipment by home type and ownership, with multi-family homes more likely to have electric heat.

Table 26: Heating Equipment and Fuel Type – By Population Segment and IOU (LI Population n=388)

	Percent of California Population	Percent of California Low Income Population	Percent of California Low Income Population			
	Total	Total	PG&E	SCE	SDG&E	SoCalGas
Electric Portable Heaters	2%	2%	1%	1%	3%	1%
Electric Resistance/Baseboard	2%	3%	4%	1%	9%	0%
Other Electric	7%	6%	4%	6%	13%	2%
Natural Gas Hot Air Furnace	61%	47%	48%	48%	46%	55%
Natural Gas Space Heaters/Wall Units	14%	27%	27%	30%	8%	31%
Other Gas	8%	5%	2%	7%	12%	7%
Propane	4%	2%	3%	2%	1%	0%
Wood or Coal	1%	4%	7%	1%	2%	0%
No Heating Equipment	2%	4%	4%	4%	7%	4%

Source: 2013 CLASS.

Figure 18: Heating Equipment and Fuel Type – By LI Home Type and Primary Language (LI Population n=388) For California LI Population



Source: 2013 CLASS.

Table 27 below shows cooling equipment type and age. As shown, LI homes are less likely to have central air conditioning as compared to the overall population. However, cooling equipment in LI homes is newer compared to the overall population's cooling equipment. As shown later in this section, multi-family homes are younger than single-family homes.

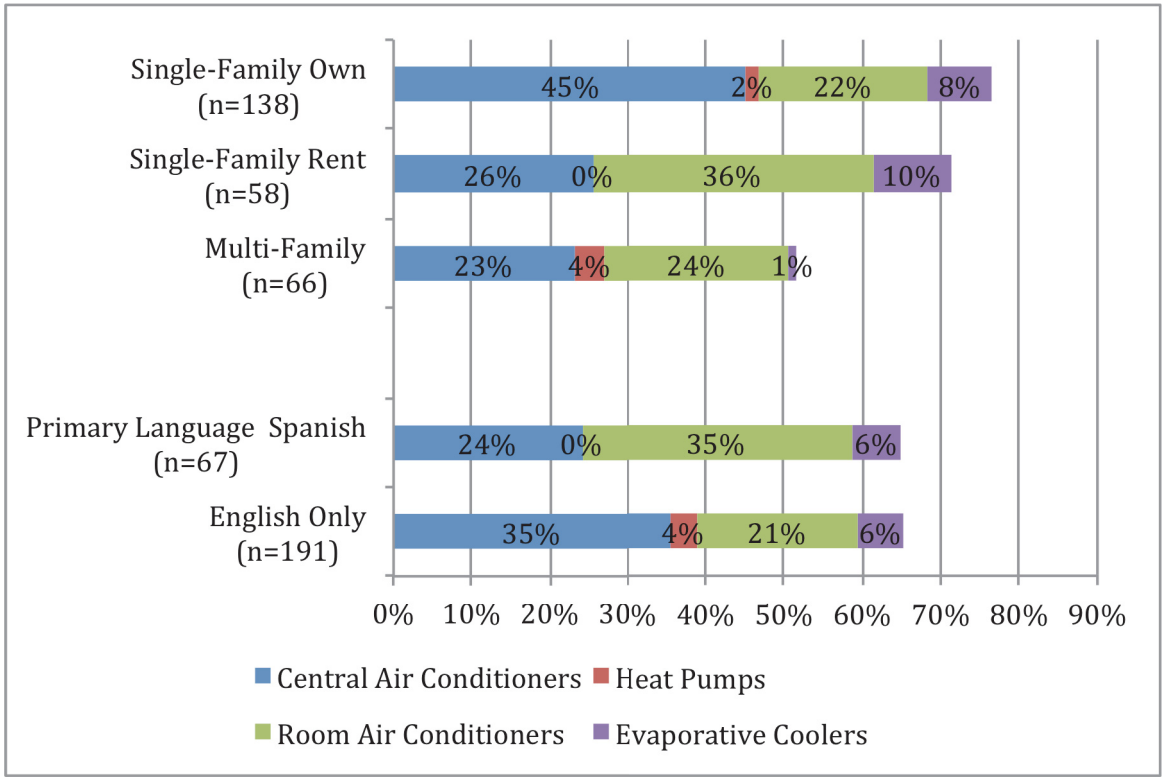
Figure 19 below shows cooling equipment by home type and language spoken, with single-family homeowners and English-only homes being the most likely to have central air conditioning. The difference between English-only and Spanish-speaking homes is not statistically significant.

Table 27: Cooling Equipment Type and Age – By Population Segment and IOU (LI Population n=388 for equipment; n=53* for age)

	Percent of California Population	Percent of California Low Income Population	Percent of California Low Income Population			
	Total	Total	PG&E	SCE	SDG&E	SoCalGas
Type of Cooling Equipment/Systems						
Central Air Conditioners	47%	32%	29%	38%	24%	41%
Heat Pumps	2%	2%	3%	3%	0%	1%
Room Air Conditioners	15%	25%	16%	36%	17%	32%
Evaporative Coolers	2%	6%	5%	7%	0%	6%
No Cooling Equipment	34%	35%	48%	17%	59%	20%
Age of Cooling Equipment						
<10 years	40%	53%	47%	62%	46%	57%
10-19 years	34%	27%	39%	23%	36%	27%
20-29 years	25%	20%	14%	16%	18%	15%
30 or more years	1%	0%	0%	0%	0%	0%
Average Age	12.7	10.0	10.1	9.5	12.1	9.8

* The sample size n=53 for cooling equipment age reflects the number of cooling equipment units with valid age data.
Source: 2013 CLASS.

Figure 19: Cooling Equipment – By LI Home Type and Primary Language (LI Population n=388) For California LI Population



Source: 2013 CLASS.

There is very little difference between the total population and LI total water heating equipment fuel type and age, as shown in Table 28 below. Most homes use natural gas for their water heating.

Table 28: Water Heating Equipment Type and Age – By Population Segment and IOU (LI Population n=388 for equipment; n=135* for age)

	Percent of California Population	Percent of California Low Income Population	Percent of California Low Income Population			
	Total	Total	PG&E	SCE	SDG&E	SoCalGas
Water Heating Fuel						
Electricity	6%	8%	10%	7%	3%	2%
Natural Gas	84%	81%	74%	90%	74%	96%
Propane	4%	3%	5%	1%	2%	0%
Solar	1%	1%	1%	1%	0%	1%
Unknown	5%	8%	11%	2%	21%	2%
Age of Water Heating Equipment						
1-5 years	35%	33%	27%	37%	42%	37%
6-10 years	48%	45%	55%	37%	48%	37%
11-15 years	7%	9%	10%	9%	4%	8%
16-20 years	5%	8%	4%	12%	6%	12%
More than 20 years	4%	5%	4%	6%	0%	6%
Average Age	7.8	8.2	8.2	8.5	6.9	8.5

* The sample size n=53 for water heating equipment age reflects the number of water heating equipment units with valid age data.
Source: 2013 CLASS.

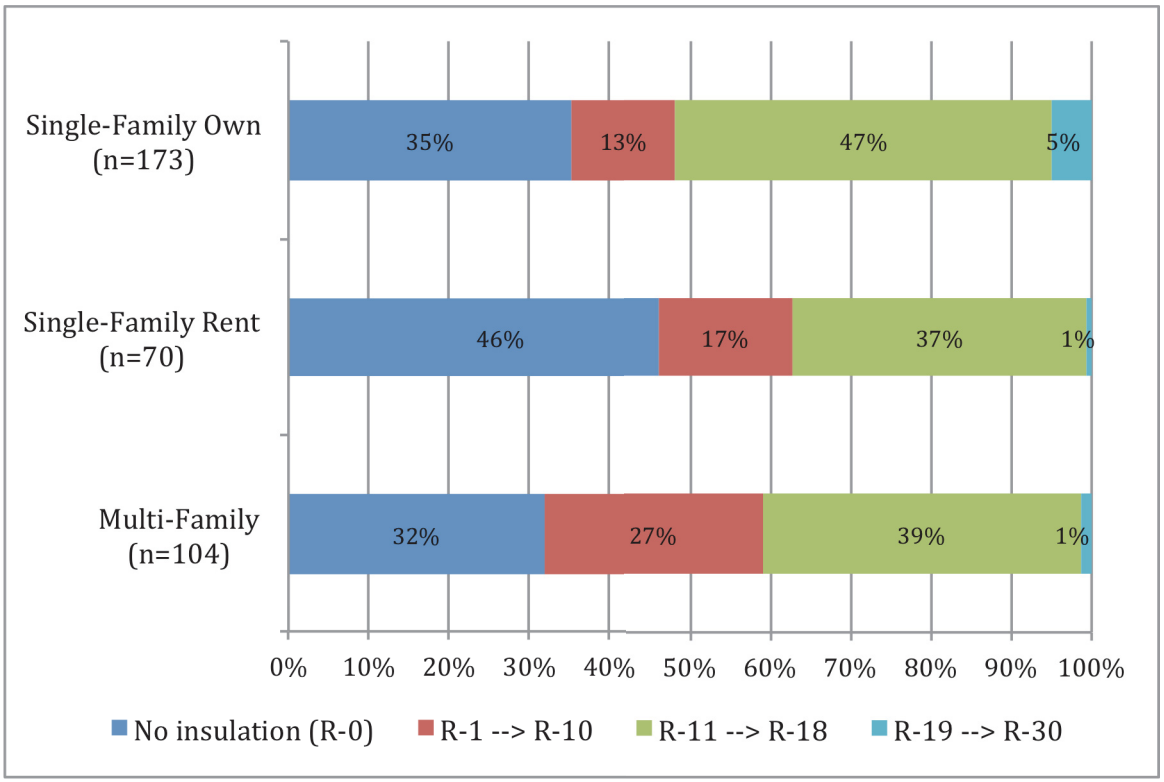
Table 29 shows the type of wall insulation that is present in California and LI homes, with the most common type between R-11 and R-18. LI homes typically have less wall insulation, with 35 percent having no insulation compared to 26 percent for the overall population. Figure 20 shows the same information by home type and ownership for the LI population, with single-family renters being the most likely (46%) to have no wall insulation—though this result is not statistically significant.

Table 29: Existing Wall Insulation R-Value – By Population Segment and IOU (LI Population n=358)

	Percent of California Population	Percent of California Low Income Population	Percent of California Low Income Population			
	Total	Total	PG&E	SCE	SDG&E	SoCalGas
No insulation (R-0)	26%	35%	36%	33%	49%	32%
R-1 --> R-10	15%	20%	23%	20%	9%	20%
R-11 --> R-18	54%	44%	37%	45%	41%	47%
R-19 --> R-30	5%	0%	5%	1%	1%	1%

Source: 2013 CLASS.

Figure 20: Existing Wall Insulation R-Value – By LI Home Type (LI Population n=358) For California LI Population



Source: 2013 CLASS.

Table 30 shows the foundation type of California homes, with just over half having a slab foundation. Figure 21 shows foundation type for LI homes by home type and ownership, with multi-family homes most likely (62%) to have a slab foundation, though this result is not statistically significant. A high proportion of slab foundations could be an area of potential energy savings if slab edge insulation is lacking. The US Department of Energy's Office of Building Technology indicates that exterior edge slab insulation can reduce winter heating bills by 10 – 20 percent.[15]

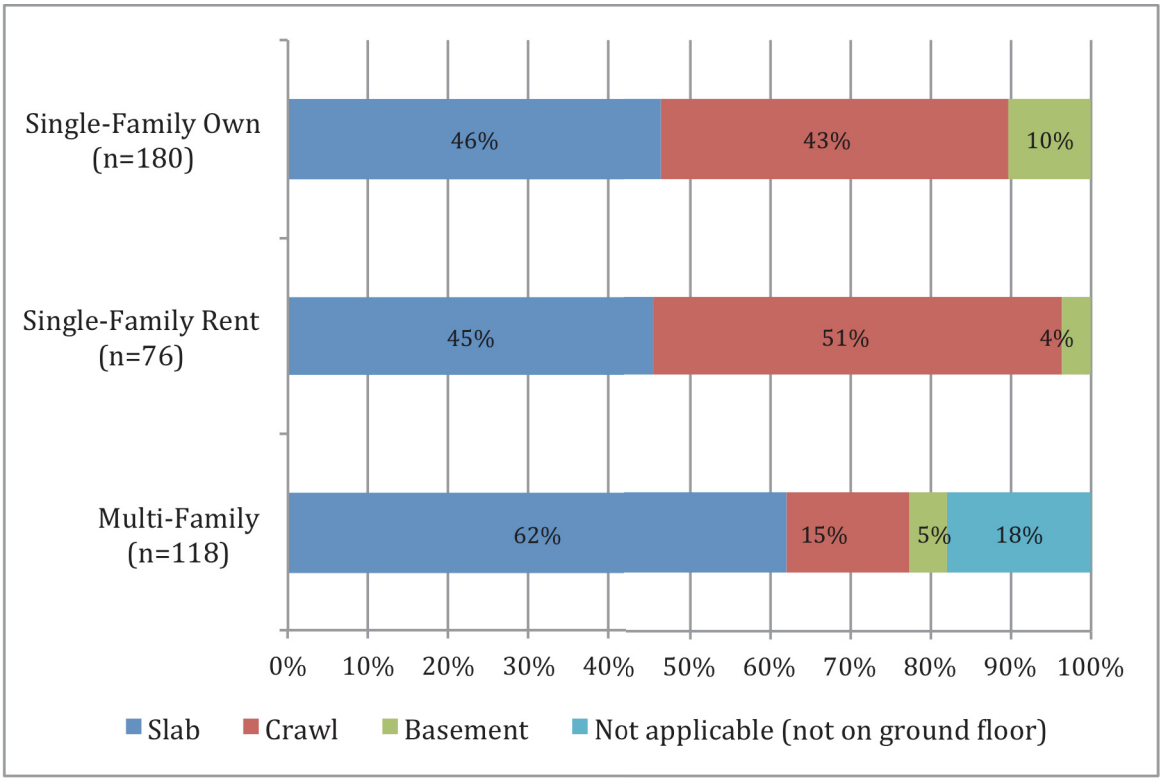
[15] Office of Building Technology. Technology Fact Sheet Slab Insulation. http://web.ornl.gov/sci/roofs%2Bwalls/insulation/fact%20sheets/slab%20insulation%20technology.pdf

Table 30: Foundation Type – By Population Segment and IOU (LI Population n=387)

	Percent of California Population	Percent of California Low Income Population	Percent of California Low Income Population			
	Total	Total	PG&E	SCE	SDG&E	SoCalGas
Slab	55%	52%	42%	59%	70%	60%
Crawl	31%	34%	39%	32%	15%	33%
Basement	7%	7%	10%	3%	7%	3%
Mobile home skirting	<1%	<1%	1%	0%	0%	0%
Not applicable (not on ground floor)	7%	9%	9%	6%	8%	4%

Source: 2013 CLASS.

Figure 21: Foundation Type – By LI Home Type (LI Population n=387) For California LI Population



Source: 2013 CLASS.

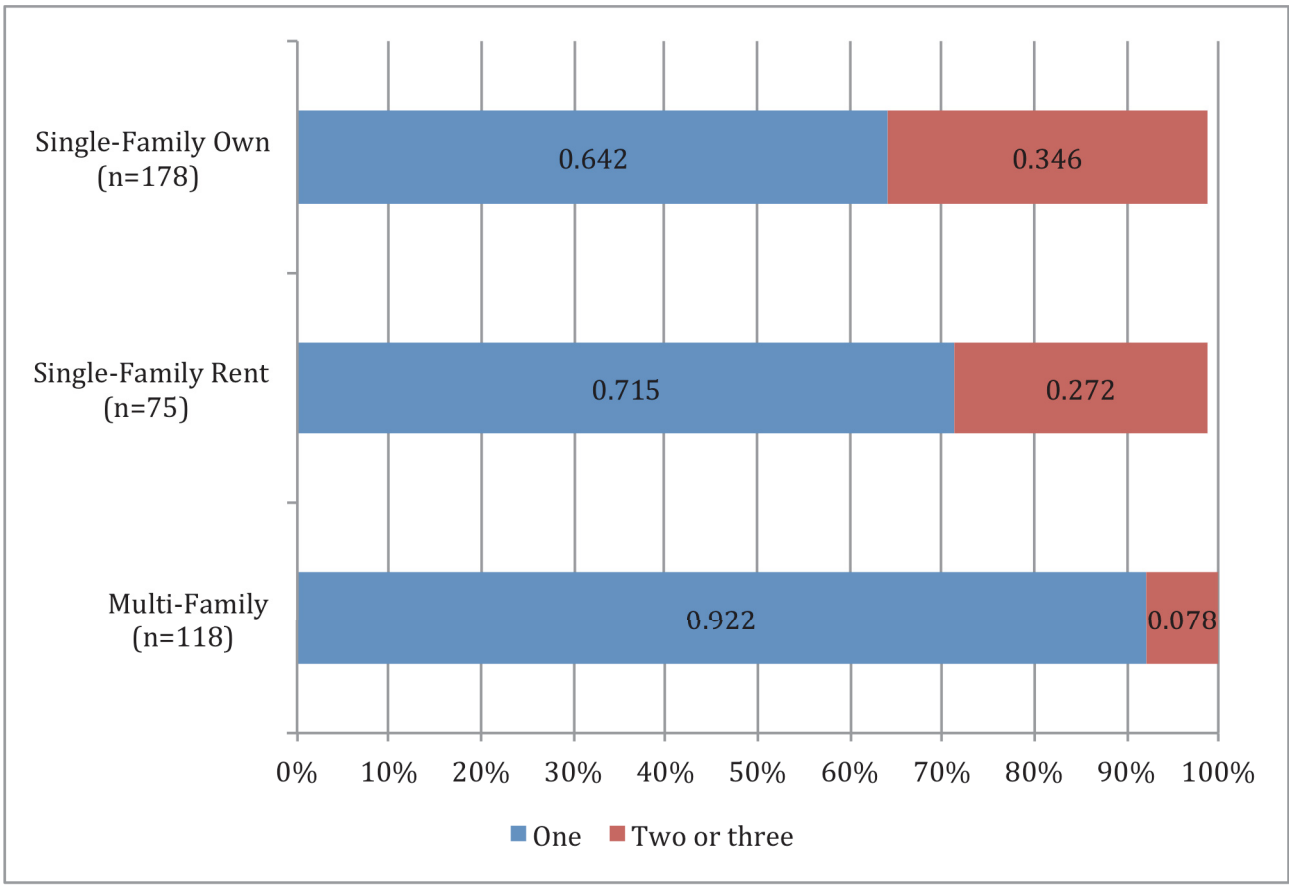
Table 31 below shows the number of refrigerators and their age. LI homes are more likely to have only one refrigerator, and their refrigerators are on average one year newer as compared to the overall population. Figure 22 shows the same information for the LI population by home type and ownership, with single-family homes much more likely to have a second or third refrigerator.

Table 31: Refrigerator Characteristics – By Population Segment and IOU (LI Population n=388 for equipment; n=268* for age)

	Percent of California Population	Percent of California Low Income Population	Percent of California Low Income Population			
	Total	Total	PG&E	SCE	SDG&E	SoCalGas
Number of Refrigerators						
One	70%	77%	82%	73%	74%	73%
Two or three	29%	22%	18%	26%	26%	24%
Age						
<6 years	24%	28%	27%	28%	43%	28%
6-10 years	37%	42%	42%	41%	37%	40%
11-15 years	24%	18%	20%	17%	8%	21%
16+ years	16%	13%	10%	15%	12%	12%
Average Age	9.8	8.8	8.8	9.0	7.3	8.5

* The sample size n=53 for refrigerator age reflects the number of refrigerator units with valid age data.
Source: 2013 CLASS.

Figure 22: Refrigerator Quantity – By LI Home Type (LI Population n=371) For California LI Population



Source: 2013 CLASS.

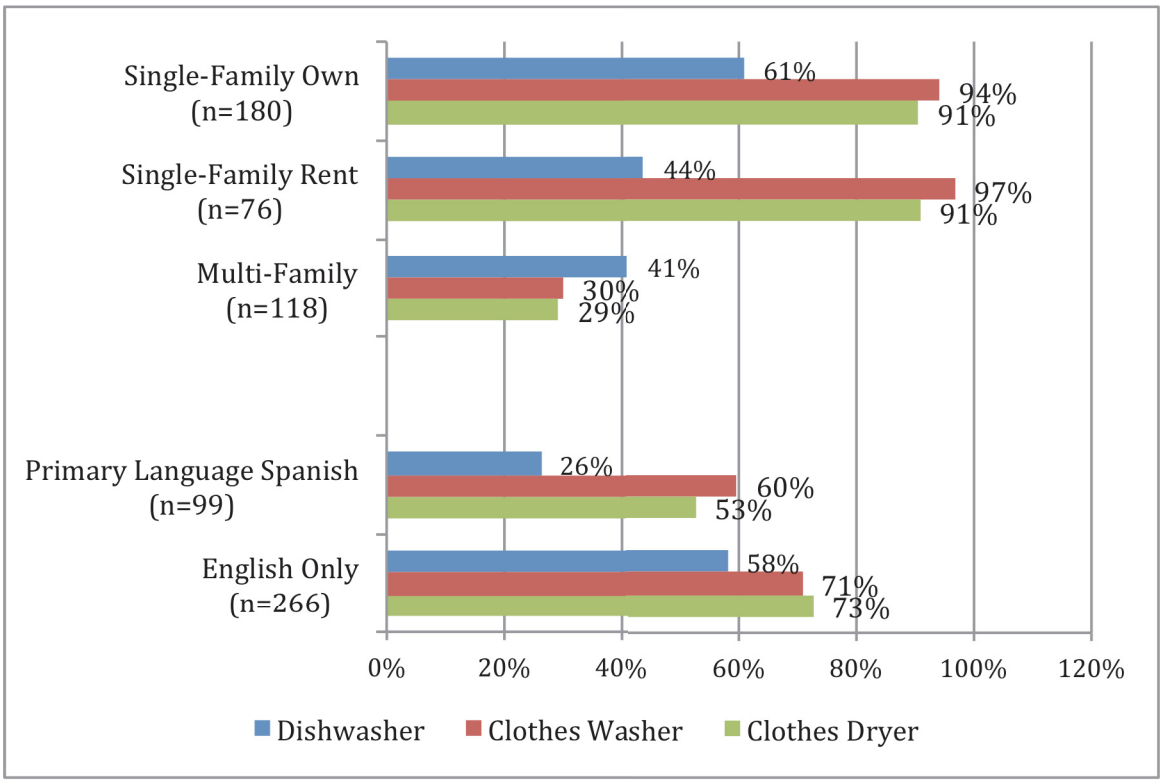
Table 32 shows the presence of appliances and for clothes dryer, fuel type. LI homes are less likely to have clothes washers, dryers and dishwashers than the total population. As shown in Figure 23, single-family homes are more likely to have clothes washers and dryers, and single-family homeowners and English-only homes are more likely to have dishwashers.

Table 32: Home Appliance Types – By Population Segment and IOU (LI Population n=388)

	Percent of California Population	Percent of California Low Income Population	Percent of California Low Income Population			
	Total	Total	PG&E	SCE	SDG&E	SoCalGas
Dishwasher	74%	50%	45%	54%	56%	52%
No Dishwasher	26%	50%	55%	46%	44%	48%
Clothes Washer	81%	68%	68%	70%	63%	74%
No Clothes Washer	19%	32%	32%	30%	37%	26%
Clothes Dryer	79%	66%	65%	68%	60%	72%
Electric	28%	24%	42%	8%	17%	7%
Gas	49%	40%	21%	59%	43%	65%
Propane	2%	2%	2%	1%	1%	0%
No Clothes Dryer	21%	35%	35%	32%	40%	28%

Source: 2013 CLASS.

Figure 23: Home Appliance Presence – By LI Home Type and Language (LI Population n=388) For California LI Population



Source: 2013 CLASS.

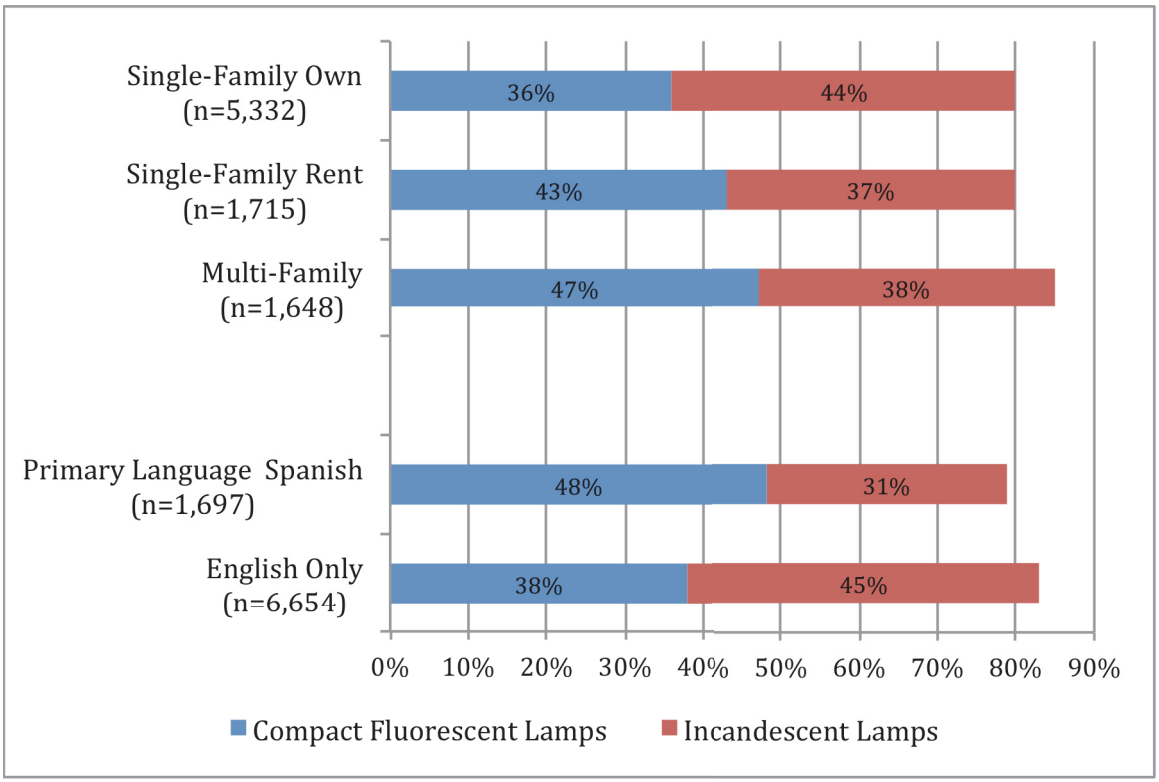
Table 33 shows the distribution of lamp types installed in homes, with only small, but statistically significant, differences in the fraction of CFLs and incandescent lamps in use in LI and all homes (34% for California homes and 41% for California LI homes). Only a small fraction of homes use lighting controls (18% of total and 14% of LI homes.) Spanish-speaking and multi-family LI homes have more CFLs on average than single-family and English-only LI homes, as shown in Figure 24. This may be a reflection of the many LI programs, including ESA, that have been in operation since the early 2000s that have provided CFLs at low or no cost to hard-to-reach communities.

Table 33: Lighting Types – By Population Segment and IOU (LI Population n=8,982)

	Percent of California Population	Percent of California Low Income Population	Percent of California Low Income Population			
	Total	Total	PG&E	SCE	SDG&E	SoCalGas
Lighting Type						
Incandescent Lamps	47%	41%	40%	41%	41%	42%
CFLs	34%	41%	42%	39%	40%	39%
Fluorescent Fixtures	7%	8%	7%	9%	11%	9%
Halogen Lamps	7%	4%	3%	4%	3%	4%
Other	4%	7%	7%	7%	5%	6%
Lighting Controls Installed	18%	14%	15%	14%	12%	14%
No Lighting Controls	82%	86%	85%	86%	88%	86%

* The sample size n=8,982 represents the total quantity of lighting fixtures in LI households.
Source: 2013 CLASS.

Figure 24: Lighting Types – By LI Home Type and Language (LI Population n=8,982*) For California LI Population



* The sample size n=8,982 represents the total quantity of lighting fixtures in LI households.
Source: 2013 CLASS

4.4 ESA Program Measures

Table 34 below indicates the measures available to customers participating in ESA. The CEC Climate Zone eligibility is shown in the second column and the final column indicates additional eligibility requirements based on IOU, home ownership and home type.

Table 34: ESA Program Measure Eligibility

Measure	CEC Climate Zone Eligibility	Other Eligibility
HVAC		
Gas Furnace Repair/Replace[1]	All	Homeowners only; safety measure only
Forced Air Unit Standing Pilot Light Conversion	All	SDG&E and SoCalGas only
Furnace Clean & Tune	5, 6, 7, 8, 9, 10, 13, 14, 15, 16	SDG&E and SoCalGas only
Room A/C Replacement	10, 13, 14, 16	For PG&E – single-family homeowners only
Central A/C Replacement	13 (PG&E only), 14, 15	For PG&E – single-family homeowners only
Central A/C Tune-up	2, 4, 6, 10, 11, 12, 13, 14, 15, 16	
Heat Pump	14, 15	SCE only
Evaporative Coolers	1-4, 10, 11, 12, 13, 14, 15, 16	PG&E and SCE only; no multi-family
Evaporative Cooler Tune-up	All	
Infiltration and Space Conditioning		
Envelope and Air Sealing Measures	All	
Duct Sealing	All	No multi-family
Attic Insulation	All	No mobile homes
Water Heating Measures		
Water Heater Conservation Measures	All	
Water Heater Replacement - Gas	All	Homeowners only
High Efficiency Clothes Washer	All	SDG&E and SoCalGas only
Thermostatic Shower Valve	All	No SCE
Lighting Measures		
CFL Lighting	All	
Interior Hard-wired	All	No SCE

Measure	CEC Climate Zone Eligibility	Other Eligibility
CFL fixtures		
Exterior Hard-wired CFL fixtures	All	SCE and SDG&E – no multi-family or mobile homes
Torchiere	All	
Occupancy Sensors	All	PG&E only
LED Night Light	All	SDG&E only
Other		
Refrigerators	All	
Pool Pumps	All	SCE single-family homes only
Microwave Ovens	All	PG&E and SDG&E only
Minor Home Repairs	All	
AC Time Delay	Varies based on home type	PG&E only
Smart power strips	All	SDG&E and SCE only

[1]Some exclusions for climate zones 6 and 8 for gas-heated homes.
[2]This measure is only for furnaces that are unsafe (e.g., fail a natural gas safety check), it is not intended as an energy efficiency measure.
Source: ESA measure eligibility table (approved on July 15, 2013) provided via email by the CPUC on August 12, 2013.

Table 35, Table 36, Table 37 and Table 38 below show the number of participating households that received each ESA measure (electric and gas measures, respectively) and the total electricity and gas savings by measure for 2011, based on the recent ESA impact evaluation. We used this information to understand the distribution of measure installations and savings contributions across IOUs.

Table 35: Electric ESA Measures Installed in 2011

Measure	Number of Households that Received the Measure			
	PG&E	SCE	SDG&E	Total
HVAC				
Room AC	3,202	931	305	4,438
Central AC	79	4,877	30	4,986
Central AC Tune-Up	12,123	32	59	12,214
Evaporative Cooler	5,841	15,970	0	21,811
Evaporative Cooler Tune-Up	0	9	0	9
Infiltration and Space Conditioning				
Weatherization	64,751	531	16,756	82,038
Duct Test Seal	3,007	4,499	937	8,443
Insulation	6,290	0	789	7,079
Water Heating Measures				
Faucet Aerator	0	397	1,271	1,668
Low Flow Showerhead	0	420	449	869
Thermostatic Shower Valve	0	0	272	272
Water Heater Blanket	0	63	52	115
Water Heater Pipe Insulation	0	64	87	151
Water Heater Repair/Replace	0	0	6	6
Water Heater Conservation Measures	8,450	0	0	8,450
High Efficiency Clothes Washer	0	0	1,668	1,668
Lighting Measures				
CFL	99,402	68,053	16,488	183,943
Hard-wired Lights	87,276	0	6,641	93,917
LED Night Lights	0	0	20,452	20,452
Torchiere	0	2,582	6,612	9,194
Lighting	26,414	835	0	27,249
Other				
Microwaves	0	0	1,524	1,524
Refrigerator	16,773	16,758	1,810	35,341
Pool Pump	0	1,912	0	1,912

Source: 2011 ESA Impact Evaluation, Appendix D (Evergreen Economics, August 30, 2013).

Table 36: Gas ESA Measures Installed in 2011

Measure	Number of Households that Received the Measure			
	PG&E	SoCalGas	SDG&E	Total
HVAC				
Furnace Clean & Tune	0	20,199	5,224	25,423
Furnace Repair/Replace	3,415	15,676	3,010	22,101
Pilot Light Conversion	0	109	310	419
Infiltration and Space Conditioning				
Duct Test Seal	3,578	2,616	929	7,123
Weatherization	69,585	109,070	7,011	185,666
Insulation	7,165	8,236	726	16,127
Water Heating Measures				
High Efficiency Clothes Washer	0	4,680	1,585	6,265
Faucet Aerator	0	0	10,370	10,370
Low Flow Showerhead	0	0	10,144	10,144
Thermostatic Shower Valve	0	0	3,816	3,816
Water Heater Blanket	0	0	787	787
Water Heater Pipe Insulation	0	0	503	503
Water Heater Repair/Replace	1,326	1,819	1,236	4,381
Water Heater Conservation Measures	79,662	114,139	0	193,801

Source: 2011 ESA Impact Evaluation, Appendix D (Evergreen Economics, August 30, 2013).

Table 37: 2011 ESA Electricity Savings by Measure

Measure	First-Year Electricity Savings (kWh)			
	PG&E	SCE	SDG&E	Total
HVAC				
Room AC	356,399	52,757	8,323	417,479
Central AC	11,182	782,397	425	794,004
Central AC Tune-Up	2,788,718	5,462	13,519	2,807,699
Evaporative Cooler	1,531,214	7,150,369	0	8,681,583
Evaporative Cooler Tune-Up	0	334	0	334
Infiltration and Space Conditioning				
Weatherization	10,887,753	29,273	830,475	11,747,501
Duct Test Seal	337,597	92,381	52,210	482,188
Insulation	920,493	0	76,691	997,184
Water Heating Measures				
Faucet Aerator	0	64,344	4,199	68,543
Low Flow Showerhead	0	44,184	2,541	46,725
Thermostatic Shower Valve	0	0	20,079	20,079
Water Heater Blanket	0	5,460	173	5,633
Water Heater Pipe Insulation	0	5,460	34	5,494
Water Heater Repair/Replace	0	0	0	0
Water Heater Conservation Measures	2,309,384	0	0	2,309,384
High Efficiency Clothes Washer	0	0	205,255	205,255
Lighting Measures				
CFL	7,484,304	4,848,777	1,848,447	14,181,528
Hard-wired Lights	12,719,484	0	778,420	13,497,904
LED Night Lights	0	0	60,017	60,017
Torchiere	0	247,252	225,195	472,447
Lighting	3,710,458	41,191	0	3,751,649
Other				
Microwaves	0	0	101,370	101,370
Refrigerator	10,992,293	12,970,606	1,159,157	25,122,056
Pool Pump	0	2,080,256	0	2,080,256
Total	**54,049,279**	**28,420,503**	**5,386,530**	**87,856,312**

Source: 2011 ESA Impact Evaluation, Appendix D (Evergreen Economics, August 30, 2013).

Table 38: 2011 ESA Gas Savings by Measure

Measure	First-Year Gas Savings (therms)			
	PG&E	SoCalGas	SDG&E	Total
HVAC				
Furnace Clean & Tune	0	114,174	50,885	165,059
Furnace Repair/Replace	4,030	0	0	4,030
Pilot Light Conversion	0	4,830	4,680	9,510
Infiltration and Space Conditioning				
Duct Test Seal	61,582	40,218	13,500	115,300
Weatherization	658,546	432,161	23,152	1,113,859
Insulation	318,832	218,406	19,313	556,551
Water Heating Measures				
High Efficiency Clothes Washer	0	144,531	25,166	169,697
Faucet Aerator	0	0	7,647	7,647
Low Flow Showerhead	0	0	9,600	9,600
Thermostatic Shower Valve	0	0	15,318	15,318
Water Heater Blanket	0	0	376	376
Water Heater Pipe Insulation	0	0	23	23
Water Heater Repair/Replace	7,355	6,402	8,405	22,162
Water Heater Conservation Measures	1,109,099	377,331	0	1,486,430
Total	**2,159,444**	**1,338,053**	**178,065**	**3,675,562**

Source: 2011 ESA Impact Evaluation, Appendix D (Evergreen Economics, August 30, 2013).

4.5 Remaining ESA Program Energy Savings Potential

This report contains data that could be used in combination with the recent 2011 ESA impact evaluation to inform the development of estimates of the remaining ESA program energy savings potential.

In particular, these study results could be used to inform ESA program energy savings potential:

- In Section 4.1, we report Athens Research estimates of the remaining ESA eligible population;
- In Section 4.2, we report KEMA RASS and CLASS data that indicate the types of energy-using appliances and equipment that LI (i.e., likely ESA eligible) customers have;
- In Section 4.3, we report Evergreen Economics 2011 ESA impact evaluation results by IOU and measure category; and
- In Section 5, we report phone survey and in-home visit results that indicate the types of measures that customers who are enrolled in CARE (who are likely income-eligible for ESA) who have not yet participated in ESA say they need (based on the phone survey) and we observed they need (based on the in-home visit).

The most critical data that could be used to inform energy savings potential for the ESA program is robust current data on the energy equipment characteristics of non-participating homes. The prior KEMA LINA study collected such data and developed estimates of remaining potential, but those estimates are based on data collected in 2004. This current study lacked the resources to include a large representative sample of non-participants, with auditors spending several hours per home collecting detailed (e.g., name plate) data on all the energy-using equipment.

In addition to the critical data gap, there are caveats associated with using past data to inform estimates of future energy savings potential, including:

- The remaining ESA non-participants are different than recent or past ESA participants —as evidenced in this study, which our telephone survey data highlight (see summary in Section 5.4.5). However, there is likely non-response bias in our telephone survey so the ESA non-participants we conducted surveys with do not represent all the remaining ESA non-participants (refer to the discussion in Section 5.1.1.2 below); they represent those remaining ESA non-participants who may be contacted by phone and are willing to talk to a surveyor about LI-related issues. There are additional ESA non-participants who may have different home characteristics and needs and savings potential.
- ESA impact savings estimates are not consistent over time, possibly reinforcing the issue raised in the previous bullet that ESA participants are not the same and the programs have probably reached those with the most savings potential in earlier program cycles, leaving those with less savings potential (and perhaps more barriers to reaching them).

A recent energy efficiency potential study, conducted by Navigant Consulting,[16] used California IOU data combined with estimates from the prior KEMA LINA study to develop estimates of remaining energy efficiency potential in the LI sector. They estimated technical potential[17] per household of 208 kWh and 9 therms. These estimates are close to other available estimates on average per household ESA energy savings, as shown in Table 39 below.

[16] Analysis to Update Energy Efficiency Potential, goals and Targets for 2013 and Beyond – Track 1 Statewide Investor-Owned Utility Energy Efficiency Potential Study. Prepared for the California Public Utilities Commission. Navigant Consulting, Inc. and Heschong Mahone Group, March 19, 2012.

[17] Technical potential is defined as the amount of energy savings that would be possible if all technically applicable and feasible opportunities to improve energy efficiency were taken, including retrofit measures, replace-on-burnout measures, and new construction measures. It does not take into account whether such retrofits are economically feasible (economic potential) or what fraction would be likely to occur given the current market conditions (market potential).

Table 39 – ESA Potential Estimates

Source	Per LI Household Electricity Savings (kWh/year)	Percentage Savings (based on CARE customer consumption)	Per LI Household Gas Savings (therms/year)	Percentage Savings (based on CARE customer consumption)
2012 Navigant Energy Efficiency Potential Study	208	3%	9	2%
2013 Evergreen Economics ESA Impact Evaluation – PG&E	367	6%	22	6%
2013 Evergreen Economics ESA Impact Evaluation – SCE	279	4%	NA	NA
2013 Evergreen Economics ESA Impact Evaluation – SDG&E	279	4%	26	7%
2013 Evergreen Economics ESA Impact Evaluation – SoCalGas	NA	NA	13	3%
2007 KEMA LINA Study	150	2%	22	6%
Average IOU CARE customer annual consumption (based on IOU 2012 CARE/ESA Annual Reports)	6,564	100%	372	100%

We may combine the technical potential estimates with our study's estimates of willingness to participate to yield estimates of market potential, which for LI households is the technical potential combined with the fraction of households that would be willing to participate in the ESA program. As presented in Section 5.4.4.1, we estimate that 52 percent of income-eligible non-participant homes are willing to participate in ESA. Note that this estimate does not include some unwilling non-participants whose barriers could be addressed by the program, such as renters who do not want to ask their landlord for permission.

We may apply the technical potential estimates and the willing to participate estimates to the 2012 estimates of the number of income-eligible non-participant homes from Table 2 in Section 4.1 above by fuel[18] as follows:

[18] Based on Athens Research analysis.

- Total ESA electric savings potential = 208 kWh x 52% (WTP) x 3,133,942 income-eligible electric IOU customers = 339 MWh.
- Total ESA gas savings potential = 9 therms x 52% (WTP) x 3,714,462 income-eligible gas IOU customers = 17.4 million therms.

We provide recommendations for filling data gaps in Section 3 of this report that are intended to guide the development of a future study that could more accurately and robustly determine the remaining energy savings potential for the ESA program.

5 Low-Income Population Needs and Program Assessment

This section describes the needs of the state of California's low-income (LI) population, how the programs are meeting those needs and whether there exist unmet needs.

5.1 Overview of Sources

We used a variety of sources to support the assessment in this report section (see Section 3 for a description of the research methods). We used the following sources to develop a brief overview for each subsection that provides program context:

- **Program staff in-depth interviews** with each of the IOU program staff for CARE and ESA that provided information about how the programs are implemented and feedback on barriers to participation and meeting customers' energy needs;
- **ESA contractor in-depth interviews** with 11 contractors that do ESA outreach and assessments[19] that provided feedback from contractors on customer outreach, enrollment and eligibility screening;
- **CARE contractor in-depth interviews** with interviews with six contractors that conduct outreach for the CARE program (including those that target Chinese, Vietnamese, Pacific Islanders, Hispanic, Korean and vision-impaired customers), typically offering a wide range of service referrals (e.g., on substance abuse, health care, domestic violence) to LI clients, on customer outreach and barriers to participation; and
- **Literature review** of numerous LI studies and information sources to obtain an understanding of the policies governing the programs and program implementation details, with a focus on customer outreach, enrollment and eligibility and meeting customers' energy needs.

We relied on the following primary research and data analysis to develop the assessments:

- **1,028 telephone survey of CARE customers**[20] including ESA participants (from 2002 – 2012) and ESA non-participants, with highlights of the main findings found in this section including comparisons to prior KEMA LINA study where possible, with more detailed findings provided in the Appendix, Section 8;[21]

[19] We did not interview any ESA installation or inspection contractors.
[20] Due to the CARE program's high penetration rate (see Section 2.1.1) and the consistent income and household size eligibility criteria for CARE and ESA (see Section 2.1), CARE customers are a proxy for customers who are income-eligible for both CARE and ESA.
[21] Section 4.3 also leverages the customer telephone survey to present some demographic information about LI customers, based on their ESA participation status.

- We examined differences in the phone survey results by a number of program categories and LI population segments, including but not limited to CARE participants (which is the basis of the sample frame), ESA participants, ESA non-participants (that are enrolled in CARE), home type, home ownership, language, urban versus rural and climate zone categories. We provide highlights of the telephone survey results throughout this section, with more detailed results provided in Section 8.
- We collapsed home type and home ownership when breaking out results by those categories in this section, showing "single-family owners", "single-family renters" and "multi-family". Mobile homes only accounted for 42 respondents (3% of the sample), not a large enough sample to break out results. 95 percent of multi-family homes are occupied by renters.
- Any differences across segments that we describe in the text are statistically significant[22] unless indicated otherwise. We provide the sample size for the total column in the caption of each result in this section, and more detailed sample size information (and standard errors for means) in Section 8.

- A nested sample of **88 in-home visits** within the ESA non-participant telephone survey sample, providing a fuller picture of ESA non-participants' characteristics and energy needs.
- **A review of several LI programs** similar to ESA offered in other states, providing insights from other similar programs; and
- **Modeling and analysis** of IOU, Athens Research and Census data, informing CARE program participation and penetration, ESA participation and ESA willingness to participate.
  - **CARE modeling**: We developed statistical regression models to understand the drivers of and barriers to CARE program participation based on Athens Research data. The models examine variations in participation and penetration ratios across census block groups, and what variables (that we may observe at the Census block group level) might predict higher or lower rates, all else constant.
  - **ESA modeling**: Similar to the CARE modeling, we developed regression models to understand drivers of and barriers to ESA program participation. We used customer level data from the IOUs (stage one) supplemented with telephone survey data (stage two).
  - **Conjoint analysis:** We used a stated preference survey technique that involves having respondents sort through and rank options that reflect different choices. For this analysis, participants responded to an online/onsite survey where they were first asked to rank choices that

[22] We calculated confidence bounds or referred to standard errors for means for each result noted in the text.

reflected different types of ESA program scenarios. For all these scenarios, each choice was defined by several attributes, and respondents were asked to rank the options from most to least preferred based on these attributes, and then to indicate which scenarios they would actually participate in.

5.1.1 Sample Representation

Below we discuss some important implications of our research approach that the reader should consider when reviewing the results contained in this section.

5.1.1.1 Customer Telephone Survey

There are two implications to consider regarding our approach to the customer telephone survey, based on the sampling and survey approach.

The basis of the customer telephone survey sample frame was IOU tracking data on CARE enrollees during the period 2010 – 2012. If a household was on the CARE rate during any month of that period, they were considered a "CARE enrollee" and part of the sample frame. The rationale for this approach was that estimated CARE program penetration is so high (91% for 2012, as reported previously in Section 1.1.1) that CARE enrollees could serve as a proxy for the LI population (based on the CARE program income guidelines.) This approach was also highly practical since the IOU CARE participant records required relatively less resources to obtain and process, compared to the alternative of attempting a general population survey with screening for income-eligibility.

However, there may be customers enrolled in the CARE program that are not actually income-eligible, because to enroll in CARE, customers are required to self-report their income qualification; they do not actually have to prove their eligibility (see Section 1.1.1 for a description of the CARE program). While the IOUs are aware that there are probably some instances where this is occurring (such as due to confusion about eligibility or households that do not remove themselves from CARE when their income increases), there is no current estimate of how many.

The major research implication of this sampling approach is that some of the customers we considered as income-qualified who responded to our survey may actually have higher incomes and not qualify for the programs. We asked respondents to tell us their income at the end of the survey (a response was not required), but that is not a valid way to confirm their eligibility. We lacked the resources to attempt to more definitively confirm customers' incomes, which would have been very costly and created secondary issues related to non-response bias. Our CARE modeling effort, described in Section 5.3.5 below, provides some insights on this issue.

The second implication stems from our telephone survey approach, which is associated with some level of bias, where our respondents represent the customers who are willing

to talk with a surveyor on the phone about energy issues. (Our telephone call center disposition indicated [see Section 12.2] that we had to dial about twice as many customers as the number of completes, suggesting our results represent about half the ESA non-participants, the half that is reachable by phone. The other half is very difficult to reach by phone by a surveyor who is discussing energy issues.) While we used standard industry practices to ensure the most representative sample possible (calling at different times of the day and week, using trained interviewers and well-vetted screening scripts and conducting Spanish-language surveys), there are some customers who are not able or willing to talk to a surveyor by phone. We had the advantage of using updated IOU customer contact information including phone numbers from the CARE applications and/or billing records, but not all customers are willing to provide their phone number to the IOU and those that move around a lot are less represented since for a larger fraction of those customers, the phone numbers will not be updated.

This issue of non-response bias should be considered in the context of the ESA and CARE programs, which also use telephone calls (either automated or with a live representative) as one major approach to program outreach (see Sections 5.2.1 and 5.3.1 for a description of CARE and ESA marketing and outreach approaches). Our telephone survey sample represents customers who are more likely to respond to CARE and ESA program outreach.

We compared the demographic composition of our telephone survey sample to the ACS/PUMS LI-subsample (see Section 8.1), which is a much more robust and less biased sample,[23] to understand the extent of the CARE income-eligibility and survey non-response bias issues on the representativeness of the telephone survey sample. Across the state, we found that our telephone survey sample has a much higher proportion of homeowners, White and English speakers as compared to the ACS/PUMS LI sample. (When examined by IOU, we noted a difference for SDG&E with our sample having a greater proportion of multi-family homes.) We developed adjustment weights by IOU, home type and homeownership to correct for the difference in the rate of homeowners and home type. We did not attempt to adjust our sample to correct for underrepresenting non-English speakers and non-White ethnicities since due to resource constraints we did not talk to non-English/non-Spanish customers. (For similar reasons we also did not attempt to reach households where non-standard forms of telecommunication are used.) The sample of customers who we interviewed who are non-White and/or speak a language other than English or Spanish should not be weighted to reflect a broader segment of the population who do not speak English or Spanish. Note that the telephone survey is one piece of the broader resources we drew

[23] The Census Bureau institutes several measures to control for sampling and non-sampling error, including non-response bias. The ACS uses a combination of mail, CATI and CAPI data collection efforts to maximize response rates to the mandatory survey, including follow up interviews to mail non-respondents. The response rate for 2011 was 97.6%. Specific details on accuracy of ACS data can be found at http://www.census.gov/acs/www/data_documentation/documentation_main .

from to develop the assessments in this section; the LI population characterization in Section 4.3, the CARE modeling in Section 5.3.6 and the ESA modeling in Section 5.4.5 draw from ACS/PUMS and Athens Research data that reflect the total LI population, including non-English/non-Spanish speakers and households that require non-standard forms of telecommunication. In particular, the CARE models and the first stage ESA models provide insight into the characteristics of likely income-eligible customers who have not enrolled in CARE or participated in ESA, based on what we could observe in the available data (for CARE – at the census block group level, and for ESA – at the individual level based on IOU data).

5.1.1.2 ESA Non-Participant In-Home Sample

The ESA non-participant in-home survey sample was recruited from the telephone survey. The sample represents customers who are on CARE (and are likely income-eligible[24]), have not had ESA treatment in their homes since 2002, who are willing to talk to a surveyor by phone about energy issues and who will allow a researcher into their home[25] for an in-person interview and walk-through observation of their energy-using equipment. As such, the in-home sample represents the subset of telephone respondents who were willing to participate in the visits.

Our telephone survey results showed that about half the ESA non-participants were willing to be recruited for an in-home interview, and of those, around one-quarter that we attempted to visit had issues arise that prevented us from doing the visit.

What we learned in reaching out to customers to participate in the in-home visits will also apply to program outreach. Households that answer the telephone regarding ESA and agree to in-person visits are also more likely to be accessible to the program. As such, our discussion of non-participants could be considered to be the next cadre of participants. They do not necessarily represent the full population of non-participants, as some eligible households are more difficult to reach for either a research study or program participation and are underrepresented in our study sample.

5.2 ESA Program Accessibility

This subsection presents study results on ESA program awareness and outreach. First, we provide an overview of program marketing and outreach, followed by customer telephone survey in-home visit results. Feedback provided by program staff and contractors and additional telephone and in-home survey results are included in Section 5.4, where we discuss ESA drivers of and barriers to participation.

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[24] We reviewed the self-reported income of ESA non-participant telephone survey respondents and screened out any customers who were likely ineligible based on their response.
[25] Customers were given a $100 Visa gift card.

5.2.1 Overview of ESA Marketing and Outreach

The IOUs use automated phone calls, email campaigns and periodic direct mail combined with data mining to identify likely eligible customers for the ESA program. The IOUs track who has participated in ESA in the past and who has not, CARE enrollment status, and income levels for geographic areas in order to identify likely eligible customers. There is additional data sharing across IOUs and other utilities for other income-qualified programs.

There are a number of other methods that the IOUs have used to identify eligible households:

- Leveraging IOU data on CARE enrollments, since income-eligibility is consistent across the two programs;
- Accessing additional IOU marketing and customer data;
- Accessing the CIS database to identify customer language preference to tailor outreach strategies;
- Purchasing third-party data and combining with IOU data; and
- Tracking ethnicity and language preferences of ESA program participants and using that information to guide marketing efforts to groups with a lower percentage of participation.

The ESA marketing and outreach teams develop and implement a variety of marketing strategies, such as direct mailing, outbound calling, e-mailing and leveraging grass roots through community involvement, developing collateral for the specific events in multiple languages to enroll and educate customers.

In general, all the IOUs are moving toward highly customized messaging targeted to hard-to-reach populations. To support this development, they collect, track, purchase and analyze detailed geographic and demographic characteristics of their service territories' eligible population. Messages may be customized or timed to the appropriate season for specific measures. IOUs develop customized messaging for seniors and disabled populations as well as a variety of multi-cultural/multi-lingual communities.

The ESA program involves a number of in-person visits by assessment and installation contractors, requiring travel. For this reason the implementation teams find it useful to employ tactics that lead to geographic clustering of enrollment/installations. Some IOUs batch potentially eligible customers for contractors in clustered areas to minimize travel costs and time (in some cases, IOUs leave the logistical planning to the contractors). Managing program operations requires substantial logistical planning, looking at where remaining eligible customers are located, contractor service territories and ability to ramp up or down based on the number of leads, and batching the leads for contractors.

The IOUs coordinate automatic voice message (AVM) outbound calling to support geographic clustering of installations. If a customer responds to an AVM, they can be directly connected with contractors, and in some cases, schedule an appointment during the phone call. In other cases, they can indicate their interest and the lead will be passed on to the appropriate contractor. These are targeted campaigns developed geographically in coordination with contractors. Some contractors conduct door-to-door canvassing and direct customer calls, while others rely on leads provided by IOUs.

The IOUs and their contractors attempt to accommodate non-English language speakers using a number of tactics, including providing multiple language options on AVM, matching contractors with language capabilities to geographic areas with those language needs, using in-language direct mail and advertisements in local ethnic media.

Outreach and assessment contractors[26] supplement IOU outreach strategies, but mostly rely on IOU referrals (including direct customer calls in response to IOU AVM campaigns, mostly based on customers enrolled in CARE who have self-reported that they are income-eligible). Some conduct their own advertising and/or conduct door-to-door canvassing. Community organizations, property managers and word-of-mouth also generate customer leads. Contractors also do outreach at community events and senior centers. They typically have a specific customer enrollment goal provided by the IOU for a specific geographic area.

5.2.1.1 High-Usage Customers on CARE

New CPUC direction requires high usage customers on the CARE rate to be subject to income verification processes (i.e., post-enrollment verification or PEV) and take steps to reduce their energy usage. High usage customers—or customers exceeding 400 percent of baseline usage—must provide income documentation and participate in the ESA program in order to stay on the CARE rate. CARE customers exceeding 600 percent of baseline must do these things and also reduce their usage to 400 percent or they will be dropped from the CARE rate.

The IOUs are using communication and notification strategies to high usage customers, giving them an opportunity to opt out of CARE before the requirements are implemented.

[26] ESA outreach and assessment contractors are responsible for identifying and assessing income-eligibility of customers for the ESA program. They also perform a basic measure assessment, which is used to determine initial measure eligibility. Installation contractors (including HVAC, weatherization and plumbers) schedule subsequent appointments to do a more formal measure eligibility assessment before installing measures.

5.2.1.2 Tracking Disabled Customer Participation

The IOUs are required to report the percentage of ESA participants that they observe to be disabled, with a target of 15 percent.[27] The IOUs are no longer allowed to ask the customer for their disabled status (as of the 2009-2011 program cycle). Customers can volunteer the information or the contractor can observe it if it is very obvious. However, there may be other household members that are not present and/or the disability(ies) may not be observable so the actual penetration is probably higher than what is presently reported.

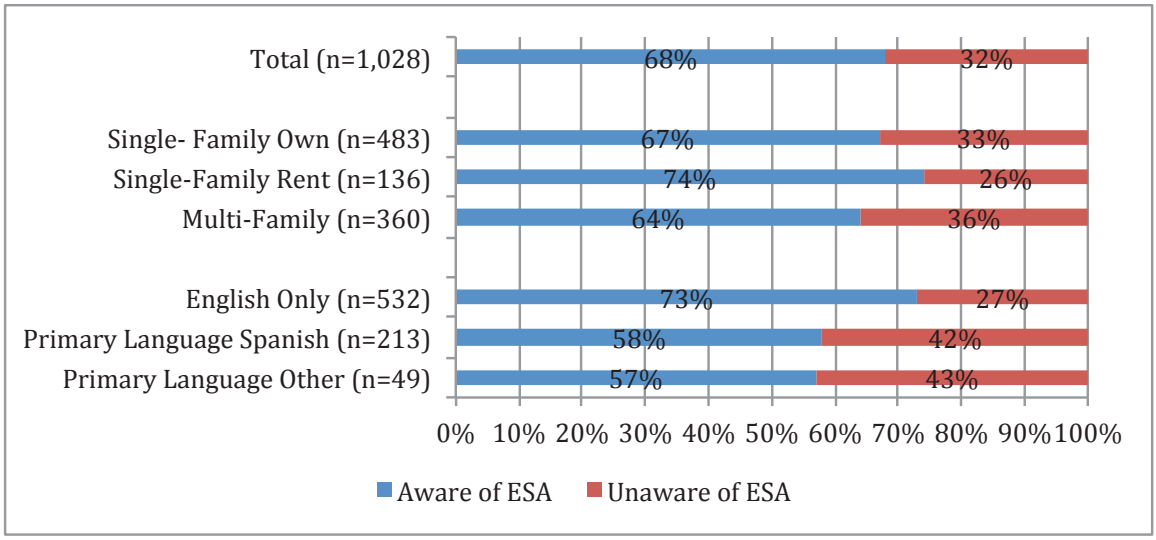
The IOUs typically partner with organizations that outreach to disabled customers, but both IOUs and contractors report that are issues with confidentiality, that the organizations do not always want to share their customer lists. In addition, IOUs partner with agencies that serve senior communities and conduct outreach events that target the visually impaired.

5.2.2 Customer Telephone Survey

We asked telephone survey respondents whether they are aware of ESA, providing them with a general description of the program. Since the program has recently changed its name, we did not expect unprompted awareness of "Energy Savings Assistance Program". As shown in Figure 25 below, two-thirds of respondents are aware of the ESA program. English-only households have a higher level of awareness (73%) than other households. Single-family homeowners have a higher level of awareness than renters or multi-family residents, but this difference is not statistically significant. (As reported in Section 5.1, 95 percent of multi-family homes are occupied by renters, so we do not break out that home type by home ownership.) We did not attempt to distinguish between awareness of the ESA program and other programs such as LIHEAP that provide similar services to the state's LI households.

[27] Note that the prior KEMA LINA study estimated that 14 percent of LI households have disabled members and an additional 13 percent have both elderly and disabled members for a total of 27 percent of households that have disabled members. (Based on the study's on-site survey that looked at physical , emotional and mental disabilities.) We think that these results may have been misinterpreted, such that the 14 percent estimate of LI households that have disabled members but do not have elderly members was used to support the 15 percent target.

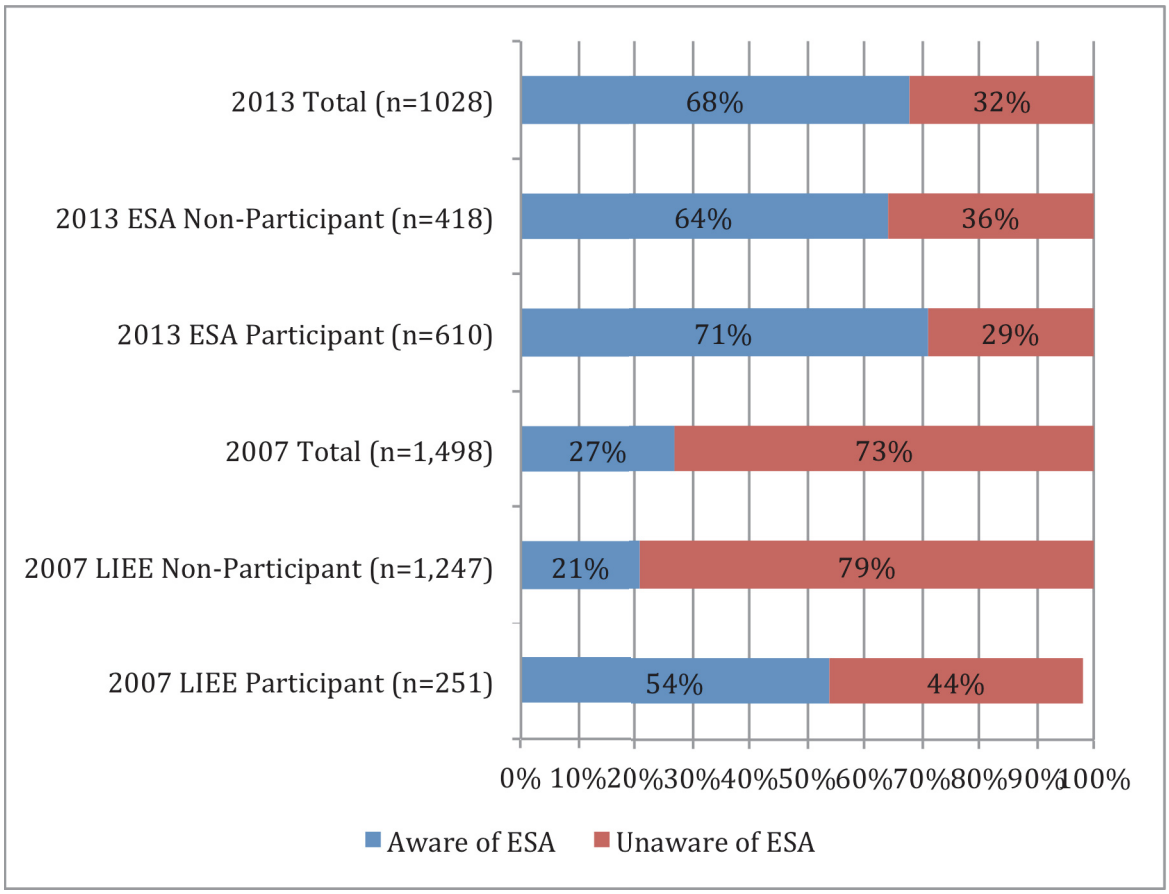
Figure 25: ESA Awareness (Aided) by LI Population Segments (S17) For California LI Population



Source: 2013 CARE Participant Telephone Survey

Figure 26 below compares ESA program awareness over time, using data from the prior KEMA LINA study. Program awareness has increased substantially since the last study, from 27 to 68 percent of the LI population, and also among the program participants and non-participants. Recall that "participants" are households that are living in a home that has been treated by ESA, and they may not be aware that the home has been treated or may not recall that it was treated (if they were living in the home when the program installed measures). There may also be cases where even though we attempted to talk to the head of household, that the person responding to the survey was not the person who participated in the program.

Figure 26: ESA/LIEE Awareness by ESA Participation Over Time (S17) for California LI Population

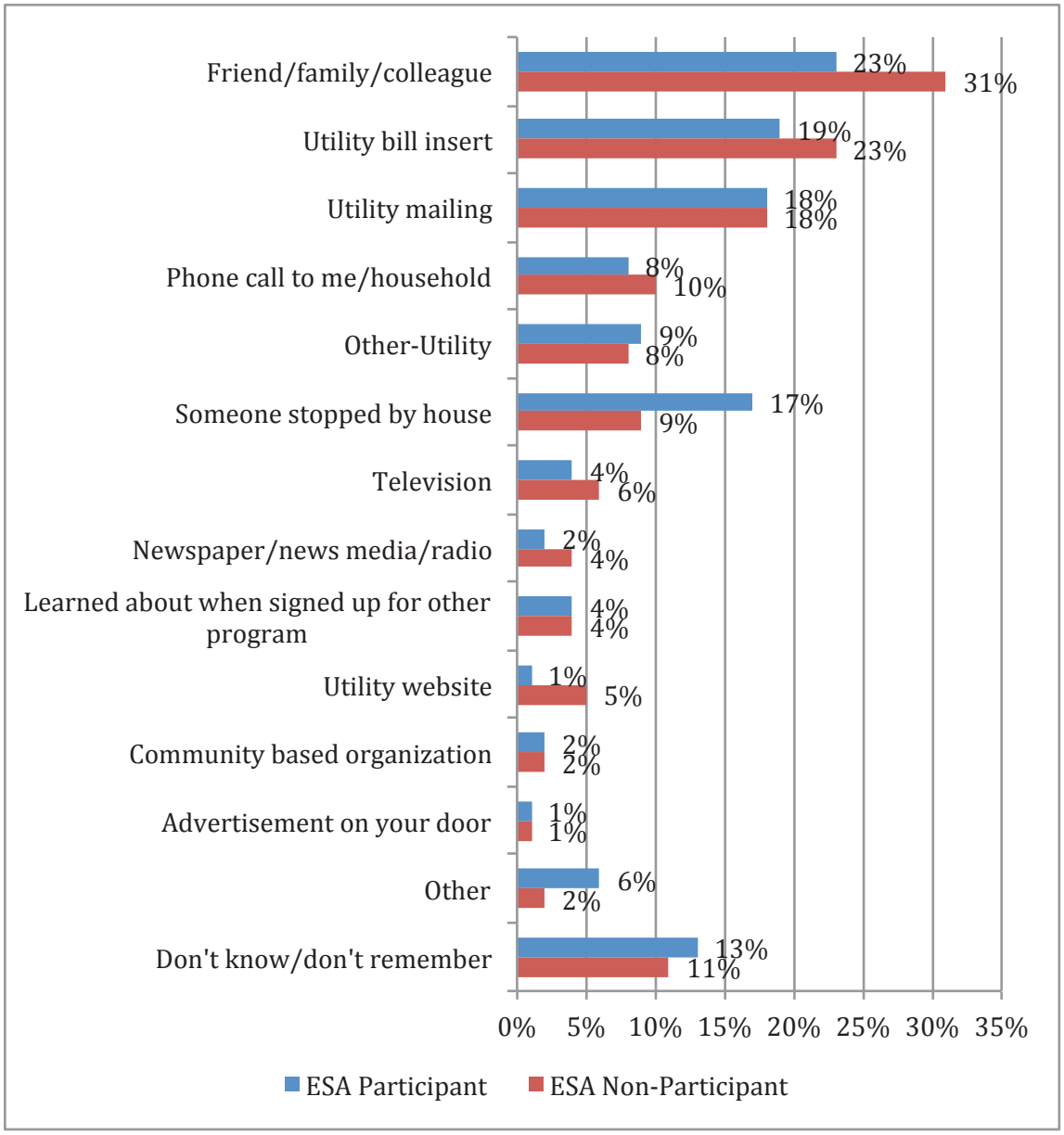


2007 source: p. 5-56 of KEMA report
2013 source: 2013 CARE Participant Telephone Survey

Figure 27 below describes how survey respondents learned about the ESA program (of those that were aware)—with hearing about it from a friend, family member or colleague being the most common method (27% of all aware respondents), closely followed by an IOU bill insert (21%) and mailing (18%). A greater proportion of ESA participants (17%) learned about the program from someone stopping by their home than non-participants (9%). We remind the reader that the sample is biased towards households who are willing to talk to a telephone and in-person surveyor about energy issues and the CARE program. Those that did not respond might have lower awareness and for those who are aware, different source of awareness.

Advertising via television, radio and newspaper or other media was mentioned by few respondents – though they were only able to respond with the primary source of their awareness. The IOUs do not rely on media advertising as a primary marketing delivery channel, and when they do use these channels it is often in conjunction with another targeted campaign such as phone calls or door-to-door canvassing. The advertising serves as a foundation that the more personal outreach leverages to facilitate households' awareness and participation.

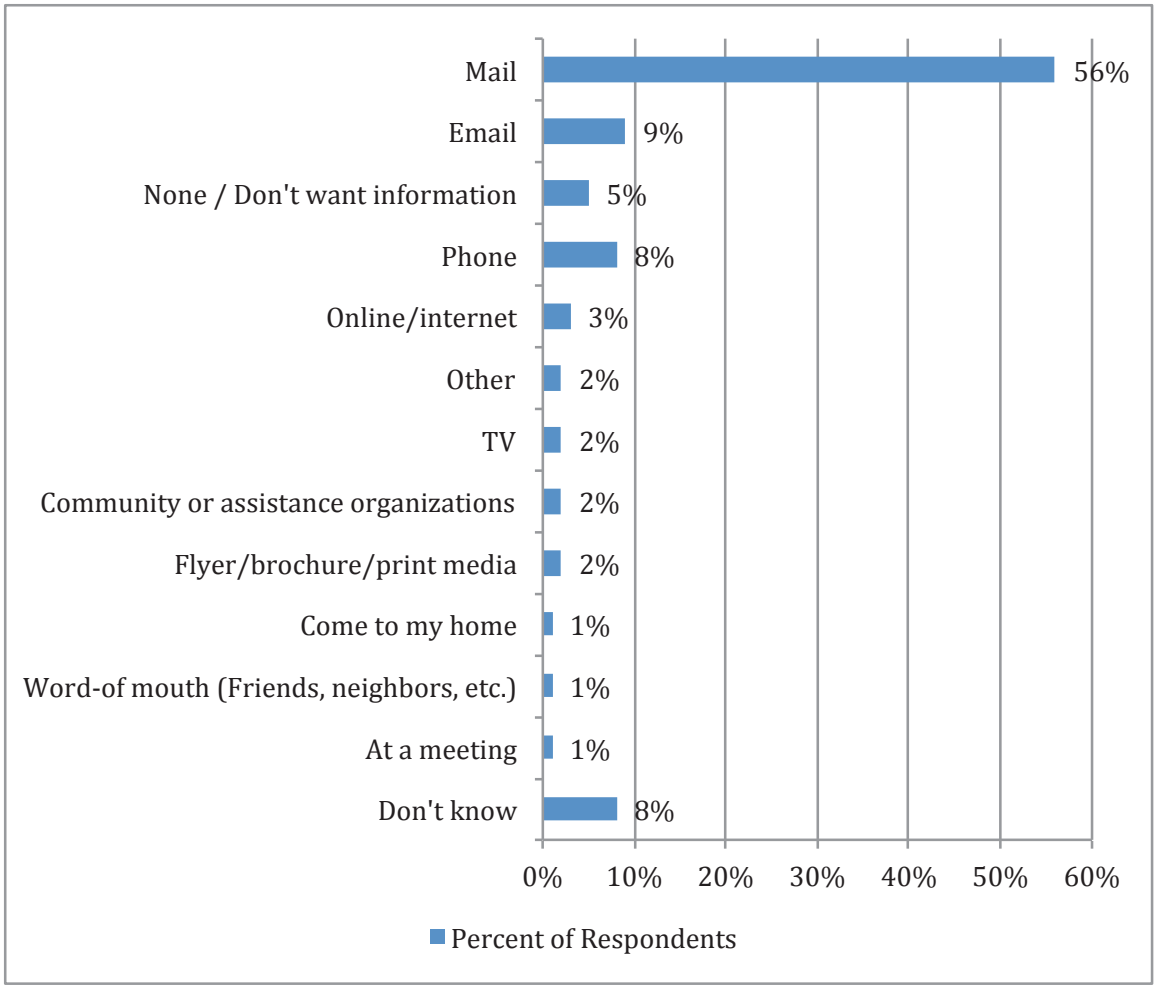
Figure 27: How ESA Participants and Non-Participants Heard of ESA Program (E1) (n=619) for California LI Population



Source: 2013 CARE Participant Telephone Survey.
Note: Multiple mentions allowed.

We asked survey respondents how they prefer to hear about programs that may be helpful to households like theirs (unprompted), as shown in Figure 28 below. The majority (56%) said they prefer mail, with 9 percent saying they prefer email or phone and 3 percent preferring online. There were no substantial differences in preferences across LI population segments or ESA participation status.

Figure 28: How Respondents prefer to hear about Programs that May be Helpful (FOa) (n=863) for California LI Population



Source: 2013 CARE Participant Telephone Survey.
Note: this question was added after the survey was already in the field, and has a slightly lower sample size as a result.

The next figure (Figure 29) summarizes results from several questions related to IOU contact with customers, including:

- How customers receive their bill
- Whether customers have access to Internet service
- How often customers use the IOU website
- How often customers pay their bill online
- How often customers call their IOU
- Whether customers read IOU emails (for those who said they pay their bill online) and bill inserts (for those who say they receive their bill by mail)

Of those surveyed, 82 percent of customers receive a paper bill, and 67 percent of those read the bill inserts. Only 15 percent receive their bill online, though 69 percent have Internet access and 35 percent pay their bill online sometimes or a lot. A high proportion (57%) say they "sometimes" call their IOU. Even with the increasing use of the Internet, mail and phone are still tried and true methods for outreaching to customers, at least for now. That may change in the near future as the IOUs expand their online bill payment efforts.

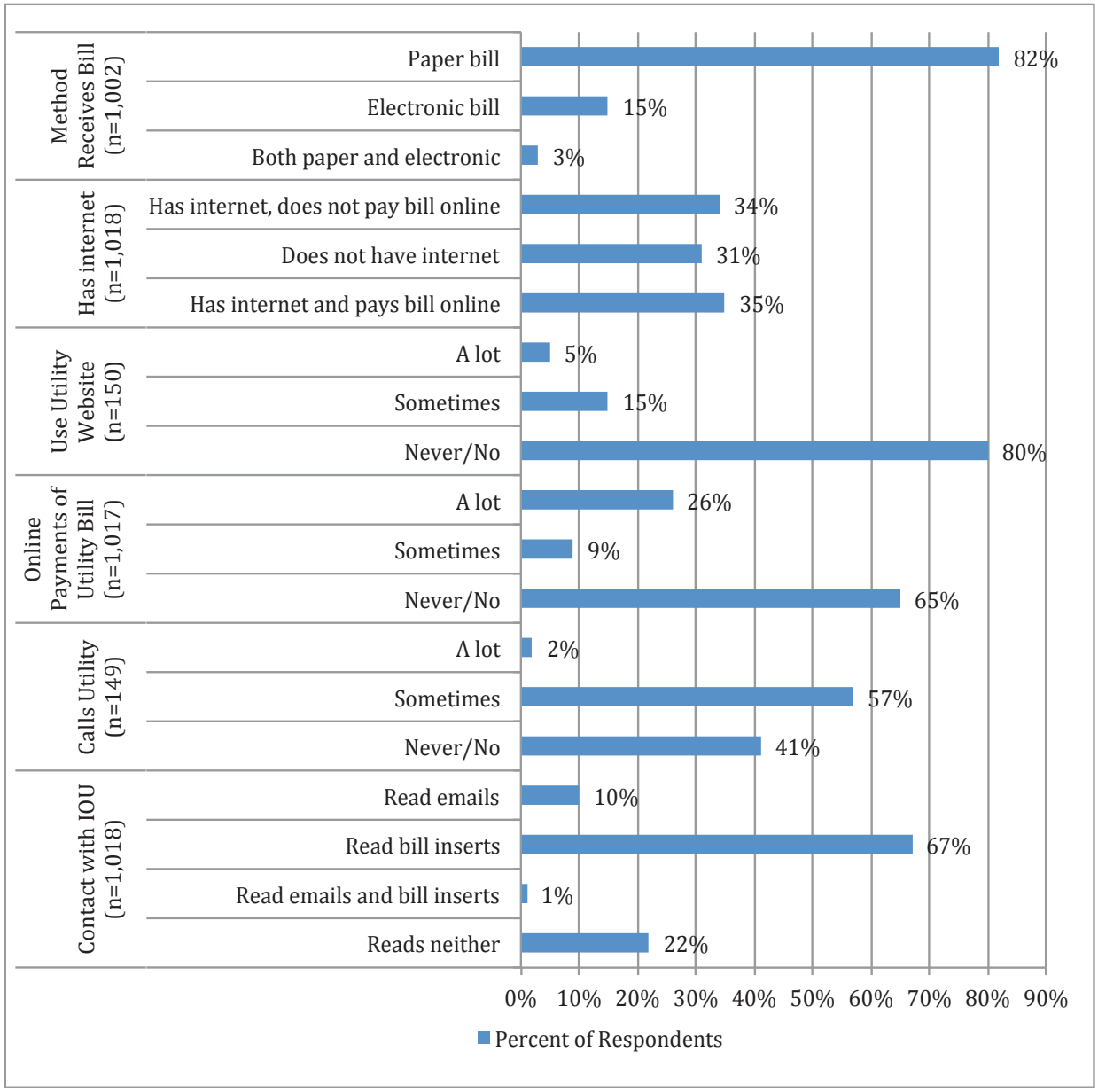
There are some differences in IOU contact across LI population segments. The following segments are more likely to pay their bill online:

- ESA non-participants (41%)
- English-only households (36%)
- Single-family renters (43%)

The following segments are more likely to read bill inserts:

- Single-family homeowners (73%)
- Mobile home dwellers (84%)
- Spanish-speaking households (74%)

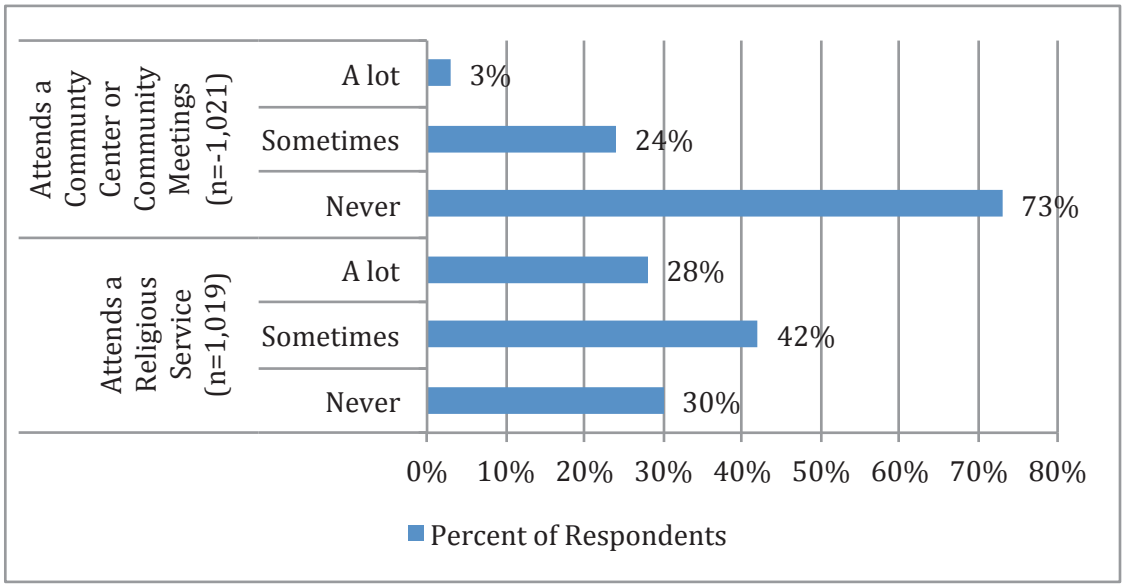
Figure 29: IOU Contact (I1a, I1aa, I1b, I1c, I1d) for California LI Population



Source: 2013 CARE Participant Telephone Survey.
Note: the "calls utility" and "utility website" questions were removed after the survey was already in the field, so they have a lower sample size as a result.

Figure 30 below presents self-reported attendance of religious or community meetings and events, which may be avenues that the ESA program (and CARE program) use to outreach to customers. 27 percent of LI customers go to a community center or meeting, while 70 percent attend church (an increase of 10 percent since the last study, which reported that 60% of LI customers attend church). A higher proportion of LI households located in rural and mountain geographic areas report going to church "a lot" (38% and 41%, respectively, compared to 28% for urban/coastal LI households.)

Figure 30: Community/Religious Involvement (F14a, F14b) for California LI Population



Source: 2013 CARE Participant Telephone Survey.

5.2.3 In-Home Visits

Households expressed nearly uniformly positive perceptions of their IOUs and think of them as good and trustworthy sources of information about ways to save on energy, although IOUs aren't necessarily top-of-mind about energy savings for a share of households. Customers mostly think of their electric provider more than their gas provider because, in most homes, annual electricity costs greatly exceed natural gas costs. We remind the reader that the sample is biased towards households who are willing to talk to a telephone and in-person surveyor about energy issues and the CARE program, so they may be more trusting of their IOU.

Several of the customers who had received ESA[28]—including those who received individual measures they ultimately disabled or that didn't work for them—showed appreciation for the IOU efforts and assistance.

Non-participants tend to rely on and suggest many typical outreach channels—television, radio, bill inserts, and presence on the Internet as important sources for program and energy efficiency related information—but deeper conversations with some interviewees pointed to a few channels that may offer the opportunity for more targeted outreach, as we describe below.

5.2.3.1 Ways Households Currently Hear of ESA

Those who were aware of the program tended to hear about it either directly from their IOU (or an IOU contractor) or by word of mouth from friends, family members or neighbors who had participated. Few people knew of ESA by its name or acronym, however, and seemed uncertain what to call the program. Sometimes they referred to it as "the program that provides free refrigerators." The lack of name recognition was true even of those customers who had participated previously or had recently had contact with the program.

In contrast, nearly all interviewees were aware of the CARE rate and most recognized it by its acronym. (Interestingly, people seemed more likely to find out about CARE than ESA from bill stuffers, whereas it seemed that direct calls or personal visits were a more common way for people to hear about ESA.)

While more widespread awareness of CARE was to be expected, the differences in the identities between the two programs were striking. Therefore, we think there are opportunities to better market ESA by*:*

- ***linking ESA marketing consistently with existing outreach efforts for CARE whenever that is not already done***—for example, customers could be offered ESA or pre-screened for interest and applicability at the time of CARE enrollment (although differences in the enrollment processes may still require separate administrative approaches).
- ***establishing a clearer identity and brand for ESA***—Establishing a brand identity by which customers consistently hear about the program and are able to refer to it themselves would facilitate word-of-mouth information dissemination and formal marketing by the IOUs and their contractors. Furthermore, it would help make the connection between these two types of outreach.

As noted, word-of-mouth remains an important information path about programs that are useful for people. Mostly, people talk to their social contacts about everyday life

[28] We targeted non-participating homes based on IOU tracking data through 2012. 16 of our respondents reported participating in ESA very recently, likely during 2013.

issues and social matters. Programs like CARE and ESA don't necessarily come up in these conversations, but there are some exceptions.

For LI households, making ends meet is a topic that does come up. We heard specifically of information sharing about ways to make ends meet—and sometimes even about CARE and ESA—among single mothers who compare notes at kids' activities or through school communications, family members who sometimes talk about ESA participation with each other, and amongst neighbors in some communities. In one LI neighborhood in particular, we heard from multiple people who said that everyone knows about ESA and CARE (apparently because eligibility and participation rates are high).

5.2.3.2 Opportunities to Reach Households during Key Life Events

Several interviewees discussed the circumstances that led them to become income eligible for LI programs and what other programs they use. While every household's story is unique, there are some common threads that point to opportunities for IOUs to reach out to customers at a moment when they are seeking assistance or transitioning toward program eligibility. Specifically, we heard numerous stories of households becoming income eligible as a result of:

- Retirement;
- Divorce;
- Major medical incidents;
- Job loss; and
- The addition of new dependents into the household.

A few people remarked that they were referred to a social worker at those times through whom they found out about resources to help them through their transition. Others commented that medical staff referred them to programs, such as WIC or Medi-Cal. These remarks highlighted the opportunity IOUs may have to disseminate information about ESA and CARE through the professionals likely to have contact with households as they transition to LI status, including divorce lawyers, hospital discharge personnel, human resources staff and unemployment offices.

Furthermore, some interviewees volunteered other need-based programs from which they receive assistances. In addition to Medi-Cal and WIC, these programs include Section 8 housing, welfare/food stamps, food pantries and church programs. Often, households eligible for these programs are also eligible for ESA and CARE. Cross-marketing with these programs may offer opportunities to reach more people and increase awareness of ESA.

5.2.3.3 Hard-to-Reach Groups

Two distinct groups may be more difficult to reach: immigrants and households outside LI neighborhoods.

The first group, immigrant populations, sometimes forms their own distinct communities and social networks through which they exchange information. We interviewed at least 10 households led by people who identified themselves as having come from another country. The national origin of LI households in California is very diverse. Our interviewees included people from El Salvador, Germany, Iran, Japan, Korea, Mexico, Pakistan, the Philippines, Russia, Somalia and Vietnam.

Reaching Spanish-speaking households, whether immigrants or not, was a focus for us and these households provide insights on the importance of communicating in the household's native language. The Spanish-speaking households we visited often emphasized the need for marketing materials to be in their language. Telephone, radio, television and direct-mail were often cited as communication modes that would be effective for Spanish-speaking households, although some households lacked cable access so telephone or direct mail would likely be the most encompassing mode. Only a few Spanish-speaking households mentioned the Internet as a means of accessing information; for a couple of the families that said they had internet access in the home, they cited their children's education as a reason for paying for internet access. There were a couple of Spanish-speaking households that expressed concern about potential language barriers in the ESA program process, specifically pertaining to the visiting contractor's language; they indicated a preference for contractors with whom they can communicate in Spanish and were not sure such contractors were available.

Among non-Hispanic immigrants, we noted some that seemed well integrated into the mainstream English-speaking aspects of California's social fabric and completely fluent in English, while others either encountered some language barriers or opted to associate mostly in ethnic communities connected with their country of origin.

We note that the ESA and CARE modeling indicated that Spanish-speaking households are more likely to participate in ESA than those that do not speak Spanish, suggesting that the programs' efforts to reach this particular demographic have been successful.

The second group, eligible households that are not closely connected with LI neighbors or other social contacts, seems to be less likely to hear about the program by word of mouth. Mostly, these households are located outside traditionally LI neighborhoods. They rely more heavily on IOU marketing. The ESA and CARE modeling efforts complement these findings, with households in less dense areas less likely to participate.

5.2.3.4 The Harder-to-Reach Households

While we recognize that we were not able to reach the "hardest-to-reach" eligible customers for the reasons noted above, a few of our recruited households that ultimately did not participate in the in-home visit may offer some glimpses into challenges of reaching the harder-to-reach non-participants (refer to the ESA stage one and CARE modeling results for more information on barriers and drivers of participate among the

population, since those were population, not survey sample, models). Among our scheduled homes, we encountered:

- *some homes that needed to cancel their appointments because of medical issues*—While we were on a tight timeline and couldn't always reschedule, programs will need to be able to accommodate rescheduling.
- *some households that never answered their telephone when we tried to confirm the appointment and did not have any way for us to leave a message*—Some of these households were present when we appeared at the scheduled time for our visit; some were not.
- *two households at which the person with whom we had made an appointment was never available when we called to confirm or appeared for our appointment, but other household members seemed leery of us or just uninterested*. In both cases, the household members with whom we interacted seemed suspicious of outsiders.

In addition, numerous households—some that participated in the visits and some that did not after being scheduled—were very cautious about letting people into their homes. Several said they had called the IOU call center to verify that the visit was legitimate, which highlights the importance of ensuring that the visits are clearly branded and identified by a name the household will recognize and be able to use if they call to validate the program with the IOU call center. While we do not have hard data on this issue, we noted it more often in PG&E's service territory, among women respondents, who were usually seniors living alone.

5.3 CARE Program Accessibility

This subsection presents study results that assess how well the CARE program is reaching eligible customers, preceded by an overview of program marketing and outreach. The CARE modeling was the basis of this assessment, since the primary customer research excluded CARE non-participants. As mentioned in Section 3.5, due to the reportedly very high CARE penetration rate (91%, based on the IOU ESA and CARE Programs 2012 Annual Reports), we did not attempt to conduct surveys with CARE non-participants. Instead, we conducted analysis incorporating data on CARE enrollment and eligibility combined with census data to inform an assessment of how well the CARE program is reaching eligible customers. We also leveraged the program staff/contractor in-depth interviews.

5.3.1 Overview of CARE Program Marketing and Outreach

The IOUs rely on Athens Research data to identify small geographic areas with high probability of CARE eligibility, and SoCalGas also uses PRIZM codes[29] to try to cost-effectively reach the remaining eligible population. The IOUs also benefit from data

[29] A widely used customer segmentation system for marketing in the United States, developed by Claritas Inc., which was then acquired by Nielsen Company.

sharing with other IOUs' CARE programs (for areas where the service territories overlap), as well as the Low Income Home Energy Assistance Program (LIHEAP),[30] ESA and water utilities. In addition, they will sometimes purchase third party data to help them identify and market to hard-to-reach segments of the targeted population.

The IOUs are required to include an annual solicitation in the June bill with a CARE program application for all non-CARE customers, timed to the updated income qualifications on June 1 (online billing customers receive an electronic version). In addition to the June mailing, the IOUs all deploy a variety of marketing and outreach methods to promote the CARE program, CARE awareness and enrollment, including:

- Working with communications agencies and third-party contractors to develop and deploy ethnic/targeted media such as community newspapers, radio and television advertisements tailored to specific hard-to-reach segments;
- Automated telephone systems (such as Automated Voice Message (AVM) or Interactive Voice Response (IVR)) that call customers or allow customers who call in to access automated menus and in some cases, if they select a certain option, to be directly connected to an IOU representative;
- A variety of mail tactics (direct mail, bill inserts and onserts, which prints information on the utility bill);
- E-mail to customers who are not already on the rate who are living in areas with high probability of eligibility;
- Enrollments by trained IOU call center staff, such as when customers call in to set up or change service;
- IOU branch (local) offices and payment kiosks (through advertisements and collateral at the kiosk);
- Community events – either attended by IOU staff, or community organizations that are hired by the IOU to target market to specific communities;
- Contractors to canvass neighborhoods;
- Online web enrollments; and
- Electronic data sharing with all of the major IOUs and nine water utilities.

The IOUs use source codes so they can track the effectiveness of most of their M&O strategies. However, some strategies are hard to track, such as community events, mass media and community organization outreach. These efforts drive customers to enroll online or by phone through the call center, or increase their likelihood of filling out the mailed application.

[30] A federally funded program that provides assistance to LI households to help them manage their energy costs, including weatherization and cash assistance. In California, LIHEAP is administered by the Department of Community Services Development.

Under the Capitation Fee program, the CPUC has authorized the IOUs to pay a flat fee to participating organizations for each new customer they help to enroll in the CARE program, but these contractors bring in a relatively low volume of new enrollments. These organizations do not have access to customer data, e.g., to target customers who are not already enrolled. They can use online enrollment and they can find out if the customer is already on the rate, or ask to see the customer's bill. Many of these contractors do "inreach" (not outreach) for clients that visit their organization for a range of potential services, including CARE, and this was the initial impetus for the capitation contractors.

Originally, all capitation contractors were community agencies already providing other services to their LI clients, and the small capitation fee was incremental, intended to offset the few extra minutes that the intake worker would need to help their eligible customers fill out the CARE enrollment form during the intake process that was already occurring, and to send the form to the IOU. The capitation fee is only paid for new enrollments, and since many qualified customers are already on CARE and the capitation contractors do not have access to IOU databases, fewer of their customers qualify. Some capitation workers take proactive steps to find and enroll eligible customers. For instance, some capitation contractors attend community events, church services, and senior center events and offer a variety of services for LI attendees including CARE.

Some IOUs hire contractors to do outreach for CARE, providing them with customer data including CARE status. This is a limited effort with a small number of contractors who typically do door-to-door canvassing, attend events and leverage their existing clientele, much like the capitation contractors. (But in contrast to capitation contractors, these contractors use updated IOU data on who is on and not on the CARE rate, often resulting in much higher enrollment rates.)

The IOUs offer applications and staff call centers with representatives covering multiple languages. When a customer dials an IOU call center or responds to automated calls and speaks a language not supported by the staff, a translation service is used that accommodates 100+ languages. This service provides an interpreter who is conferenced into the phone line and facilitates the conversation.

The IOUs track the language preference of customers who apply (online, call center, paper application)—or respond to automated calls—using a different language and then use that preferred language for follow-up communications (including re-certifications and post-enrollment verifications). Observed trends are used to guide development of new in-language collateral or marketing messages.

5.3.2 Program Staff Interviews

The CARE program reports very high penetration rates, as described in Section 1.1.1. Remaining barriers to enrollment cited by IOU program staff include:

- Language;
- Literacy;
- Lack of trust, fear: 'nothing is free';
- Issues providing necessary documentation;
- Pride/don't think they need the help;
- Mild winters and lower gas prices anecdotally making enrollment a harder value proposition (gas customers only); and
- Master Meter/Sub Metered customers who may be difficult to target and may encounter resistance from landlord/manager.

One program manager mentioned that an area of Southern California is a difficult area in which to increase penetration due to a "marbled" concentration of LI customers. These areas are hard to identify using PRIZM codes, zip-9 data mining. They start with the data to try to identify small areas that have lower relative penetration rates, and then partner with CBOs and attend small events such as food banks to find the pockets of need. The low-hanging fruit is gone and what remains will be challenging to address.

One of the difficulties in understanding barriers, raised by two IOUs, is that community responses to marketing efforts aren't readily translated into a success rate. Eligibility of each individual customer is not known, and low response rates may reflect lower-than-expected eligibility, or it may reflect real barriers.

5.3.3 Contractor Interviews

We conducted interviews with six contractors that conduct outreach for the CARE program, most of which are "capitation contractors" that do not hold formal contracts with the IOUs and lack information on whether customers are signed up for CARE. We did talk to two contractors that do hold contracts with an IOU to conduct outreach using IOU data on who is already enrolled. Note that these results are qualitative and not intended to represent all of the contractors that support the CARE program or the eligible customer base.

Most of the contractors that we interviewed have a regular client base that are LI and/or disabled. A challenge for contractors is finding customers that are not already signed up for CARE, due to broad-based IOU marketing and their own outreach/inreach efforts over the years. Overall, the respondents do not think many ineligible homes are actually getting signed up by them or through the IOUs, although none had actual data to confirm this. For some contractors that we spoke to, a key challenge is that their clients do not know if they are already on the CARE rate, and the contractors cannot easily help the clients to confirm.

All of the contractors reported high enrollment rates once customers were informed of the program; few customers decline the opportunity to get on the CARE rate and there are no distinct patterns reported regarding those that do enroll immediately. For the

"door-to-door" contractors, most customers sign up without asking any questions, and the enrollment process is very easy. Customers that proactively approach firms doing inreach have already self-selected so trust issues are not common. Overall, enrollment does not depend on the method of lead generation, but rather on other cultural and logistics factors. Anecdotally, we heard the following from one or more contractors that we interviewed:

- Pacific Islanders, who come from many places (Guam, Marshall Islands, Cook Islands, Western and Polynesian Samoa, etc.), have multiple barriers;
    - A culture of self-sufficiency, and desire to keep others from knowing they are receiving help
    - Diverse languages and high translation needs (Hawaiians are an exception as they mostly speak English)
    - Low education levels and preferences for visual learning
    - Initial distrust of free assistance and products
    - Frequent residence changes
- Many Muslim men will not speak with women contractor staff, and Muslim women are not supposed to seek assistance in general;
- Senior citizens cannot always read printed program materials;
- Non-English speakers not comfortable enrolling by phone;
- Gaining trust among Koreans, "who go to churches and community centers for help"; and
- Difficulty reaching potential customers at home. The contractor estimated that 60 percent of outreach targets from IOU lists cannot be reached at home, despite canvassing early mornings, evenings, workdays and weekends.

The contractors are using a range of diverse strategies to address the aforementioned challenges:

- For Pacific Islanders:
    - Using volunteers (often university students) to translate materials for Micronesian customers (a small group of Pacific Islanders.
    - Conducting home visits to provide privacy. Contractor visitation services are described in church newsletters and households call them up to arrange visits, where the applications are translated and completed in person at home. Laptops computers provided by SCE have been particularly helpful for this work.
    - Utilizing community elders to intermediate between contractors and community members to build trust.

- Not volunteering information about contractor reimbursement arrangements (i.e., per customer sign-up).
- Proactively instructing clients "to check in" with other IOUs if they are likely to move to enroll in CARE.

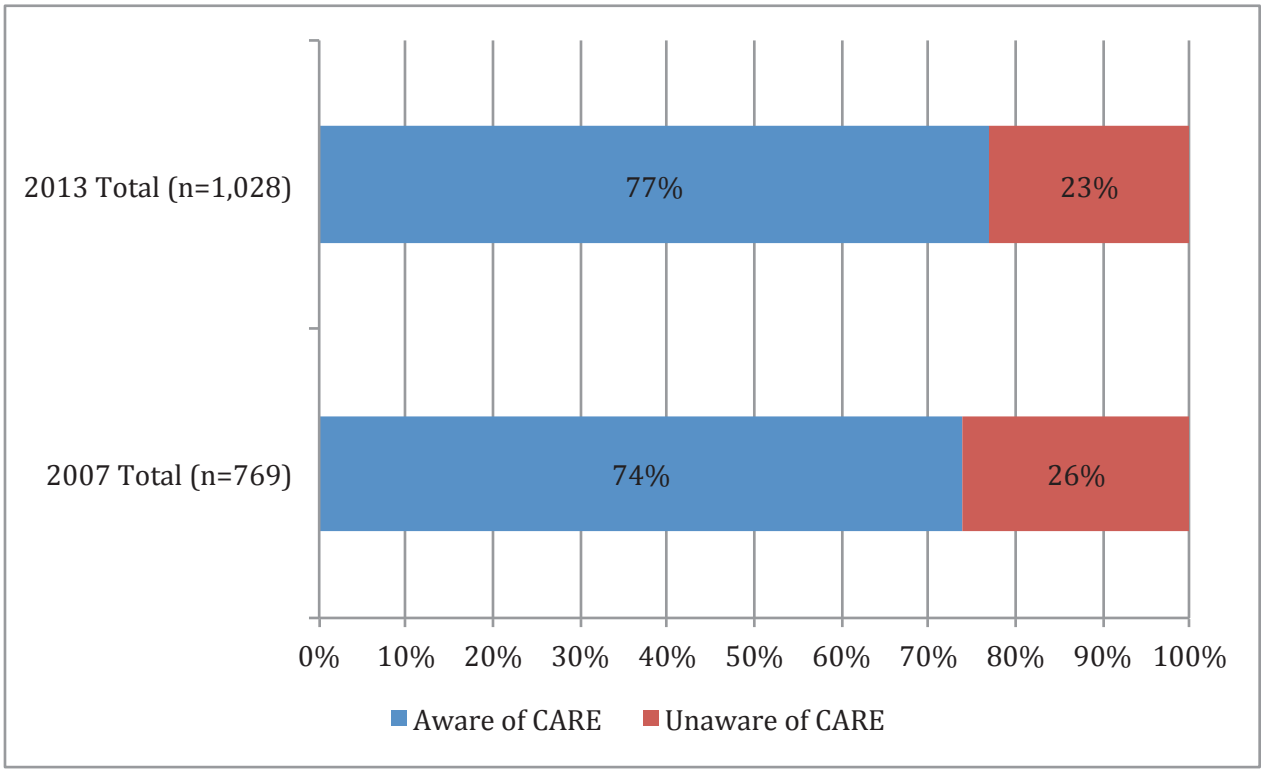
- For door-to-door recruitment:
  - Using leave-behind door hangers.
  - Giving subcontractors badges with IOU and company logos.
  - Hiring subcontractors with friendly, engaging personalities to build rapport and trust, and training them to know the CARE product well.
  - Utilizing ethnic subcontractors and deploying them in matching ethnic communities.
- Provide additional, personalized assistance to seniors with vision limitations.
- Proactively describing the CARE rate to Asian callers if only other assistance needs are mentioned on phone calls.

5.3.4 Customer Telephone Survey[31]

We asked telephone survey respondents (all of which are enrolled in CARE) whether they had heard of the CARE program, explaining that it provides a monthly discount on their utility bills for income-qualified customers. As shown in Figure 31 below, 77 percent said they had heard of CARE, slightly higher (but not a statistically significant increase) than the rate of awareness reported by the prior study (74%). The IOUs have made efforts to alert customers that they are on the CARE rate by adding messages and/or increasing visibility of the discount on the bill. Even with those efforts, there are still some respondents who are not aware their household is on the CARE rate. Someone else in the household may have signed up or it may have been awhile since they signed up or recertified.

[31] Note that the customer telephone survey sample frame is based on CARE participants. Due to the very high reported penetration rates and study resource constraints, we did not conduct a non-participant survey.

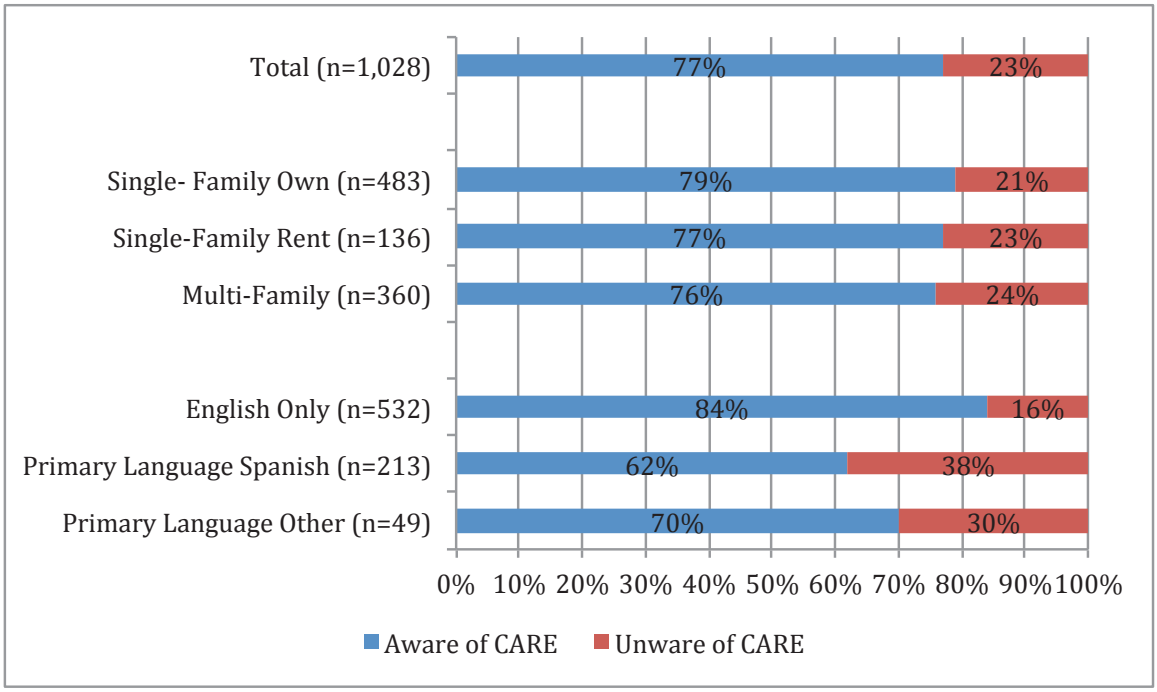
Figure 31: CARE Program Awareness Over Time (S9-S12) for California LI Population



2007 source: Table 5-40 in KEMA LINA report (the "total" reported here is of CARE participants, which is comparable to our survey sample total, since our sample frame is based on CARE participants.)
2013 Source: 2013 CARE Participant Telephone Survey.

Figure 32 shows CARE awareness by LI segments, with English-only households having higher awareness (85%) than other households. (As reported in Section 5.1, 95 percent of multi-family homes are occupied by renters, so we do not break out that home type by home ownership.)

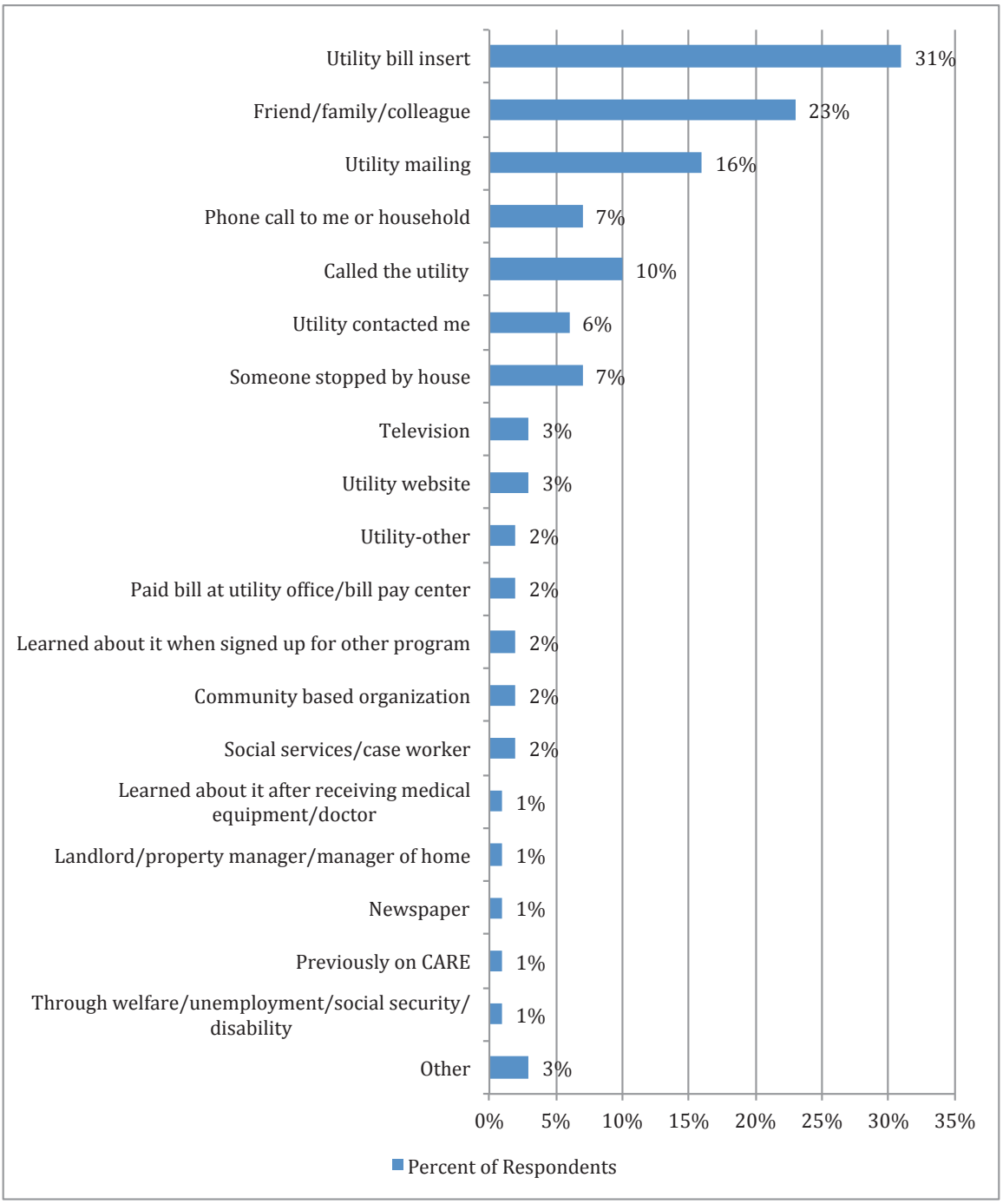
Figure 32: CARE Program Awareness by LI Segments (S9-S12) for California LI Population



Source: 2013 CARE Participant Telephone Survey.

Figure 33 below shows how respondents who are aware of CARE learned about the program. The most common method is the IOU bill insert (31%), followed by friend, family or colleague (which was the most common method that respondents learned about ESA). The other most common responses were IOU mailings, phone calls and general (IOU) contacts. We note that the IOUs use many methods to build awareness of CARE, and so while television ads or some of the other less commonly cited methods may not be at the top of mind, they may have helped to build a foundation that made some customers pay closer attention to a bill insert or IOU phone call about the program. It is difficult to attribute awareness of a brand or program to one single source, when multiple marketing methods are being used simultaneously. Also, as mentioned above regarding the ESA program, the IOUs do not rely on media advertising as a primary marketing delivery channel for CARE.

Figure 33: How Customers Found Out About CARE, of Those Aware of CARE (E22) (n=602) for California LI Population



Note: multiple mentions allowed
Source: 2013 CARE Participant Telephone Survey.

The next few tables report on how survey respondents who said they were aware that they are on CARE[32] submitted their application. We asked these questions to understand how customers prefer to enroll in CARE. We looked at the responses by LI population segments to determine if there are differences in the methods used, as shown in Table 40 below. There are minor differences across the segments, none of which are statistically significant. The most commonly cited method is mailing in an application, which is consistent with the previous finding that the most common method that customers find out about CARE is an IOU bill insert. A total of 16 percent used the phone, about half of those with support from an IOU customer service representative.

Table 40: How Customers Submitted Their CARE Applications, of Those Aware They Are on CARE (E30) for California LI Population

	LI Eligible Population								
	Total	Single-Family Own	Single-Family Rent	Multi-Family	English Only	Primary Language Spanish	Primary Language Other	Rural	Urban
How CARE Enrollee (Aware of Participation) Submitted Application									
Mailed in	62%	64%	60%	63%	60%	66%	64%	57%	62%
Phone	9%	9%	6%	7%	9%	11%	2%	8%	9%
Online	9%	9%	7%	11%	10%	5%	15%	14%	9%
My utility customer service representative helped me	7%	7%	8%	7%	6%	11%	10%	6%	7%
At a billing processing center/kiosk	3%	2%	1%	4%	1%	3%	8%	2%	3%
Through a community organization	1%	1%	4%	0%	2%	0%	0%	0%	1%
Faxed in application	0%	1%	1%	0%	0%	0%	0%	0%	0%
Turned in application to the office	1%	1%	2%	1%	2%	1%	0%	2%	1%
Other	2%	0%	3%	2%	2%	1%	1%	0%	2%
Don't know*	6%	6%	7%	5%	8%	3%	0%	11%	6%
Total	624	293	93	208	338	106	29	34	589

*Includes those who said that someone else in their household submitted the application
Source: 2013 Care Participant Telephone Survey

[32] 87 percent of those who said they were aware of CARE (77% of total respondents) knew they were on CARE.

5.3.5 In-Home Visits

As mentioned above under the ESA program access (Section 5.2), households expressed nearly uniformly positive perceptions of their IOUs and think of them as good and trustworthy sources of information about ways to save on energy, although IOUs aren't necessarily the information source that comes to mind for people when asked about energy savings. Customers mostly think of their electric provider more than their gas provider because, in most homes, annual electricity costs greatly exceed natural gas costs. As we did in the previous section, we remind the reader that the sample is biased towards households who are willing to talk to a telephone and in-person surveyor about energy issues and the ESA program, so they may be more trusting of their IOU.

Those customers who know that they are on the CARE rate or are aware of LI efficiency programs seemed to appreciate these efforts.

5.3.6 CARE Modeling Results

We developed and estimated statistical regression models to examine two aspects of the CARE program based on Athens Research data at the Census block group. The participation (first) model is based on the ratio of CARE customers to total customers in a given Census block group. The penetration (second) model is based on the ratio of CARE customers to CARE-eligible customers in a given census block group. The observations are Census block groups. The models are looking at variations in participation and penetration ratios across census block groups, and what variables (that we may observe at the Census block group level) might predict higher or lower rates, all else constant.

In the participation model, the dependent variable is the rate of CARE enrollment for a given Census block: the number of customers enrolled in the CARE program divided by the number of customers living in a given Census block group. In the penetration model, the dependent variable is the rate of CARE penetration for a given Census block: the number of customers enrolled in the CARE program divided by the number of customers estimated as eligible for the CARE program in a given Census block group. More detail on the model results is provided in Section 9.1 and on the model methods in Section 12.4.

Table 41 provides the key results translated to allow for relative comparisons across the models' explanatory variables. The columns are:

a. The row number;
b. The variables used in the CARE participation and penetration models;
c. The median value of each variable;
d. The 60th percentile of each variable;
e. The change in CARE participation associated with a hypothetical change in the variable shown in column b from the median (column c) to the 60th percentile value (column d), *holding all else constant*; and

f. The change in CARE penetration associated with a change in the variable shown in column b from the median (column c) to the 60th percentile value (column d), *holding all else constant*.

Table 41: Estimated Impact on CARE Participation and Penetration Associated with a Change in the Value of Each Independent Variable For California LI Population

a.	b.	c.	d.	e.	f.
Row	**VARIABLE**	**Median (50th %tile)**	**60th %tile**	**Delta CARE Participation**	**Delta CARE Penetration**
1	% HHs Living in Poverty (< 100% of FPL)	10.7%	14.0%	0.75%	-5.84%
2	Persons Per HH	2.9	3.0	0.73%	0.60%
3	% HHs with Person >= 65	19.1%	21.8%	0.84%	0.84%
4	% Spanish Speaking HHs	17.7%	24.4%	1.49%	1.97%
5	% Home Ownership	44.8%	51.7%	-1.34%	0.35%
6	% Non English/Spanish HHs	10.9%	14.5%	0.27%	0.55%
7	% Single Parent HHs	8.5%	10.1%	1.91%	3.59%
8	% HHs on Public Assistance	1.8%	2.9%	0.25%	0.62%
9	% HHs with Income > $200K	3.0%	5.2%	-2.53%	-2.20%
10	% African-American HHs	2.6%	3.7%	0.20%	0.53%
11	Avg. 2012 Energy Use CARE HHs (MMBTU)	64.8	69.3	NA	-0.92%
12	Pop Density (1,000 pers. per sq. mile)	2.9	3.7	NA	0.21%

Source: 2013 CARE Participant Telephone Survey.

Key takeaways from the CARE participation model results are presented below in order of magnitude on CARE participation rates by census block group. The CARE participation model largely reflects the characteristics of block groups that tend to have a higher fraction of households that are income-eligible for CARE. The results are not surprising, but do show the program has enrolled larger percentages of customers in block groups that have characteristics that may be associated with greater needs and/or barriers – seniors, single-parents, the very poor, non-English speakers (Spanish more than other languages), African-American.

We are examining block group-level ratios and interpreting these ratios as the probability of a randomly drawn household. The results of this analysis are intended to inform about spatial averages and trends, not about individual households.

<u>All else constant</u>, households living in small areas (i.e., census block groups) that have relatively higher rates of:

- (-) Higher-income households (income greater than $200,000) – are less likely to be enrolled in CARE;
- (+) Single-parent households – are more likely to be enrolled in CARE;
- (+) Spanish-speaking households – are more likely to be enrolled in CARE;
- (-) Home ownership – are less likely to be enrolled in CARE;
- (+) Seniors in the home – are more likely to be enrolled in CARE;
- (+) Poverty (income less than 100% of federal poverty guidelines) – are more likely to be enrolled in CARE;
- (+) Larger households (number of members) – are more likely to be enrolled in CARE;
- (+) Non-English/non-Spanish speaking households– are more likely to be enrolled in CARE;
- (+) Households on public assistance – are more likely to be enrolled in CARE; and
- (+) African-American households – are more likely to be enrolled in CARE

than households in other small areas.

Key takeaways from the CARE penetration model are presented below in order of magnitude on CARE penetration rates by block group. The CARE penetration model reflects both the characteristics of block groups that tend to have a higher fraction of households that are eligible for CARE and enrolled in CARE. However, just because a household is enrolled in CARE does not mean they are actually eligible, so the participation rate may include households who might be estimated as ineligible.

The implications of this are demonstrated by the explanatory variable, *% of homes below FPL*, in the CARE penetration model—small areas with relatively higher rates of very poor households (income less than 100% of federal poverty guidelines) are associated with *lower* CARE penetration rates (i.e., number of households enrolled in CARE as a fraction of households that are estimated by Athens Research to be eligible for CARE.), all else held constant. We hypothesize that this result is due to relatively higher-income small areas having larger numbers of households on CARE that are not actually eligible for CARE, thus resulting in higher (including above 100%) penetration rates. In addition, the lowest-income areas have very high (e.g., near or at 100%) eligibility rates and, though they may have high participation rates, they are likely to not be 100 percent of eligible due to the difficulty of signing-up every household in the given area. There may also be additional barriers in the highest poverty areas that might impede outreach and participation such as higher rates of crime, households lacking documents or not trusting IOUs and contractors.

We examined the correlation between poverty, CARE participation and CARE penetration across block groups. Below, we show the distribution of the poverty variable in quartiles along with the corresponding CARE participation and CARE penetration rates (based on Athens Research data), with penetration capped at 200 percent. These data show that the quartile of block groups with the lowest poverty rates have the lowest CARE *participation* rates, but the highest CARE *penetration* rates. Conversely, the quartile of block groups with the highest rates of poverty has the highest CARE participation rates, but the lowest CARE penetration rates. These data support our hypotheses from above.

Table 42: Poverty Rate (FPL) Correlation with CARE Participation and Penetration

Poverty Rate Quartile	CARE Participation	CARE Penetration
1	15.5%	126.4%
2	24.2%	97.1%
3	34.9%	90.4%
4	52.5%	86.7%
Total	**31.8%**	**100.1%**

The coefficient for higher-income (income greater than $200,000) households is negative, suggesting this effect is not occurring in higher-income areas. Households may be enrolling in CARE who are just above the income threshold or are staying on CARE even after their income increases, rather than high-income households enrolling. The IOU targeting of higher-income areas for more post-enrollment verification may also be showing an impact, though our data is from 2012 and prior.

Energy usage is another surprising result, with higher energy usage of CARE participants associated with a *lower* CARE penetration rate. This variable has a much greater impact on CARE participation than the other geographic variable in this model, population density (which is strongly correlated with energy usage). We believe that this variable is picking up on regional (which includes climate zone[33]) differences in program outreach and customer willingness to enroll.

We examined the correlation between energy usage, CARE participation and CARE penetration. Below, we show the distribution of CARE customer energy usage (based on IOU consumption data) in deciles along with the corresponding CARE participation and

[33] E.g., climate zone 16 has very high-energy usage but very low CARE penetration. It is a climate zone encompassing the very northern region of the state and the sierras, typically rural and remote with at least heating and often also cooling needs, but with unique geographic characteristics and participation barriers.

CARE penetration (based on Athens Research data). Decile 1 represents the 10 percent of CARE customers with the lowest average daily energy use, decile 2 represent the 10 percent of CARE customers with the next highest average daily energy use, and so forth. The data show that CARE participation differs little between the four deciles with the lowest average daily energy use, but as the average daily energy use of CARE participants increases, CARE participation drops significantly. Comparatively, CARE penetration increases between the lowest decile of energy use to the next lowest decile. Between the 20th percentile through the 80th percentile, CARE penetration is relatively constant and then drops over the two deciles of greatest energy use (the top 20% of CARE customers).

Table 43 – CARE Customer Energy Usage Correlation with CARE Participation and Penetration

CARE Customer Energy Usage (BTUs)	CARE Participation	CARE Penetration
1	37.2%	78.5%
2	38.5%	83.8%
3	38.7%	85.1%
4	37.3%	84.9%
5	34.7%	84.3%
6	33.9%	85.3%
7	31.5%	84.6%
8	28.0%	83.4%
9	22.9%	81.0%
10	13.6%	69.0%
Total	**31.8%**	**82.1%**

Home ownership has a reverse impact on CARE penetration as CARE participation, with small areas with more homeowners who are eligible having *higher* penetration rates than small areas with more renters. This is likely because it is easier to engage a homeowner about their utility bill; they are much less transient than renters and pay for all their energy usage (whereas renters may not pay for usage associated with shared systems).

Other results complement the CARE participation model, indicating the program has had success in reaching many of the targeted customer segments that are perceived to have greater need and/or burden. The coefficients for single parents, households on public assistance and African-Americans are larger in the CARE penetration model (compared

to the participation model), suggesting that the program is even more impactful with these segments among the eligible population. As noted following the first CARE model results, we are examining block group-level ratios and interpreting these ratios as the probability of a randomly drawn household. The results of this analysis are intended to inform about spatial averages and trends, not about individual households.

All else constant, small areas (i.e., census block groups) of households that have relatively higher rates of:

- (-) Poverty (income less than 100% of federal poverty guidelines) – have ***lower*** CARE penetration rates;
- (+) Single-parent households – have higher CARE penetration rates;
- (-) Higher-income households (income greater than $200,000) – have lower CARE penetration rates;
- (+) Spanish-speaking households – have higher CARE penetration rates;
- (-) High energy usage (average CARE 2012 MMBTU) – have ***lower*** CARE penetration rates;
- (+) Seniors in the home – have higher CARE penetration rates;
- (+) Households on public assistance – have higher CARE penetration rates;
- (+) Larger households (number of members) – have higher CARE penetration rates;
- (+) Non-English/non-Spanish speaking households – have higher CARE penetration rates;
- (+) African-American households – have higher CARE penetration rates;
- (+) Home ownership – have higher CARE penetration rates; and
- (+) Higher residential population density – have higher CARE penetration rates

than other small areas of households.

5.4 ESA Participation Drivers and Barriers

This subsection describes study results related to ESA drivers and barriers to participation, preceded by an overview of the enrollment and assessment process. We drew upon all the study primary and secondary research sources for this subsection.

5.4.1 Overview of Customer Enrollment and Assessment

Customers must provide documents proving their income (e.g., income tax return, paycheck, social security, etc.) or that they are enrolled in another qualified LI program to participate in ESA, even if they are enrolled in CARE (which does not require proof of income). In addition to proving their income, customers must also prove they either own their home (i.e., showing the title) or for renters, get their landlord to sign a waiver allowing ESA measure installations and agreeing to make a small copayment for certain

measures. There is an exception for renters who do not qualify for any services that require changes to the home and who own their refrigerator, who may qualify for a new refrigerator.

The IOUs are working to create a joint improved property owner waiver consistent across the state and to expand the languages the waiver forms are offered in. SCE modified the waiver in 2012 so the landlord could agree to participate only for measures that do not require a co-pay so it's not an all or nothing proposition (unlike before when they had to sign something that said they would be liable for co-pays).

Customers must also be eligible for three measures or if less than that, measure(s) that will yield at least 125 kWh or 25 therm savings to be eligible to participate in ESA. This rule affects the single-fuel utilities more since they sometimes assess homes for their single-fuel only. If a customer is being assessed by a contractor who does ESA for both SCE and SoCalGas, they can assess electric and gas measures, but if the contractor only works for SCE or SoCalGas, the customer is only assessed for electric or gas and could fail the three-measure minimum requirement. If they don't fail the three measure minimum requirement, through data sharing the other IOU could then follow up with the customer and provide additional measures covering the other fuel.

Contractors that are also LIHEAP providers can leverage ESA and LIHEAP towards the three measure minimum requirement – for LIHEAP measures that are also offered under ESA. LIHEAP has a dollar cap and the contractors try to maximize dollars from both programs, so they may enroll customers in both programs. LIHEAP also offers measures that ESA does not.

For customers with natural gas service, there is the potential for an additional barrier to participate, based on how much combustion ventilation is present since any weatherization measures will tighten the home and reduce ventilation and could create a carbon monoxide problem.

5.4.1.1 Eligibility Requirements of Other Programs Nationwide

Based on our review of LI programs nationwide, other LI programs also have an income threshold under which a household is eligible. The threshold varies by state and also varies by size of household. Most programs use the Federal Poverty Level as a point of reference and set the threshold as a percentage of the FPL (i.e. 150% of the FPL, 200% of the FPL, etc). Some programs base the income eligibility thresholds on the state median income levels.

Eligibility for an LI weatherization program may be granted if a household also qualifies for another LI program, such as bill-pay assistance or a percent of income program. Some programs, such as the Ohio Energy Partnership Program (EPP), require that a household participate in the weatherization program if they are part of a bill-pay assistance program; by requiring participation in the program, both the recipients of the

assistance (who reduce their bills) and the ratepayers (who subsidize the bill-pay assistance program) benefit from the energy cost savings.

All programs require some proof of income either through the application process for the specific program or for the other LI programs through which the participants were referred. Providing proof of income did not appear to be a substantial barrier to participation, although program staff expressed the need to make the application process simple. The NYSERDA EmPower program accepts verification of income by a utility, the Weatherization Assistance Program or another approved entity; verification is only requested if not already verified. For participants that have already provided proof of income, allowing verification across programs makes for a more streamlined process which may reduce barriers to participation.

5.4.1.2 Targeting Strategies Used by Other Programs Nationwide

Based on our review of LI programs nationwide, in addition to income eligibility, LI programs often prioritize higher energy users or may limit eligibility to those customers that reach a minimum usage amount. When combined with other programs, such as bill-pay assistance, targeting high-users becomes a direct way to sign up participants; program implementers can sort the list of those households on bill-pay assistance by amount of energy used per home and use that list to prioritize and target future participants.

Targeting high users offers an advantage when trying to maximize energy savings, as higher users often have more opportunities to save energy. The most energy impacts come from those homes that have poor building insulation and sealing or inefficient equipment; their baseline energy usage is higher so energy upgrades make a stronger impact than those households that have a higher baseline efficiency level. At similar incomes, high users also face higher energy burdens. However, considerations should be made to not overlook those low energy users who are not using energy using equipment as a means to reduce costs.

For those energy efficiency programs that are implemented through a utility, acquiring usage data is straightforward. However, for those non-utility based programs that do not have access to utility data, acquiring household usage data can be an insurmountable barrier to targeting high users. For example, the NYSERDA EmPower program attempts to acquire utility data from a number of utilities across the state, yet each utility has different data privacy requirements (and confidentiality issues are ballooning), which prevents some utilities from sharing their customers' data, making it difficult to identify high user customers.

5.4.2 Program Staff Interviews

We spoke with IOU program staff about ESA program outreach and barriers to participation. They offered their opinions on remaining barriers to participation based on their experience managing the program and working with outreach and assessment

contractors. These findings are qualitative and help round out the customer research reported on this section. These results are not intended to reflect a comprehensive characterization of the programs.

Customer barriers to ESA participation noted by program staff include the following:

- Disabled customers - the IOUs have trouble meeting the disabled customer target of 15 percent since they are not allowed to ask about disabilities, so they may only report disabilities that are visible to them at the time of enrollment.
- Pride/others are more deserving of help.
- Cell phone-only customers – the IOUs have to match cell phones (but not land lines) to the do not call list, so a lot are screened out. Cell phone-only customers are increasing so this is becoming more of an issue. There are some developments at the IOU corporate levels to allow customers to opt in to be contacted by the IOU via their cell phone, but this won't be an easy or fast fix.
- Suspicion of fraud; customers that don't believe it's really free or that it's an actual program
- Newly income qualified: Some previously middle-income households may have fallen on harder financial times or taken in a number of new occupants into their home. Since they have not historically been eligible for income-qualified programs it often does not occur to them that programs providing these types of free energy-saving measures and services might be an option.
- Remote locations/rural barriers. Interviewees noted that sometimes it takes a face to face encounter to reach a household – that direct mailing has limitations that can be addressed with in-person efforts. They also note that these are very expensive.
- Master-metered customers that are not sub-metered and do not pay their electric bill, so the program has to sell the customer only on health, comfort and safety.
- Trouble providing required income documents (e.g., undocumented income, no income, or concerns over having to share immigration status).
- Don't have enough time.
- Language barriers – customers that do not understand program informational and marketing material, or have trouble filling out forms.
- Identity/social perception issues e.g. customers that don't want to participate in a "government" program, or take "hand-outs".
- Requirement of multiple appointments with contractors – by the 2nd or 3rd visit, the customer may drop off – especially for customers that work outside the home.

- Customers with no access to a bank account or knowledge of how to adequately leverage the banking system adequately may face additional barriers in managing their energy costs and bills.
- Renter/Landlord:
    - Must give permission but have a lack of incentive to do so. Property manager may not pay the electricity bill and therefore may not perceive a direct benefit from participation (participation unless the appliances are part of the building property.)
    - Fear the IOU will find a problem with building not meeting codes / standards.
    - Fear they will be liable for a co-payment.

The IOUs are working to create a joint improved property owner waiver consistent across the state and to expand the languages the waiver forms are offered in. The IOUs are developing a fact sheet and have done direct mail campaigns targeted to property owners/mangers, to help them understand the program and the benefits of participating.

5.4.2.1 Modified 3-Measure Minimum

Customers must be eligible for three measures or if less than that, measure(s) that will yield at least 125 kWh or 25 therm savings to be eligible to participate in ESA—this affects the single-fuel IOUs more, and in areas where the dual-fuel IOUs only provide a single commodity, where homes may only be assessed for a single fuel. Though in the SCE and SoCalGas overlap area, often the contractors may assess a customer's home for both fuels if they hold contracts with both IOUs.

Contractors that are also LIHEAP providers can leverage ESA and LIHEAP towards the three measure minimum rule—for LIHEAP measures that are also offered under ESA. LIHEAP has a dollar cap and the contractors try to maximize dollars from both programs, so they may enroll customers in both programs. LIHEAP also offers measures that ESA does not.

Homes that fail the three measure minimum rule may be losing out on energy-savings opportunities. The IOU has to pay the contractor to conduct the home assessment and enroll the customer and confirm income qualification. Customers who then fail due to lack of at least three measures are not allowed to get any measures, including energy education or CFLs. This rule may be impacting multi-family homes more often.

5.4.2.2 Measure-related Barriers

Program staff reported that ESA implementation contractors encounter some customer resistance to certain measures—or barriers to measure acceptance. This resistance is encountered during both the home assessment visit, and again during the measure

installation(s). During assessment the customer may be reluctant to sign up because they do not believe they will get "free" measures, and assume the big ticket items must be sub-standard. For SoCalGas, the main benefit/service is weatherization, and that can be a hard sell to customers – especially when compared with a refrigerator that is more tangible benefit of the electric program. Contractors explain to customers that there are health, safety and comfort benefits and their home will be cheaper to heat/cool, but *"..the message doesn't always "click""*.

During installation some customers may object to the way the new equipment looks or sounds or express disappointment that they didn't receive the measures they had expected. For example, a customer may be disappointed if they only qualified for water-saving measures such as aerators and showerheads and didn't get a new refrigerator or attic insulation or other big ticket items.

Lack of sufficient combustion ventilation air (CVA) can be a barrier to installing infiltration measures, both at the assessment and installation phases. If there is not sufficient CVA detected at assessment phase, the customer will only be assessed for non-infiltration measures and the three measure minimum becomes more probable and may result in the customer not being eligible for measures. (This most often occurs when there is a wall furnace and no place to obtain additional air, e.g., a multi-family interior unit or a small home.) For owner-occupied homes, the ESA program may be able to repair or replace the problem appliance, but for renter-occupied homes, the landlord must do the necessary repairs.

5.4.3 Contractor Interviews

We also obtained information from ESA outreach and assessment contractors on their opinions regarding remaining barriers to ESA participation. As we noted previously, the sample of contractors is not representative of all contractors and these findings are qualitative and intended to round out the customer research reported in this section.

The contractors that we interviewed reported that (and program staff corroborated) they are generally able to reach adequate numbers of income-eligible customers based on IOU referrals and supplemental outreach in order to meet their goals. However, even though a customer is enrolled in the CARE program, to participate in ESA they must provide documents proving their income or that they are enrolled in another CPUC-accepted means-tested LI program. Contractors indicate that for some customers, proving income-eligibility can be challenging. In this regard, contractors that provide multiple services to LI clients can have an advantage, since customers often come in with SSI or CalFresh documentation, which proves categorical eligibility.

The most commonly mentioned challenge is that many prospects are hesitant to provide private information (e.g., pay stubs or Social Security information), seniors and rural customers in particular (seniors also need more time to locate acceptable documentation).

In addition to proving their income, customers must also prove they either own their home (i.e., showing the title) or for renters, get their landlord to sign a waiver allowing ESA measure installations and agreeing to pay for certain measures that are not allowed to be installed for renters under the ESA program. For customers with natural gas service, there is the potential for an additional barrier to participate, based on how much combustion ventilation is present since any weatherization measures will tighten the home and reduce ventilation and could create a carbon monoxide problem.

Following are the enrollment barriers that the contractors described:

- Obtaining apartment owner permissions (i.e., split incentives, out of state and cannot reach or risk averse). This is a key barrier and the contractors did not describe any patterns regarding engaged and non-engaged, in-state owners.
- Suspicion of free measures and services. This is another key barrier; seniors are especially skeptical about whether measures are really free, and some apartment owners are wary of free assessments. More established contractors have fewer trust issues as their "brand" becomes accepted over time in the communities where they work.
- Transient customers. This is another key barrier, as many customers on IOU lists have changed/disconnected phone numbers or have moved.
- Seniors can be more wary of new technology.
- Customers lose interest when they cannot get the measures they want most (often refrigerators that are less than 15 years old, water heaters, ovens and AC units in certain climate zones where they are restricted).
- Some neighborhoods are not safe to visit.
- Contractor uncertainty regarding which measures the CPUC is funding at the end of program cycles and during bridge funding periods.

The contractors reported that they are using a range of diverse strategies to address the aforementioned challenges:

- Door-to-door canvassing:
    - Door to door enhances credibility and trust compared to phone canvassing. Contractors can and do show customers IOU authorizations and 1-800 numbers for questions or concerns.
    - The IOU lists and databases often have outdated phone numbers.
    - According to one contractor, "a higher percent of people open their doors than answer the phones (if they are home)."
    - For manufactured homes, it is easier to find new units that have not been recruited before.

    - Canvassing with ethnic apartment managers present (particularly Hispanic) leverages their rapport and enhances customer trust.
- Canvassing/telemarketing and doing projects in large contiguous areas to increase visibility, build awareness and gain trust
- Using translated materials and interpreters:
- Emphasizing improved home safety to seniors, who are often concerned about potential gas leaks.
- Encouraging word of mouth referrals by previous participants.
- Using routing software to increase efficiency of canvassing travel (i.e., can visit more homes).
- Equipping staff with uniforms with badges (which are required by the IOUs).
- Encouraging seniors to verify contractors with the IOU's by providing a 1-800 number and company and staff names (ideally visible on a badge too).
- IOU branding on fliers and door hangers.

We asked contractors how the IOU could help overcome barriers. Not surprisingly, some asked for additional mass marketing, which though it may help some customers overcome barriers, is not usually the most cost-effective way to address participation barriers. These suggestions are reported here without an assessment of their cost-effectiveness, and without comparing against current IOU marketing strategies and available budgets.

Contractors noted some areas where additional IOU assistance could improve their enrollment, mostly regarding marketing (one would like to see a simplified joint application for SCE and SoCalGas). One PG&E contractor would like to see more billboards and posters with 1-800 numbers to supplement the household mailers and 60-second phone messages that PG&E already delivers. Another PG&E contractor reported that having the IOU logo on their shirts used to enhance their credibility a lot, and would like PG&E to allow this again. Lastly, one SDG&E contractor would like to see more marketing in rural areas, where they perceive energy efficiency awareness still lags.

Regarding the marketing content, one contractor would like more "specifics" that describes contractors' involvement, so households are not subsequently skeptical of their offers of free measures. Another contractor perceived that, "customers have no clue about equipment, they don't see the ducts holes, they only know they have high electric bills, low comfort and always need to run the AC - that's what they relate to."

5.4.4 Customer Telephone Survey

This subsection includes telephone survey results on willingness to participate in ESA, ESA participation drivers and barriers.

5.4.4.1 Willingness to Participate in ESA

We asked ESA non-participants how willing they would be to participate in the ESA program. We provided as much information as we could to the respondent so their response would be based on some understanding of the various steps they would need to take and requirements they would have to meet in order to receive program services. The description varied for homeowners and renters, since they have different requirements:

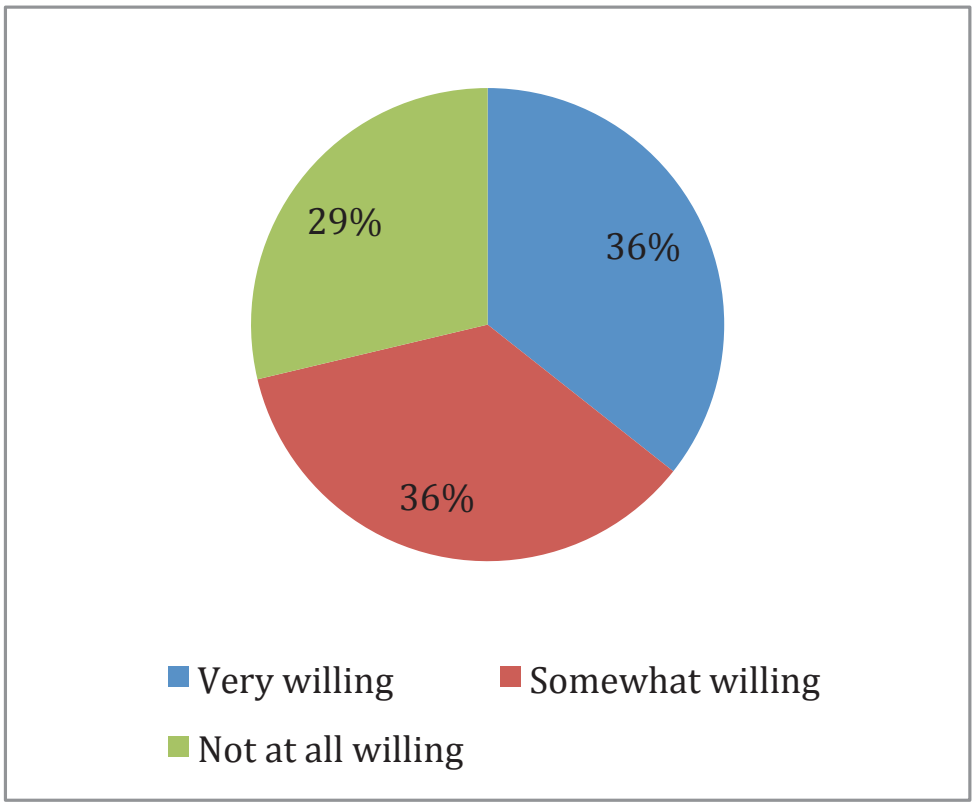
> "If you sign up for Energy Savings Assistance, a contractor will visit your home and look at your income [owners only: and home ownership documents] and fill out an application with you. [Renters only: The contractor will also need to have papers signed by your landlord approving the work.] A different contractor will come on another day and look at your home to see what home improvements you may qualify for, such as energy efficient light bulbs, weather stripping around doors and windows and sometimes new appliances or equipment to replace old or broken ones. These home improvements would be installed by another contractor during another visit or two to your home." [34]

As shown in Figure 34 below, 36 percent said they would be very willing to participate in ESA, after hearing that description. Another 36 percent said they would be somewhat willing (for a total of 72% that are willing), and the remainder (29%) said they were not willing.[35]

[34] Note that this description is not exactly how customers would participate in the program. E.g., some fraction will undergo an additional visit for inspection of measures, some will have the assessment take place during the enrollment visit, etc.

[35] The prior LINA estimated 95 percent of ESA (referred to as LIEE at that time) non-participants were very or somewhat wiling to participate in ESA, but they did not include a detailed description of the program. The prior estimate was an upper bound estimate. Many more households have participated since the time of that study, leaving a harder to reach non-participant pool that may be less willing than the non-participant population in 2004, when the prior research was conducted.

Figure 34: ESA Non-Participant Willingness to Participate (O2) for California LI Population (n=400)

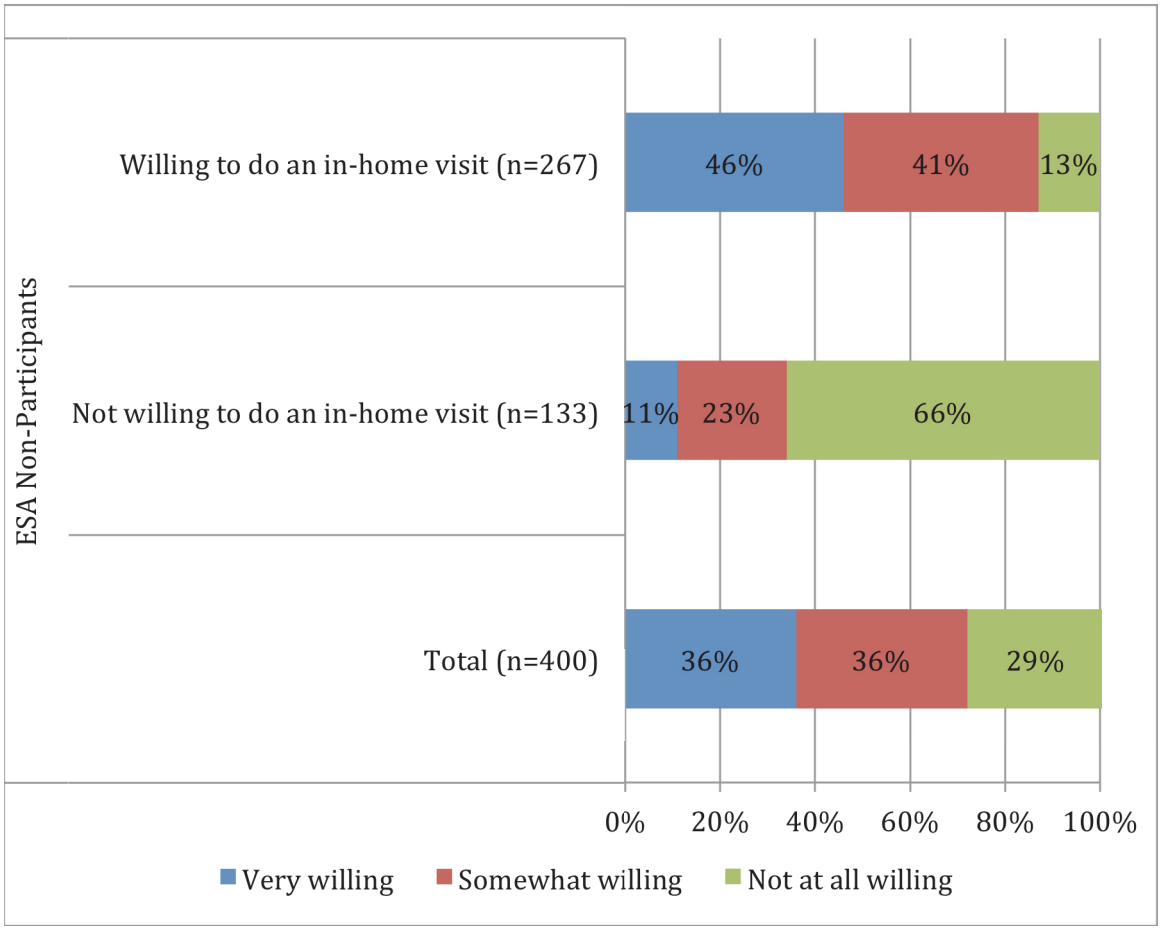


Source: 2013 Care Participant Telephone Survey.

We remind the reader to consider the sample bias when interpreting this result. We believe our telephone survey sample represents roughly half the ESA non-participant population that lacks major outreach barriers (i.e., is willing and able to respond to a telephone survey sponsored by their IOU related to energy issues.) The other half of the population that is not represented by our sample probably as much lower willingness to participate and must be considered when using these results for developing program plans and policies.

We examined willingness to participate based on the respondent's willingness to be in our recruitment pool for the in-home visit, which was recruited from the ESA non-participant respondents. In Figure 35 below, we show how willingness to participate in ESA is strongly correlated with willingness to do an in-home survey. Only 34 percent that declined to be in the in-home pool are "very" or "somewhat willing" to participate in ESA, versus 87 percent of those who joined our recruitment pool.

Figure 35: ESA Non-Participant Willingness to Participate, by Willingess to do Onsite Visit (O2/R1a) for California LI Population



Source: 2013 CARE Participant Telephone Survey.

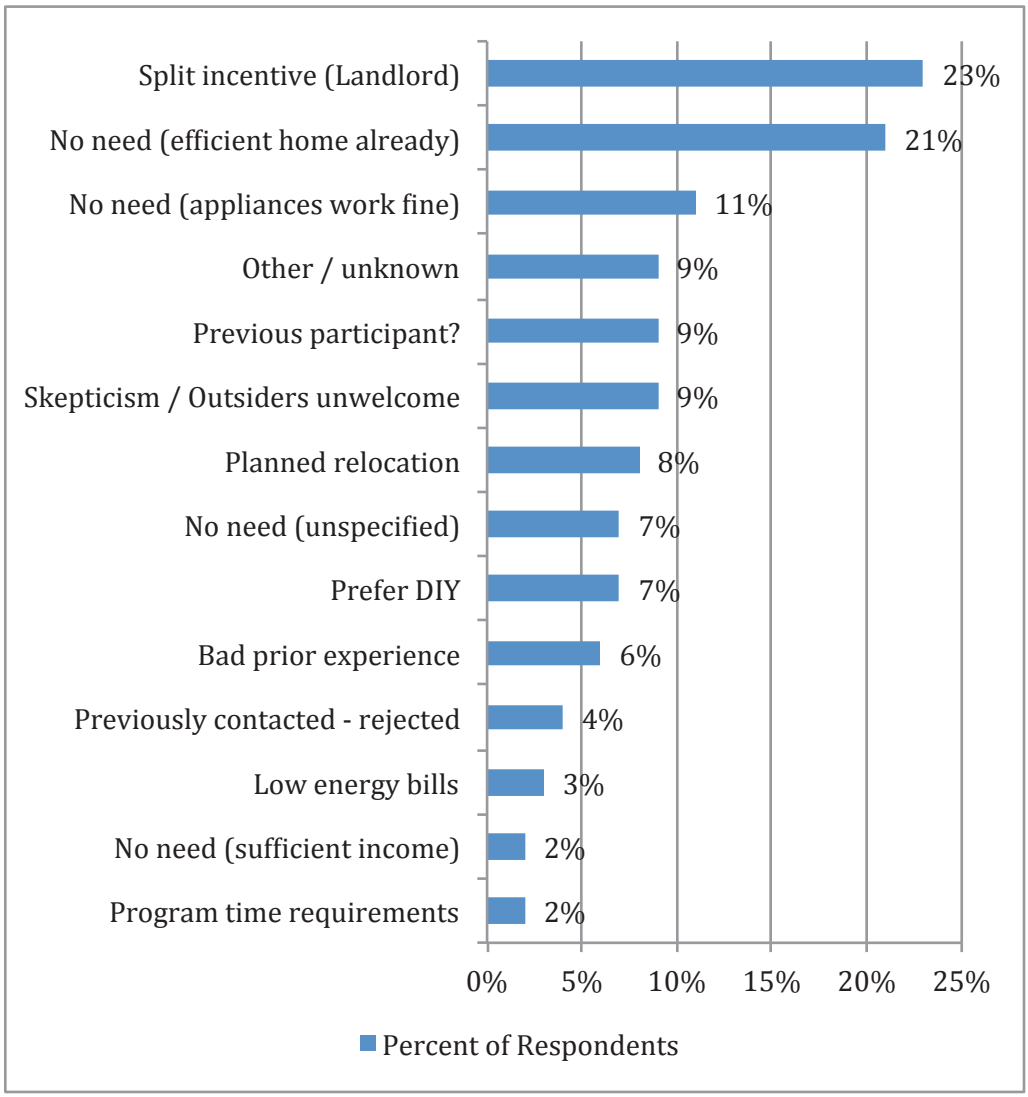
If we assumed that the ESA non-participants that we could not reach by telephone had the same willingness to participate as those respondents who declined to join our in-home pool, the percent who are willing to participate (summing the "very" and "somewhat") drops from 72 percent to 52 percent. We do not really know whether the non-respondents are the same as those who declined to join the in-home pool, but lacking better data, this adjusted willingness estimate is a proxy for a population estimate.

We asked respondents who said they were unwilling to participate in ESA (29% of non-participants) to tell us why they were unwilling (Figure 36 below), and the primary reason (only cited by renters) was that their landlord would not let them or they did not want to ask their landlord (23% of total unwilling respondents) – 28 percent of single-family renters and 42 percent of multi-family households. The next most commonly

cited reason was that they have no need for the program (21%), followed by a similar response that their appliances are working well (11%).

Note that if the willingness to participate estimates presented above (e.g., the 52% adjusted estimate) are used to update ESA program treatment goals, the reasons for not being willing to participate should be factored in. For example, the estimate could include LI customers who said they were unwilling to participate (which is 7% of LI customers) due to having to get permission from their landlord, which is a barrier that the program may want to address and attempt to serve those customers.

Figure 36: Reason Non-Participants Are Unwilling to Sign up for ESA (O2a) (n=79) for California LI Population



Note that there were likely a few respondents, similar to the in-home visit sample, which may have participated in ESA in 2013 that were in our sample (which explains the "previous participant" responses). Our sample frame was based on ESA participation through 2012.
Source: 2013 CARE Participant Telephone Survey.

We looked at segments of non-participants to determine if there are differences in their reasons for being unwilling to participate in ESA. We found that households in rural and mountain geographic areas were more likely to cite skepticism and trust issues (outsiders unwelcome) than other households (64% and 76% respectively, compared to only 9% of total unwilling respondents.) Rural and mountain households were also less likely to cite their landlord as the reason for their unwillingness (46% and 51%,

respectively, compared to 22% of urban respondents), though this particular difference is not statistically significant.

Mobile home dwellers (91%) and single-family homeowners (56%) were more likely to say they have no need than single-family renters (18%) and multi-family (36%) households. English-only households were also more likely to say they have no need (53% compared to 20% of Spanish-speaking households).

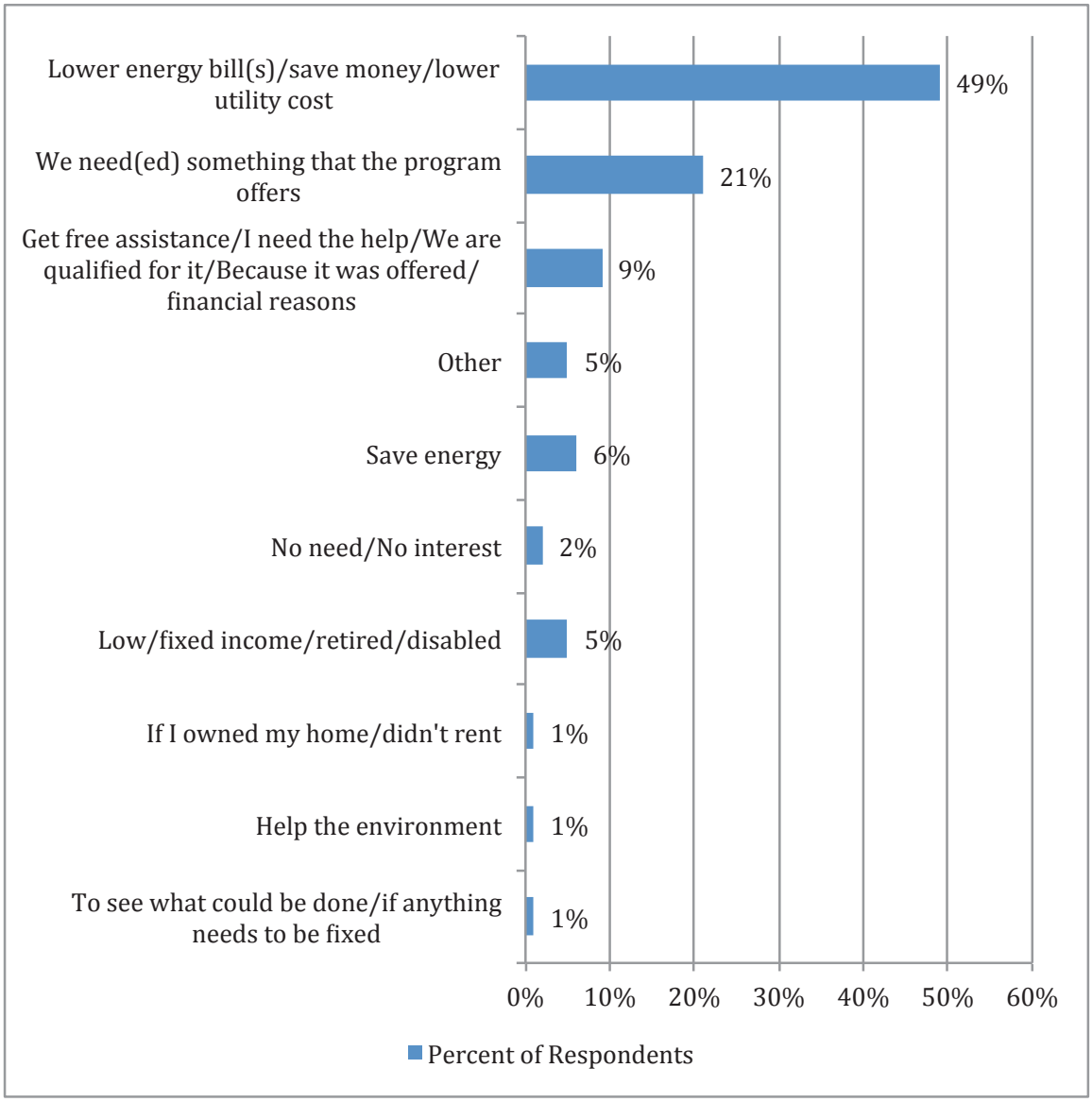
5.4.4.2 ESA Participation Drivers and Barriers

We asked telephone survey respondents a series of questions related to drivers of participation. We adapted the questions to apply to both ESA participants and non-participants. First, we asked (unprompted) why they participated in ESA (for participants) or why would they participate in ESA (for non-participants who said they were willing to participate, after reading them a description of the program and steps they would go through to participate). Next we presented a list of potential participation drivers and asked how important each of these were in deciding to participate (for participants) or might be (for willing non-participants). We followed with a similar set of questions regarding potential barriers to participation – first asking an unprompted question about what, if anything, was difficult (or might be difficult) about participation, followed by reading a list of potential barriers and asking how easy or hard they were (or might be).[36]

Figure 37 below presents the open-ended responses to what made them decide to (participants) or why they would decide to (non-participants) participate in ESA. The most commonly cited reason was to lower their bills/save money, cited by 49 percent of respondents. The next most commonly cited reason was that they needed something the program offered, cited by 21 percent of respondents. These results do not differ across LI population segments, or by ESA participation status.

[36] Recent participants who did not recall participating were not asked this series.

Figure 37: Why Respondents Did/Would Decide to Participate in ESA – Unprompted (E1a) (n=925) for California LI Population



Source: 2013 Care Participant Telephone Survey.

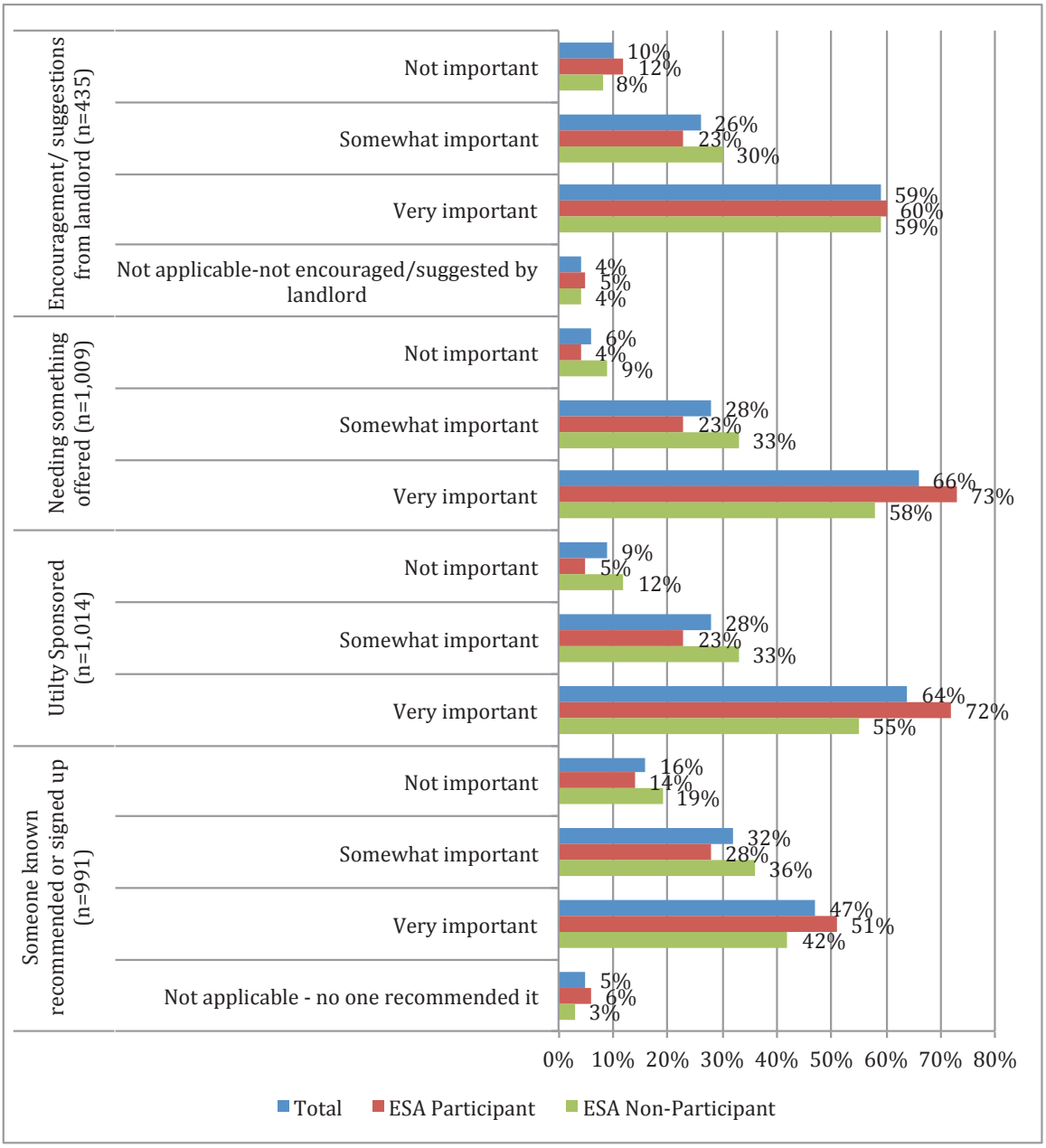
Figure 38 shows the results from the prompted question series, where respondents were asked how important various factors were or would be in deciding to participate. Between one-half and two-thirds of respondents said each of the factors were "very important":

- Encouragement / suggestion from their landlord (renters only)
- Needing something the program offers
- IOU sponsorship
- Someone they know recommended it or already signed up

The last driver, having a recommendation, was cited as "very important" the least.

ESA participants were more likely to say that needing something the program offered and IOU sponsorship was very important than non-participants. These were the top two drivers for ESA participants. The ESA modeling that included the phone survey data (stage two, see Section 5.4.5) indicated that these potential drivers were not significant in predicting participation, suggesting that these two drivers reflect underlying differences between participants and non-participants. The top driver for ESA non-participants was landlord encouragement, but almost as many non-participants also cited needing something the program offers and IOU sponsorship.

Figure 38: Importance of Various Factors in Considering ESA Participation – Prompted (E2) for California LI Population



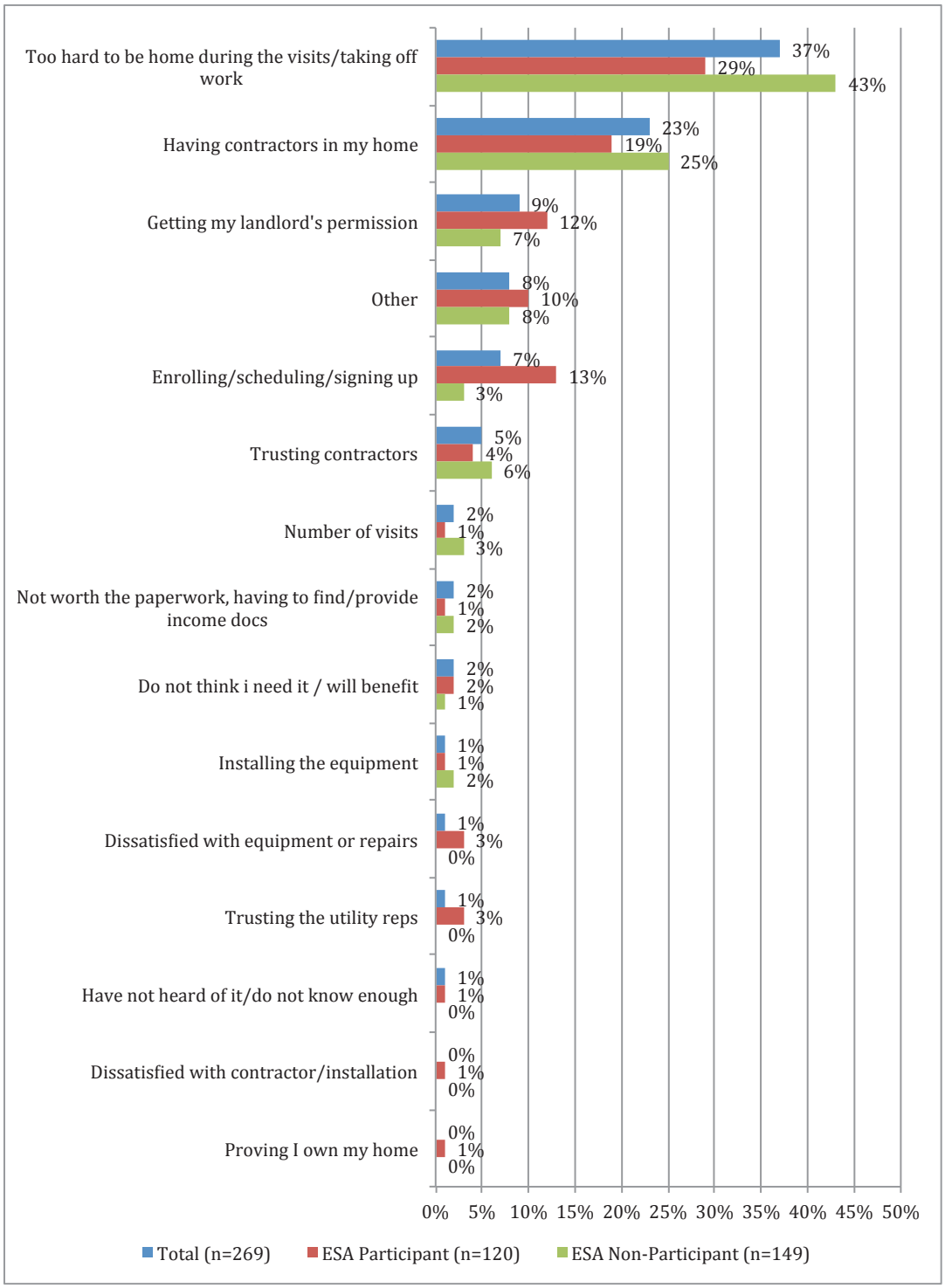
Source: 2013 CARE Participant Telephone Survey

We asked respondents whether they had any problems (participants) or anticipate having problems (non-participants, after having been read a description about the program) signing up for ESA. 25 percent said of total respondents said yes, and 17 percent of participants and 33 percent of non-participants said yes. Rural and mountain

respondents were more likely to say they would have or did have problems – 43 percent and 48 percent, respectively.

Figure 39 presents the open-ended responses regarding what was (participants) or would be (non-participants) most difficult about ESA participation, for the 25 percent that said they had or would have a problem. Being home during the day/taking time off work was the most commonly cited barrier, mentioned by 43 percent of non-participants and 29 percent of participants (not a statistically significant difference). Households where Spanish is the primary language were more likely to cite this barrier than homes where English is the primary language (54% versus 34%). 'Having contractors in my home' was the next most commonly cited barrier, cited by 23 percent respondents who mentioned they had or would have a problem participating in ESA. 9 percent mentioned getting permission from their landlord, and excluding homeowners, 12 percent of renters cited that reason.

Figure 39: ESA Participation Components that Were/Would be the Most Difficult – Unprompted (B1) for California LI Population



Source: 2013 CARE Participant Telephone Survey.

Figure 40 shows the results of prompted barriers that we asked participants and non-participants about, including:

- Providing documentation of home ownership (for owners only);
- Providing income documentation such as a tax return;
- Trusting the utility;
- Filling out a program application with a contractor;
- Arranging to be home for contractor visits;
- Getting the landlord's permission (for renters only); and
- Trusting the contractor.

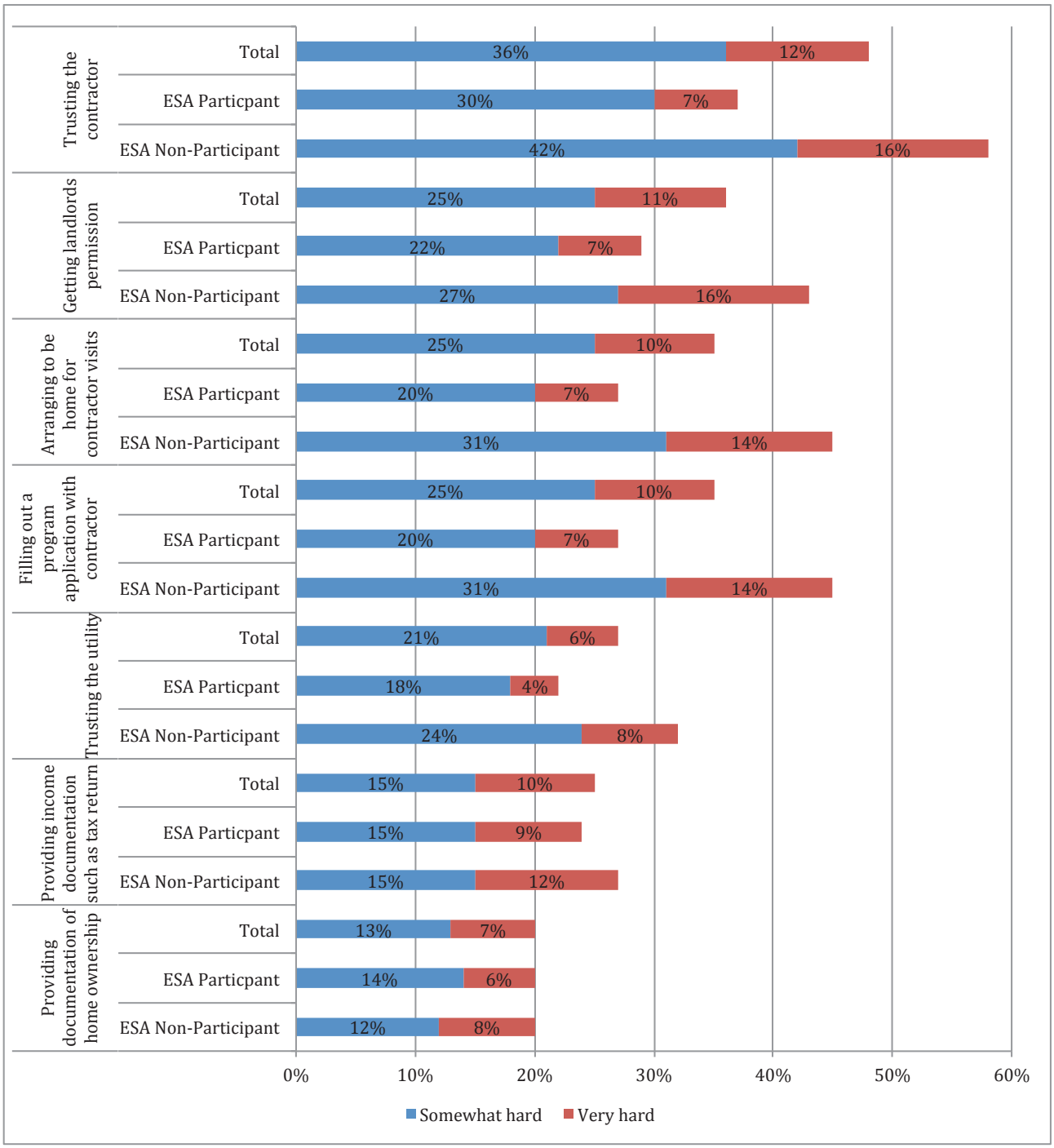
We asked respondents whether those potential barriers would be easy, somewhat hard or very hard. The potential barriers that respondents said would be very or somewhat hard most often was trusting the contractor and getting landlord's permission (tied at 47%). Single-family owners and other primary language households were more likely to say that trusting the contractor would be hard (55% and 65%, respectively). More multi-family respondents said that getting their landlord's permission would be hard (55%). These prompted potential barriers elicited a higher percentage of respondents that said they would be problematic, as compared to the previous question that we reported, which was unprompted and allowed only one response. In the prompted series, respondents could mention more than one potential barrier as problematic.

Arranging to be home for contractor visits and filling out an application with a contractor were tied for third and fourth (35% said these would be very or somewhat hard). All of those barriers except filling out an application were cited more often as "hard" by non-participants than participants. Non-English as a primary language households were more likely to say that filling out an application would be hard.

Trusting the IOU was not much of a potential barrier, with only 26 percent saying that would be hard – though more non-participants said this would be hard (32% versus 21% of participants).

Homeowners were not very likely to mention providing proof of ownership documents (80%), and only 25 percent of respondents said that providing income documents would be hard. (More single-family renters [57%] said that would be hard than other home types.) We remind the reader again that our sample is biased towards non-participants that would talk to us about IOU programs and energy usage, so our sample is likely more trusting and willing to share information.

Figure 40: How Hard ESA Participation Components Were/Would Be – Prompted (B2) for California LI Population[1]



[1]Sample sizes: total = 1,021, participant = 607, non-participant = 414; for landlord barrier: total = 475, participant = 253, non-participant = 204.
Source: 2013 CARE Participant Telephone Survey.

5.4.5 ESA Modeling Results

As described previously in this subsection, participation in the ESA program is dependent upon a number of factors and is often not simply a choice made by an eligible customer. Each of the IOUs engages in outreach activities, which influence the number and characteristics of customers that enroll in the ESA program, such as neighborhood canvasing, marketing through community or religious institution, or inserts in monthly bills intended to appeal to a particular socio-demographic segment of the customer base.

We conducted two types of models to assess drivers of and barriers to ESA participation. For "Stage 1", we used population data and developed four IOU-specific models, taking advantage of whatever data the IOUs could provide.[37] For "Stage 2", we developed one cross-IOU model using IOU data combined with telephone survey data.

We examined differences between participant and (likely income-eligible, since they are enrolled in CARE) non-participant characteristics, to provide context for the analysis that follows of drivers of and barriers to participating in ESA. We based these comparisons on the self-reported demographic survey battery of our telephone survey (which are included in Section 7.2, within the demographic characteristics detailed results tables.)[38]

Characteristics that differ across ESA participants and non-participants (technically, across homes that have been treated by ESA[39] and have not) are:

- Race: 35 percent of respondents living in homes that have been treated by ESA are White; comparatively 44 percent of respondents living in homes that have *not* been treated by ESA are White. 42 percent of respondents living in homes that have been treated by ESA are Hispanic; comparatively 34 percent of respondents living in homes that have *not* been treated by ESA are Hispanic.
- Income: Respondents living in homes that have been treated by ESA have an average income of $20,377; comparatively respondents living in homes that have *not* been treated by ESA have an average income of $25,886.
- Disabled: 63 percent of respondents living in homes that have been treated by ESA have a disabled household member;[40] comparatively 54 percent of

[37] If one IOU had certain variables but the others did not, this approach allowed us to use the variable in the model. In Stage 2, we had to restrict the cross-IOU model to whatever variables the IOUs had in common (the least common denominator). (We were able to impute missing values for some incomplete variables, but we could not use a variable that was completely missing from one or more IOUs.)

[38] Note that we determined ESA participation based on "home", while the survey was conducted with the current household residing in the home, which may or may have not been treated by ESA. Technically, we are reporting characteristics of households that live in ESA treated homes versus those that lie in homes that have not been treated by ESA.

[39] For the purpose of this study, "treated by ESA" is defined as treated through the ESA program since 2002.

respondents living in homes that have *not* been treated by ESA have a disabled household member.

- Education: 16 percent of respondents living in homes that have been treated by ESA have received a bachelor's degree or higher; comparatively 22 percent of respondents living in homes that have *not* been treated by ESA have received a bachelor's degree or higher. 27 percent of respondents living in homes that have been treated by ESA have not completed high school; comparatively 18 percent of respondents living in homes that have *not* been treated by ESA have not completed high school.
- Tenure: 29 percent of respondents living in homes that have been treated by ESA have lived at their home for 20 years or more; comparatively 16 percent of respondents living in homes that have *not* been treated by ESA have lived at their home for 20 years or more.
- Presence of elderly member(s): 54 percent of respondents living in homes that have been treated by ESA have one or more elderly household member(s); comparatively 45 percent of respondents living in homes that have *not* been treated by ESA have one or more elderly household member(s).

These results should be viewed as "zero-order" associations in that they do not control for other characteristics that may influence participation in the ESA program. Comparatively, the logistic regression models presented in this report control for the various factors that influence participation in ESA, which allows us to derive estimates of the marginal impacts associated with various characteristics and factors.

Characteristics of households living in homes that have and have not been treated by ESA that do *not* differ are:

- Home ownership
- Home age
- Population density (urban v. rural)
- Building type (single-family versus multi-family)
- Presence of children
- Household size
- Language spoken
- Employment status

These comparisons (based on cross-frequencies) provide a simple, two-dimensional view of the relationship between ESA participation and another variable that, while

[40] See the telephone survey instrument in Section 13, questions D15a-15e. If the respondent said "yes" to any of those questions related to household member(s) disability(ies), the household was coded to have a disabled member.

instructive, can be misleading because cross-frequencies do not account for other characteristics important in the decision by or opportunity for a household to participate in CARE. For example, while participant households are more likely to be White than non-participant households, White households are also more likely to be homeowners, to have longer tenure within their home, and to be over 65 years of age or live in a community with a high percentage of households with persons over 65 years of age. These are all factors that have a positive influence on ESA participation, but which cannot be considered within a simple cross-frequency. The (multivariate) logistic regression model will estimate the impacts that each of these factors has on ESA participation while controlling for other confounding factors.

Comparatively, regression analysis allows us to measure the marginal relationship between ESA participation and each explanatory variable, while controlling for ("holding constant") all other explanatory variables. The result is that after controlling for all other factors, White households are not more likely to participate in ESA than other, non-White households.

5.4.5.1 Stage 1

Using customer-level data provided by the IOUs for CARE customers and supplemented with block-group level data from the U.S. Census Bureau and Athens Research, we developed and estimated independent logistic regression models for each of the four IOUs. For each model, the dependent variable is equal to 1 if the customer is living in a premise treated through the ESA program since 2002, else 0 if the premise was not treated through the ESA program (but is assumed to be income-eligible since the household is on the CARE rate).[41]

The independent variables in the models include characteristics of the household (e.g. number of persons) and neighborhood (e.g. percent Spanish speaking households), and relationship with the respective IOU (e.g. length of time the service account has been active, number of late payments).

The purpose of the models is to quantify the effect that these various characteristics have on the likelihood that a customer will participate in the ESA program. Section 9.2 provides additional details on the Stage 1 ESA model results and Section 6.1 provides additional details on the methods used to develop those models.

Table 44 provides the key results translated to allow for relative comparisons across the models' explanatory variables for each IOU. Note that not all variables were available for each IOU, and even when available, some were not significant (shown as a blank cell in the table). The columns are described below, and are similar to the CARE modeling described previously:

[41] Note: we do not account for, nor do we know if the customer was living in the premise when the residence when it was treated through the ESA program.

a. The row number;
b. The variables used in the ESA participation models; and
c-f. The change in ESA participation associated with a hypothetical change in the variable shown in column b from the median to the 60th percentile value (for continuous variables), from the mid-point to mid-point plus one for discrete variables and from 0 to 1 for binary variables, *holding all else constant* for each IOU.

Table 44: Estimated Impact on ESA Participation Associated with a Change in the Value of Each Independent Variable for California LI Population

a.	b.	c.	d.	e.	f.
		Delta ESA Participation			
Row	VARIABLE	SDG&E	SoCalGas	SCE	PG&E
Continuous variables:					
1	Median Income for the block group (divided by 1000)	-2.01%	-1.39%	-0.63%	-0.57%
2	% HHs in the block group with Person >= 65	0.17%	0.35%	0.31%	0.84%
3	% Spanish Speaking HHs in the block group	0.42%	2.10%	2.31%	1.54%
4	% Non English/Spanish HHs in the block group	-0.66%	1.01%	0.26%	0.60%
5	% Single Parent HHs	2.70%	0.22%	0.77%	0.60%
6	% HHs on Medicaid in the block group	3.78%			1.76%
7	% African-American HHs in the block group		0.62%	0.56%	
8	Avg. 2012 Electricity Use (daily kWh)	-1.32%		-1.44%	-0.46%
9	Avg. 2012 Gas Use (daily therms)		-0.02%		
10	Pop Density (1,000 pers. per sq. mile) of the block group	0.37%		0.11%	-0.15%
11	Service account age (Occupant tenure)	-0.21%	0.45%	2.30%	0.77%
12	Building age (imputed where missing based on block group)	0.30%		0.63%	0.68%
13	Time on CARE rate (years)		0.87%	0.49%	
Discrete variables:					
14	Persons Per HH		1.49%	1.68%	
15	Number of failed bill payments	1.87%		0.32%	-2.85%
16	Number of overdue payments	0.07%		0.55%	
17	Calls to customer re delinquent bill	0.35%			
18	Number of disconnects	-2.4%			-3.89%
Binary variables:					
19	Medical baseline (0/1)		17.61%	13.65%	5.33%
20	Coastal location (0/1)	-2.7%	-14.34%	-5.60%	
21	Has IOU Electricity (0/1)		8.56%		5.33%

a.	b.	c.	d.	e.	f.
			Delta ESA Participation		
Row	VARIABLE	SDG&E	SoCalGas	SCE	PG&E
22	Has IOU Electricity and Gas (0/1)				17.57%
23	Single-family dwelling (0/1)			18.65%	
24	Has recertified for CARE (0/1)			13.97%	
25	Categorical CARE enrollment (0/1)			3.84%	
26	Located in climate zones 10-16[1] (0/1)			15.84%	
27	Located in climate zones 13-15[2] (0/1)			18.50%	

[1] Eligible for Central and Room AC during program years 2009-2011
[2] Eligible for Room AC but not Central AC during program years 2009-2011
Source: 2013 CARE Participant Telephone Survey.

Key takeaways from the ESA participation model results are presented below by the three categories of variables (continuous, discrete and binary) along with an interpretation of the result. We sorted by ascending magnitude of the variable on delta ESA participation across the four IOUs. Where applicable, we indicate whether the results are consistent with the CARE models.

Continuous variables:

- (+) Spanish-speaking households – the more households that speak Spanish as their primary language in the block group, the more likely households have participated in ESA – the programs have made substantial efforts to target Spanish-speaking households (this result is consistent with the CARE model) - it is also possible that concentration of Spanish speaking households is positively related to concentration of income-eligible customers;
- (+) Households on Medicaid – the more households that are enrolled in Medicaid in the neighborhood, the more likely a household has participated in ESA – similar interpretation as the median income variable above (this result is consistent with the CARE model); and
- (-) Median income – the lower the income of the neighborhood, the more likely the household is enrolled in ESA – the ESA program targets customers based on CARE enrollment and neighborhoods based on income level (this result is consistent with the CARE model, which looked at a similar variable: income less than 100% of federal poverty guidelines);
- (+) Single-parent households – the more single-parent households in the neighborhood, the more likely a household has participated in ESA – these households may have an easier time qualifying for CARE and ESA since they have

only one income to report, and the IOUs typically conduct outreach for ESA based on CARE enrollees;

- (+/-) Service account age/occupant tenure – for all but SDG&E,[42] the longer the household has lived in their current home the more likely they are to have participated in ESA – households that move around are harder to reach [43]
- (-) Electricity usage – the lower the electricity usage the more likely the household has participated in ESA – this is consistent with the CARE model; we hypothesize that customers with very high electricity usage either may not truly be eligible for CARE or may have other resources available to them that makes them less likely to respond to ESA program outreach, and conversely, those with lower usage may be actively trying to conserve and more interested in participating in ESA;
- (+/-) Non-English/non-Spanish speaking households– the more households where a language other than Spanish or English is their primary language in the block group, the more likely households have participated in all IOUs' ESA programs with the exception of SDG&E[44] (this result is consistent with CARE, with the exception of SDG&E);
- (+) Seniors in the home – the more seniors living in the neighborhood, the more likely households are enrolled in CARE and income-eligible and the more likely someone will be home at the household and available to participate in the ESA program (this result is consistent with the CARE model);
- (+) Building age – the older the building, the more likely it has been treated by ESA – older homes typically have more savings potential and are probably targeted by the IOUs;
- (+) Time on CARE – the longer that a household has been on the CARE rate, the more likely their home has been treated by ESA – they have had a longer amount of time to be on an outreach list developed by the IOU based on CARE enrollees;

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[42] The impact on SDG&E ESA participation is very small. SDG&E has fewer older homes than the other IOUs.

[43] We recognize that many of the homes currently occupied by LI customers that have been treated through the ESA program were actually treated prior to the current residence living in the home. Therefore, the explanatory variables in the regression models that are specific to the customer do not explain why a prior resident chose to participate in the ESA program. Nevertheless, the measure of success for the ESA program is that the premise lived in by a LI customer be treated through the ESA program—regardless of who made the decision to participate when. We, therefore, set as a 'success' any CARE participant living in a premise treated through the ESA program, regardless of whether the premise was treated by a prior residence.

[44] SDG&E has significantly fewer Spanish-speaking households than SoCalGas and SCE (14% compared to around 30%), but about the same as PG&E (which has 17%).

- (+) African-American households – the more households that are African-American in the block group, the more likely households have participated in ESA – the programs have made substantial efforts to target segments that were considered hard-to-reach such as through working with community organizations, this result might reflect the success of those efforts (this result is consistent with the CARE model);
- (+/-) Population density – for all but PG&E, the more dense the block group the more likely the home has been treated by ESA – though this variable has a relatively small impact on ESA participation for all IOUs; and
- (-) Gas usage – for SoCalGas, households with higher gas bills have lower ESA participation rates, but the impact of this variable on participation is very small.

Discrete variables:

- (-) Number of disconnects and number of failed payments – households with more of these payment issues (with the exception of PG&E for failed payments) are less likely to have participated in ESA - these measures of negative behavior on the part of the customer may indicate a lack of engagement on the part of the customer to work with the IOU to find a solution to their inability to pay their bill;
- (+) Number of people per household – the more people in the household, the more likely the home has been treated by ESA – since households qualify based on income and number of people in the home, households with more people are more likely to quality for CARE and ESA (this result is consistent with the CARE model); and
- (+) Number of overdue payments, number of IOU calls to customer regarding delinquent bills and number of failed payments (for PG&E only)– the more of these payment issues, the more likely the customer is to participate in ESA – this is probably the desired result, where the program is helping customers with bill payment issues.

Binary variables:

- (+) Medical baseline – households that are on a medical baseline rate are more likely to participate in ESA, which is likely a desired result;
- (-) Coastal location – homes located in coastal areas are less likely to participate in ESA, likely because there is less need for it and less potential savings, so contractors may target these areas less often and households in these areas may perceive fewer participation benefits;

- (+) Single-family dwelling[45] – single-family homes are more likely to have participated in ESA, multi-family homes are very likely to be rented and require landlord cooperation;
- (+) Located in climate zones 13-15 – homes that are in these climate zones are more likely to participate, these are climate zones where customers are eligible for Central ACs, where there may be more need and energy savings potential;
- (+) Has IOU gas and electricity service – homes that have both services from their IOU are more likely to participate, likely due to more available measures so these homes may be more likely to be targeted by contractors and more likely a household would agree to participate;
- (+) Located in climate zones 10-16 – homes that are in these climate zones are more likely to participate, these are climate zones where customers are eligible for Room ACs, where there may be more need and energy savings potential; note that these homes are less likely than those in just climate zones 13-15 to participate;
- (+) Has recertified for CARE – households that have recertified for CARE are more likely to participate in ESA, likely because they are able and willing to respond to IOU requests for a response and may be more likely to be truly income-eligible for CARE and thus willing and able to provide income documents for ESA;
- (+) Has IOU electricity – for PG&E and SoCalGas, homes that have electricity from PG&E or SCE are more likely to participate in ESA; and
- (+) Categorically enrolled in CARE – households that categorically enrolled in CARE are more likely to have participated in ESA – these homes may be more likely to be income-eligible and willing to participate in ESA and have an easier time providing income or other qualification documents; they also may lack trust issues since they have opted to take assistance in other formats.

Note that we did not include an indicator variable of renter status, which was significant in the CARE model, since the stage one model is at the customer level and we lacked a variable that would tell us if the home was rented or not. (We had block group level data, but while such data may help with other indicators such as race and income, there may be less likely to be trends in home ownership at the neighborhood level.) We tried a home ownership variable in the stage two model, but it was insignificant (as discussed below). However, the self-reported barrier of getting a landlord to sign paperwork is

[45] Note that this variable was only available for SCE. The stage two model included a variable across all IOUs based on the survey data with home type, but was not statistically significant. We do note that the stage two model is based on the phone survey data that excludes non-participants who would not respond to a telephone survey, so home type may be an important barrier, though our results are not conclusive.

significant. In addition, the incentive for a renter to participate in the ESA program would be influenced by whether their dwelling is individually metered.

5.4.5.2 Stage 2

Using data gathered from the telephone survey of CARE participants and supplemented with customer-level data for CARE customers from the IOUs and block-group level data from the U.S. Census Bureau and Athens Research, we developed and estimated a logistic regression model that attempts to explain the factors affecting participation in the ESA program. The dependent variable in the model is equal to 1 if the customer is living in a premise treated through the ESA program since 2002, else 0 if the premise was not treated through the ESA program (but is assumed to be income-eligible since the household is on the CARE rate).[46]

The independent variables in the models include characteristics of the household and residence gathered through the telephone survey, as well as neighborhood characteristics and household electricity usage. The purpose of the model is to quantify the effect that these various characteristics have on the likelihood that a customer will participate in the ESA program.

While this model is closely related to the Stage 1 models developed for each of the respective IOUs, it differs substantively from those models in that it is primarily based on information gathered from CARE participants through the telephone surveys. While this model has the advantage of incorporating additional customer-level variables that we could not obtain in the IOU and Census/Athens data, it has two limitations. One, the telephone survey data are biased towards non-participants that lack major outreach barriers, as previously discussed. The interpretation of the presence and lack of barriers to ESA participation factors in this issue. Two, the model is cross-IOU (due to the much smaller number of observations) and we are limited to variables present across the IOUs (as mentioned above, the lowest common denominator). Section 9.2 provides additional details on the Stage 2 ESA model results and Section 6.1 provides additional details on the methods used to develop the model.

Table 45 provides the key results translated to allow for relative comparisons across the models' explanatory variables, similar to the Stage 1 table, but across IOUs. In this table we also include the median and 60th percentile of each variable (for Stage 1 that information is included in the appendix due to space constraints). Note that we included all the variables that were common across IOUs and that were comparable across participants and non-participants from the telephone survey, however, many variables were not significant. The columns are described below, and are equivalent to the CARE modeling described previously:

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[46] Note: we do not account for, nor do we know if the customer was living in the premise when the residence when it was treated through the ESA program.

a. The row number;
b. The variables used in the ESA participation model;
c. The median value of each continuous and discrete variable;
d. The 60th percentile of each continuous variable/median value plus one for discrete variables; and
e. The change in ESA participation associated with a hypothetical change in the variable shown in column b from the median (column c) to the 60th percentile value/median plus one (column d), *holding all else constant*.

Table 45: Estimated Impact on ESA Participation Associated with a Change in the Value of Each Independent Variable for California LI Population

a.	b.	c.	d.	e.
	VARIABLE	Median	60th %tile[1]	Delta ESA Participation
1	AvgDailyKWH	16.18	17.99	-1.12%
2	PopDensity1000	3.54	4.54	-0.70%
3	HomeTenure	12.00	16.00	4.01%
4	Income1000	22.50	27.50	-1.70%
	Discrete & Countable			
5	HHsize	3.00	4.00	3.70%
	Binary Variables			
6	Male	0.00	1.00	-8.15%
7	Married	0.00	1.00	-11.80%
8	EnglishProficient	0.00	1.00	-9.31%
9	Home1970_1989	0.00	1.00	8.39%
10	OtherRace	0.00	1.00	10.01%
11	NotEnglishSpanishPrimary	0.00	1.00	-15.36%
12	ChronicMedical	0.00	1.00	8.25%
13	careaware	0.00	1.00	-7.57%
14	ReportedTurnOffHeat	0.00	1.00	12.76%
15	NeedESA	0.00	1.00	10.20%
16	BarrierLandlordEasy	0.00	1.00	11.37%
17	BarrierBeHomeEasy	0.00	1.00	11.18%
18	BarrierDocumentEasy	0.00	1.00	-6.78%
19	BarrierContractorEasy	0.00	1.00	14.89%
20	Constant			

[1]For discrete variables, the 60th percentile value is rounded to the nearest place. For binary variables, we compute delta ESA participation based on a change from "on" (or 0) to "off" (1).
Source: 2013 CARE Participant Telephone Survey.

Key takeaways from the ESA participation model results are presented below by the three categories of variables (continuous, discrete and binary) along with an interpretation of the result. We sorted by descending significance, accounting for the magnitude of the variable on delta ESA participation. Where applicable, we indicate whether the results are consistent with the ESA Stage 1 and CARE models.

Continuous variables:

- (+) Tenure – the longer that a household has been in their home, the more likely their home has been treated by ESA – they have had a longer amount of time to be on an outreach list developed by the IOU based on CARE enrollees (this variable is similar to "time on CARE", which was significant and positive in the ESA Stage 1 model);
- (-) Median income – the lower the income of the neighborhood, the more likely the household is enrolled in ESA – the ESA program targets customers based on CARE enrollment and neighborhoods based on income level (this result is consistent with the CARE and ESA Stage 1 models);
- (-) Electricity usage – the lower the electricity usage the more likely the household has participated in ESA or lives in a premise treated through the ESA program – this result is consistent with the CARE and ESA Stage 1 models; we hypothesize that customers with very high electricity usage either may not truly be eligible for CARE or may have other resources available to them that makes them less likely to respond to ESA program outreach, and conversely, customers with lower usage may be more interested in conserving energy and interested in participating in ESA. There may be third, unmeasured variable that explains why households that tend to have low kWh also have high ESA participation (e.g., a variable that measures a household's interest in energy conservation). It is also possible that households that participated in ESA lowered their kWh usage due to the installation of the energy efficiency measures; and
- (-) Population density – the less dense the block group the more likely the home has been treated by ESA – this outcome is the opposite of the Stage 1 model, except for PG&E.

Discrete variable:

- (+) Number of people per household – the more people in the household, the more likely the home has been treated by ESA – since households qualify based on income and number of people in the home, households with more people are more likely to quality for CARE and ESA (this result is consistent with the CARE and ESA Stage 1 models); an alternative explanation is that the greater the

number of household members, the greater the opportunity for the customer to be aware of the program (e.g. through school, church, community organization, work, etc.).

Binary variables:

- (-) Non-English/non-Spanish speaking households– households with "other" language as their primary language are less likely to participate in ESA, though our survey data does not represent this population, instead just a fraction of "other" language speakers who are proficient in either English or Spanish, the two languages we used to conduct the survey; while this result is the opposite sign (except for SDG&E in ESA Stage 1) of the CARE and ESA Stage 1 model results, those models were examining population data; and are more reliable sources for explaining participation among this population;
- (+) It was or would be easy to trust a contractor – households that said they thought it was or would be easy to trust a contractor in order to participate in ESA were more likely than those that did not trust a contractor to participate in ESA;
- (+) Turn off heat or cooling to keep the bill down – households that use less heating or cooling to try to keep their bill down are more likely to have participated in ESA;
- (-) Married households – are less likely to participate than unmarried;
- (+) It was or would be easy to get my landlord's approval - households that said they thought it was or would be easy to get their landlord's approval in order to participate in ESA were more likely to participate in ESA; note that being a renter was not a significant variable, suggesting that for non-participants that we are able to talk to on the phone (i.e., they trust the IOU sufficiently and may be reached by phone), renters in general are not less likely than owners to participate, but only the renters that worry about getting their landlord's approval;
- (+) It was or would be easy to be home for appointments – households that said they thought it was or would be easy to be home were more likely to participate in ESA;
- (+) Need something that ESA offers – households that said that needing something in particular that ESA offered was important are more likely to participate in ESA;
- (+) Other race – households that are a race other than White, African-American, Asian and Hispanic are more likely to participate – however we lack other racial households that speak languages other than English, so more precisely it is that

other racial households that speak English or Spanish are more likely to participate;

- (-) English survey – households that conducted the survey in English versus Spanish were more likely to participate; this is inconsistent with the CARE and ESA Stage 1 results, where Spanish language households were more likely to be treated; however, this model includes variables related to specific barriers (landlord permission, being home, trusting a contractor), such that once those barriers are accounted for, Spanish-speaking households that lack those barriers are less likely to participate;
- (+) Building age between 1970 and 1989 – homes built between those years are more likely to have participated, which could be a reflection of the program targeting older housing stock, or perhaps the concentration of that age of housing stock in urban areas such as multi-family buildings;
- (+) Chronic medical condition – households that report that at least one member has a chronic medical condition are more likely to participate;
- (-) Male survey respondent – households where a male respondent conducted the telephone survey (which might indicate the household is headed by a male or that a male is more likely to be home) are less likely to have participated;
- (-) Aware of the CARE rate - this result is counter-intuitive, that those who have heard of the CARE rate are less likely to participate in ESA; and
- (-) It was or would be easy to provide income documents – this result is counter-intuitive, that those who would find it easy to provide income documents are less likely to participate in ESA.

5.4.6 Conjoint Analysis Results

For the conjoint exercise, telephone survey respondents were recruited to participate in a brief web-based survey where they were provided with a general description of the ESA program:

> The Energy Savings Assistance (ESA) Program is a program offered by [utility] to help low income households save money on their energy bills. This is accomplished by scheduling a home inspection to establish eligibility and identify what types of efficiency equipment should be installed, followed by additional home visits to install the equipment. Depending on the needs of the household, customers can receive a variety of things such as information on safety and ways to save energy, energy efficient light bulbs, refrigerators, attic insulation, caulking, maintenance services for some appliances, and in some areas heating and air conditioning systems. The ESA Program pays 100 percent of the cost of the energy efficiency equipment – there is no charge to the customer.

With this program description as context, respondents are asked to rank eight possible options for the ESA program.[47] Each program option is defined as a combination of energy savings, number of home visits, income verification requirements, etc. The various attribute levels for each of these characteristics are shown in Table 46. These attribute levels are randomly assigned to create 18 possible programs that the respondent then ranked during the on-line conjoint session. Descriptions of these program attributes given to respondents during the survey are as follows:

- **Monthly Energy Savings:** Amount that households can expect to save on their monthly energy bill if they participate in the ESA program.
- **Income verification:** Whether or not customers must provide income verification such as a tax return to prove program eligibility.
- **Number of home visits:** Number of times that someone from the ESA program (both initial visit and measure installation) will visit the home, with each visit requiring some sort of scheduling and coordination on the part of the homeowner.
- **Timing of home visits:** Installation work done during the day (requiring that someone be at the home), evenings, or a combination of evenings and weekends.
- **Duration of home visits:** Total amount of time that program staff will spend at the home (both initial visit and installations).
- **Comfort:** Change in comfort level due to participation, defined as home being less drafty during cold weather and cooler during warm weather.

The values used to describe each choice option are randomly assigned, which forces the respondent to choose which attributes to focus on to rank the choices.

The conjoint analysis resulted in the following findings:

- **Energy savings and an increase in home comfort are dominant factors.** Not surprisingly, energy savings, in the form of ongoing cost reductions through bill savings, and changes in comfort are the most important factors driving customer preferences in both sets of program scenarios.

- **An increase in comfort is most likely to induce program participation.** Excluding monthly bill savings, an increase in home comfort was consistently found to have the highest equivalent monthly bill savings amount due to the large coefficient associated with his attribute in both participation models.

[47] Respondents are first given a practice conjoint exercise to complete using a non-energy example in order to get them familiar with the online conjoint ranking process.

- **For each additional home visit, and each additional hour home visits take, participants must be compensated with an increased amount of monthly bill savings to maintain the same likelihood of program participation.** In the ESA Program Option 1 scenario, for example, every home visit is worth an equivalent $8 in monthly bill savings, and each hour of home visits is worth $7 in bill savings. More detail on the tradeoffs customers make between monthly bill savings and other program features is included in Table 46 below.

Table 46: Equivalent Monthly Bill Savings Amounts[1] for California LI Population

ESA Program Option	Attributes	Equivalent Monthly Bill Savings Amount
1	Comfort Improvement	$28
	Income Verification Requirement	$9
	Additional Home Visit	$8
	Additional Hour of Home Visit	$7
2	Comfort Improvement	$28
	Additional Home Visit	$16
	Nights/Weekends vs. Day Home Visits	$9
	Income Verification Requirement	$4

Source: 2013 CARE Participant Telephone Survey.

- **The current program design should result in 60 percent ESA eligible non-participants' future program enrollment – based on those who responded to our telephone and web-based conjoint survey.** Our analysis finds that a program offering $10 of monthly bill savings,[48] achieving a significant improvement in household comfort, and requiring one daytime home visit lasting one hour as well as income verification documentation should result in the enrollment of slightly more than 60 percent of current program eligible non-participants. This result is analogous to the willingness to pay estimate, which was 72 percent based on telephone survey respondents. We estimated that that was the upper bound of a range from 52 to 72 percent, once we attempt to address the non-response bias. Thus, 60 percent is the upper bound of the conjoint analysis' independent estimate of willingness to participate.

[48] This is about twice the savings that the average participant realized based on the 2013 ESA Impact Evaluation Study (Evergreen Economics).

5.4.6.1 ESA Program Option 1 Conjoint Analysis

The first conjoint model is for the ranking of a first set of ESA program options. Respondents were asked to rank eight options of program designs with varying attributes for the monthly energy savings, number of home visits, income verification, change in home comfort, and the duration of home visits. The results of the discrete choice model are shown below in Table 47.

As shown in Table 47, three of the five variables in the regression are statistically significant at the 5 percent level or better. As expected, the coefficient on Monthly Energy Savings and Comfort are positive, indicating that respondents prefer higher monthly energy bill savings and an increased level of comfort, holding all other program attributes constant. Coefficients on the Number of Home Visits and Total Time In Home, and Income Verification variables are negative, as expected, indicating that respondents prefer a lower number of shorter visits and no income verification, all else constant.

The far right column of Table 47 shows the relative importance statistics calculated for each of the attributes, with higher numbers indicating a greater influence on the stated preferences for efficiency programs. From these results, Monthly Energy Savings was the most important (Relative Importance = 56 percent) followed by Comfort (Relative Importance = 26 percent). Total Time in Home was also fairly influential (Relative Importance = 12 percent). Finally, Income Verification and Number of Home Visits had the least influence (Relative Importance = 6 and 1 percent, respectively).

Table 47: Conjoint Results – ESA Program Option 1 for California LI Population

Attribute	Estimate	Standard Error	Significance	Relative Importance
Monthly Energy Savings	0.03477486	0.00322339	< 1%	56%
Number of Home Visits	-0.01560082	0.0598945	79%	1%
Income Verification	-0.17274521	0.11819362	14%	6%
Comfort	0.79417172	0.125864	< 1%	26%
Total Time in Home	-0.122632	0.03930942	< 1%	12%

Source: 2013 CARE Participant Telephone Survey.

5.4.6.2 ESA Program Option 2 Conjoint Analysis

A second conjoint model was created for the ranking of a second set of ESA program options. Respondents were asked to rank a further eight options of program designs with varying attributes for the monthly energy savings, number of home visits, income verification, change in home comfort, and the timing of home visits. The results of the discrete choice model are shown below in Table 48.

As shown in Table 48, two of the five variables in the regression are statistically significant at the 5 percent level or better. As expected, the coefficient on Monthly

Energy Savings, Comfort, and Timing of Home Visits are positive, indicating that respondents prefer higher monthly energy bill savings, an increased level of comfort, and evening or weekend visits, holding all other program attributes constant. The coefficient on the Number of Home Visits variable is negative, as expected, indicating that respondents prefer fewer home visits, all else constant. Somewhat unexpectedly, the coefficient on Income Verification is positive indicating that participants prefer if program staff review the participants' most recent tax return; however, the Income Verification variable not statistically significant so no inference on the variables effect on rank can be made from this model (this also holds true for Number of Home Visits and Timing of Home Visits).

The far right column of Table 48 shows the relative importance statistics calculated for each of the attributes, with higher numbers indicating a greater influence on the stated preferences for efficiency programs. From these results, monthly energy bill savings were again the most important (Relative Importance = 60 percent) followed by home comfort (Relative Importance = 25 percent). Income verification (Relative Importance = 6 percent) and the number of home visits (Relative Importance = 5 percent) were of approximately equal importance, and the timing of home visits had the least influence (Relative Importance = 2 percent).

Table 48: Conjoint Results – ESA Program Option For California LI Population 2

Attribute	Estimate	Standard Error	Significance	Relative Importance
Monthly Energy Savings	0.04003287	3.48E-03	< 1%	60%
Number of Home Visits	-0.08662811	0.06026407	15%	5%
Income Verification	0.21521317	0.12772561	9%	6%
Comfort	0.84530115	0.13143862	< 1%	25%
Timing of Home Visits	0.08033601	0.12185039	51%	2%

Source: 2013 CARE Participant Telephone Survey.

5.4.7 In-Home Visits

Willingness to participate in ESA among the non-participants we interviewed appeared to be high. But we remind the reader that the sample of in-home interview respondents is biased towards those willing to respond to a telephone survey and participate in an in-home interview. These customers lack major outreach barriers. We judged around two-thirds of the households we visited to be open to participate in ESA and likely to do so if the opportunity availed itself. In fact, 16 of them appeared to have already participated in their present home, mostly in the few months preceding our visit.

Drivers behind people's interest appeared to be the combination of:

- reducing energy costs through efficiency
- upgrading their appliances or home at no cost

- improving comfort by the increasing the affordability of heating or cooling their home.

These results are consistent with the conjoint results (obtained from ESA non-participants that responded to the telephone survey, so a similar bias issue is present, where the sample lacks major outreach barriers) that were discussed below in Section 5.4.5.1.

Interestingly, willingness to participate was evenly distributed among those in high, "normal," and low levels of apparent financial distress. Interest in the program was higher in primarily or exclusively Spanish-speaking households than those in which we conducted the interview in English. These results are consistent with the ESA modeling results discussed above in Section 5.4.5, where Spanish-speaking households are more likely to participate in ESA.

Among those households we identified as unlikely to participate in ESA, we encountered three distinct barriers.

5.4.7.1 Program Awareness

The most pervasive barrier was lack of program awareness. We classified 61 households as likely to participate.[49] As noted, sixteen of them appeared to have already participated. Of the remaining likely participants, most (33 of 45) did not seem to be aware of the program until we described it to them. (We discuss information sources and opportunities for outreach below.) Interestingly, those who seemed uninterested in the program were aware of it at similar rates.

As mentioned above in Section 2.1.2, the program recently changed its name to the Energy Savings Assistance program, whereas in prior years the program was branded differently by each IOU. (The program was referred to consistently as the Low Income Energy Efficiency Program or "LIEE" in regulatory reports.) The IOUs have not had much time to build awareness of the new program name.

Moreover, the IOUs have responded to household goals and budget constraints, and have not lacked sufficient customer leads (usually from CARE enrollees) to market ESA. This situation may change in the coming years as the program reaches higher penetration rates. At that time, program awareness and branding may become more important.

5.4.7.2 Lack of Perceived Opportunity

Among those we classified as unwilling or uninterested in participating, we heard two key themes. Nine households didn't think there was much the program would be able to do for them. These respondents tended to explain that they did not use much energy or

[49] Of the remaining households, we thought 22 were unlikely to participate and received inconsistent information from five.

that their homes and appliances were already as efficient as they could be. In some cases, this appeared to be correct, or the opportunities were not measures that ESA would be likely to address under current program rules. Some of these homes had primarily electric opportunities, but were served by municipal providers and would qualify for ESA only for natural gas measures. One of the households appeared to spend substantial amounts of energy to pump well water for irrigation of vegetation around the house in an area prone to wildfires.

5.4.7.3 Renter-Specific Barriers

Eleven of the households we classified as unwilling were renters who described renter-specific barriers to participation. These barriers comprised:

- uncooperative landlords (6);
- the belief that the program is not for renters (3); and
- thinking that addressing building and appliance issues is the landlord's responsibility (2).

These results complement the ESA modeling results, discussed previously in Section 5.4.5. Renting a home was not a significant variable in the model, but renters who felt that getting their landlord's approval was found to be a significant factor for ESA participation. Being a renter was a barrier for CARE participation, from the CARE model.

As a result of these barriers, several renters dismissed thoughts of participation upon hearing of the program. Hence, obtaining participation among willing renters will take more effort than just increasing awareness. IOUs will need to clearly specify that renters are eligible too when marketing the program or reaching out in a targeted way to renters. One other option would be to work through property managers of rental units with high concentrations of eligible households as well as Section 8 housing offices.

As noted, landlord participation stood out as one of the main barriers for renters. We heard about a range of perceived landlord willingness to participate in ESA. Some renters thought their landlords would be cooperative and foresee no issues with obtaining landlord approval, while others commented that their landlords do the minimum needed and worried that it may be difficult to get their approval or involvement.

Even among cooperative landlords, renters described barriers and potential obstacles. One highly motivated apartment renter was familiar with ESA and had made efforts in recent years to obtain ESA treatment for a prior apartment. She said that her efforts failed after the property manager was unable to provide a copy of the deed, which the ESA contractor was requiring before the unit could be treated. The customer said that the property managers at both that apartment and her current home would have been happy to provide approval for treatment, but are not in a position to offer copies of deeds. As a result, she has given up on ESA participation and is concentrating on other

sources of assistance to help meet her expenses while she finishes her education and raises her two children.

It wasn't clear to us whether copies of deeds are required by the program or just part of that particular contractor's process. Either way, keeping requirements for property managers to a minimum would facilitate renters' ability to participate.

One other renter described her landlord as struggling financially to keep the Section 8 qualified property. (The property was in some disrepair.) She described the landlord in positive terms, saying that he does what he can to address issues. However, she was very sensitive to initiating anything that would cost her landlord any funds or that has the potential to cause any problems for him.

5.4.7.4 Miscellaneous Other Barriers

Other reasons provided included dislike of social programs that redistribute wealth, not thinking of oneself as LI, and not wanting to give up the household's refrigerator.

5.4.7.5 Participation Requirements

Other than getting landlord approval and cooperation, none of the program requirements appeared to be a substantial barrier to participation. Households told us that providing proof of income eligibility would not be a major barrier. In fact, the substantial share of households that have participated in other income-qualified programs are used to these requirements. Homeowners said they could provide proof of ownership.

Being home for a series of contractor visits is a bit more challenging for those households that don't consistently have an adult home during regular working hours, but most households we visited—including those that opted for evening and weekend appointments for the in-home visit—indicated that they would be able to accommodate such visits. Flexibility by program contractors would help these customers participate, however.

The conjoint analysis, discussed in Section 5.4.5.1, indicated fairly complementary results. Providing income documents was not a significant barrier. The total time required for contractors to be in the home was a slight barrier, while the number of home visits was the lowest barrier.

The conjoint and in-home interviews were conducted with telephone survey respondents, which lack major outreach barriers. They are able to find time to talk to a telephone surveyor and/or to be available for an in-home visit lasting more than an hour. These respondents are also probably more likely to be income-eligible for the CARE program, since those that are not income-eligible would be less likely to talk to a surveyor.

5.4.8 LI Program Review

Even though all these programs are offered to LI households as a free service, there are still non-financial barriers that prevent households from participating. These barriers are varied in nature but can include a lack of knowledge of the program, a distrust of utility companies or general apathy towards social service programs. Some people would prefer not to have a stranger come into their home; our contact at the Massachusetts WAP program likened some people's perception of the audit as a "benevolent invasion" of a household that may deter some people from participation. The contractor visit may be perceived as an intrusion into their space. These barriers are consistent with the barriers we noted from our research of California's ESA program.

The community agencies that administer the programs can often work to allay concerns about such an "invasion" of the home. Effective agency outreach can inform future participants to the benefits of the energy efficiency work on their home and be an advocate in the process. Some energy efficiency programs work with other kinds of community agencies, such as elderly assistance organizations, to reach out and work with populations that may be most wary of a home audit and energy efficiency work. These strategies are currently being used by the ESA program.

As mentioned above, some utilities like the Ohio EPP require customers who receive bill-pay assistance to also participate in energy-efficiency programs, which results in high participation rates.

5.5 Energy Needs and LI Program Benefits

This subsection describes study results related to energy insecurity, energy burden and energy needs among the eligible population. We drew upon all the study primary and secondary research sources for this subsection.

5.5.1 Energy Insecurity

We asked telephone survey respondents a series of questions that we used to determine their level of self-reported energy insecurity. This measure is designed to make it as objective as possible, based on self-reported behaviors that indicate difficulty managing energy bills. In the next subsection, we present results on energy burden, which is based on self-reported household income and energy bill cost based on IOU billing data. In the following subsection, we present study results related to non-energy benefits, which include health, comfort and safety, which are additional aspects of the impact that energy bills and home energy equipment has on LI households.

5.5.1.1 Customer Telephone Survey

We asked survey respondents how often they or others in their home do the following – a lot, sometimes or never:

- Cut back on food or medicine in order to pay utility bill

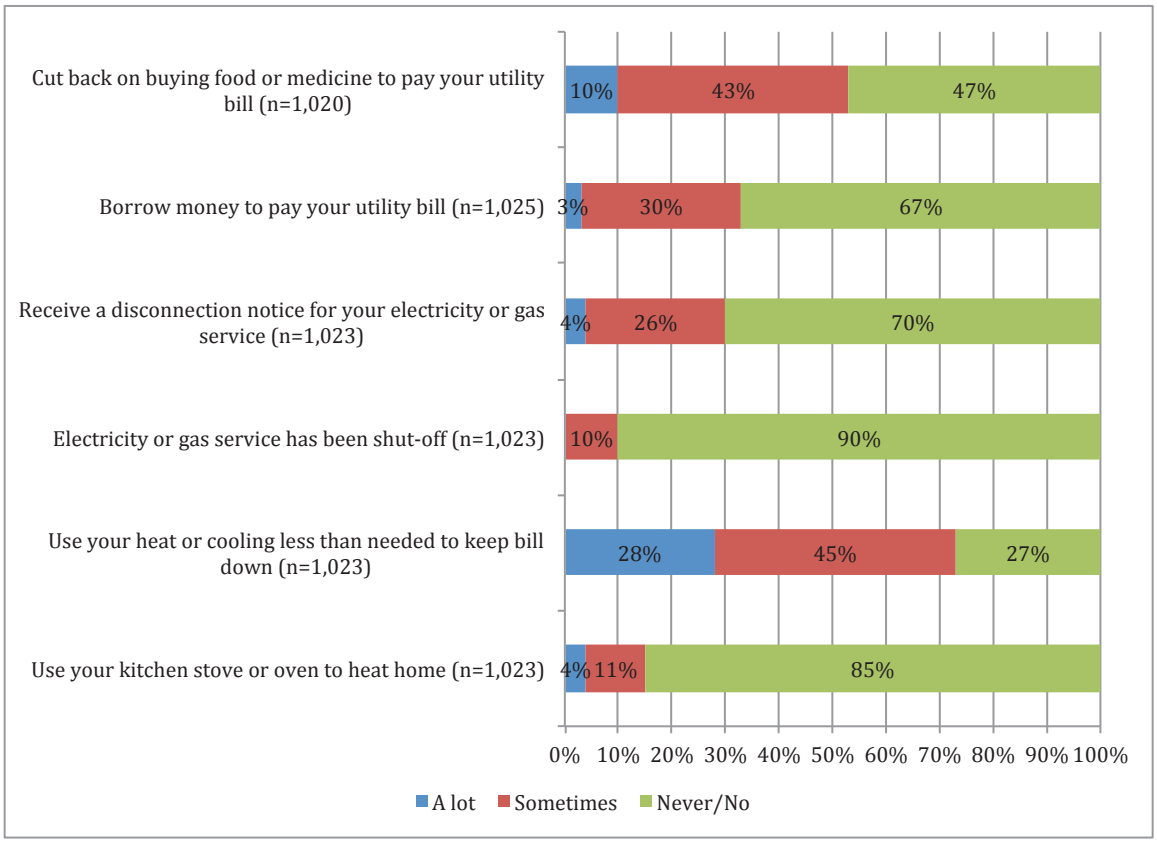
- Borrow money to pay utility bill
- Receive a disconnection notice for utility service
- Had utility service shut off
- Use heat or cooling less than needed to keep utility bill lower
- Use kitchen stove or oven to heat home

Below, we report the frequency with which respondents self-report that they take these measures, and an "energy insecurity" summary based on all of their responses.

As shown in Figure 41 below, the most common measure that respondents take is using heating or cooling less than needed (with 28% of the total reporting they do that "A lot" and 45% "Sometimes"), accounting for half of all the energy insecurity reported by respondents.

The second most commonly-cited measure is cutting back on food or medicine to pay the utility bill, with 10 percent saying they do this "A lot" and 43 percent saying they do this "Sometimes". 4 percent or fewer respondents reported that they took any of the other energy insecurity measures "A lot".

Figure 41: Energy Insecurity Measures (I1e, I1f, I1g, I1h, I1j) for California LI Population

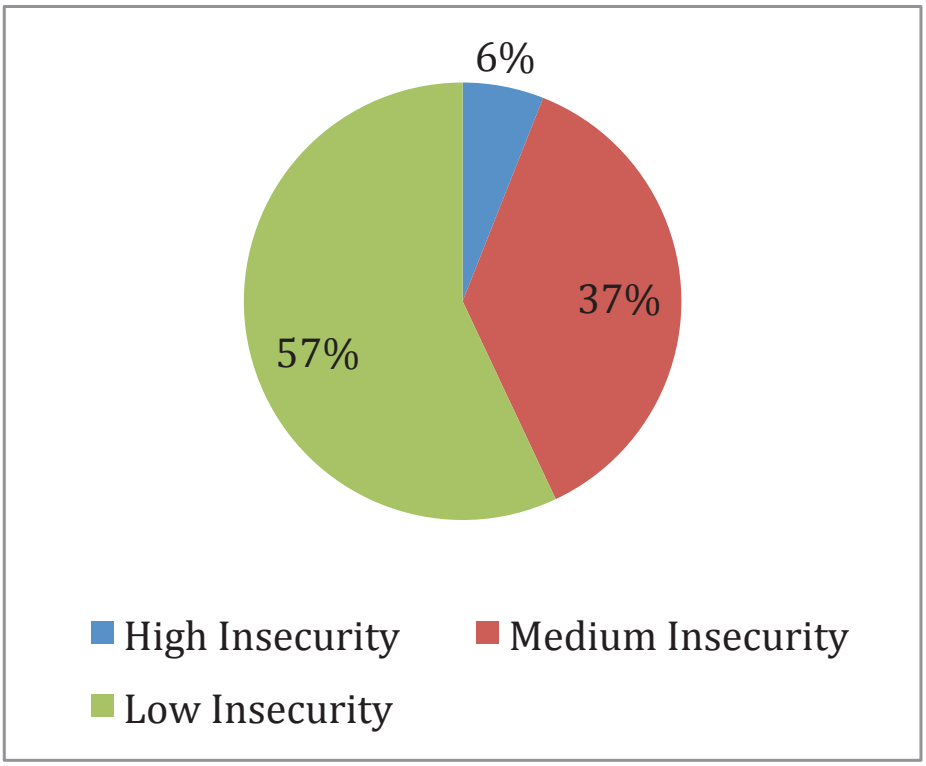


Source: 2013 CARE participant telephone survey data.

We created a summary variable based on responses to the set of six insecurity questions. We categorized respondents as having a high level of energy insecurity if they responded "A lot" to two of the questions and responded "Never" no more than twice. We categorized respondents as having a low level of energy insecurity if they answered "Never" to at least three of the questions, and never answered "A lot." We categorized the remaining respondents as having a medium level of insecurity.

Figure 42 shows the results of this summary of energy insecurity variable. 6 percent of LI households are highly energy insecure, 37 percent have medium energy insecurity and 57 percent have low energy insecurity.

Figure 42: Energy Insecurity Summary Variable for California LI Population (n=1,020)

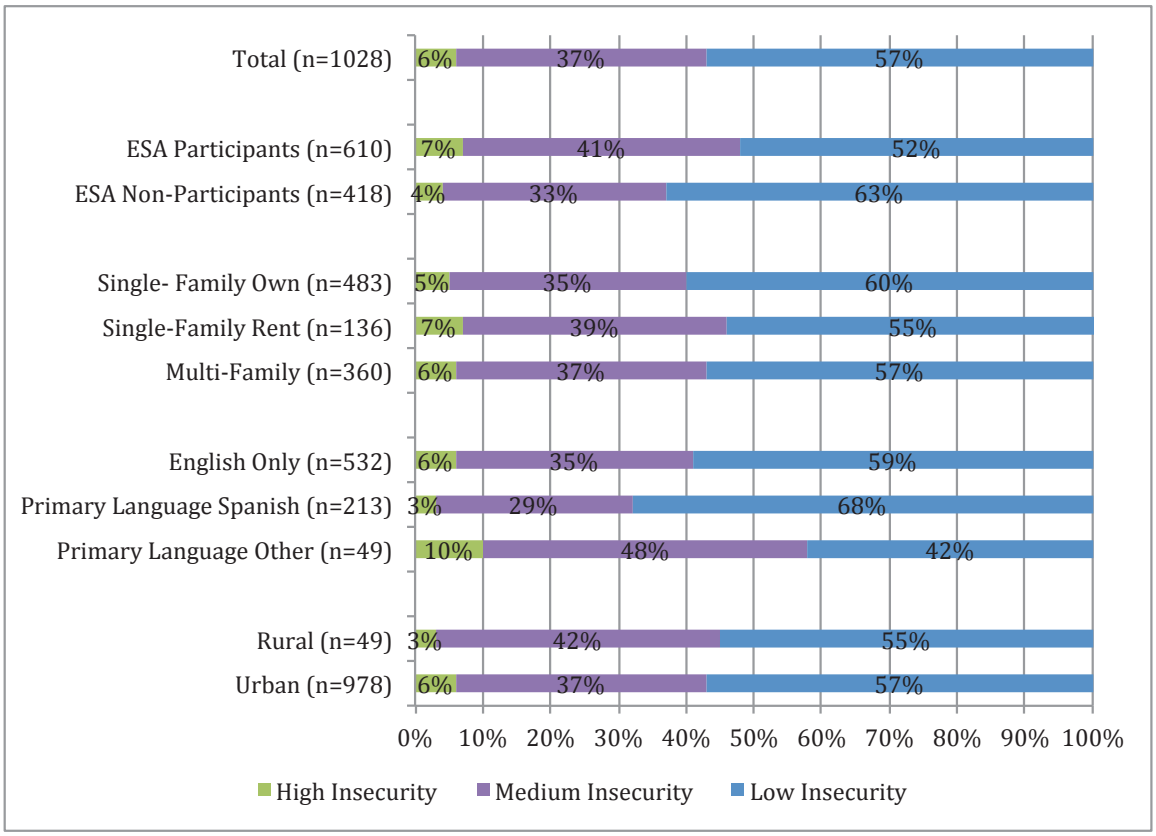


Source: 2013 CARE participant telephone survey data.

Figure 43 shows the results of the summary energy insecurity variable. Single-family renters and households whose primary language is not English or Spanish[50] are more energy insecure than other home types and households that speak English or Spanish primarily. 7 percent of ESA participants have high insecurity as compared to 4 percent of non-participants. (As reported in Section 5.1, 95 percent of multi-family homes are occupied by renters, so we do not break out that home type by home ownership.)

[50] We remind the reader that the sample of "other" language households is not representative of the populations since we only conducted surveys in English and Spanish.

Figure 43: Summary Measure of Energy Insecurity by Home Type, Language, and Rural/Urban (I1e, I1f, I1g, I1h, I1j) for California LI Population



Source: 2013 CARE participant telephone survey data.

Table 49 shows the more detailed energy insecurity survey responses by LI population segment. Single-family renters are most likely to have to cut back on food or medicine, borrow money to pay bills and to receive a notice of disconnection. Multi-family households are more likely to borrow money to pay bills. Non-English speaking households are more likely to cut back on buying food or medicine and borrow money to pay bills.

Table 49: Energy Insecurity by Home Type, Language, and Rural/Urban (I1e, I1f, I1g, I1h, I1j) for California LI Population

	LI Eligible Population							
	Single-Family Own	Single-Family Rent	Multi-Family	English Only	Primary Language Spanish	Primary Language Other	Rural	Urban
Cut back on buying food or medicine to pay your utility bill								
A lot	10%	8%	11%	11%	9%	16%	11%	10%
Sometimes	37%	53%	42%	37%	47%	40%	39%	43%
Never/No	53%	38%	48%	51%	44%	43%	51%	47%
Total (n)	480	134	357	528	210	49	49	970
Borrow money to pay utility bill								
A lot	4%	2%	2%	3%	2%	3%	0%	3%
Sometimes	24%	35%	34%	23%	40%	32%	17%	31%
Never/No	72%	63%	64%	74%	59%	65%	83%	66%
Total (n)	482	136	358	531	213	48	49	975
Receive a disconnection notice for your electricity or gas service								
A lot	5%	3%	4%	5%	3%	5%	5%	4%
Sometimes	21%	33%	26%	25%	32%	16%	26%	26%
Never/No	74%	64%	70%	70%	66%	79%	69%	70%
Total (n)	482	136	357	528	213	48	49	973
Electricity or Gas service has been shut off								
A lot	1%	0%	0%	0%	1%	1%	0%	0%
Sometimes	8%	13%	10%	8%	9%	3%	10%	10%
Never/No	92%	87%	90%	92%	91%	96%	90%	90%
Total (n)	481	135	358	529	213	48	48	974
Use heat or cooling less than needed to keep bill down								
A lot	27%	31%	27%	27%	15%	42%	37%	28%
Sometimes	42%	43%	48%	43%	53%	43%	26%	45%
Never/No	32%	26%	26%	29%	31%	15%	37%	27%
Total (n)	478	134	356	526	212	48	49	966
Use kitchen stove or oven to heat home								
A lot	2%	4%	6%	4%	2%	10%	0%	4%
Sometimes	11%	13%	11%	9%	10%	19%	14%	11%
Never/No	88%	83%	84%	87%	88%	71%	86%	85%
Total (n)	483	136	360	532	213	49	49	978
Energy Insecurity Summary Variable								
High	5%	7%	6%	6%	3%	10%	3%	6%
Medium	35%	39%	37%	35%	29%	48%	42%	37%
Low	60%	55%	57%	59%	68%	42%	55%	57%
Total (n)	483	136	360	532	213	49	49	978

Source: 2013 CARE participant telephone survey data.

5.5.1.2 In-Home Visits

The self-reported incomes of the households ranged from less than $5,000 to the $50,000-$60,000 range with a correspondingly wide range of household sizes of one to nine people, although the median household size was three. Some households live on their incomes and accumulated resources—including the equity in their homes—while others draw upon various forms of formal and informal assistance.

Assistance some people mentioned included Medi-Cal, Section 8 housing, food stamps, food pantries, scholarships to offset expenses for children's activities, and informal support from other family members. For example, one single mother who had been suffering an extended period of underemployment prided herself on being resourceful to ensure her daughter has a full childhood. She manages to pull together many different forms of assistance and cost management strategies that enable her to let her daughter participate in Girl Scouts and soccer. One elderly woman simply commented that she has children that "love their mama."

Others focus on keeping costs very low, citing a variety of strategies to make ends meet. Watching expenses closely was a very common theme, while for others timing their expenditures is a key strategy to make ends meet.

Some households live from check to check, while others have more steady access to resources. Among those that live check to check, some phase their expenses in order to pay bills, sometimes deferring purchases of basic necessities like food and living instead on what they have accumulated in their pantries. Others allow bills to accumulate, but make arrangements to pay them off over time.

We classified the degree of overall financial distress the households appeared to be in based on our observations at the interview and customer descriptions of their situation. Factors we considered included the kinds of tradeoffs they make to pay bills, the difficulty they said they have in paying bills, the condition of their home and appliances (if owner-occupied), and occasionally other clues we could observe such as the car(s) they own and the food (or absence thereof) in the refrigerator.

The apparent degree of financial distress is more complicated than just a function of their income and income stream. Some households with low levels of income are managing reasonably well, while other households are clearly struggling. Based on our observation and interview responses, we classified a slim majority of households as facing the sort of elevated financial constraints one might expect among LI households, we found that about a fifth of the homes we visited communicated a substantially elevated level of financial distress,[51] and about a quarter seemed to be managing their financial constraints in a way that made them appear more like a middle class household than a low income one.

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[51] See the customer profile for "Sharon" below.

Households that appeared to face greater levels of financial distress included:

- Households in which a medical condition or disability is affecting costs or income;
- Households caring for a larger number of dependents, including those with adult children or parents in the home;
- Those in multi-family and mobile homes; and
- Seniors and households managed by young adults (below), although seniors were also disproportionately represented among those with no obvious level of distress.

Households that tended to be less financially distressed included:

- Households whose LI status was recent and perhaps temporary, such as those who experienced a recent job loss;
- Seniors living on fixed incomes, but who were living simple lifestyles by choice with modest expenses or had savings to draw upon; and
- Households that managed to draw upon formal or informal sources of assistance, be it aid programs or help from family members.

Refer to Section 10 for more descriptions of characteristics of the in-home ESA non-participant sample including illustrative profiles of some of the respondents.

5.5.2 Energy Burden

This section presents an analysis of energy burden, which is defined as the portion of total household income that goes toward paying utility bills. Specific questions addressed in this section include:

- What portion of annual household income is used to cover energy bills among California's LI population?
- How does the LI energy burden compare with that of the general population?
- What are the characteristics of the LI population that have the highest energy burden?
- How is energy burden related to energy insecurity?

The telephone survey (discussed in Section 8) serves as the primary source for the LI population data used to calculate energy burden and includes information on annual household income along with the other demographic information. Income was collected in the telephone survey in ranges,[52] (e.g. Is your total household income less than $5,000, between $5,000 and $10,000, etc.)

[52] See telephone survey in Volume 3 Section 13, Question D12 for question wording and response categories.

5.5.2.1 A Methodological Note on the Energy Burden Calculation

We examined two approaches for calculating average energy burden, each of which can produce substantially different results. For convenience, we define these two metrics as "overall energy burden" and "customer energy burden". The calculation method used for each is defined as follows:

- "Customer Energy Burden" is calculated by dividing the customer energy bill amount by annual income to get an energy burden ratio for each customer. The mean of these customer ratios is taken to get an overall average energy burden number.
- "Overall Energy Burden" is calculated by taking the overall average annual bill amount and dividing by the overall average income. That is, the average of the bill amount and income is calculated first, and then the ratio is calculated.

Note that household size is not explicitly factored into either estimation method.[53]

The "overall energy burden" approach was used in the 2007 LINA and is the only method available to estimate burden for the general population. We use the "overall energy burden" approach in order to make comparisons to the prior 2007 estimate and to the general population. However, we believe that the "Customer Energy Burden" provides a better estimate of average energy burden. The intent of energy burden is to understand portion of income spent on energy by individual households. This is best represented by the ratio of household-specific income to household-specific energy expense. This ratio and its distribution in the low income population represents the energy burden as experienced by member households, rendering it more accurate than metrics reflecting the ration of mean income and mean energy bill. Consequently, we use that metric to present the LI population's energy burden results. The other method is used only for comparison purposes, to show relative differences over time and with the general population.

[53] Though it is implicitly factored into the average income, since CARE-eligibility is based on the household size.

When interpreting either the overall energy burden or the customer energy burden, we caution the reader to bear in mind the following important caveats:

- Income comes in more forms than simply dollars. There are food stamps, family services and other forms of assistance, directed largely at the lowest dollar income groups;
- Income is self-reported and may contain errors; and
- Poverty and qualification for the CARE and ESA LI programs are a function of both income and size of household.

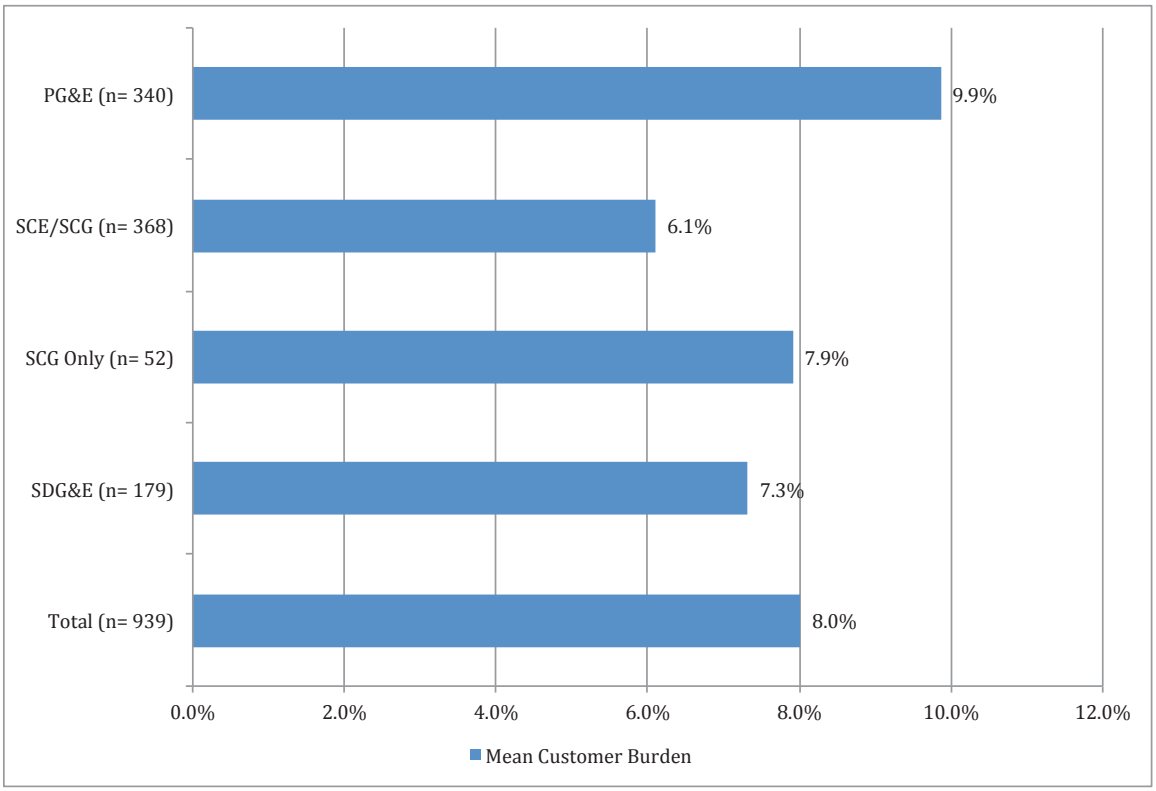
5.5.2.2 Customer Energy Burden

In this section, we present the customer energy burden results. As discussed previously, the "customer burden" is calculated differently from the "overall energy" burden. Customer burden is calculated by first taking the ratio of annual energy bills to household income for each customer, and then, in a second step, calculating an average of this ratio across all customers.

Since this calculation is different from the overall energy burden calculation used in the 2007 LINA study, the results presented below are not directly comparable with the previous research. However, while the previous LINA was published in 2007 the data was collected in 2005, so is more reflective of 2005 conditions than 2007.

Figure 44 presents the mean customer burden for the California LI population, for each IOU service territory and for the state as a whole. PG&E has the highest mean customer burden at 9.9 percent. The lowest is found within the SCE/SoCalGas territory, 6.1 percent. The result for the entire state is 8.0 percent.

Figure 44: Mean Customer Burden, 2013 California LI Population, by IOU Service Territory



Source: 2013 Analysis of IOU customer billing data, CARE participant telephone survey data, 2012 Athens data, and 2011 PUMS data.

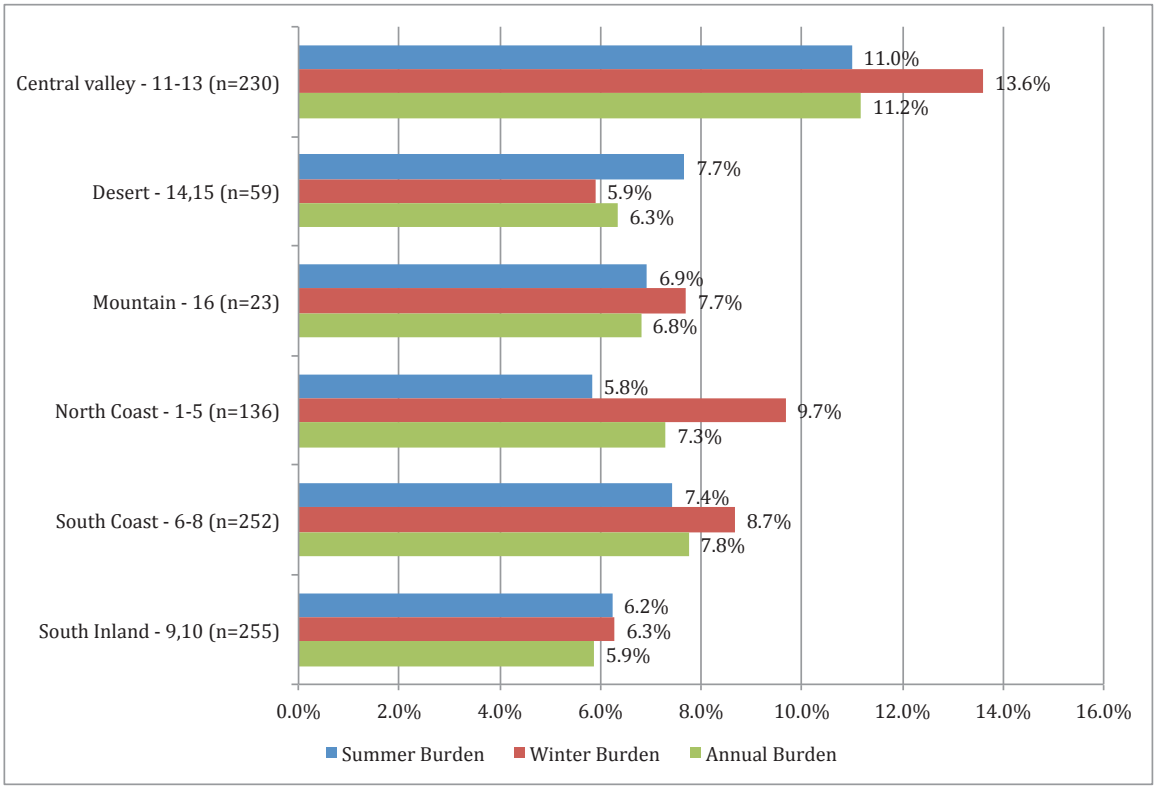
5.5.2.2.1 Differences in Customer Energy Burden by Climate

In this section, we explore differences in customer energy burden by climate. Climate areas in California differ dramatically in their cooling and heating needs, with coastal areas generally providing more temperate variations, and the inland, northern and mountain areas experiencing more heat in summer and cold in winter; and southern areas generally experiencing higher temperatures year round versus northern areas.

Figure 45 below presents mean customer burden by climate zone region, annually and for summer and winter seasons (note that the seasonal burdens are annualized for ease of comparison). The Central Valley (11.2%) has substantially higher customer burden than any other region—at 1.4 times its runner up, the South Coast (7.8%). For all regions except the Desert, winter burden exceeds summer burden. The difference is pronounced

for the North Coast where winter burden is nearly 1.7 times the summer burden. The South Inland and Mountain climates have fairly equivalent winter and summer energy burdens.

Figure 45: Mean Energy Burden by Climate Zone Region and Season



Source: 2013 Analysis of IOU customer billing data, CARE participant telephone survey data, 2012 Athens data, and 2011 PUMS data.

5.5.2.2.2 High Energy Burden Segment Characterization

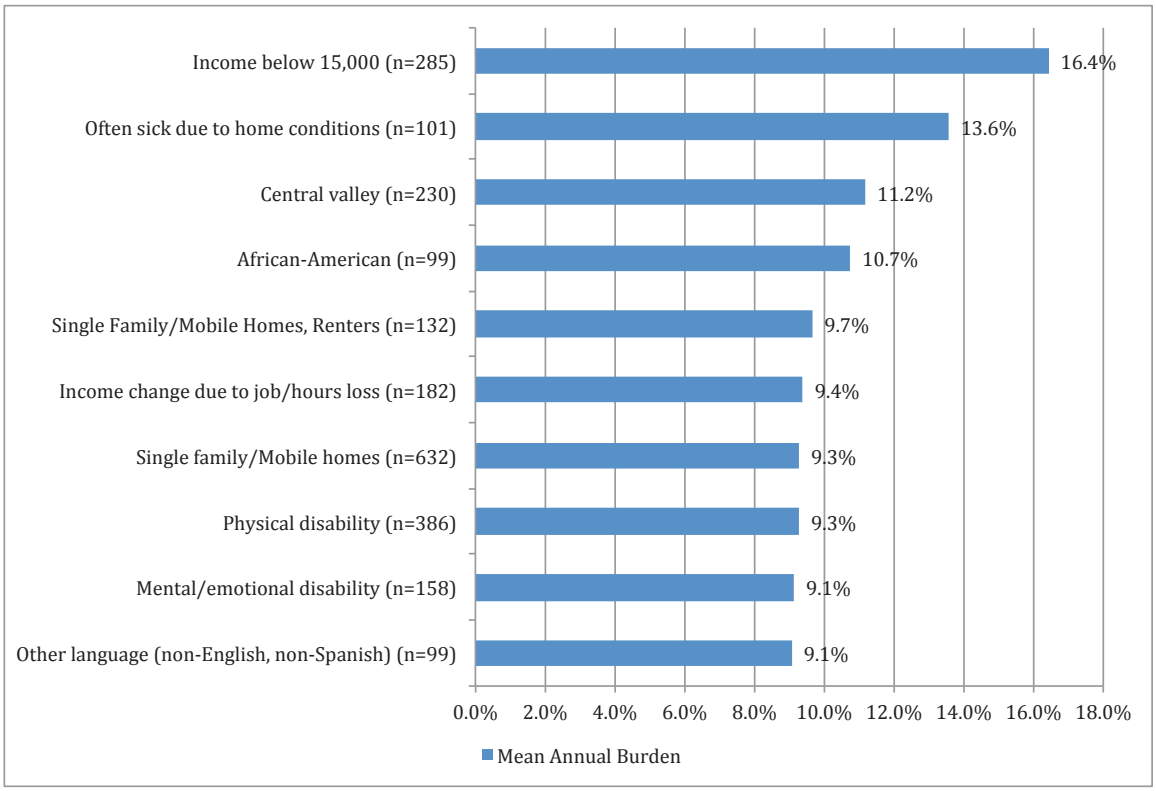
This section presents the characteristics of the highest energy burden households. The process of identifying high burden customer segments began by creating 20 ways to differentiate the population, using demographic, geographic household and home characteristics collected via the telephone survey or present in IOU databases. This resulted in 80 segment-specific annual customer energy burden values, which were ranked from highest to lowest with the top ten selected for further examination. This section presents characteristics of these high burden segments. The intent of this section is to offer information that lends insight to high burden customers, which may allow for better program customization for these segments.

Figure 46 below presents the mean customer burden for the highest burden segments of the LI population. Six of the ten segments shown below have a mean customer burden

between 9 percent and 10 percent. The remaining four segments have the highest burdens, ranging from 10 percent to 16 percent.

- The highest burden is measured for households with annual household income of $15,000 or less. As detailed later in this section, these households make up more than one-third of the LI population.
- Households that report members are often sick due to home conditions have the second highest customer burden, 13.6 percent, and comprise 11 percent of the LI population. The high burden observed in this sector is related to the use of electrically powered medical equipment. About one-third (35%) of those customers also report using electrically powered medical equipment daily to manage illness or disability. In contrast, 17 percent of those reporting they are 'sometimes' or 'never sick due to home conditions report using electric medical equipment daily.

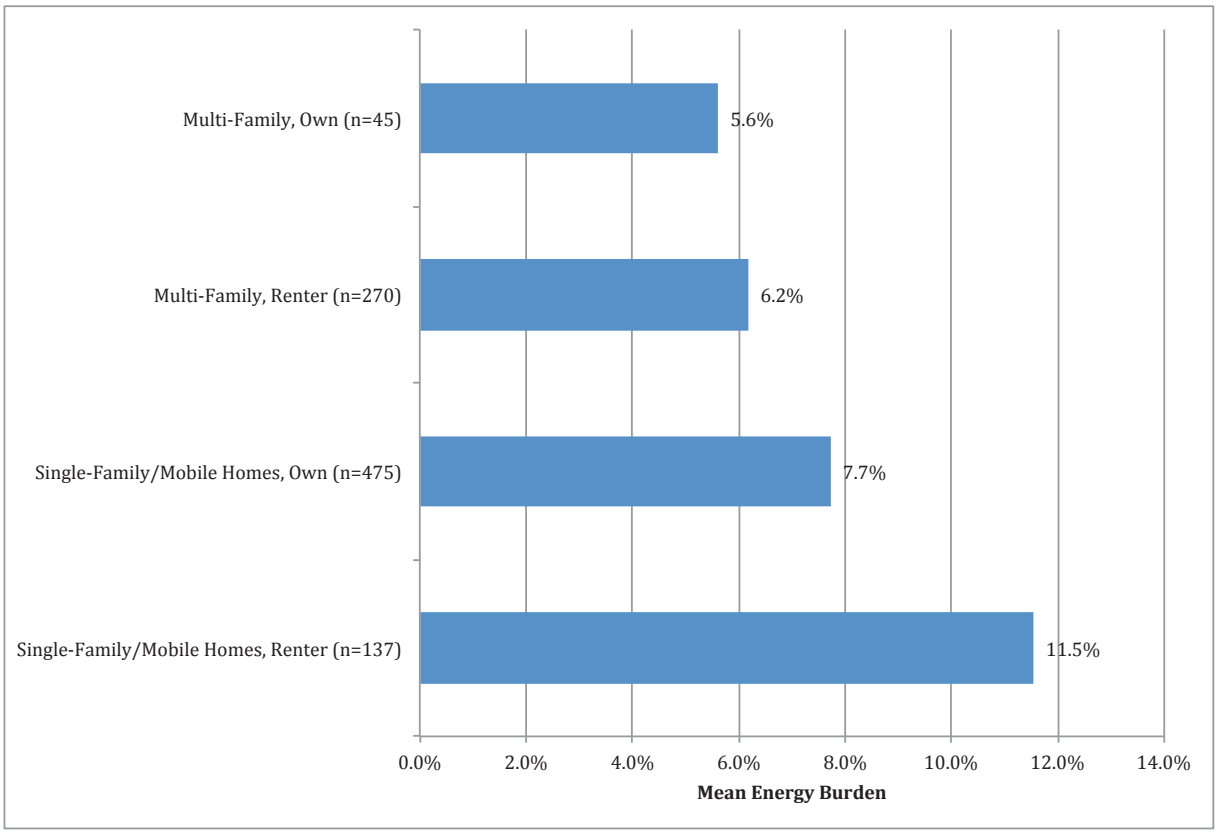
Figure 46: High Energy Burden Households, Mean Customer Energy Burden for Highest Burden Segments



Source: 2013 Analysis of IOU customer billing data, CARE participant telephone survey data (D12, PB10, D8, S6, S5, D13, D13a, D11-D15, D5), 2012 Athens data, and 2011 PUMS data.

Home type and home ownership are associated with energy burden levels, with renters and single-family homes showing higher mean burden. Figure 47 below shows mean customer energy burden by home type and home ownership, illustrating this relationship. We find that single-family and mobile home renters have a relatively high mean energy burden of 9.7 percent. For comparison purposes, single-family mean energy burden is 9.4 percent and multi-family mean energy burden is 6.1 percent.

Figure 47: Mean Customer Energy Burden by Home Type and Home Ownership



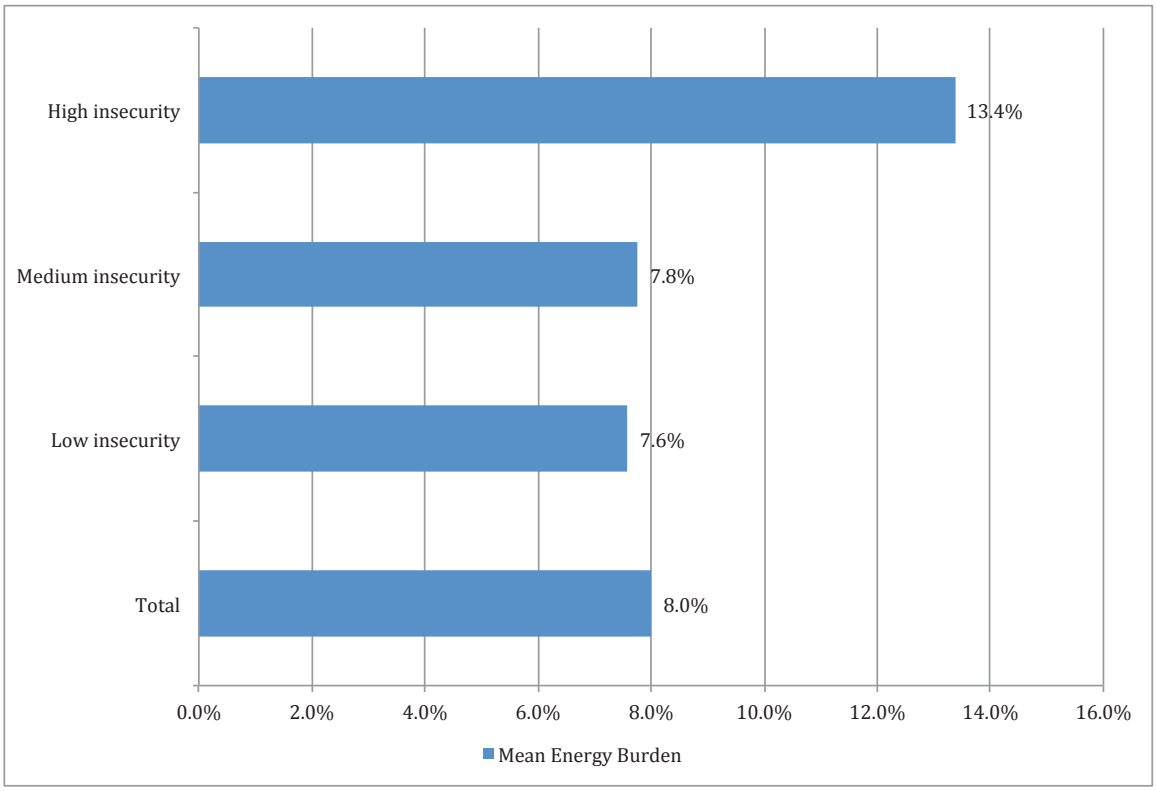
Source: 2013 Analysis of IOU customer billing data, CARE participant telephone survey data (S6, S5), 2012 Athens data, and 2011 PUMS data.

5.5.2.2.3 Energy Burden and Energy Insecurity

This section presents the results of an examination of customer energy burden by level of energy insecurity. The energy insecurity level is determined by responses to survey questions that probe various areas of vulnerability, such as having power disconnected for not paying bills, or using a stove for heat. Insecurity is categorized into three levels, high, medium and low, which represent the frequency at which the vulnerabilities arise. A more detailed discussion of energy insecurity is presented in the section preceding this one, Section 5.5.1.

As shown in Figure 48 below, there is little difference in the burden of those with 'medium' or 'low' insecurity, at 7.8 percent and 7.6 percent, respectively. Those with 'high' insecurity make up 5.7 percent of the LI population and have a notably higher mean customer burden, at 13.4 percent.

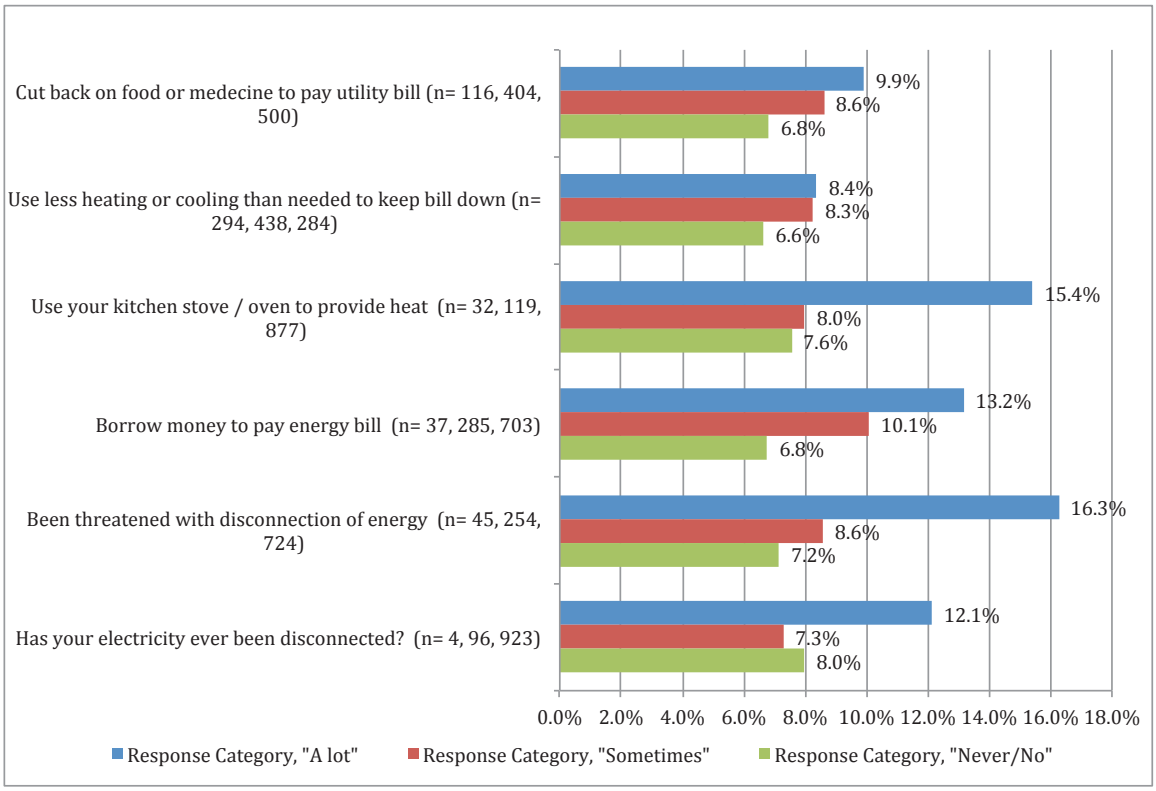
Figure 48: Mean Customer Energy Burden by Level of Energy Insecurity, Annual for California LI Population



Source: 2013 Analysis of IOU customer billing data, CARE participant telephone survey data (I1e-I1j), 2012 Athens data, and 2011 PUMS data.

Figure 49 below summarizes the annual energy burden across the insecurity survey questions. The figure shows the mean customer burden for each question and response category. The questions with the greatest correlation to high energy burden are also those with the lowest rate of occurrence: whether the respondent borrows money to pay the bill, uses kitchen stove for heat, or has often been threatened with power disconnection. The mean burden for those that experience these events 'a lot' is between 13 percent and 16 percent.

Figure 49: Mean Customer Energy Burden By Insecurity Question and Response Category



Source: 2013 Analysis of IOU customer billing data, CARE participant telephone survey data (I1e-I1j), 2012 Athens data, and 2011 PUMS data.

5.5.2.3 Comparison of 2013 Study Results to 2007

These results are intended to provide a comparison to the prior LINA study only. The customer energy burden presented above provides our estimates of the LI population mean energy burden.

In the 2007 LINA, the "overall energy burden" approach was used. The 2007 study measured the average bill to be about $950 per year and average income to be $23,000, yielding an overall burden of 4.2 percent. In comparison, the current study finds average income to be $23,721 and the average bill to be $970, yielding an overall burden of 4.1 percent, down slightly from figures reported in 2007. Note that the 2007 study reflects data collected in 2005, so should be considered reflective of 2005 conditions rather than 2007.

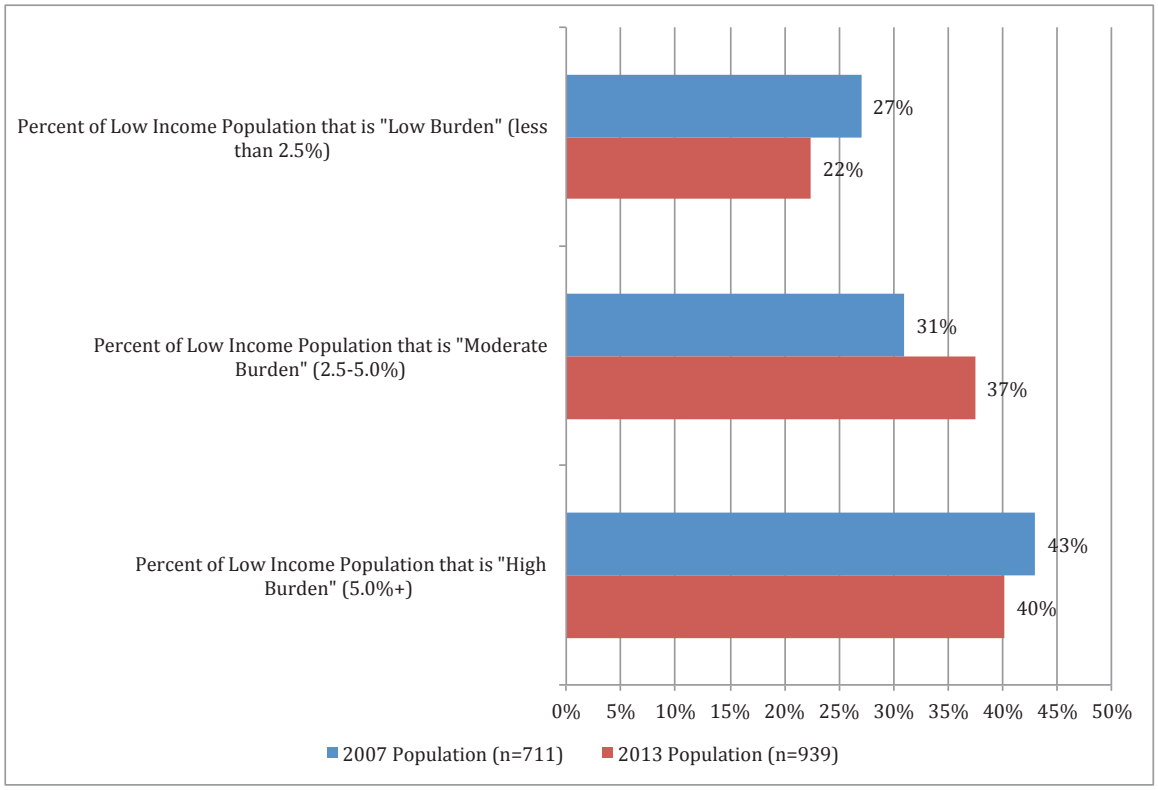
Our current energy burden analysis indicates that 80 percent of LI households spend less than 7 percent of their annual income on energy, and 60 percent of LI households spend 5 percent or less on their energy bill. Similar to the approach taken in the 2007

LINA, we classify the LI population into three burden categories, based on annual household income and energy expenditures:

- High Burden customers are those that spend 5 percent or more of their household income on energy, on an annual basis.
- Moderate Burden customers are those that spend between 2.5 and 5 percent of income on energy.
- Low Burden customers spend less than 2.5 percent of income on energy.

Figure 50 below shows the distribution of the LI population across the three burden classifications and compares current results to those presented in the 2007 LINA. Relative to the 2007 study findings, there are slightly fewer customers in the low burden segment (22% versus 27%) and also fewer customers in the high burden segment (40% versus 43%).

Figure 50: Energy Burden Classification and Overall Burden by Classification, 2013 versus 2007 for California LI Population – for Comparison Purposes Only

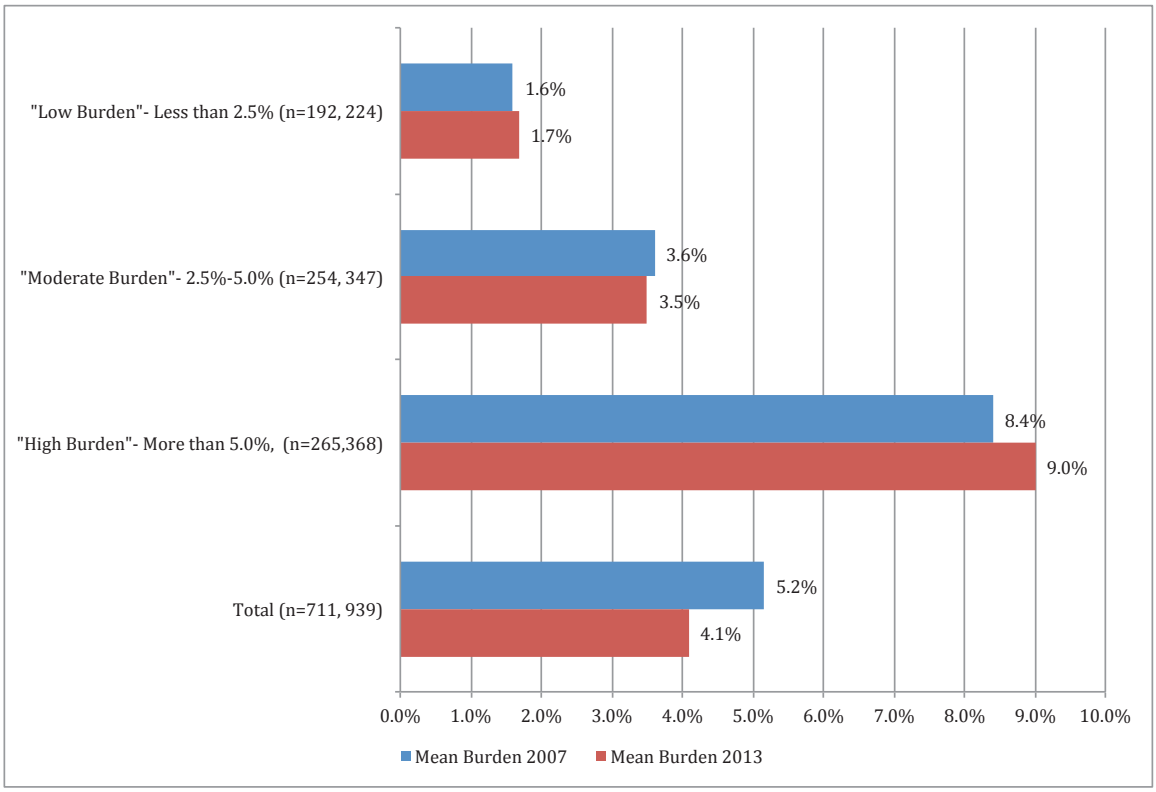


Source: 2013 Analysis of IOU customer billing data, CARE participant telephone survey data, 2012 Athens data, and 2011 PUMS data.

The mean burden within each burden classification and for the total LI population is shown in below, for both 2007[54] and 2013. The mean burdens within the low and moderate classifications are similar to 2007; the mean burden within the high burden classification rose moderately, from 8.4 percent to 9.0 percent. Overall, the mean LI energy burden in 2013 is very similar to results published in the 2007 study (4.1% versus 4.2%, respectively).

[54] Although the previous LINA was published in 2007, the data were collected in 2005 and should be interpreted as reflective of 2005 conditions.

Figure 51: Overall Energy Burden by Classification, 2007 Versus 2013 – for Comparison Purposes Only

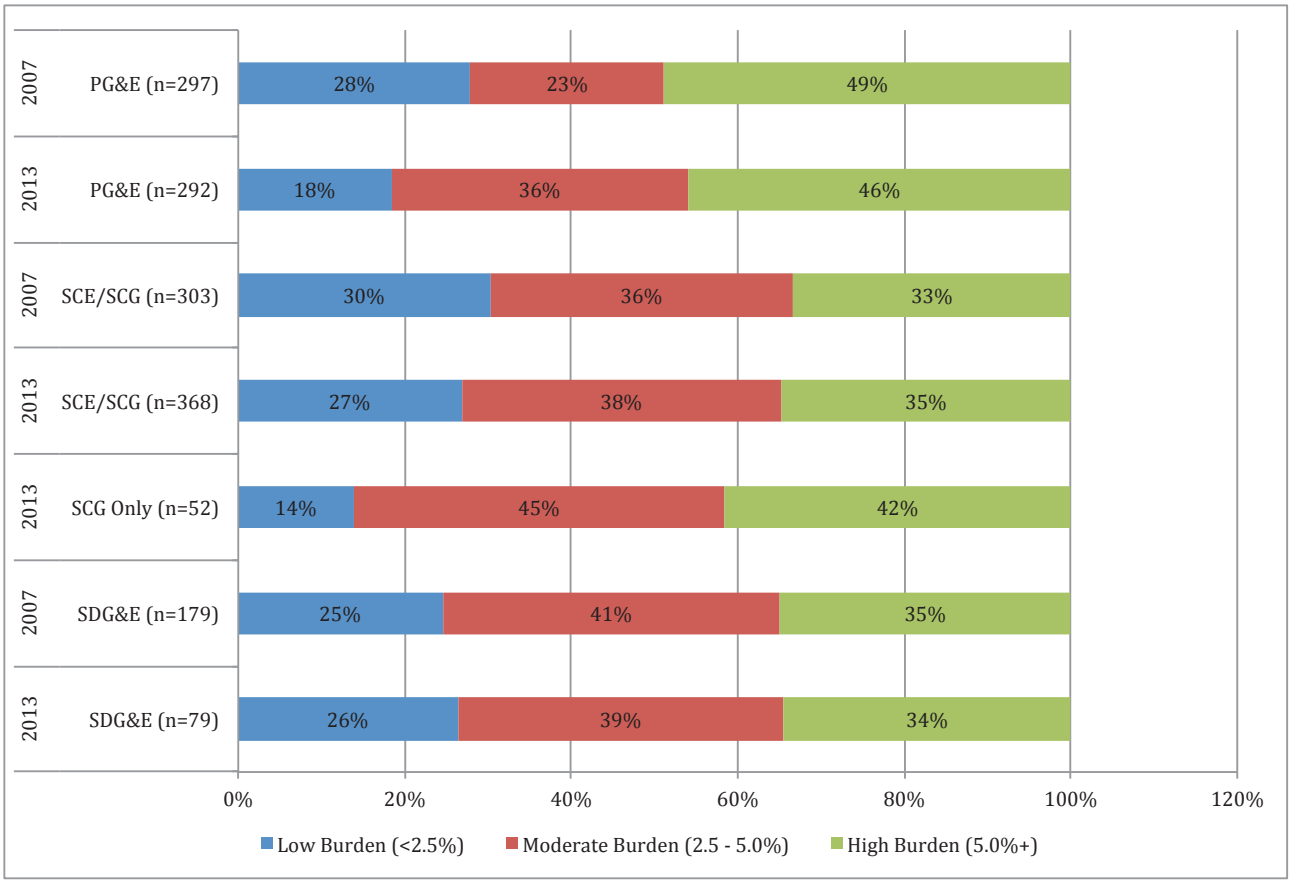


Source: 2013 Analysis of IOU customer billing data, CARE participant telephone survey data, 2012 Athens data, and 2011 PUMS data.

Figure 52 below shows the distribution of high, moderate, and low energy burden classifications within each IOU service territory, and compares the current findings to those of the 2007 LINA.

- Overall, PG&E has the highest portion of customers in the high burden segment at 46 percent. PG&E also had the highest portion in 2007, when it was measured to be 49 percent. A more significant change for PG&E relative to 2007 is the reduction (by 10%) of low burden customers. Both of these changes are reflected in a 13 percent increase in the moderate burden category.
- The SoCalGas-only territory (i.e. SoCalGas territory that does not overlap with SCE) has the second-highest portion of high burden households, 42 percent.
- The distribution for SDG&E is stable over the period, showing no changes in excess of 2 percent in the size of each burden category. The SCE/SoCalGas territory has made small adjustments over the period toward higher burden levels, including a slightly larger high burden segment (35% versus 33%) and a slightly smaller low burden segment (27% versus 30%).

Figure 52: Overall Energy Burden Classification Distribution by IOU, 2013 versus 2007 for California LI Population – for Comparison Purposes Only



Source: 2013 Analysis of IOU customer billing data, CARE participant telephone survey data, 2012 Athens data, and 2011 PUMS data.

5.5.2.4 Energy Burden of LI Versus General Population

Table 50 compares the overall energy burden of the LI population to the general population (which includes the LI population). This comparison provides greater context for interpreting the magnitude and the patterns of the LI population energy burden. These results are intended to provide a comparison to the general population only. The customer energy burden presented previously provides our estimates of the LI population mean energy burden.

In the table below, the left most column includes (a) the general population overall burden, the next column is (b) the LI population overall burden and the final column is (c) the ratio of the two results. The first two columns (a) and (b) are interim calculations only (providing "relative" estimates of burden) to produce the ratios shown in the (c) results. The previous subsections presented the LI customer energy burden results. We are unable to produce absolute customer energy burden results for the general population given the data constraints described herein.

As shown below, the ratio of LI to general population burden is 1.8 (the ratio of 2.3% to 4.1%).

Table 50: Energy Burden for IOU Customers by Population and IOU

	General Population (a) ^					Low Income (b) ^^					Ratio of LI to GenPop (c=b/a)				
	PG&E	SCG	SCE	SDG&E	Total	PG&E	SCG	SCE	SDG&E	Total	PG&E	SCG	SCE	SDG&E	Total
Annual Burden	2.6%	2.2%	2.2%	1.8%	2.3%	4.7%	3.6%	3.5%	3.8%	4.1%	1.8	1.6	1.6	2.1	1.8
Sample Size (n)	178*	704*	187*	64*	1,132*	340	420	368	179	939					

* Thousands of records

^Source: 2013 IOU customer billing data, 2012 Athens data, and 2011 PUMS data.

^^Source IOU Customer billing data, CARE/ESA tracking databases, LINA telephone survey data.

5.5.3 Non-Energy Benefits

5.5.3.1 Contractor Interviews

Not surprising, most of the respondents noted that energy/bill savings was a primary benefit of the program; according to one, "even $10 per month is a big deal for LI homes." The respondents also described a wide range of other benefits that customers receive in different combinations depending on their personal circumstances:

- Home safety – Seniors in particular value fixed natural gas leaks and electric fire hazards, carbon monoxide testing and information on how to respond to gas leaks (i.e., education).
- New appliances and equipment – Customers benefit from reduced capital costs and higher quality of life. Older homes benefit most from weatherization and generally get the largest energy savings. Mobile homes with combustion ventilation air can also get more measures than other mobile homes. New refrigerators confer health benefits via better-preserved food.
- Improved indoor comfort.
- Helping the environment - some customers are glad "to help the environment".
- Energy efficiency education – many customers are not aware of the potential for energy efficiency in their home and contractors leave various educational materials with them. One contractor said they spend 30 minutes with each participant covering an energy guide that teaches multiple energy saving techniques (e.g., placing different wattages in areas).
- Awareness of other IOU programs – ESA customers often learn about CARE and debt payment plans, particularly in rural areas where the IOUs may have historically done less marketing.

5.5.3.2 Customer Telephone Survey

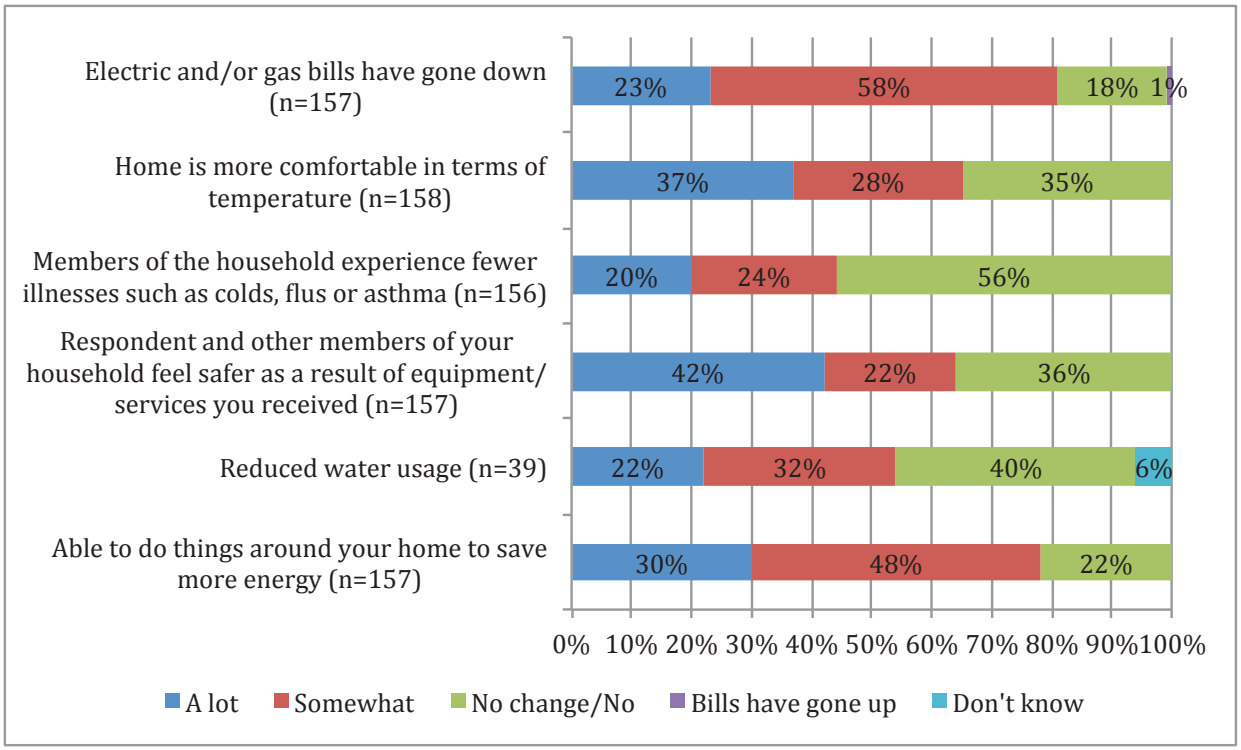
We asked participants what type of health, comfort and safety changes they noticed as a result of their participation in ESA. We also asked non-participants about their current levels of health, comfort and safety (reported after the participant results).

As shown in Figure 53 below, participants report substantial benefits from participating in ESA. Note that we asked these questions only of recent participants (2010-2012)[55]

[55] We did not ask prior participants (2002-2009) about their ESA participation experience. We based participation on the home, not the household, so not only would it be difficult for prior participants to recall participating since four or more years has passed, but they may not be the same household that participated.

that could recall participating, about half the recent participants. More than half and up to 81 percent of participants said they noticed “a lot” or “somewhat” of a change in comfort (65%), bill reduction (81%), a reduction in water usage (54%) and ability to save energy around the home (78%). Just under half (44%) reported reduced illnesses. These results tend to vary somewhat based on measures received, with those receiving HVAC measures more likely to report reductions in bills and increases in comfort and health.

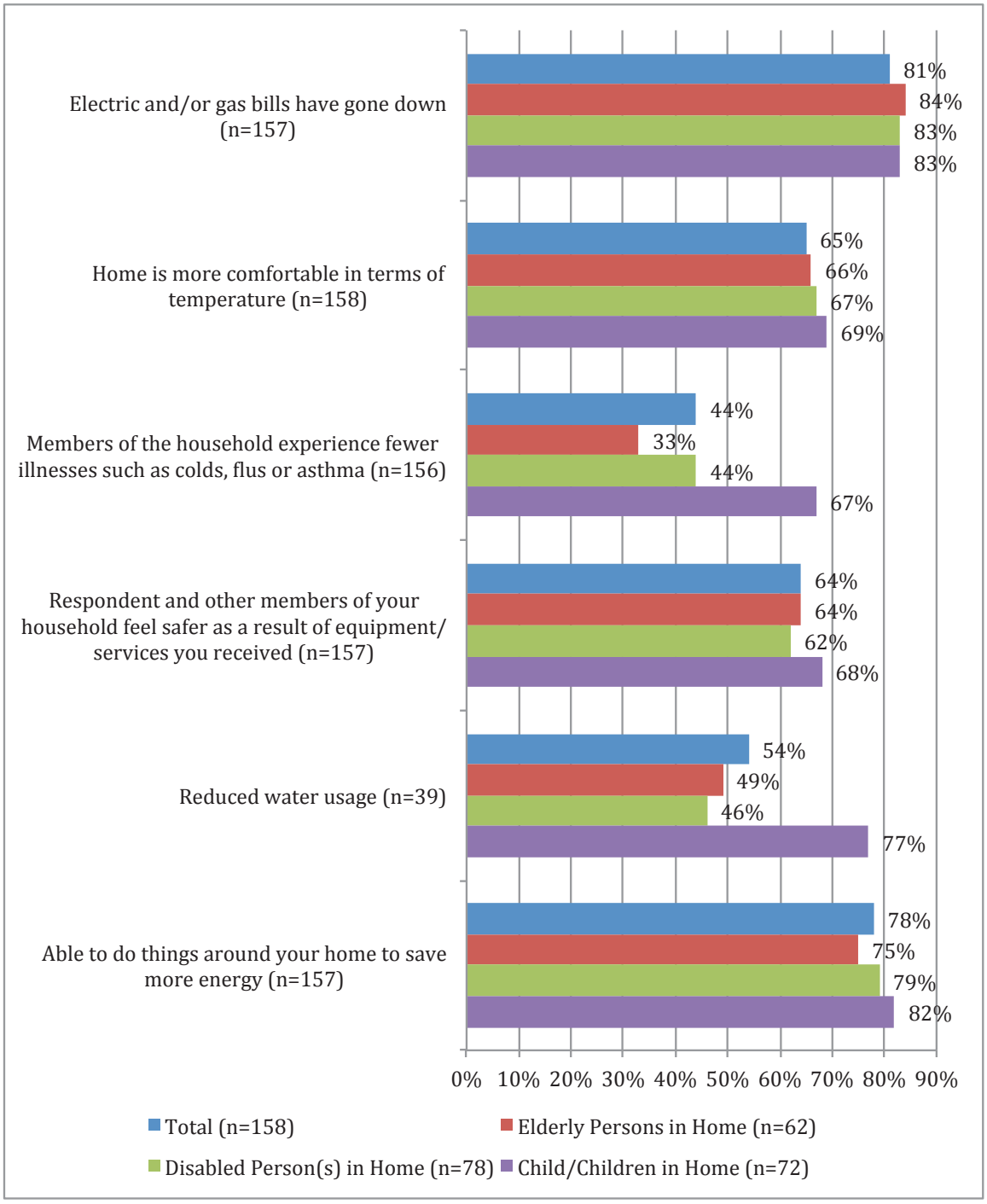
Figure 53: Health, Comfort and Safety Changes Noticed by Recent ESA Participants (PB8a-g) for California LI Population



Note: water usage question only asked of those that received water saving measure(s).
Source: 2013 CARE participant telephone survey data.

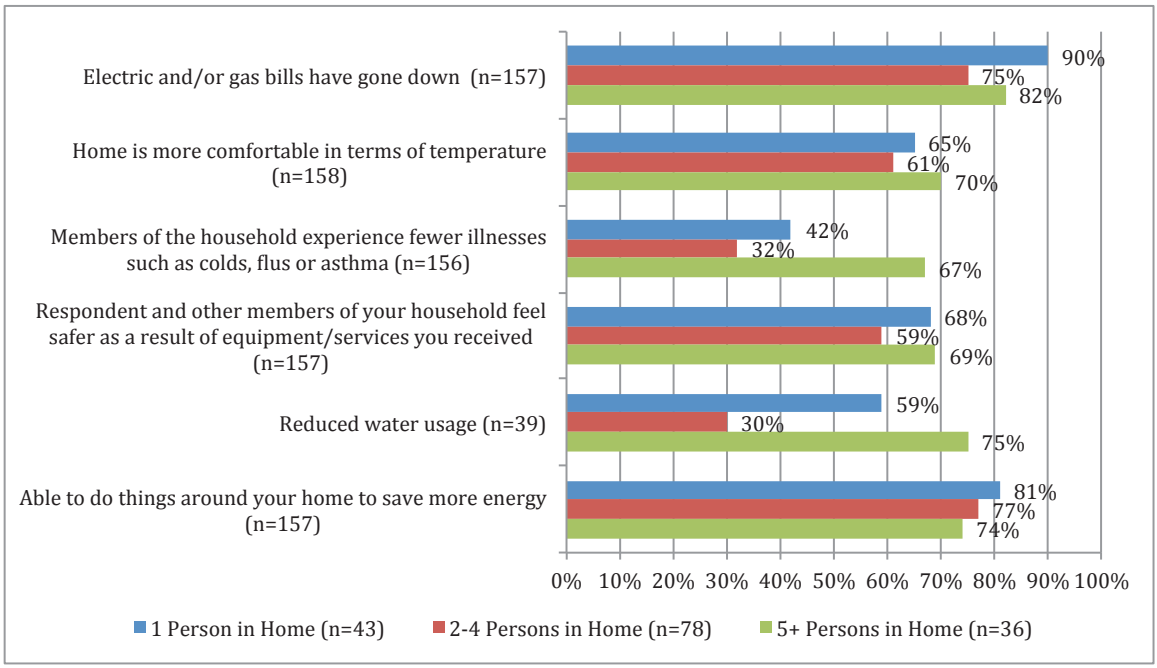
There are some differences in participant benefits based on the household composition and size, with homes with children and larger households more likely to notice fewer illnesses and reduced water usage. Households with elderly member(s) were less likely to notice fewer illnesses. This difference may be based on expectations with younger respondents expecting to be healthy and older respondents being more used to health issues. Figure 54 below shows ESA participation benefits (the percentage that said they noticed "a lot" or "somewhat" of a change) by household composition, and Figure 55 by household size.

Figure 54: Health, Comfort and Safety Changes Noticed by Recent ESA Participants, by Household Composition (PB8a-g) for California LI Population



Source: 2013 CARE participant telephone survey data.

Figure 55: Health, Comfort and Safety Changes Noticed by Recent ESA Participants, by Household Size (PB8a-g) for California LI Population



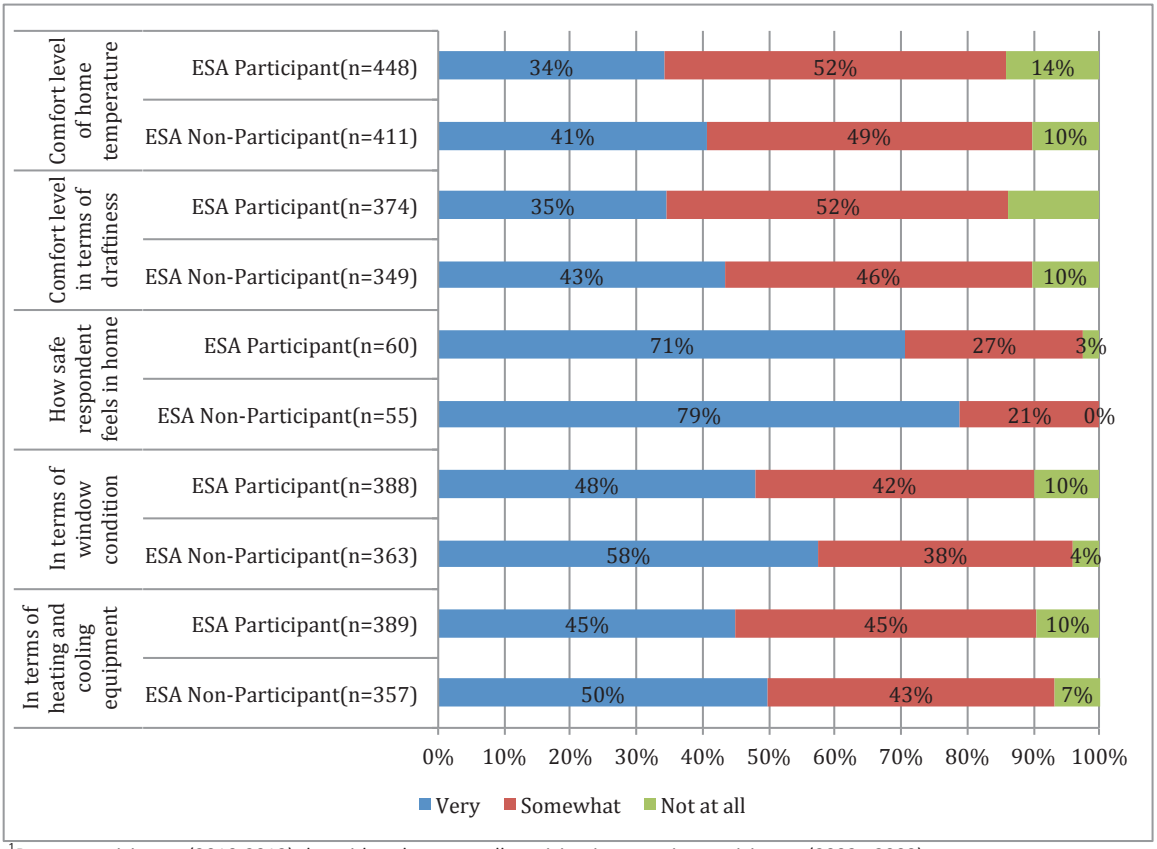
Source: 2013 CARE participant telephone survey data.

Next, we present current levels of health, comfort and safety for non-participants, prior participants (2002-2009) and recent participants (2010-2012) who did not recall participating. We remind the reader that we determined participation based on the home, so the participants who were asked this sequence of questions may not have participated themselves (or recall participating if they were the household in the home at the time of participating). Even though we did not ask this subset of participants (who make up about half of all participant survey respondents) directly about changes in health, safety and comfort, we could ask them about current levels and compare them to non-participants. This sequence does not measure immediate health, comfort and safety benefits, but instead sustained benefits combined with underlying differences between participants and non-participants.

As shown in Figure 56 below, upwards of 87 percent of survey respondents report that their homes are very or somewhat comfortable and safe. Very few non-participants indicate they have substantial comfort and safety needs. There are few differences in report comfort and safety levels across LI segments. Households with elderly member(s) and of a relatively smaller size were more likely to say they are "somewhat" or "very" comfortable with the temperature in their home, and households with elderly member(s) were also more likely to say they are comfortable with the (lack of) draftiness of their homes.

There are some differences between participants and non-participants as shown, with participants generally reporting slightly lower levels of comfort and safety. This could be because they (participants where the household was in the home during treatment) self-selected themselves into the program because they either had greater comfort and safety issues or that they are more perceptive to comfort and safety issues. However, the differences are slight and only the difference in safety associated with the condition of their windows is a statistically significant result.

Figure 56: Level of Health, Comfort and Safety, by ESA Non-Participants and Participants[1] (PB9a-d) for California LI Population

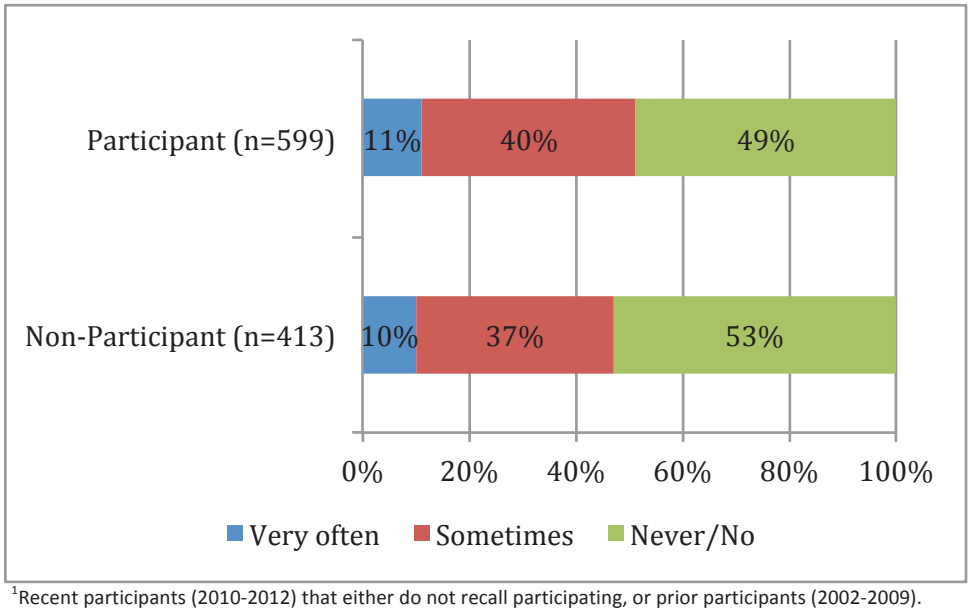


[1]Recent participants (2010-2012) that either do not recall participating, or prior participants (2002 - 2009).
Source: 2013 CARE participant telephone survey data.

We asked the same set of non-participants and participants about how often their household members get sick or have asthma due to their home's condition or the home's temperature when trying to keep costs down, as reported in Figure 57 below. Based on this self-reported assessment, few households have these issues "very often", but around half report their household "sometimes" or "very often" has these issues. Similar to the comfort and safety results, more participants are reporting health issues than non-participants, but this difference is not statistically significant.

There are some differences in the self-reporting of energy-related health issues across LI population segments; households with non-English as a primary language, elderly, no children, no disabled, relatively more members and homes located in the mountain climate zone are more likely to cite these issues. As mentioned above, this difference may be based on expectations with younger respondents expecting to be healthy and older respondents being more used to health issues.

Figure 57: How Often Members of Household Get Sick/Asthma Due to Home's Condition or Temperature When Trying to Keep Costs Down, by ESA Non-Participants and Participants[1] (PB10) for California LI Population



[1]Recent participants (2010-2012) that either do not recall participating, or prior participants (2002-2009).
Source: 2013 CARE participant telephone survey data.

5.5.3.3 In-Home Visits

We specifically sought to understand the degree to which non-participants are maintaining comfort or sacrificing comfort for cost savings (see Table 51 below). We found this analysis to be challenging to do because comfort is a highly person-specific characteristic and the threshold at which someone will think of himself as uncomfortable varies greatly. Some people self-reported discomfort at temperatures that are within the ranges typically recommended for energy savings by IOUs and the Department of Energy (68 degrees Fahrenheit in winter and 78 degrees in summer when home and awake). Others did not complain of comfort at substantially higher or lower interior temperatures. When asked about that, one respondent who happened to be an immigrant simply said "it's good enough" while another said that her family's living conditions are much better than those of people in developing countries.

That said, a third of the homes we visited either complained of comfort issues or described conditions that the interviewer identified as a comfort issue. The bulk of these

comfort issues are based on self-reports. The presence of comfort issues were evenly distributed among the service territories of the IOUs that provide ESA, across all housing types, and among home owners and renters. Not surprisingly, those households we had identified as being particularly stressed financially were much more likely to have comfort issues; nearly all of them did. Conversely, households that are predominately Spanish-speaking and those who identified themselves as immigrants spoke of comfort problems less frequently, which may be the result of differing expectations between cultural groups or foreign- and U.S.-born individuals.

Hence, it may not be surprising that the degree to which households use their heating and cooling system varied, even within the same climate zones. Some people in temperate climates were comfortable in their homes with minimal heating and cooling. Others (in temperate coastal climates and those inland) need more substantial heating and cooling to be comfortable. Whether or not they actually heat and cool to comfortable conditions depends on the equipment available to them, the cost trade-offs they choose to make, and their perception of what is the most cost-effective way to heat and cool their home.

Table 51: Number of Households Experiencing Comfort Issues for California LI Population

Comfort issue	Who identified	Reason for comfort issue		
		Cost constraints	Equipment/ Structural Issues	Both
Identified	self-reported	11	4	8
	interviewer-identified	3	0	0
	both	1	1	4
None identified	n/a	56		

Source: 2013 CARE participant telephone survey data.

5.5.4 Energy Efficiency Measures

The program offers weatherization, water savings measures, lighting, new appliances and appliance repairs or tune-up. Section 4.4 provides a summary of measure eligibility. Overall lighting, weatherization and water savings measures are most common, but many customers receive new clothes washers, refrigerators, air conditioners and/or furnace repairs and replacements as well.

Cost-effectiveness issues are considered when adding or removing a measure or establishing or updating measure eligibility. For example, SCE is no longer able to

replace old, inefficient Central ACs in climate zone 13 due to lower energy savings. Whether installation procedures may be standardized and deployed on a large-scale are also considered for ESA measures. For example, solar water heaters are not offered due to the customized nature of the installation. However, the state of Hawaii installs solar water heaters for LI customers.

5.5.4.1 Measure Eligibility for Programs Nationwide

The mix of measures for each program researched here depends on whether the program is a utility-specific or statewide program. For those utilities that provide both natural gas and electric service, a comprehensive set of measures is typically offered which include both weatherization-based measures and electric reduction measures. The Ohio EPP only includes electric base load measures, such as lighting and refrigeration, since the program was established during the statewide electric restructuring; gas energy efficiency measures are administered through utility programs or WAP.

The program staff of the New Jersey Comfort Partners believe that a reason behind their program's success is the cooperation among all utilities throughout the state to make the same measures eligible, even though each utility administers the program within its territory. This provides consistency throughout the state.

Some programs, like NJ Comfort Partners and WI WAP, include health and safety measures in addition to weatherization or electric reduction measures. These health and safety measures can include such measures as adding ventilation to kitchens and bathrooms to manage moisture and other indoor pollutants, checking water heaters for incomplete combustion, and installing smoke/CO detectors. They do not necessarily have an energy impact but do increase the well-being of the household residents.

5.5.4.2 Weatherization Assistance Program (WAP) Relationships

Utility-based programs can operate together with—or independently from—the federal Weatherization Assistance Program. For those states we researched that have independent LI energy efficiency programs (Ohio, New York, New Jersey, and Pennsylvania), the interaction between the program and WAP is a defining characteristic. The Ohio EPP program only targets electricity-using equipment and electrically heated homes. This way, the program complements the WAP program, which targets natural gas heated homes. The NYSERDA program operates in parallel to the WAP effort; sometimes the WAP agencies refer homes to the NYSERDA program and other times there are duplicative efforts, where the NYSERDA program auditors arrive at a home where there are no opportunities due to WAP implementation.

The Massachusetts WAP program is implemented by local weatherization agencies that also take advantage of additional funding by utility companies. This appears to be an effective way to leverage funding to maximize energy savings opportunities. For example, while the Massachusetts WAP program only funds base load-heating measures,

households can take advantage of utility programs for electric base load opportunities such as lighting and refrigeration.

5.5.4.3 In-home Audits and Education Offered by Programs Nationwide

All the LI weatherization programs that we examined conduct free in-home audits to identify energy savings opportunities and determine the measures that would be implemented on a household level. The auditors generally take advantage of their time at the household for some direct installs, such as changing out light bulbs and replacing showerheads with low-flow versions. Installation crews implement more complex energy efficiency measures, such as insulation and air sealing.

Participant education is another integral component of the in-home audits. The auditors often request that the resident accompany them on the walk-through so that they become familiar with the energy-consuming equipment in their home. One program, PECO's LIURP, provides a personalized educational leave-behind that describes the resident's current energy use and energy costs and provides a detailed explanation of energy efficiency measures the program will implement; they also set a realistic energy savings goal that the residents need to meet. The goal is aligned with the household's current energy use and the measures to be implemented. Our contact at LIURP stated that evaluation results show energy consumption usage for those customers who were audited but found not to have energy saving opportunities and thus were simply provided an educational packet of information; simply providing participant education had an effect on energy consumption. After repeated requests for documentation of this evaluation result, we have not been able to secure the report demonstrating these results.

5.5.4.4 Program Staff Interviews

We talked to IOU program staff about the measures that ESA offers, including customer dissatisfaction with measures. They reported that some customers complain about the white freezer on top refrigerator (either at the enrollment or assessment phase, or occasionally when the truck rolls up), preferring their old style/color or saying that it doesn't match the rest of their appliances. Some customers are dissatisfied with the low flow showerheads, and some have complained about evaporative coolers – stating that they are ugly or they don't understand how they work.

Some customers don't like the doors that the program installs – maybe they had a decorative door that was no longer safe/tight, or had the metal door shoes. Also, if the program replaces one or a few windows but often not all, a customer may not like that they don't all match or they don't like the newer window materials.

Program staff say that measures being considered for the program must have a standard specification for the equipment and the installation. The equipment cannot require customization for the home– e.g., solar thermal water heating is rejected due to the complexity of installation.

Some measures that would provide benefit to the customer but program staff say are too expensive and don't pass a cost-effectiveness screen are LED big screen TVs, double-pane windows and stoves.

Some new measures that have been added by one or more IOU(s) recently include the following:

- PG&E and SDG&E offer microwaves to customers that do not already have one, as a relatively less energy consumptive cooking technique. The measure offers a relatively high-energy savings per unit, particularly when supplementing electric cooking equipment.
- SDG&E is offering LED nightlights – 58,000 were installed in 2012
- SoCalGas and SDG&E are offering energy efficient clothes washers (about 6,000 in 2012 altogether).
- Thermostatic shower valves and occupancy sensors have also gained some traction in PG&E service territory.

CAC replacement for Climate Zone 13

SCE is no longer able to replace old, inefficient Central ACs in climate zone 13 (as of the last program cycle), even though it contends that that area is hotter than some areas of climate zone 14, which is eligible for this measure; it contends that this is a case where customer's needs are not being met. Staff report that some customers complain because their friend, family or neighbor got a new AC through the program when it was still allowed, or the customer calls in on a really hot day for help and they are told they cannot have that measure. The measure was disallowed due to cost-effectiveness (it is very expensive), though SCE contends it provides a real health/comfort/safety benefit for the customer.

5.5.4.5 Contractor Interviews

Greatest Customer Needs

Over half of the respondents reported that LI homes' greatest needs are for fixed/replaced doors and windows, and new weather stripping. Furnace and AC tune-ups and replacements are also a common need. Some of the less commonly mentioned needs were:

- Ductwork leak repairs in manufactured homes;
- (Enhanced) Energy education;
- Attic insulation in older homes; and
- New, larger refrigerators for larger families.

ESA Effectiveness

The respondents described only a few gaps in program services, with most noting that the program is very comprehensive. Most think ESA is an excellent program, and acknowledge that the IOUs need to balance program costs, critical needs and the large population needing services. Following are some desired program changes:

- Two respondents would like to do projects with "no material changes" (e.g., water heater insulation) that are currently disallowed.
- One would like to allow more attic insulation, "above the bare minimum," which would still yield benefits.
- One emphasized that the program needs to retain window ACs in Climate zones 13 and 14 for comfort and safety, or there will be a critical gap.
- One stated that the CPUC and IOUs should allow contractors to still deliver the education component even if homes do not have the required three measures needed to qualify. The contractor could still tell them about low-cost measures (e.g., faucet aerators, low flow shower heads) and affect long-term behavior change (e.g., turning off lights).
- One would like to see SCE allow clothes washer and dryer upgrades.

5.5.4.6 Customer Telephone Survey

We asked telephone survey respondents a series of questions about the energy efficiency equipment they either received from the program (ESA participants[56]) or might receive (ESA non-participants) to find out how helpful those were (or would be) to helping them control their energy bills and improve the comfort and safety of their home. First we asked the question unprompted, followed by a prompted series of questions asking about the helpfulness (or potential helpfulness) of each measure they received or might receive.

Figure 58 below shows the measures that survey respondents told us (unprompted, one response allowed) either were the most helpful (participants who recalled participating) or would be the most helpful (for all other respondents). ESA participants were most likely to mention weatherization measures (23%), followed by a new refrigerator (15%) and then generally helping them to lower their bill (9%). Few mentioned windows/doors (which not all receive) and CFLs—though each respondent was only allowed to mention one measure—the one that was the most helpful.

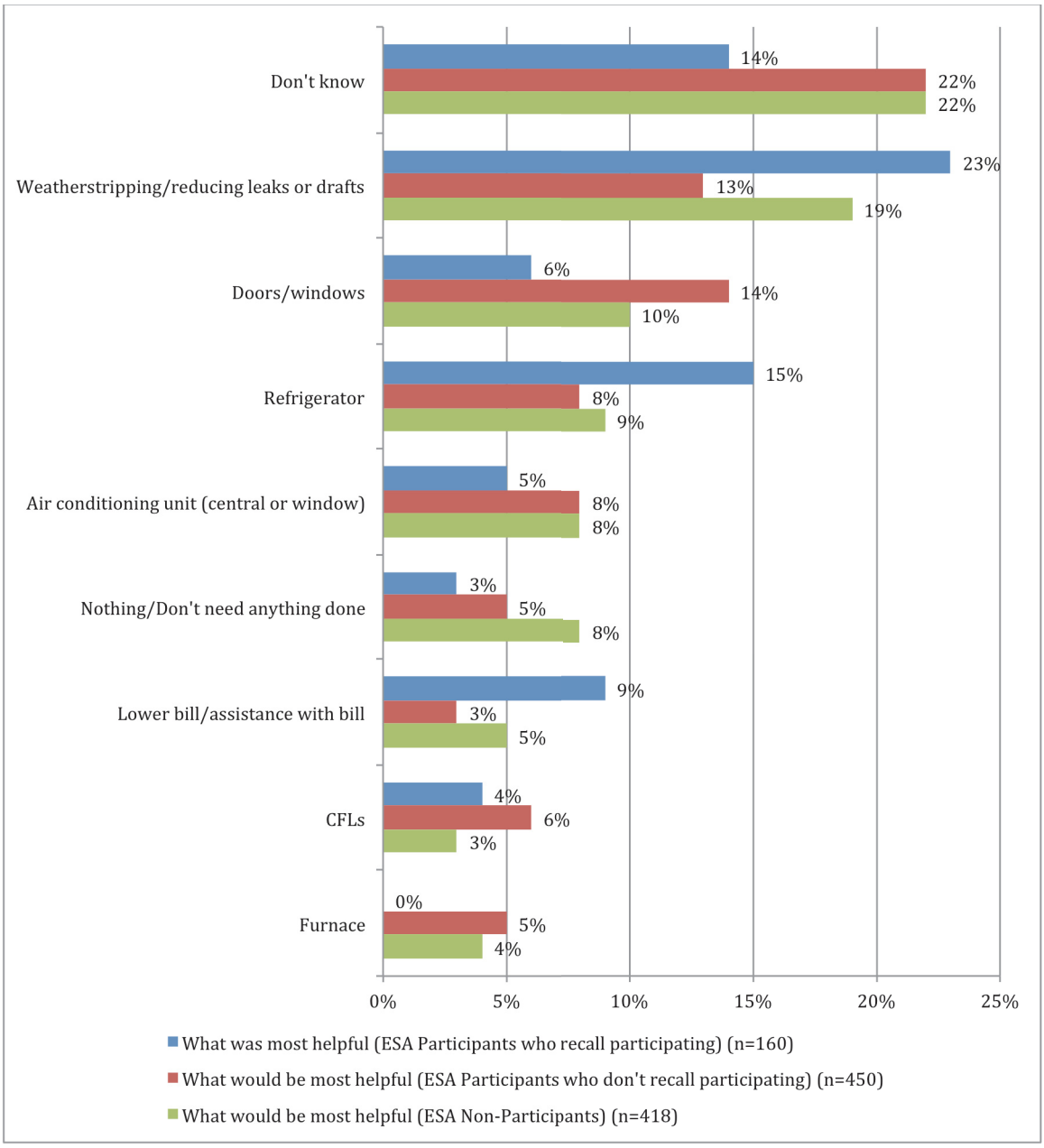
ESA participants who did not recall participating were asked what would be most helpful, so their responses should reflect what measure they think they need most. Non-participants were asked the question the same way. ESA participants who didn't recall

[56] Technically, we only prompted participants who recalled participating (about half of participants) with the list of measures they had received.

participating were significantly less likely to say they need some type of weatherization measure than non-participants, likely reflecting the program's impact on addressing that potential need at least among a subset of prior participants since many receive weatherization. ESA participants who did not recall participating were most likely to say they "didn't know" what would be most helpful (22%), followed by doors/windows (14%), weatherization measures (13%) and refrigerators (8%).

Non-participants were also most likely to say they "didn't know" what would be most helpful (22%), and 19 percent said that weatherization measures would be most helpful. Another 10 percent mentioned windows/doors, and 9 percent mentioned a refrigerator.

Figure 58: Most Useful Items by ESA Participants for California LI Population (EN1)



Source: 2013 CARE Participant Telephone Survey.

The next series of figures (Figure 59, Figure 60 and Figure 61) show the prompted responses to a series of measures that we asked respondents whether they were helpful (for ESA participants who recalled participating and received a given measure) and would be helpful (for ESA participants who did not recall participating and non-participants). The first figure covers HVAC and weatherization measures; the second, appliances; and the third, water-related and other measures. There is a second set of figures showing the same results but by home type instead of participation category.

As shown in Figure 59 below, almost all participants said that the measures they received were very or somewhat helpful. The sample sizes are too small for any differences across participants to be statistically significant (though as indicated below, there are significant differences across participant categories). The participants who could not recall participating and the non-participants who were asked whether the measures would be helpful were less likely to report they would be very or somewhat helpful as participants (but due to small sample sizes, these differences are not significant). This could be because either the measures are not needed as often among prior participants and/or the measures are perceived as more helpful once they are actually in place.

Non-participants were most likely to say that repairs to windows/doors, walls or floors would be very helpful (53%), followed by sealing leaks to reduce drafts (48%). 25 percent or fewer non-participants said that any of the HVAC or weatherization measures would not be helpful at all.

The participants who did not recall participating were more likely to say that measures would be helpful than the non-participants, possibly because participating households have more needs than non-participants and/or they may have received some of these measures and valued them.

These general trends across participant groups, and the magnitude of "very and somewhat helpful" responses, hold true for the other measures shown in Figure 60 and Figure 61 below, with the exception of efficient light bulbs and fixtures and energy information. (Across all the measures, 65 percent of participants who recalled participating said measures were "very helpful", compared to 57 percent of participants who did not recall and 45 percent of non-participants. The difference between the latter two estimates is statistically significant.)

Participants who do not recall participating were more likely to say that both efficient lighting and energy information would be helpful than the other participant categories. It is difficult to know if these participants value these measures more because they likely received them, or if they have a greater current need for them.

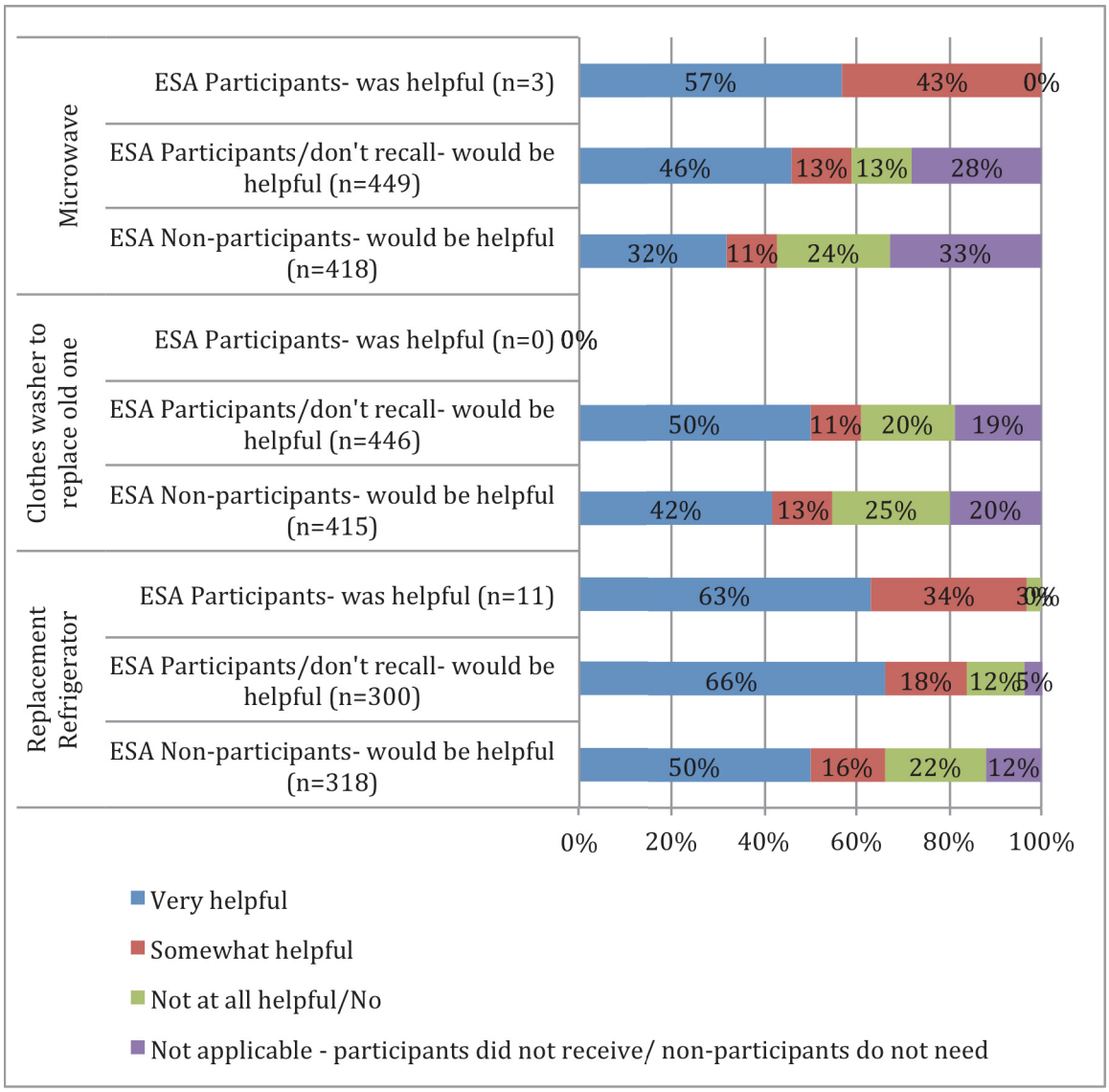
We looked at the self-reported helpfulness of measures across home types, and found that for all the measures, single-family renters were more likely to find them "very helpful" than multi-family dwellers and single-family homeowners.[57] (Across all the measures, 60 percent of single-family renters said measures were "very helpful", compared to 52 percent of multi-family dwellers and 44 percent of non-participants. The difference between the first two estimates is statistically significant.)

[57] As reported in Section 5.1, 95 percent of multi-family homes are occupied by renters, so we do not break out that home type by home ownership.

Figure 59: Helpfulness of HVAC and Weatherization Measures for California LI Population (EN2)

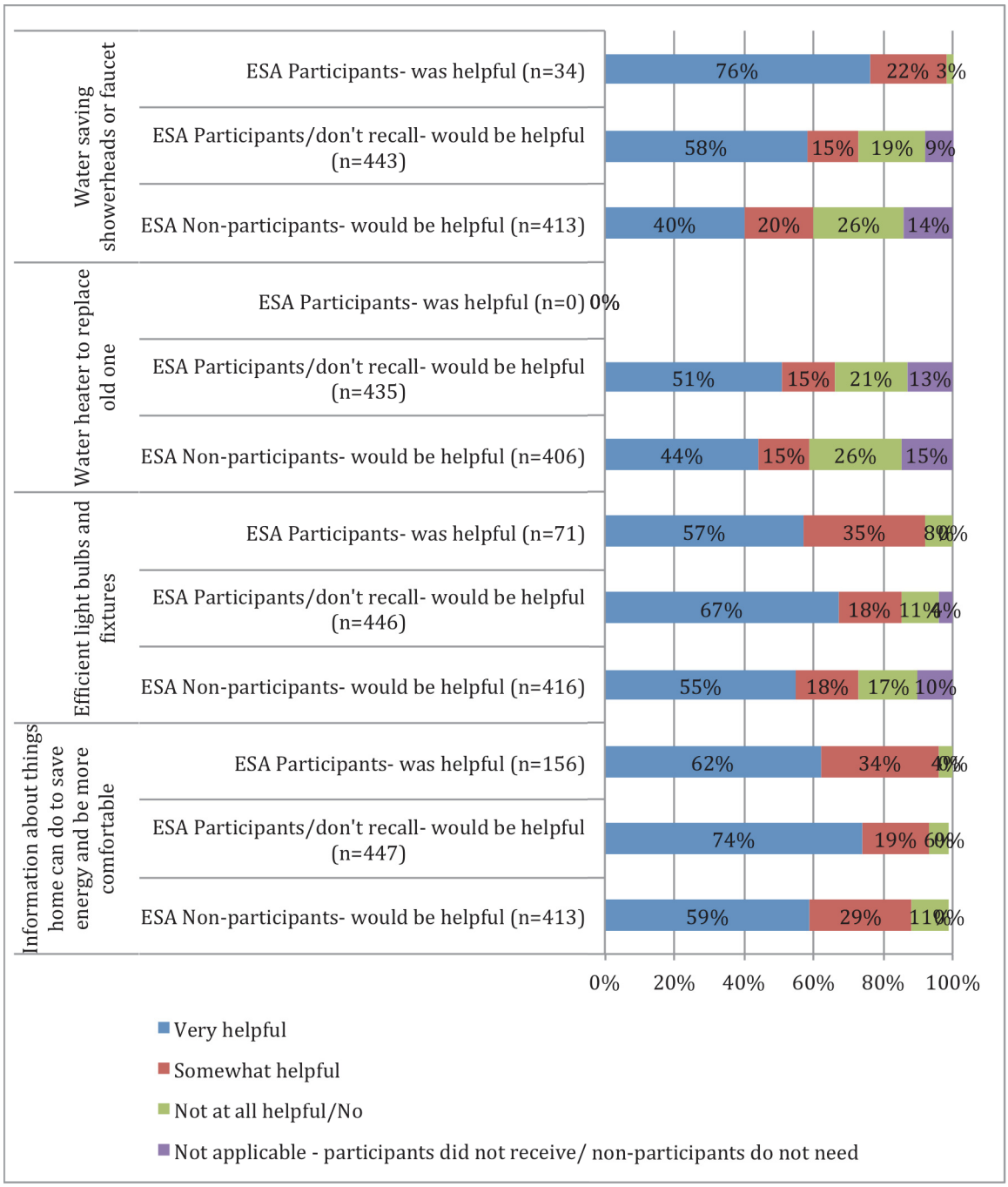
Source: 2013 CARE Participant Telephone Survey.

Figure 60: Helpfulness of Appliance Measures for California LI Population (EN2)



Source: 2013 CARE Participant Telephone Survey.

Figure 61: Helpfulness of Water and Other Measures for California LI Population (EN2)



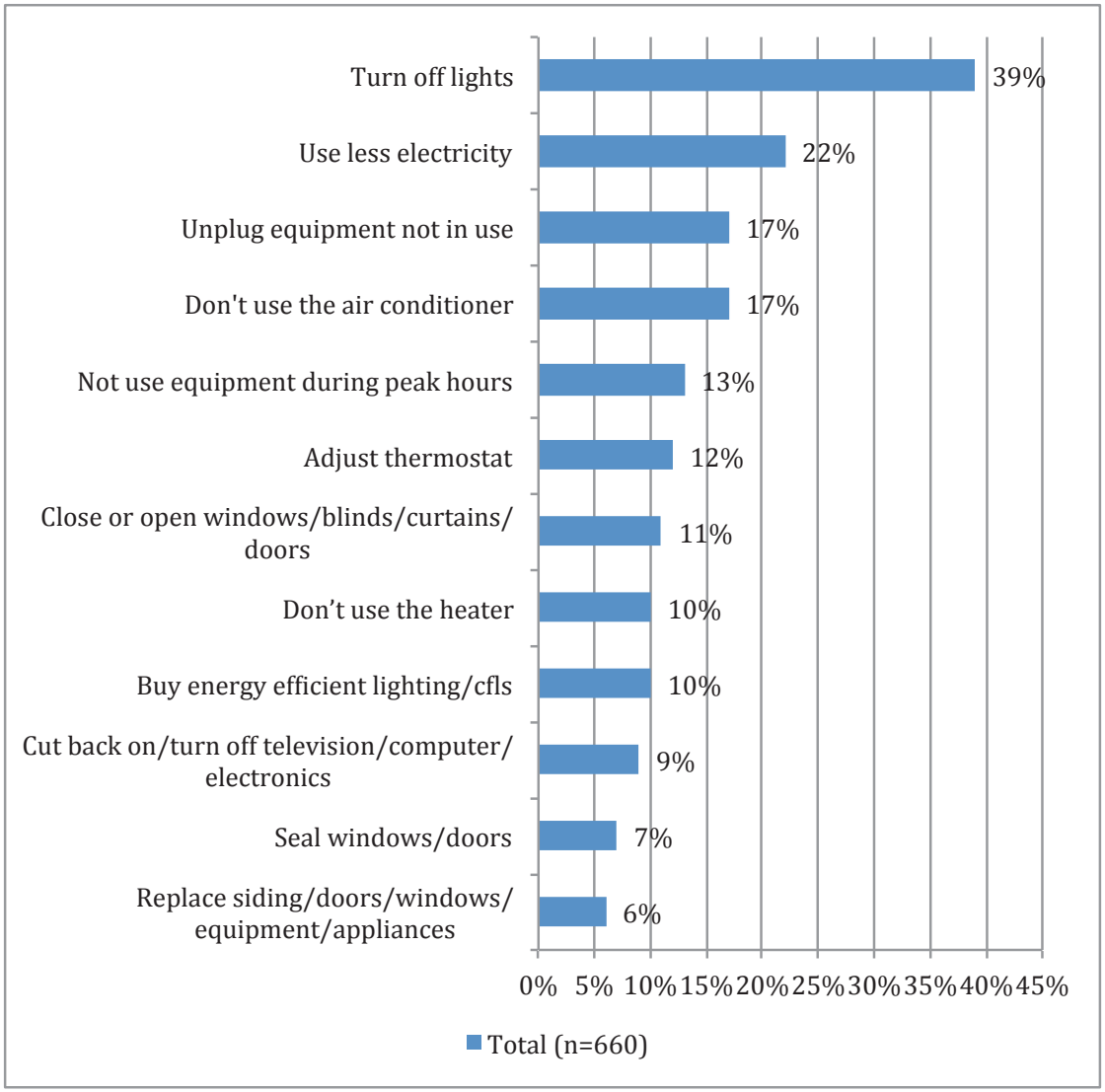
Source: 2013 CARE Participant Telephone Survey.

Next, we asked telephone survey respondents questions about their energy efficiency knowledge, actions and attitudes. We asked respondents if they wanted to lower their

energy bill, would they know what to do? For those that said yes or that they were not sure, we asked them what would they do (unprompted).

62 percent of respondents said they would know what to do to save energy, a percentage that is not statistically significant by participation category. As shown in Figure 62 below, the most commonly cited energy efficiency action that respondents would take is turning off lights (cited by 39% of those who say they know how to save energy), followed by generally using less electricity and unplugging equipment.

Figure 62: Ways California LI Households Try to Reduce Their Energy Bill (Self-Reported), of Those That Say They Know How (EN5)



Source: 2013 CARE Participant Telephone Survey.
Note: Responses greater than five percent presented here. In the appendix we show all responses.

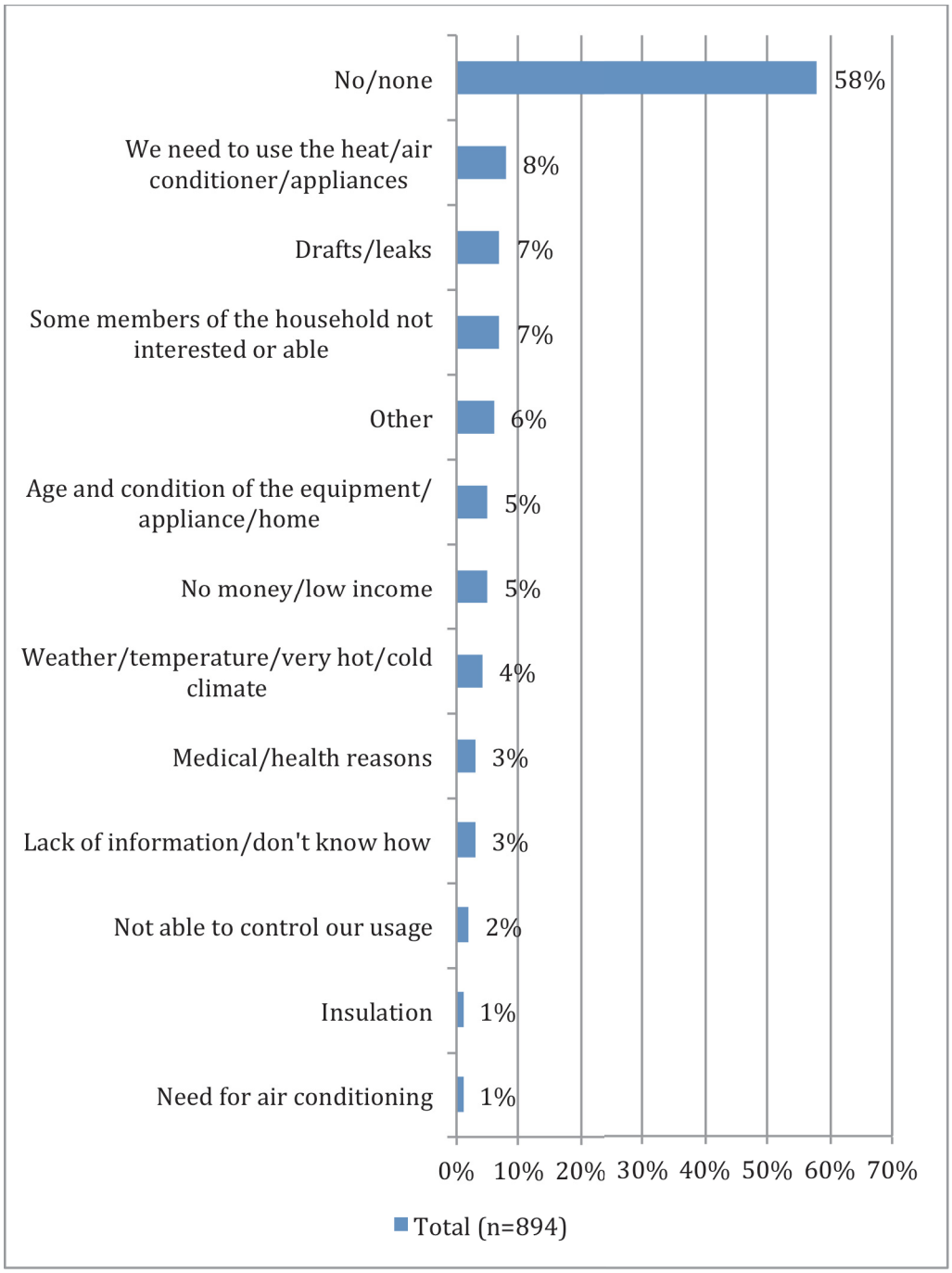
We followed up by asking respondents how often they try to save energy (survey question EN6), with 77 percent saying they try to save energy most or all of the time, and 20 percent saying sometimes. These self-reported results are not significantly different by participation category. Note that we examined the mean energy burden by responses to survey question EN6, and found that the average ratio of energy cost to income for those that said they try to save "most or all of the time" is 7.7 percent versus 9.1 percent for those that try to save "sometimes".

We then asked respondents if there was anything making it hard for them to try to save energy (unprompted, allowing multiple mentions). As shown in Figure 63 below, about half said nothing kept them from trying to save energy. We believe this high percentage is because most respondents were thinking about behavioral things, not all the possible energy equipment and retrofit options they could do. This question followed other questions that elicited behavioral responses, such as the responses to question EN5, where respondents reported turning off lights and not using equipment during peak hours to reduce energy.

42 percent of respondents said there was something making it hard for them, with most of the reasons related to home conditions or need to use energy-using equipment to maintain comfort or health: presence of drafts/leaks, older equipment, outside temperature, need to use air conditioning, or medical or health reasons. Less commonly cited reasons were attitude/knowledge barriers including members of the household not interested or able, and inability to control usage and lack of information. While this result could be taken to mean that households do not need energy education to be able to save energy in their home, some may not know that such education is available and may not be aware that there are actions they are not aware of (e.g., hard to say you need something if you don't know you need it.) These results do not differ significantly by participation category or other segment.

The mean energy burden of households that said that weather/climate was a barrier to saving energy is 13.9 percent, compared to the average mean burden of 8 percent.

Figure 63: Things That Make it Hard to Try to Save Energy (Unprompted), for California LI Population (EN8)



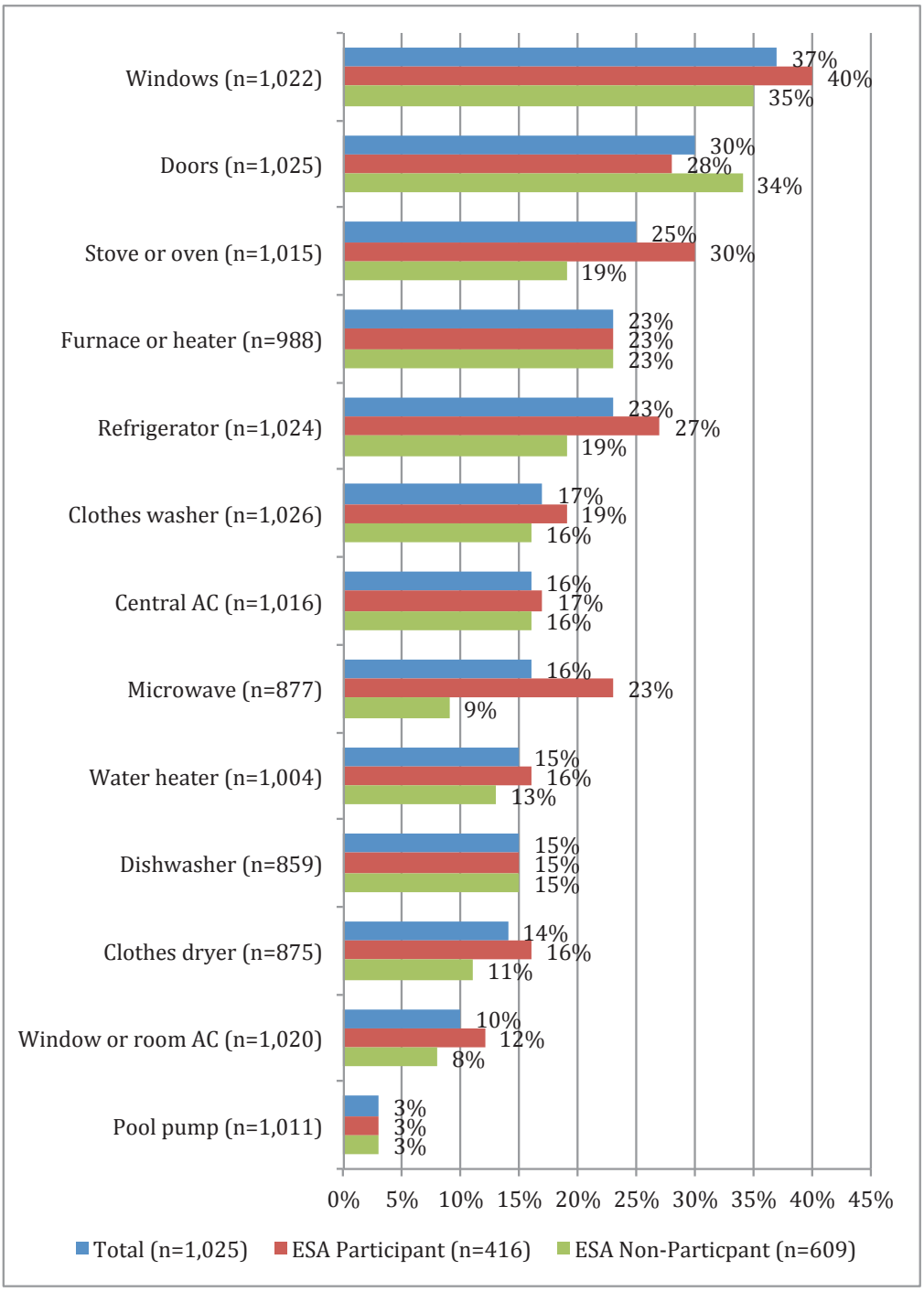
Source: 2013 CARE Participant Telephone Survey.
Notes: this question was added after the survey was already in the field, and has a slightly lower sample size as a result – though it was asked of all respondents once it was added; multiple mentions allowed.

The final series of questions in this section asked about the condition of energy-using equipment in the home, identifying (based on self-report) old, broken and not working equipment. Note that we did not ask respondents about equipment that was recently provided by the ESA program, but we did include those respondents in the base of responses in the exhibits below. The intent is to show the fraction of equipment that might have energy-savings potential among the full LI population. (Note that in Volume 3, Section 7, we provide a second set of results where we exclude respondents that are "not applicable", e.g., those who do not have a pool.) We ended with a question about how many light bulbs in their home are compact fluorescent lights or CFLs to complete the assessment of home equipment.

Figure 64 below shows a summary table of equipment that respondents reported is either not working or in need of repair. The most commonly cited equipment was windows (37%), followed by doors (30%), stove or oven (25%), refrigerator (23%) and furnace/heater (23%). Note that this is self-reported, so there is likely a range of equipment conditions included in these results, since respondents may use different criteria to report that certain equipment is broken or not working, especially equipment like windows and doors.

ESA participants are more likely than non-participants to say their refrigerator, stove/oven or microwave is not working (a reminder that this excludes participants who received a refrigerator or microwave from the ESA program).

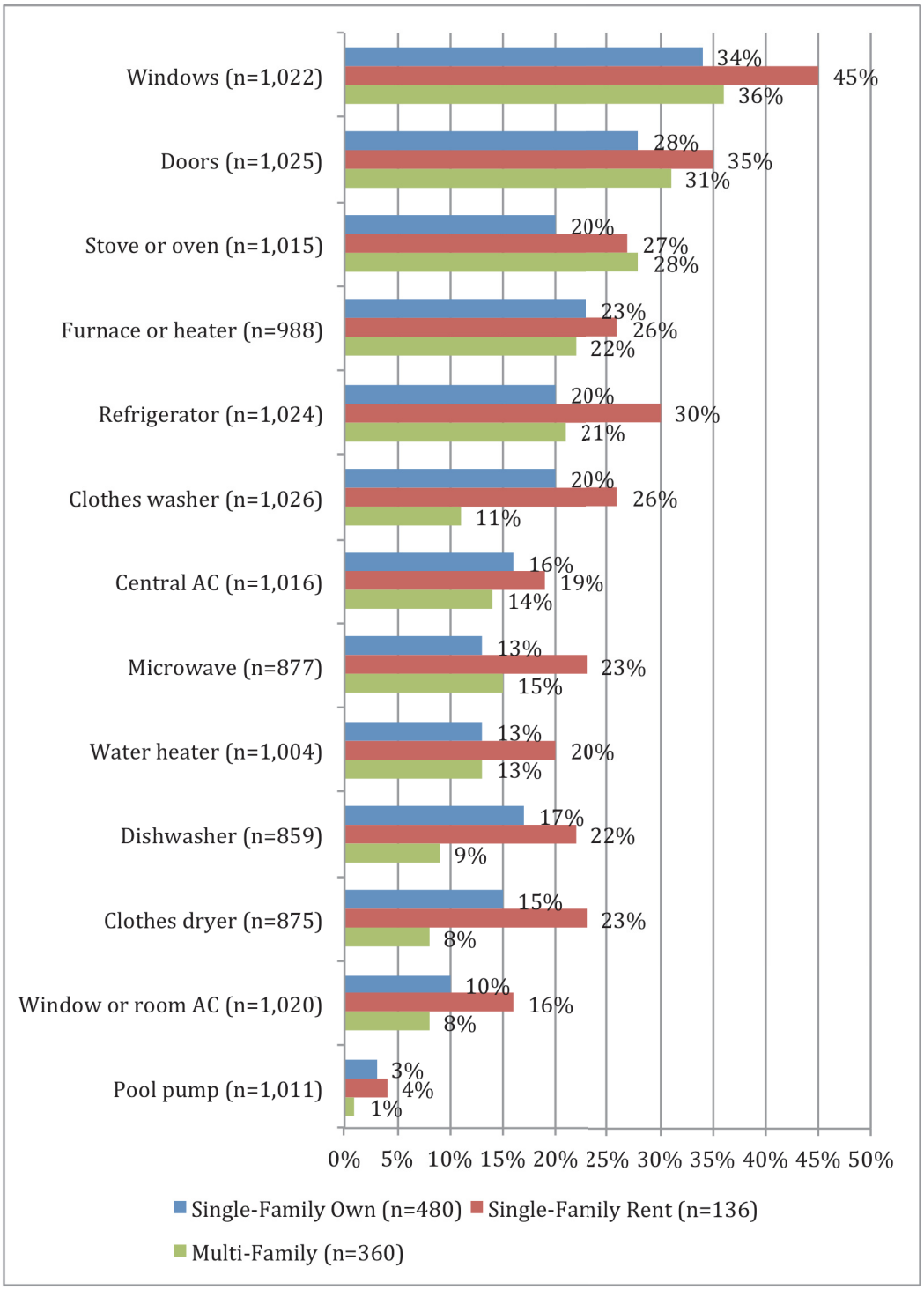
Figure 64: Percent of Measures in Household That are Either Not Working or Need Repair (Self-Reported), for California LI Population (EN11)



Source: 2013 CARE Participant Telephone Survey.
Note: we added additional equipment to this survey battery after the survey was in the field (after pre-test results), which is why some of the sample sizes are relatively low. This figure is intended to represent the LI population.

There are also differences in the condition of energy-using equipment across home types, as shown in Figure 65. Single-family renters are more likely to report their equipment is not working or needs repair, with higher rates of need for a new window/room AC, refrigerator and microwave. Single-family owners are more likely to need a clothes washer and dryer, which is probably only because they are more likely to own their own laundry equipment.

Figure 65: Percent of Measures in Household that are Either Not Working or Need Repair (Self-reported), for California LI Population by Home Type (EN11)



Source: 2013 CARE Participant Telephone Survey.

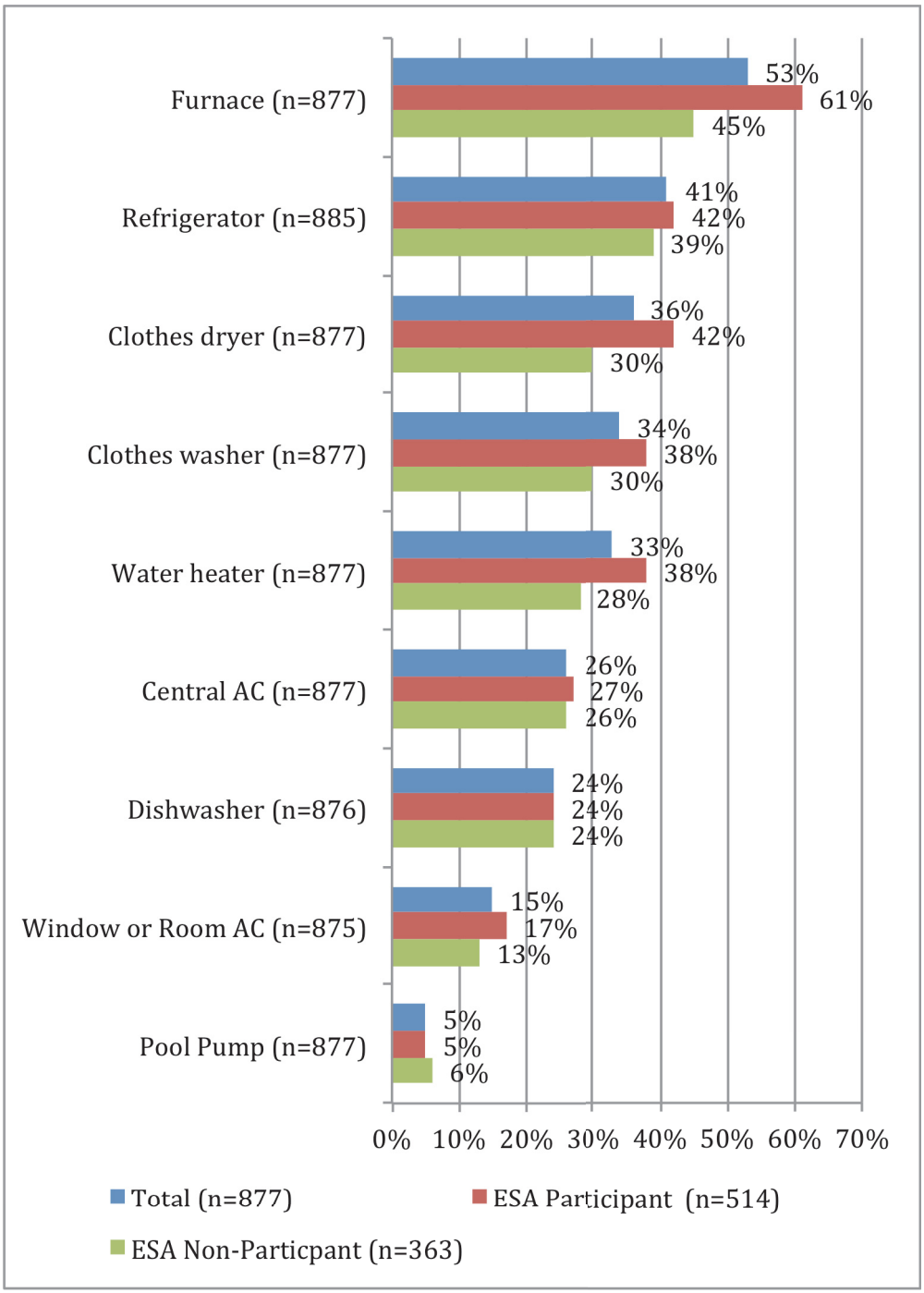
Note: we added additional equipment to this survey battery after the survey was in the field (after pre-test results), which is why some of the sample sizes are relatively low. This figure is intended to represent the LI population.

Figure 66 below presents the percent of equipment in LI households that is greater than 10 years of age, based on telephone survey respondents' self-report.[58] According to respondents, about half of LI households have a furnace that is more than 10 years old, and one-third or more have 10-year old refrigerators, clothes dryers, clothes washers or water heaters. There are fewer 10-year old or more central ACs, dishwashers and pool pumps in LI households. Note that these percentages are for the weighted LI population, not just those that have the equipment. These data provide rough estimates for determining the potential for early replacement of major energy-using equipment. However, the data are not verified by an auditor. We rely mostly on the CLASS data to determine age of equipment for our study conclusions, but where there are gaps in the CLASS data we use these data to provide general ballpark estimates.

ESA participants are more likely to have 10-year or older furnaces, windows, clothes washers and dryers than non-participants.

[58] We used 10 years as a category of equipment age to report, even though the effective useful life of most equipment is longer. This is because many decisions that are made about measures do not impact programs right away, so we wanted to include all the potential equipment that could be considered for replacement over the mid- to long-term. The more detailed results on energy-using equipment from the CLASS data provide the distribution of equipment ages (see Section 4.3.2).

Figure 66: Percent of Measures in Household That are More than 10 Years Old (Self-reported), for California LI Population (EN11)



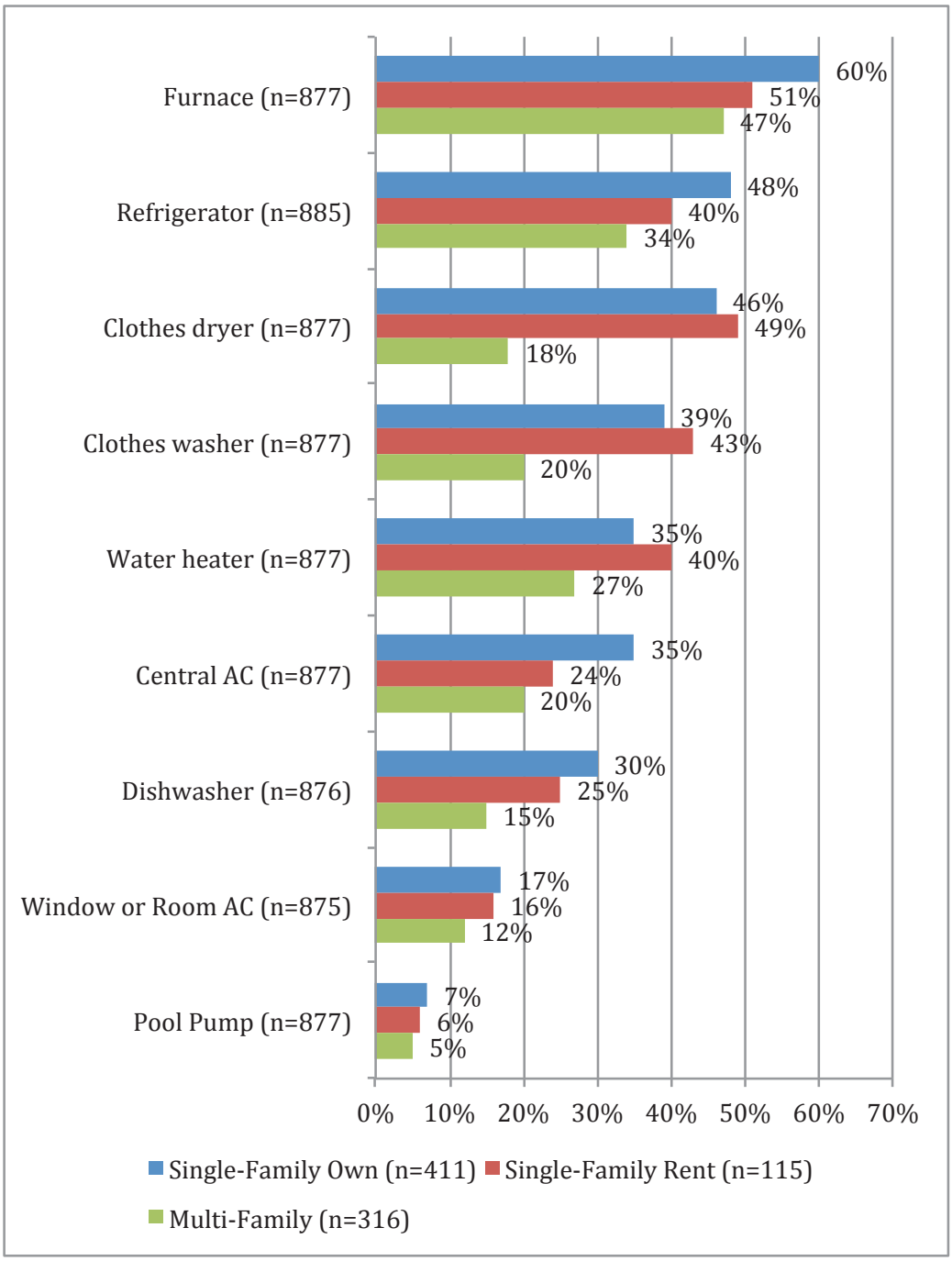
Source: 2013 CARE Participant Telephone Survey.

Note: we added this survey battery after the survey was in the field (after pre-test results), which is why the sample sizes are relatively low. This figure is intended to represent the LI population.

Figure 67 shows the same results but by home type, illustrating that multi-family LI homes have less old equipment compared to single-family LI homes.[59] These results are consistent with the CLASS data presented in Section 4. This is likely because the average age of multi-family LI homes is younger than single-family homes (37 versus 45 years) and that multi-family LI homes have less equipment in general.

[59] As reported in Section 5.1, 95 percent of multi-family homes are occupied by renters, so we do not break out that home type by home ownership.

Figure 67: Percent of Measures That are More Than 10 Years Old, for California LI Population by Home Type (EN11)



Source: 2013 CARE Participant Telephone Survey.

10 percent of respondents said that they could think of some other type of equipment that we had not asked them about that needs repair or replacement. Table 52 below shows the responses. As shown, 16 percent (or 1.6 percent of the LI population) said they needed a new tub or toilet (which do not use energy), followed by 14 percent that mentioned an electrical problem and 13 percent a plumbing problem. Please note that most of the measures identified below are not covered and offered through the ESA program; and not all of these measures are energy efficiency-related.

Table 52: Equipment That Needs to be Repaired or Replaced, of Ten Percent of California LI Population Who Mentioned Other Equipment (EN12b)

	Low Income Eligible Population
Toilet or bathtub	16%
Electrical	14%
Plumbing	13%
Ceiling fan(s)	8%
Flooring	6%
Lighting	6%
Infiltration	5%
Ceiling	4%
Freezer	4%
Roof	4%
Showerhead	4%
Stove fan / hood	4%
Fireplace issues	3%
Garbage disposal	3%
Gate / Fence	3%
Kitchen appliance	3%
Screens	3%
Swamp cooler	3%
Weather-strip	3%
Carpet	2%
Faucet(s)	2%
Garage door	2%
Hot tub	2%
Insulation	2%
Kitchen cabinets	2%
Sprinkler system	2%
Thermostat	2%
Lighting (exterior)	1%
N/A	1%
Water cooler	1%
Yard / Driveway	1%

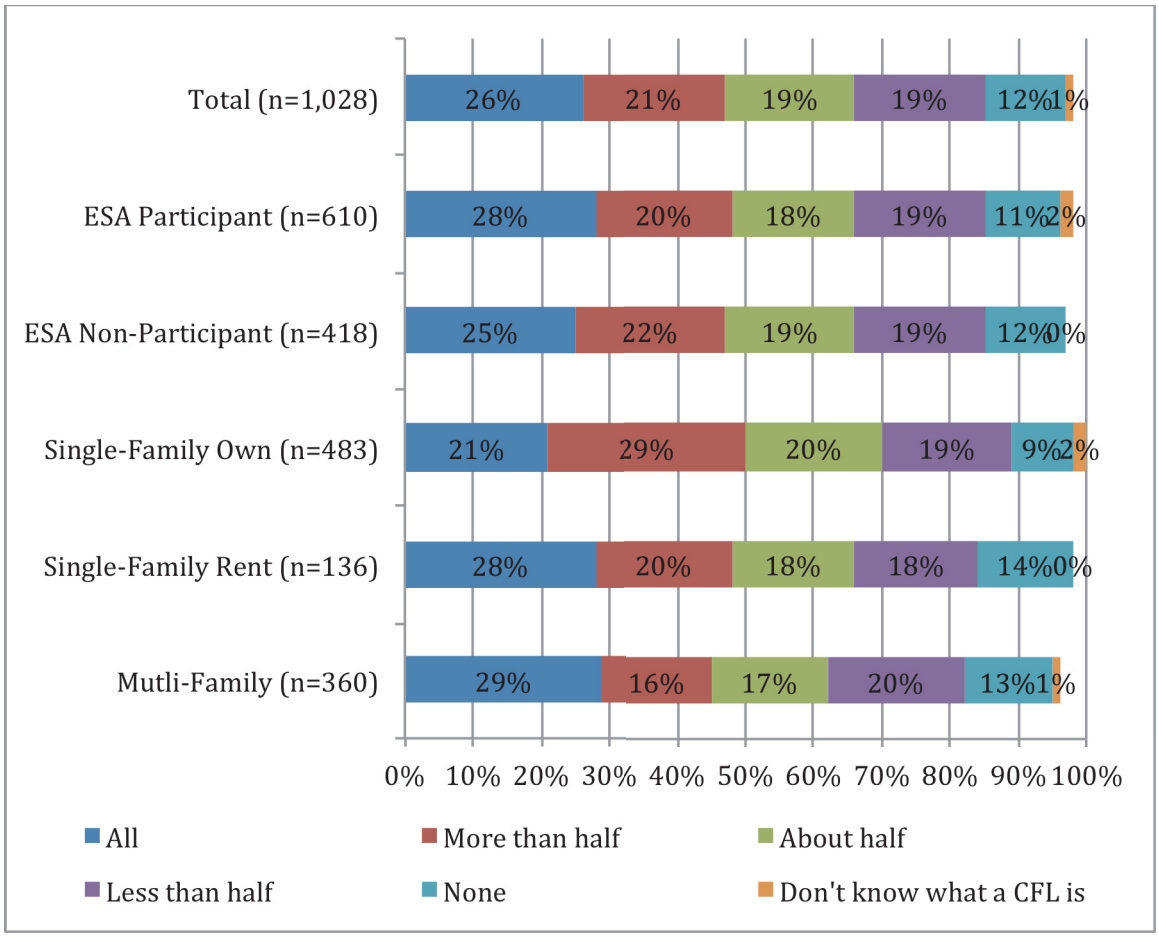
	Low Income Eligible Population
Other	<1%

Source: 2013 CARE Participant Telephone Survey.

The final question in this survey battery was for respondents to estimate how many bulbs in their home are compact fluorescent bulbs. As shown in Figure 68 below, 26 percent of LI households report that "all" of their bulbs are CFLs, 21 percent said "more than half" and 19 percent said "about half". These estimates are not statistically different across participation categories, but they are across home type. Single-family renters and multi-family households report having more CFLs than single-family homeowners.[60] This may be due to IOU CFL programs that targeted multi-family properties and hard-to-reach segments such as renters through giveaways at events and deeply discounted CFLs at discount stores. It may also reflect the different demographics of LI single-family homeowners that may not accept CFLs as much, such as having a greater proportion of homes with seniors and disabled members.

[60] As reported in Section 5.1, 95 percent of multi-family homes are occupied by renters, so we do not break out that home type by home ownership.

Figure 68: Amount of Bulbs in Household That are CFLs (Self-Reported), for California LI Population (EN14)



Source: 2013 CARE Participant Telephone Survey.

5.5.4.7 In-Home Visits

Households' energy practices varied, but our visits were notable for the frugality with which most households addressed the energy consumption over which they feel that they have control. Median monthly average electrical usage among the households for which we have actual billing data was 300 kWh for those in multi-family units and 570 kWh for those in single-family homes with usage as low as 112 and 202 kWh, respectively. For those who use natural gas, median monthly usage was 20 therms in multi-family units and 33 therms in single-family homes. (Note that these estimates of average usage are consistent with the 2012 IOU Annual Report estimates of the average CARE customer's monthly bill: 547 kWh and 31 therms.)

When we arrived for our in-home visits, we found that lights were turned off universally, and the unattended operation of televisions, radios, and other electronic devices was

relatively uncommon. (Unattended operation of devices tended to coincide with the presence of children, but then too was moderate in frequency.)

While most households try to use only what they need, some do go further and sacrifice on home comfort for the sake of cost savings or defer other needs to pay energy bills, as we described in separate discussions above on comfort (Section 5.5.3.3) and deferring necessities (Section 5.5.1.2).

We did encounter a few high-energy users too. Four households averaged monthly electricity consumption above 1,000 kWh. Three of these households live in large single-family homes that they bought or had built when they were better off financially, which may have locked them into above average consumption. Two of these homes are in the foothills of the Sierra Nevada Mountains and address perennial fire danger by operating water pumps to keep the vegetation on their properties well hydrated. Both of these households also comprise a large number of dependents, which contributes to higher usage as well. The third single-family home with high usage was a large home in which an elderly woman was taking care of her retirement age son with Alzheimer's. This was a large, newly remodeled home with many energy saving measures installed. All three of these homes have already undergone homeowner-initiated efficiency efforts. The lone multi-family unit with average usage above 1,000 kWh had no natural gas service. They used electric water heat and stove, and the husband also ran multiple Internet servers in the home that he kept running constantly.

Using the information gathered during the walk-throughs of the home and the characterization of the major energy-using systems, we analyzed potential energy saving measures in light of the ESA program requirements. We looked at both measures included in the program as well as unconstrained measures that are not part of the ESA program but may offer additional potential opportunities.

Current Measures

We assessed each site for a number of ESA measures. The measures selected were those that were amenable to assessment from information collected by non-technical interviewers, and included:

- Furnace repair/replacement;
- Furnace clean & tune;
- Central AC repair/replacement;
- Central AC tune-up;
- Room AC replacement;
- Evaporator cooler installation;
- Programmable thermostat;[61]

[61] Assessed in conjunction with furnace replacement, and as a non-ESA opportunity for households with evidence of relatively high heating or central cooling usage.

- Water heater repair/replacement;
- Water heater wrap;
- Water heating pipe insulation;
- Low-flow showerhead;
- Faucet aerators;
- Primary refrigerator replacement;[62]
- Microwave oven installation;
- Clothes washer replacement;
- CFL installation;
- Torchiere replacement;
- Weatherstripping;
- Door/window repairs; and
- Pool pump replacement (for SCE only).

Our assessments of measure opportunities accounted for the fact that some measures are not offered by some IOUs or in some climate zones. We separately tallied opportunities that would not qualify under current ESA IOU and/or climate-zone restrictions, but might nonetheless provide meaningful savings; for example, an air conditioning tune-up for a heavily-used air conditioner in a coastal climate zone.

Our assessments of individual opportunities took into account major non-feasibility criteria that would preclude an apparent measure opportunity from being implemented, but not what we considered to be minor ones. For example, we considered clothes washer replacement only for households with four or more household members in a building with non-central hot-water service, but we did not assess the site for non-feasibility criteria such as suitable water supply and drain lines or presence of a grounded outlet. As such, our estimates of incidence rates for ESA measure opportunities are likely somewhat on the high side.

The results of the exercise are summarized in Table 53. The left-hand columns in this table show the incidence of ESA measure opportunities under current program rules and utility- and climate zone-specific variations in what measures are available to individual households. The right-hand columns show the incidence of additional cases where there appeared to be an opportunity to implement measures, but either the household is not served by an IOU, the utility does not offer the measure, or the utility does not allow the measure in that climate zone. In each case we show both the overall incidence and the incidence among households where the measure might conceivably be applicable; for example, while the ESA central AC tune-up measure has an 11 percent incidence among all households, not all household have central AC. Among those that do, the incidence of a tune-up opportunity is 25 percent.

[62] Based on the program's current policy of allowing replacement for units manufactured on or before 1998.

The results show that nearly all (93%) of households had at least one identified ESA opportunity, and more than two-thirds (70%) had at least three. Six in ten households in the sample had at least three measure opportunities that would provide savings for the same utility—a prerequisite when ESA eligibility is not assessed across fuels. High incidence opportunities included water heater wrap, pipe insulation, CFLs and faucet aerators.

Table 53: ESA Measure Opportunities Among Visited Households for California LI Population

Measure	ESA Opportunity		Opportunity, but not under current ESA IOU and climate zone eligibility	
	% of all households	% of households where measure is applicable	% of all households	% of households where measure is applicable
Furnace repair/replacement	6%	7%	0%	0%
Furnace Clean & Tune	28%	29%	6%	7%
CAC replacement	2%	5%	2%	5%
CAC repair	1%	2%	0%	0%
Central AC tune-up	11%	23%	4%	8%
Room AC replacement	2%	11%	2%	11%
Evaporative cooler installation	24%	28%	9%	11%
Programmable t-stat	4%	4%	5%	6%
Water heater replacement/repair	0%	0%	0%	0%
Water heater wrap	68%	79%	3%	3%
Water heater pipe insulation	70%	77%	3%	3%
Showerhead	13%	14%	0%	0%
Aerators	60%	60%	0%	0%
Refrigerator replacement	16%	16%	2%	2%
Microwave oven	6%	6%	0%	0%
Clothes washer replacement	21%	22%	5%	5%
CFLs	55%	55%	2%	2%
Torchiere replacement	5%	5%	0%	0%
Caulking and weatherstripping	38%	38%	1%	1%
Window repair or replacement	16%	16%	0%	0%
Door repair or replacement	20%	20%	0%	0%
Structural repairs	1%	1%	0%	0%
Pool pump replacement	0%	0%	0%	0%
Any three measures providing savings for the same utility	60%			
Any three measures (all utilities)	70%			
Any single measure	93%			

Source: 2013 CARE participant telephone survey data.
Note: multiple mentions allowed.

Thinking Beyond the Current Program Measures and Approach

The variation in how households address their energy issues and usage highlighted for us the fact that program rules and procedures can sometimes result in missed opportunities and mismatches between measures and household practices. Program assumptions do not always match in-home realities, creating situations where participants are not served optimally. We do not know to what extent this is the case with ESA necessarily because we did not directly assess how flexibly ESA can or does tailor measures to a household's unique circumstances. We are aware that the IOUs implement their programs in response to budget constraints and household penetration goals, and they likely take advantage of the implicit relative flexibility in their measure offerings. However, to help California's IOUs consider whether current program rules strike the proper balance between flexibility and consistency, we are highlighting some of the circumstances below in which we saw the need for household specific situations to be taken into account by ESA or any other efficiency program.

Actual Use (and Non-Use) of Heating and Cooling Equipment

As noted earlier, the use of heating and cooling systems varied, even within the same climate zones. The degree to which households use their heating and cooling systems may be a factor worth incorporating into the solutions offered to treated households. We even encountered homes with natural gas heating systems they did not use at all, often using electric space heaters or living in cooler environments—either out of choice or economic necessity. Hence, changes in energy consumption derived from equipment upgrades or replacements may not result in high savings if the baseline use of that equipment is low or would be low after the measure is implemented.

Exploring these factors with the household could lead to more tailored (and effective) solutions than merely following a standard protocol, if that is currently done for some measures. Sometimes, the solution may be heating or cooling measures that are not currently prescribed by the program, and other times the most effective assistance for a home might be to provide education and advice on the most cost-effective way to keep warm or cool on a highly constrained budget.

Ineffective Cooling

A few households—particularly those in the eastern Los Angeles suburbs near the beginning of the high desert—wondered whether their cooling systems were working correctly. They said that their electric bills increase substantially in summer and fall, but their cooling systems didn't produce air that was as cold as they would expect and didn't cool the home as much as they would like. The majority of these households appeared to have evaporative coolers. Check-ups of their cooling systems and feedback on what they should expect from their cooling systems would provide valuable information to them that they are unlikely to get on their own.

Refrigeration Equipment and Practices

Households' refrigeration needs vary greatly, which means the best refrigeration solution will vary as well, ranging from energy education to replacement. The range of refrigeration issues we encountered included:

- Old primary and secondary refrigerators where standard replacement would help the household save on their energy usage and costs;
- Older refrigerators that appear not to qualify for ESA standards, but whose usage is likely to afford substantial savings potential;
- Partially used—and even completely empty—second refrigerators that were plugged in and one home with *two* secondary refrigerators that were partially empty;[63]
- Second refrigerators located on porches and exposed to direct sunlight, including one in the high desert that received direct sunlight until midday and did not cool properly in the summer months (yet was plugged in year-round);[64]
- One refrigerator with a broken gasket that could warrant a repair; and
- Two households that would not want their old refrigerators to be replaced with a different style (i.e. a side-by-side or bottom freezer refrigerator) because what they had was high quality when they initially purchased it and they are accustomed to that style.

Compact Fluorescent Light Bulbs

A few interviewees indicated that they knew about CFLs—and sometimes even already have CFLs—but are replacing light bulbs with incandescent light bulbs upon burn-out because they can't afford CFLs. For these homes, the installation of CFLs would be a good measure that will have a temporary effect unless the program can continue to provide replacements or convince the household that the added cost of CFLs is worth the energy savings. (Installing fixtures that only accept CFLs are another option, but one that could cause participant frustration at being forced to purchase light bulbs they consider to be too expensive.)

ESA Measures That Are Reversed (or Carried Forward)

The limited number of homes we visited that appear to have just participated in ESA also suggested that measures are occasionally reversed or not used by the household. For example, we heard of participants who:

- Replaced the microwave given to them by the program because it was of poor quality;

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[63] About a quarter of the homes we visited had a second refrigerator plugged in. Most were used, but as noted, a few were either entirely or mostly empty on our visit.

[64] This same refrigerator served as a depot only for nonperishables, possibly because the owner cannot rely on it in summer. Hence, it is an opportunity for refrigerator consolidation as well.

- Switched to heating with space heaters after the program installed a programmable thermostat that neither the occupant nor her landlord could figure out how to operate;
- Replaced the showerhead installed by the program because the preexisting showerhead had a feature that helped relieved some minor physiological issues; and
- Were not able to use lights given to them because they lacked the space for the particular standing lamps provided.

Conversely, one household had participated in ESA in a previous apartment and, took the ESA-supplied showerhead with them when they moved to another apartment.

See Section 10 in Volume 3 for information about the energy-using equipment we observed in in-home interview respondents' homes.

5.5.5 CARE Program Benefits

We asked survey respondents who knew they were on the CARE rate whether their energy bills are now a lot less, somewhat less, somewhat more, a lot more or about the same as before they were on the CARE rate.

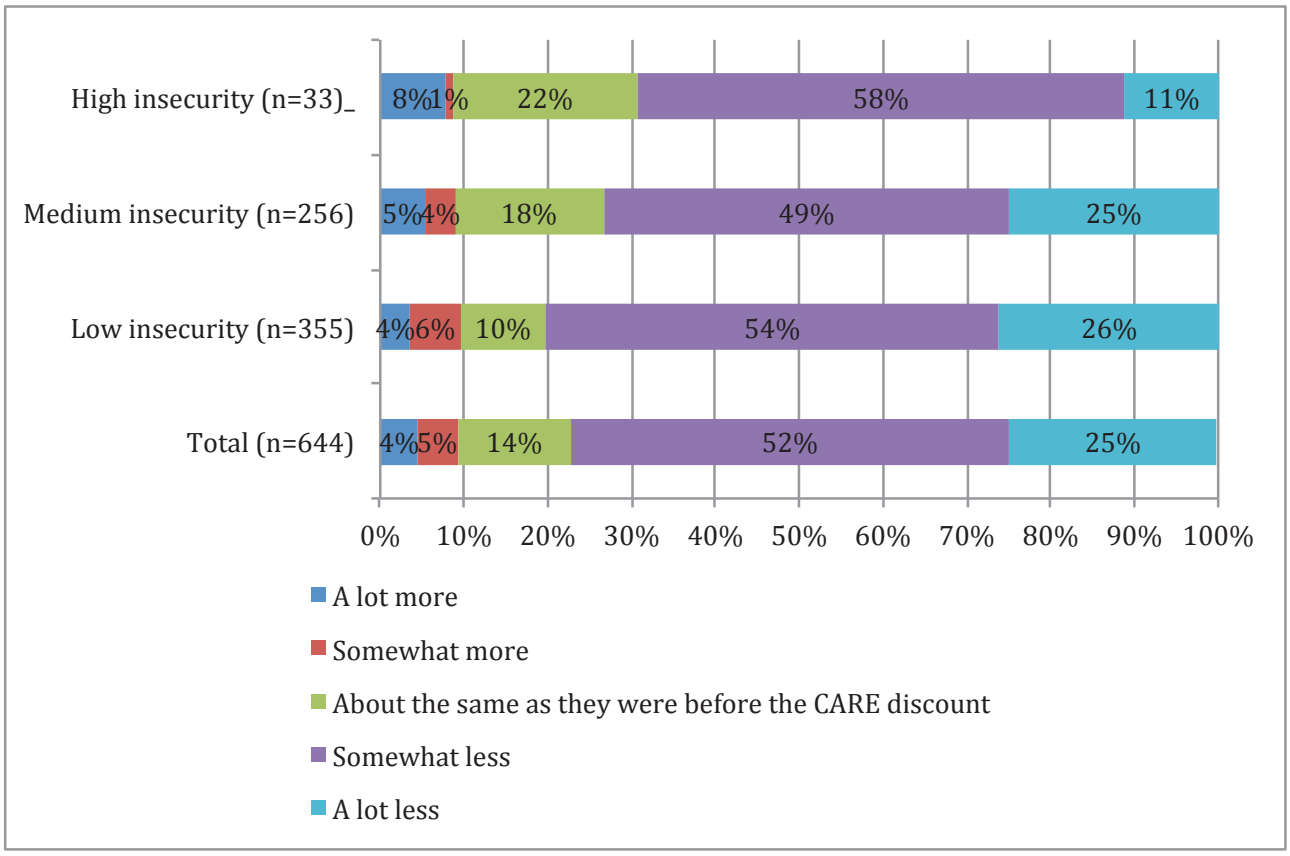
As shown in Figure 69 below (refer to the total row), 25 percent said their bill is "a lot less" and another 52 percent say it is "somewhat less". 14 percent say it is "about the same", while 9 percent say it is more than before they were on the CARE rate. Bills fluctuate over time due to seasonality, changes in electricity and gas prices and household usage. These self-reported results reflect all of those changes including the impact the CARE rate has had on the household, as interpreted by the respondent during a telephone survey (i.e., without having the time and information available to actually compare their bills.)

While these data do not directly reflect satisfaction with the CARE rate, recent research indicates that CARE customers overall are more satisfied with their rate options and rate communications than are the general population of IOU customers.[65]

The figure below shows changes in the energy bill based on energy insecurity categories, with the high energy insecurity segment being less likely to notice that their bill is "a lot less" now that they are on the CARE rate. This result might be because being on the CARE rate has made an impact on the household and moved them to a lower energy insecurity segment. Respondents with higher insecurity levels also have higher energy usage on average.

[65] Residential Rate OIR Customer Survey Research, June 21, 2013 Prepared for the California electric IOUs, Prepared by HINER & Partners, Inc., Page 44.

Figure 69: Change in Energy Bill Since on CARE, by Energy Insecurity Segments (E22a) for California LI Population

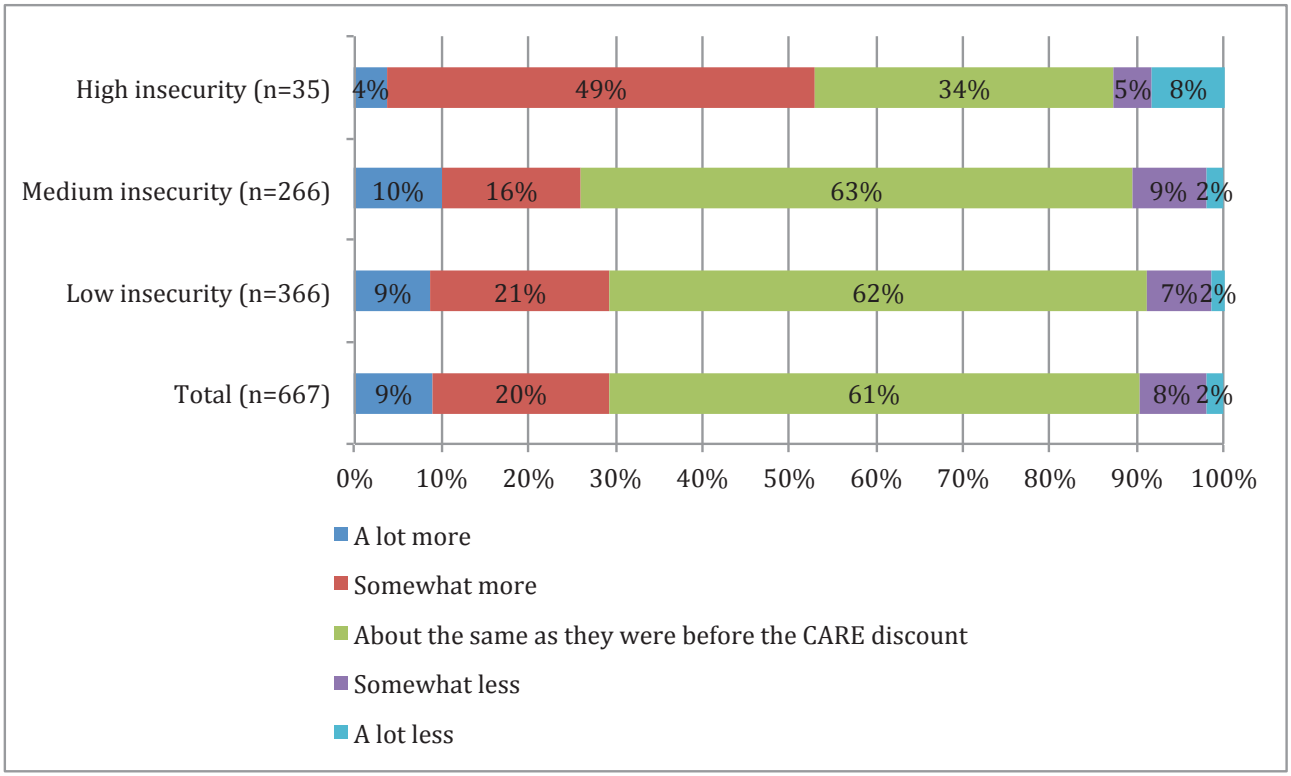


Source: 2013 CARE participant telephone survey data.

Next, we asked those same survey respondents whether they use a lot more, somewhat more, somewhat less, a lot less or about the same amount of energy as before they were on the CARE rate.

As shown in Figure 70 below (refer to the total row), 2 percent said they use "a lot less" energy and another 8 percent say they use "somewhat less". 20 percent say they use somewhat more and another 9 percent say they use "a lot more". Most (61%) say they use about the same. The figure below shows the high energy insecurity segment being more likely to notice that they use energy "somewhat more" and less likely to notice that they use energy "about the same" now that they are on the CARE rate. As noted above, these self-reported results reflect all of those changes including the impact the CARE rate has had on the household, as interpreted by the respondent during a telephone survey (i.e., without having the time and information available to actually compare their bills during the survey.) As mentioned above, respondents with higher insecurity levels also have higher energy usage on average.

Figure 70: Change in Energy Use since on CARE, by Energy Insecurity Segments (E22b) For California LI Population



Source: 2013 CARE participant telephone survey data.

EVERGREEN ECONOMICS

Needs Assessment for the Energy Savings Assistance and the California Alternate Rates for Energy Programs

Volume 3: Technical Appendix

Final Report

December 16, 2013

Prepared for: Southern California Edison, Pacific Gas and Electric, Southern California Gas, San Diego Gas and Electric and the California Public Utilities Commission

Appendix

APPENDIX ..... **I**

6 ENERGY BURDEN DETAILED RESULTS **6-1**
6.1 METHODS 6-1
6.2 CUSTOMER ENERGY BURDEN DETAILED RESULTS 6-5
6.3 ENERGY BURDEN OF LOW-INCOME VERSUS GENERAL POPULATION 6-20

7 LI POPULATION CHARACTERIZATION DETAILED RESULTS **7-1**
7.1 SOURCES FOR LI POPULATION CHARACTERIZATION 7-1
7.1.1 Sample Sizes and Statistical Significance *7-3*
7.1.2 Comparison of Sources *7-6*
7.2 DEMOGRAPHIC CHARACTERISTICS RESULTS 7-8
7.3 HOME AND EQUIPMENT CHARACTERISTICS RESULTS 7-40
7.3.1 CLASS Data *7-40*
7.3.2 RASS Data *7-53*

8 TELEPHONE SURVEY DETAILED RESULTS **8-1**
8.1 COMPARISON TO CENSUS 8-1
8.2 TELEPHONE SURVEY RESULTS 8-4
8.2.1 Program Accessibility-ESA *8-5*
8.2.2 Program Accessibility - CARE *8-27*
8.2.3 ESA Drivers *8-33*
8.2.4 ESA Barriers *8-64*
8.2.5 WTP in ESA *8-98*
8.2.6 Energy Insecurity *8-103*
8.2.7 NEBs *8-116*
8.2.8 Energy Efficiency Measures *8-142*
8.2.9 Demographics *8-221*

9 DETAILED MODELING RESULTS **9-1**
9.1 CARE MODELING 9-1
9.1.1 Other Variables Considered for the CARE Models *9-4*
9.2 ESA MODELING 9-6
9.3 CONJOINT ANALYSIS 9-16
9.3.1 ESA Program Option Participation Probabilities *9-17*

10 IN-HOME INTERVIEW DETAIL **10-1**
10.1.1 Household Types *10-1*
10.1.2 Major Energy-Using Equipment *10-2*
10.1.3 Selected Illustrative Profiles *10-5*

11 LI PROGRAM REVIEW DETAIL **11-1**
11.1 RESULTS TABLE 11-1

12 STUDY METHODS DETAIL **12-1**
12.1 TELEPHONE SURVEY DETAILED METHODS 12-1
12.1.1 Sample Frame *12-1*
12.1.2 Call Disposition *12-3*

12.1.3 Weights *12-9*
12.2 CARE MODELING DETAILED METHODS 12-12
12.2.1 Interpreting Coefficients from a Logit Model *12-17*
12.2.2 Transforming from Proportion to Log-odds *12-18*
12.3 ESA MODELING DETAILED METHODS 12-19
12.3.1 ESA Methods *12-19*
12.4 CONJOINT ANALYSIS DETAILED METHODS 12-23
12.4.1 Sample Design and Recruitment *12-25*
12.4.2 Conjoint Discrete Choice Models *12-25*
12.4.3 Relative Importance *12-26*
12.4.4 Participation Probabilities *12-27*

13 RESEARCH INSTRUMENTS 13-1

This document is Volume 3 (Technical Appendix) of the Needs Assessment study that Evergreen Economics conducted for the Energy Savings Assistance (ESA) and the California Alternate Rates for Energy (CARE) programs for the joint California investor-owned utilities (IOUs).

This volume contains the following sections:

- Section 6: Energy Burden Detailed Results
- Section 7: Low-Income Population Characterization Detailed Results
- Section 8: Telephone Survey Detailed Results
- Section 9: Detailed Modeling Results
- Section 10: In-Home Interview Detail
- Section 11: Low-Income Program Review Detail
- Section 12: Study Methods Detail
- Section 13: Research Instruments

The study report contains three volumes. Volume 1 is the Summary Report and Volume 2 is the Detailed Findings.

6 Energy Burden Detailed Results

This section presents detailed results on energy burden. Section 6.1 provides an overview of the methods used to estimate energy burden, Section 6.2 provides detailed results on mean low-income (LI) customer energy burden and Section 6.3 presents general population energy burden compared to LI customer energy burden.

6.1 Methods

Our assessment of energy-related burden is focused on the magnitude of energy expenditures faced by LI households relative to income. More specifically, LI energy burden was defined as the portion of total household income that goes toward paying electric and gas utility bills, over the period of one year. LI energy burden was calculated for the telephone survey sample, which was drawn from the population of IOU CARE participants, which we assume are income-qualified and thus "low-income".

To support these calculations, estimates of bill amount and income were required. To form estimates of bill amount, the four California IOUs provided a sample of household energy billing data representing 5 percent of total active residential accounts. Three of the four IOUs provided histories extending from January 2010 through December 2012; SoCalGas provided a 12-month history extending from January 2012 to December 2012. Bill summaries for three of the four IOUs included energy consumption (kWh and therms as applicable) and dollar amount of the bill. SDG&E provided kWh and therm consumption values.[1] IOU billing histories were used to create an average bill for each account, for each month of the year, which were then combined to form an average seasonal bill. For the survey sample, the customer-specific bill history was the source for energy expenditure estimates for the purposes of burden analyses. For the general population, burden analysis was based on aggregated values across IOU zip codes. That is, the seasonal bills were aggregated across IOU zip code areas to form a representative general population seasonal bill size for the zip code area.

Income figures were developed for the survey sample and the general population using different methods. General population income figures were developed using a combination of Census (2011 ACS/PUMS) and Athens data. Census data provides median income at the Census block group level. These data were aggregated to the IOU zip code level by calculating a weighted median per zip code, using Athens' based counts of households for a given IOU service territory and block group. Estimates of household income for the survey sample were based primarily on self-reports, though

[1] Prices estimated using data from surrounding territories with similar climate were used to estimate bill size for SDG&E

CARE and ESA databases were used to fill in gaps where necessary and where data were available.[2]

For the general population, the zip code level median income and bill statistics were combined to form estimates of general population burden. For the survey sample, the customer specific billing history and self-reported household income were combined to form the burden estimate.

Importantly, the technique used here to form general population burden estimates involves taking average measurements of bill size and income before taking a ratio. This approach effects the statistics' underlying distribution when considered in contrast to the measure of burden used for the survey sample that aggregates *customer-specific* ratios of expenditure to income. In fact, the difference is so substantial as to render statistics assembled these two ways largely incomparable. The next section describes this difference and its implications in greater detail. To form burden statistics for the survey sample that can be compared to the general population statistics, mean values for energy expenditures and household income are calculated first, and a ratio of the mean values is taken second.

6.1.1.1 Overall Energy Burden Versus Customer Energy Burden

Energy Burden has been calculated in two different ways, in this study and in the previous LINA. The two calculation methods are as follows:

- "Customer Energy Burden:"
  - This is calculated by *first* computing the ratio of household annual energy expense to household annual income *for each customer*, and *second*, taking an average of the resulting ratio over the population—or sample—of households.
- "Overall Energy Burden:"
  - This is calculated by *first* computing the average annual energy expenditure amount over the population—or sample—of households, *then* computing the average annual household income amount, and *third*, taking the ratio of the average expense to average income.

Note that household size is not explicitly factored into either estimation method.[3]

The "Overall Energy Burden" approach was used in the 2007 LINA and is the only method available to estimate burden for the general population. We use the "Overall Energy Burden" approach in order to make comparisons to the prior 2007 estimate and to the general population. However, we believe that the "Customer Energy Burden" provides a better estimate of average energy burden. Consequently, we use that metric to present the LI population's energy burden results. The other method is

[2] The CARE and ESA income figures were adjusted moderately to better represent the observed relationship between self-reported income and CARE/ESA database income.
[3] Though it is implicitly factored into the average income, since CARE-eligibility is based on the household size.

used only for comparison purposes, to show relative differences over time and with the general population.

When interpreting either the overall energy burden or the customer energy burden, we caution the reader to bear in mind the following important caveats:

- Income comes in more forms than simply dollars. There are food stamps, family services and other forms of assistance, directed largely at the lowest dollar income groups;
- Income is self-reported and may contain errors; and
- Poverty and qualification for the CARE and ESA LI programs are a function of both income and size of household.

Table 1 below presents an example to illustrate the difference in results that can occur applying these two different methods to the same sample of customers. As shown in column 2 of the table, the average annual income across the three hypothetical customers X, Y and Z is $24,167. The average annual bill amount for customers X, Y and Z is $1,233. The "overall energy burden" is the ratio of the average bill amount to the average income, or $1,233/$24,167, i.e. 5.1 percent.

The ratio of annual energy expense to annual energy for customers X, Y and Z are 36, 5 and 3 percent, as shown in the right-most column in the table below. The "customer energy burden" is the average of these three values, or 14.7 percent—almost three times "overall energy burden."

Table 1: Example, Results Using Different Burden Calculation Methods

Example Customer Set	Annual Income (A)	Annual Energy Bill (B)	Ratio of Customer-Bill to Customer HH Income (B/A, or "Customer Energy Burden")
Customer X	$2,500	$900	36%
Customer Y	$25,000	$1,300	5%
Customer Z	$45,000	$1,500	3%
Average for Customers X, Y, Z	$24,167	$1,233	14.7%
"Overall Energy Burden"	5.1%		
"Customer Energy Burden"	14.7%		

- The 2007 LINA used the "overall energy burden" method to calculate the LI population burden estimates. However, when classifying customers as "low", "moderate" or "high" burden, the "customer energy burden" was used.

- In this study we use consistent methodology to the 2007 LINA for the purposes of comparing 2013 to 2007 findings.
- The energy burden of California's general population is presented in this study for comparison to the LI population. We did not have household-specific annual income data for the general population sample, only representative figures from the U.S. Census. Thus, "overall energy burden" was calculated for the general population, and compared with the "overall energy burden" of the 2013 LI population.
- In all cases outside of comparisons to 2007 or the general population, the "customer energy burden" is presented.

6.1.1.2 Missing Data

Missing Income Data: Of the 1,028 completed telephone surveys with LI customers, 129 did not provide a household annual income. We looked to utility CARE and ESA databases as a secondary source to fill some of this missing data in. There were a total of 372 surveyed customers with income data in the CARE/ESA ("program") database. Among these, 326 also had provided a self-reported income, and 46 were among those that did not provide an income figure.

Self-reported data and program data related to income likely have distinct underlying distributions based on reporting bias. For this reason, we examined the 326 points with income data in both the survey and the program database to assess the relationship. The overall mean difference between self-reported and across the 326 customers was $1,337, with the program database containing higher values. However, we also found that the relationship between the two sources changed consistently with the size of the program database income—where those with lower database income tended to report higher incomes during the survey, and those with higher database income tended to report lower income during the survey. Our solution was to divide the sample into five categories based on the size of the program database[4] income. The mean difference between the program database and survey income figures was applied as an adjustment factor to the 46 customers for whom we had only program database income. That is, for different income levels, the ratio of self-reported income to database income was applied to the database income before it was adopted as the estimate of income.

Missing Energy Bill Data: For SDG&E customers, we had usage data but not bill amount. In these cases we applied an average price observed for a sample with close geographic proximity. In other cases, we had gas bills but not electric or vice-versa. For these cases, we applied a mean bill based on geographic proximity and home type.

[4] Less than $10,000; $10,000 to $20,000; $20,000 to $30,000; $30,000 to $40,000 and $40,000 and up

6.2 Customer Energy Burden Detailed Results

This section presents the LI customer energy burden detailed results.

Table 2: Seasonal Energy Burden For Electric & Gas Customers for California LI Population

		Low Income				
		PG&E	SoCalGas	SCE	SDG&E	Total
Population segment size		31.1%	54.8%	41.3%	8.3%	94.4%
Mean Annual Burden	Summer	9.1%	7.1%	6.4%	6.5%	7.8%
	Winter	12.1%	7.0%	6.3%	9.1%	9.1%
	Fall	8.4%	6.8%	6.1%	6.9%	7.4%
	Spring	9.5%	5.8%	5.1%	7.2%	7.3%
	Annual	9.9%	6.7%	6.1%	7.3%	8.0%
Mean Electric Burden	Summer	7.1%	5.6%	5.1%	4.9%	6.1%
	Winter	7.0%	3.6%	3.0%	5.3%	5.0%
	Fall	6.2%	5.2%	4.7%	5.3%	5.6%
	Spring	5.8%	3.5%	3.0%	4.7%	4.5%
	Annual	6.8%	4.6%	4.1%	5.0%	5.4%
Mean Gas Burden	Summer	2.0%	1.5%	1.3%	1.6%	1.7%
	Winter	5.1%	3.4%	3.3%	3.8%	4.1%
	Fall	2.2%	1.5%	1.3%	1.5%	1.8%
	Spring	3.6%	2.2%	2.1%	2.5%	2.8%
	Annual	3.2%	2.2%	2.0%	2.4%	2.6%
n		254	418	368	179	853

Source: 2013 Analysis of IOU customer billing data, CARE participant telephone survey data, 2012 Athens data, and 2011 PUMS data.

Table 3: Seasonal Energy Burden by Urban/Rural, by Electric-Only Customers for California LI Population

		Low-Income	Low-Income	
		Electric-Only	Urban	Rural
Population segment size		-	95.9%	4.1%
Mean Annual Burden	Summer	5.5%	7.8%	6.0%
	Winter	7.8%	9.2%	9.2%
	Fall	5.5%	7.4%	5.6%
	Spring	5.8%	7.4%	6.8%
	Annual	6.1%	6.8%	8.1%
Mean Electric Burden	Summer	5.5%	6.1%	4.7%
	Winter	7.8%	5.1%	5.7%
	Fall	5.5%	5.7%	4.3%
	Spring	5.8%	4.5%	4.5%
	Annual	6.1%	4.9%	5.5%
Mean Gas Burden	Summer	5.5%	1.7%	1.4%
	Winter	7.8%	4.2%	3.5%
	Fall	5.5%	1.8%	1.3%
	Spring	5.8%	2.9%	2.3%
	Annual	6.1%	2.1%	2.6%
n		54	909	45

Source: 2013 Analysis of IOU customer billing data, CARE participant telephone survey data, 2012 Athens data, and 2011 PUMS data.

Table 4: Seasonal Energy Burden by ESA Participation Type for California LI Population

		ESA Participation		
		Prior Participants	Recent Participants	Non-Participants
Population segment size		28.8%	22.2%	49.1%
Mean Annual Burden	Summer	7.5%	8.8%	6.4%
	Winter	10.1%	10.5%	7.5%
	Fall	7.4%	8.2%	6.0%
	Spring	7.9%	8.4%	5.8%
	Annual	8.3%	9.1%	6.5%
Mean Electric Burden	Summer	5.8%	6.9%	5.1%
	Winter	5.7%	5.4%	4.1%
	Fall	5.5%	6.1%	4.7%
	Spring	4.9%	5.0%	3.6%
	Annual	5.5%	6.1%	4.5%
Mean Gas Burden	Summer	1.8%	1.8%	1.3%
	Winter	4.4%	5.1%	3.4%
	Fall	1.9%	2.1%	1.3%
	Spring	3.0%	3.4%	2.3%
	Annual	2.7%	3.1%	2.1%
n		294	277	384

Source: 2013 Analysis of IOU customer billing data, CARE participant telephone survey data, 2012 Athens data, and 2011 PUMS data.

Table 5: Seasonal Energy Burden by Climate Zone for California LI Population

Category Description		T24 Climate Zone Region- LI					
		Central Valley - 11-13	Desert - 14,15	Mountain - 16	North Coast - 1-5	South Coast - 6-8	South Inland - 9,10
Population segment size		24.7%	5.9%	2.1%	16.3%	23.4%	27.6%
Mean Annual Burden	Summer	11.0%	7.7%	6.9%	5.8%	7.4%	6.2%
	Winter	13.6%	5.9%	7.7%	9.7%	8.7%	6.3%
	Fall	9.6%	6.8%	6.0%	6.2%	7.8%	5.8%
	Spring	10.6%	5.0%	6.5%	7.5%	7.1%	5.1%
	Annual	11.5%	6.7%	6.1%	7.2%	7.7%	6.0%
Mean Electric Burden	Summer	9.3%	6.6%	5.0%	3.7%	5.6%	5.0%
	Winter	7.7%	2.9%	5.1%	5.5%	4.8%	3.2%
	Fall	7.5%	5.5%	4.6%	4.0%	5.8%	4.7%
	Spring	6.7%	3.4%	4.5%	4.1%	4.4%	3.2%
	Annual	8.3%	4.9%	4.9%	4.2%	5.1%	4.1%
Mean Gas Burden	Summer	1.7%	1.1%	2.0%	2.2%	1.9%	1.3%
	Winter	5.9%	3.0%	2.7%	4.2%	3.9%	3.0%
	Fall	2.0%	1.3%	1.4%	2.2%	2.0%	1.2%
	Spring	3.8%	1.7%	2.0%	3.4%	2.7%	2.0%
	Annual	3.3%	1.7%	2.2%	3.0%	2.6%	1.9%
n		230	59	23	136	252	255

Source: 2013 Analysis of IOU customer billing data, CARE participant telephone survey data, 2012 Athens data, and 2011 PUMS data.

Table 6: Seasonal Energy Burden by ESA Measure Eligibility for California LI Population

		Low Income	
		RAC replace and evap cooler install - 10-16	CAC replacement - 13-15
Population segment size		44.3%	13.2%
Mean Annual Burden	Summer	9.5%	10.2%
	Winter	11.0%	8.6%
	Fall	8.5%	8.2%
	Spring	8.7%	6.8%
	Annual	9.7%	9.1%
Mean Electric Burden	Summer	8.0%	8.6%
	Winter	6.1%	3.9%
	Fall	6.8%	6.5%
	Spring	5.5%	4.0%
	Annual	6.9%	6.3%
Mean Gas Burden	Summer	1.5%	1.5%
	Winter	4.9%	4.7%
	Fall	1.7%	1.7%
	Spring	3.2%	2.8%
	Annual	2.8%	2.7%
n		455	127

Source: 2013 Analysis of IOU customer billing data, CARE participant telephone survey data, 2012 Athens data, and 2011 PUMS data.

Table 7: Seasonal Energy Burden by Home Type for California LI Population

		Home Type	
		Single Family/Mobile Homes	Multi-Family Homes
Population segment size		58.7%	41.3%
Mean Annual Burden	Summer	8.8%	6.2%
	Winter	11.2%	6.4%
	Fall	8.4%	5.8%
	Spring	8.7%	5.4%
	Annual	9.4%	6.1%
Mean Electric Burden	Summer	7.0%	4.8%
	Winter	6.2%	3.6%
	Fall	6.5%	4.3%
	Spring	5.4%	3.2%
	Annual	6.4%	4.1%
Mean Gas Burden	Summer	1.8%	1.5%
	Winter	5.0%	2.9%
	Fall	1.9%	1.5%
	Spring	3.3%	2.2%
	Annual	3.0%	2.0%
n		632	323

Source: 2013 Analysis of IOU customer billing data, CARE participant telephone survey data, 2012 Athens data, and 2011 PUMS data.

Table 8: Seasonal Energy Burden by Home Ownership for California LI Population

		Home Ownership	
		Own	Rent
Population segment size		30.4%	22.7%
Mean Annual Burden	Summer	7.1%	9.8%
	Winter	9.3%	10.9%
	Fall	6.8%	9.3%
	Spring	7.1%	8.7%
	Annual	7.7%	9.8%
Mean Electric Burden	Summer	5.7%	7.5%
	Winter	4.9%	5.7%
	Fall	5.2%	7.0%
	Spring	4.3%	5.2%
	Annual	5.2%	6.5%
Mean Gas Burden	Summer	1.4%	2.2%
	Winter	4.4%	5.2%
	Fall	1.6%	2.3%
	Spring	2.8%	3.5%
	Annual	2.5%	3.3%
n		455	132

Source: 2013 Analysis of IOU customer billing data, CARE participant telephone survey data, 2012 Athens data, and 2011 PUMS data.

Table 9: Seasonal Energy Burden by Primary Language for California LI Population

		Primary Language		
		English	Spanish	Other non-English language
Population segment size		68.6%	22.2%	9.1%
Mean Annual Burden	Summer	8.1%	6.5%	8.5%
	Winter	10.0%	6.8%	11.0%
	Fall	7.7%	6.1%	8.4%
	Spring	7.9%	5.6%	8.4%
	Annual	8.5%	6.3%	9.1%
Mean Electric Burden	Summer	6.5%	4.7%	6.9%
	Winter	5.6%	3.5%	6.3%
	Fall	5.9%	4.4%	6.8%
	Spring	4.9%	3.3%	5.2%
	Annual	5.9%	4.1%	6.4%
Mean Gas Burden	Summer	1.6%	1.8%	1.6%
	Winter	4.4%	3.3%	4.6%
	Fall	1.8%	1.7%	1.7%
	Spring	3.0%	2.3%	3.2%
	Annual	2.7%	2.3%	2.8%
n		709	201	99

Source: 2013 Analysis of IOU customer billing data, CARE participant telephone survey data, 2012 Athens data, and 2011 PUMS data.

Table 10: Seasonal Energy Burden by Ethnicity for California LI Population

		Ethnicity				
		White (Non-Hispanic	African-American	Asian	Hispanic	Other
Population segment size		39.2%	12.0%	3.5%	38.7%	6.6%
Mean Annual Burden	Summer	7.1%	10.1%	9.0%	7.6%	7.8%
	Winter	9.8%	12.9%	8.2%	8.0%	8.0%
	Fall	6.9%	10.2%	8.7%	7.0%	6.5%
	Spring	7.7%	9.8%	6.8%	6.6%	6.2%
	Annual	7.9%	10.8%	8.2%	7.5%	7.4%
Mean Electric Burden	Summer	5.8%	7.8%	7.3%	5.6%	6.5%
	Winter	5.6%	7.5%	4.4%	4.1%	4.4%
	Fall	5.5%	7.7%	7.0%	5.0%	5.1%
	Spring	5.0%	6.0%	4.0%	3.8%	3.8%
	Annual	5.6%	7.3%	5.8%	4.8%	5.3%
Mean Gas Burden	Summer	1.3%	2.3%	1.7%	2.0%	1.3%
	Winter	4.1%	5.4%	3.7%	3.9%	3.6%
	Fall	1.4%	2.6%	1.7%	2.0%	1.4%
	Spring	2.7%	3.8%	2.8%	2.8%	2.4%
	Annual	2.4%	3.4%	2.5%	2.7%	2.1%
n		385	99	38	344	63

Source: 2013 Analysis of IOU customer billing data, CARE participant telephone survey data, 2012 Athens data, and 2011 PUMS data.

Table 11: Seasonal Energy Burden by Presence of Children in Home for California LI Population

		Children in Home	
		One or more children	No children
Population segment size		43.0%	57.0%
Mean Annual Burden	Summer	8.6%	7.1%
	Winter	9.4%	9.1%
	Fall	7.9%	6.9%
	Spring	7.5%	7.3%
	Annual	8.5%	7.6%
Mean Electric Burden	Summer	6.7%	5.6%
	Winter	5.5%	4.8%
	Fall	6.1%	5.2%
	Spring	4.8%	4.3%
	Annual	5.9%	5.1%
Mean Gas Burden	Summer	1.9%	1.5%
	Winter	3.9%	4.3%
	Fall	1.9%	1.7%
	Spring	2.7%	2.9%
	Annual	2.6%	2.6%
n		386	567

Source: 2013 Analysis of IOU customer billing data, CARE participant telephone survey data, 2012 Athens data, and 2011 PUMS data.

Table 12: Seasonal Energy Burden by Historical Household Type for California LI Population

		Household Groups--Historical Match				
		Adults (Age 35-59)	Large Family (5+ people)	Seniors Only	Small Family (2-4 people)	Young Adults (Age 18-34)
Population segment size		8.7%	25.5%	26.2%	38.7%	0.9%
Mean Annual Burden	Summer	7.1%	8.7%	6.1%	8.4%	5.4%
	Winter	9.2%	10.0%	8.4%	9.5%	4.3%
	Fall	7.0%	8.3%	5.8%	7.9%	3.8%
	Spring	7.9%	8.1%	6.6%	7.4%	3.9%
	Annual	7.8%	8.8%	6.8%	8.4%	4.8%
Mean Electric Burden	Summer	5.7%	6.8%	4.7%	6.6%	4.3%
	Winter	5.9%	6.1%	4.0%	5.1%	2.5%
	Fall	5.4%	6.4%	4.3%	6.1%	3.0%
	Spring	5.3%	5.4%	3.7%	4.4%	2.1%
	Annual	5.6%	6.3%	4.3%	5.7%	3.3%
Mean Gas Burden	Summer	1.4%	1.9%	1.4%	1.8%	1.1%
	Winter	3.4%	3.9%	4.4%	4.3%	1.8%
	Fall	1.6%	1.9%	1.5%	1.9%	0.9%
	Spring	2.6%	2.8%	2.9%	2.9%	1.8%
	Annual	2.2%	2.6%	2.5%	2.7%	1.4%
n		74	237	275	361	6

Source: 2013 Analysis of IOU customer billing data, CARE participant telephone survey data, 2012 Athens data, and 2011 PUMS data.

Table 13: Seasonal Energy Burden by Presence of Elderly or Disabled Persons in Home for California LI Population

		Age and Disability						
		One or more elderly person in home	One or more disabled person in home	One or more elderly and disabled person in home	One or more person with hearing/vision/ physical disability	One or more person with a mental/emotional disability	No disabled people in home	No elderly people in home
Population segment size		48.8%	59.0%	37.6%	39.1%	17.1%	41.0%	51.2%
Mean Annual Burden	Summer	6.8%	7.9%	7.1%	9.0%	8.7%	7.3%	8.6%
	Winter	8.9%	9.7%	9.1%	10.8%	10.8%	8.3%	9.6%
	Fall	6.6%	7.5%	6.9%	8.5%	8.3%	7.0%	8.1%
	Spring	7.1%	7.7%	7.4%	8.8%	8.8%	6.6%	7.6%
	Annual	7.4%	8.3%	7.7%	9.4%	9.2%	7.5%	8.6%
Mean Electric Burden	Summer	5.4%	6.3%	5.7%	7.2%	7.2%	5.7%	6.7%
	Winter	4.7%	5.5%	4.9%	5.9%	6.6%	4.5%	5.5%
	Fall	5.0%	5.8%	5.3%	6.5%	6.6%	5.3%	6.1%
	Spring	4.4%	4.8%	4.6%	5.4%	5.8%	4.0%	4.7%
	Annual	5.0%	5.7%	5.2%	6.5%	6.7%	5.0%	5.9%
Mean Gas Burden	Summer	1.4%	1.6%	1.4%	1.8%	1.6%	1.7%	1.9%
	Winter	4.2%	4.3%	4.2%	4.9%	4.2%	3.8%	4.1%
	Fall	1.6%	1.8%	1.6%	2.0%	1.7%	1.7%	1.9%
	Spring	2.7%	2.9%	2.8%	3.3%	2.9%	2.6%	2.9%
	Annual	2.4%	2.6%	2.4%	3.0%	2.6%	2.4%	2.7%
n		516	585	388	386	158	357	435

Source: 2013 Analysis of IOU customer billing data, CARE participant telephone survey data, 2012 Athens data, and 2011 PUMS data.

Table 14: Seasonal Energy Burden by Reasons for Recent Changed Income for California LI Population

		Reasons for recent changed income		
		Due to job loss or cut in hours	Due to increase in hours	Due to move or job change
Population segment size		34.1%	2.4%	11.7%
Mean Annual Burden	Summer	9.1%	3.6%	6.6%
	Winter	11.3%	4.5%	7.4%
	Fall	8.8%	3.3%	6.2%
	Spring	8.4%	3.6%	5.9%
	Annual	9.4%	3.8%	6.7%
Mean Electric Burden	Summer	7.1%	2.9%	5.1%
	Winter	6.3%	2.7%	3.5%
	Fall	6.7%	2.5%	4.6%
	Spring	5.0%	2.4%	3.3%
	Annual	6.4%	2.7%	4.2%
Mean Gas Burden	Summer	2.0%	0.7%	1.5%
	Winter	5.0%	1.8%	3.9%
	Fall	2.1%	0.8%	1.6%
	Spring	3.4%	1.2%	2.6%
	Annual	3.1%	1.1%	2.4%
n		182	14	55

Source: 2013 Analysis of IOU customer billing data, CARE participant telephone survey data, 2012 Athens data, and 2011 PUMS data.

Table 15: Seasonal Energy Burden by Sickness due to Home Conditions for California LI Population

		Sickness due to home conditions		
		Very often sick due to home conditions	Sometimes sick due to home conditions	Never sick due to home conditions
Population segment size		10.6%	39.5%	50.0%
Mean Annual Burden	Summer	12.7%	6.7%	7.5%
	Winter	16.3%	8.1%	8.7%
	Fall	12.0%	6.4%	7.2%
	Spring	13.4%	6.2%	7.0%
	Annual	13.8%	6.9%	7.7%
Mean Electric Burden	Summer	10.6%	5.3%	5.8%
	Winter	10.6%	4.4%	4.5%
	Fall	9.6%	4.9%	5.3%
	Spring	9.4%	3.7%	4.2%
	Annual	10.3%	4.7%	5.1%
Mean Gas Burden	Summer	2.2%	1.5%	1.7%
	Winter	5.6%	3.7%	4.2%
	Fall	2.4%	1.5%	1.9%
	Spring	4.0%	2.5%	2.8%
	Annual	3.5%	2.3%	2.6%
n		101	349	492

Source: 2013 Analysis of IOU customer billing data, CARE participant telephone survey data, 2012 Athens data, and 2011 PUMS data.

Table 16: Seasonal Energy Burden by Yearly Income for California LI Population

		Yearly Income				
		Less than $15,000	$15,000-$30,000	$30,000-$45,000	$45,000-$60,000	$60,000+
Population segment size		35.0%	41.2%	15.1%	5.4%	3.4%
Mean Annual Burden	Summer	15.8%	4.3%	3.3%	3.1%	1.8%
	Winter	19.4%	5.0%	3.4%	3.1%	2.2%
	Fall	15.0%	4.1%	3.2%	2.8%	1.8%
	Spring	15.5%	4.0%	2.8%	2.4%	1.8%
	Annual	16.7%	4.3%	3.2%	2.9%	1.9%
Mean Electric Burden	Summer	12.3%	3.4%	2.7%	2.6%	1.5%
	Winter	10.7%	2.8%	1.9%	1.8%	1.3%
	Fall	11.3%	3.1%	2.6%	2.3%	1.5%
	Spring	9.5%	2.4%	1.8%	1.6%	1.3%
	Annual	11.2%	3.0%	2.3%	2.1%	1.4%
Mean Gas Burden	Summer	3.5%	0.9%	0.6%	0.5%	0.3%
	Winter	8.7%	2.3%	1.5%	1.3%	0.9%
	Fall	3.7%	0.9%	0.6%	0.5%	0.3%
	Spring	6.0%	1.6%	1.0%	0.8%	0.6%
	Annual	5.4%	1.4%	0.9%	0.8%	0.5%
n		285	369	150	52	41

Source: 2013 Analysis of IOU customer billing data, CARE participant telephone survey data, 2012 Athens data, and 2011 PUMS data.

6.3 Energy Burden of Low-Income Versus General Population

The table analysis compares the overall energy burden of the LI population to the general population (which includes the LI population). This comparison provides greater context for interpreting the magnitude and the patterns of the LI population energy burden. These results are intended to provide a comparison to the general population only. The customer energy burden presented previously provides our estimates of the LI population mean energy burden.

In the table below, the left most column includes (a) the general population overall burden, the next column is (b) the LI population overall burden and the final column is (c) the ratio of the two results. The first two columns (a) and (b) are interim calculations only (providing "relative" estimates of burden) to produce the ratios shown in the (c) results. The previous section (6.2) presented the LI customer energy burden results. We are unable to produce absolute customer energy burden results for the general population given the data constraints described herein.

Table 17: Seasonal Energy Burden For Electric & Gas Customers by Population and IOU

		General Population (a) ^					Low Income (b) ^^					Ratio of LI to GenPop (c=b/a)				
		PG&E	SCG	SCE	SDG&E	Total	PG&E	SCG	SCE	SDG&E	Total	PG&E	SCG	SCE	SDG&E	Total
Mean Energy Burden	Summer	2.4%	2.2%	2.2%	1.6%	2.2%	4.4%	3.9%	3.9%	3.3%	4.1%	1.8	1.8	1.8	2.1	1.9
	Winter	3.2%	2.5%	2.4%	2.1%	2.7%	5.9%	3.7%	3.6%	4.7%	4.7%	1.8	1.5	1.5	2.2	1.7
	Fall	2.3%	2.2%	2.2%	1.8%	2.2%	4.1%	3.7%	3.6%	3.6%	3.9%	1.8	1.7	1.7	2.0	1.8
	Spring	2.4%	2.0%	1.9%	1.8%	2.1%	4.6%	3.1%	2.9%	3.7%	3.7%	1.9	1.5	1.5	2.1	1.8
	Annual	2.6%	2.2%	2.2%	1.8%	2.3%	4.7%	3.6%	3.5%	3.8%	4.1%	1.8	1.6	1.6	2.1	1.8
Mean Electric Burden	Summer	2.0%	1.8%	1.8%	1.4%	1.8%	3.4%	3.2%	3.1%	2.6%	3.3%	1.7	1.8	1.7	1.8	1.8
	Winter	1.9%	1.7%	1.6%	1.5%	1.7%	3.3%	2.0%	1.9%	2.8%	2.6%	1.7	1.2	1.2	1.8	1.5
	Fall	1.8%	1.8%	1.8%	1.5%	1.8%	3.0%	3.0%	2.9%	2.8%	3.0%	1.7	1.7	1.6	1.9	1.7
	Spring	1.6%	1.5%	1.4%	1.3%	1.5%	2.8%	1.9%	1.8%	2.4%	2.3%	1.7	1.3	1.3	1.9	1.5
	Annual	1.8%	1.7%	1.7%	1.4%	1.7%	3.1%	2.5%	2.4%	2.6%	2.8%	1.7	1.5	1.4	1.9	1.6
Mean Gas Burden	Summer	0.5%	0.4%	0.4%	0.3%	0.4%	1.0%	0.8%	0.7%	0.8%	0.8%	1.9	1.9	1.8	2.6	2.1
	Winter	1.3%	0.9%	0.8%	0.7%	1.0%	2.6%	1.8%	1.7%	1.9%	2.1%	2.0	1.9	2.1	2.7	2.1
	Fall	0.5%	0.4%	0.4%	0.3%	0.4%	1.1%	0.8%	0.7%	0.8%	0.9%	2.1	1.9	1.8	2.5	2.2
	Spring	0.9%	0.6%	0.5%	0.5%	0.6%	1.8%	1.1%	1.1%	1.3%	1.4%	2.0	1.9	2.2	2.5	2.3
	Annual	0.8%	0.5%	0.5%	0.4%	0.6%	1.6%	1.1%	1.1%	1.2%	1.3%	2.0	2.2	2.1	2.9	2.2
Sample Size (n)		178*	704*	187*	64*	1,132*	340	420	368	179	939					

* Thousands of records

^Source: 2013 IOU customer billing data, 2012 Athens data, and 2011 PUMS data.

^^Source IOU Customer billing data, CARE/ESA tracking databases, LINA telephone survey data,

7 LI Population Characterization Detailed Results

This section provides detailed results from the LI population characterization, including demographic and home and equipment characteristics.

7.1 Sources for LI Population Characterization

We compiled data from four main sources for this characterization task, which are summarized below. In Section 2.4, we provide more information about the secondary sources and in Section 2.5, we provide more information about the customer telephone phone survey.

- ACS/PUMS – 2011 and 2004 ACS data that provided the demographic characteristics for the state of California, the LI population, and within the LI population, by various categories such as IOU service territory, home type and primary language
- CLASS – 2013 California on-site survey data that provided the home and equipment characteristics for the state of California, the LI population, and within the LI population, by various categories such as IOU service territory, home type and primary language
- RASS – 2010 California mail survey data that provided the climate zone breakdowns for the home and equipment characteristics
- Telephone survey – The customer telephone survey was used to provide data on the ESA participants and ESA non-participants, in order to compare demographic and home/equipment characteristics across these two groups

A LI household is defined as a household that has a household income that is at or below 200% of federal poverty according to the 2012 Federal Poverty Guidelines[5] shown in Table 18 below. We chose this definition as it is the same metric that determines eligibility for both the CARE and ESA programs.

[5] 2012 Poverty Guidelines. U.S. Department of Health & Human Services. http://aspe.hhs.gov/poverty/12fedreg.shtml

Table 18: 200% 2012 Federal Poverty Guidelines

Household Size	Income Eligibility Upper Limit*
1	$22,340
2	$30,260
3	$38,180
4	$46,100
5	$54,020
6	$61,940
7	$69,860
8	$77,780
Each Additional Person	$7,920

* Upper Limit Calculation = 200% of Federal Poverty Guidelines

Whether a household was at or below 200% federal poverty was determined differently for each secondary data source depending on the level of detail of household income provided. The ACS/PUMS data provides a specific dollar value for household income allowing us to identify if the household falls below the income threshold limits in the table above depending on the household size. The CLASS and RASS data provides household income within a range as detailed in Table 19. Households were designated as low-income in these datasets if the midpoint of their income range fell below the Income Eligibility Upper Limit given the number of persons in the household. For example, if a CLASS household had three people and an income range of $30,000 - $40,000 it would be considered low income because the midpoint $35,000 is less than the Income Eligibility Upper Range of $38,180.

Table 19: CLASS & RASS Income Ranges

CLASS Income Ranges	RASS Income Ranges
< $20,000	< $25,000
$20,000-30,000	$25,000-35,000
$30,000-40,000	$35,000-$50,000
$40,000-50,000	> $50,000
$50,000-60,000	
$60,000-75,000	
$75,000-100,000	
$100,000-150,000	
$150,000-200,000	

The telephone survey sample was drawn from the population of IOU CARE participants. Given that the eliginibilty threshold for CARE is based on 200% of Federal Poverty, we assume that all CARE households are low income by our definition above.

7.1.1 Sample Sizes and Statistical Significance

This section presents samples sizes and estimates of sampling error for each source used to develop the LI population characterization summarized in Section 4.3 and presented in more detail below in Sections 7.2 and 7.3. The exception is the CLASS data, where the sample size varied by each result since it reflects inventories of equipment. The other data sources are based on households, and the sample size varied little across results, allowing a more simplified approach to presenting sample size and sampling error estimates.

The precision of the data can be represented by the approximate estimates of sampling error shown in Table 20 and Table 21 below, which shows the half-length of the "approximate" 90 percent confidence intervals for parameters estimated for various sample segments for each of the sources.[6] The first column, “Percent value”, refers to the percentage value for which the sampling error is being examined. These values can be used when interpreting the results in this report, by applying the interval to a percentage estimate.

For example, if looking at an estimated percentage that is near 50 percent for the California total population based on the PUMS data, the lower (upper) bound of the 90 percent confidence interval for the true value of the percentage would be equal to the estimated

[6] We refer to the confidence interval as "approximate" because they are based on survey data, which are “complex” in that the surveyed households (by design) do not perfectly represent the population of interest and, therefore, parameter estimates must be computed using weights. Methods do exist to calculate (near) exact standard errors; however, the development of individual standard errors for each parameter of interest requires extensive analysis. Because of this, results from large-scale surveys such as this generally compute approximate standard errors based on sample size and assumptions about the sampling distribution.

percentage minus (plus) 0.2 percentage points. Thus, we are approximately 90 percent confident that the true—but unknown—percentage is between 49.8 percent and 50.2 percent.[7] (The PUMS sample sizes are very large, with associated very small sampling error.) This interval can be applied to the same estimate for a different sub-group (e.g., California's LI population) to determine if there is a statistically significant difference (at the 90% level of confidence) between the two groups.

Note that there may also exist measurement errors associated with auditors and respondents making errors in recording information that cannot be estimated and are not reflected in the sampling error estimates below.

Table 20: 2004 and 2011 PUMS Data Sample Sizes (and Telephone Survey Sample for ESA Participants and Non-Participants) and 90% Confidence Intervals for California LI Population[1]

Sample Segment	Total 2011*	Total 2004*	LI Population 2011*	LI Population 2004*	ESA Participants** (Phone Survey)	ESA Non-participants **(Phone Survey)
Percent value	Confidence Interval					
10/90%	0.1%	0.2%	0.3%	0.5%	2.0%	2.4%
25/75%	0.2%	0.3%	0.4%	0.7%	2.9%	3.5%
50%	0.2%	0.4%	0.4%	0.8%	3.3%	4.0%
Sample Size	146,280	43,413	38,293	11,046	610	418

[1]Unless otherwise indicated, sample segment is for 2011, LI-population
Sources: (*)2004 and 2011 PUMS; (**)2013 CARE Participant Telephone Survey.

[7] Stated another way, if we drew the same size sample from the population 100 times and each time calculated a 90 percent confidence interval for the true value of the percentage, 90 of the 100 estimated ranges would actually contain the true value of the percentage.

(Table 20 continued)

Sample Segment	PG&E	SCE	SDG&E	SoCalGas	Urban	Rural
Percent value	Confidence Interval					
10/90%	0.4%	0.3%	0.6%	0.3%	0.3%	0.9%
25/75%	0.6%	0.4%	0.8%	0.4%	0.4%	1.3%
50%	0.6%	0.5%	0.9%	0.5%	0.4%	1.5%
Sample Size	16,786	26,033	8,052	26,382	35,269	3,024

[1]Unless otherwise indicated, sample segment is for 2011, LI-population
Source: 2011 PUMS.

(Table 20 continued)

Sample Segment	Single-Family Own	Single-Family Rent	Multi-Family	Mobile Homes	English Only	Primary Language Spanish	Primary Language Other
Percent value	Confidence Interval						
10/90%	0.4%	0.6%	0.4%	1.6%	0.4%	0.4%	0.6%
25/75%	0.6%	0.8%	0.6%	2.3%	0.5%	0.6%	0.9%
50%	0.7%	0.9%	0.7%	2.6%	0.6%	0.7%	1.0%
Sample Size	13,696	7,850	14,683	1,000	17,973	14,087	6,233

[1]Unless otherwise indicated, sample segment is for 2011, LI-population
Source: 2011 PUMS.

Table 21: 2010 RASS Data Sample Sizes and 90% Confidence Intervals by Climate Zone Group and ESA Measure Eligibility for California LI Population

Sample Segment	Central Valley (11-13)	Desert (14,15)	Mountain (16)	North Coast (1-5)	South Coast (6-8)	South Inland (9,10)
Percent value	Confidence Interval					
10/90%	2%	3%	4%	2%	2%	2%
25/75%	1%	2%	2%	1%	1%	1%
50%	2%	3%	4%	2%	2%	2%
Sample Size	1463	724	394	1121	2166	2102

Source: 2010 RASS.

(Table 21 continued)

Sample Segment	RAC Replace and Evap. Cooler Install (10-16)	CAC Replacement (13-15)
Percent value	Confidence Interval	
10/90%	1%	1%
25/75%	1%	2%
50%	1%	2%
Sample Size	3476	1504

Source: 2010 RASS.

7.1.2 Comparison of Sources

We assumed that the PUMS data are the most robust and representative source, with nearly 150,000 records. We compared the LI population sub-samples from CLASS and RASS, and customer telephone survey, to the PUMS as shown in Table 22 below. Section 8.1 discusses how the customer telephone survey compares to PUMS, and adjustment weights that we developed to correct for the difference between home ownership rates.

The RASS and CLASS LI sub-samples have more homeowners than the PUMS LI sub-sample, with nearly half the sample owning their home compared to 33 percent in PUMS. The CLASS also over-represents households whose primary language is English (this variable was not available for RASS).

We did not adjust the RASS and CLASS samples, but we do provide all the home and equipment characteristic results from CLASS by homeowners versus renters and for households whose primary language is Spanish or English.

Table 22: Comparison of Demographic Characteristics Across Secondary Sources and the Customer Telephone Survey for California LI Population

	Data Source			
Demographic Characteristic	2011 PUMS LI Sample	2013 LINA Telephone Survey	2010 RASS	2013 CLASS
% own	33%	51%	48%	49%
% with seniors*	26%	53%	31%	35%
Primary language is English	46%	76%	Not available	65%
Respondent is white	36%	46%	Not available	Not available
% Single-family home	51%	56%	57%	56%
% Multi-family home	43%	40%	33%	41%
Average # people in the home	3.0	3.0	3.9	3.5
Average age of home	47	41	37	45
*Definition of senior	Over 65 years	Over 60 years	Over 65 years	Over 65 years

Sources: 2010 RASS; 2011 PUMS; 2013 CLASS; 2013 CARE Participant Telephone Survey.

7.2 Demographic Characteristics Results[8]

This section contains demographic data from the 2004 and 2011 ACS/PUMS. The ACS/PUMS data were introduced in Section 2.4. The segments shown in the tables were introduced in Section 4.3. Note we also included two columns for ESA participants versus non-participants based on the telephone survey data, where the data were available. These data are referenced in Section 5.

[8] Multi-family homes are defined as any housing structure with two or more units. This differs from the 2007 KEMA study were multi-family homes are defined as housing structures with five or more units. This also differs from the concurrent Cadmus multi-family LI study which also defines multi-family homes as housing structures with five or more units.

Table 23: Home Tenure Status - By Population and IOU

Year	Percent of California Population		Percent of California LI Population							
	Total 2011*	Total 2004*	Total 2011*	Total 2004*	ESA parts 2013**	ESA non-parts 2013**	PG&E 2011*	SCE 2011*	SDG&E 2011*	SoCalGas 2011*
Owned with mortgage or loan	41%	44%	20%	20%	34%	35%	20%	22%	19%	21%
Owned free and clear	14%	15%	13%	14%			16%	13%	13%	12%
Rented	44%	40%	64%	63%	62%	65%	62%	63%	65%	65%
Occupied without payment of rent	2%	1%	3%	2%	4%	0%	3%	2%	2%	2%

Sources: *2004 and 2011 ACS/PUMS; **2013 CARE Participant Telephone Survey.

Table 24: Home Tenure Status - By Home Type, Language and Urban/Rural for California LI Population

	Percent of California LI Population							
	Single-Family	Multi-Family	Mobile Homes	English Only	Spanish	Other	Urban	Rural
Owned with mortgage or loan (include home equity loans)	35%	3%	16%	19%	21%	18%	20%	21%
Owned free and clear	19%	2%	53%	19%	7%	13%	13%	22%
Rented	42%	96%	32%	59%	70%	66%	65%	53%
Occupied without payment of rent	4%	0%	0%	3%	2%	3%	2%	5%

Source: 2011 ACS/PUMS.

Table 25: Urban/Rural Status[9] – By Population and IOU

	Percent of California Population		Percent of California LI Population							
Year	Total 2011*	Total 2004*	Total 2011*	Total 2004*	ESA parts 2013**	ESA non-parts 2013**	PG&E 2011*	SCE 2011*	SDG&E 2011*	SoCalGas 2011*
Urban	94%	NA	93%	NA	4%	5%	85%	97%	97%	99%
Rural	6%	NA	7%	NA	96%	95%	15%	3%	3%	2%

Sources: *2004 and 2011 ACS/PUMS; **2013 CARE Participant Telephone Survey.

[9] The definition of urban and rural is based on county, since that is the geographic information provided for the PUMS data. If a home was in a county that was in a metropolitan area with population of 250,000 or greater, the home was considered to be in an urban area. Otherwise, it was considered rural.

Table 26: Urban/Rural Status – By Home Type, Language and Urban/Rural for California LI Population

	Percent of California LI Population								
	Single-Family Own	Single-Family Rent	Multi-Family	Mobile Homes	English Only	Spanish	Other	Urban	Rural
Urban	90%	92%	96%	81%	89%	95%	98%	NA	NA
Rural	10%	8%	4%	20%	11%	5%	2%	NA	NA

Source: 2011 ACS/PUMS.

Table 27: Building Type – By Population and IOU

	Percent of California Population		Percent of California LI Population							
Year	Total 2011*	Total 2004*	Total 2011*	Total 2004*	ESA parts 2013**	ESA non-parts 2013**	PG&E 2011*	SCE 2011*	SDG&E 2011*	SoCalGas 2011*
Mobile home or trailer	4%	4%	6%	6%	4%	2%	7%	6%	5%	2%
One-family house detached	59%	58%	44%	42%	58%	56%	49%	45%	36%	56%
One-family house attached	7%	7%	7%	7%	7%	6%	6%	6%	10%	6%
2 Apartments	3%	2%	4%	3%	7%	6%	4%	3%	3%	6%
3-4 Apartments	5%	6%	8%	9%			8%	8%	7%	8%
5-9 Apartments	6%	6%	8%	10%	9%	11%	8%	8%	9%	11%
10-19 Apartments	5%	5%	7%	7%	4%	6%	6%	8%	11%	6%
20-49 Apartments	5%	5%	7%	7%	12%	13%	5%	7%	8%	13%
50 or more apartments	7%	6%	9%	8%			8%	9%	12%	9%
Boat, RV, van, etc.	0%	0%	0%	0%	NA	NA	0%	0%	0%	NA

Sources: *2004 and 2011 ACS/PUMS; **2013 CARE Participant Telephone Survey.

[1] Note: categories vary slightly. Those shown in the "5-9 Apartments" row may actually contain between 5 and 10 units, while those in the "10-19 Apartments" row may contain between 11 and 20 units. Finally, those in the merged row containing 20 units and above actually contain 21 units and above.

Table 28: Building Type - By Home Type, Language and Urban/Rural for California LI Population

	Percent of California LI Population								
	Single-Family Own	Single-Family Rent	Multi-Family	Mobile Homes	English Only	Spanish	Other	Urban	Rural
Mobile home or trailer	0%	0%	0%	96%	7%	6%	2%	5%	14%
One-family house detached	93%	80%	0%	0%	46%	45%	37%	43%	56%
One-family house attached	7%	20%	0%	0%	6%	7%	8%	7%	4%
2 Apartments	0%	0%	8%	0%	3%	4%	3%	4%	4%
3-4 Apartments	0%	0%	18%	0%	7%	9%	7%	8%	7%
5-9 Apartments	0%	0%	19%	0%	8%	9%	8%	9%	5%
10-19 Apartments	0%	0%	17%	0%	7%	8%	8%	8%	3%
20-49 Apartments	0%	0%	17%	0%	6%	7%	10%	8%	3%
50 or more apartments	0%	0%	21%	0%	9%	6%	16%	10%	3%
Boat, RV, van, etc.	0%	0%	0%	4%	0%	0%	0%	0%	1%

Source: 2011 ACS/PUMS.

Table 29: Household Size - By Population and IOU

Year	Percent of California Population		Percent of California LI Population							
	Total 2011*	Total 2004*	Total 2011*	Total 2004*	ESA parts 2013**	ESA non-parts 2013**	PG&E 2011*	SCE 2011*	SDG&E 2011*	SoCalGas 2011*
1 person	25%	25%	30%	29%	28%	25%	32%	27%	32%	27%
2 persons	30%	30%	21%	21%	19%	21%	22%	20%	24%	20%
3 persons	16%	16%	14%	13%	16%	15%	13%	14%	15%	14%
4 persons	15%	15%	14%	15%	12%	15%	13%	15%	13%	15%
5 or more persons	14%	14%	21%	21%	26%	25%	20%	24%	16%	24%
Average persons per home	2.77	2.75	2.98	2.98	2.89	2.95	2.85	3.15	2.73	3.15
Standard Error	0.00	0.00	0.01	0.00	0.07	0.07	0.01	0.01	0.03	0.01

Sources: *2004 and 2011 ACS/PUMS; **2013 CARE Participant Telephone Survey.

Table 30: Household Size - By Home Type, Language and Urban/Rural for California LI Population

	Percent of California LI Population								
	Single-Family Own	Single-Family Rent	Multi-Family	Mobile Homes	English Only	Spanish	Other	Urban	Rural
1 person	28%	15%	36%	39%	46%	11%	28%	29%	33%
2 persons	25%	16%	21%	22%	25%	14%	27%	21%	26%
3 persons	12%	16%	15%	12%	13%	15%	16%	14%	13%
4 persons	12%	20%	13%	10%	9%	20%	14%	14%	12%
5 or more persons	24%	33%	15%	17%	9%	40%	15%	22%	15%
Average persons per home	3.09	3.78	2.62	2.57	2.16	4.07	2.77	3.01	2.65
Standard Error	0.02	0.02	0.01	0.04	0.01	0.02	0.02	0.01	0.03

Source: 2011 ACS/PUMS.

Table 31: Race/Ethnicity of Householder - By Population and IOU

Year	Percent of California Population		Percent of California LI Population							
	Total 2011*	Total 2004*	Total 2011*	Total 2004*	ESA parts 2013**	ESA non-parts 2013**	PG&E 2011*	SCE 2011*	SDG&E 2011*	SoCalGas 2011*
White (Non-Hispanic)	51%	62%	36.1%	46%	35%	44%	44%	31%	48%	30%
African-American	6%	5%	8.6%	7%	13%	11%	8%	9%	6%	9%
Asian	12%	11%	10.3%	10%	3%	5%	11%	9%	8%	9%
Other Race Alone	1%	1%	1.0%	2%	7%	6%	1%	1%	1%	1%
Two or More Races	2%	1%	2.0%	2%			2%	2%	2%	2%
Hispanic	28%	20%	42.1%	33%	42%	34%	34%	49%	36%	50%

Sources: *2004 and 2011 ACS/PUMS; **2013 CARE Participant Telephone Survey.

Table 32: Race/Ethnicity of Householder - By Home Type, Language and Urban/Rural for California LI Population

	Percent of California LI Population								
	Single-Family Own	Single-Family Rent	Multi-Family	Mobile Homes	English Only	Spanish	Other	Urban	Rural
White (Non-Hispanic)	45%	28%	31%	54%	64%	4%	33%	34%	64%
African-American	5%	9%	12%	2%	17%	1%	3%	9%	2%
Asian	11%	9%	12%	3%	2%	0%	58%	11%	2%
Other Race Alone	1%	1%	1%	1%	1%	0%	2%	1%	2%
Two or More Races	2%	2%	2%	1%	3%	0%	4%	2%	3%
Hispanic	37%	52%	42%	39%	13%	95%	1%	43%	27%

Source: 2011 ACS/PUMS.

Table 33: Language Spoken in Household - By Population and IOU

Year	Percent of California Population		Percent of California LI Population							
	Total 2011*	Total 2004*	Total 2011*	Total 2004*	ESA parts 2013**	ESA non-parts 2013**	PG&E 2011*	SCE 2011*	SDG&E 2011*	SoCalGas 2011*
English	58%	61%	46%	48%	73%	72%	55%	41%	52%	40%
Spanish	25%	24%	38%	37%	25%	22%	30%	45%	32%	46%
Asian	10%	9%	9%	9%	1%	3%	10%	8%	7%	8%
Other	7%	6%	7%	6%	2%	4%	6%	6%	9%	6%

Sources: *2004 and 2011 ACS/PUMS; **2013 CARE Participant Telephone Survey.

Table 34: Language Spoken in Household – By Housing Type, Language and Urban/Rural for California LI Population

	Percent of California LI Population								
	Single-Family Own	Single-Family Rent	Multi-Family	Mobile Homes	English Only	Spanish	Other	Urban	Rural
English	51%	42%	43%	59%	100%	0%	0%	44%	71%
Spanish	34%	46%	38%	35%	0%	100%	34%	39%	25%
Asian	9%	8%	11%	3%	0%	0%	58%	10%	2%
Other	6%	4%	9%	3%	0%	0%	8%	7%	3%

Source: 2011 ACS/PUMS.

Table 35: Household Income - By Population and IOU

Year	Percent California Population		Percent of California LI Population							
	Total 2011*	Total 2004*	Total 2011*	Total 2004*	ESA parts 2013**	ESA non-parts 2013**	PG&E 2011*	SCE 2011*	SDG&E 2011*	SoCalGas 2011*
Less than $5,000	3%	3%	10%	11%	11%	6%	10%	9%	13%	9%
$5,000 to $9,999	3%	4%	10%	15%	9%	5%	10%	10%	11%	10%
$10,000 to $14,999	6%	5%	18%	18%	18%	14%	20%	18%	18%	18%
$15,000 to $19,999	5%	5%	17%	17%	12%	13%	18%	17%	18%	17%
$20,000 to $24,999	5%	6%	14%	11%	14%	15%	14%	14%	14%	14%
$25,000 to $29,999	5%	5%	10%	8%	10%	9%	10%	10%	10%	10%
$30,000 to $34,999	5%	5%	7%	6%	5%	6%	6%	7%	6%	7%
$35,000 to $39,999	4%	5%	5%	5%	3%	8%	4%	5%	4%	5%
$40,000 to $45,999	5%	6%	4%	4%	2%	4%	4%	5%	4%	5%
$46,000 to $49,999	3%	3%	2%	1%	3%	3%	1%	2%	2%	2%
$50,000 or more	56%	51%	4%	4%	3%	7%	3%	4%	3%	4%
Average Household Income ($)	80,684	69,596	20,621	20,427	20,377	25,886	20,075	21,446	18,607	21,432
Standard Error ($)	244.5	334.1	70.6	158.5	671.0	852.7	103.3	99.8	228.2	96.0

Sources: *2004 and 2011 ACS/PUMS; **2013 CARE Participant Telephone Survey.

Table 36: Household Income - By Home Type, Language and Urban/Rural for California LI Population

	Percent of California LI Population								
	Single-Family Own	Single-Family Rent	Multi-Family	Mobile Homes	English Only	Spanish	Other	Urban	Rural
Less than $5,000	9%	8%	11%	8%	13%	5%	13%	10%	9%
$5,000 to $9,999	7%	9%	12%	10%	12%	8%	11%	10%	10%
$10,000 to $14,999	14%	15%	22%	22%	22%	13%	18%	18%	20%
$15,000 to $19,000	16%	15%	18%	21%	19%	14%	18%	17%	19%
$20,000 to $24,999	14%	14%	14%	14%	14%	14%	13%	14%	14%
$25,000 to $29,999	11%	11%	9%	11%	8%	12%	9%	10%	9%
$30,000 to $34,999	7%	9%	6%	5%	4%	10%	7%	7%	6%
$35,000 to $39,999	6%	7%	4%	4%	3%	8%	5%	5%	4%
$40,000 to $45,999	6%	6%	3%	3%	2%	7%	4%	4%	3%
$46,000 to $49,999	3%	2%	1%	1%	1%	3%	2%	2%	2%
$50,000 or more	7%	5%	2%	2%	1%	7%	3%	4%	3%
Average Household Income ($)	23656	23257	17860	18872	16883	25735	19320	20694	19701
Standard Error ($)	140.1	167.1	94.8	224.4	81.5	130.1	174.6	74.2	221.4

Source: 2011 ACS/PUMS.

Table 37: Family Size - By Population and IOU

	Percent of California Population		Percent of California LI Population							
Year	Total 2011*	Total 2004*	Total 2011*	Total 2004*	ESA parts 2013**	ESA non-parts 2013**	PG&E 2011*	SCE 2011*	SDG&E 2011*	SoCalGas 2011*
Single Person	25%	25%	30%	29%	28%	25%	32%	27%	32%	27%
Small families (2-4)	61%	61%	49%	49%	46%	50%	48%	49%	53%	49%
Large families (5+)	14%	14%	21%	21%	26%	25%	20%	24%	16%	24%

Sources: *2004 and 2011 ACS/PUMS; **2013 CARE Participant Telephone Survey.

Table 38: Family Size - By Home Type, Language and Urban/Rural for California LI Population

	Percent of California LI Population								
	Single-Family Own	Single-Family Rent	Multi-Family	Mobile Homes	English Only	Spanish	Other	Urban	Rural
Single Person	28%	15%	36%	39%	46%	11%	28%	29%	33%
Small families (2-4)	49%	52%	49%	44%	46%	50%	57%	49%	51%
Large families (5+)	17%	24%	13%	15%	9%	40%	15%	22%	15%

Source: 2011 ACS/PUMS.

Table 39: Elderly or Disabled Household Member - By Population and IOU

	Percent of California Population		Percent of California LI Population							
Year	Total 2011*	Total 2004*	Total 2011*	Total 2004*	ESA parts 2013**	ESA non-parts 2013**	PG&E 2011*	SCE 2011*	SDG&E 2011*	SoCalGas 2011*
No elderly household member	74%	78%	74%	76%	46%	55%	74%	74%	75%	74%
Elderly household member	25%	22%	26%	24%	54%	45%	26%	26%	25%	26%
Disabled household member	22%	25%	31%	34%	67%	59%	33%	31%	27%	30%

Sources: 2004 and 2011 ACS/PUMS; 2013 CARE Participant Telephone Survey.

Table 40: Elderly or Disabled Household Member - By Home Type, Language and Urban/Rural for California LI Population

	Percent of California LI Population								
	Single-Family Own	Single-Family Rent	Multi-Family	Mobile Homes	English Only	Spanish	Other	Urban	Rural
No elderly household member	57%	87%	80%	78%	69%	84%	63%	74%	72%
Elderly household member	43%	13%	20%	22%	31%	16%	37%	26%	28%
Disabled household member	34%	28%	30%	41%	37%	25%	31%	31%	40%

Source: 2011 ACS/PUMS.

Table 41: Employment Status of Head of Household - By Population and IOU

	Percent of California Population		Percent of California LI Population							
Year	Total 2011*	Total 2004*	Total 2011*	Total 2004*	ESA parts 2013**	ESA non-parts 2013**	PG&E 2011*	SCE 2011*	SDG&E 2011*	SoCalGas 2011*
Employed	63%	65%	43%	46%	NA	NA	41%	40%	42%	45%
Unemployed	6%	4%	11%	7%	NA	NA	12%	11%	10%	11%
Not in labor force (including retired population)	30%	31%	46%	47%	NA	NA	47%	46%	50%	45%

Sources: *2004 and 2011 ACS/PUMS; **2013 CARE Participant Telephone Survey.

Table 42: Employment Status of Head of Household - By Home Type, Language and Urban/Rural for California LI Population

	Percent of California LI Population								
	Single-Family Own	Single-Family Rent	Multi-Family	Mobile Homes	English Only	Spanish	Other	Urban	Rural
Employed	37%	50%	45%	33%	58%	44%	38%	43%	38%
Unemployed	9%	13%	12%	10%	11%	14%	9%	11%	11%
Not in labor force (including retired population)	54%	37%	44%	57%	31%	43%	53%	46%	51%

Source: 2011 ACS/PUMS.

Table 43: Education of Head of Household - By Population and IOU

Year	Percent of California Population		Percent of California LI Population							
	Total 2011*	Total 2004*	Total 2011*	Total 2004*	ESA parts 2013**	ESA non-parts 2013**	PG&E 2011*	SCE 2011*	SDG&E 2011*	SoCalGas 2011*
Bachelor's degree (or more)	34%	31%	14%	13%	16%	22%	14%	13%	20%	13%
Some college	32%	32%	31%	28%	30%	35%	33%	29%	35%	29%
High school graduate	18%	20%	24%	25%	27%	25%	25%	24%	22%	23%
Less than high school graduate	15%	16%	31%	34%	27%	18%	28%	35%	23%	35%

Sources: *2004 and 2011 ACS/PUMS; **2013 CARE Participant Telephone Survey.

Table 44: Education of Head of Household - By Home Type, Language and Urban/Rural for California LI Population

	Percent of California LI Population								
	Single-Family Own	Single-Family Rent	Multi-Family	Mobile Homes	English Only	Spanish	Other	Urban	Rural
Bachelor's degree (or more)	18%	9%	15%	6%	17%	5%	28%	14%	12%
Some college	23%	25%	25%	24%	43%	18%	28%	30%	39%
High school graduate	32%	30%	28%	35%	27%	22%	20%	24%	25%
Less than high school graduate	27%	36%	32%	35%	14%	55%	24%	32%	24%

Source: 2011 ACS/PUMS.

Table 45: Annual Household Fuel Costs - By Population and IOU

Year	Percent of California Population		Percent of California LI Population							
	Total 2011*	Total 2004*	Total 2011*	Total 2004*	ESA parts 2013**	ESA non-parts 2013**	PG&E 2011*	SCE 2011*	SDG&E 2011*	SoCalGas 2011*
$1 – $249	2%	2%	4%	5%	NA	NA	5%	3%	7%	3%
$250 – $499	9%	9%	13%	15%	NA	NA	12%	11%	21%	11%
$500 – $749	12%	14%	16%	18%	NA	NA	14%	16%	20%	16%
$750 – $999	12%	14%	14%	15%	NA	NA	13%	16%	14%	15%
$1,000 – $1,249	11%	12%	12%	12%	NA	NA	12%	12%	10%	12%
$1,250 – $1,499	9%	9%	8%	8%	NA	NA	8%	9%	6%	9%
$1,500 – $1,999	14%	14%	12%	11%	NA	NA	13%	13%	7%	13%
$2,000 or greater	32%	25%	21%	16%	NA	NA	24%	21%	14%	21%
Average ($)	1,782	1,502	1,425	1,200	NA	NA	$1,483	$1,437	$1,110	$1,446
Standard Error ($)	4.2	6.0	6.7	10.2	NA	NA	10.6	8.9	19.4	8.6

Sources: *2004 and 2011 ACS/PUMS; **2013 CARE Participant Telephone Survey.

Table 46: Annual Household Fuel Costs - By Home Type, Language and Urban/Rural for California LI Population

	Percent of California LI Population								
	Single-Family Own	Single-Family Rent	Multi-Family	Mobile Homes	English Only	Spanish	Other	Urban	Rural
$1 – $249	1%	1%	9%	1%	4%	3%	7%	4%	3%
$250 – $499	6%	6%	23%	10%	12%	12%	15%	13%	8%
$500 – $749	11%	12%	22%	15%	14%	17%	16%	16%	13%
$750 – $999	13%	14%	16%	17%	13%	16%	15%	15%	12%
$1,000 – $1,249	12%	13%	10%	14%	11%	12%	11%	12%	12%
$1,250 – $1,499	10%	10%	7%	7%	9%	8%	8%	8%	8%
$1,500 – $1,999	15%	16%	7%	14%	12%	13%	11%	12%	14%
$2,000 or greater	33%	29%	7%	22%	25%	18%	17%	21%	31%
Average ($)	1833	1699	918	1482	1528	1364	1265	1399	1731
Standard Error	12.1	14.4	7.1	43.8	10.5	9.9	15.9	6.8	26.9

Source: 2011 ACS/PUMS.

Table 47: Age of Home - By Population and IOU

Year	Percent of California Population		Percent of California LI Population							
	Total 2011*	Total 2004*	Total 2011*	Total 2004*	ESA parts 2013**	ESA non-parts 2013**	PG&E 2011*	SCE 2011*	SDG&E 2011*	SoCalGas 2011*
1939 or earlier	9%	10%	10%	11%	23%	18%	10%	10%	4%	10%
1940 to 1949	6%	7%	7%	9%			7%	8%	4%	8%
1950 to 1959	14%	15%	15%	16%	30%	28%	12%	17%	10%	17%
1960 to 1969	14%	15%	15%	16%			14%	15%	16%	15%
1970 to 1979	18%	20%	19%	20%	34%	31%	21%	17%	26%	17%
1980 to 1989	15%	17%	15%	16%			14%	15%	19%	15%
1990 to 1999	11%	11%	9%	9%	8%	12%	10%	9%	11%	9%
2000 to 2004	6%	5%	5%	3%			6%	5%	5%	5%
2005	2%	NA	2%	NA			2%	2%	1%	1%
2006	1%	NA	1%	NA			1%	1%	1%	1%
2007	1%	NA	1%	NA	5%	9%	1%	1%	1%	1%
2008	1%	NA	1%	NA			1%	1%	1%	1%
2009	1%	NA	1%	NA			1%	1%	1%	1%
2010	0%	NA	0%	NA			0%	0%	0%	0%
2011	0%	NA	0%	NA	0%	1%	0%	0%	0%	0%

Sources: *2004 and 2011 ACS/PUMS; **2013 CARE Participant Telephone Survey.

[1] Note: categories vary slightly. Those shown in the "1990 to 1999" row have homes built between 1990 and 2000, and those in the merged row said to be built between 2000 and 2010 may have actually been built between 2001 and 2010.

Table 48: Age of Home - By Home Type, Language and Urban/Rural for California LI Population

	Percent of California LI Population								
	Single-Family Own	Single-Family Rent	Multi-Family	Mobile Homes	English Only	Spanish	Other	Urban	Rural
1939 or earlier	10%	14%	9%	1%	10%	11%	9%	10%	8%
1940 to 1949	9%	11%	5%	1%	7%	9%	5%	7%	6%
1950 to 1959	20%	20%	10%	4%	14%	16%	13%	15%	11%
1960 to 1969	13%	13%	17%	14%	14%	15%	14%	15%	12%
1970 to 1979	14%	15%	22%	39%	20%	18%	19%	19%	22%
1980 to 1989	14%	11%	17%	21%	16%	13%	16%	15%	16%
1990 to 1999	10%	7%	10%	11%	10%	8%	11%	9%	12%
2000 to 2004	6%	4%	5%	5%	5%	5%	6%	5%	6%
2005	2%	1%	1%	2%	2%	1%	2%	2%	2%
2006	1%	1%	1%	1%	1%	1%	1%	1%	2%
2007	1%	1%	1%	%	1%	1%	1%	1%	1%
2008	0%	1%	1%	%	1%	1%	1%	1%	1%
2009	0%	0%	1%	0%	1%	1%	1%	1%	1%
2010	0%	0%	0%	0%	0%	0%	1%	0%	0%
2011	0%	0%	0%	0%	0%	0%	0%	0%	0%

Source: 2011 ACS/PUMS.

Table 49: Heating Fuel Type - By Population and IOU

Year	Percent of California Population		Percent of California LI Population							
	Total 2011*	Total 2004*	Total 2011*	Total 2004*	ESA parts 2013**	ESA non-parts 2013**	PG&E 2011*	SCE 2011*	SDG&E 2011*	SoCalGas 2011*
Utility gas	66%	69%	59%	64%	NA	NA	56%	62%	52%	63%
Bottled, tank, or LP gas	3%	4%	3%	3%	NA	NA	4%	3%	2%	2%
Electricity	25%	22%	31%	25%	NA	NA	33%	27%	40%	27%
Fuel oil, kerosene, etc.	0%	0%	0%	0%	NA	NA	1%	0%	0%	0%
Coal or coke	0%	0%	0%	0%	NA	NA	0%	0%	0%	0%
Wood	2%	2%	2%	2%	NA	NA	3%	1%	1%	1%
Solar energy	0%	0%	0%	0%	NA	NA	0%	0%	0%	0%
Other fuel	0%	0%	0%	0%	NA	NA	1%	0%	0%	0%
No fuel used	3%	2%	5%	5%	NA	NA	2%	7%	4%	7%

Sources: *2004 and 2011 ACS/PUMS; **2013 CARE Participant Telephone Survey.

Table 50: Heating Fuel Type - By Home Type, Language and Urban/Rural for California LI Population

	Percent of California LI Population								
	Single-Family Own	Single-Family Rent	Multi-Family	Mobile Homes	English Only	Spanish	Other	Urban	Rural
Utility gas	69%	62%	51%	58%	61%	56%	60%	61%	39%
Bottled, tank, or LP gas	4%	2%	1%	10%	4%	2%	2%	2%	11%
Electricity	20%	27%	42%	23%	30%	32%	34%	31%	33%
Fuel oil, kerosene, etc.	1%	0%	0%	1%	1%	0%	0%	0%	3%
Coal or coke	0%	0%	0%	0%	0%	0%	0%	0%	0%
Wood	3%	2%	0%	4%	3%	1%	0%	1%	12%
Solar energy	0%	0%	0%	0%	0%	0%	0%	0%	0%
Other fuel	0%	0%	0%	1%	1%	0%	0%	0%	1%
No fuel used	3%	6%	6%	3%	2%	9%	3%	5%	2%

Source: 2011 ACS/PUMS.

Table 51: Presence of Children in Home - By Population and IOU

	Percent of California Population		Percent of California LI Population							
Year	Total 2011*	Total 2004*	Total 2011*	Total 2004*	ESA parts 2013**	ESA non-parts 2013**	PG&E 2011*	SCE 2011*	SDG&E 2011*	SoCalGas 2011*
With children under 6 years only	8%	8%	9%	10%	7%	9%	9%	8%	9%	9%
With children 6 to 17 years only	20%	21%	22%	22%	21%	20%	24%	22%	24%	20%
With children under 6 years and 6 to 17 years	9%	9%	15%	16%	13%	14%	16%	12%	16%	14%
No children	63%	61%	54%	52%	60%	56%	51%	59%	51%	56%

Sources: *2004 and 2011 ACS/PUMS; **2013 CARE Participant Telephone Survey.

Table 52: Presence of Children in Home - By Home Type, Language and Urban/Rural

	Percent of California LI Population								
	Single-Family Own	Single-Family Rent	Multi-Family	Mobile Homes	English Only	Spanish	Other	Urban	Rural
With children under 6 years only	5%	11%	10%	6%	7%	12%	7%	9%	9%
With children 6 to 17 years only	23%	30%	19%	17%	15%	32%	20%	22%	19%
With children under 6 years and 6 to 17 years	12%	24%	13%	12%	7%	28%	8%	15%	11%
No children	60%	35%	57%	65%	71%	29%	65%	54%	61%

Source: 2011 ACS/PUMS.

Table 53: Length of Time Residing at Present Address - By Population and IOU

	Percent of California Population		Percent of California LI Population							
Year	Total 2011*	Total 2004*	Total 2011*	Total 2004*	ESA parts 2013**	ESA non-parts 2013**	PG&E 2011*	SCE 2011*	SDG&E 2011*	SoCalGas 2011*
23 months or less	23%	25%	28%	25%	7%	12%	30%	26%	29%	26%
2 to 4 years	19%	22%	22%	22%	20%	38%	22%	21%	25%	21%
5 to 9 years	19%	19%	18%	19%	17%	16%	17%	19%	19%	19%
10 to 19 years	20%	18%	17%	18%	27%	19%	16%	19%	15%	19%
20 to 29 years	9%	8%	7%	8%	29%	16%	7%	7%	6%	7%
30 years or more	9%	8%	8%	8%			9%	8%	7%	8%

Sources: *2004 and 2011 ACS/PUMS; **2013 CARE Participant Telephone Survey.

Note: Categories vary slightly. The row listed as "2 to 4 years" actually includes tenants who have stayed between 2 and 5 years, and those in the "5 to 9 years" may have resided at the same address between 6 and 10 years. Similarly, the "10 to 19 years" category includes those who stayed between 11 and 20 years.

Table 54: Length of Time Residing at Present Address - By Home Type, Language and Urban/Rural

	Percent of California LI Population								
	Single-Family Own	Single-Family Rent	Multi-Family	Mobile Homes	English Only	Spanish	Other	Urban	Rural
12 months or less	4%	27%	28%	14%	21%	19%	20%	20%	21%
13 to 23 months	3%	10%	10%	5%	7%	8%	9%	8%	7%
2 to 4 years	11%	29%	26%	21%	20%	25%	21%	22%	21%
5 to 9 years	20%	17%	17%	25%	16%	20%	19%	18%	17%
10 to 19 years	25%	12%	14%	22%	16%	19%	19%	17%	17%
20 to 29 years	14%	4%	3%	9%	8%	5%	7%	7%	8%
30 years or more	23%	2%	2%	4%	12%	5%	5%	8%	10%

Source: 2011 ACS/PUMS.

Table 55: Linguistic Isolation - By Population and IOU

	Percent of California Population		Percent of California LI Population							
Year	Total 2011*	Total 2004*	Total 2011*	Total 2004*	ESA parts 2013**	ESA non-parts 2013**	PG&E 2011*	SCE 2011*	SDG&E 2011*	SoCalGas 2011*
At least one person in the household 14 and over speaks English only or speaks English 'very well'	90%	89%	80%	77%	NA	NA	83%	79%	82%	78%
No one in the household 14 and over speaks English only	10%	11%	20%	23%	NA	NA	17%	21%	18%	22%

Sources: *2004 and 2011 ACS/PUMS; **2013 CARE Participant Telephone Survey.

Table 56: Linguistic Isolation - By Home Type, Language and Urban/Rural

	Percent of California LI Population								
	Single-Family Own	Single-Family Rent	Multi-Family	Mobile Homes	English Only	Spanish	Other	Urban	Rural
At least one person in the household 14 and over speaks English only or speaks English 'very well'	87%	81%	75%	83%	100%	66%	56%	79%	91%
No one in the household 14 and over speaks English only	13%	19%	25%	17%	NA	34%	44%	21%	9%

Source: 2011 ACS/PUMS.

Table 57: Other Languages Spoken - By Population and IOU

	Percent of California Population		Percent of California LI Population							
Year	Total 2011*	Total 2004*	Total 2011*	Total 2004*	ESA parts 2013**	ESA non-parts 2013**	PG&E 2011*	SCE 2011*	SDG&E 2011*	SoCalGas 2011*
English	**90.0%**	**88.9%**	**80.0%**	**77.1%**	**95.3%**	**94.5%**	**83.0%**	**79.0%**	**82.0%**	**79.0%**
Spanish	**19.3%**	**15.0%**	**38.1%**	**31.5%**	**42.6%**	**36.5%**	**30.3%**	**44.6%**	**40.7%**	**44.8%**
Other European	**4.0%**	**4.6%**	**3.1%**	**3.5%**	**3.3%**	**4.8%**	**5%**	**2.6%**	**2.5%**	**2.6%**
German	0.8%	1.0%	0.4%	0.5%	0.3%	0.7%	0.5%	0.4%	0.4%	0.4%
Pennsylvania Dutch	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Yiddish	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	0.1%
Dutch	0.2%	0.2%	0.1%	0.1%	0.0%	0.0%	0.1%	0.1%	0.1%	0.1%
Swedish	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Danish	0.1%	0.1%	0.0%	0.0%	0.1%	0.3%	0.0%	0.0%	0.0%	0.0%
Norwegian	0.0%	0.1%	0.0%	0.1%	0.6%	0.0%	0.0%	0.0%	0.0%	0.0%
Italian	0.4%	0.6%	0.2%	0.3%	0.2%	0.7%	0.3%	0.2%	0.2%	0.2%
French	0.8%	1.0%	0.5%	0.6%	0.7%	1.9%	0.4%	0.5%	0.4%	0.5%
Patois	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
French Creole	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%
Portuguese	0.4%	0.3%	0.3%	0.4%	0.5%	0.3%	0.4%	0.2%	0.1%	0.2%
Romanian	0.1%	0.1%	0.1%	0.1%	0.0%	0.0%	0.1%	0.1%	0.1%	0.1%
Irish Gaelic	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Greek	0.1%	0.2%	0.1%	0.1%	0.0%	0.1%	0.1%	0.1%	0.1%	0.1%
Albanian	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Russian	0.5%	0.4%	0.7%	0.6%	0.2%	0.2%	0.9%	0.6%	0.3%	0.6%
Ukrainian	0.0%	0.0%	0.1%	0.1%	0.6%	0.0%	0.2%	0.0%	0.0%	0.0%
Czech	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	0.1%	0.0%
Polish	0.1%	0.1%	0.1%	0.1%	0.0%	0.0%	0.1%	0.1%	0.1%	0.1%
Slovak	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

Year	Percent of California Population		Percent of California LI Population							
	Total 2011*	Total 2004*	Total 2011*	Total 2004*	ESA parts 2013**	ESA non-parts 2013**	PG&E 2011*	SCE 2011*	SDG&E 2011*	SoCalGas 2011*
Bulgarian	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Macedonian	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Serbo Croatian	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%
Croatian	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Serbian	0.0%	0.0%	0.0%	0.0%	0.1%	0.2%	0.1%	0.0%	0.0%	0.0%
Lithuanian	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Latvian	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Finnish	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Hungarian	0.1%	0.1%	0.1%	0.1%	0.1%	0.0%	0.1%	0.1%	0.0%	0.1%
Other European languages	0.0%	0.0%	0.0%	0.1%	0.0%	0.2%	0.0%	0.0%	0.0%	0.0%
Asian	**13.7%**	**11.6%**	**12.2%**	**11.5%**	**2.9%**	**8.2%**	**11.9%**	**11.2%**	**9.7%**	**11.1%**
Armenian	0.5%	0.4%	0.9%	0.7%	0.1%	1.7%	0.1%	1.3%	0.1%	1.3%
Persian	0.7%	0.5%	0.7%	0.6%	0.0%	1.1%	0.6%	0.7%	0.9%	0.7%
Pashto	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	0.1%	0.0%	0.1%	0.0%
Kurdish	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Indian	0.0%	0.0%	0.0%	0.1%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%
Hindi	0.6%	0.3%	0.2%	0.2%	0.3%	0.0%	0.4%	0.1%	0.1%	0.1%
Bengali	0.1%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	0.1%
Punjabi	0.3%	0.2%	0.3%	0.3%	0.1%	0.0%	0.5%	0.2%	0.2%	0.2%
Marathi	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Gujarati	0.2%	0.2%	0.1%	0.1%	0.0%	0.0%	0.0%	0.1%	0.1%	0.1%
Urdu	0.2%	0.1%	0.1%	0.1%	0.0%	0.0%	0.1%	0.1%	0.1%	0.1%
Nepali	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Pakistani	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Sinhalese	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Turkish	0.1%	0.0%	0.1%	0.0%	0.0%	0.0%	0.1%	0.1%	0.0%	0.0%

Year	Percent of California Population		Percent of California LI Population							
	Total 2011*	Total 2004*	Total 2011*	Total 2004*	ESA parts 2013**	ESA non-parts 2013**	PG&E 2011*	SCE 2011*	SDG&E 2011*	SoCalGas 2011*
Telugu	0.2%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Kannada	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Malayalam	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Tamil	0.2%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Chinese	1.9%	1.9%	1.8%	2.1%	1.1%	1.7%	2.1%	1.4%	0.9%	1.3%
Cantonese	0.7%	0.5%	0.9%	0.6%	0.3%	0.6%	1.3%	0.4%	0.2%	0.4%
Mandarin	0.8%	0.5%	0.6%	0.3%	0.1%	0.9%	0.5%	0.6%	0.4%	0.6%
Formosan	0.1%	0.2%	0.1%	0.1%	0.0%	0.0%	0.1%	0.1%	0.1%	0.1%
Burmese	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Thai	0.2%	0.2%	0.2%	0.1%	0.4%	0.3%	0.1%	0.2%	0.1%	0.2%
Miaoyao Mien	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%
Hmong	0.1%	0.0%	0.3%	0.2%	0.0%	0.0%	0.5%	0.2%	0.1%	0.2%
Japanese	0.8%	0.9%	0.5%	0.8%	0.2%	1.0%	0.4%	0.4%	0.2%	0.5%
Korean	1.2%	1.0%	1.5%	1.3%	0.0%	0.5%	0.6%	1.8%	1.2%	1.8%
Laotian	0.1%	0.1%	0.2%	0.1%	0.0%	0.3%	0.3%	0.2%	0.2%	0.2%
MonKhmer Cambodian	0.2%	0.1%	0.3%	0.2%	0.0%	0.0%	0.3%	0.3%	0.2%	0.3%
Vietnamese	1.3%	1.0%	1.7%	1.6%	0.3%	0.8%	1.7%	1.4%	3.1%	1.4%
Indonesian	0.1%	0.1%	0.1%	0.2%	0.0%	0.0%	0.1%	0.1%	0.0%	0.0%
Malay	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Tagalog	2.9%	2.6%	1.3%	1.5%	0.6%	1.5%	1.4%	1.1%	1.3%	1.1%
Bisayan	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Sebuano	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Ilocano	0.1%	0.1%	0.1%	0.1%	0.1%	0.0%	0.1%	0.0%	0.0%	0.0%
Other Asian languages	0.0%	0.1%	0.0%	0.1%	0.1%	0.3%	0.1%	0.0%	0.0%	0.0%
Pacific Island Languages	**0.2%**	**0.1%**	**0.2%**	**0.1%**	**0.0%**	**0.0%**	**0.3%**	**0.1%**	**0.1%**	**0.1%**
Chamorro	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

Year	Percent of California Population		Percent of California LI Population							
	Total 2011*	Total 2004*	Total 2011*	Total 2004*	ESA parts 2013**	ESA non-parts 2013**	PG&E 2011*	SCE 2011*	SDG&E 2011*	SoCalGas 2011*
Samoan	0.1%	0.1%	0.1%	0.0%	0.0%	0.0%	0.1%	0.0%	0.1%	0.0%
Tongan	0.0%	0.0%	0.1%	0.1%	0.0%	0.0%	0.1%	0.0%	0.1%	0.0%
Hawaiian	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Other PacificIsland languages	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Middle Eastern Languages	**0.8%**	**0.6%**	**1.1%**	**0.7%**	**1.0%**	**1.5%**	**0.8%**	**1.1%**	**1.6%**	**1.1%**
Arabic	0.4%	0.3%	0.7%	0.5%	1.0%	1.5%	0.4%	0.8%	1.0%	0.8%
Hebrew	0.2%	0.1%	0.1%	0.1%	0.0%	0.0%	0.1%	0.1%	0.1%	0.1%
Syriac	0.1%	0.0%	0.1%	0.0%	0.5%	0.0%	0.2%	0.1%	0.2%	0.1%
Amharic	0.1%	0.1%	0.1%	0.1%	0.0%	0.0%	0.1%	0.1%	0.2%	0.1%
Cushite	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%	0.1%	0.0%
African Languages	**0.2%**	**0.1%**	**0.1%**	**0.1%**	**0.5%**	**0.0%**	**0.1%**	**0.1%**	**0.2%**	**0.1%**
Swahili	0.0%	0.0%	0.0%	0.0%	0.4%	0.0%	0.1%	0.0%	0.0%	0.0%
Bantu	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%
Mande	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Fulani	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Krulbo/Yoruba	0.1%	0.0%	0.1%	0.1%	0.1%	0.0%	0.1%	0.1%	0.1%	0.1%
African	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Other specified African languages	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Native American Languages	**0.0%**	**0.0%**	**0.1%**	**0.1%**	**0.1%**	**0.0%**	**0.1%**	**0.1%**	**0.1%**	**0.1%**
Other Algonquian languages	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%
Apache	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Navaho	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Dakota	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Keres	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Cherokee	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
American Indian	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

Year	Percent of California Population		Percent of California LI Population							
	Total 2011*	Total 2004*	Total 2011*	Total 2004*	ESA parts 2013**	ESA non-parts 2013**	PG&E 2011*	SCE 2011*	SDG&E 2011*	SoCalGas 2011*
South/Central American Indian languages	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Other North American Indian	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Other Languages	0.0%	0.0%	0.0%	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%

Sources: *2004 and 2011 ACS/PUMS; **2013 CARE Participant Telephone Survey.

This table presents the proportion of households that speak each language independent of whether other languages are spoken. As this table allows for multiple languages to be spoken per household, the column totals will sum to greater than 100%.

Table 58: Other Languages Spoken - By Home Type, Language and Urban/Rural for California LI Population

	Percent of California LI Population								
	Single-Family Own	Single-Family Rent	Multi-Family	Mobile Homes	English Only	Spanish	Other	Urban	Rural
English	**87.3%**	**81.0%**	**74.6%**	**82.8%**	**100.0%**	**66.1%**	**55.7%**	**79.3%**	**90.9%**
Spanish	**33.8%**	**46.4%**	**37.8%**	**35.4%**	**0.0%**	**100.0%**	**1.4%**	**39.2%**	**24.6%**
Other European	**3.6%**	**1.3%**	**3.1%**	**2.0%**	**0.0%**	**0.0%**	**19.3%**	**3.0%**	**1.7%**
German	0.8%	0.1%	0.4%	0.4%	0.0%	0.0%	2.8%	0.5%	0.3%
Pennsylvania Dutch	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Yiddish	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	0.3%	0.1%	0.0%
Dutch	0.1%	0.1%	0.0%	0.2%	0.0%	0.0%	0.5%	0.1%	0.1%
Swedish	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.2%	0.0%	0.0%
Danish	0.1%	0.0%	0.0%	0.1%	0.0%	0.0%	0.2%	0.0%	0.1%
Norwegian	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Italian	0.4%	0.1%	0.2%	0.1%	0.0%	0.0%	1.4%	0.2%	0.1%
French	0.6%	0.3%	0.5%	0.2%	0.0%	0.0%	3.0%	0.5%	0.5%
Patois	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
French Creole	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.2%	0.0%	0.0%
Cajun	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Portuguese	0.4%	0.2%	0.2%	0.3%	0.0%	0.0%	1.6%	0.3%	0.1%
Romanian	0.1%	0.0%	0.1%	0.2%	0.0%	0.0%	0.6%	0.1%	0.0%
Irish Gaelic	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.2%	0.0%	0.0%
Greek	0.1%	0.0%	0.1%	0.1%	0.0%	0.0%	0.5%	0.1%	0.0%
Albanian	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%
Russian	0.4%	0.3%	1.3%	0.2%	0.0%	0.0%	4.6%	0.8%	0.2%
Ukrainian	0.2%	0.1%	0.1%	0.0%	0.0%	0.0%	0.7%	0.1%	0.1%
Czech	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%
Polish	0.1%	0.1%	0.1%	0.0%	0.0%	0.0%	0.5%	0.1%	0.0%
Slovak	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%
Bulgarian	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.2%	0.0%	0.0%

	Percent of California LI Population								
	Single-Family Own	Single-Family Rent	Multi-Family	Mobile Homes	English Only	Spanish	Other	Urban	Rural
Macedonian	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Serbo Croatian	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.2%	0.0%	0.0%
Croatian	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.2%	0.0%	0.0%
Serbian	0.1%	0.0%	0.0%	0.1%	0.0%	0.0%	0.3%	0.0%	0.1%
Lithuanian	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%
Latvian	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%
Finnish	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Hungarian	0.1%	0.0%	0.0%	0.1%	0.0%	0.0%	0.5%	0.1%	0.1%
Other European languages	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%
Asian Languages	11.4%	10.0%	14.4%	3.4%	0.0%	0.1%	76.8%	13.0%	2.2%
Armenian	0.3%	0.6%	1.6%	0.0%	0.0%	0.0%	5.9%	1.0%	0.0%
Persian	0.6%	0.4%	1.1%	0.0%	0.0%	0.0%	4.6%	0.8%	0.1%
Pashto	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	0.3%	0.1%	0.1%
Kurdish	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Indian	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.2%	0.0%	0.0%
Hindi	0.2%	0.1%	0.3%	0.0%	0.0%	0.0%	1.5%	0.2%	0.2%
Bengali	0.0%	0.1%	0.1%	0.0%	0.0%	0.0%	0.4%	0.1%	0.0%
Panjabi	0.5%	0.3%	0.2%	0.1%	0.0%	0.0%	1.9%	0.3%	0.3%
Marathi	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%
Gujarati	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	0.3%	0.1%	0.0%
Urdu	0.2%	0.0%	0.1%	0.0%	0.0%	0.0%	0.7%	0.1%	0.1%
Nepali	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%
Pakistani	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Sinhalese	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.2%	0.0%	0.0%
Turkish	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	0.4%	0.1%	0.0%
Telugu	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	0.2%	0.0%	0.0%
Kannada	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%
Malayalam	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

	Percent of California LI Population								
	Single-Family Own	Single-Family Rent	Multi-Family	Mobile Homes	English Only	Spanish	Other	Urban	Rural
Tamil	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%
Chinese	2.4%	1.2%	1.9%	0.5%	0.0%	0.0%	11.4%	1.9%	0.2%
Cantonese	0.8%	0.8%	1.0%	0.1%	0.0%	0.0%	5.4%	0.9%	0.0%
Mandarin	0.7%	0.4%	0.8%	0.0%	0.0%	0.0%	4.0%	0.7%	0.0%
Formosan	0.1%	0.0%	0.1%	0.1%	0.0%	0.0%	0.6%	0.1%	0.0%
Burmese	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.2%	0.0%	0.0%
Thai	0.2%	0.1%	0.2%	0.0%	0.0%	0.0%	1.0%	0.2%	0.1%
MiaoyaoMien	0.1%	0.2%	0.0%	0.0%	0.0%	0.0%	0.4%	0.1%	0.0%
Hmong	0.3%	0.4%	0.2%	0.0%	0.0%	0.0%	1.6%	0.3%	0.2%
Japanese	0.5%	0.3%	0.5%	0.2%	0.0%	0.0%	2.9%	0.5%	0.2%
Korean	1.0%	0.7%	2.4%	0.1%	0.0%	0.0%	9.4%	1.6%	0.1%
Laotian	0.1%	0.2%	0.2%	0.0%	0.0%	0.0%	1.1%	0.2%	0.0%
MonKhmer Cambodian	0.2%	0.6%	0.3%	0.0%	0.0%	0.1%	1.8%	0.3%	0.1%
Vietnamese	1.5%	2.7%	1.3%	1.6%	0.0%	0.0%	10.5%	1.8%	0.2%
Indonesian	0.0%	0.1%	0.1%	0.0%	0.0%	0.0%	0.4%	0.1%	0.0%
Malay	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Tagalog	1.5%	0.8%	1.5%	0.6%	0.0%	0.0%	8.3%	1.4%	0.2%
Bisayan	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%
Sebuano	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%
Ilocano	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.3%	0.1%	0.0%
Other Asian languages	0.0%	0.0%	0.1%	0.1%	0.0%	0.0%	0.3%	0.0%	0.1%
Pacific Island Languages	0.0%	0.2%	0.2%	0.0%	0.0%	0.0%	1.2%	0.2%	0.4%
Chamorro	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	0.2%
Samoan	0.0%	0.1%	0.1%	0.0%	0.0%	0.0%	0.5%	0.1%	0.2%
Tongan	0.0%	0.1%	0.1%	0.0%	0.0%	0.0%	0.4%	0.1%	0.0%
Hawaiian	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%
Other Pacific Island languages	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%
Middle Eastern Languages	0.6%	0.6%	1.7%	0.0%	0.0%	0.0%	6.7%	1.0%	0.0%

	Percent of California LI Population								
	Single-Family Own	Single-Family Rent	Multi-Family	Mobile Homes	English Only	Spanish	Other	Urban	Rural
Arabic	0.5%	0.5%	1.0%	0.0%	0.0%	0.0%	4.1%	0.7%	0.0%
Hebrew	0.1%	0.0%	0.2%	0.0%	0.0%	0.0%	0.7%	0.1%	0.0%
Syriac	0.0%	0.1%	0.2%	0.0%	0.0%	0.0%	0.8%	0.1%	0.0%
Amharic	0.0%	0.0%	0.2%	0.0%	0.0%	0.0%	0.8%	0.1%	0.0%
Cushite	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	0.3%	0.0%	0.0%
African Languages	0.1%	0.1%	0.2%	0.0%	0.0%	0.0%	0.9%	0.1%	0.0%
Swahili	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	0.2%	0.0%	0.0%
Bantu	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%
Mande	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Fulani	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Krulbo/Yoruba	0.1%	0.1%	0.1%	0.0%	0.0%	0.0%	0.5%	0.1%	0.0%
African	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Other specified African languages	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%
Native American Languages	0.0%	0.0%	0.0%	0.3%	0.0%	0.0%	0.3%	0.0%	0.1%
Other Algonquian languages	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%
Apache	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Navaho	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Dakota	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Keres	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Cherokee	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
American Indian	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
South/Central American Indian languages	0.0%	0.0%	0.0%	0.2%	0.0%	0.0%	0.2%	0.0%	0.0%
Other North American Indian	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%	0.1%	0.0%	0.0%
Other Languages	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**

Source: 2011 ACS/PUMS.

This table presents the proportion of households that speak each language independent of whether other languages are spoken. As this table allows for multiple languages to be spoken per household, the column totals will sum to greater than 100%.

7.3 Home and Equipment Characteristics Results

This section contains home and equipment characteristic data from two sources: the KEMA CLASS (2013) and RASS (2010). RASS was used to provide data on weather-sensitive energy-using equipment by climate zone categories.

7.3.1 CLASS Data[10]

The following series of tables presents the more detailed home and equipment data from the 2013 CLASS (KEMA). The CLASS data were introduced in Section 2.4. The segments shown in the tables were introduced in Section 4.3.

[10] Multi-family homes are defined as any housing structure with two or more units. This differs from the 2007 KEMA study were multi-family homes are defined as housing structures with five or more units. This also differs from the concurrent Cadmus multi-family LI study which also defines multi-family homes as housing structures with five or more units.

Table 59: Average Square Footage of Home – By Population Segment and IOU

	Percent of California LI Population					
	Total	Total	PG&E	SCE	SDG&E	SoCalGas
Average Sq Ft	1,643	1,311	1,332	1,298	1,292	1,330
Standard Error	24	40	64	63	87	63
Sample Size (n)	1,810	311	116	146	49	145

Source: 2013 CLASS.

Table 60: Average Square Footage of Home – By Home Type and Language for California LI Population

	Percent of California LI Population				
	Single-Family Own	Single-Family Rent	Multi-Family	Primary Language Spanish	English Only
Average Sq Ft	1,629	1,409	885	1,240	1,284
Standard Error	60	70	34	60	49
Sample Size (n)	160	57	83	64	230

Source: 2013 CLASS.

Table 61: Heating Equipment Type – By Population Segment and IOU

	Percent of California Population	Percent of California LI Population	Percent of California LI Population			
	Total	Total	PG&E	SCE	SDG&E	SoCalGas
Electric	**11%**	**10%**	**9%**	**9%**	**25%**	**3%**
Portable Heaters	2%	2%	1%	1%	3%	1%
Heat Pump	2%	2%	2%	2%	4%	1%
Wll/Floor Heaters	1%	0%	0%	0%	0%	0%
Hot Air Furnace	2%	1%	0%	2%	2%	1%
Resistance/Baseboard	2%	3%	4%	1%	9%	0%
Other Electric	2%	2%	1%	2%	7%	0%
Natural Gas	**83%**	**79%**	**78%**	**85%**	**66%**	**93%**
Hot Air Furnace	61%	47%	48%	48%	46%	55%
Space Heaters/Wall Units	14%	27%	27%	30%	8%	31%
Hot Water Radiator/Baseboard	0%	0%	0%	0%	0%	0%
Other Gas	8%	5%	2%	7%	12%	7%
Oil	**0%**	**0%**	**0%**	**0%**	**0%**	**0%**
Fireplace	0%	0%	0%	0%	0%	0%
Steam	0%	0%	0%	0%	0%	0%
Stove/Stove Insert	0%	0%	0%	0%	0%	0%
Space Heaters	0%	0%	0%	0%	0%	0%
Other Oil	0%	0%	0%	0%	0%	0%
Propane	**4%**	**2%**	**3%**	**2%**	**1%**	**0%**
Hot Air Furnace	3%	1%	2%	1%	1%	0%
Space Heaters	0%	0%	0%	0%	0%	0%
Hot Water Radiator/Baseboard	0%	0%	0%	0%	0%	0%
Fireplace	0%	0%	0%	0%	0%	0%
Steam	0%	0%	0%	0%	0%	0%
Other Propane	1%	1%	1%	1%	1%	0%
Wood or Coal	**1%**	**4%**	**7%**	**1%**	**2%**	**0%**
Fireplace	1%	2%	5%	0%	2%	0%
Stove/Stove Insert	0%	1%	2%	0%	0%	0%
Furnace	0%	0%	0%	0%	0%	0%
Hot Water Radiator/Baseboard	0%	0%	0%	0%	0%	0%
Other Wood/Coal	0%	0%	0%	0%	0%	0%
No Heating Equipment	**2%**	**4%**	**4%**	**4%**	**7%**	**4%**
Sample Size (n)	1,987	388	166	171	53	165

Source: 2013 CLASS.

Table 62: Heating Equipment Type – By Home Type and Language for California LI Population

	Percent of California LI Population				
	Single-Family Own	Single-Family Rent	Multi-Family	Primary Language Spanish	English Only
Electric	**5%**	**1%**	**19%**	**9%**	**12%**
Portable Heaters	1%	1%	1%	1%	2%
Heat Pump	1%	0%	5%	1%	3%
Wall/Floor Heaters	0%	0%	1%	1%	0%
Hot Air Furnace	1%	0%	2%	1%	1%
Resistance/Baseboard	0%	0%	7%	3%	3%
Other Electric	1%	0%	4%	2%	2%
Natural Gas	**82%**	**86%**	**76%**	**82%**	**78%**
Hot Air Furnace	64%	47%	32%	40%	49%
Space Heaters/Wall Units	15%	26%	40%	38%	23%
Hot Water Radiator/Baseboard	0%	0%	0%	0%	0%
Other Gas	4%	13%	4%	4%	6%
Oil	**0%**	**0%**	**0%**	**0%**	**0%**
Fireplace	0%	0%	0%	0%	0%
Steam	0%	0%	0%	0%	0%
Stove/Stove Insert	0%	0%	0%	0%	0%
Space Heaters	0%	0%	0%	0%	0%
Other Oil	0%	0%	0%	0%	0%
Propane	**3%**	**4%**	**0%**	**0%**	**3%**
Hot Air Furnace	3%	0%	0%	0%	2%
Space Heaters	0%	0%	0%	0%	0%
Hot Water Radiator/Baseboard	0%	0%	0%	0%	0%
Fireplace	0%	0%	0%	0%	0%
Steam	0%	0%	0%	0%	0%
Other Propane	0%	4%	0%	0%	1%
Wood or Coal	**6%**	**4%**	**1%**	**2%**	**4%**
Fireplace	5%	2%	1%	2%	2%
Stove/Stove Insert	1%	2%	0%	0%	2%
Furnace	0%	0%	0%	0%	0%
Hot Water Radiator/Baseboard	0%	0%	0%	0%	0%
Other Wood/Coal	0%	0%	0%	0%	0%
No Heating Equipment	**3%**	**5%**	**5%**	**7%**	**3%**
Sample Size (n)	174	72	111	90	259

Source: 2013 CLASS.

Table 63: Cooling Equipment Type and Age – By Population Segment and IOU

	Percent of California Population	Percent of California LI Population	Percent of California LI Population			
	Total	Total	PG&E	SCE	SDG&E	SoCalGas
Type of Cooling Equipment/Systems						
Central Air Conditioners	47%	32%	29%	38%	24%	41%
Heat Pumps	2%	2%	3%	3%	0%	1%
Room Air Conditioners	15%	25%	16%	36%	17%	32%
Evaporative Coolers	2%	6%	5%	7%	0%	6%
No Cooling Equipment	34%	35%	48%	17%	59%	20%
Age of Cooling Equipment						
<10 years	40%	53%	47%	62%	46%	57%
10-19 years	34%	27%	39%	23%	36%	27%
20-29 years	25%	20%	14%	16%	18%	15%
30 or more years	1%	0%	0%	0%	0%	0%
Average Age	12.7	10.0	10.1	9.5	12.1	9.8
Standard Error	1.1	2.2	3.2	1.5	1.1	1.1
Sample Size (n, Age)	388	53	17	27	10	27
Sample Size (n, Type)	1,987	388	166	171	53	165

Source: 2013 CLASS.

Table 64: Cooling Equipment Type and Age – By Home Type and Language for California LI Population

	Percent of California LI Population				
	Single-Family Own	Single-Family Rent	Multi-Family	Primary Language Spanish	English Only
Type of Cooling Equipment/Systems					
Central Air Conditioners	45%	26%	23%	24%	35%
Heat Pumps	2%	0%	4%	0%	4%
Room Air Conditioners	22%	36%	24%	35%	21%
Evaporative Coolers	8%	10%	1%	6%	6%
No Cooling Equipment	24%	29%	48%	35%	35%
Age of Cooling Equipment					
<10 years	56%	52%	56%	80%	51%
10-19 years	29%	29%	31%	20%	28%
20-29 years	15%	19%	13%	0%	21%
30 or more years	0%	0%	0%	0%	0%
Average Age	10.1	9.7	10.0	6.8	10.9
Standard Error	0.4	0.9	1.6	1.3	2.1
Sample Size (n, Age)	33	13	6	10	42
Sample Size (n, Type)	138	58	66	67	191

Source: 2013 CLASS.

Table 65: Water Heating Equipment Type and Age – By Population Segment and IOU

	Percent of California Population	Percent of California LI Population	Percent of California LI Population			
	Total	Total	PG&E	SCE	SDG&E	SoCalGas
Water Heating Fuel						
Electricity	6%	8%	10%	7%	3%	2%
Natural Gas	84%	81%	74%	90%	74%	96%
Propane	4%	3%	5%	1%	2%	0%
Solar	1%	1%	1%	1%	0%	1%
Unknown	5%	8%	11%	2%	21%	2%
Age of Water Heating Equipment						
1-5 years	35%	33%	27%	37%	42%	37%
6-10 years	48%	45%	55%	37%	48%	37%
11-15 years	7%	9%	10%	9%	4%	8%
16-20 years	5%	8%	4%	12%	6%	12%
More than 20 years	4%	5%	4%	6%	0%	6%
Average Age	7.8	8.2	8.2	8.5	6.9	8.5
Standard Error	0.2	0.5	0.7	0.8	1.0	0.8
Sample Size (n, Age)	731	135	52	63	20	62
Sample Size (n, Type)	1,987	388	166	171	53	165

Source: 2013 CLASS.

Table 66: Water Heating Equipment Type and Age – By Home Type and Language for California LI Population

	Percent of California LI Population				
	Single-Family Own	Single-Family Rent	Multi-Family	Primary Language Spanish	English Only
Water Heating Fuel					
Electricity	7%	3%	10%	8%	8%
Natural Gas	86%	95%	69%	83%	80%
Propane	4%	1%	0%	1%	4%
Solar	1%	0%	0%	0%	1%
Unknown	1%	0%	20%	9%	7%
Age of Water Heating Equipment					
1-5 years	28%	45%	35%	31%	34%
6-10 years	52%	43%	38%	50%	45%
11-15 years	8%	0%	13%	9%	9%
16-20 years	5%	11%	11%	6%	7%
More than 20 years	7%	2%	3%	4%	5%
Average Age	8.6	6.9	8.2	7.7	8.2
Standard Error	0.7	0.9	0.9	0.9	0.5
Sample Size (n, Age)	69	25	38	33	96
Sample Size (n, Type)	180	76	118	99	266

Source: 2013 CLASS.

Table 67: Existing Wall Insulation R-Value – By Population Segment and IOU

	Percent of California Population	Percent of California LI Population	Percent of California LI Population			
	Total	Total	PG&E	SCE	SDG&E	SoCalGas
No insulation (R-0)	26%	35%	36%	33%	49%	32%
R-1 --> R-10	15%	20%	23%	20%	9%	20%
R-11 --> R-18	54%	44%	37%	45%	41%	47%
R-19 --> R-30	5%	0%	5%	1%	1%	1%
Sample Size (n)	1,835	358	147	166	47	161

Source: 2013 CLASS.

Table 68: Existing Wall Insulation R-Value – By Home Type and Language for California LI Population

	Percent of California LI Population				
	Single-Family Own	Single-Family Rent	Multi-Family	Primary Language Spanish	English Only
No insulation (R-0)	35%	46%	32%	41%	36%
R-1 --> R-10	13%	17%	27%	23%	18%
R-11 --> R-18	47%	37%	39%	36%	44%
R-19 --> R-30	5%	1%	1%	0%	2%
Sample Size (n)	173	70	104	86	251

Source: 2013 CLASS.

Table 69: Foundation Type – By Population Segment and IOU

	Percent of California Population	Percent of California LI Population	Percent of California LI Population			
	Total	Total	PG&E	SCE	SDG&E	SoCalGas
Slab	55%	52%	42%	59%	70%	60%
Crawl	31%	34%	39%	32%	15%	33%
Basement	7%	7%	10%	3%	7%	3%
Mobile home skirting	<1%	<1%	1%	0%	0%	0%
Not applicable (not on ground floor)	7%	9%	9%	6%	8%	4%
Sample Size (n)	1,984	387	166	170	53	164

Source: 2013 CLASS.

Table 70: Foundation Type – By Home Type and Language for California LI Population

	Percent of California LI Population				
	Single-Family Own	Single-Family Rent	Multi-Family	Primary Language Spanish	English Only
Slab	46%	45%	62%	58%	50%
Crawl	43%	51%	15%	30%	35%
Basement	10%	4%	5%	6%	6%
Mobile home skirting	0%	0%	0%	0%	<1%
Not applicable (not on ground floor)	0%	0%	18%	6%	8%
Sample Size (n)	180	76	118	99	265

Source: 2013 CLASS.

Table 71: Refrigerator Characteristics – By Population Segment and IOU

	Percent of California Population	Percent of California LI Population	Percent of California LI Population			
	Total	Total	PG&E	SCE	SDG&E	SoCalGas
Number of Refrigerators						
One	70%	77%	82%	73%	74%	73%
Two or three	29%	22%	18%	26%	26%	24%
Style						
Single door	12%	10%	6%	12%	9%	13%
Top/bottom doors	55%	63%	66%	61%	64%	60%
Side-by-side doors	33%	27%	28%	26%	27%	28%
Size						
Small (<17 cu ft)	14%	13%	13%	15%	9%	14%
Medium (17-20 cu ft)	28%	37%	34%	39%	34%	39%
Large (>20 cu ft)	57%	50%	54%	46%	57%	47%
Type of Defrost						
Frost-free	94%	91%	94%	88%	94%	88%
Partial frost-free	3%	4%	4%	5%	0%	4%
Manual	4%	5%	3%	7%	7%	8%
Age						
<6 years	24%	28%	27%	28%	43%	28%
6-10 years	37%	42%	42%	41%	37%	40%
11-15 years	24%	18%	20%	17%	8%	21%
16+ years	16%	13%	10%	15%	12%	12%
Average Age	9.8	8.8	8.8	9.0	7.3	8.5
Standard Error	0.2	0.4	0.5	0.5	1.1	0.5
Sample Size (n, Age)	1,249	268	111	134	25	124
Sample Size (n, Type)	1,987	388	166	171	53	165

Source: 2013 CLASS.

Table 72: Refrigerator Characteristics – By Home Type and Language for California LI Population

	Percent of California LI Population				
	Single-Family Own	Single-Family Rent	Multi-Family	Primary Language Spanish	English Only
Number of Refrigerators					
One	64%	72%	92%	78%	79%
Two or three	35%	27%	8%	21%	21%
Style					
Single door	10%	10%	7%	9%	9%
Top/bottom doors	52%	63%	80%	71%	63%
Side-by-side doors	37%	27%	13%	21%	27%
Size					
Small (<17 cu ft)	12%	12%	14%	12%	13%
Medium (17-20 cu ft)	22%	40%	55%	48%	32%
Large (>20 cu ft)	65%	48%	31%	40%	54%
Type of Defrost					
Frost-free	90%	92%	94%	90%	93%
Partial frost-free	5%	2%	3%	5%	2%
Manual	5%	7%	3%	5%	4%
Age					
<6 years	28%	20%	31%	34%	24%
6-10 years	45%	43%	44%	41%	44%
11-15 years	16%	18%	17%	10%	20%
16+ years	11%	19%	8%	15%	12%
Average Age	9.3	9.9	7.9	8.3	9.1
Standard Error	0.5	0.8	0.6	0.7	0.4
Sample Size (n, Age)	142	57	63	69	174
Sample Size (n, Type)	178	75	118	99	266

Source: 2013 CLASS.

Table 73: Home Appliance Types – By Population Segment and IOU

	Percent of California Population	Percent of California LI Population	Percent of California LI Population			
	Total	Total	PG&E	SCE	SDG&E	SoCalGas
Dishwasher	74%	50%	45%	54%	56%	52%
No Dishwasher	26%	50%	55%	46%	44%	48%
Clothes Washer	81%	68%	68%	70%	63%	74%
No Clothes Washer	19%	32%	32%	30%	37%	26%
Clothes Dryer	79%	66%	65%	68%	60%	72%
Electric	28%	24%	42%	8%	17%	7%
Gas	49%	40%	21%	59%	43%	65%
Propane	2%	2%	2%	1%	1%	0%
No Clothes Dryer	21%	35%	35%	32%	40%	28%
Sample Size (n)	1,987	388	166	171	53	165

Source: 2013 CLASS.

Table 74: Home Appliance Types – By Home Type and Language for California LI Population

	Percent of California LI Population				
	Single-Family Own	Single-Family Rent	Multi-Family	Primary Language Spanish	English Only
Dishwasher	61%	44%	41%	26%	58%
No Dishwasher	39%	56%	59%	74%	42%
Clothes Washer	94%	97%	30%	60%	71%
No Clothes Washer	6%	3%	70%	40%	29%
Clothes Dryer	91%	91%	29%	53%	73%
Electric	31%	32%	15%	15%	27%
Gas	58%	56%	15%	38%	41%
Propane	2%	3%	0%	0%	3%
No Clothes Dryer	9%	9%	71%	47%	29%
Sample Size (n)	180	76	118	99	266

Source: 2013 CLASS.

Table 75: Lighting Types – By Population Segment and IOU

	Percent of California Population	Percent of California LI Population	Percent of California LI Population			
	Total	Total	PG&E	SCE	SDG&E	SoCalGas
Lighting Type						
Incandescent Lamps	47%	41%	40%	41%	41%	42%
CFLs	34%	41%	42%	39%	40%	39%
Fluorescent Fixtures	7%	8%	7%	9%	11%	9%
Halogen Lamps	7%	4%	3%	4%	3%	4%
Other	4%	7%	7%	7%	5%	6%
Lighting Controls Installed	18%	14%	15%	14%	12%	14%
No Lighting Controls	82%	86%	85%	86%	88%	86%
Sample Size (n)[11]	64,297	8,982	3,846	3,988	1,213	3,959

Source: 2013 CLASS.

Table 76: Lighting Types – By Home Type and Language for California LI Population

	Percent of California LI Population				
	Single-Family Own	Single-Family Rent	Multi-Family	Primary Language Spanish	English Only
Lighting Type					
Incandescent Lamps	44%	37%	38%	31%	45%
CFLs	36%	43%	47%	48%	38%
Fluorescent Fixtures	8%	8%	8%	9%	7%
Halogen Lamps	5%	4%	2%	3%	4%
Other	7%	9%	6%	9%	5%
Lighting Controls Installed	15%	13%	14%	9%	16%
No Lighting Controls	85%	88%	86%	91%	84%
Sample Size (n)	5,332	1,715	1,648	1,697	6,654

Source: 2013 CLASS.

[11] The n's in this table reflect the number of lighting fixtures in the CLASS sample rather than the number of households.

7.3.2 RASS Data

The following series of tables presents home and equipment data that are weather-sensitive by climate zone from the 2010 RASS (KEMA). The RASS data were introduced in Section 2.4. The segments shown in the tables, along with the sample sizes, are:

- Climate Zone Group:
  - Central Valley - CEC building climate zone 11-13 (n = 1,463);
  - Desert – CEC building climate zone 14 and 15 (n = 724);
  - Mountain - CEC building climate zone 16 (n = 394);
  - North Coast - CEC building climate zones 1-5 (n = 1,121);
  - South Coast - CEC building climate zones 6-8 (n = 2,166); and
  - South Inland - CEC building climate zone 9 and 10 (n = 2,102).
- ESA Measure Eligibility (based on 2009-2011):
  - Room Air Conditioner Replacement and Evaporative Cooler Installation - CEC building climate zones 10-16 (n = 3,476); and
  - Central Air Conditioner Replacement CEC building climate zones 13-15 (n = 1,504).

Table 77: Heating Fuel Type by Regional Climate Zone for California LI Population

	Total	Climate Zone - Region					
		Central Valley	Desert	Mountain	North Coast	South Coast	South Inland
Heating Fuel							
Natural Gas	71%	73%	71%	50%	73%	68%	73%
Electric	6%	7%	3%	17%	8%	7%	3%
Propane	3%	6%	5%	12%	3%	0%	1%
Wood/coal	2%	4%	3%	9%	2%	0%	0%
Other	5%	4%	13%	7%	5%	5%	5%
No heating equipment/ systems	9%	2%	2%	3%	5%	16%	13%
No Response	4%	5%	3%	3%	4%	4%	5%

Source: 2010 RASS.

Table 78: Heating Set Point Range by Regional Climate Zone for California LI Population

		Climate Zone - Region					
	Total	Central Valley	Desert	Mountain	North Coast	South Coast	South Inland
Morning							
55 to 60 °F	4%	3%	4%	21%	5%	3%	3%
61 to 65 °F	12%	15%	14%	12%	18%	7%	8%
66 to 70 °F	19%	26%	21%	15%	23%	16%	14%
71 to 75 °F	12%	18%	18%	16%	6%	9%	14%
Below 55 °F	2%	1%	1%	1%	2%	2%	1%
No response	11%	8%	13%	9%	11%	14%	11%
Not applicable	20%	8%	10%	15%	16%	29%	25%
Off	18%	17%	16%	9%	18%	18%	21%
Over 75 °F	3%	4%	3%	2%	0%	2%	3%
Day							
55 to 60 °F	3%	2%	6%	6%	5%	1%	3%
61 to 65 °F	9%	11%	7%	14%	17%	7%	6%
66 to 70 °F	14%	21%	15%	11%	15%	10%	12%
71 to 75 °F	10%	19%	15%	13%	5%	6%	11%
Below 55 °F	1%	2%	2%	2%	2%	1%	1%
No response	11%	8%	13%	9%	11%	14%	11%
Not applicable	20%	8%	10%	15%	16%	29%	25%
Off	29%	26%	29%	31%	30%	30%	30%
Over 75 °F	2%	2%	3%	1%	0%	2%	2%
Evening							
55 to 60 °F	3%	3%	3%	4%	5%	3%	2%
61 to 65 °F	9%	9%	4%	13%	16%	5%	6%
66 to 70 °F	21%	29%	26%	17%	23%	18%	16%
71 to 75 °F	14%	23%	19%	14%	7%	8%	16%
Below 55 °F	1%	0%	2%	0%	1%	1%	1%
No response	11%	8%	13%	9%	11%	14%	11%
Not applicable	20%	8%	10%	15%	16%	29%	25%
Off	19%	17%	18%	27%	21%	19%	20%
Over 75 °F	3%	3%	4%	1%	0%	4%	3%
Night							
55 to 60 °F	5%	5%	5%	10%	6%	3%	5%
61 to 65 °F	12%	17%	9%	11%	17%	8%	7%
66 to 70 °F	14%	14%	23%	10%	16%	11%	14%
71 to 75 °F	10%	18%	11%	10%	4%	8%	10%
Below 55 °F	3%	4%	3%	6%	3%	3%	2%

		Climate Zone - Region					
	Total	Central Valley	Desert	Mountain	North Coast	South Coast	South Inland
No response	11%	8%	13%	9%	11%	14%	11%
Not applicable	20%	8%	10%	15%	16%	29%	25%
Off	24%	22%	23%	28%	27%	22%	24%
Over 75 °F	2%	4%	3%	1%	0%	2%	3%

Source: 2010 RASS.

Table 79: Heating Set Point Range by ESA Measure Eligibility for California LI Population

	Climate Zone – ESA Measure Eligibility	
	RAC Replace and Evap. Cooler Install	CAC Replacement
Morning		
55 to 60 °F	5%	3%
61 to 65 °F	14%	13%
66 to 70 °F	23%	23%
71 to 75 °F	19%	18%
Below 55 °F	1%	2%
No response	9%	9%
Not applicable	10%	11%
Off	17%	17%
Over 75 °F	3%	3%
Day		
55 to 60 °F	3%	3%
61 to 65 °F	10%	9%
66 to 70 °F	19%	16%
71 to 75 °F	18%	20%
Below 55 °F	2%	1%
No response	9%	9%
Not applicable	10%	11%
Off	28%	29%
Over 75 °F	2%	2%
Evening		
55 to 60 °F	3%	3%
61 to 65 °F	8%	5%
66 to 70 °F	25%	23%
71 to 75 °F	22%	23%
Below 55 °F	1%	1%
No response	9%	9%
Not applicable	10%	11%
Off	19%	21%
Over 75 °F	3%	3%
Night		
55 to 60 °F	6%	5%
61 to 65 °F	14%	13%
66 to 70 °F	15%	18%
71 to 75 °F	16%	18%
Below 55 °F	4%	2%

	Climate Zone – ESA Measure Eligibility	
	RAC Replace and Evap. Cooler Install	CAC Replacement
No response	9%	9%
Not applicable	10%	11%
Off	24%	19%
Over 75 °F	3%	6%

Source: 2010 RASS.

Table 80: Cooling Thermostat by Regional Climate Zone for California LI Population

		Climate Zone - Region					
	Total	Central Valley	Desert	Mountain	North Coast	South Coast	South Inland
Cooling Thermostat							
Standard (Not Programmable)	17%	24%	20%	15%	6%	15%	22%
Programmable	14%	27%	25%	19%	5%	7%	16%
Programmable Communicating	9%	12%	24%	20%	7%	4%	8%
None	8%	11%	15%	13%	5%	6%	9%
Not Applicable	47%	22%	12%	31%	73%	66%	38%
No Response	4%	4%	4%	2%	5%	2%	7%

Source: 2010 RASS.

Table 81: Cooling Thermostat by ESA Measure Eligibility for California LI Population

	Climate Zone – ESA Measure Eligibility	
	RAC Replace and Evap. Cooler Install	CAC Replacement
Cooling Thermostat		
Standard (Not Programmable)	25%	27%
Programmable	26%	25%
Programmable Communicating	14%	17%
None	11%	13%
Not Applicable	20%	13%
No Response	5%	5%

Source: 2010 RASS.

Table 82: Cooling Set Point Range by Regional Climate Zone for California LI Population

	Total	Climate Zone - Region					
		Central Valley	Desert	Mountain	North Coast	South Coast	South Inland
Morning							
70 to 73 °F	4%	5%	14%	3%	2%	2%	4%
74 to 76 °F	6%	11%	11%	9%	2%	2%	6%
77 to 80 °F	7%	12%	16%	19%	0%	3%	8%
Above 80 °F	1%	3%	2%	1%	0%	1%	1%
Below 70 °F	3%	4%	2%	3%	4%	2%	2%
No response	4%	4%	8%	2%	5%	3%	5%
Not applicable	57%	34%	27%	51%	79%	74%	49%
Off	18%	27%	20%	11%	7%	14%	25%
Day							
70 to 73 °F	6%	7%	9%	5%	4%	4%	9%
74 to 76 °F	7%	14%	12%	8%	3%	3%	7%
77 to 80 °F	9%	18%	18%	6%	1%	4%	11%
Above 80 °F	2%	3%	4%	1%	0%	1%	2%
Below 70 °F	4%	6%	3%	3%	2%	4%	3%
No response	4%	4%	8%	2%	5%	3%	5%
Not applicable	57%	34%	27%	51%	79%	74%	49%
Off	11%	14%	18%	24%	6%	8%	14%
Evening							
70 to 73 °F	7%	9%	17%	7%	4%	3%	9%
74 to 76 °F	8%	18%	12%	8%	3%	3%	9%
77 to 80 °F	9%	19%	21%	9%	1%	3%	11%
Above 80 °F	1%	3%	3%	1%	0%	1%	1%
Below 70 °F	4%	6%	3%	2%	3%	3%	3%
No response	4%	4%	8%	2%	5%	3%	5%
Not applicable	57%	34%	27%	51%	79%	74%	49%
Off	10%	8%	9%	19%	6%	11%	12%
Night							
70 to 73 °F	4%	5%	13%	4%	2%	3%	5%
74 to 76 °F	6%	14%	8%	4%	2%	2%	6%
77 to 80 °F	7%	12%	19%	5%	0%	3%	8%
Above 80 °F	2%	3%	2%	1%	0%	1%	1%
Below 70 °F	3%	5%	3%	2%	2%	2%	2%
No response	4%	4%	8%	2%	5%	3%	5%
Not applicable	57%	34%	27%	51%	79%	74%	49%
Off	18%	22%	20%	31%	9%	12%	24%

Source: 2010 RASS.

Table 83: Cooling Set Point Range by ESA Measure Eligibility for California LI Population

	Climate Zone – ESA Measure Eligibility	
	RAC Replace and Evap. Cooler Install	CAC Replacement
Morning		
70 to 73 °F	6%	8%
74 to 76 °F	11%	13%
77 to 80 °F	14%	15%
Above 80 °F	2%	3%
Below 70 °F	3%	4%
No response	5%	6%
Not applicable	32%	26%
Off	27%	26%
Day		
70 to 73 °F	8%	6%
74 to 76 °F	13%	14%
77 to 80 °F	18%	21%
Above 80 °F	3%	5%
Below 70 °F	5%	7%
No response	5%	6%
Not applicable	32%	26%
Off	16%	16%
Evening		
70 to 73 °F	10%	10%
74 to 76 °F	16%	18%
77 to 80 °F	19%	21%
Above 80 °F	3%	3%
Below 70 °F	5%	6%
No response	5%	6%
Not applicable	32%	26%
Off	11%	10%
Night		
70 to 73 °F	7%	7%
74 to 76 °F	12%	16%
77 to 80 °F	14%	16%
Above 80 °F	3%	4%
Below 70 °F	4%	6%
No response	5%	6%
Not applicable	32%	26%
Off	25%	20%

Source: 2010 RASS.

Table 84: Primary Type of Heating Equipment by Regional Climate Zone for California LI Population

	Total	Climate Zone - Region					
		Central Valley	Desert	Mountain	North Coast	South Coast	South Inland
Electric							
Portable Heaters	5%	4%	5%	5%	3%	4%	7%
Heat Pump	2%	3%	4%	3%	0%	3%	2%
Through-the-wall Electric Heat Pump	1%	1%	1%	1%	2%	1%	2%
Central Forced Air Electric Furnace	5%	8%	4%	9%	3%	5%	5%
Resistance/Baseboard	5%	3%	2%	7%	6%	7%	3%
Other Electric	1%	0%	0%	2%	2%	1%	0%
Natural Gas							
Central Forced Air Gas Furnace	37%	46%	56%	36%	32%	29%	38%
Space Heaters/Wall Units	24%	17%	14%	10%	34%	27%	21%
Other Gas	1%	1%	1%	0%	0%	1%	1%
Fireplace	0%	0%	0%	0%	1%	0%	0%
Steam	1%	1%	1%	0%	1%	2%	1%
Propane							
Central Forced Air Propane Furnace	2%	5%	2%	7%	2%	0%	0%
Other Propane	0%	0%	0%	0%	0%	0%	0%
Steam	0%	0%	0%	0%	0%	0%	0%
Floor or Wall Propane Heater	1%	1%	2%	3%	1%	0%	0%
Wood or Coal							
Fireplace	1%	2%	2%	4%	0%	0%	0%
Stove/Stove Insert	1%	2%	1%	5%	1%	0%	0%
Solar Heat							
Solar Heat Electric Backup	0%	0%	0%	0%	0%	0%	0%
Solar Heat Natural Gas Backup	0%	0%	0%	0%	0%	0%	0%
Solar Heat Propane Backup	0%	0%	0%	1%	0%	0%	0%
Solar Heat No Backup	0%	0%	0%	0%	0%	0%	0%
Other	0%	0%	0%	1%	0%	0%	1%
No primary heating equipment/systems	13%	7%	5%	6%	9%	20%	18%

Source: 2010 RASS.

Table 85: Primary Type of Heating Equipment by ESA Measure Eligibility for California LI Population

	Climate Zone – ESA Measure Eligibility	
	RAC Replace and Evap. Cooler Install	CAC Replacement
Electric		
Portable Heaters	4%	5%
Heat Pump	3%	2%
Through-the-wall Electric Heat Pump	1%	1%
Central Forced Air Electric Furnace	8%	7%
Resistance/Baseboard	3%	2%
Other Electric	0%	0%
Natural Gas		
Central Forced Air Gas Furnace	48%	54%
Space Heaters/Wall Units	14%	16%
Other Gas	1%	1%
Fireplace	0%	0%
Steam	1%	1%
Propane		
Central Forced Air Propane Furnace	4%	2%
Other Propane	0%	0%
Steam	0%	0%
Floor or Wall Propane Heater	1%	1%
Wood or Coal		
Fireplace	2%	1%
Stove/Stove Insert	1%	1%
Solar Heat		
Solar Heat Electric Backup	0%	0%
Solar Heat Natural Gas Backup	0%	0%
Solar Heat Propane Backup	0%	0%
Solar Heat No Backup	0%	0%
Other	0%	0%
No primary heating equipment/systems	8%	7%

Source: 2010 RASS.

Table 86: Cooling Equipment/System Type by ESA Measure Eligibility for California LI Population

	Climate Zone – ESA Measure Eligibility	
	RAC Replace and Evap. Cooler Install	CAC Replacement
Cooling System		
Central Air Conditioners Only	49%	52%
Room Air Conditioners Only	14%	9%
Central Evaporative Coolers Only	6%	8%
Multiple Types of AC	22%	25%
No AC	9%	6%

Source: 2010 RASS.

Table 87: Existing Exterior Wall Insulation by Regional Climate Zone for California LI Population

		Climate Zone - Region					
	Total	Central Valley	Desert	Mountain	North Coast	South Coast	South Inland
Existing Insulation							
Has no Wall Insulation	29%	18%	18%	19%	31%	37%	29%
Has some Wall Insulation	18%	20%	14%	14%	17%	18%	18%
Has Wall Insulation everywhere	39%	52%	53%	40%	39%	27%	36%
No Response	14%	10%	14%	26%	12%	17%	17%

Source: 2010 RASS.

Table 88: Existing Exterior Wall Insulation by ESA Measure Eligibility for California LI Population

	Climate Zone – ESA Measure Eligibility	
	RAC Replace and Evap. Cooler Install	CAC Replacement
Existing Insulation		
Has no Wall Insulation	19%	21%
Has some Wall Insulation	17%	18%
Has Wall Insulation everywhere	51%	51%
No Response	12%	10%

Source: 2010 RASS.

Table 89: Existing Attic Insulation by Regional Climate Zone for California LI Population

	Total	Climate Zone - Region					
		Central Valley	Desert	Mountain	North Coast	South Coast	South Inland
Inches of Attic Insulation							
No insulation	48%	40%	30%	31%	47%	58%	51%
0-3 Inches	16%	17%	18%	21%	16%	12%	17%
4-6 Inches	18%	23%	29%	16%	16%	12%	19%
7-10 Inches	5%	6%	6%	6%	7%	4%	3%
More than 10 Inches	2%	1%	4%	4%	2%	2%	2%
No Response	12%	13%	13%	22%	12%	12%	8%

Source: 2010 RASS.

Table 90: Existing Attic Insulation by ESA Measure Eligibility for California LI Population

	Climate Zone – ESA Measure Eligibility	
	RAC Replace and Evap. Cooler Install	CAC Replacement
Inches of Attic Insulation		
No insulation	38%	39%
0-3 Inches	18%	17%
4-6 Inches	24%	23%
7-10 Inches	5%	3%
More than 10 Inches	2%	2%
No Response	13%	15%

Source: 2010 RASS.

Table 91: RASS Window Type by Regional Climate Zone for California LI Population

		Climate Zone - Region					
	Total	Central Valley	Desert	Mountain	North Coast	South Coast	South Inland
Type of Window							
All or most single pane	29%	53%	39%	45%	43%	55%	52%
Mixture Single and Double Pane	18%	7%	12%	10%	12%	9%	11%
All or Most Double Pane	39%	35%	44%	40%	40%	25%	28%
No Response	14%	4%	5%	5%	5%	11%	10%

Source: 2010 RASS.

Table 92: Window Type by ESA Measure Eligibility for California LI Population

	Climate Zone – ESA Measure Eligibility	
	RAC Replace and Evap. Cooler Install	CAC Replacement
Type of Window		
All or most single pane	51%	49%
Mixture Single and Double Pane	8%	11%
All or Most Double Pane	36%	36%
No Response	5%	4%

Source: 2010 RASS.

8 Telephone Survey Detailed Results

8.1 Comparison to Census

Table 22 (from Section 7.1.2 above) compared the customer telephone survey to PUMS, which we assume is the most reliable source. Below in Table 93 we show just the PUMS and telephone survey columns from the data source comparison table. As shown, the telephone survey overrepresents the following segments:

- Homeowners
- Households with seniors
- White respondents
- Households where English is the primary language

We developed adjustment weights to correct for the difference in home ownership, but we did not attempt to weight the sample of non-English speakers and non-white respondents. Given the study resource constraints, we were unable to conduct a survey with all non-English speakers (we conducted a Spanish-language version of the survey). We do not want to represent our non-white/non-English speaking samples as reflective of the total population of non-white and non-English speakers. Instead, we provide results in this appendix broken out by these segments.

Table 94 shows the home ownership and home type differences between Census and the customer telephone survey data broken out by IOU.

Table 93: Comparison of Demographic Characteristics Across Secondary Sources and the Customer Telephone Survey for California LI Population

	Data Source	
Demographic Characteristic	**2011 PUMS LI Sample**	**2013 LINA Telephone Survey**
% own	33%	51%
% with seniors*	26%	53%
Primary language is English	46%	76%
Respondent is white	36%	46%
% Single-family home	51%	56%
% Multi-family home	43%	40%
Average # people in the home	3.0	3.0
Average age of home	47	41
*Definition of senior	Over 65 years	Over 60 years

Sources: 2011 PUMS; 2013 CARE Participant Telephone Survey.

Table 94: Comparison of Demographic Characteristics Across Secondary Sources and the Customer Telephone Survey for California LI Population – Own/Rent/Other and Home Type by IOU

		PG&E	SCE	SDG&E	SoCalGas
2011 PUMS	Multi-Family Own	1%	2%	2%	2%
	Multi-Family Rent	36%	42%	40%	42%
	Multi-Family Other	0%	0%	0%	0%
	SF/Mobile Own	34%	31%	35%	30%
	SF/Mobile Rent	25%	23%	20%	23%
	SF/Mobile Other	3%	2%	2%	2%
2013 CARE Participant Survey	Multi-Family Own	4%	4%	9%	5%
	Multi-Family Rent	28%	22%	45%	24%
	Multi-Family Other	0%	0%	0%	0%
	SF/Mobile Own	52%	58%	34%	55%
	SF/Mobile Rent	15%	15%	11%	15%
	SF/Mobile Other	2%	1%	0%	0%

Sources: 2011 PUMS; 2013 CARE Participant Telephone Survey.

8.2 Telephone Survey Results[12]

Tables below show the weight used for each segment that phone survey results are presented by in this section.

Table 95: Weight Used by ESA Participation and Utility for California LI Population

	Participant	Non-Participant	PG&E	SCE	SDG&E	SoCalGas	SCE & SoCalGas
Weight	0.87	1.19	1.1	1.03	0.42	1.19	1.02

Source: 2013 CARE Participant Telephone Survey.

Table 96: Weight Used by Home Type, Language, Rural and Urban for California LI Population

	Single-Family Own	Single-Family Rent	Multi-Family	Mobile	English Only	Primary Language Spanish	Primary Language Other	Urban	Rural
Weight	0.65	1.68	1.19	0.78	0.98	1.11	0.93	1.01	0.9

Source: 2013 CARE Participant Telephone Survey.

Table 97: Weight Used by Climate Zone for California LI Population

	Central Valley	Desert	Mountain	North Coast	South Coast	South Inland	RAC Replace and Evaporative Cooler Install	CAC Replace ment
Weight	1.04	0.97	0.88	1.14	0.87	1.03	1.05	0.94

Source: 2013 CARE Participant Telephone Survey.

[12] Multi-family homes are defined as any housing structure with two or more units. This differs from the 2007 KEMA study were multi-family homes are defined as housing structures with five or more units. This also differs from the concurrent Cadmus multi-family LI study, which also defines multi-family homes as housing structures with five or more units.

8.2.1 Program Accessibility-ESA

Table 98: ESA Awareness (S17) by ESA Participation and Utility for California LI Population

	Total	Participant	Non-Participant	PG&E	SCE	SDG&E	SoCalGas	SCE & SoCalGas
ESA Awareness								
Unaware of ESA	32%	29%	36%	31%	33%	31%	33%	32%
Aware of ESA	68%	71%	64%	69%	67%	69%	67%	68%
Total (n)	1,028	610	418	389	384	203	432	380

Source: 2013 CARE Participant Telephone Survey.

Table 99: ESA Awareness (S17) by Home Type, Language, Rural and Urban for California LI Population

	Single-Family Own	Single-Family Rent	Multi-Family	Mobile	English Only	Primary Language Spanish	Primary Language Other	Urban	Rural
ESA Awareness									
Unaware of ESA	33%	26%	36%	36%	27%	42%	43%	32%	23%
Aware of ESA	67%	74%	64%	64%	73%	58%	57%	68%	77%
Total (n)	483	136	360	42	532	213	49	978	49

Source: 2013 CARE Participant Telephone Survey.

Table 100: ESA Awareness (S17) by Climate Zone for California LI Population

	Central Valley	Desert	Mountain	North Coast	South Coast	South Inland
ESA Awareness						
Unaware of ESA	32%	27%	19%	30%	30%	37%
Aware of ESA	68%	73%	81%	70%	70%	63%
Total (n)	253	59	24	156	273	263

Source: 2013 CARE Participant Telephone Survey.

Table 101: Source of ESA Awareness (E1) by ESA Participation and Utility for California LI Population

	Total	Participant	Non-Participant	PG&E	SCE	SDG&E	SoCalGas	SCE & SoCalGas
How found out about ESA								
Friend/family/colleague	27%	23%	31%	26%	27%	24%	28%	27%
Utility bill insert	21%	19%	23%	21%	21%	25%	20%	21%
Utility mailing	18%	18%	18%	15%	22%	16%	22%	22%
Phone call to me/household	9%	8%	10%	16%	3%	11%	3%	3%
Other- utility	8%	9%	8%	7%	12%	11%	9%	12%
Someone went to house	13%	17%	9%	13%	14%	5%	14%	15%
Television	5%	4%	6%	3%	4%	8%	7%	4%
Newspaper/news media/radio	3%	2%	4%	5%	3%	2%	2%	3%
While signing up for other program	4%	4%	4%	4%	6%	5%	4%	6%
Utility website	3%	1%	5%	1%	4%	5%	4%	4%
Community based organization	2%	2%	2%	3%	3%	2%	2%	3%
Door advertisement	1%	1%	1%	2%	1%	1%	1%	1%
Other	4%	6%	2%	4%	4%	4%	4%	4%
Don't know	12%	13%	11%	13%	11%	13%	11%	11%
Total (n)	619	366	253	240	224	129	248	222

Source: 2013 CARE Participant Telephone Survey.
Note: Multiple mentions allowed.

Table 102: Source of ESA Awareness (E1) by Home Type, Language, Rural and Urban for California LI Population

	Single-Family Own	Single-Family Rent	Multi-Family	Mobile	English Only	Primary Language Spanish	Primary Language Other	Urban	Rural
How found out about ESA									
Friend/family/colleague	25%	32%	25%	28%	25%	26%	29%	26%	41%
Utility bill insert	26%	19%	18%	30%	23%	19%	17%	21%	27%
Utility mailing	14%	12%	19%	29%	22%	12%	16%	19%	9%
Phone call to me/household	15%	7%	6%	12%	10%	5%	15%	9%	21%
Other- utility	9%	8%	8%	3%	7%	8%	0%	8%	4%
Someone went to house	11%	14%	14%	22%	11%	19%	8%	13%	10%
Television	4%	4%	6%	0%	4%	7%	0%	5%	14%
Newspaper/news media/radio	6%	3%	2%	3%	5%	1%	0%	3%	1%
While signing up for other program	5%	4%	4%	0%	3%	4%	4%	4%	0%
Utility website	2%	5%	2%	0%	2%	1%	32%	3%	0%
Community based organization	2%	2%	3%	3%	3%	3%	0%	2%	2%
Door advertisement	1%	1%	2%	0%	1%	1%	0%	1%	3%
Other	1%	2%	8%	0%	4%	2%	1%	4%	0%
Don't know	15%	15%	9%	10%	12%	13%	7%	12%	12%
Total (n)	303	84	204	23	346	105	28	583	36

Source: 2013 CARE Participant Telephone Survey.
Note: Multiple mentions allowed.

Table 103: Source of ESA Awareness (E1) by Climate Zone for California LI Population

	Central Valley	Desert	Mountain	North Coast	South Coast	South Inland
How found out about ESA						
Friend/family/colleague	30%	32%	43%	22%	24%	27%
Utility bill insert	25%	27%	28%	15%	20%	21%
Utility mailing	15%	17%	14%	15%	24%	19%
Phone call to me/household	16%	3%	11%	14%	5%	4%
Other- utility	8%	24%	9%	4%	13%	4%
Someone went to house	10%	6%	10%	16%	15%	14%
Television	2%	5%	11%	5%	6%	7%
Newspaper/news media/radio	3%	2%	0%	6%	4%	1%
While signing up for other program	4%	2%	0%	5%	5%	4%
Utility website	2%	0%	6%	1%	4%	6%
Community based organization	2%	6%	9%	4%	1%	1%
Door advertisement	2%	5%	5%	0%	0%	1%
Other	3%	5%	0%	4%	6%	2%
Don't know	12%	10%	6%	14%	12%	12%
Total (n)	148	39	19	99	174	140

Source: 2013 CARE Participant Telephone Survey.
Note: Multiple mentions allowed.

Table 104: Preference of Sources to Learn More About Programs (F0a_2) by ESA Awareness by ESA Participation and Utility for California LI Population

	Total	Participant	Non-Participant	PG&E	SCE	SDG&E	SoCalGas	SCE & SoCalGas
How like to learn more about programs								
Mail	56%	57%	56%	54%	57%	49%	59%	58%
Email	9%	8%	10%	9%	10%	13%	9%	10%
None/Don't want information	5%	3%	7%	7%	4%	7%	4%	4%
Phone	8%	8%	7%	8%	9%	4%	8%	9%
Online/internet	3%	2%	3%	1%	4%	4%	4%	4%
Other	2%	3%	2%	1%	2%	1%	3%	2%
TV	2%	2%	2%	3%	2%	2%	2%	2%
Community or assistance organizations	2%	2%	1%	2%	1%	3%	1%	1%
Flyer/brochure/print media	2%	2%	1%	2%	1%	3%	1%	1%
Come to my home	1%	2%	1%	2%	2%	2%	1%	2%
Word-of mouth (Friends, neighbors, etc.)	1%	1%	1%	1%	1%	2%	1%	1%
Don't know	8%	10%	7%	9%	7%	9%	8%	7%
At a meeting	1%	1%	0%	1%	0%	1%	1%	0%
Total (n)	863	505	358	234	378	199	426	374

Source: 2013 CARE Participant Telephone Survey.
Note: this question was added after the survey was already in the field, and has a slightly lower sample size as a result.

Table 105: Preference of Sources to Learn More About Programs (F0a_2) by Home Type, Language, Rural and Urban for California LI Population

	Single-Family Own	Single-Family Rent	Multi-Family	Mobile	English Only	Primary Language Spanish	Primary Language Other	Urban	Rural
How like to learn more about programs									
Mail	55%	58%	53%	54%	55%	65%	29%	56%	66%
Email	10%	11%	9%	4%	10%	3%	16%	10%	3%
None/Don't want information	6%	1%	6%	10%	8%	1%	2%	5%	7%
Phone	4%	14%	7%	17%	7%	7%	11%	7%	16%
Online/internet	2%	0%	5%	2%	3%	1%	3%	3%	0%
Other	4%	0%	3%	0%	3%	2%	5%	2%	0%
TV	2%	2%	2%	0%	1%	3%	7%	2%	0%
Community or assistance organizations	2%	2%	1%	3%	2%	0%	0%	2%	0%
Flyer/brochure/print media	2%	2%	1%	0%	2%	1%	0%	2%	0%
Come to my home	2%	1%	2%	2%	1%	1%	1%	1%	0%
Word-of mouth (Friends, neighbors, etc.)	2%	0%	1%	0%	1%	0%	5%	1%	3%
Don't know	7%	9%	9%	8%	6%	14%	20%	9%	3%
At a meeting	2%	0%	0%	0%	1%	1%	0%	0%	3%
Total (n)	401	115	312	29	418	200	42	830	32

Source: 2013 CARE Participant Telephone Survey.
Note: this question was added after the survey was already in the field, and has a slightly lower sample size as a result.

Table 106: Preference of Sources to Learn More About Programs (F0a_2) by Climate Zone for California LI Population

	Central Valley	Desert	Mountain	North Coast	South Coast	South Inland
How like to learn more about programs						
Mail	51%	68%	67%	56%	58%	55%
Email	7%	15%	8%	12%	12%	6%
None/Don't want information	9%	2%	6%	3%	4%	5%
Phone	11%	8%	14%	9%	4%	7%
Online/internet	1%	0%	0%	0%	5%	4%
Other	4%	1%	0%	1%	1%	3%
TV	3%	0%	0%	3%	2%	2%
Community or assistance organizations	1%	0%	0%	3%	1%	2%
Flyer/brochure/print media	3%	0%	0%	2%	1%	2%
Come to my home	2%	0%	0%	1%	1%	2%
Word-of mouth (Friends, neighbors, etc.)	1%	2%	0%	1%	2%	0%
Don't know	8%	4%	0%	10%	7%	10%
At a meeting	0%	0%	5%	1%	1%	1%
Total (n)	168	59	17	93	265	261

Source: 2013 CARE Participant Telephone Survey.
Note: this question was added after the survey was already in the field, and has a slightly lower sample size as a result.

Table 107: Community Center/Meeting Attendance (F14a) by ESA Participation and Utility for California LI Population

	Total	Participant	Non-Participant	PG&E	SCE	SDG&E	SoCalGas	SCE & SoCalGas
Visit local community center or attend community meetings								
A lot	3%	4%	2%	3%	3%	5%	3%	3%
Sometimes	24%	27%	21%	23%	28%	24%	25%	28%
Never	73%	69%	77%	74%	69%	71%	72%	69%
Total (n)	1,021	606	415	386	382	201	430	378

Source: 2013 CARE Participant Telephone Survey.

Table 108: Community Center/Meeting Attendance (F14a) by Home Type, Language, Rural and Urban for California LI Population

	Single-Family Own	Single-Family Rent	Multi-Family	Mobile	English Only	Primary Language Spanish	Primary Language Other	Urban	Rural
Visit local community center or attend community meetings									
A lot	3%	3%	4%	1%	4%	2%	1%	3%	0%
Sometimes	26%	21%	26%	17%	23%	28%	19%	24%	35%
Never	72%	76%	71%	81%	73%	70%	80%	73%	65%
Total (n)	480	136	356	42	528	211	49	972	48

Source: 2013 CARE Participant Telephone Survey.

Table 109: Community Center/Meeting Attendance (F14a) by Climate Zone for California LI Population

	Central Valley	Desert	Mountain	North Coast	South Coast	South Inland
Visit local community center or attend community meetings						
A lot	3%	2%	0%	3%	5%	2%
Sometimes	20%	33%	24%	30%	20%	26%
Never	77%	65%	76%	67%	75%	72%
Total (n)	252	59	24	154	269	263

Source: 2013 CARE Participant Telephone Survey.

Table 110: Religious Service Attendance (F14b) by ESA Participation and Utility for California LI Population

	Total	Participant	Non-Participant	PG&E	SCE	SDG&E	SoCalGas	SCE & SoCalGas
Attend religious service								
A lot	28%	30%	26%	29%	26%	29%	27%	26%
Sometimes	42%	41%	43%	36%	50%	33%	49%	51%
Never	30%	29%	31%	35%	23%	38%	24%	23%
Total (n)	1,019	606	413	382	382	203	430	378

Source: 2013 CARE Participant Telephone Survey.

Table 111: Religious Service Attendance (F14b) by Home Type, Language, Rural and Urban for California LI Population

	Single-Family Own	Single-Family Rent	Multi-Family	Mobile	English Only	Primary Language Spanish	Primary Language Other	Urban	Rural
Attend religious service									
A lot	32%	24%	27%	20%	33%	27%	23%	28%	38%
Sometimes	40%	45%	44%	47%	32%	53%	51%	43%	22%
Never	28%	31%	30%	33%	35%	20%	26%	29%	39%
Total (n)	479	136	356	41	527	212	49	971	47

Source: 2013 CARE Participant Telephone Survey.

Table 112: Religious Service Attendance (F14b) by Climate Zone for California LI Population

	Central Valley	Desert	Mountain	North Coast	South Coast	South Inland
Attend religious service						
A lot	27%	21%	41%	29%	26%	31%
Sometimes	44%	43%	29%	30%	48%	44%
Never	29%	36%	30%	40%	25%	25%
Total (n)	250	59	23	153	272	262

Source: 2013 CARE Participant Telephone Survey.

Table 113: Internet Availability/Bill Pay (I1c, F15) by ESA Participation and Utility for California LI Population

	Total	Participant	Non-Participant	PG&E	SCE	SDG&E	SoCalGas	SCE & SoCalGas
Internet availability/bill pay								
Has internet	34%	35%	32%	33%	33%	40%	33%	32%
Does not have internet	31%	35%	27%	36%	28%	22%	29%	28%
Has internet and pays bill online always or sometimes	35%	30%	41%	31%	39%	38%	38%	39%
Total (n)	1,018	602	416	380	384	202	432	380

Source: 2013 CARE Participant Telephone Survey.

Table 114: Internet Availability/Bill Pay (I1c, F15) by Home Type, Language, Rural and Urban for California LI Population

	Single-Family Own	Single-Family Rent	Multi-Family	Mobile	English Only	Primary Language Spanish	Primary Language Other	Urban	Rural
Internet availability/bill pay									
Has internet	35%	35%	33%	28%	33%	38%	26%	34%	26%
Does not have internet	29%	22%	35%	44%	31%	43%	11%	31%	33%
Has internet and pays bill online always or sometimes	35%	43%	33%	28%	36%	20%	64%	35%	41%
Total (n)	477	134	359	41	523	213	49	970	48

Source: 2013 CARE Participant Telephone Survey.

Table 115: Internet Availability/Bill Pay (I1c, F15) by Climate Zone for California LI Population

	Central Valley	Desert	Mountain	North Coast	South Coast	South Inland
Internet availability/bill pay						
Has internet	26%	39%	35%	40%	35%	35%
Does not have internet	36%	25%	43%	32%	31%	26%
Has internet and pays bill online always or sometimes	37%	36%	22%	28%	34%	39%
Total (n)	247	59	23	154	273	262

Source: 2013 CARE Participant Telephone Survey.
Note: this question was added after the survey was already in the field, and has a slightly lower sample size as a result.

Table 116: Paper/Electric Bill (I1) by ESA Participation and Utility for California LI Population

	Total	Participant	Non-Participant	PG&E	SCE	SDG&E	SoCalGas	SCE & SoCalGas
Paper/electronic bill								
Paper bill	82%	87%	78%	83%	82%	79%	83%	82%
Electronic bill	15%	12%	17%	16%	15%	19%	13%	15%
Both paper and electronic	3%	1%	5%	1%	3%	3%	5%	3%
Total (n)	1,002	594	408	366	383	201	431	379

Source: 2013 CARE Participant Telephone Survey.
Note: this question was added after the survey was already in the field, and has a slightly lower sample size as a result.

Table 117: Paper/Electric Bill (I1) by Home Type, Language, Rural and Urban for California LI Population

	Single-Family Own	Single-Family Rent	Multi-Family	Mobile	English Only	Primary Language Spanish	Primary Language Other	Urban	Rural
Paper/electronic bill									
Paper bill	85%	76%	82%	97%	81%	94%	61%	82%	80%
Electronic bill	13%	19%	15%	3%	17%	6%	20%	14%	18%
Both paper and electronic	2%	5%	3%	0%	3%	0%	19%	3%	1%
Total (n)	472	134	350	40	516	211	48	953	48

Source: 2013 CARE Participant Telephone Survey.
Note: this question was added after the survey was already in the field, and has a slightly lower sample size as a result.

Table 118: Paper/Electric Bill (I1) by Climate Zone for California LI Population

	Central Valley	Desert	Mountain	North Coast	South Coast	South Inland
Paper/electronic bill						
Paper bill	83%	76%	100%	82%	82%	83%
Electronic bill	16%	24%	0%	18%	16%	9%
Both paper and electronic	1%	0%	0%	1%	2%	8%
Total (n)	241	59	23	146	272	261

Source: 2013 CARE Participant Telephone Survey.
Note: this question was added after the survey was already in the field, and has a slightly lower sample size as a result.

Table 119: Contact with IOU (I1a, I1aa) by ESA Participation and Utility for California LI Population

	Total	Participant	Non-Participant	PG&E	SCE	SDG&E	SoCalGas	SCE & SoCalGas
Contact with IOU								
Reads emails	10%	8%	11%	9%	12%	16%	9%	12%
Reads bill inserts	67%	69%	65%	69%	68%	65%	66%	68%
Reads emails and bill inserts	1%	1%	2%	1%	2%	2%	2%	2%
Reads neither	22%	21%	22%	21%	19%	17%	23%	19%
Total (n)	1,018	607	411	384	381	201	429	377

Source: 2013 CARE Participant Telephone Survey.
Note: this question was added after the survey was already in the field, and has a slightly lower sample size as a result.

Table 120: Contact with IOU (I1a, I1aa) by Home Type, Language, Rural and Urban for California LI Population

	Single-Family Own	Single-Family Rent	Multi-Family	Mobile	English Only	Primary Language Spanish	Primary Language Other	Urban	Rural
Contact with IOU									
Reads emails	9%	13%	10%	1%	11%	4%	16%	9%	16%
Reads bill inserts	73%	58%	64%	84%	66%	74%	60%	67%	68%
Reads emails and bill inserts	1%	1%	2%	0%	2%	0%	0%	1%	1%
Reads neither	17%	28%	24%	15%	21%	22%	24%	22%	15%
Total (n)	479	134	356	42	527	213	48	968	49

Source: 2013 CARE Participant Telephone Survey.
Note: this question was added after the survey was already in the field, and has a slightly lower sample size as a result.

Table 121: Contact with IOU (I1a, I1aa) by Climate Zone for California LI Population

	Central Valley	Desert	Mountain	North Coast	South Coast	South Inland
Contact with IOU						
Reads emails	9%	21%	0%	11%	13%	5%
Reads bill inserts	67%	69%	72%	70%	66%	66%
Reads emails and bill inserts	1%	0%	0%	1%	1%	4%
Reads neither	24%	9%	28%	19%	21%	25%
Total (n)	250	59	24	154	271	260

Source: 2013 CARE Participant Telephone Survey.
Note: this question was added after the survey was already in the field, and has a slightly lower sample size as a result.

Table 122: Online Utility Bill Pay (I1c) by ESA Participation and Utility for California LI Population

	Total	Participant	Non-Participant	PG&E	SCE	SDG&E	SoCalGas	SCE & SoCalGas
Online utility bill pay								
A lot	26%	20%	31%	24%	28%	32%	26%	28%
Sometimes	9%	9%	9%	7%	12%	7%	12%	12%
Never/No	65%	70%	59%	69%	61%	61%	62%	60%
Total (n)	1,017	603	414	387	381	197	429	377

Source: 2013 CARE Participant Telephone Survey.

Table 123: Online Utility Bill Pay (I1c) by Home Type, Language, Rural and Urban for California LI Population

	Single-Family Own	Single-Family Rent	Multi-Family	Mobile	English Only	Primary Language Spanish	Primary Language Other	Urban	Rural
Online utility bill pay									
A lot	27%	29%	25%	19%	27%	9%	57%	26%	25%
Sometimes	8%	14%	8%	8%	9%	11%	7%	9%	15%
Never/No	65%	58%	67%	73%	64%	80%	36%	65%	60%
Total (n)	480	135	353	42	527	212	49	967	49

Source: 2013 CARE Participant Telephone Survey.
Note: this question was added after the survey was already in the field, and has a slightly lower sample size as a result.

Table 124: Online Utility Bill Pay (I1c) by Climate Zone for California LI Population

	Central Valley	Desert	Mountain	North Coast	South Coast	South Inland
Online utility bill pay						
A lot	26%	26%	12%	24%	24%	29%
Sometimes	11%	10%	9%	5%	10%	10%
Never/No	63%	64%	79%	72%	66%	61%
Total (n)	253	58	24	154	266	262

Source: 2013 CARE Participant Telephone Survey.
Note: this question was added after the survey was already in the field, and has a slightly lower sample size as a result.

Table 125: Utility Website Visits (I1b) by ESA Participation and Utility for California LI Population

	Total	Participant	Non-Participant	PG&E	SCE	SDG&E	SoCalGas	SCE & SoCalGas
Visits Utility Website								
A lot	5%	5%	6%	5%	0%	0%	0%	0%
Sometimes	15%	15%	15%	15%	0%	0%	0%	0%
Never/No	80%	80%	80%	80%	0%	0%	0%	0%
Total (n)	150	95	55	150	-	-	-	-

Source: 2013 CARE Participant Telephone Survey.
Note: this question was removed after the survey was already in the field, and has a slightly lower sample size as a result.

Table 126: Utility Website Visits (I1b) by Home Type, Language, Rural and Urban for California LI Population

	Single-Family Own	Single-Family Rent	Multi-Family	Mobile	English Only	Primary Language Spanish	Primary Language Other	Urban	Rural
Visits Utility Website									
A lot	4%	5%	5%	16%	4%	19%	12%	6%	0%
Sometimes	18%	29%	5%	5%	16%	8%	21%	15%	18%
Never/No	78%	65%	90%	79%	80%	74%	68%	79%	82%
Total (n)	71	21	44	13	107	9	7	134	16

Source: 2013 CARE Participant Telephone Survey.
Note: this question was removed after the survey was already in the field, and has a slightly lower sample size as a result.

Table 127: Utility Website Visits (I1b) by Climate Zone for California LI Population

	Central Valley	Desert	Mountain	North Coast	South Coast	South Inland
Visits Utility Website						
A lot	7%	0%	0%	4%	0%	0%
Sometimes	16%	0%	13%	14%	0%	0%
Never/No	77%	0%	87%	82%	0%	0%
Total (n)	80	-	7	63	-	-

Source: 2013 CARE Participant Telephone Survey.
Note: this question was removed after the survey was already in the field, and has a slightly lower sample size as a result.

Table 128: Utility Calls (I1d) by ESA Participation and Utility for California LI Population

	Total	Participant	Non-Participant	PG&E	SCE	SDG&E	SoCalGas	SCE & SoCalGas
Calls Utility								
A lot	2%	3%	0%	2%	0%	0%	0%	0%
Sometimes	57%	57%	58%	57%	0%	0%	0%	0%
Never/No	41%	40%	42%	41%	0%	0%	0%	0%
Total (n)	149	95	54	149	-	-	-	-

Source: 2013 CARE Participant Telephone Survey.
Note: this question was removed after the survey was already in the field, and has a slightly lower sample size as a result.

Table 129: Utility Calls (I1d) by Home Type, Language, Rural and Urban for California LI Population

	Single-Family Own	Single-Family Rent	Multi-Family	Mobile	English Only	Primary Language Spanish	Primary Language Other	Urban	Rural
Calls Utility									
A lot	3%	0%	3%	0%	2%	0%	0%	2%	0%
Sometimes	63%	66%	43%	79%	57%	45%	59%	55%	81%
Never/No	34%	34%	54%	21%	41%	55%	41%	43%	19%
Total (n)	71	21	43	13	107	8	7	132	17

Source: 2013 CARE Participant Telephone Survey.
Note: this question was removed after the survey was already in the field, and has a slightly lower sample size as a result.

Table 130: Utility Calls (I1d) by Climate Zone for California LI Population

	Central Valley	Desert	Mountain	North Coast	South Coast	South Inland
Calls Utility						
A lot	1%	0%	0%	3%	0%	0%
Sometimes	63%	0%	87%	47%	0%	0%
Never/No	36%	0%	13%	50%	0%	0%
Total (n)	81	-	7	61	-	-

Source: 2013 CARE Participant Telephone Survey.
Note: this question was removed after the survey was already in the field, and has a slightly lower sample size as a result.

Table 131: Years Lived at Current Address (S8a) by ESA Participation and Utility for California LI Population

	Total	Participant	Non-Participant	PG&E	SCE	SDG&E	SoCalGas	SCE & SoCalGas
Years lived at current address								
Less than three years at address	18%	13%	24%	18%	23%	18%	19%	23%
Three to twenty years at address	59%	58%	60%	60%	57%	61%	58%	56%
More than 20 years at address	22%	29%	16%	22%	20%	21%	23%	20%
Total (n)	1,027	609	418	389	384	202	432	380

Source: 2013 CARE Participant Telephone Survey.

Table 132: Years Lived at Current Address (S8a) by Home Type, Language, Rural and Urban for California LI Population

	Single-Family Own	Single-Family Rent	Multi-Family	Mobile	English Only	Primary Language Spanish	Primary Language Other	Urban	Rural
Years lived at current address									
Less than three years at address	5%	25%	26%	11%	17%	18%	23%	19%	14%
Three to twenty years at address	51%	65%	62%	67%	56%	68%	61%	59%	59%
More than 20 years at address	44%	10%	12%	22%	27%	14%	16%	22%	26%
Total (n)	483	136	359	42	531	213	49	977	49

Source: 2013 CARE Participant Telephone Survey.

Table 133: Years Lived at Current Address (S8a) by Climate Zone for California LI Population

	Central Valley	Desert	Mountain	North Coast	South Coast	South Inland
Years lived at current address						
Less than three years at address	23%	32%	4%	13%	18%	16%
Three to twenty years at address	57%	57%	70%	63%	61%	57%
More than 20 years at address	20%	12%	25%	24%	22%	26%
Total (n)	253	59	24	156	273	262

Source: 2013 CARE Participant Telephone Survey.

8.2.2 Program Accessibility - CARE

Table 134: CARE Awareness (S11) by ESA Participation and Utility for California LI Population

	Total	Participant	Non-Participant	PG&E	SCE	SDG&E	SoCalGas	SCE & SoCalGas
CARE awareness								
Unaware of CARE	23%	26%	19%	18%	21%	23%	27%	21%
Aware of CARE	77%	74%	81%	82%	79%	77%	73%	79%
Total (n)	1,028	610	418	389	384	203	432	380

Source: 2013 CARE Participant Telephone Survey.

Table 135: CARE Awareness (S11) by Home Type, Language, Rural and Urban for California LI Population

	Single-Family Own	Single-Family Rent	Multi-Family	Mobile	English Only	Primary Language Spanish	Primary Language Other	Urban	Rural
CARE awareness									
Unaware of CARE	21%	23%	24%	31%	16%	38%	30%	23%	9%
Aware of CARE	79%	77%	76%	69%	84%	62%	70%	77%	91%
Total (n)	483	136	360	42	532	213	49	978	49

Source: 2013 CARE Participant Telephone Survey.

Table 136: CARE Awareness (S11) by Climate Zone for California LI Population

	Central Valley	Desert	Mountain	North Coast	South Coast	South Inland
CARE awareness						
Unaware of CARE	17%	24%	5%	20%	26%	29%
Aware of CARE	83%	76%	95%	80%	74%	71%
Total (n)	253	59	24	156	273	263

Source: 2013 CARE Participant Telephone Survey.

Table 137: Source of CARE Awareness (E22) by ESA Participation and Utility for California LI Population

	Total	Participant	Non-Participant	PG&E	SCE	SDG&E	SoCalGas	SCE & SoCalGas
Source of CARE awareness								
Utility bill insert	31%	30%	32%	28%	32%	18%	36%	33%
Friend/family/colleague	23%	23%	21%	27%	20%	21%	19%	20%
Utility mailing	16%	11%	21%	11%	19%	14%	20%	18%
Phone call to me or household	7%	6%	9%	7%	5%	12%	7%	5%
Called the utility	10%	11%	9%	10%	12%	4%	11%	12%
Utility contacted me	6%	5%	7%	8%	6%	5%	5%	6%
Someone stopped by house	7%	7%	6%	6%	8%	1%	8%	8%
Television	3%	2%	5%	1%	3%	7%	5%	3%
Utility website	3%	3%	2%	2%	5%	3%	4%	5%
Utility-other	2%	2%	1%	2%	1%	9%	0%	1%
Paid bill at utility office/bill pay center	2%	2%	2%	2%	1%	7%	0%	1%
Learned about it when signed up for other program	2%	1%	3%	2%	3%	1%	2%	3%
Community based organization	2%	3%	2%	3%	2%	3%	1%	2%
Social services/case worker	2%	2%	1%	1%	2%	6%	1%	2%
Learned about it after receiving medical equipment/doctor	1%	2%	1%	0%	2%	3%	2%	2%
Landlord/property manager/manager of home	1%	2%	1%	2%	1%	1%	1%	1%
Newspaper	1%	1%	1%	0%	2%	0%	2%	2%
Previously on CARE	1%	1%	2%	1%	2%	0%	1%	2%
Through welfare/unemployment/social security/disability	1%	1%	0%	2%	0%	1%	0%	0%

	Total	Participant	Non-Participant	PG&E	SCE	SDG&E	SoCalGas	SCE & SoCalGas
Other	3%	4%	2%	1%	5%	0%	5%	5%
Total (n)	602	365	237	232	239	115	253	237

Source: 2013 CARE Participant Telephone Survey.
Note: this question was added after the survey was already in the field, and has a slightly lower sample size as a result.
Note: Multiple mentions allowed.

Table 138: Source of CARE Awareness (E22) by ESA Home Type, Language, Rural and Urban for California LI Population

	Single-Family Own	Single-Family Rent	Multi-Family	Mobile	English Only	Primary Language Spanish	Primary Language Other	Urban	Rural
Source of CARE awareness									
Utility bill insert	36%	24%	29%	34%	35%	26%	39%	31%	34%
Friend/family/colleague	19%	20%	26%	31%	23%	14%	35%	22%	38%
Utility mailing	17%	14%	18%	3%	15%	24%	8%	16%	13%
Phone call to me or household	7%	9%	7%	13%	7%	10%	9%	7%	7%
Called the utility	8%	14%	8%	26%	10%	11%	9%	10%	11%
Utility contacted me	6%	10%	5%	2%	7%	1%	3%	6%	2%
Someone stopped by house	8%	5%	6%	0%	5%	13%	0%	7%	3%
Television	3%	3%	5%	0%	2%	6%	3%	3%	8%
Utility website	2%	3%	3%	7%	3%	0%	2%	2%	9%
Utility-other	3%	1%	2%	0%	2%	1%	9%	2%	0%
Paid bill at utility office/bill pay center	4%	2%	1%	0%	0%	4%	6%	2%	0%
Learned about it when signed up for other program	2%	2%	3%	2%	1%	6%	0%	2%	0%
Community based organization	1%	5%	2%	0%	2%	1%	0%	2%	0%
Social services/case worker	1%	1%	3%	0%	2%	0%	1%	2%	0%
Learned about it after receiving medical equipment/doctor	2%	2%	0%	0%	1%	0%	0%	1%	0%
Landlord/property manager/manager of home	1%	0%	3%	0%	1%	1%	0%	1%	3%
Newspaper	1%	1%	0%	2%	1%	0%	9%	1%	1%
Previously on CARE	0%	3%	1%	2%	1%	0%	0%	1%	0%
Through welfare/unemployment/social security/disability	1%	1%	1%	0%	2%	0%	0%	1%	0%
Other	4%	3%	3%	0%	3%	2%	0%	3%	0%

	Single-Family Own	Single-Family Rent	Multi-Family	Mobile	English Only	Primary Language Spanish	Primary Language Other	Urban	Rural
Total (n)	286	87	199	25	328	99	28	569	32

Source: 2013 CARE Participant Telephone Survey.
Note: this question was added after the survey was already in the field, and has a slightly lower sample size as a result.
Note: Multiple mentions allowed.

Table 139: Source of CARE Awareness (E22) by Climate Zone for California LI Population

	Central Valley	Desert	Mountain	North Coast	South Coast	South Inland
Source of CARE awareness						
Utility bill insert	23%	33%	60%	32%	27%	40%
Friend/family/colleague	30%	43%	18%	24%	15%	16%
Utility mailing	14%	23%	11%	9%	23%	16%
Phone call to me or household	10%	5%	0%	4%	11%	5%
Called the utility	9%	6%	17%	12%	6%	12%
Utility contacted me	7%	5%	6%	8%	4%	6%
Someone stopped by house	4%	6%	5%	7%	3%	13%
Television	1%	0%	12%	1%	6%	5%
Utility website	1%	5%	6%	2%	4%	3%
Utility-other	2%	0%	5%	2%	3%	1%
Paid bill at utility office/bill pay center	3%	2%	0%	1%	3%	0%
Learned about it when signed up for other program	2%	0%	0%	2%	5%	0%
Community based organization	4%	0%	0%	3%	3%	1%
Social services/case worker	1%	0%	0%	2%	5%	0%
Learned about it after receiving medical equipment/doctor	0%	0%	0%	0%	4%	2%
Landlord/property manager/manager of home	1%	6%	6%	2%	0%	0%
Newspaper	1%	5%	0%	0%	0%	0%
Previously on CARE	1%	6%	0%	1%	1%	0%
Through welfare/unemployment/social security/disability	2%	0%	0%	2%	1%	0%
Other	1%	1%	0%	2%	5%	4%
Total (n)	144	34	18	99	160	147

Source: 2013 CARE Participant Telephone Survey.
Note: this question was added after the survey was already in the field, and has a slightly lower sample size as a result.
Note: Multiple mentions allowed.

8.2.3 ESA Drivers

Table 140: Electricity/Gas Bill Change After Enrollment in CARE (E22a) by ESA Participation and Utility for California LI Population

	Total	Participant	Non-Participant	PG&E	SCE	SDG&E	SoCalGas	SCE & SoCalGas
Electric/gas bill compared to bills before program participation								
A lot less	25%	26%	24%	26%	25%	29%	23%	25%
Somewhat less	52%	52%	53%	49%	52%	51%	55%	52%
Somewhat more	5%	5%	5%	5%	4%	4%	5%	4%
A lot more	4%	4%	4%	4%	5%	4%	5%	5%
About the same as they were before the CARE discount	14%	14%	14%	15%	14%	12%	13%	14%
Total (n)	644	388	256	256	239	130	255	236

Source: 2013 CARE Participant Telephone Survey.

Table 141: Electricity/Gas Bill Change After Enrollment in CARE (E22a) by ESA Home Type, Language, Rural and Urban for California LI Population

	Single-Family Own	Single-Family Rent	Multi-Family	Mobile	English Only	Primary Language Spanish	Primary Language Other	Urban	Rural
Electric/gas bill compared to bills before program participation									
A lot less	22%	22%	27%	30%	26%	21%	27%	24%	36%
Somewhat less	58%	56%	47%	44%	52%	47%	51%	52%	51%
Somewhat more	4%	1%	7%	0%	5%	5%	7%	5%	1%
A lot more	6%	4%	4%	10%	3%	10%	1%	5%	0%
About the same as they were before the CARE discount	10%	17%	15%	17%	14%	18%	14%	14%	12%
Total (n)	305	90	219	25	352	104	32	607	36

Source: 2013 CARE Participant Telephone Survey.

Table 142: Electricity/Gas Bill Change After Enrollment in CARE (E22a) by Climate Zone for California LI Population

	Central Valley	Desert	Mountain	North Coast	South Coast	South Inland
Electric/gas bill compared to bills before program participation						
A lot less	24%	33%	27%	25%	24%	24%
Somewhat less	50%	39%	73%	53%	51%	56%
Somewhat more	7%	3%	0%	2%	7%	4%
A lot more	4%	1%	0%	5%	4%	7%
About the same as they were before the CARE discount	16%	23%	0%	15%	13%	9%
Total (n)	159	37	18	107	168	155

Source: 2013 CARE Participant Telephone Survey.

Table 143: Energy Use After CARE Enrollment (E22b) by ESA Participation and Utility for California LI Population

	Total	Participant	Non-Participant	PG&E	SCE	SDG&E	SoCalGas	SCE & SoCalGas
Energy use now compared to usage before program participation								
A lot less	2%	3%	1%	2%	2%	5%	2%	2%
Somewhat less	8%	8%	7%	7%	11%	1%	9%	11%
Somewhat more	20%	20%	20%	14%	24%	25%	26%	24%
A lot more	9%	10%	8%	10%	8%	11%	8%	8%
About the same as they were before the CARE discount	61%	58%	64%	67%	56%	59%	55%	56%
Total (n)	667	404	263	258	257	134	272	254

Source: 2013 CARE Participant Telephone Survey.

Table 144: Energy Use After CARE Enrollment (E22b) by Home Type, Language, Rural and Urban for California LI Population

	Single-Family Own	Single-Family Rent	Multi-Family	Mobile	English Only	Primary Language Spanish	Primary Language Other	Urban	Rural
Energy use now compared to usage before program participation									
A lot less	2%	1%	2%	10%	2%	2%	0%	2%	0%
Somewhat less	7%	8%	6%	0%	8%	7%	7%	8%	7%
Somewhat more	18%	23%	22%	12%	18%	24%	27%	21%	6%
A lot more	9%	6%	11%	11%	8%	6%	13%	9%	11%
About the same as they were before the CARE discount	63%	62%	58%	67%	64%	60%	53%	60%	76%
Total (n)	314	94	228	26	365	109	32	629	37

Source: 2013 CARE Participant Telephone Survey.

Table 145: Energy Use After CARE Enrollment (E22b) by Climate Zone for California LI Population

	Central Valley	Desert	Mountain	North Coast	South Coast	South Inland
Energy use now compared to usage before program participation						
A lot less	2%	0%	0%	1%	4%	2%
Somewhat less	11%	13%	0%	6%	6%	7%
Somewhat more	13%	31%	11%	18%	29%	20%
A lot more	11%	12%	13%	9%	8%	6%
About the same as they were before the CARE discount	62%	44%	76%	67%	53%	65%
Total (n)	160	39	19	110	179	160

Source: 2013 CARE Participant Telephone Survey.

Table 146: Reasons for ESA Participation (E1a) by ESA Participation and Utility for California LI Population

	Total	Participant	Non-Participant	PG&E	SCE	SDG&E	SoCalGas	SCE & SoCalGas
Reasons for ESA Participation								
Lower energy bill(s)/save money/lower utility cost	49%	47%	51%	52%	46%	49%	46%	45%
We need(ed) something that the program offers	21%	22%	20%	16%	25%	23%	25%	25%
Get free assistance/I need the help/We are qualified for it/Because it was offered/financial reasons	9%	11%	7%	9%	11%	9%	8%	11%
Other	5%	5%	6%	7%	3%	6%	4%	3%
Save energy	6%	6%	6%	6%	6%	4%	7%	7%
No need/No interest	2%	0%	4%	1%	3%	2%	3%	3%
Low/fixed income/retired/disabled	5%	7%	2%	6%	3%	4%	3%	4%
If I owned my home/didn't rent	1%	0%	3%	0%	1%	3%	2%	2%
Help the environment	1%	0%	1%	2%	0%	0%	0%	0%
To see what could be done/if anything needs to be fixed	1%	1%	2%	1%	2%	0%	2%	2%
Total (n)	925	548	377	335	356	185	401	352

Source: 2013 CARE Participant Telephone Survey.
Note: Question was phrased differently when asked of participants and non-participants due to their varying level of experience with the program.

Table 147: Reasons for ESA Participation (E1a) by Home Type, Language, Rural and Urban for California LI Population

	Single-Family Own	Single-Family Rent	Multi-Family	Mobile	English Only	Primary Language Spanish	Primary Language Other	Urban	Rural
Reasons for ESA Participation									
Lower energy bill(s)/save money/lower utility cost	42%	56%	52%	42%	44%	57%	61%	49%	46%
We need(ed) something that the program offers	20%	18%	23%	25%	23%	20%	5%	21%	24%
Get free assistance/I need the help/We are qualified for it/Because it was offered/financial reasons	13%	8%	5%	8%	10%	7%	5%	9%	12%
Other	6%	5%	6%	11%	7%	2%	11%	5%	8%
Save energy	7%	8%	5%	1%	4%	9%	7%	6%	4%
No need/No interest	5%	0%	1%	2%	2%	1%	3%	2%	2%
Low/fixed income/retired/disabled	5%	3%	4%	7%	5%	3%	5%	5%	3%
If I owned my home/didn't rent	0%	0%	3%	0%	2%	0%	0%	2%	0%
Help the environment	1%	1%	0%	2%	1%	0%	2%	1%	2%
To see what could be done/if anything needs to be fixed	2%	2%	0%	3%	2%	0%	1%	1%	0%
Total (n)	431	127	324	37	471	190	44	880	44

Source: 2013 CARE Participant Telephone Survey.
Note: Question was phrased differently when asked of participants and non-participants due to their varying level of experience with the program.

Table 148: Reasons for ESA Participation (E1a) by Climate Zone for California LI Population

	Central Valley	Desert	Mountain	North Coast	South Coast	South Inland
Reasons for ESA Participation						
Lower energy bill(s)/save money/lower utility cost	49%	41%	37%	55%	47%	50%
We need(ed) something that the program offers	19%	23%	18%	16%	27%	20%
Get free assistance/I need the help/We are qualified for it/Because it was offered/financial reasons	9%	6%	17%	10%	7%	10%
Other	6%	2%	8%	8%	5%	5%
Save energy	8%	13%	8%	3%	3%	7%
No need/No interest	1%	2%	0%	0%	2%	3%
Low/fixed income/retired/disabled	6%	6%	9%	6%	3%	3%
If I owned my home/didn't rent	1%	7%	0%	0%	4%	0%
Help the environment	1%	0%	3%	3%	0%	0%
To see what could be done/if anything needs to be fixed	1%	0%	0%	0%	1%	2%
Total (n)	222	53	23	132	248	247

Source: 2013 CARE Participant Telephone Survey.
Note: Question was phrased differently when asked of participants and non-participants due to their varying level of experience with the program.

Table 149: Importance of Landlord Support in ESA Participation (E2d) by ESA Participation and Utility for California LI Population

	Total	Participant	Non-Participant	PG&E	SCE	SDG&E	SoCalGas	SCE & SoCalGas
Importance of landlord support in ESA participation								
Not important	10%	12%	8%	12%	8%	21%	7%	8%
Somewhat important	26%	23%	30%	24%	24%	20%	29%	25%
Very important	59%	60%	59%	57%	64%	52%	61%	64%
Not applicable-not encouraged/suggested by landlord	4%	5%	4%	6%	4%	6%	3%	4%
Total (n)	435	239	196	160	143	106	167	141

Source: 2013 CARE Participant Telephone Survey.
Note: Question was phrased differently when asked of participants and non-participants due to their varying level of experience with the program.

Table 150: Importance of Landlord Support in ESA Participation (E2d) by Home Type, Language, Rural and Urban for California LI Population

	Single-Family Own	Single-Family Rent	Multi-Family	Mobile	English Only	Primary Language Spanish	Primary Language Other	Urban	Rural
Importance of landlord support in ESA participation									
Not important	0%	12%	9%	29%	13%	10%	8%	10%	22%
Somewhat important	0%	23%	28%	27%	30%	22%	12%	26%	36%
Very important	0%	62%	59%	27%	52%	69%	78%	60%	42%
Not applicable-not encouraged/suggested by landlord	0%	3%	5%	16%	6%	0%	1%	5%	0%
Total (n)	-	134	294	7	211	97	21	425	10

Source: 2013 CARE Participant Telephone Survey.
Note: Question was phrased differently when asked of participants and non-participants due to their varying level of experience with the program.

Table 151: Importance of Landlord Support in ESA Participation (E2d) by Climate Zone for California LI Population

	LI Eligible Population					
	Central Valley	Desert	Mountain	North Coast	South Coast	South Inland
Importance of landlord support in ESA participation						
Not important	11%	5%	49%	10%	9%	10%
Somewhat important	21%	22%	25%	30%	26%	29%
Very important	64%	68%	26%	53%	62%	58%
Not applicable-not encouraged/suggested by landlord	4%	5%	0%	8%	3%	3%
Total (n)	88	21	4	81	141	100

Source: 2013 CARE Participant Telephone Survey.
Note: Question was phrased differently when asked of participants and non-participants due to their varying level of experience with the program.

Table 152: Importance of ESA Offerings for Participation (E2e) by ESA Participation and Utility for California LI Population

	Total	Participant	Non-Participant	PG&E	SCE	SDG&E	SoCalGas	SCE & SoCalGas
Importance of the need for something that ESA offers								
Not important	6%	4%	9%	7%	6%	9%	6%	6%
Somewhat important	28%	23%	33%	30%	24%	21%	27%	24%
Very important	66%	73%	58%	64%	70%	70%	67%	70%
Total (n)	1,009	599	410	381	379	198	426	375

Source: 2013 CARE Participant Telephone Survey.
Note: Question was phrased differently when asked of participants and non-participants due to their varying level of experience with the program.

Table 153: Importance of ESA Offerings for Participation (E2e) by Home Type, Language, Rural and Urban for California LI Population

	Single-Family Own	Single-Family Rent	Multi-Family	Mobile	English Only	Primary Language Spanish	Primary Language Other	Urban	Rural
Importance of the need for something that ESA offers									
Not important	9%	5%	5%	12%	10%	1%	7%	6%	18%
Somewhat important	29%	22%	30%	14%	29%	30%	19%	28%	27%
Very important	62%	73%	65%	74%	60%	69%	74%	67%	55%
Total (n)	471	134	355	42	521	210	48	961	47

Source: 2013 CARE Participant Telephone Survey.
Note: Question was phrased differently when asked of participants and non-participants due to their varying level of experience with the program.

Table 154: Importance of ESA Offerings for Participation (E2e) by Climate Zone for California LI Population

	Central Valley	Desert	Mountain	North Coast	South Coast	South Inland
Importance of the need for something that ESA offers						
Not important	6%	5%	14%	6%	5%	8%
Somewhat important	26%	25%	43%	31%	26%	28%
Very important	68%	70%	43%	63%	68%	65%
Total (n)	250	57	23	152	268	259

Source: 2013 CARE Participant Telephone Survey.
Note: Question was phrased differently when asked of participants and non-participants due to their varying level of experience with the program.

Table 155: Importance of Utility Sponsorship for Participation (E2f) by ESA Participation and Utility for California LI Population

	Total	Participant	Non-Participant	PG&E	SCE	SDG&E	SoCalGas	SCE & SoCalGas
Importance of utility sponsorship for ESA participation								
Not important	9%	5%	12%	10%	7%	11%	7%	7%
Somewhat important	28%	23%	33%	28%	28%	22%	28%	29%
Very important	64%	72%	55%	62%	64%	67%	65%	64%
Total (n)	1,014	599	415	386	377	200	424	373

Source: 2013 CARE Participant Telephone Survey.
Note: Question was phrased differently when asked of participants and non-participants due to their varying level of experience with the program.

Table 156: Importance of Utility Sponsorship for Participation (E2f) by Home Type, Language, Rural and Urban for California LI Population

	Single-Family Own	Single-Family Rent	Multi-Family	Mobile	English Only	Primary Language Spanish	Primary Language Other	Urban	Rural
Importance of utility sponsorship for ESA participation									
Not important	13%	6%	7%	13%	13%	2%	11%	8%	15%
Somewhat important	26%	33%	28%	10%	30%	27%	21%	27%	33%
Very important	61%	61%	66%	77%	57%	71%	69%	64%	53%
Total (n)	476	135	354	42	528	208	47	964	49

Source: 2013 CARE Participant Telephone Survey.
Note: Question was phrased differently when asked of participants and non-participants due to their varying level of experience with the program.

Table 157: Importance of Utility Sponsorship for Participation (E2f) by Climate Zone for California LI Population

	Central Valley	Desert	Mountain	North Coast	South Coast	South Inland
Importance of utility sponsorship for ESA participation						
Not important	8%	5%	26%	9%	9%	8%
Somewhat important	27%	18%	26%	31%	27%	29%
Very important	65%	77%	48%	60%	64%	63%
Total (n)	251	58	24	155	268	258

Source: 2013 CARE Participant Telephone Survey.
Note: Question was phrased differently when asked of participants and non-participants due to their varying level of experience with the program.

Table 158: Importance of Recommendations from Others for ESA Participation (E2h) by ESA Participation and Utility for California LI Population

	Total	Participant	Non-Participant	PG&E	SCE	SDG&E	SoCalGas	SCE & SoCalGas
Importance of recommendations from others for ESA participation								
Not important	16%	14%	19%	18%	13%	21%	14%	13%
Somewhat important	32%	28%	36%	37%	29%	27%	29%	29%
Very important	47%	51%	42%	41%	53%	44%	52%	53%
Not applicable - no one recommended it	5%	6%	3%	4%	5%	7%	5%	5%
Total (n)	991	586	405	368	375	199	420	371

Source: 2013 CARE Participant Telephone Survey.
Note: Question was phrased differently when asked of participants and non-participants due to their varying level of experience with the program.

Table 159: Importance of Recommendations from Others for ESA Participation (E2h) by Home Type, Language, Rural and Urban for California LI Population

	Single-Family Own	Single-Family Rent	Multi-Family	Mobile	English Only	Primary Language Spanish	Primary Language Other	Urban	Rural
Importance of recommendations from others for ESA participation									
Not important	21%	16%	13%	14%	22%	7%	19%	16%	22%
Somewhat important	32%	32%	33%	23%	35%	32%	20%	32%	45%
Very important	41%	49%	49%	51%	37%	58%	58%	47%	33%
Not applicable - no one recommended it	6%	3%	4%	12%	6%	2%	3%	5%	0%
Total (n)	464	127	353	40	509	208	48	945	45

Source: 2013 CARE Participant Telephone Survey.
Note: Question was phrased differently when asked of participants and non-participants due to their varying level of experience with the program.

Table 160: Importance of Recommendations from Others for ESA Participation (E2h) by Climate Zone for California LI Population

	Central Valley	Desert	Mountain	North Coast	South Coast	South Inland
Importance of recommendations from others for ESA participation						
Not important	19%	17%	24%	14%	16%	15%
Somewhat important	36%	16%	48%	35%	31%	30%
Very important	42%	60%	28%	46%	50%	48%
Not applicable - no one recommended it	3%	8%	0%	5%	4%	7%
Total (n)	237	55	23	151	269	256

Source: 2013 CARE Participant Telephone Survey.
Note: Question was phrased differently when asked of participants and non-participants due to their varying level of experience with the program.

Table 161: Knowledge of How to Reduce Utility Bill (EN4) by ESA Participation and Utility for California LI Population

	Total	Participant	Non-Participant	PG&E	SCE	SDG&E	SoCalGas	SCE & SoCalGas
Knowledge of how to reduce utility bill								
Yes	62%	62%	62%	70%	60%	65%	55%	60%
No	38%	38%	38%	30%	40%	35%	45%	40%
Total (n)	982	587	395	368	376	188	422	372

Source: 2013 CARE Participant Telephone Survey.

Table 162: Knowledge of How to Reduce Utility Bill (EN4) by Home Type, Language, Rural and Urban for California LI Population

	Single-Family Own	Single-Family Rent	Multi-Family	Mobile	English Only	Primary Language Spanish	Primary Language Other	Urban	Rural
Knowledge of how to reduce utility bill									
Yes	66%	61%	59%	66%	65%	45%	69%	72%	62%
No	34%	39%	41%	34%	35%	55%	31%	28%	38%
Total (n)	457	132	346	150	510	202	46	48	934

Source: 2013 CARE Participant Telephone Survey.

Table 163: Knowledge of How to Reduce Utility Bill (EN4) by Climate Zone for California LI Population

	Central Valley	Desert	Mountain	North Coast	South Coast	South Inland
Knowledge of how to reduce utility bill						
Yes	71%	53%	81%	66%	51%	61%
No	29%	47%	19%	34%	49%	39%
Total (n)	239	54	23	150	260	256

Source: 2013 CARE Participant Telephone Survey.

Table 164: How Household Would Reduce Utility Bill (En5) by ESA Participation and Utility for California LI Population

	Total	Participant	Non-Participant	PG&E	SCE	SDG&E	SoCalGas	SCE & SoCalGas
How household would reduce utility bill								
Turn off lights	39%	40%	38%	30%	47%	43%	46%	46%
Use less electricity	22%	22%	21%	21%	21%	19%	23%	21%
Unplug equipment not in use	17%	20%	14%	19%	17%	17%	15%	17%
Don't use air conditioner	17%	18%	16%	14%	22%	11%	20%	22%
Other	17%	16%	17%	13%	22%	17%	20%	22%
Not use equipment during peak hours	13%	13%	13%	10%	17%	14%	15%	17%
Adjust thermostat	12%	11%	13%	15%	10%	5%	11%	10%
Close or open windows/ blinds/curtains/doors	11%	9%	12%	8%	13%	12%	12%	13%
Don't use the heater	10%	12%	8%	14%	8%	13%	7%	8%
Buy energy efficient lighting/ CFLs	10%	12%	8%	9%	11%	11%	10%	10%
Cut back on/turn off television/computer/ electronics	9%	10%	9%	7%	11%	9%	12%	11%
Seal windows/doors	7%	8%	6%	6%	7%	5%	7%	7%
Replace siding/doors/ windows/equipment/ appliances	6%	6%	7%	7%	7%	7%	6%	7%
Turn AC/heater down	4%	4%	3%	4%	4%	4%	3%	4%
Shorter showers	3%	3%	3%	5%	2%	5%	1%	2%
Adjust water heater temperature	3%	2%	4%	4%	3%	2%	3%	3%
Use fans	3%	2%	3%	2%	3%	5%	2%	3%

	Total	Participant	Non-Participant	PG&E	SCE	SDG&E	SoCalGas	SCE & SoCalGas
Cut back on laundry	2%	3%	2%	2%	3%	6%	2%	3%
Cook less	2%	3%	1%	3%	3%	1%	2%	3%
Contact utility	2%	3%	1%	3%	1%	2%	1%	1%
Already doing everything we can	2%	2%	2%	3%	2%	2%	2%	2%
Wear more/less clothes/blankets depending on season	2%	3%	1%	3%	1%	3%	1%	1%
Other - water-related	2%	2%	2%	2%	2%	1%	2%	2%
Wash laundry in cold water	1%	1%	2%	2%	1%	1%	1%	1%
Line dry clothes	1%	1%	1%	2%	1%	3%	1%	1%
Insulation	1%	1%	2%	1%	2%	2%	1%	2%
Leave home to avoid having to heat/cool home	1%	2%	1%	1%	1%	3%	1%	1%
Install solar panels	1%	2%	0%	1%	1%	0%	2%	1%
CARE program	1%	1%	1%	1%	2%	0%	1%	2%
Use cheaper fuel source	1%	1%	2%	2%	0%	0%	0%	0%
Total (n)	660	383	277	268	238	131	259	236

Source: 2013 CARE Participant Telephone Survey.
Note: Multiple mentions allowed.

Table 165: How Household Would Reduce Utility Bill (EN5) by Home Type, Language, Rural and Urban for California LI Population

	Single-Family Own	Single-Family Rent	Multi-Family	Mobile	English Only	Primary Language Spanish	Primary Language Other	Urban	Rural
How household would reduce utility bill									
Turn off lights	29%	38%	46%	46%	33%	52%	27%	40%	21%
Use less electricity	19%	22%	25%	16%	20%	31%	29%	22%	6%
Unplug equipment not in use	10%	16%	23%	21%	18%	13%	14%	17%	19%
Don't use air conditioner	15%	13%	20%	15%	17%	11%	12%	17%	19%
Other	17%	17%	16%	10%	17%	14%	28%	17%	12%
Not use equipment during peak hours	12%	18%	11%	9%	11%	15%	7%	13%	17%
Adjust thermostat	14%	10%	11%	14%	15%	4%	13%	12%	10%
Close or open windows/blinds/ curtains/doors	10%	14%	10%	10%	8%	8%	18%	11%	8%
Don't use the heater	9%	14%	8%	18%	12%	3%	3%	10%	16%
Buy energy efficient lighting/CFLs	7%	11%	13%	2%	9%	15%	10%	10%	13%
Cut back on/turn off television/ computer/electronics	8%	6%	12%	13%	8%	14%	0%	9%	13%
Seal windows/doors	5%	6%	8%	5%	9%	4%	6%	7%	3%
Replace siding/doors/windows/ equipment/appliances	7%	7%	5%	2%	5%	10%	3%	6%	6%
Turn AC/heater down	5%	1%	3%	1%	5%	3%	0%	4%	0%
Shorter showers	3%	4%	2%	0%	4%	0%	5%	3%	0%
Adjust water heater temperature	4%	3%	3%	0%	5%	0%	0%	3%	12%
Use fans	2%	3%	3%	1%	3%	0%	1%	2%	7%
Cut back on laundry	3%	5%	0%	9%	3%	3%	0%	3%	0%
Cook less	1%	0%	4%	10%	2%	5%	4%	2%	0%
Contact utility	2%	1%	3%	1%	2%	3%	0%	2%	0%

	Single-Family Own	Single-Family Rent	Multi-Family	Mobile	English Only	Primary Language Spanish	Primary Language Other	Urban	Rural
Already doing everything we can	2%	4%	1%	4%	2%	0%	8%	2%	9%
Wear more/less clothes/blankets depending on season	3%	1%	1%	10%	3%	0%	0%	2%	4%
Other - water related	3%	0%	2%	0%	2%	4%	0%	2%	0%
Wash laundry in cold water	1%	2%	1%	0%	1%	1%	6%	1%	1%
Line dry clothes	3%	1%	0%	7%	2%	0%	0%	1%	2%
Insulation	2%	1%	0%	0%	1%	1%	9%	1%	0%
Leave home to avoid having to heat/ cool home	1%	2%	1%	2%	1%	3%	0%	1%	8%
Install solar panels	2%	1%	0%	0%	1%	1%	0%	1%	2%
CARE program	0%	0%	2%	0%	1%	0%	0%	1%	3%
Use cheaper fuel source	0%	0%	1%	0%	1%	0%	0%	1%	0%
Total (n)	317	87	222	32	364	105	34	625	34

Source: 2013 CARE Participant Telephone Survey.
Note: Multiple mentions allowed.

Table 166: How Household Would Reduce Utility Bill (EN5) by Climate Zone for California LI Population

	Central Valley	Desert	Mountain	North Coast	South Coast	South Inland
How household would reduce utility bill						
Turn off lights	26%	49%	18%	37%	49%	46%
Use less electricity	20%	16%	5%	22%	24%	24%
Unplug equipment not in use	14%	33%	29%	21%	14%	15%
Don't use air conditioner	20%	28%	0%	5%	18%	20%
Other	14%	23%	20%	18%	17%	17%
Not use equipment during peak hours	11%	16%	15%	7%	18%	14%
Adjust thermostat	18%	16%	6%	10%	9%	9%
Close or open windows/blinds/curtains/ doors	8%	12%	5%	8%	16%	12%
Don't use the heater	9%	6%	0%	19%	10%	8%
Buy energy efficient lighting/CFLs	5%	7%	32%	11%	17%	8%
Cut back on/turn off television/computer/ electronics	7%	28%	5%	7%	19%	4%
Seal windows/doors	11%	0%	5%	5%	6%	6%
Replace siding/doors/windows/ equipment/appliances	6%	8%	0%	8%	9%	3%
Turn AC/heater down	6%	3%	0%	0%	7%	2%
Shorter showers	3%	0%	0%	6%	3%	1%
Adjust water heater temperature	3%	6%	5%	3%	3%	2%
Use fans	3%	1%	0%	1%	3%	3%
Cut back on laundry	3%	2%	7%	1%	3%	3%
Cook less	2%	8%	0%	4%	0%	3%
Contact utility	3%	1%	0%	4%	1%	2%
Already doing everything we can	1%	0%	15%	3%	0%	3%
Wear more/less clothes/blankets depending on season	3%	0%	0%	1%	2%	1%
Other - water related	2%	0%	0%	1%	2%	2%

	Central Valley	Desert	Mountain	North Coast	South Coast	South Inland
Wash laundry in cold water	2%	3%	0%	2%	2%	0%
Line dry clothes	1%	0%	10%	2%	1%	1%
Insulation	2%	3%	0%	1%	1%	1%
Leave home to avoid having to heat/cool home	2%	0%	2%	1%	0%	1%
Install solar panels	2%	0%	0%	1%	0%	1%
CARE program	1%	0%	5%	0%	2%	1%
Use cheaper fuel source	2%	0%	0%	2%	0%	0%
Total (n)	177	36	20	99	161	167

Source: 2013 CARE Participant Telephone Survey.
Note: Multiple mentions allowed.

Table 167: How Household Would Reduce Utility Bill (EN5) by ESA Participation Groups for California LI Population

	Recent ESA Participant who Recalls Participation	ESA Participant who Does Not Recalls Participation	Not a Recent ESA Participant	Total
How Household Would Reduce Utility Bill				
Turn off lights	40%	39%	38%	39%
Use less electricity	24%	21%	21%	22%
Unplug equipment not in use	17%	22%	14%	17%
Don't use the air conditioner	23%	15%	16%	17%
Other	19%	14%	17%	17%
Not use equipment during peak hours	9%	14%	13%	13%
Adjust thermostat	13%	10%	13%	12%
Close or open windows/blinds/curtains/doors	12%	8%	12%	11%
Don’t use the heater	13%	11%	9%	10%
Buy energy efficient lighting/cfls	9%	14%	8%	10%
Cut back on/turn off television/computer/electronics	11%	9%	9%	10%
Seal windows/doors	6%	8%	6%	7%
Replace siding/doors/windows/equipment/appliances	8%	5%	7%	6%
Turn ac/heater down	8%	3%	3%	4%
Shorter showers	2%	3%	3%	3%
Adjust water heater temperature	2%	2%	4%	3%
Use fans	4%	2%	3%	3%
Cut back on laundry	3%	3%	2%	2%
Cook less	3%	4%	1%	2%
Contact utility	3%	4%	1%	2%
Already doing everything we can	1%	3%	2%	2%
Wear more/less clothes/blankets depending on season	4%	2%	1%	2%
Other - water related	1%	2%	2%	2%

	Recent ESA Participant who Recalls Participation	ESA Participant who Does Not Recalls Participation	Not a Recent ESA Participant	Total
Wash laundry in cold water	2%	1%	2%	2%
Line dry clothes	2%	1%	1%	1%
Insulation	2%	0%	2%	1%
Leave home to avoid having to heat/cool home	1%	2%	1%	1%
Install solar panels	4%	1%	1%	1%
CARE program	0%	2%	1%	1%
Use cheaper fuel source	4%	0%	0%	1%
Total (n)	113	270	277	660

Source: 2013 CARE Participant Telephone Survey.

Table 168: How Often Household Tries Reduce Utility Bill (EN6) by ESA Participation and Utility for California LI Population

	Total	Participant	Non-Participant	PG&E	SCE	SDG&E	SoCalGas	SCE & SoCalGas
How often households try to reduce utility bill								
Most or all of the time	77%	77%	77%	77%	80%	77%	78%	81%
Sometimes	20%	20%	21%	20%	19%	22%	20%	18%
Never	2%	3%	2%	4%	1%	1%	2%	1%
Total (n)	1,027	610	417	389	384	202	432	380

Source: 2013 CARE Participant Telephone Survey.

Table 169: How Often Household Tries Reduce Utility Bill (EN6) by Home Type, Language, Rural and Urban for California LI Population

	Single-Family Own	Single-Family Rent	Multi-Family	Mobile	English Only	Primary Language Spanish	Primary Language Other	Urban	Rural
How often households try to reduce utility bill									
Most or all of the time	79%	76%	75%	93%	84%	64%	62%	77%	82%
Sometimes	20%	20%	22%	6%	15%	33%	30%	20%	18%
Never	1%	4%	3%	2%	1%	3%	8%	3%	0%
Total (n)	483	136	359	42	532	212	49	977	49

Source: 2013 CARE Participant Telephone Survey.

Table 170: How Often Household Tries Reduce Utility Bill (EN6) by Climate Zone for California LI Population

	Central Valley	Desert	Mountain	North Coast	South Coast	South Inland
How often households try to reduce utility bill						
Most or all of the time	79%	79%	81%	75%	76%	78%
Sometimes	19%	21%	19%	20%	22%	20%
Never	2%	0%	0%	5%	2%	2%
Total (n)	253	59	24	156	272	263

Source: 2013 CARE Participant Telephone Survey.

Table 171: Reasons for Saving Energy (EN7) by ESA Participation and Utility for California LI Population

	Total	Participant	Non-Participant	PG&E	SCE	SDG&E	SoCalGas	SCE & SoCalGas
Reasons for saving energy								
Saving money	96%	96%	97%	96%	0%	0%	0%	0%
Protecting the environment	34%	28%	44%	34%	0%	0%	0%	0%
To avoid wasting energy	6%	8%	4%	6%	0%	0%	0%	0%
Other	5%	6%	3%	5%	0%	0%	0%	0%
For the benefit of future generations	4%	2%	6%	4%	0%	0%	0%	0%
Helping California lead the way on saving energy	3%	4%	0%	3%	0%	0%	0%	0%
Health	2%	3%	0%	2%	0%	0%	0%	0%
Reducing our dependence on foreign oil	0%	0%	0%	0%	0%	0%	0%	0%
Refused	0%	0%	0%	0%	0%	0%	0%	0%
Total (n)	145	94	51	145	-	-	-	-

Source: 2013 CARE Participant Telephone Survey.
Note: Multiple mentions allowed.

Table 172: Reasons for Saving Energy (EN7) by Home Type, Language, Rural and Urban for California LI Population

	Single-Family Own	Single-Family Rent	Multi-Family	Mobile	English Only	Primary Language Spanish	Primary Language Other	Urban	Rural
Reasons for saving energy									
Saving money	95%	100%	96%	90%	96%	100%	94%	97%	91%
Protecting the environment	33%	31%	44%	10%	34%	43%	54%	34%	31%
To avoid wasting energy	5%	5%	8%	10%	5%	26%	0%	6%	5%
Other	6%	0%	4%	21%	6%	0%	6%	5%	5%
For the benefit of future generations	1%	10%	3%	0%	4%	0%	34%	4%	0%
Helping California lead the way on saving energy	1%	5%	3%	0%	2%	15%	0%	3%	0%
Health	1%	0%	0%	16%	2%	0%	0%	1%	5%
Reducing our dependence on foreign oil	0%	0%	0%	0%	0%	0%	0%	0%	0%
Refused	0%	0%	0%	0%	0%	0%	0%	0%	0%
Total (n)	70	19	42	13	104	9	6	128	17

Source: 2013 CARE Participant Telephone Survey.
Note: Multiple mentions allowed.

Table 173: Reasons for Saving Energy (EN7) by Climate Zone for California LI Population

	Central Valley	Desert	Mountain	North Coast	South Coast	South Inland
Reasons for saving energy						
Saving money	95%	0%	75%	100%	0%	0%
Protecting the environment	29%	0%	46%	40%	0%	0%
To avoid wasting energy	8%	0%	0%	4%	0%	0%
Other	7%	0%	13%	1%	0%	0%
For the benefit of future generations	3%	0%	0%	5%	0%	0%
Helping California lead the way on saving energy	1%	0%	0%	6%	0%	0%
Health	2%	0%	0%	1%	0%	0%
Reducing our dependence on foreign oil	0%	0%	0%	0%	0%	0%
Refused	0%	0%	0%	0%	0%	0%
Total (n)	79	-	7	59	-	-

Source: 2013 CARE Participant Telephone Survey.
Note: Multiple mentions allowed.

Table 174: Reasons for Difficulties in Saving Energy (EN8) by ESA Participation and Utility for California LI Population

	Total	Participant	Non-Participant	PG&E	SCE	SDG&E	SoCalGas	SCE & SoCalGas
Reasons for difficulties in saving energy								
No/none	58%	58%	58%	59%	55%	61%	57%	55%
We need to use the heat/air conditioner/appliances	8%	7%	10%	8%	11%	10%	8%	11%
Drafts/leaks	7%	8%	6%	9%	8%	1%	7%	8%
Some members of the household not interested or able	7%	6%	8%	6%	7%	9%	7%	7%
Other	6%	5%	7%	7%	3%	4%	6%	3%
Age and condition of the equipment/appliance/home	5%	6%	4%	5%	6%	1%	6%	6%
No money/LI	5%	5%	5%	5%	5%	5%	5%	5%
Weather/temperature/very hot/cold climate	4%	4%	4%	6%	4%	2%	4%	4%
Medical/health reasons	3%	4%	3%	2%	4%	5%	4%	4%
Lack of information/don't know how	3%	3%	2%	3%	3%	2%	3%	3%
Not able to control our usage	2%	3%	2%	3%	2%	3%	2%	2%
Insulation	1%	1%	1%	1%	1%	0%	2%	1%
Need for air conditioning	1%	1%	1%	0%	2%	0%	2%	2%
High cost of bills	0%	0%	0%	0%	0%	1%	0%	0%
Landlord	0%	0%	0%	0%	0%	0%	0%	1%
It’s not a priority for us	0%	0%	0%	0%	0%	0%	0%	0%
We don't pay the bill, someone else pays it	0%	0%	0%	0%	0%	0%	0%	0%
Total (n)	849	497	352	237	367	193	415	363

Source: 2013 CARE Participant Telephone Survey.
Note: Multiple mentions allowed.

Table 175: Reasons for Difficulties in Saving Energy (EN8) by Home Type, Language, Rural and Urban for California LI Population

	Single-Family Own	Single-Family Rent	Multi-Family	Mobile	English Only	Primary Language Spanish	Primary Language Other	Urban	Rural
Reasons for difficulties in saving energy									
No/none	59%	53%	61%	35%	60%	66%	46%	58%	64%
We need to use the heat/air conditioner/appliances	10%	5%	8%	33%	7%	4%	16%	9%	2%
Drafts/leaks	3%	8%	8%	10%	10%	2%	0%	7%	6%
Some members of the household not interested or able	8%	10%	5%	13%	6%	7%	3%	7%	3%
Other	4%	12%	5%	6%	3%	10%	16%	6%	2%
Age and condition of the equipment/appliance/home	4%	8%	4%	2%	7%	2%	2%	5%	9%
No money/LI	5%	3%	5%	8%	6%	2%	6%	5%	9%
Weather/temperature/very hot/cold climate	8%	4%	2%	0%	3%	4%	12%	4%	5%
Medical/health reasons	3%	5%	3%	13%	4%	0%	6%	3%	14%
Lack of information/don't know how	3%	2%	3%	3%	3%	4%	2%	3%	2%
Not able to control our usage	2%	2%	2%	8%	1%	2%	7%	2%	0%
Insulation	1%	3%	1%	0%	2%	0%	0%	1%	0%
Need for air conditioning	1%	1%	2%	0%	1%	2%	0%	1%	0%
High cost of bills	1%	0%	0%	0%	0%	1%	0%	0%	0%
Landlord	0%	0%	1%	0%	0%	0%	0%	0%	0%
It’s not a priority for us	1%	0%	0%	0%	0%	0%	0%	0%	0%
We don't pay the bill, someone else pays it	0%	0%	0%	0%	0%	0%	0%	0%	0%
Total (n)	399	110	307	28	413	192	43	816	32

Source: 2013 CARE Participant Telephone Survey.
Note: Multiple mentions allowed.

Table 176: Reasons for Difficulties in Saving Energy (EN8) by Climate Zone for California LI Population

	Central Valley	Desert	Mountain	North Coast	South Coast	South Inland
Reasons for difficulties in saving energy						
No/none	54%	48%	71%	64%	57%	61%
We need to use the heat/air conditioner/appliances	12%	13%	0%	3%	7%	9%
Drafts/leaks	10%	11%	11%	8%	7%	3%
Some members of the household not interested or able	7%	8%	11%	3%	8%	8%
Other	4%	2%	0%	9%	9%	6%
Age and condition of the equipment/appliance/home	8%	10%	0%	3%	4%	4%
No money/LI	6%	2%	2%	7%	7%	2%
Weather/temperature/very hot/cold climate	8%	3%	6%	4%	1%	5%
Medical/health reasons	5%	7%	5%	1%	3%	3%
Lack of information/don't know how	4%	0%	0%	2%	3%	3%
Not able to control our usage	2%	2%	0%	5%	3%	1%
Insulation	1%	0%	0%	1%	1%	2%
Need for air conditioning	0%	3%	0%	0%	0%	3%
High cost of bills	0%	0%	0%	0%	1%	0%
Landlord	0%	0%	0%	0%	1%	0%
It’s not a priority for us	0%	0%	0%	0%	0%	0%
We don't pay the bill, someone else pays it	0%	0%	0%	0%	0%	0%
Total (n)	168	59	16	94	258	254

Source: 2013 CARE Participant Telephone Survey.
Note: Multiple mentions allowed.

8.2.4 ESA Barriers

Table 177: Problems with Enrollment/Receiving Services (B1a) by ESA Participation and Utility for California LI Population

	Total	Participant	Non-Participant	PG&E	SCE	SDG&E	SoCalGas	SCE & SoCalGas
Problems with enrollment/receiving services								
Yes	25%	17%	33%	25%	29%	22%	25%	29%
No	75%	83%	67%	75%	71%	78%	75%	71%
Total (n)	847	497	350	230	372	194	419	368

Source: 2013 CARE Participant Telephone Survey.
Note: This question was added when the survey was already in the field, and has a slightly lower sample size as a result.
Note: Question was phrased differently when asked of participants and non-participants due to their varying level of experience with the program.

Table 178: Problems with Enrollment/Receiving Services (B1a) by Home Type, Language, Rural and Urban for California LI Population

	Single-Family Own	Single-Family Rent	Multi-Family	Mobile	English Only	Primary Language Spanish	Primary Language Other	Urban	Rural
Problems with enrollment/receiving services									
Yes	25%	24%	27%	24%	26%	30%	16%	24%	43%
No	75%	76%	73%	76%	74%	70%	84%	76%	57%
Total (n)	395	113	304	29	413	191	40	816	30

Source: 2013 CARE Participant Telephone Survey.
Note: this question was added when the survey was already in the field, and has a slightly lower sample size as a result.
Note: Question was phrased differently when asked of participants and non-participants due to their varying level of experience with the program.

Table 179: Problems with Enrollment/Receiving Services (B1a) by Climate Zone for California LI Population

	Central Valley	Desert	Mountain	North Coast	South Coast	South Inland
Problems with enrollment/receiving services						
Yes	23%	28%	48%	27%	24%	25%
No	77%	72%	52%	73%	76%	75%
Total (n)	166	58	16	91	260	256

Source: 2013 CARE Participant Telephone Survey.
Note: this question was added when the survey was already in the field, and has a slightly lower sample size as a result.
Note: Question was phrased differently when asked of participants and non-participants due to their varying level of experience with the program.

Table 180: Difficult Issues with Enrollment/Receiving Services (B1) by ESA Participation and Utility for California LI Population

	Total	Participant	Non-Participant	PG&E	SCE	SDG&E	SoCalGas	SCE & SoCalGas
Difficult issues with enrollment/receiving services								
Too hard to be home during the visits/taking off work	37%	29%	43%	33%	45%	33%	43%	46%
Having contractors in my home	23%	19%	25%	17%	21%	31%	26%	20%
Getting my landlord's permission	9%	12%	7%	7%	12%	11%	11%	12%
Enrolling/scheduling/signing up	7%	13%	3%	11%	3%	2%	3%	4%
Trusting contractors	5%	4%	6%	7%	3%	6%	3%	3%
Number of visits	2%	1%	3%	2%	3%	0%	3%	3%
Not worth the paperwork, having to find/provide income docs	2%	1%	2%	1%	3%	1%	2%	3%
Do not think I need it/will benefit	2%	2%	1%	0%	4%	2%	3%	4%
Installing the equipment	1%	1%	2%	3%	0%	0%	0%	0%
Dissatisfied with equipment or repairs	1%	3%	0%	2%	0%	3%	0%	0%
Trusting the utility reps	1%	3%	0%	3%	0%	0%	0%	0%
Have not heard of it/do not know enough	1%	1%	0%	1%	0%	0%	0%	0%
Dissatisfied with contractor/installation	0%	1%	0%	0%	0%	0%	0%	0%
Adjusting/getting used to the new equipment/repairs	0%	0%	0%	0%	0%	0%	0%	0%

	Total	Participant	Non-Participant	PG&E	SCE	SDG&E	SoCalGas	SCE & SoCalGas
Proving I own my home	0%	1%	0%	1%	0%	0%	0%	0%
Providing my household's income	0%	0%	0%	0%	0%	0%	0%	0%
Other	8%	10%	8%	11%	7%	10%	6%	7%
Total (n)	269	120	149	120	99	44	103	97

Source: 2013 CARE Participant Telephone Survey.
Note: Question was phrased differently when asked of participants and non-participants due to their varying level of experience with the program.

Table 181: Difficult Issues with Enrollment/Receiving Services (B1) by Home Type, Language, Rural and Urban for California LI Population

	Single-Family Own	Single-Family Rent	Multi-Family	Mobile	English Only	Primary Language Spanish	Primary Language Other	Urban	Rural
Difficult issues with enrollment/receiving services									
Too hard to be home during the visits/taking off work	36%	47%	36%	22%	34%	54%	44%	37%	38%
Having contractors in my home	26%	19%	18%	40%	26%	15%	15%	23%	18%
Trusting contractors	12%	0%	4%	0%	5%	2%	4%	4%	20%
Enrolling/scheduling/signing up	8%	6%	7%	12%	8%	9%	0%	6%	17%
Number of visits	3%	6%	0%	0%	1%	4%	23%	2%	0%
Not worth the paperwork, having to find/provide income docs	3%	0%	2%	0%	1%	0%	0%	2%	0%
Installing the equipment	2%	0%	2%	0%	1%	1%	0%	1%	0%
Do not think i need it/will benefit	2%	0%	2%	0%	2%	0%	0%	2%	0%
Dissatisfied with contractor/installation	1%	0%	0%	0%	0%	0%	0%	0%	0%
Dissatisfied with equipment or repairs	1%	0%	1%	5%	1%	0%	0%	1%	3%
Trusting the utility reps	1%	0%	3%	0%	2%	0%	9%	2%	0%
Proving I own my home	1%	0%	0%	0%	0%	0%	0%	0%	0%
Adjusting/getting used to the new equipment/repairs	0%	0%	0%	0%	0%	0%	0%	0%	0%
Getting my landlord's permission	0%	12%	14%	0%	8%	15%	5%	10%	0%
Providing my household’s income	0%	0%	0%	0%	0%	0%	0%	0%	0%
Have not heard of it/do not know enough	0%	0%	1%	0%	0%	0%	0%	1%	0%
Other	5%	10%	9%	20%	9%	1%	0%	9%	3%

Total (n)	122	33	101	12	156	49	12	252	17

Source: 2013 CARE Participant Telephone Survey.
Note: Question was phrased differently when asked of participants and non-participants due to their varying level of experience with the program.

Table 182: Difficult Issues with Enrollment/Receiving Services (B1) by Climate Zone for California LI Population

	Central Valley	Desert	Mountain	North Coast	South Coast	South Inland
Difficult issues with enrollment/receiving services						
Too hard to be home during the visits/taking off work	43%	33%	48%	25%	41%	37%
Having contractors in my home	13%	24%	33%	19%	22%	36%
Enrolling/scheduling/signing up	8%	10%	0%	16%	5%	1%
Getting my landlord's permission	6%	14%	0%	8%	18%	6%
Trusting contractors	4%	9%	0%	12%	2%	4%
Number of visits	4%	0%	0%	1%	3%	3%
Installing the equipment	2%	0%	0%	3%	0%	0%
Trusting the utility reps	2%	0%	0%	4%	0%	0%
Not worth the paperwork, having to find/provide income docs	2%	0%	0%	1%	5%	0%
Have not heard of it/do not know enough	2%	0%	0%	0%	0%	0%
Proving I own my home	1%	0%	0%	0%	0%	0%
Dissatisfied with contractor/installation	0%	0%	0%	1%	0%	0%
Dissatisfied with equipment or repairs	0%	0%	6%	3%	1%	0%
Adjusting/getting used to the new equipment/repairs	0%	0%	0%	0%	0%	0%
Providing my household's income	0%	0%	0%	0%	0%	0%
Do not think I need it/will benefit	0%	7%	0%	0%	1%	5%
Other	13%	4%	13%	7%	3%	8%
Total (n)	68	14	10	51	65	61

Source: 2013 CARE Participant Telephone Survey.
Note: Question was phrased differently when asked of participants and non-participants due to their varying level of experience with the program.

Table 183: Difficulty in Obtaining Landlord Permission (B2C) by ESA Participation and Utility for California LI Population

	Total	Participant	Non-Participant	PG&E	SCE	SDG&E	SoCalGas	SCE & SoCalGas
Difficulty in getting landlord's permission								
Easy	53%	63%	42%	55%	51%	55%	51%	51%
Somewhat hard	25%	22%	27%	26%	25%	18%	25%	24%
Very hard	11%	7%	16%	9%	14%	15%	13%	14%
Don't know	11%	8%	15%	11%	11%	12%	11%	11%
Total (n)	457	253	204	168	148	114	173	146

Source: 2013 CARE Participant Telephone Survey.
Note: Question was phrased differently when asked of participants and non-participants due to their varying level of experience with the program.

Table 184: Difficulty in Obtaining Landlord Permission (B2C) by Home Type, Language, Rural and Urban for California LI Population

	Single-Family Own	Single-Family Rent	Multi-Family	Mobile	English Only	Primary Language Spanish	Primary Language Other	Urban	Rural
Difficulty in getting landlord's permission									
Easy	100%	63%	45%	85%	56%	45%	49%	53%	60%
Somewhat hard	0%	22%	27%	0%	22%	31%	26%	25%	17%
Very hard	0%	8%	14%	15%	13%	12%	7%	11%	11%
Don't know	0%	7%	14%	0%	10%	13%	18%	11%	11%
Total (n)	1	136	306	7	225	103	23	447	10

Source: 2013 CARE Participant Telephone Survey.
Note: Question was phrased differently when asked of participants and non-participants due to their varying level of experience with the program.

Table 185: Difficulty in Obtaining Landlord Permission (B2C) by Climate Zone for California LI Population

	Central Valley	Desert	Mountain	North Coast	South Coast	South Inland
Difficulty in getting landlord's permission						
Easy	58%	70%	74%	56%	52%	43%
Somewhat hard	24%	10%	0%	25%	24%	29%
Very hard	8%	15%	26%	7%	13%	15%
Don't know	11%	6%	0%	12%	11%	13%
Total (n)	94	22	4	84	146	107

Source: 2013 CARE Participant Telephone Survey.
Note: Question was phrased differently when asked of participants and non-participants due to their varying level of experience with the program.

Table 186: Difficulty in Filling Out Application with Contractor (B2D) by ESA Participation and Utility for California LI Population

	Total	Participant	Non-Participant	PG&E	SCE	SDG&E	SoCalGas	SCE & SoCalGas
Difficulty in filling out application with contractor								
Easy	65%	68%	62%	65%	63%	64%	65%	63%
Somewhat hard	22%	21%	23%	18%	24%	24%	25%	25%
Very hard	8%	7%	10%	11%	8%	9%	6%	8%
Don't know	5%	4%	5%	6%	4%	4%	3%	4%
Total (n)	1,021	607	414	386	383	200	431	379

Source: 2013 CARE Participant Telephone Survey.
Note: Question was phrased differently when asked of participants and non-participants due to their varying level of experience with the program.

Table 187: Difficulty in Filling Out Application with Contractor (B2D) by Home Type, Language, Rural and Urban for California LI Population

	Single-Family Own	Single-Family Rent	Multi-Family	Mobile	English Only	Primary Language Spanish	Primary Language Other	Urban	Rural
Difficulty in filling out application with contractor									
Easy	69%	72%	57%	81%	66%	57%	57%	65%	73%
Somewhat hard	21%	18%	26%	8%	17%	34%	32%	22%	13%
Very hard	7%	6%	11%	4%	11%	5%	11%	8%	14%
Don't know	3%	4%	6%	7%	6%	5%	1%	5%	0%
Total (n)	480	134	358	42	528	213	47	971	49

Source: 2013 CARE Participant Telephone Survey.
Note: Question was phrased differently when asked of participants and non-participants due to their varying level of experience with the program.

Table 188: Difficulty in Filling Out Application with Contractor (B2D) by Climate Zone for California LI Population

	Central Valley	Desert	Mountain	North Coast	South Coast	South Inland
Difficulty in filling out application with contractor						
Easy	64%	73%	79%	66%	65%	63%
Somewhat hard	17%	17%	8%	20%	25%	27%
Very hard	13%	10%	9%	8%	5%	7%
Don't know	6%	0%	4%	6%	5%	3%
Total (n)	250	59	24	156	271	261

Source: 2013 CARE Participant Telephone Survey.
Note: Question was phrased differently when asked of participants and non-participants due to their varying level of experience with the program.

Table 189: Difficulty in Being Home for Contractor Visits (B2E) by ESA Participation and Utility for California LI Population

	Total	Participant	Non-Participant	PG&E	SCE	SDG&E	SoCalGas	SCE & SoCalGas
Difficulty in being home for contractor visits								
Easy	65%	73%	55%	62%	66%	67%	66%	66%
Somewhat hard	25%	20%	31%	26%	23%	24%	24%	22%
Very hard	10%	7%	14%	11%	12%	9%	10%	12%
Total (n)	1,007	602	405	380	378	197	426	374

Source: 2013 CARE Participant Telephone Survey.
Note: Question was phrased differently when asked of participants and non-participants due to their varying level of experience with the program.

Table 190: Difficulty in Being Home for Contractor Visits (B2E) by Home Type, Language, Rural and Urban for California LI Population

	Single-Family Own	Single-Family Rent	Multi-Family	Mobile	English Only	Primary Language Spanish	Primary Language Other	Urban	Rural
Difficulty in being home for contractor visits									
Easy	64%	64%	63%	75%	66%	62%	66%	65%	56%
Somewhat hard	25%	26%	27%	22%	22%	31%	20%	25%	33%
Very hard	12%	10%	10%	3%	12%	7%	15%	10%	11%
Total (n)	474	133	351	42	526	206	46	957	49

Source: 2013 CARE Participant Telephone Survey.
Note: Question was phrased differently when asked of participants and non-participants due to their varying level of experience with the program.

Table 191: Difficulty in Being Home for Contractor Visits (B2E) by Climate Zone for California LI Population

	Central Valley	Desert	Mountain	North Coast	South Coast	South Inland
Difficulty in being home for contractor visits						
Easy	67%	70%	56%	59%	69%	62%
Somewhat hard	21%	21%	27%	33%	24%	26%
Very hard	12%	9%	17%	8%	8%	12%
Total (n)	248	58	24	152	267	258

Source: 2013 CARE Participant Telephone Survey.
Note: Question was phrased differently when asked of participants and non-participants due to their varying level of experience with the program.

Table 192: Participant Difficulty in Getting Used to Equipment/Repairs (B2F) by ESA Participation and Utility for California LI Population

	Total	Participant	Non-Participant	PG&E	SCE	SDG&E	SoCalGas	SCE & SoCalGas
Difficulty in getting used to equipment/repairs								
Easy	89%	89%	0%	89%	0%	0%	0%	0%
Somewhat hard	0%	0%	0%	0%	0%	0%	0%	0%
Very hard	4%	4%	0%	4%	0%	0%	0%	0%
Don't know	8%	8%	0%	8%	0%	0%	0%	0%
Total (n)	36	36	-	36	-	-	-	-

Source: 2013 CARE Participant Telephone Survey.
Note: Question was phrased differently when asked of participants and non-participants due to their varying level of experience with the program.

Table 193: Participant Difficulty in Getting Used to Equipment/Repairs (B2F) by Home Type, Language, Rural and Urban for California LI Population

	Single-Family Own	Single-Family Rent	Multi-Family	Mobile	English Only	Primary Language Spanish	Primary Language Other	Urban	Rural
Difficulty in getting used to equipment/repairs									
Easy	87%	75%	100%	100%	86%	100%	100%	91%	80%
Somewhat hard	0%	0%	0%	0%	0%	0%	0%	0%	0%
Very hard	9%	0%	0%	0%	3%	0%	0%	2%	10%
Don't know	4%	25%	0%	0%	11%	0%	0%	7%	10%
Total (n)	23	4	6	3	25	1	2	26	10

Source: 2013 CARE Participant Telephone Survey.
Note: Question was phrased differently when asked of participants and non-participants due to their varying level of experience with the program.

Table 194: Participant Difficulty in Getting Used to Equipment/Repairs (B2F) by Climate Zone for California LI Population

	Central Valley	Desert	Mountain	North Coast	South Coast	South Inland
Difficulty in getting used to equipment/repairs						
Easy	87%	0%	50%	95%	0%	0%
Somewhat hard	0%	0%	0%	0%	0%	0%
Very hard	0%	0%	50%	5%	0%	0%
Don't know	13%	0%	0%	0%	0%	0%
Total (n)	21	-	2	13	-	-

Source: 2013 CARE Participant Telephone Survey.
Note: Question was phrased differently when asked of participants and non-participants due to their varying level of experience with the program.

Table 195: Recent/Non-Participant Difficulty in Getting Used to Equipment/Repairs (B2G) by ESA Participation and Utility for California LI Population

	Total	Participant	Non-Participant	PG&E	SCE	SDG&E	SoCalGas	SCE & SoCalGas
Difficulty in getting used to equipment/repairs								
Easy	78%	82%	74%	78%	0%	0%	0%	0%
Somewhat hard	16%	15%	18%	16%	0%	0%	0%	0%
Very hard	6%	3%	9%	6%	0%	0%	0%	0%
Total (n)	110	57	53	110	-	-	-	-

Source: 2013 CARE Participant Telephone Survey.
Note: Question was phrased differently when asked of participants and non-participants due to their varying level of experience with the program.

Table 196: Recent/Non-Participant Difficulty in Getting Used to Equipment/Repairs (B2G) by Home Type, Language, Rural and Urban for California LI Population

	Single-Family Own	Single-Family Rent	Multi-Family	Mobile	English Only	Primary Language Spanish	Primary Language Other	Urban	Rural
Difficulty in getting used to equipment/repairs									
Easy	83%	83%	74%	93%	81%	61%	100%	77%	100%
Somewhat hard	11%	12%	19%	7%	14%	31%	0%	17%	0%
Very hard	6%	6%	6%	0%	5%	7%	0%	6%	0%
Total (n)	46	17	36	10	81	7	4	103	7

Source: 2013 CARE Participant Telephone Survey.
Note: Question was phrased differently when asked of participants and non-participants due to their varying level of experience with the program.

Table 197: Participant in Getting Used to Equipment/Repairs (B2G) by Climate Zone for California LI Population

	Central Valley	Desert	Mountain	North Coast	South Coast	South Inland
Difficulty in getting used to equipment/repairs						
Easy	82%	0%	100%	72%	0%	0%
Somewhat hard	10%	0%	0%	25%	0%	0%
Very hard	8%	0%	0%	2%	0%	0%
Total (n)	59	-	5	46	-	-

Source: 2013 CARE Participant Telephone Survey.
Note: Question was phrased differently when asked of participants and non-participants due to their varying level of experience with the program.

Table 198: Difficulty in Providing Income Documentation (B2A) by ESA Participation and Utility for California LI Population

	Total	Participant	Non-Participant	PG&E	SCE	SDG&E	SoCalGas	SCE & SoCalGas
Difficulty in providing income documentation								
Easy	75%	76%	73%	77%	72%	76%	72%	72%
Somewhat hard	15%	15%	15%	15%	15%	12%	16%	15%
Very hard	10%	9%	12%	8%	13%	12%	12%	13%
Total (n)	997	586	411	379	373	195	419	369

Source: 2013 CARE Participant Telephone Survey.
Note: Question was phrased differently when asked of participants and non-participants due to their varying level of experience with the program.

Table 199: Difficulty in Providing Income Documentation (B2A) by Home Type, Language, Rural and Urban for California LI Population

	Single-Family Own	Single-Family Rent	Multi-Family	Mobile	English Only	Primary Language Spanish	Primary Language Other	Urban	Rural
Difficulty in providing income documentation									
Easy	76%	80%	71%	89%	75%	76%	70%	75%	75%
Somewhat hard	13%	13%	17%	6%	12%	15%	21%	15%	12%
Very hard	11%	7%	12%	5%	13%	9%	10%	10%	13%
Total (n)	468	135	347	40	512	209	48	947	49

Source: 2013 CARE Participant Telephone Survey.
Note: Question was phrased differently when asked of participants and non-participants due to their varying level of experience with the program.

Table 200: Difficulty in Providing Income Documentation (B2A) by Climate Zone for California LI Population

	Central Valley	Desert	Mountain	North Coast	South Coast	South Inland
Difficulty in providing income documentation						
Easy	76%	81%	79%	79%	71%	73%
Somewhat hard	17%	7%	0%	15%	14%	17%
Very hard	8%	13%	21%	6%	15%	10%
Total (n)	247	55	23	152	265	255

Source: 2013 CARE Participant Telephone Survey.
Note: Question was phrased differently when asked of participants and non-participants due to their varying level of experience with the program.

Table 201: Difficulty in Providing Ownership Documentation (B2B) by ESA Participation and Utility for California LI Population

	Total	Participant	Non-Participant	PG&E	SCE	SDG&E	SoCalGas	SCE & SoCalGas
Difficulty in providing ownership documentation								
Easy	80%	80%	80%	84%	78%	81%	76%	78%
Somewhat hard	13%	14%	12%	9%	13%	15%	16%	13%
Very hard	7%	6%	8%	7%	10%	4%	7%	10%
Total (n)	540	334	206	208	225	84	246	223

Source: 2013 CARE Participant Telephone Survey.
Note: Question was phrased differently when asked of participants and non-participants due to their varying level of experience with the program.

Table 202: Difficulty in Providing Ownership Documentation (B2B) by Home Type, Language, Rural and Urban for California LI Population

	Single-Family Own	Single-Family Rent	Multi-Family	Mobile	English Only	Primary Language Spanish	Primary Language Other	Urban	Rural
Difficulty in providing ownership documentation									
Easy	80%	0%	78%	84%	85%	63%	71%	80%	89%
Somewhat hard	13%	0%	16%	9%	7%	28%	9%	13%	6%
Very hard	7%	0%	6%	7%	7%	9%	20%	7%	5%
Total (n)	457	-	49	34	292	105	24	502	37

Source: 2013 CARE Participant Telephone Survey.
Note: Question was phrased differently when asked of participants and non-participants due to their varying level of experience with the program.

Table 203: Difficulty in Providing Ownership Documentation (B2B) by Climate Zone for California LI Population

	Central Valley	Desert	Mountain	North Coast	South Coast	South Inland
Difficulty in providing ownership documentation						
Easy	84%	69%	97%	81%	77%	78%
Somewhat hard	10%	18%	3%	7%	17%	16%
Very hard	6%	13%	0%	12%	6%	6%
Total (n)	149	36	19	68	119	149

Source: 2013 CARE Participant Telephone Survey.
Note: Question was phrased differently when asked of participants and non-participants due to their varying level of experience with the program.

Table 204: Difficulty in Trusting Utility (B2H) by ESA Participation and Utility for California LI Population

	Total	Participant	Non-Participant	PG&E	SCE	SDG&E	SoCalGas	SCE & SoCalGas
Difficulty in trusting utility								
Easy	74%	79%	68%	77%	70%	78%	70%	70%
Somewhat hard	21%	18%	24%	19%	23%	18%	23%	23%
Very hard	6%	4%	8%	4%	7%	4%	8%	7%
Total (n)	998	593	405	379	371	198	417	367

Source: 2013 CARE Participant Telephone Survey.
Note: Question was phrased differently when asked of participants and non-participants due to their varying level of experience with the program.

Table 205: Difficulty in Trusting Utility (B2H) by Home Type, Language, Rural and Urban for California LI Population

	Single-Family Own	Single-Family Rent	Multi-Family	Mobile	English Only	Primary Language Spanish	Primary Language Other	Urban	Rural
Difficulty in trusting utility									
Easy	70%	79%	72%	81%	76%	72%	66%	74%	68%
Somewhat hard	23%	16%	22%	14%	17%	24%	25%	21%	25%
Very hard	7%	5%	5%	5%	6%	4%	9%	6%	7%
Total (n)	470	133	348	40	522	202	45	948	49

Source: 2013 CARE Participant Telephone Survey.
Note: Question was phrased differently when asked of participants and non-participants due to their varying level of experience with the program.

Table 206: Difficulty in Trusting Utility (B2H) by Climate Zone for California LI Population

	Central Valley	Desert	Mountain	North Coast	South Coast	South Inland
Difficulty in trusting utility						
Easy	78%	77%	69%	76%	69%	71%
Somewhat hard	19%	15%	27%	20%	24%	21%
Very hard	3%	8%	4%	4%	7%	8%
Total (n)	246	58	23	152	265	254

Source: 2013 CARE Participant Telephone Survey.
Note: Question was phrased differently when asked of participants and non-participants due to their varying level of experience with the program.

Table 207: Difficulty in Trusting Contractor (B2I) by ESA Participation and Utility for California LI Population

	Total	Participant	Non-Participant	PG&E	SCE	SDG&E	SoCalGas	SCE & SoCalGas
Difficulty in trusting contractor								
Easy	53%	63%	42%	53%	53%	57%	52%	53%
Somewhat hard	36%	30%	42%	38%	33%	33%	34%	32%
Very hard	12%	7%	16%	9%	14%	10%	14%	14%
Total (n)	991	589	402	376	371	195	416	367

Source: 2013 CARE Participant Telephone Survey.
Note: Question was phrased differently when asked of participants and non-participants due to their varying level of experience with the program.

Table 208: Difficulty in Trusting Contractor (B2I) by Home Type, Language, Rural and Urban for California LI Population

	Single-Family Own	Single-Family Rent	Multi-Family	Mobile	English Only	Primary Language Spanish	Primary Language Other	Urban	Rural
Difficulty in trusting contractor									
Easy	44%	59%	54%	72%	55%	57%	35%	53%	49%
Somewhat hard	41%	33%	34%	22%	32%	35%	47%	35%	41%
Very hard	15%	8%	12%	6%	13%	7%	18%	12%	11%
Total (n)	473	134	336	41	515	200	46	942	48

Source: 2013 CARE Participant Telephone Survey.
Note: Question was phrased differently when asked of participants and non-participants due to their varying level of experience with the program.

Table 209: Difficulty in Trusting Contractor (B2I) by Climate Zone for California LI Population

	Central Valley	Desert	Mountain	North Coast	South Coast	South Inland
Difficulty in trusting contractor						
Easy	54%	63%	45%	53%	54%	49%
Somewhat hard	36%	20%	46%	40%	33%	37%
Very hard	9%	18%	9%	8%	13%	14%
Total (n)	247	58	24	149	261	252

Source: 2013 CARE Participant Telephone Survey.
Note: Question was phrased differently when asked of participants and non-participants due to their varying level of experience with the program.

Table 210: Difficulty in Scheduling Appointments (B2J) by ESA Participation and Utility for California LI Population

	Total	Participant	Non-Participant	PG&E	SCE	SDG&E	SoCalGas	SCE & SoCalGas
Difficulty in scheduling appointments								
Easy	76%	80%	70%	76%	0%	0%	0%	0%
Somewhat hard	18%	17%	20%	18%	0%	0%	0%	0%
Very hard	6%	3%	10%	6%	0%	0%	0%	0%
Total (n)	145	93	52	145	-	-	-	-

Source: 2013 CARE Participant Telephone Survey.
Note: Question was phrased differently when asked of participants and non-participants due to their varying level of experience with the program.

Table 211: Difficulty in Scheduling Appointments (B2J) by Home Type, Language, Rural and Urban for California LI Population

	Single-Family Own	Single-Family Rent	Multi-Family	Mobile	English Only	Primary Language Spanish	Primary Language Other	Urban	Rural
Difficulty in scheduling appointments									
Easy	77%	71%	82%	90%	76%	80%	100%	75%	88%
Somewhat hard	16%	15%	18%	10%	18%	20%	0%	19%	6%
Very hard	8%	14%	0%	0%	6%	0%	0%	6%	6%
Total (n)	70	21	40	13	104	9	6	128	17

Source: 2013 CARE Participant Telephone Survey.
Note: Question was phrased differently when asked of participants and non-participants due to their varying level of experience with the program.

Table 212: Difficulty in Scheduling Appointments (B2J) by Climate Zone for California LI Population

	Central Valley	Desert	Mountain	North Coast	South Coast	South Inland
Difficulty in scheduling appointments						
Easy	76%	0%	67%	78%	0%	0%
Somewhat hard	16%	0%	16%	20%	0%	0%
Very hard	8%	0%	16%	2%	0%	0%
Total (n)	79	-	7	59	-	-

Source: 2013 CARE Participant Telephone Survey.
Note: Question was phrased differently when asked of participants and non-participants due to their varying level of experience with the program.

Table 213: Recent Participant Reasons for New Refrigerators Being Not at All Helpful (EN3_10) by ESA Participation and Utility for California LI Population

	Total	Participant	Non-Participant	PG&E	SCE	SDG&E	SoCalGas	SCE & SoCalGas
Reasons for new refrigerators being not at all helpful [1]								
Work was not done properly/fix was not permanent	100%	100%	0%	0%	100%	0%	100%	100%
Total (n)	1	1	-	-	1	-	1	1

Source: 2013 CARE Participant Telephone Survey.
[1] Note: Question asked of recent participants who recall participating and said that the new refrigerator was not at all helpful.

Table 214: Recent Participant Reasons for New Refrigerators Being Not at All Helpful (EN3_10) by Home Type, Language, Rural and Urban for California LI Population

	Single-Family Own	Single-Family Rent	Multi-Family	Mobile	English Only	Primary Language Spanish	Primary Language Other	Urban	Rural
Reasons for new refrigerators being not at all helpful [1]									
Work was not done properly/fix was not permanent	100%	0%	0%	0%	0%	0%	0%	100%	0%
Total (n)	1	-	-	-	-	-	-	1	-

Source: 2013 CARE Participant Telephone Survey.
[1] Note: Question was asked of recent participants who recall participating and said the new refrigerator was not at all helpful.

Table 215: Recent Participant Reasons for New Refrigerators Being Not at All Helpful (EN3_10) by Climate Zone for California LI Population

	Central Valley	Desert	Mountain	North Coast	South Coast	South Inland
Reasons for new refrigerators being not at all helpful [1]						
Work was not done properly/fix was not permanent	0%	100%	0%	0%	0%	0%
Total (n)	-	1	-	-	-	-

Source: 2013 CARE Participant Telephone Survey.
[1] Note: Question was asked of recent participants who recall participating and said that repairs to broken or leaky windows, doors, walls, or floors were not at all helpful.

Table 216: Recent Participant Reasons for Window/Door/Wall/Floor Repair Being Not at All Helpful (EN3_11) by ESA Participation and Utility for California LI Population

	Total	Participant	Non-Participant	PG&E	SCE	SDG&E	SoCalGas	SCE & SoCalGas
Reasons for window/door/ wall/floor repair being not at all helpful [1]								
Other Reason	53%	53%	0%	0%	0%	100%	0%	0%
Don't Know	47%	47%	0%	100%	0%	0%	0%	0%
Total (n)	2	2	-	1	-	1	-	-

Source: 2013 CARE Participant Telephone Survey.
[1] Note: Question was asked of recent participants who recall participating and said that the repairs to broken or leaky windows, doors, walls, or floors were not at all helpful.

Table 217: Recent Participant Reasons for Window/Door/Wall/Floor Repair Being Not at All Helpful (EN3_11) by Home Type, Language, Rural and Urban for California LI Population

	Single-Family Own	Single-Family Rent	Multi-Family	Mobile	English Only	Primary Language Spanish	Primary Language Other	Urban	Rural
Reasons for window/door/wall/floor repair being not at all helpful [1]									
Other Reason	0%	100%	0%	0%	53%	0%	0%	100%	0%
Don't Know	100%	0%	0%	0%	47%	0%	0%	0%	100%
Total (n)	1	1	-	-	2	-	-	1	1

Source: 2013 CARE Participant Telephone Survey.
[1] Note: Question was asked of recent participants who recall participating and said the repairs to broken or leaky windows, doors, walls, or floors were not at all helpful.

Table 218: Recent Participant Reasons for Window/Door/Wall/Floor Repair Being Not at All Helpful (EN3_11) by Climate Zone for California LI Population

	Central Valley	Desert	Mountain	North Coast	South Coast	South Inland
Reasons for window/door/wall/floor repair being not at all helpful [1]						
Other Reason	0%	0%	0%	0%	100%	0%
Don't Know	100%	0%	0%	0%	0%	0%
Total (n)	1	-	-	-	1	-

Source: 2013 CARE Participant Telephone Survey.

[1] Note: Question was asked of recent participants who recall participating and said that the repairs to broken or leaky windows, doors, walls, or floors were not at all helpful.

Table 219: Recent Participant Reasons for Efficient Light Bulbs/Fixtures Being Not at All Helpful (EN3_12) by ESA Participation and Utility for California LI Population

	Total	Participant	Non-Participant	PG&E	SCE	SDG&E	SoCalGas	SCE & SoCalGas
Reasons for efficient light bulbs/fixtures being not at all helpful [1]								
Does not work like my other equipment	71%	71%	0%	76%	50%	77%	50%	50%
Don't know	16%	16%	0%	24%	0%	0%	0%	0%
Didn't save energy/didn't make any difference	3%	3%	0%	0%	0%	23%	0%	0%
Work was not done properly/fix was not permanent	10%	10%	0%	0%	50%	0%	50%	50%
No work was done/nothing was replaced	16%	16%	0%	24%	0%	0%	0%	0%
Total (n)	6	6	-	2	2	2	2	2

Source: 2013 CARE Participant Telephone Survey.

[1] Note: Question was asked of recent participants who recall participating and said that the efficient light bulbs and fixtures were not at all helpful.

Table 220: Recent Participant Reasons for Efficient Light Bulbs/Fixtures Being Not at All Helpful (EN3_12) by Home Type, Language, Rural and Urban for California LI Population

	Single-Family Own	Single-Family Rent	Multi-Family	Mobile	English Only	Primary Language Spanish	Primary Language Other	Urban	Rural
Reasons for efficient light bulbs/ fixtures being not at all helpful [1]									
Does not work like my other equipment	0%	0%	77%	100%	33%	0%	0%	85%	0%
Don't know	63%	0%	0%	0%	57%	0%	0%	0%	100%
Didn't save energy/didn't make any difference	0%	0%	23%	0%	10%	0%	0%	3%	0%
Work was not done properly/fix was not permanent	37%	0%	0%	0%	0%	0%	0%	12%	0%
No work was done/nothing was replaced	63%	0%	0%	0%	57%	0%	0%	0%	100%
Total (n)	2	-	2	2	3	-	-	5	1

Source: 2013 CARE Participant Telephone Survey.

[1] Note: Question was asked of recent participants who recall participating and said that the efficient light bulbs and fixtures were not at all helpful.

Table 221: Recent Participant Reasons for Efficient Light Bulbs/Fixtures Being Not at All Helpful (EN3_12) by Climate Zone for California LI Population

	Central Valley	Desert	Mountain	North Coast	South Coast	South Inland
Reasons for efficient light bulbs/fixtures being not at all helpful [1]						
Does not work like my other equipment	100%	0%	0%	0%	100%	0%
Don't know	0%	0%	100%	0%	0%	0%
Didn't save energy/didn't make any difference	0%	0%	0%	0%	0%	100%
Work was not done properly/fix was not permanent	0%	100%	0%	0%	0%	0%
No work was done/nothing was replaced	0%	0%	100%	0%	0%	0%
Total (n)	1	1	1	-	2	1

Source: 2013 CARE Participant Telephone Survey.

[1] Note: Question was asked of recent participants who recall participating and said that the efficient light bulbs and fixtures were not at all helpful.

Table 222: Recent Participant Reasons for Sealing Leaks Being Not at All Helpful (EN3_2) by ESA Participation and Utility for California LI Population

	Total	Participant	Non-Participant	PG&E	SCE	SDG&E	SoCalGas	SCE & SoCalGas
Reasons for sealing leaks being not at all helpful [1]								
Installation contractor did not teach how to use it	45%	45%	0%	76%	0%	0%	0%	0%
Other reason sealing leaks to reduce drafts was not at all helpful	8%	8%	0%	0%	0%	21%	0%	0%
Work was not done properly/fix was not permanent	32%	32%	0%	0%	0%	79%	0%	0%
No work was done/nothing was replaced	14%	14%	0%	24%	0%	0%	0%	0%
Total (n)	6	6	-	2	-	4	-	-

Source: 2013 CARE Participant Telephone Survey.

[1] Note: Question was asked of recent participants who recall participating and said that sealing leaks was not at all helpful.

Table 223: Recent Participant Reasons for Sealing Leaks Being Not at All Helpful (EN3_2) by Home Type, Language, Rural and Urban for California LI Population

	Single-Family Own	Single-Family Rent	Multi-Family	Mobile	English Only	Primary Language Spanish	Primary Language Other	Urban	Rural
Reasons for sealing leaks being not at all helpful [1]									
Installation contractor did not teach how to use it	0%	74%	0%	0%	45%	0%	0%	45%	0%
Other reason sealing leaks to reduce drafts was not at all helpful	0%	0%	77%	0%	8%	0%	0%	8%	0%
Work was not done properly/fix was not permanent	47%	26%	23%	0%	32%	0%	0%	32%	0%
No work was done/nothing was replaced	53%	0%	0%	0%	14%	0%	0%	14%	0%
Total (n)	2	2	2	-	6	-	-	6	-

Source: 2013 CARE Participant Telephone Survey.
[1] Note: Question was asked of recent participants who recall participating and said that sealing leaks was not at all helpful.

Table 224: Recent Participant Reasons for Sealing Leaks Being Not at All Helpful (EN3_2) by Climate Zone for California LI Population

	Central Valley	Desert	Mountain	North Coast	South Coast	South Inland
Reasons for sealing leaks being not at all helpful [1]						
Installation contractor did not teach how to use it	100%	0%	0%	0%	0%	0%
Other reason sealing leaks to reduce drafts was not at all helpful	0%	0%	0%	0%	23%	0%
Work was not done properly/fix was not permanent	0%	0%	0%	0%	77%	100%
No work was done/nothing was replaced	0%	0%	0%	100%	0%	0%
Total (n)	1	-	-	1	3	1

Source: 2013 CARE Participant Telephone Survey.
[1] Note: Question was asked of recent participants who recall participating and said that sealing leaks was not at all helpful.

Table 225: Recent Participant Reasons for Energy-Saving Tips Being Not at All Helpful (EN3_8) by ESA Participation and Utility for California LI Population

	Total	Participant	Non-Participant	PG&E	SCE	SDG&E	SoCalGas	SCE & SoCalGas
Reasons for energy-saving tips being not at all helpful [1]								
Other reason	22%	22%	0%	33%	0%	83%	0%	0%
Don't Know	12%	12%	0%	33%	0%	0%	0%	0%
Didn't save energy/didn't make any difference	2%	2%	0%	0%	0%	17%	0%	0%
Work was not done properly/fix was not permanent	45%	45%	0%	0%	87%	0%	87%	87%
No work was done/nothing was replaced	30%	30%	0%	67%	13%	0%	13%	13%
Total (n)	8	8	-	3	3	2	3	3

Source: 2013 CARE Participant Telephone Survey.

[1] Note: Question was asked of recent participants who recall participating and said that the energy-saving tips were not at all helpful.

Table 226: Recent Participant Reasons for Energy-Saving Tips Being Not at All Helpful (EN3_8) by Home Type, Language, Rural and Urban for California LI Population

	Single-Family Own	Single-Family Rent	Multi-Family	Mobile	English Only	Primary Language Spanish	Primary Language Other	Urban	Rural
Reasons for energy savings tips being not at all helpful [1]									
Other reason	37%	0%	0%	0%	30%	0%	0%	25%	0%
Don't Know	20%	0%	0%	0%	30%	0%	0%	0%	100%
Didn't save energy/didn't make any difference	0%	0%	5%	0%	5%	0%	0%	2%	0%
Work was not done properly/fix was not permanent	12%	0%	95%	0%	18%	100%	0%	51%	0%
No work was done/nothing was replaced	51%	0%	0%	0%	47%	0%	100%	34%	0%
Total (n)	6	-	2	-	5	1	1	7	1

Source: 2013 CARE Participant Telephone Survey.

[1] Note: Question was asked of recent participants who recall participating and said that the energy-saving tips were not at all helpful.

Table 227: Recent Participant Reasons for Energy-Saving Tips Being Not at All Helpful (EN3_8) by Climate Zone for California LI Population

	Central Valley	Desert	Mountain	North Coast	South Coast	South Inland
Reasons for energy savings tips being not at all helpful [1]						
Other reason	0%	0%	0%	100%	19%	0%
Don't Know	50%	0%	0%	0%	0%	0%
Didn't save energy/didn't make any difference	0%	0%	0%	0%	0%	23%
Work was not done properly/fix was not permanent	0%	0%	0%	0%	81%	0%
No work was done/nothing was replaced	50%	0%	0%	100%	0%	77%
Total (n)	2	-	-	1	3	2

Source: 2013 CARE Participant Telephone Survey.

[1] Note: Question was asked of recent participants who recall participating and said that the energy-saving tips were not at all helpful.

8.2.5 WTP in ESA

Table 228: Non-Participant Willingness (O2) to Sign Up for ESA by ESA Participation and Utility for California LI Population

	Total	Participant	Non-Participant	PG&E	SCE	SDG&E	SoCalGas	SCE & SoCalGas
Willingness to sign up for ESA								
Not at all willing	29%	0%	29%	28%	33%	34%	29%	33%
Somewhat willing	35%	0%	35%	34%	34%	23%	37%	33%
Very willing	36%	0%	36%	38%	34%	43%	34%	34%
Total (n)	407	-	407	156	154	78	171	152

Source: 2013 CARE Participant Telephone Survey.

Table 229: Non-Participant Willingness (O2) to Sign Up for ESA by Home Type, Language, Rural and Urban for California LI Population

	Single-Family Own	Single-Family Rent	Multi-Family	Mobile	English Only	Primary Language Spanish	Primary Language Other	Urban	Rural
Willingness to sign up for ESA									
Not at all willing	35%	19%	29%	24%	35%	18%	29%	29%	23%
Somewhat willing	32%	40%	37%	24%	29%	48%	41%	36%	27%
Very willing	33%	41%	34%	52%	36%	34%	30%	35%	49%
Total (n)	180	59	156	12	229	67	26	382	25

Source: 2013 CARE Participant Telephone Survey.

Table 230: Non-Participant Willingness (O2) to Sign Up for ESA by Climate Zone for California LI Population

	Central Valley	Desert	Mountain	North Coast	South Coast	South Inland
Willingness to sign up for ESA						
Not at all willing	29%	21%	15%	28%	32%	30%
Somewhat willing	31%	22%	42%	37%	32%	43%
Very willing	41%	57%	43%	34%	36%	27%
Total (n)	100	26	12	58	112	99

Source: 2013 CARE Participant Telephone Survey.

Table 231: Reasons for No Willingness to Sign Up for ESA (O2b_opn) by ESA Participation and Utility for California LI Population

	Total	Participant	Non-Participant	PG&E	SCE	SDG&E	SoCalGas	SCE & SoCalGas
Reasons for no willingness to sign up for ESA								
Bad prior experience	6%	4%	7%	7%	6%	4%	5%	6%
Low energy bills	3%	2%	4%	0%	5%	13%	4%	5%
No need (appliances work fine)	11%	9%	12%	11%	9%	7%	12%	9%
No need (efficient home already)	21%	11%	27%	12%	28%	17%	27%	28%
No need (sufficient income)	2%	1%	3%	2%	3%	0%	2%	3%
No need (unknown)	7%	6%	7%	5%	5%	15%	7%	5%
Other/unknown	9%	15%	7%	13%	7%	10%	7%	7%
Planned relocation	8%	6%	9%	10%	10%	0%	8%	10%
Prefer DIY	7%	9%	5%	3%	4%	0%	9%	4%
Previous participant?	9%	20%	4%	15%	7%	8%	6%	7%
Previously contacted - rejected	4%	4%	4%	5%	4%	0%	4%	4%
Program time requirements (burden)	2%	3%	2%	0%	2%	0%	3%	2%
Skepticism/Outsiders unwelcome	9%	7%	10%	10%	7%	8%	8%	7%
Split incentive (Landlord)	23%	24%	23%	30%	23%	30%	19%	23%
Total (n)	189	86	132	54	87	39	96	87

Source: 2013 CARE Participant Telephone Survey.
Note: this question was added when the survey was already in the field, and has a slightly lower sample size as a result.

Table 232: Reasons for No Willingness to Sign Up for ESA (O2b_opn) by Home Type, Language, Rural and Urban for California LI Population

	Single-Family Own	Single-Family Rent	Multi-Family	Mobile	English Only	Primary Language Spanish	Primary Language Other	Urban	Rural
Reasons for no willingness to sign up for ESA									
Bad prior experience	5%	11%	5%	0%	4%	9%	0%	6%	0%
Low energy bills	4%	0%	4%	0%	5%	1%	5%	3%	13%
No need (appliances work fine)	13%	6%	10%	39%	13%	7%	12%	12%	0%
No need (efficient home already)	27%	12%	20%	34%	32%	6%	0%	22%	16%
No need (sufficient income)	3%	0%	2%	0%	3%	0%	0%	1%	18%
No need (unknown)	13%	0%	4%	18%	5%	7%	24%	7%	0%
Other/unknown	8%	3%	13%	0%	7%	23%	12%	10%	0%
Planned relocation	2%	18%	10%	0%	4%	10%	22%	8%	0%
Prefer DIY	14%	0%	3%	0%	5%	0%	16%	7%	0%
Previous participant?	9%	28%	3%	10%	8%	19%	0%	10%	0%
Previously contacted - rejected	4%	11%	2%	0%	1%	0%	0%	4%	0%
Program time requirements (burden)	3%	0%	2%	0%	0%	0%	0%	2%	0%
Skepticism/Outsiders unwelcome	20%	6%	1%	0%	8%	12%	5%	7%	64%
Split incentive (Landlord)	0%	28%	42%	0%	28%	20%	5%	22%	46%
Total (n)	91	18	73	7	109	31	12	182	7

Source: 2013 CARE Participant Telephone Survey.
Note: this question was added when the survey was already in the field, and has a slightly lower sample size as a result.

Table 233: Reasons for No Willingness to Sign Up for ESA (O2b_opn) by Climate Zone for California LI Population

	LI Eligible Population					
	Central Valley	Desert	Mountain	North Coast	South Coast	South Inland
Reasons for no willingness to sign up for ESA						
Bad prior experience	10%	0%	0%	4%	8%	4%
Low energy bills	0%	0%	24%	0%	5%	4%
No need (appliances work fine)	4%	6%	0%	18%	10%	14%
No need (efficient home already)	18%	26%	0%	4%	26%	29%
No need (sufficient income)	4%	5%	0%	0%	2%	2%
No need (unknown)	6%	0%	0%	3%	7%	10%
Other/unknown	13%	0%	0%	12%	9%	8%
Planned relocation	21%	0%	0%	5%	6%	6%
Prefer DIY	0%	0%	0%	6%	7%	11%
Previous participant?	12%	4%	0%	24%	7%	4%
Previously contacted - rejected	5%	0%	0%	4%	3%	5%
Program time requirements (burden)	0%	0%	0%	0%	3%	3%
Skepticism/Outsiders unwelcome	10%	22%	76%	2%	9%	5%
Split incentive (Landlord)	13%	44%	51%	40%	25%	15%
Total (n)	33	10	3	24	63	56

Source: 2013 CARE Participant Telephone Survey.
Note: this question was added when the survey was already in the field, and has a slightly lower sample size as a result.

8.2.6 Energy Insecurity

Table 234: Food/Medicine Cutbacks to Pay Utility Bill (I1e) by ESA Participation and Utility for California LI Population

	Total	Participant	Non-Participant	PG&E	SCE	SDG&E	SoCalGas	SCE & SoCalGas
Cuts back on food and medicine to pay utility bill								
A lot	10%	12%	8%	10%	12%	13%	10%	12%
Sometimes	43%	44%	42%	40%	46%	36%	46%	45%
Never/No	47%	44%	50%	50%	42%	51%	44%	43%
Total (n)	1,020	605	415	387	381	200	429	377

Source: 2013 CARE Participant Telephone Survey.

Table 235: Food/Medicine Cutbacks to Pay Utility Bill (I1e) by Home Type, Language, Rural and Urban for California LI Population

	Single-Family Own	Single-Family Rent	Multi-Family	Mobile	English Only	Primary Language Spanish	Primary Language Other	Urban	Rural
Cuts back on food and medicine to pay utility bill									
A lot	10%	8%	11%	20%	11%	9%	16%	10%	11%
Sometimes	37%	53%	42%	44%	37%	47%	40%	43%	39%
Never/No	53%	38%	48%	35%	51%	44%	43%	47%	51%
Total (n)	480	134	357	42	528	210	49	970	49

Source: 2013 CARE Participant Telephone Survey.

Table 236: Food/Medicine Cutbacks to Pay Utility Bill (I1e) by Climate Zone for California LI Population

	Central Valley	Desert	Mountain	North Coast	South Coast	South Inland
Cuts back on food and medicine to pay utility bill						
A lot	12%	10%	10%	8%	11%	10%
Sometimes	44%	57%	39%	36%	47%	39%
Never/No	44%	33%	51%	56%	42%	51%
Total (n)	253	57	24	154	270	262

Source: 2013 CARE Participant Telephone Survey.

Table 237: Borrows Money to Pay Utility Bill (I1f) by ESA Participation and Utility for California LI Population

	Total	Participant	Non-Participant	PG&E	SCE	SDG&E	SoCalGas	SCE & SoCalGas
Borrows money to pay utility bill								
A lot	3%	4%	2%	3%	2%	6%	2%	3%
Sometimes	30%	31%	30%	28%	34%	23%	33%	33%
Never/No	67%	66%	68%	69%	64%	71%	65%	65%
Total (n)	1,025	608	417	387	384	203	431	380

Source: 2013 CARE Participant Telephone Survey.

Table 238: Borrows Money to Pay Utility Bill (I1f) by Home Type, Language, Rural and Urban for California LI Population

	Single-Family Own	Single-Family Rent	Multi-Family	Mobile	English Only	Primary Language Spanish	Primary Language Other	Urban	Rural
Borrows money to pay utility bill									
A lot	4%	2%	2%	10%	3%	2%	3%	3%	0%
Sometimes	24%	35%	34%	37%	23%	40%	32%	31%	17%
Never/No	72%	63%	64%	53%	74%	59%	65%	66%	83%
Total (n)	482	136	358	42	531	213	48	975	49

Source: 2013 CARE Participant Telephone Survey.

Table 239: Borrows Money to Pay Utility Bill (I1f) by Climate Zone for California LI Population

	Central Valley	Desert	Mountain	North Coast	South Coast	South Inland
Borrows money to pay utility bill						
A lot	2%	1%	2%	4%	3%	3%
Sometimes	29%	34%	17%	28%	38%	26%
Never/No	68%	66%	82%	68%	59%	72%
Total (n)	252	59	24	155	273	262

Source: 2013 CARE Participant Telephone Survey.

Table 240: Disconnection Messages (I1g) by ESA Participation and Utility for California LI Population

	Total	Participant	Non-Participant	PG&E	SCE	SDG&E	SoCalGas	SCE & SoCalGas
Gets disconnection messages								
A lot	4%	5%	4%	3%	4%	5%	5%	4%
Sometimes	26%	27%	25%	24%	28%	24%	27%	28%
Never/No	70%	68%	71%	72%	68%	71%	68%	69%
Total (n)	1,023	607	416	385	384	202	432	380

Source: 2013 CARE Participant Telephone Survey.

Table 241: Disconnection Messages (I1g) by Home Type, Language, Rural and Urban for California LI Population

	Single-Family Own	Single-Family Rent	Multi-Family	Mobile	English Only	Primary Language Spanish	Primary Language Other	Urban	Rural
Gets disconnection messages									
A lot	5%	3%	4%	12%	5%	3%	5%	4%	5%
Sometimes	21%	33%	26%	29%	25%	32%	16%	26%	26%
Never/No	74%	64%	70%	59%	70%	66%	79%	70%	69%
Total (n)	482	136	357	42	528	213	48	973	49

Source: 2013 CARE Participant Telephone Survey.

Table 242: Disconnection Messages (I1g) by Climate Zone for California LI Population

	Central Valley	Desert	Mountain	North Coast	South Coast	South Inland
Gets disconnection messages						
A lot	4%	1%	10%	2%	8%	4%
Sometimes	21%	24%	31%	30%	32%	23%
Never/No	75%	76%	59%	68%	60%	73%
Total (n)	251	59	24	154	272	263

Source: 2013 CARE Participant Telephone Survey.

Table 243: Service Shut-Offs (I1h) by ESA Participation and Utility for California LI Population

	Total	Participant	Non-Participant	PG&E	SCE	SDG&E	SoCalGas	SCE & SoCalGas
Gets service shut-offs								
A lot	0%	0%	0%	0%	0%	0%	0%	0%
Sometimes	10%	9%	10%	9%	11%	6%	11%	11%
Never/No	90%	91%	90%	91%	88%	94%	89%	88%
Total (n)	1,023	608	415	385	384	202	432	380

Source: 2013 CARE Participant Telephone Survey.

Table 244: Service Shut-Offs (I1h) by Home Type, Language, Rural and Urban for California LI Population

	Single-Family Own	Single-Family Rent	Multi-Family	Mobile	English Only	Primary Language Spanish	Primary Language Other	Urban	Rural
Gets service shut-offs									
A lot	1%	0%	0%	0%	0%	1%	1%	0%	0%
Sometimes	8%	13%	10%	13%	8%	9%	3%	10%	10%
Never/No	92%	87%	90%	87%	92%	91%	96%	90%	90%
Total (n)	481	135	358	42	529	213	48	974	48

Source: 2013 CARE Participant Telephone Survey.

Table 245: Service Shut-Offs (I1h) by Climate Zone for California LI Population

	Central Valley	Desert	Mountain	North Coast	South Coast	South Inland
Gets service shut-offs						
A lot	0%	0%	2%	0%	0%	1%
Sometimes	8%	14%	20%	9%	11%	9%
Never/No	92%	86%	78%	91%	89%	91%
Total (n)	252	59	24	153	272	263

Source: 2013 CARE Participant Telephone Survey.

Table 246: Less Heating/Cooling Use to Lower Bill (I1i) by ESA Participation and Utility for California LI Population

	Total	Participant	Non-Participant	PG&E	SCE	SDG&E	SoCalGas	SCE & SoCalGas
Uses less heating/cooling to lower bill								
A lot	28%	30%	26%	32%	28%	31%	24%	28%
Sometimes	45%	46%	43%	42%	46%	38%	48%	47%
Never/No	27%	24%	32%	26%	25%	31%	28%	25%
Total (n)	1,016	603	413	383	381	200	429	377

Source: 2013 CARE Participant Telephone Survey.

Table 247: Less Heating/Cooling Use to Lower Bill (I1i) by Home Type, Language, Rural and Urban for California LI Population

	LI Eligible Population								
	Single-Family Own	Single-Family Rent	Multi-Family	Mobile	English Only	Primary Language Spanish	Primary Language Other	Urban	Rural
Uses less heating/cooling to lower bill									
A lot	27%	31%	27%	33%	27%	15%	42%	28%	37%
Sometimes	42%	43%	48%	38%	43%	53%	43%	45%	26%
Never/No	32%	26%	26%	29%	29%	31%	15%	27%	37%
Total (n)	478	134	356	42	526	212	48	966	49

Source: 2013 CARE Participant Telephone Survey.

Table 248: Less Heating/Cooling Use to Lower Bill (I1i) by Climate Zone for California LI Population

	LI Eligible Population					
	Central Valley	Desert	Mountain	North Coast	South Coast	South Inland
Uses less heating/cooling to lower bill						
A lot	31%	23%	21%	35%	26%	24%
Sometimes	47%	46%	41%	33%	43%	51%
Never/No	21%	30%	38%	32%	31%	26%
Total (n)	251	59	24	152	268	262

Source: 2013 CARE Participant Telephone Survey.

Table 249: Use of Stove/Oven to Heat Home (I1j) by ESA Participation and Utility for California LI Population

	Total	Participant	Non-Participant	PG&E	SCE	SDG&E	SoCalGas	SCE & SoCalGas
Uses stove/oven to heat home								
A lot	4%	4%	4%	3%	4%	4%	5%	5%
Sometimes	11%	12%	10%	11%	8%	17%	11%	8%
Never/No	85%	84%	86%	87%	87%	79%	84%	87%
Total (n)	1,028	610	418	389	384	203	432	380

Source: 2013 CARE Participant Telephone Survey.

Table 250: Use of Stove/Oven to Heat Home (I1j) by Home Type, Language, Rural and Urban for California LI Population

	Single-Family Own	Single-Family Rent	Multi-Family	Mobile	English Only	Primary Language Spanish	Primary Language Other	Urban	Rural
Uses stove/oven to heat home									
A lot	2%	4%	6%	6%	4%	2%	10%	4%	0%
Sometimes	11%	13%	11%	19%	9%	10%	19%	11%	14%
Never/No	88%	83%	84%	75%	87%	88%	71%	85%	86%
Total (n)	483	136	360	42	532	213	49	978	49

Source: 2013 CARE Participant Telephone Survey.

Table 251: Use of Stove/Oven to Heat Home (I1j) by Climate Zone for California LI Population

	Central Valley	Desert	Mountain	North Coast	South Coast	South Inland
Uses stove/oven to heat home						
A lot	2%	4%	0%	4%	8%	4%
Sometimes	9%	1%	20%	12%	11%	14%
Never/No	89%	95%	80%	85%	81%	82%
Total (n)	253	59	24	156	273	263

Source: 2013 CARE Participant Telephone Survey.

Table 252: Reasons for Use of Stove/Oven to Heat Home (I1_b) by ESA Participation and Utility for California LI Population

	Total	Participant	Non-Participant	PG&E	SCE	SDG&E	SoCalGas	SCE & SoCalGas
Reasons for stove/oven to heat home								
Furnace does not work	41%	38%	50%	41%	0%	0%	0%	0%
Don't have another heating source	4%	5%	0%	4%	0%	0%	0%	0%
Home is too cold	13%	5%	50%	13%	0%	0%	0%	0%
Think it is more efficient than heating the whole house	4%	5%	0%	4%	0%	0%	0%	0%
Other	4%	5%	0%	4%	0%	0%	0%	0%
Power outage	4%	5%	0%	4%	0%	0%	0%	0%
Insufficient heating	4%	5%	0%	4%	0%	0%	0%	0%
Instead of heater when also cooking	4%	5%	0%	4%	0%	0%	0%	0%
Saves money vs. heater	25%	30%	0%	25%	0%	0%	0%	0%
Total (n)	13	11	2	13	0	0	0	0

Source: 2013 CARE Participant Telephone Survey.
Note: this question was removed after the survey was already in the field, and has a slightly lower sample as a result.

Table 253: Reasons for Use of Stove/Oven to Heat Home (I1_b) by Home Type, Language, Rural and Urban for California LI Population

	Single-Family Own	Single-Family Rent	Multi-Family	Mobile	English Only	Primary Language Spanish	Primary Language Other	Urban	Rural
Reasons for stove/oven to heat home									
Furnace does not work	17%	100%	31%	43%	40%	0%	0%	41%	0%
Don't have another heating source	17%	0%	0%	0%	0%	0%	0%	4%	0%
Home is too cold	0%	0%	31%	14%	20%	0%	0%	13%	0%
Think it is more efficient than heating the whole house	17%	0%	0%	0%	6%	0%	0%	4%	0%
Other	17%	0%	0%	0%	0%	100%	0%	4%	0%
Power outage	17%	0%	0%	0%	6%	0%	0%	4%	0%
Insufficient heating	17%	0%	0%	0%	6%	0%	0%	4%	0%
Instead of heater when also cooking	17%	0%	0%	0%	6%	0%	0%	4%	0%
Saves money vs. heater	0%	0%	38%	43%	20%	0%	0%	25%	0%
Total (n)	6	1	3	3	9	1	0	13	0

Source: 2013 CARE Participant Telephone Survey.
Note: this question was removed after the survey was already in the field, and has a slightly lower sample as a result.

Table 254: Reasons for Use of Stove/Oven to Heat Home (I1_b) by Climate Zone for California LI Population

	Central Valley	Desert	Mountain	North Coast	South Coast	South Inland
Reasons for stove/oven to heat home						
Furnace does not work	35%	0%	0%	51%	0%	0%
Don't have another heating source	0%	0%	0%	12%	0%	0%
Home is too cold	21%	0%	0%	0%	0%	0%
Think it is more efficient than heating the whole house	0%	0%	0%	12%	0%	0%
Other	0%	0%	0%	12%	0%	0%
Power outage	0%	0%	0%	12%	0%	0%
Insufficient heating	0%	0%	0%	12%	0%	0%
Instead of heater when also cooking	7%	0%	0%	0%	0%	0%
Saves money vs. heater	38%	0%	0%	0%	0%	0%
Total (n)	7	0	0	6	0	0

Source: 2013 CARE Participant Telephone Survey.
Note: this question was removed after the survey was already in the field, and has a slightly lower sample as a result.

Table 255: Energy Insecurity Summary (I1e, I1f, I1g, I1h, I1i, I1j) by ESA Participation and Utility for California LI Population

	Total	Participant	Non-Participant	PG&E	SCE	SDG&E	SoCalGas	SCE & SoCalGas
Energy insecurity summary								
High insecurity	6%	7%	4%	5%	6%	7%	6%	5%
Medium insecurity	37%	41%	33%	41%	39%	39%	34%	39%
Low insecurity	57%	52%	63%	54%	55%	55%	60%	55%
Total (n)	1,028	610	418	389	384	203	432	380

Source: 2013 CARE Participant Telephone Survey.

Table 256: Energy Insecurity Summary (I1e, I1f, I1g, I1h, I1i, I1j) by Home Type, Language, Rural and Urban for California LI Population

	Single-Family Own	Single-Family Rent	Multi-Family	Mobile	English Only	Primary Language Spanish	Primary Language Other	Urban	Rural
Energy insecurity summary									
High insecurity	5%	7%	6%	6%	6%	3%	10%	6%	3%
Medium insecurity	35%	39%	37%	37%	35%	29%	48%	37%	42%
Low insecurity	60%	55%	57%	57%	59%	68%	42%	57%	55%
Total (n)	483	136	360	42	532	213	49	978	49

Source: 2013 CARE Participant Telephone Survey.

Table 257: Energy Insecurity (I1e, I1f, I1g, I1h, I1i, I1j) Summary by Climate Zone for California LI Population

	Central Valley	Desert	Mountain	North Coast	South Coast	South Inland
Energy insecurity summary						
High insecurity	5%	3%	3%	4%	9%	6%
Medium insecurity	39%	34%	36%	42%	36%	32%
Low insecurity	55%	63%	61%	53%	55%	62%
Total (n)	253	59	24	156	273	263

Source: 2013 CARE Participant Telephone Survey.

8.2.7 NEBs

Table 258: Recent Participant Decrease in Electric/Gas Bill (PB8a) by ESA Participation and Utility for California LI Population

	Total	Participant	Non-Participant	PG&E	SCE	SDG&E	SoCalGas	SCE & SoCalGas
Decrease in electric/gas bill								
A lot	23%	23%	0%	22%	27%	23%	23%	27%
Somewhat	58%	58%	0%	54%	64%	41%	70%	64%
No change/No	18%	18%	0%	22%	9%	36%	7%	9%
Bills have gone up	1%	1%	0%	2%	0%	0%	0%	0%
Total (n)	157	157	-	62	54	37	58	54

Source: 2013 CARE Participant Telephone Survey.

Table 259: Recent Participant Decrease in Electric/Gas Bill (PB8a) by Home Type, Language, Rural and Urban for California LI Population

	Single-Family Own	Single-Family Rent	Multi-Family	Mobile	English Only	Primary Language Spanish	Primary Language Other	Urban	Rural
Decrease in electric/gas bill									
A lot	20%	9%	28%	0%	23%	14%	8%	23%	19%
Somewhat	60%	70%	56%	45%	51%	81%	77%	60%	34%
No change/No	18%	21%	16%	44%	24%	4%	14%	17%	28%
Bills have gone up	1%	0%	0%	11%	2%	0%	0%	0%	19%
Total (n)	90	20	37	7	87	19	8	146	11

Source: 2013 CARE Participant Telephone Survey.

Table 260: Recent Participant Decrease in Electric/Gas Bill (PB8a) by Climate Zone for California LI Population

	Central Valley	Desert	Mountain	North Coast	South Coast	South Inland
Decrease in electric/gas bill						
A lot	24%	63%	0%	25%	17%	12%
Somewhat	51%	31%	61%	56%	59%	80%
No change/No	23%	6%	39%	16%	24%	7%
Bills have gone up	2%	0%	0%	3%	0%	0%
Total (n)	43	11	3	22	45	33

Source: 2013 CARE Participant Telephone Survey.

Table 261: Non-Recent Participant/Recent Participant Change in Comfort from Temperature (PB8b) by ESA Participation and Utility for California LI Population

	Total	Participant	Non-Participant	PG&E	SCE	SDG&E	SoCalGas	SCE & SoCalGas
Increase in comfort in terms of temperature								
A lot	37%	37%	0%	26%	45%	37%	48%	45%
Somewhat	28%	28%	0%	33%	25%	24%	24%	25%
No change/No	35%	35%	0%	41%	30%	39%	28%	30%
Total (n)	158	158	-	63	54	37	58	54

Source: 2013 CARE Participant Telephone Survey.

Table 262: Non-Recent Participant/Recent Participant Change in Comfort from Temperature (PB8b) by Home Type, Language, Rural and Urban for California LI Population

	Single-Family Own	Single-Family Rent	Multi-Family	Mobile	English Only	Primary Language Spanish	Primary Language Other	Urban	Rural
Increase in comfort in terms of temperature									
A lot	32%	36%	36%	25%	29%	59%	26%	38%	10%
Somewhat	37%	41%	15%	25%	30%	23%	49%	28%	27%
No change/No	32%	23%	48%	50%	40%	18%	25%	34%	63%
Total (n)	91	20	38	6	86	19	9	148	10

Source: 2013 CARE Participant Telephone Survey.

Table 263: Non-Recent Participant/Recent Participant Change in Comfort from Temperature (PB8b) by Climate Zone for California LI Population

	Central Valley	Desert	Mountain	North Coast	South Coast	South Inland
Increase in comfort in terms of temperature						
A lot	30%	59%	39%	28%	46%	34%
Somewhat	37%	14%	23%	24%	19%	36%
No change/No	34%	27%	39%	48%	35%	29%
Total (n)	44	11	3	22	44	34

Source: 2013 CARE Participant Telephone Survey.

Table 264: Non-Recent Participant/Recent Participant Change in Illnesses (PB8c) by ESA Participation and Utility for California LI Population

	Total	Participant	Non-Participant	PG&E	SCE	SDG&E	SoCalGas	SCE & SoCalGas
Decrease in illness								
A lot	20%	20%	0%	9%	31%	15%	35%	31%
Somewhat	24%	24%	0%	27%	22%	18%	22%	22%
No change/No	56%	56%	0%	64%	47%	68%	43%	47%
Total (n)	156	156	-	64	53	36	56	53

Source: 2013 CARE Participant Telephone Survey.

Table 265: Non-Recent Participant/Recent Participant Change in Illnesses (PB8c) by Home Type, Language, Rural and Urban for California LI Population

	Single-Family Own	Single-Family Rent	Multi-Family	Mobile	English Only	Primary Language Spanish	Primary Language Other	Urban	Rural
Decrease in illness									
A lot	11%	29%	29%	23%	16%	36%	0%	21%	9%
Somewhat	26%	30%	18%	0%	26%	32%	19%	25%	9%
No change/No	63%	41%	53%	77%	58%	32%	81%	55%	81%
Total (n)	89	20	37	7	85	18	9	145	11

Source: 2013 CARE Participant Telephone Survey.

Table 266: Non-Recent Participant/Recent Participant Change in Illnesses (PB8c) by Climate Zone for California LI Population

	Central Valley	Desert	Mountain	North Coast	South Coast	South Inland
Decrease in illness						
A lot	5%	47%	39%	13%	33%	22%
Somewhat	40%	8%	0%	13%	23%	17%
No change/No	55%	45%	61%	74%	44%	61%
Total (n)	45	11	3	22	43	32

Source: 2013 CARE Participant Telephone Survey.

Table 267: Non-Recent Participant/Recent Participant Change in Feelings of Household Safety (PB8e) by ESA Participation and Utility for California LI Population

	Total	Participant	Non-Participant	PG&E	SCE	SDG&E	SoCalGas	SCE & SoCalGas
Increase in feelings of safety								
A lot	42%	42%	0%	36%	47%	32%	52%	47%
Somewhat	22%	22%	0%	21%	23%	27%	23%	23%
No change/No	36%	36%	0%	43%	30%	41%	25%	30%
Total (n)	157	157	-	63	54	36	58	54

Source: 2013 CARE Participant Telephone Survey.

Table 268: Non-Recent Participant/Recent Participant Change in Feelings of Household Safety (PB8e) by Home Type, Language, Rural and Urban for California LI Population

	Single-Family Own	Single-Family Rent	Multi-Family	Mobile	English Only	Primary Language Spanish	Primary Language Other	Urban	Rural
Increase in feelings of safety									
A lot	43%	43%	37%	23%	32%	69%	26%	43%	28%
Somewhat	25%	18%	27%	22%	18%	31%	49%	22%	34%
No change/No	32%	39%	36%	55%	50%	0%	25%	36%	38%
Total (n)	90	20	37	7	86	19	9	146	11

Source: 2013 CARE Participant Telephone Survey.

Table 269: Non-Recent Participant/Recent Participant Change in Feelings of Household Safety (PB8e) by Climate Zone for California LI Population

	Central Valley	Desert	Mountain	North Coast	South Coast	South Inland
Increase in feelings of safety						
A lot	33%	59%	0%	43%	47%	44%
Somewhat	28%	31%	23%	13%	21%	22%
No change/No	39%	10%	77%	45%	32%	34%
Total (n)	44	11	3	22	43	34

Source: 2013 CARE Participant Telephone Survey.

Table 270: Non-Recent Participant/Recent Participant Change in Water Usage (PB8f) by ESA Participation and Utility for California LI Population

	Total	Participant	Non-Participant	PG&E	SCE	SDG&E	SoCalGas	SCE & SoCalGas
Decrease in water usage								
A lot	22%	22%	0%	0%	0%	14%	49%	0%
Somewhat	32%	32%	0%	75%	0%	28%	15%	0%
No change/No	40%	40%	0%	25%	0%	47%	36%	0%
Don't know	6%	6%	0%	0%	0%	11%	0%	0%
Total (n)	39	39	-	5	-	30	4	-

Source: 2013 CARE Participant Telephone Survey.

Table 271: Non-Recent Participant/Recent Participant Change in Water Usage (PB8f) by Home Type, Language, Rural and Urban for California LI Population

	Single-Family Own	Single-Family Rent	Multi-Family	Mobile	English Only	Primary Language Spanish	Primary Language Other	Urban	Rural
Decrease in water usage									
A lot	16%	51%	4%	0%	14%	40%	0%	23%	0%
Somewhat	34%	24%	40%	0%	28%	27%	50%	33%	0%
No change/No	45%	16%	52%	100%	44%	33%	50%	38%	100%
Don't know	5%	8%	4%	0%	15%	0%	0%	6%	0%
Total (n)	16	7	15	1	21	6	2	38	1

Source: 2013 CARE Participant Telephone Survey.

Table 272: Non-Recent Participant/Recent Participant Change in Water Usage (PB8f) by Climate Zone for California LI Population

	Central Valley	Desert	Mountain	North Coast	South Coast	South Inland
Decrease in water usage						
A lot	0%	0%	0%	0%	36%	8%
Somewhat	33%	0%	0%	100%	22%	27%
No change/No	67%	100%	0%	0%	34%	59%
Don't know	0%	0%	0%	0%	8%	5%
Total (n)	3	1	-	2	21	12

Source: 2013 CARE Participant Telephone Survey.

Table 273: Non-Recent Participant/Recent Participant Change in Ability to Save Energy (PB8g) by ESA Participation and Utility for California LI Population

	Total	Participant	Non-Participant	PG&E	SCE	SDG&E	SoCalGas	SCE & SoCalGas
Change in ability to save energy by doing things around home								
A lot	30%	30%	0%	25%	35%	32%	35%	35%
Somewhat	48%	48%	0%	45%	54%	33%	56%	54%
No change/No	22%	22%	0%	30%	12%	35%	10%	12%
Total (n)	157	157	-	62	54	37	58	54

Source: 2013 CARE Participant Telephone Survey.

Table 274: Non-Recent Participant/Recent Participant Change in Ability to Save Energy (PB8g) by Home Type, Language, Rural and Urban for California LI Population

	Single-Family Own	Single-Family Rent	Multi-Family	Mobile	English Only	Primary Language Spanish	Primary Language Other	Urban	Rural
Change in ability to save energy by doing things around home									
A lot	26%	12%	43%	0%	25%	47%	7%	30%	28%
Somewhat	47%	63%	40%	56%	49%	42%	56%	48%	43%
No change/No	27%	25%	17%	44%	26%	11%	37%	22%	28%
Total (n)	89	20	38	7	86	19	9	146	11

Source: 2013 CARE Participant Telephone Survey.

Table 275: Non-Recent Participant/Recent Participant Change in Ability to Save Energy (PB8g) by Climate Zone for California LI Population

	Central Valley	Desert	Mountain	North Coast	South Coast	South Inland
Change in ability to save energy by doing things around home						
A lot	27%	81%	39%	23%	25%	30%
Somewhat	48%	15%	23%	45%	51%	59%
No change/No	26%	4%	39%	33%	24%	11%
Total (n)	43	10	3	22	45	34

Source: 2013 CARE Participant Telephone Survey.

Table 276: Non-Recent Participant/Recent Participant Level of Temperature Comfort (PB9a) by ESA Participation and Utility for California LI Population

	Total	Participant	Non-Participant	PG&E	SCE	SDG&E	SoCalGas	SCE & SoCalGas
Comfort level of home temperature								
Very comfortable	38%	34%	41%	41%	33%	39%	36%	33%
Somewhat comfortable	50%	52%	49%	48%	55%	49%	51%	55%
Not at all comfortable	12%	14%	10%	11%	12%	12%	13%	12%
Total (n)	859	448	411	322	326	163	370	322

Source: 2013 CARE Participant Telephone Survey.

Table 277: Non-Recent Participant/Recent Participant Level of Temperature Comfort (PB9a) by Home Type, Language, Rural and Urban for California LI Population

	Single-Family Own	Single-Family Rent	Multi-Family	Mobile	English Only	Primary Language Spanish	Primary Language Other	Urban	Rural
Comfort level of home temperature									
Very comfortable	41%	29%	40%	33%	46%	22%	43%	38%	31%
Somewhat comfortable	51%	52%	49%	53%	44%	62%	44%	50%	61%
Not at all comfortable	8%	19%	12%	14%	10%	16%	14%	12%	7%
Total (n)	389	114	317	35	442	192	39	820	38

Source: 2013 CARE Participant Telephone Survey.

Table 278: Non-Recent Participant/Recent Participant Level of Temperature Comfort (PB9a) by Climate Zone for California LI Population

	Central Valley	Desert	Mountain	North Coast	South Coast	South Inland
Comfort level of home temperature						
Very comfortable	39%	31%	34%	41%	37%	37%
Somewhat comfortable	52%	56%	57%	45%	50%	50%
Not at all comfortable	9%	14%	9%	14%	13%	13%
Total (n)	206	47	21	133	226	226

Source: 2013 CARE Participant Telephone Survey.

Table 279: Non-Recent Participant/Recent Participant Level of Draftiness Comfort (PB9aa) by ESA Participation and Utility for California LI Population

	Total	Participant	Non-Participant	PG&E	SCE	SDG&E	SoCalGas	SCE & SoCalGas
Comfort level of home in terms of draftiness								
Very comfortable	40%	35%	43%	41%	38%	40%	39%	39%
Somewhat comfortable	49%	52%	46%	47%	50%	44%	50%	49%
Not at all comfortable	12%	14%	10%	12%	12%	16%	11%	12%
Total (n)	723	374	349	198	319	159	362	315

Source: 2013 CARE Participant Telephone Survey.
Note: this question was added after the survey was already in the field, and has a slightly lower sample as a result.

Table 280: Non-Recent Participant/Recent Participant Level of Draftiness Comfort (PB9aa) by Home Type, Language, Rural and Urban for California LI Population

	Single-Family Own	Single-Family Rent	Multi-Family	Mobile	English Only	Primary Language Spanish	Primary Language Other	Urban	Rural
Comfort level of home in terms of draftiness									
Very comfortable	46%	29%	39%	48%	48%	29%	31%	39%	50%
Somewhat comfortable	44%	52%	52%	30%	41%	59%	53%	49%	44%
Not at all comfortable	10%	19%	9%	23%	11%	12%	16%	12%	6%
Total (n)	332	94	271	24	348	177	33	691	31

Source: 2013 CARE Participant Telephone Survey.
Note: this question was added after the survey was already in the field, and has a slightly lower sample as a result.

Table 281: Non-Recent Participant/Recent Participant Level of Draftiness Comfort (PB9aa) by Climate Zone for California LI Population

	Central Valley	Desert	Mountain	North Coast	South Coast	South Inland
Comfort level of home in terms of draftiness						
Very comfortable	41%	47%	40%	41%	32%	43%
Somewhat comfortable	46%	47%	47%	47%	53%	47%
Not at all comfortable	13%	6%	13%	11%	14%	10%
Total (n)	138	45	16	80	221	223

Source: 2013 CARE Participant Telephone Survey.
Note: this question was added after the survey was already in the field, and has a slightly lower sample as a result.

Table 282: Non-Recent Participant/Recent Participant Level of Safety (PB9b) by ESA Participation and Utility for California LI Population

	Total	Participant	Non-Participant	PG&E	SCE	SDG&E	SoCalGas	SCE & SoCalGas
Feelings of safety in home								
Very safe	75%	71%	79%	75%	0%	0%	0%	0%
Somewhat safe	24%	27%	21%	24%	0%	0%	0%	0%
Not at all safe	1%	2%	0%	1%	0%	0%	0%	0%
Total (n)	115	60	55	115	-	-	-	-

Source: 2013 CARE Participant Telephone Survey.
Note: this question was removed after the survey was already in the field, and has a slightly lower sample as a result.

Table 283: Non-Recent Participant/Recent Participant Level of Safety (PB9b) by Home Type, Language, Rural and Urban for California LI Population

	Single-Family Own	Single-Family Rent	Multi-Family	Mobile	English Only	Primary Language Spanish	Primary Language Other	Urban	Rural
Feelings of safety in home									
Very safe	82%	83%	70%	71%	77%	67%	64%	74%	89%
Somewhat safe	18%	17%	27%	29%	23%	33%	36%	25%	11%
Not at all safe	0%	0%	3%	0%	0%	0%	0%	1%	0%
Total (n)	49	17	38	10	83	8	5	108	7

Source: 2013 CARE Participant Telephone Survey.
Note: this question was removed after the survey was already in the field, and has a slightly lower sample as a result.

Table 284: Non-Recent Participant/Recent Participant Level of Safety (PB9b) by Climate Zone for California LI Population

	Central Valley	Desert	Mountain	North Coast	South Coast	South Inland
Feelings of safety in home						
Very safe	75%	0%	78%	74%	0%	0%
Somewhat safe	22%	0%	22%	26%	0%	0%
Not at all safe	2%	0%	0%	0%	0%	0%
Total (n)	60	-	5	50	-	-

Source: 2013 CARE Participant Telephone Survey.
Note: this question was removed after the survey was already in the field, and has a slightly lower sample as a result.

Table 285: Non-Recent Participant/Recent Participant Level of Safety from Window Condition (PB9c) by ESA Participation and Utility for California LI Population

	Total	Participant	Non-Participant	PG&E	SCE	SDG&E	SoCalGas	SCE & SoCalGas
Feelings of safety from window condition								
Very safe	53%	48%	58%	56%	49%	49%	53%	50%
Somewhat safe	40%	42%	38%	38%	43%	40%	41%	42%
Not at all safe	7%	10%	4%	6%	8%	10%	7%	8%
Total (n)	751	388	363	210	328	165	372	324

Source: 2013 CARE Participant Telephone Survey.
Note: this question was added after the survey was already in the field, and has a slightly lower sample as a result.

Table 286: Non-Recent Participant/Recent Participant Level of Safety from Window Condition (PB9c) by Home Type, Language, Rural and Urban for California LI Population

	Single-Family Own	Single-Family Rent	Multi-Family	Mobile	English Only	Primary Language Spanish	Primary Language Other	Urban	Rural
Feelings of safety from window condition									
Very safe	58%	48%	53%	56%	59%	45%	58%	53%	66%
Somewhat safe	37%	46%	39%	28%	36%	47%	28%	40%	34%
Not at all safe	5%	6%	8%	16%	5%	9%	14%	7%	0%
Total (n)	341	99	283	25	360	185	35	719	31

Source: 2013 CARE Participant Telephone Survey.
Note: this question was added after the survey was already in the field, and has a slightly lower sample as a result.

Table 287: Non-Recent Participant/Recent Participant Level of Safety from Window Condition (PB9c) by Climate Zone for California LI Population

	Central Valley	Desert	Mountain	North Coast	South Coast	South Inland
Feelings of safety from window condition						
Very safe	47%	50%	82%	63%	53%	53%
Somewhat safe	46%	50%	16%	30%	41%	39%
Not at all safe	7%	1%	2%	6%	7%	8%
Total (n)	148	48	16	84	227	228

Source: 2013 CARE Participant Telephone Survey.
Note: this question was added after the survey was already in the field, and has a slightly lower sample as a result.

Table 288: Non-Recent Participant/Recent Participant Level of Safety Using Heating/Cooling Equipment (PB9d) by ESA Participation and Utility for California LI Population

	Total	Participant	Non-Participant	PG&E	SCE	SDG&E	SoCalGas	SCE & SoCalGas
Feelings of safety when using Heating/Cooling equipment								
Very safe	48%	45%	50%	52%	45%	54%	45%	46%
Somewhat safe	44%	45%	43%	43%	46%	33%	46%	46%
Not at all safe	8%	10%	7%	4%	8%	13%	9%	9%
Total (n)	746	389	357	207	327	164	371	323

Source: 2013 CARE Participant Telephone Survey.
Note: this question was added after the survey was already in the field, and has a slightly lower sample as a result.

Table 289: Non-Recent Participant/Recent Participant Level of Safety Using Heating/Cooling Equipment (PB9d) by Home Type, Language, Rural and Urban for California LI Population

	Single-Family Own	Single-Family Rent	Multi-Family	Mobile	English Only	Primary Language Spanish	Primary Language Other	Urban	Rural
Feelings of safety when using heating/cooling equipment									
Very safe	57%	35%	48%	38%	53%	41%	36%	47%	65%
Somewhat safe	36%	56%	43%	57%	40%	46%	58%	45%	29%
Not at all safe	7%	9%	9%	5%	6%	13%	7%	8%	6%
Total (n)	340	97	281	25	360	182	34	715	30

Source: 2013 CARE Participant Telephone Survey.
Note: this question was added after the survey was already in the field, and has a slightly lower sample as a result.

Table 290: Non-Recent Participant/Recent Participant Level of Safety Using Heating/Cooling Equipment (PB9d) by Climate Zone for California LI Population

	Central Valley	Desert	Mountain	North Coast	South Coast	South Inland
Feelings of safety when using heating/cooling equipment						
Very safe	49%	46%	66%	50%	44%	48%
Somewhat safe	47%	45%	31%	44%	43%	44%
Not at all safe	4%	9%	2%	6%	13%	8%
Total (n)	146	46	16	83	228	227

Source: 2013 CARE Participant Telephone Survey.
Note: this question was added after the survey was already in the field, and has a slightly lower sample as a result.

Table 291: Level of Comfort and Safety* (PB9a, PB9aa, PB9b, PB9c, PB9d) by Elderly in Home for California LI Population

Health, Comfort or Safety Indicator		No Elderly Persons in Home	Elderly Persons in Home	Total (n)
Comfort level of home temperature	ESA Participant	89%	83%	448
	ESA Non-Participant	95%	86%	411
Comfort level in terms of draftiness	ESA Participant	90%	82%	374
	ESA Non-Participant	93%	87%	349
How safe respondent feels in home	ESA Participant	100%	94%	60
	ESA Non-Participant	100%	100%	55
In terms of window condition	ESA Participant	91%	88%	388
	ESA Non-Participant	98%	95%	363
In terms of heating and cooling equipment	ESA Participant	90%	90%	389
	ESA Non-Participant	96%	91%	357
Total (n)		385	470	-

Source: 2013 CARE Participant Telephone Survey.
*Amongst ESA non-participants and participants that don't recall participation and responded "a lot" or "somewhat."

Table 292: Level of Comfort and Safety* (PB9a, PB9aa, PB9b, PB9c, PB9d) by Disabled Person(s) in Home for California LI Population

Health, Comfort or Safety Indicator		No Disabled Person in Home	Disabled Person(s) in Home	Total (n)
Comfort level of home temperature	ESA Participant	86%	87%	448
	ESA Non-Participant	89%	90%	411
Comfort level in terms of draftiness	ESA Participant	86%	87%	374
	ESA Non-Participant	88%	92%	349
How safe respondent feels in home	ESA Participant	97%	100%	60
	ESA Non-Participant	100%	100%	55
In terms of window condition	ESA Participant	89%	90%	388
	ESA Non-Participant	95%	97%	363
In terms of heating and cooling equipment	ESA Participant	89%	94%	389
	ESA Non-Participant	91%	95%	357
Total (n)		325	514	-

Source: 2013 CARE Participant Telephone Survey.
*Amongst ESA non-participants and participants that don't recall participation and responded "a lot" or "somewhat."

Table 293: Level of Comfort and Safety by Child(ren) in Home* (PB9a, PB9aa, PB9b, PB9c, PB9d)* for California LI Population

Health, Comfort or Safety Indicator		No Children in Home	Child(ren) in Home	Total (n)
Comfort level of home temperature	ESA Participant	80%	90%	448
	ESA Non-Participant	87%	92%	411
Comfort level in terms of draftiness	ESA Participant	81%	90%	374
	ESA Non-Participant	89%	91%	349
How safe respondent feels in home	ESA Participant	100%	96%	60
	ESA Non-Participant	100%	100%	55
In terms of window condition	ESA Participant	88%	91%	388
	ESA Non-Participant	97%	95%	363
In terms of heating and cooling equipment	ESA Participant	88%	92%	389
	ESA Non-Participant	91%	95%	357
Total (n)		508	348	-

Source: 2013 CARE Participant Telephone Survey.
*Amongst ESA non-participants and participants that don't recall participation and responded "a lot" or "somewhat."

Table 294: Usefulness of Things ESA Provides to Home Comfort/Safety ESA (EN1) by Participation and Utility for California LI Population

	Total	Participant	Non-Participant	PG&E	SCE	SDG&E	SoCalGas	SCE & SoCalGas
Most useful in the ESA program to help you improve household condition or safety								
Don't know	21%	20%	22%	24%	22%	19%	20%	23%
Weather-stripping/reducing leaks or drafts	17%	15%	19%	19%	15%	17%	16%	14%
Doors/windows	11%	12%	10%	10%	12%	17%	11%	12%
Refrigerator	9%	10%	9%	9%	10%	7%	10%	10%
Air conditioning unit (central or window)	8%	8%	8%	8%	7%	4%	9%	7%
Nothing/Don't need anything done	6%	5%	8%	7%	6%	7%	5%	7%
Lower bill/assistance with bill	5%	5%	5%	4%	5%	2%	6%	5%
CFLs	4%	6%	3%	4%	4%	6%	5%	4%
Furnace	4%	4%	4%	5%	3%	1%	4%	3%
Other	2%	2%	2%	0%	2%	3%	1%	2%
Stove/oven	2%	3%	1%	1%	2%	2%	2%	2%
Energy information or service to save energy/be more comfortable	1%	2%	1%	2%	1%	3%	1%	1%
Repair of windows, doors	1%	2%	1%	1%	2%	1%	2%	2%
Up-to-date/energy efficient appliances	1%	1%	2%	1%	1%	3%	1%	1%
Evaporative cooler	1%	2%	0%	0%	3%	0%	2%	3%
Non-energy related response	1%	1%	1%	1%	0%	1%	1%	0%
Assessment	1%	0%	1%	1%	1%	1%	1%	1%

	Total	Participant	Non-Participant	PG&E	SCE	SDG&E	SoCalGas	SCE & SoCalGas
Efficient lighting or compact fluorescent lamps and fixtures	1%	1%	0%	1%	0%	1%	0%	0%
Attic insulation	1%	0%	1%	1%	1%	1%	1%	1%
Solar panels	1%	0%	1%	1%	1%	1%	1%	1%
Water saving equipment (showerhead, aerators)	0%	1%	0%	0%	0%	0%	1%	0%
Water heater	0%	0%	0%	1%	0%	0%	0%	0%
Wiring	0%	0%	0%	1%	0%	1%	0%	0%
Repair/service of furnace	0%	0%	0%	0%	0%	1%	0%	0%
Efficient clothes washer	0%	0%	0%	0%	0%	1%	0%	0%
Other re-lamping	0%	0%	0%	0%	0%	0%	0%	0%
Microwave	0%	0%	0%	0%	0%	1%	0%	0%
Pool pump	0%	0%	0%	0%	0%	0%	0%	0%
Total (n)	1,028	610	418	376	384	203	432	380

Source: 2013 CARE Participant Telephone Survey.
Note: Question was phrased differently when asked of participants and non-participants due to their varying level of experience with the program.

Table 295: Usefulness of Things ESA Provides to Home Comfort/Safety ESA (EN1) by Home Type, Language, Rural and Urban for California LI Population

	Single-Family Own	Single-Family Rent	Multi-Family	Mobile	English Only	Primary Language Spanish	Primary Language Other	Urban	Rural
Most useful in the ESA program to help you improve household condition or safety									
Don't know	21%	22%	21%	15%	18%	26%	26%	21%	25%
Weather-stripping/reducing leaks or drafts	18%	20%	16%	12%	21%	13%	12%	17%	14%
Doors/windows	10%	14%	11%	16%	10%	7%	20%	11%	10%
Refrigerator	6%	10%	10%	17%	8%	13%	1%	9%	9%
Air conditioning unit (central or window)	7%	8%	8%	6%	7%	10%	11%	8%	3%
Nothing/Don't need anything done	7%	4%	6%	6%	7%	3%	8%	6%	12%
Lower bill/assistance with bill	4%	3%	6%	3%	4%	6%	0%	5%	1%
CFLs	4%	2%	7%	2%	4%	7%	2%	5%	1%
Furnace	4%	3%	4%	2%	5%	4%	0%	4%	4%
Other	3%	3%	2%	0%	2%	3%	3%	2%	2%
Stove/oven	1%	3%	2%	4%	3%	0%	1%	2%	0%
Energy information or service to save energy/be more comfortable	1%	1%	2%	6%	1%	0%	4%	1%	0%
Repair of windows, doors	2%	3%	0%	2%	1%	1%	0%	1%	0%
Up-to-date/energy efficient appliances	2%	0%	2%	0%	1%	1%	0%	1%	3%
Evaporative cooler	2%	1%	0%	6%	2%	1%	4%	1%	4%
Non-energy related response	2%	0%	1%	0%	1%	1%	1%	1%	0%
Assessment	1%	1%	1%	0%	1%	1%	2%	1%	0%
Efficient lighting or compact	1%	0%	1%	0%	1%	1%	1%	1%	3%

	Single-Family Own	Single-Family Rent	Multi-Family	Mobile	English Only	Primary Language Spanish	Primary Language Other	Urban	Rural
fluorescent lamps and fixtures									
Attic insulation	1%	1%	0%	0%	1%	0%	0%	0%	4%
Solar panels	2%	0%	0%	0%	0%	0%	3%	1%	1%
Water saving equipment (showerhead, aerators)	1%	0%	0%	4%	0%	1%	0%	0%	0%
Water heater	1%	0%	0%	0%	0%	1%	0%	0%	2%
Wiring	0%	0%	0%	1%	0%	0%	0%	0%	2%
Repair/service of furnace	1%	0%	0%	0%	0%	0%	0%	0%	0%
Efficient clothes washer	1%	0%	0%	0%	0%	0%	0%	0%	0%
Other re-lamping	0%	0%	0%	0%	0%	0%	0%	0%	0%
Microwave	0%	0%	0%	0%	0%	0%	0%	0%	0%
Pool pump	0%	0%	0%	0%	0%	0%	0%	0%	0%
Total (n)	483	136	360	42	532	213	49	978	49

Source: 2013 CARE Participant Telephone Survey.
Note: Question was phrased differently when asked of participants and non-participants due to their varying level of experience with the program.

Table 296: Usefulness of Things ESA Provides to Home Comfort/Safety ESA (EN1) by Climate Zone for California LI Population

	Central Valley	Desert	Mountain	North Coast	South Coast	South Inland
Most useful in the ESA program to help you improve household condition or safety						
Don't know	18%	14%	18%	27%	21%	20%
Weather-stripping/reducing leaks or drafts	17%	9%	19%	20%	19%	16%
Doors/windows	12%	12%	19%	8%	11%	12%
Refrigerator	9%	9%	4%	10%	10%	9%
Air conditioning unit (central or window)	12%	15%	6%	3%	2%	12%
Nothing/Don't need anything done	7%	7%	9%	7%	5%	5%
Lower bill/assistance with bill	3%	7%	5%	4%	7%	5%
CFLs	3%	7%	3%	4%	6%	5%
Furnace	2%	2%	9%	7%	5%	2%
Other	4%	4%	4%	1%	1%	2%
Stove/oven	1%	1%	0%	0%	5%	1%
Energy information or service to save energy/be more comfortable	3%	0%	0%	0%	2%	1%
Repair of windows, doors	1%	3%	0%	0%	1%	2%
Up-to-date/energy efficient appliances	0%	1%	4%	1%	2%	2%
Evaporative cooler	1%	5%	0%	0%	0%	2%
Non-energy related response	1%	0%	0%	0%	2%	0%
Assessment	1%	0%	0%	1%	1%	0%
Efficient lighting or compact fluorescent lamps and fixtures	1%	0%	0%	2%	1%	0%
Attic insulation	1%	1%	0%	0%	1%	1%
Solar panels	1%	1%	0%	0%	0%	1%
Water saving equipment (showerhead, aerators)	0%	1%	0%	0%	0%	1%
Water heater	0%	2%	0%	1%	0%	0%
Wiring	0%	0%	0%	1%	0%	0%
Repair/service of furnace	0%	0%	0%	0%	0%	0%

	Central Valley	Desert	Mountain	North Coast	South Coast	South Inland
Efficient clothes washer	0%	0%	0%	0%	0%	1%
Other re-lamping	0%	0%	0%	0%	0%	0%
Microwave	0%	0%	0%	0%	0%	0%
Pool pump	0%	0%	0%	0%	0%	0%
Total (n)	253	59	24	156	273	263

Source: 2013 CARE Participant Telephone Survey.
Note: Question was phrased differently when asked of participants and non-participants due to their varying level of experience with the program.

8.2.8 Energy Efficiency Measures

Table 297: Pool Pump Condition (EN11i) by ESA Participation and Utility for California LI Population

	Total	Participant	Non-Participant	PG&E	SCE	SDG&E	SoCalGas	SCE & SoCalGas
How well pool pump working in home								
Working well	78%	79%	76%	86%	72%	86%	71%	72%
In need of repair	16%	15%	17%	9%	20%	0%	23%	20%
Not working at all	6%	6%	6%	5%	8%	14%	6%	8%
Total (n)	103	58	45	38	45	15	50	45

Source: 2013 CARE Participant Telephone Survey.

Table 298: Pool Pump Condition (EN11i) by Home Type, Language, Rural and Urban for California LI Population

	Single-Family Own	Single-Family Rent	Multi-Family	Mobile	English Only	Primary Language Spanish	Primary Language Other	Urban	Rural
How well pool pump working in home									
Working well	77%	58%	88%	100%	88%	77%	100%	76%	100%
In need of repair	19%	33%	4%	0%	10%	11%	0%	17%	0%
Not working at all	4%	9%	8%	0%	2%	12%	0%	7%	0%
Total (n)	60	11	27	4	54	20	3	96	7

Source: 2013 CARE Participant Telephone Survey.

Table 299: Pool Pump Condition (EN11i) by Climate Zone for California LI Population

	Central Valley	Desert	Mountain	North Coast	South Coast	South Inland	RAC Replace and Evaporative Cooler Install	CAC Replacement
How well pool pump working in home								
Working well	86%	63%	100%	84%	78%	72%	79%	71%
In need of repair	14%	14%	0%	4%	19%	24%	14%	15%
Not working at all	0%	24%	0%	12%	4%	4%	7%	14%
Total (n)	28	10	3	13	16	33	55	19

Source: 2013 CARE Participant Telephone Survey.

Table 300: Refrigerator Condition (EN11j) by ESA Participation and Utility for California LI Population

	Total	Participant	Non-Participant	PG&E	SCE	SDG&E	SoCalGas	SCE & SoCalGas
How well refrigerator working in home								
Working well	73%	66%	80%	75%	69%	73%	71%	69%
In need of repair	23%	27%	19%	21%	25%	26%	24%	25%
Not working at all	0%	1%	0%	0%	1%	1%	1%	1%
Received through program	4%	7%	1%	4%	5%	0%	4%	5%
Total (n)	1,020	607	413	381	384	203	432	380

Source: 2013 CARE Participant Telephone Survey.

Table 301: Refrigerator Condition (EN11j) by Home Type, Language, Rural and Urban for California LI Population

	Single-Family Own	Single-Family Rent	Multi-Family	Mobile	English Only	Primary Language Spanish	Primary Language Other	Urban	Rural
How well refrigerator working in home									
Working well	77%	68%	73%	65%	74%	74%	76%	73%	78%
In need of repair	19%	30%	21%	35%	21%	24%	15%	23%	19%
Not working at all	1%	0%	0%	0%	0%	1%	0%	1%	0%
Received through program	3%	2%	5%	0%	4%	1%	9%	4%	3%
Total (n)	482	135	354	42	526	213	48	970	49

Source: 2013 CARE Participant Telephone Survey.

Table 302: Refrigerator Condition (EN11j) by Climate Zone for California LI Population

	Central Valley	Desert	Mountain	North Coast	South Coast	South Inland	RAC Replace and Evaporative Cooler Install	CAC Replacement
How well refrigerator working in home								
Working well	71%	76%	71%	79%	67%	76%	72%	68%
In need of repair	26%	22%	29%	15%	27%	21%	25%	29%
Not working at all	0%	0%	0%	0%	1%	1%	0%	0%
Received through program	3%	1%	0%	6%	5%	2%	3%	3%
Total (n)	250	59	24	151	273	263	12	5

Source: 2013 CARE Participant Telephone Survey.

Table 303: Clothes Dryer Condition (EN11L) by ESA Participation and Utility for California LI Population

	Total	Participant	Non-Participant	PG&E	SCE	SDG&E	SoCalGas	SCE & SoCalGas
How well clothes dryer working in home								
Working well	81%	79%	84%	86%	80%	79%	80%	80%
In need of repair	14%	16%	13%	13%	16%	16%	15%	16%
Not working at all	4%	5%	3%	1%	4%	5%	5%	4%
Total (n)	681	402	279	188	326	130	360	323

Source: 2013 CARE Participant Telephone Survey.
Note: this question was added after the survey was already in the field, and has a slightly lower sample size as a result.

Table 304: Clothes Dryer Condition (EN11L) by Home Type, Language, Rural and Urban for California LI Population

	Single-Family Own	Single-Family Rent	Multi-Family	Mobile	English Only	Primary Language Spanish	Primary Language Other	Urban	Rural
How well clothes dryer working in home									
Working well	84%	75%	84%	75%	86%	78%	89%	81%	85%
In need of repair	14%	17%	13%	21%	12%	12%	11%	14%	13%
Not working at all	2%	9%	3%	3%	2%	11%	0%	4%	2%
Total (n)	395	104	150	26	339	156	27	649	31

Source: 2013 CARE Participant Telephone Survey.
Note: this question was added after the survey was already in the field, and has a slightly lower sample size as a result.

Table 305: Clothes Dryer Condition (EN11L) by Climate Zone for California LI Population

	Central Valley	Desert	Mountain	North Coast	South Coast	South Inland	RAC Replace and Evaporative Cooler Install	CAC Replacement
How well clothes dryer working in home								
Working well	82%	83%	90%	87%	76%	83%	83%	77%
In need of repair	15%	16%	10%	11%	16%	14%	15%	20%
Not working at all	3%	1%	0%	2%	8%	3%	2%	3%
Total (n)	151	50	17	60	192	211	332	104

Source: 2013 CARE Participant Telephone Survey.
Note: this question was added after the survey was already in the field, and has a slightly lower sample size as a result.

Table 306: Dishwasher Condition (EN11m) by ESA Participation and Utility for California LI Population

	Total	Participant	Non-Participant	PG&E	SCE	SDG&E	SoCalGas	SCE & SoCalGas
How well dishwasher working in home								
Working well	70%	66%	73%	74%	69%	70%	67%	69%
In need of repair	16%	16%	17%	14%	16%	14%	19%	16%
Not working at all	14%	18%	10%	12%	15%	15%	15%	15%
Total (n)	445	235	210	135	196	96	212	194

Source: 2013 CARE Participant Telephone Survey.
Note: this question was added after the survey was already in the field, and has a slightly lower sample size as a result.

Table 307: Dishwasher Condition (EN11m) by Home Type, Language, Rural and Urban for California LI Population

	Single-Family Own	Single-Family Rent	Multi-Family	Mobile	English Only	Primary Language Spanish	Primary Language Other	Urban	Rural
How well dishwasher working in home									
Working well	71%	55%	77%	69%	74%	51%	57%	70%	73%
In need of repair	12%	29%	13%	20%	17%	15%	16%	16%	20%
Not working at all	17%	17%	10%	10%	8%	33%	27%	14%	7%
Total (n)	237	52	133	18	253	69	24	427	18

Source: 2013 CARE Participant Telephone Survey.
Note: this question was added after the survey was already in the field, and has a slightly lower sample size as a result.

Table 308: Dishwasher Condition (EN11m) by Climate Zone for California LI Population

	Central Valley	Desert	Mountain	North Coast	South Coast	South Inland	RAC Replace and Evaporative Cooler Install	CAC Replacement
How well dishwasher working in home								
Working well	75%	79%	76%	72%	66%	64%	72%	74%
In need of repair	16%	11%	24%	10%	18%	20%	17%	14%
Not working at all	9%	11%	0%	19%	16%	16%	10%	12%
Total (n)	102	43	10	48	114	128	240	79

Source: 2013 CARE Participant Telephone Survey.
Note: this question was added after the survey was already in the field, and has a slightly lower sample size as a result.

Table 309: Microwave Condition (EN11k_2) by ESA Participation and Utility for California LI Population

	Total	Participant	Non-Participant	PG&E	SCE	SDG&E	SoCalGas	SCE & SoCalGas
How well microwave working in home								
Working well	82%	74%	91%	83%	82%	76%	83%	83%
In need of repair	14%	22%	6%	15%	13%	15%	13%	13%
Not working at all	3%	4%	3%	2%	5%	6%	4%	5%
Received through program	1%	1%	0%	1%	0%	3%	0%	0%
Total (n)	825	480	345	228	358	190	403	354

Source: 2013 CARE Participant Telephone Survey.
Note: this question was added after the survey was already in the field, and has a slightly lower sample size as a result.

Table 310: Microwave Condition (EN11k_2) by Home Type, Language, Rural and Urban for California LI Population

	Single-Family Own	Single-Family Rent	Multi-Family	Mobile	English Only	Primary Language Spanish	Primary Language Other	Urban	Rural
How well microwave working in home									
Working well	85%	75%	84%	95%	84%	79%	80%	82%	95%
In need of repair	11%	20%	13%	3%	13%	15%	18%	14%	5%
Not working at all	3%	4%	3%	2%	2%	6%	2%	3%	0%
Received through program	0%	1%	0%	0%	1%	0%	0%	1%	0%
Total (n)	390	110	292	27	403	188	41	792	32

Source: 2013 CARE Participant Telephone Survey.
Note: this question was added after the survey was already in the field, and has a slightly lower sample size as a result.

Table 311: Microwave Condition (EN11k_2) by Climate Zone for California LI Population

	Central Valley	Desert	Mountain	North Coast	South Coast	South Inland	RAC Replace and Evaporative Cooler Install	CAC Replacement
How well microwave working in home								
Working well	80%	92%	95%	82%	82%	82%	83%	80%
In need of repair	16%	6%	5%	18%	11%	15%	13%	15%
Not working at all	4%	2%	0%	0%	6%	2%	3%	5%
Received through program	1%	0%	0%	0%	1%	0%	1%	0%
Total (n)	168	56	17	86	252	246	381	116

Source: 2013 CARE Participant Telephone Survey.
Note: this question was added after the survey was already in the field, and has a slightly lower sample size as a result.

Table 312: Oven/Stove Condition (EN11a) by ESA Participation and Utility for California LI Population

	Total	Participant	Non-Participant	PG&E	SCE	SDG&E	SoCalGas	SCE & SoCalGas
How well oven/stove working in home								
Working well	75%	69%	81%	77%	72%	78%	72%	73%
In need of repair	22%	27%	16%	20%	23%	21%	23%	23%
Not working at all	3%	4%	3%	3%	4%	1%	4%	5%
Total (n)	1,007	596	411	380	377	199	424	373

Source: 2013 CARE Participant Telephone Survey.

Table 313: Oven/Stove Condition (EN11a) by Home Type, Language, Rural and Urban for California LI Population

	Single-Family Own	Single-Family Rent	Multi-Family	Mobile	English Only	Primary Language Spanish	Primary Language Other	Urban	Rural
How well oven/stove working in home									
Working well	81%	73%	73%	76%	76%	74%	78%	74%	86%
In need of repair	18%	25%	23%	20%	22%	20%	19%	22%	13%
Not working at all	2%	2%	5%	3%	2%	6%	3%	3%	1%
Total (n)	478	133	348	42	524	208	46	958	48

Source: 2013 CARE Participant Telephone Survey.

Table 314: Oven/Stove Condition (EN11a) by Climate Zone for California LI Population

	Central Valley	Desert	Mountain	North Coast	South Coast	South Inland	RAC Replace and Evaporative Cooler Install	CAC Replacement
How well oven/ stove working in home								
Working well	80%	87%	88%	70%	65%	77%	82%	77%
In need of repair	18%	13%	12%	25%	29%	20%	16%	22%
Not working at all	2%	0%	0%	5%	5%	3%	2%	2%
Total (n)	250	57	24	150	266	260	477	127

Source: 2013 CARE Participant Telephone Survey.

Table 315: Door Condition (EN11e) by ESA Participation and Utility for California LI Population

	Total	Participant	Non-Participant	PG&E	SCE	SDG&E	SoCalGas	SCE & SoCalGas
How well doors working in home								
Working well	69%	72%	66%	71%	68%	71%	68%	69%
In need of repair	29%	26%	33%	27%	30%	28%	31%	29%
Not working at all	1%	2%	1%	1%	2%	0%	2%	2%
Total (n)	1,025	609	416	388	384	201	432	380

Source: 2013 CARE Participant Telephone Survey.

Table 316: Door Condition (EN11e) by Home Type, Language, Rural and Urban for California LI Population

	Single-Family Own	Single-Family Rent	Multi-Family	Mobile	English Only	Primary Language Spanish	Primary Language Other	Urban	Rural
How well doors working in home									
Working well	71%	65%	69%	61%	72%	67%	66%	69%	75%
In need of repair	27%	32%	30%	37%	27%	29%	34%	30%	25%
Not working at all	1%	3%	1%	2%	1%	3%	0%	2%	0%
Total (n)	480	136	360	42	531	213	48	975	49

Source: 2013 CARE Participant Telephone Survey.

Table 317: Door Condition (EN11e) by Climate Zone for California LI Population

	Central Valley	Desert	Mountain	North Coast	South Coast	South Inland	RAC Replace and Evaporative Cooler Install	CAC Replacement
How well doors working in home								
Working well	69%	65%	80%	72%	69%	67%	69%	65%
In need of repair	30%	34%	20%	26%	30%	30%	30%	35%
Not working at all	1%	1%	0%	1%	1%	3%	1%	0%
Total (n)	252	59	24	156	272	262	482	132

Source: 2013 CARE Participant Telephone Survey.

Table 318: Window Condition (EN11f) by ESA Participation and Utility for California LI Population

	Total	Participant	Non-Participant	PG&E	SCE	SDG&E	SoCalGas	SCE & SoCalGas
How well windows working in home								
Working well	63%	60%	66%	65%	65%	66%	61%	66%
In need of repair	35%	37%	33%	32%	33%	33%	37%	32%
Not working at all	2%	3%	2%	3%	2%	1%	2%	2%
Total (n)	1,022	608	414	387	381	203	428	377

Source: 2013 CARE Participant Telephone Survey.

Table 319: Window Condition (EN11f) by Home Type, Language, Rural and Urban for California LI Population

	Single-Family Own	Single-Family Rent	Multi-Family	Mobile	English Only	Primary Language Spanish	Primary Language Other	Urban	Rural
How well windows working in home									
Working well	67%	55%	64%	49%	66%	63%	59%	62%	66%
In need of repair	31%	42%	34%	45%	32%	34%	41%	35%	28%
Not working at all	3%	3%	2%	6%	2%	3%	0%	2%	6%
Total (n)	480	134	358	42	532	211	49	973	48

Source: 2013 CARE Participant Telephone Survey.

Table 320: Window Condition (EN11f) by Climate Zone for California LI Population

	Central Valley	Desert	Mountain	North Coast	South Coast	South Inland	RAC Replace and Evaporative Cooler Install	CAC Replacement
How windows working in home								
Working well	64%	67%	49%	67%	61%	60%	63%	63%
In need of repair	32%	33%	42%	31%	37%	38%	34%	36%
Not working at all	4%	0%	9%	1%	3%	2%	3%	1%
Total (n)	250	57	24	156	273	262	478	128

Source: 2013 CARE Participant Telephone Survey.

Table 321: Furnace/Heater More than 10 Years Old (EN11bb) by ESA Participation and Utility for California LI Population

	Total	Participant	Non-Participant	PG&E	SCE	SDG&E	SoCalGas	SCE & SoCalGas
Furnace/heater more than 10 years old								
Don't know	18%	10%	25%	22%	16%	13%	16%	16%
Yes	57%	66%	48%	50%	59%	60%	60%	58%
No	25%	24%	26%	27%	25%	26%	24%	25%
Received through program	0%	0%	0%	0%	0%	0%	0%	0%
Total (n)	807	473	334	219	363	179	406	360

Source: 2013 CARE Participant Telephone Survey.
Note: this question was added after the survey was already in the field, and has a slightly lower sample size as a result.

Table 322: Furnace/Heater More than 10 Years Old (EN11bb) by Home Type, Language, Rural and Urban for California LI Population

	Single-Family Own	Single-Family Rent	Multi-Family	Mobile	English Only	Primary Language Spanish	Primary Language Other	Urban	Rural
Furnace/heater more than 10 years old									
Don't know	3%	28%	25%	2%	13%	22%	22%	18%	15%
Yes	63%	55%	53%	64%	59%	58%	58%	57%	55%
No	33%	17%	23%	34%	28%	20%	20%	25%	30%
Received through program	1%	0%	0%	0%	0%	0%	0%	0%	0%
Total (n)	387	108	279	27	394	188	38	781	25

Source: 2013 CARE Participant Telephone Survey.
Note: this question was added after the survey was already in the field, and has a slightly lower sample size as a result.

Table 323: Furnace/Heater More than 10 Years Old (EN11bb) by Climate Zone for California LI Population

	Central Valley	Desert	Mountain	North Coast	South Coast	South Inland	RAC Replace and Evaporative Cooler Install	CAC Replacement
Furnace/heater more than 10 years old								
Don't know	26%	15%	0%	17%	12%	18%	20%	18%
Yes	47%	53%	36%	58%	68%	56%	51%	53%
No	27%	32%	64%	25%	20%	26%	29%	29%
Received through program	0%	0%	0%	0%	1%	0%	0%	0%
Total (n)	164	56	12	86	247	242	371	114

Source: 2013 CARE Participant Telephone Survey.
Note: this question was added after the survey was already in the field, and has a slightly lower sample size as a result.

Table 324: Central AC More than 10 Years Old (EN11cc) by ESA Participation and Utility for California LI Population

	Total	Participant	Non-Participant	PG&E	SCE	SDG&E	SoCalGas	SCE & SoCalGas
Central AC more than 10 years old								
Don't know	17%	11%	23%	20%	16%	17%	16%	16%
Yes	49%	54%	45%	46%	45%	56%	50%	45%
No	32%	31%	32%	35%	35%	28%	30%	35%
Received through program	2%	4%	0%	0%	4%	0%	3%	4%
Total (n)	475	268	207	141	235	76	258	235

Source: 2013 CARE Participant Telephone Survey.
Note: this question was added after the survey was already in the field, and has a slightly lower sample size as a result.

Table 325: Central AC More than 10 Years Old (EN11cc) by Home Type, Language, Rural and Urban for California LI Population

	Single-Family Own	Single-Family Rent	Multi-Family	Mobile	English Only	Primary Language Spanish	Primary Language Other	Urban	Rural
Central AC more than 10 years old									
Don't know	1%	35%	24%	2%	13%	21%	23%	18%	8%
Yes	57%	46%	41%	76%	52%	48%	51%	49%	51%
No	41%	18%	32%	22%	33%	32%	27%	31%	40%
Received through program	1%	1%	3%	0%	2%	0%	0%	2%	0%
Total (n)	248	53	149	22	232	120	25	458	16

Source: 2013 CARE Participant Telephone Survey.
Note: this question was added after the survey was already in the field, and has a slightly lower sample size as a result.

Table 326: Central AC More than 10 Years Old (EN11cc) by Climate Zone for California LI Population

	Central Valley	Desert	Mountain	North Coast	South Coast	South Inland	RAC Replace and Evaporative Cooler Install	CAC Replacement
Central AC more than 10 years old								
Don't know	24%	14%	0%	5%	16%	15%	19%	21%
Yes	46%	41%	41%	50%	50%	54%	48%	44%
No	30%	25%	59%	45%	33%	31%	30%	25%
Received through program	0%	21%	0%	0%	0%	0%	3%	10%
Total (n)	145	44	9	23	97	157	295	96

Source: 2013 CARE Participant Telephone Survey.
Note: this question was added after the survey was already in the field, and has a slightly lower sample size as a result.

Table 327: Window/Room AC More than 10 Years Old (EN11dd) by ESA Participation and Utility for California LI Population

	Total	Participant	Non-Participant	PG&E	SCE	SDG&E	SoCalGas	SCE & SoCalGas
Window/room AC more than 10 years old								
Don't know	15%	15%	14%	27%	8%	21%	8%	8%
Yes	39%	43%	35%	45%	37%	41%	37%	37%
No	46%	42%	51%	27%	56%	38%	55%	55%
Received through program	0%	0%	0%	1%	0%	0%	0%	0%
Total (n)	324	205	119	74	156	70	179	155

Source: 2013 CARE Participant Telephone Survey.
Note: this question was added after the survey was already in the field, and has a slightly lower sample size as a result.

Table 328: Window/Room AC More than 10 Years Old (EN11dd) by Home Type, Language, Rural and Urban for California LI Population

	Single-Family Own	Single-Family Rent	Multi-Family	Mobile	English Only	Primary Language Spanish	Primary Language Other	Urban	Rural
Window/room AC more than 10 years old									
Don't know	3%	21%	17%	23%	12%	22%	11%	15%	12%
Yes	46%	36%	33%	38%	47%	34%	66%	39%	47%
No	50%	42%	49%	38%	41%	44%	23%	46%	41%
Received through program	1%	0%	0%	0%	0%	0%	0%	0%	0%
Total (n)	147	49	116	9	126	104	17	311	12

Source: 2013 CARE Participant Telephone Survey.
Note: this question was added after the survey was already in the field, and has a slightly lower sample size as a result.

Table 329: Window/Room AC More than 10 Years Old (EN11dd) by Climate Zone for California LI Population

	Central Valley	Desert	Mountain	North Coast	South Coast	South Inland	RAC Replace and Evaporative Cooler Install	CAC Replacement
Window/room AC more than 10 years old								
Don't know	31%	11%	28%	11%	15%	5%	23%	23%
Yes	39%	29%	28%	60%	39%	37%	38%	29%
No	29%	59%	43%	30%	46%	58%	39%	48%
Received through program	1%	0%	0%	0%	0%	0%	0%	0%
Total (n)	65	19	8	22	96	114	152	43

Source: 2013 CARE Participant Telephone Survey.
Note: this question was added after the survey was already in the field, and has a slightly lower sample size as a result.

Table 330: Water Heater More than 10 Years Old (EN11gg) by ESA Participation and Utility for California LI Population

	Total	Participant	Non-Participant	PG&E	SCE	SDG&E	SoCalGas	SCE & SoCalGas
Water heater more than 10 years old								
Don't know	18%	18%	17%	22%	18%	23%	15%	18%
Yes	35%	41%	30%	34%	36%	35%	36%	36%
No	47%	40%	53%	44%	47%	42%	49%	46%
Total (n)	813	471	342	222	369	172	415	365

Source: 2013 CARE Participant Telephone Survey.
Note: this question was added after the survey was already in the field, and has a slightly lower sample size as a result.

Table 331: Water Heater More than 10 Years Old (EN11gg) by Home Type, Language, Rural and Urban for California LI Population

	Single-Family Own	Single-Family Rent	Multi-Family	Mobile	English Only	Primary Language Spanish	Primary Language Other	Urban	Rural
Water heater more than 10 years old									
Don't know	8%	20%	26%	3%	14%	23%	19%	18%	14%
Yes	35%	41%	31%	51%	37%	36%	39%	36%	34%
No	57%	39%	44%	46%	49%	41%	42%	47%	52%
Total (n)	407	112	259	29	386	194	40	781	31

Source: 2013 CARE Participant Telephone Survey.
Note: this question was added after the survey was already in the field, and has a slightly lower sample size as a result.

Table 332: Water Heater More than 10 Years Old (EN11gg) by Climate Zone for California LI Population

	Central Valley	Desert	Mountain	North Coast	South Coast	South Inland	RAC Replace and Evaporative Cooler Install	CAC Replacement
Water heater more than 10 years old								
Don't know	25%	19%	9%	20%	18%	12%	21%	20%
Yes	36%	34%	39%	31%	37%	36%	35%	40%
No	39%	47%	53%	49%	45%	52%	45%	41%
Total (n)	167	57	17	82	242	248	378	117

Source: 2013 CARE Participant Telephone Survey.
Note: this question was added after the survey was already in the field, and has a slightly lower sample size as a result.

Table 333: Clothes Washer More than 10 Years Old (EN11hh) by ESA Participation and Utility for California LI Population

	Total	Participant	Non-Participant	PG&E	SCE	SDG&E	SoCalGas	SCE & SoCalGas
Clothes washer more than 10 years old								
Don't know	8%	6%	10%	8%	6%	10%	8%	6%
Yes	44%	49%	39%	43%	47%	35%	45%	46%
No	48%	45%	51%	49%	47%	54%	47%	48%
Total (n)	706	420	286	198	339	132	373	336

Source: 2013 CARE Participant Telephone Survey.
Note: this question was added after the survey was already in the field, and has a slightly lower sample size as a result.

Table 334: Clothes Washer More than 10 Years Old (EN11hh) by Home Type, Language, Rural and Urban for California LI Population

	Single-Family Own	Single-Family Rent	Multi-Family	Mobile	English Only	Primary Language Spanish	Primary Language Other	Urban	Rural
Clothes washer more than 10 years old									
Don't know	3%	8%	16%	2%	7%	9%	5%	8%	10%
Yes	40%	48%	37%	70%	47%	41%	30%	43%	59%
No	57%	44%	46%	28%	46%	50%	65%	49%	30%
Total (n)	404	105	164	27	345	166	31	673	32

Source: 2013 CARE Participant Telephone Survey.
Note: this question was added after the survey was already in the field, and has a slightly lower sample size as a result.

Table 335: Clothes Washer More than 10 Years Old (EN11hh) by Climate Zone for California LI Population

	Central Valley	Desert	Mountain	North Coast	South Coast	South Inland	RAC Replace and Evaporative Cooler Install	CAC Replacement
Clothes washer more than 10 years old								
Don't know	7%	12%	4%	7%	11%	7%	8%	8%
Yes	43%	44%	62%	44%	41%	45%	43%	51%
No	50%	44%	34%	48%	48%	48%	49%	42%
Total (n)	153	53	17	68	195	220	341	109

Source: 2013 CARE Participant Telephone Survey.
Note: this question was added after the survey was already in the field, and has a slightly lower sample size as a result.

Table 336: Pool Pump More than 10 Years Old (EN11ii) by ESA Participation and Utility for California LI Population

	Total	Participant	Non-Participant	PG&E	SCE	SDG&E	SoCalGas	SCE & SoCalGas
Pool pump more than 10 years old								
Don't know	21%	18%	24%	24%	18%	48%	17%	18%
Yes	46%	45%	46%	48%	47%	36%	45%	47%
No	33%	37%	30%	27%	35%	17%	38%	35%
Total (n)	104	53	51	29	52	18	57	52

Source: 2013 CARE Participant Telephone Survey.
Note: this question was added after the survey was already in the field, and has a slightly lower sample size as a result.

Table 337: Pool pump More than 10 Years Old (EN11ii) by Home Type, Language, Rural and Urban for California LI Population

	Single-Family Own	Single-Family Rent	Multi-Family	Mobile	English Only	Primary Language Spanish	Primary Language Other	Urban	Rural
Pool pump more than 10 years old									
Don't know	4%	4%	42%	44%	19%	38%	0%	22%	0%
Yes	54%	59%	39%	0%	48%	37%	93%	46%	46%
No	42%	37%	19%	56%	33%	25%	7%	32%	54%
Total (n)	55	9	36	3	57	20	3	98	6

Source: 2013 CARE Participant Telephone Survey.
Note: this question was added after the survey was already in the field, and has a slightly lower sample size as a result.

Table 338: Pool Pump More than 10 Years Old (EN11ii) by Climate Zone for California LI Population

	Central Valley	Desert	Mountain	North Coast	South Coast	South Inland	RAC Replace and Evaporative Cooler Install	CAC Replacement
Pool pump more than 10 years old								
Don't know	0%	0%	0%	41%	56%	14%	5%	0%
Yes	60%	45%	0%	41%	26%	53%	55%	46%
No	40%	55%	100%	18%	18%	34%	40%	54%
Total (n)	19	12	3	13	22	35	50	20

Source: 2013 CARE Participant Telephone Survey.
Note: this question was added after the survey was already in the field, and has a slightly lower sample size as a result.

Table 339: Refrigerator More than 10 Years Old (EN11jj) by ESA Participation and Utility for California LI Population

	Total	Participant	Non-Participant	PG&E	SCE	SDG&E	SoCalGas	SCE & SoCalGas
Refrigerator more than 10 years old								
Don't know	9%	8%	11%	15%	5%	17%	5%	5%
Yes	41%	42%	39%	35%	45%	37%	44%	45%
No	45%	42%	49%	44%	44%	45%	46%	44%
Received through program	4%	8%	1%	6%	5%	0%	4%	5%
Total (n)	884	520	364	245	384	203	432	380

Source: 2013 CARE Participant Telephone Survey.
Note: this question was added after the survey was already in the field, and has a slightly lower sample size as a result.

Table 340: Refrigerator More than 10 Years Old (EN11jj) by Home Type, Language, Rural and Urban for California LI Population

	Single-Family Own	Single-Family Rent	Multi-Family	Mobile	English Only	Primary Language Spanish	Primary Language Other	Urban	Rural
Refrigerator more than 10 years old									
Don't know	2%	8%	16%	11%	8%	9%	13%	10%	1%
Yes	48%	40%	34%	52%	42%	39%	26%	40%	53%
No	47%	49%	44%	37%	45%	51%	51%	45%	42%
Received through program	3%	2%	6%	0%	5%	1%	10%	4%	4%
Total (n)	417	115	317	29	429	204	42	849	34

Source: 2013 CARE Participant Telephone Survey.
Note: this question was added after the survey was already in the field, and has a slightly lower sample size as a result.

Table 341: Refrigerator More than 10 Years Old (EN11jj) by Climate Zone for California LI Population

	Central Valley	Desert	Mountain	North Coast	South Coast	South Inland	RAC Replace and Evaporative Cooler Install	CAC Replacement
Refrigerator more than 10 years old								
Don't know	14%	18%	0%	17%	5%	6%	12%	13%
Yes	43%	52%	41%	30%	40%	42%	43%	53%
No	39%	28%	59%	44%	49%	50%	42%	31%
Received through program	5%	1%	0%	9%	5%	2%	3%	3%
Total (n)	175	59	17	97	273	263	399	120

Source: 2013 CARE Participant Telephone Survey.
Note: this question was added after the survey was already in the field, and has a slightly lower sample size as a result.

Table 342: Clothes Dryer More than 10 Years Old (EN11LL) by ESA Participation and Utility for California LI Population

	Total	Participant	Non-Participant	PG&E	SCE	SDG&E	SoCalGas	SCE & SoCalGas
Clothes dryer more than 10 years old								
Don't know	9%	8%	10%	8%	6%	10%	9%	6%
Yes	49%	58%	40%	50%	52%	46%	49%	51%
No	42%	35%	49%	42%	42%	44%	42%	42%
Total (n)	683	403	280	188	327	131	361	324

Source: 2013 CARE Participant Telephone Survey.
Note: this question was added after the survey was already in the field, and has a slightly lower sample size as a result.

Table 343: Clothes Dryer More than 10 Years Old (EN11LL) by Home Type, Language, Rural and Urban for California LI Population

	Single-Family Own	Single-Family Rent	Multi-Family	Mobile	English Only	Primary Language Spanish	Primary Language Other	Urban	Rural
Clothes dryer more than 10 years old									
Don't know	3%	9%	19%	2%	8%	8%	9%	9%	4%
Yes	47%	55%	38%	63%	50%	48%	36%	48%	72%
No	49%	37%	42%	35%	42%	45%	56%	43%	23%
Total (n)	395	105	151	26	340	157	27	651	31

Source: 2013 CARE Participant Telephone Survey.
Note: this question was added after the survey was already in the field, and has a slightly lower sample size as a result.

Table 344: Clothes Dryer More than 10 Years Old (EN11LL) by Climate Zone for California LI Population

	Central Valley	Desert	Mountain	North Coast	South Coast	South Inland	RAC Replace and Evaporative Cooler Install	CAC Replacement
Clothes dryer more than 10 years old								
Don't know	8%	9%	0%	8%	11%	10%	7%	8%
Yes	48%	49%	64%	58%	47%	47%	49%	54%
No	45%	42%	36%	35%	42%	43%	43%	38%
Total (n)	151	51	17	60	192	212	334	105

Source: 2013 CARE Participant Telephone Survey.
Note: this question was added after the survey was already in the field, and has a slightly lower sample size as a result.

Table 345: Dishwasher More than 10 Years Old (EN11mm) by ESA Participation and Utility for California LI Population

	Total	Participant	Non-Participant	PG&E	SCE	SDG&E	SoCalGas	SCE & SoCalGas
Dishwasher more than 10 years old								
Don't know	11%	8%	14%	17%	8%	13%	7%	8%
Yes	48%	55%	43%	44%	47%	43%	52%	47%
No	41%	38%	43%	39%	45%	43%	41%	44%
Total (n)	462	243	219	143	200	101	216	198

Source: 2013 CARE Participant Telephone Survey.
Note: this question was added after the survey was already in the field, and has a slightly lower sample size as a result.

Table 346: Dishwasher More than 10 Years Old (EN11mm) by Home Type, Language, Rural and Urban for California LI Population

	Single-Family Own	Single-Family Rent	Multi-Family	Mobile	English Only	Primary Language Spanish	Primary Language Other	Urban	Rural
Dishwasher more than 10 years old									
Don't know	4%	20%	15%	5%	7%	20%	16%	11%	11%
Yes	51%	50%	39%	68%	44%	56%	60%	48%	39%
No	45%	29%	47%	27%	49%	24%	24%	40%	50%
Total (n)	243	54	142	18	260	75	26	444	18

Source: 2013 CARE Participant Telephone Survey.
Note: this question was added after the survey was already in the field, and has a slightly lower sample size as a result.

Table 347: Dishwasher More than 10 Years Old (EN11mm) by Climate Zone for California LI Population

	Central Valley	Desert	Mountain	North Coast	South Coast	South Inland	RAC Replace and Evaporative Cooler Install	CAC Replacement
Dishwasher more than 10 years old								
Don't know	21%	4%	0%	8%	9%	8%	14%	9%
Yes	46%	53%	33%	41%	48%	53%	49%	52%
No	32%	43%	67%	50%	43%	40%	37%	39%
Total (n)	109	45	10	49	116	133	253	82

Source: 2013 CARE Participant Telephone Survey.
Note: this question was added after the survey was already in the field, and has a slightly lower sample size as a result.

Table 348: AC Age (EN13) by ESA Participation and Utility for California LI Population

	Total	Participant	Non-Participant	PG&E	SCE	SDG&E	SoCalGas	SCE & SoCalGas
Age of AC								
Don't know	23%	25%	19%	23%	0%	0%	0%	0%
Less than one-year old	5%	5%	6%	5%	0%	0%	0%	0%
1 to 5 years old	15%	16%	14%	15%	0%	0%	0%	0%
6 to 10 years old	27%	21%	35%	27%	0%	0%	0%	0%
11 to 15 years old	15%	16%	14%	15%	0%	0%	0%	0%
16 or more years old	15%	17%	13%	15%	0%	0%	0%	0%
Total (n)	102	64	38	102	-	-	-	-

Source: 2013 CARE Participant Telephone Survey.
Note: this question was removed after the survey was already in the field, and has a slightly lower sample size as a result.

Table 349: AC Age (EN13) by Home Type, Language, Rural and Urban for California LI Population

	Single-Family Own	Single-Family Rent	Multi-Family	Mobile	English Only	Primary Language Spanish	Primary Language Other	Urban	Rural
Age of AC									
Don't know	14%	26%	29%	23%	26%	0%	0%	23%	20%
Less than one-year old	2%	6%	10%	0%	5%	0%	0%	6%	0%
1 to 5 years old	17%	13%	18%	8%	16%	28%	0%	16%	10%
6 to 10 years old	27%	29%	20%	39%	22%	34%	66%	25%	59%
11 to 15 years old	17%	13%	18%	0%	18%	26%	0%	16%	0%
16 or more years old	23%	13%	5%	31%	14%	12%	34%	15%	10%
Total (n)	50	16	27	9	75	5	6	94	8

Source: 2013 CARE Participant Telephone Survey.
Note: this question was removed after the survey was already in the field, and has a slightly lower sample size as a result.

Table 350: AC Age (EN13) by Climate Zone for California LI Population

	Central Valley	Desert	Mountain	North Coast	South Coast	South Inland	RAC Replace and Evaporative Cooler Install	CAC Replacement
Age of AC								
Don't know	20%	0%	28%	31%	0%	0%	20%	12%
Less than one-year old	2%	0%	36%	14%	0%	0%	3%	12%
1 to 5 years old	17%	0%	0%	11%	0%	0%	17%	0%
6 to 10 years old	30%	0%	0%	18%	0%	0%	29%	29%
11 to 15 years old	17%	0%	0%	9%	0%	0%	17%	36%
16 or more years old	14%	0%	36%	18%	0%	0%	14%	12%
Total (n)	76	-	3	23	-	-	79	12

Source: 2013 CARE Participant Telephone Survey.
Note: this question was removed after the survey was already in the field, and has a slightly lower sample size as a result.

Table 351: Main Refrigerator Age (EN12) by ESA Participation and Utility for California LI Population

	Total	Participant	Non-Participant	PG&E	SCE	SDG&E	SoCalGas	SCE & SoCalGas
Age of main refrigerator								
Don't know	8%	6%	12%	8%	0%	0%	0%	0%
Less than one-year old	9%	9%	8%	9%	0%	0%	0%	0%
1 to 5 years old	36%	38%	33%	36%	0%	0%	0%	0%
6 to 10 years old	33%	35%	29%	33%	0%	0%	0%	0%
11 to 15 years old	11%	10%	12%	11%	0%	0%	0%	0%
16 or more years old	3%	2%	5%	3%	0%	0%	0%	0%
Total (n)	150	95	55	150	-	-	-	-

Source: 2013 CARE Participant Telephone Survey.
Note: this question was removed after the survey was already in the field, and has a slightly lower sample size as a result.

Table 352: Main Refrigerator Age (EN12) by Home Type, Language, Rural and Urban for California LI Population

	Single-Family Own	Single-Family Rent	Multi-Family	Mobile	English Only	Primary Language Spanish	Primary Language Other	Urban	Rural
Age of main refrigerator									
Don't know	3%	5%	17%	0%	8%	12%	0%	9%	0%
Less than one-year old	8%	4%	11%	21%	9%	6%	0%	9%	5%
1 to 5 years old	33%	44%	40%	15%	36%	27%	74%	35%	45%
6 to 10 years old	38%	32%	20%	53%	32%	49%	21%	33%	31%
11 to 15 years old	13%	14%	8%	5%	12%	6%	0%	11%	14%
16 or more years old	5%	0%	3%	5%	4%	0%	6%	3%	5%
Total (n)	71	21	44	13	107	9	7	133	17

Source: 2013 CARE Participant Telephone Survey.
Note: this question was removed after the survey was already in the field, and has a slightly lower sample size as a result.

Table 353: Main Refrigerator Age (EN12) by Climate Zone for California LI Population

	Central Valley	Desert	Mountain	North Coast	South Coast	South Inland	RAC Replace and Evaporative Cooler Install	CAC Replacement
Age of main refrigerator								
Don't know	9%	0%	0%	8%	0%	0%	8%	14%
Less than one-year old	10%	0%	0%	7%	0%	0%	10%	0%
1 to 5 years old	41%	0%	29%	31%	0%	0%	40%	50%
6 to 10 years old	29%	0%	13%	39%	0%	0%	28%	22%
11 to 15 years old	7%	0%	25%	14%	0%	0%	8%	0%
16 or more years old	4%	0%	33%	0%	0%	0%	5%	14%
Total (n)	81	-	7	62	-	-	88	12

Source: 2013 CARE Participant Telephone Survey.
Note: this question was removed after the survey was already in the field, and has a slightly lower sample size as a result.

Table 354: Level of Helpfulness in Sealing Leaks to Reduce Draft (EN2b) by ESA Participation and Utility for California LI Population

	Total	Participant	Non-Participant	PG&E	SCE	SDG&E	SoCalGas	SCE & SoCalGas
Level of helpfulness - sealing leaks to reduce draft								
Very helpful	55%	63%	48%	52%	58%	54%	57%	58%
Somewhat helpful	16%	15%	16%	14%	13%	16%	17%	12%
Not at all helpful/No	20%	14%	25%	25%	17%	25%	16%	17%
Not applicable - did not receive/do not need	9%	8%	10%	9%	13%	5%	10%	13%
Total (n)	897	484	413	337	326	183	373	322

Source: 2013 CARE Participant Telephone Survey.
Note: we miscoded some of the PG&E measures such that a small fraction of participants were asked whether some measures that they had already received would be helpful. We moved those cases to “not applicable/don't need" if they were a recent participant who recalled participating.

Table 355: Level of Helpfulness in Sealing Leaks to Reduce Draft (EN2b) by Home Type, Language, Rural and Urban for California LI Population

	Single-Family Own	Single-Family Rent	Multi-Family	Mobile	English Only	Primary Language Spanish	Primary Language Other	Urban	Rural
Level of helpfulness - sealing leaks to reduce draft									
Very helpful	47%	63%	57%	62%	46%	72%	51%	56%	27%
Somewhat helpful	19%	16%	14%	11%	11%	20%	18%	16%	20%
Not at all helpful/No	25%	17%	18%	15%	30%	4%	27%	19%	38%
Not applicable - did not receive/do not need	9%	4%	11%	12%	13%	3%	4%	9%	15%
Total (n)	408	122	326	36	462	197	45	858	38

Source: 2013 CARE Participant Telephone Survey.
Note: we miscoded some of the PG&E measures such that a small fraction of participants were asked whether some measures that they had already received would be helpful. We moved those cases to “not applicable/don't need" if they were a recent participant who recalled participating.
Note: Question was phrased differently when asked of participants and non-participants due to their varying level of experience with the program.

Table 356: Level of Helpfulness in Sealing Leaks to Reduce Draft (EN2b) by Climate Zone for California LI Population

	Central Valley	Desert	Mountain	North Coast	South Coast	South Inland	RAC Replace and Evaporative Cooler Install	CAC Replacement
Level of helpfulness - sealing leaks to reduce draft								
Very helpful	55%	50%	30%	51%	60%	56%	53%	51%
Somewhat helpful	12%	11%	30%	15%	14%	21%	15%	13%
Not at all helpful/No	24%	31%	16%	26%	17%	14%	22%	28%
Not applicable - did not receive/do not need	9%	8%	24%	8%	9%	8%	10%	8%
Total (n)	217	47	21	137	241	234	414	109

Source: 2013 CARE Participant Telephone Survey.
Note: we miscoded some of the PG&E measures such that a small fraction of participants were asked whether some measures that they had already received would be helpful. We moved those cases to "not applicable/don't need" if they were a recent participant who recalled participating.
Note: Question was phrased differently when asked of participants and non-participants due to their varying level of experience with the program.

Table 357: Level of Helpfulness in AC Replacement (EN2c) by ESA Participation and Utility for California LI Population

	Total	Participant	Non-Participant	PG&E	SCE	SDG&E	SoCalGas	SCE & SoCalGas
Level of helpfulness in AC replacement								
Very helpful	47%	51%	44%	41%	52%	43%	52%	51%
Somewhat helpful	12%	13%	11%	11%	13%	10%	13%	13%
Not at all helpful/No	19%	13%	25%	22%	18%	22%	17%	18%
Not applicable - did not receive/do not need	21%	24%	19%	26%	18%	26%	17%	18%
Total (n)	864	452	412	319	334	164	377	330

Source: 2013 CARE Participant Telephone Survey.
Note: we miscoded some of the PG&E measures such that a small fraction of participants were asked whether some measures that they had already received would be helpful. We moved those cases to "not applicable/don't need" if they were a recent participant who recalled participating.
Note: Question was phrased differently when asked of participants and non-participants due to their varying level of experience with the program.

Table 358: Level of Helpfulness in AC Replacement (EN2c) by Home Type, Language, Rural and Urban for California LI Population

	Single-Family Own	Single-Family Rent	Multi-Family	Mobile	English Only	Primary Language Spanish	Primary Language Other	Urban	Rural
Level of helpfulness in AC replacement									
Very helpful	42%	60%	43%	63%	39%	57%	62%	48%	39%
Somewhat helpful	12%	11%	13%	13%	10%	17%	11%	12%	11%
Not at all helpful/No	28%	10%	19%	14%	27%	10%	8%	19%	29%
Not applicable - did not receive/do not need	18%	20%	25%	10%	24%	16%	19%	21%	21%
Total (n)	391	115	319	35	440	193	40	825	38

Source: 2013 CARE Participant Telephone Survey.

Note: we miscoded some of the PG&E measures such that a small fraction of participants were asked whether some measures that they had already received would be helpful. We moved those cases to "not applicable/don't need" if they were a recent participant who recalled participating.

Note: Question was phrased differently when asked of participants and non-participants due to their varying level of experience with the program.

Table 359: Level of Helpfulness in AC Replacement (EN2c) by Climate Zone for California LI Population

	Central Valley	Desert	Mountain	North Coast	South Coast	South Inland	RAC Replace and Evaporative Cooler Install	CAC Replace-ment
Level of helpfulness in AC replacement								
Very helpful	53%	56%	48%	29%	43%	55%	54%	60%
Somewhat helpful	16%	19%	9%	4%	13%	11%	15%	17%
Not at all helpful/No	20%	16%	11%	23%	18%	19%	19%	16%
Not applicable - did not receive/do not need	10%	8%	32%	44%	27%	15%	12%	7%
Total (n)	203	56	21	132	224	228	405	116

Source: 2013 CARE Participant Telephone Survey.
Note: we miscoded some of the PG&E measures such that a small fraction of participants were asked whether some measures that they had already received would be helpful. We moved those cases to "not applicable/don't need" if they were a recent participant who recalled participating.
Note: Question was phrased differently when asked of participants and non-participants due to their varying level of experience with the program.

Table 360: Level of Helpfulness in Receiving Showerhead/Faucet Restrictor (EN2d) by ESA Participation and Utility for California LI Population

	Total	Participant	Non-Participant	PG&E	SCE	SDG&E	SoCalGas	SCE & SoCalGas
Level of helpfulness in water saving showerheads/faucet restrictors								
Very helpful	49%	59%	40%	47%	49%	57%	48%	49%
Somewhat helpful	18%	15%	20%	15%	18%	21%	19%	18%
Not at all helpful/No	23%	18%	26%	28%	19%	13%	20%	19%
Not applicable - did not receive/do not need	11%	8%	14%	11%	13%	9%	12%	14%
Total (n)	890	477	413	323	328	187	376	324

Source: 2013 CARE Participant Telephone Survey.
Note: we miscoded some of the PG&E measures such that a small fraction of participants were asked whether some measures that they had already received would be helpful. We moved those cases to "not applicable/don't need" if they were a recent participant who recalled participating.
Note: Question was phrased differently when asked of participants and non-participants due to their varying level of experience with the program.

Table 361: Level of Helpfulness in Receiving Showerhead/Faucet Restrictor (EN2d) by Home Type, Language, Rural and Urban for California LI Population

	Single-Family Own	Single-Family Rent	Multi-Family	Mobile	English Only	Primary Language Spanish	Primary Language Other	Urban	Rural
Level of helpfulness in water saving showerheads/faucet restrictors									
Very helpful	42%	56%	50%	48%	34%	74%	50%	50%	25%
Somewhat helpful	19%	12%	20%	9%	18%	17%	16%	18%	22%
Not at all helpful/No	25%	24%	19%	32%	33%	6%	25%	21%	47%
Not applicable - did not receive/do not need	13%	8%	11%	11%	16%	3%	9%	11%	7%
Total (n)	400	121	329	36	456	197	40	850	39

Source: 2013 CARE Participant Telephone Survey.
Note: we miscoded some of the PG&E measures such that a small fraction of participants were asked whether some measures that they had already received would be helpful. We moved those cases to “not applicable/don't need" if they were a recent participant who recalled participating.
Note: Question was phrased differently when asked of participants and non-participants due to their varying level of experience with the program.

Table 362: Level of Helpfulness in Receiving Showerhead/Faucet Restrictor (EN2d) by Climate Zone for California LI Population

	Central Valley	Desert	Mountain	North Coast	South Coast	South Inland	RAC Replace and Evaporative Cooler Install	CAC Replacement
Level of helpfulness in water saving showerheads/faucet restrictors								
Very helpful	47%	36%	19%	48%	54%	51%	43%	42%
Somewhat helpful	14%	18%	10%	18%	24%	16%	15%	19%
Not at all helpful/No	28%	27%	53%	23%	16%	20%	27%	28%
Not applicable - did not receive/do not need	11%	19%	18%	12%	7%	13%	15%	12%
Total (n)	207	48	21	132	245	237	408	109

Source: 2013 CARE Participant Telephone Survey.

Note: we miscoded some of the PG&E measures such that a small fraction of participants were asked whether some measures that they had already received would be helpful. We moved those cases to "not applicable/don't need" if they were a recent participant who recalled participating.

Note: Question was phrased differently when asked of participants and non-participants due to their varying level of experience with the program.

Table 363: Level of Helpfulness in Receiving Microwave (EN2e) by ESA Participation and Utility for California LI Population

	Total	Participant	Non-Participant	PG&E	SCE	SDG&E	SoCalGas	SCE & SoCalGas
Level of helpfulness in getting a microwave								
Very helpful	38%	46%	32%	33%	43%	41%	41%	43%
Somewhat helpful	12%	13%	11%	15%	9%	11%	10%	9%
Not at all helpful/No	19%	13%	24%	21%	18%	18%	18%	18%
Not applicable - did not receive/do not need	31%	28%	33%	31%	30%	30%	31%	31%
Total (n)	870	452	418	324	330	168	374	326

Source: 2013 CARE Participant Telephone Survey.
Note: we miscoded some of the PG&E measures such that a small fraction of participants were asked whether some measures that they had already received would be helpful. We moved those cases to "not applicable/don't need" if they were a recent participant who recalled participating.
Note: Question was phrased differently when asked of participants and non-participants due to their varying level of experience with the program.

Table 364: Level of Helpfulness in Receiving Microwave (EN2e) by Home Type, Language, Rural and Urban for California LI Population

	Single-Family Own	Single-Family Rent	Multi-Family	Mobile	English Only	Primary Language Spanish	Primary Language Other	Urban	Rural
Level of helpfulness in getting a microwave									
Very helpful	29%	41%	43%	35%	26%	64%	40%	39%	13%
Somewhat helpful	13%	10%	11%	22%	10%	14%	18%	12%	14%
Not at all helpful/No	26%	19%	16%	8%	22%	16%	24%	20%	16%
Not applicable - did not receive/do not need	32%	30%	29%	34%	42%	6%	19%	30%	56%
Total (n)	392	117	322	35	446	194	40	831	38

Source: 2013 CARE Participant Telephone Survey.
Note: we miscoded some of the PG&E measures such that a small fraction of participants were asked whether some measures that they had already received would be helpful. We moved those cases to “not applicable/don't need" if they were a recent participant who recalled participating.
Note: Question was phrased differently when asked of participants and non-participants due to their varying level of experience with the program.

Table 365: Level of Helpfulness in Receiving Microwave (EN2e) by Climate Zone for California LI Population

	Central Valley	Desert	Mountain	North Coast	South Coast	South Inland	RAC Replace and Evaporative Cooler Install	CAC Replacement
Level of helpfulness in getting a microwave								
Very helpful	35%	24%	13%	37%	46%	39%	33%	36%
Somewhat helpful	13%	10%	16%	15%	13%	8%	12%	8%
Not at all helpful/No	21%	28%	13%	19%	13%	23%	19%	20%
Not applicable - did not receive/do not need	32%	37%	58%	29%	28%	29%	36%	36%
Total (n)	208	48	21	133	229	231	404	110

Source: 2013 CARE Participant Telephone Survey.
Note: we miscoded some of the PG&E measures such that a small fraction of participants were asked whether some measures that they had already received would be helpful. We moved those cases to "not applicable/don't need" if they were a recent participant who recalled participating.
Note: Question was phrased differently when asked of participants and non-participants due to their varying level of experience with the program.

Table 366: Level of Helpfulness in Clothes Washer Replacement (EN2f) by ESA Participation and Utility for California LI Population

	Total	Participant	Non-Participant	PG&E	SCE	SDG&E	SoCalGas	SCE & SoCalGas
Level of helpfulness in clothes washer replacement								
Very helpful	46%	50%	42%	43%	48%	44%	48%	47%
Somewhat helpful	12%	11%	13%	13%	13%	9%	11%	13%
Not at all helpful/No	23%	20%	25%	26%	21%	22%	20%	21%
Not applicable - did not receive/do not need	20%	19%	20%	18%	19%	24%	21%	19%
Total (n)	861	446	415	321	330	162	374	326

Source: 2013 CARE Participant Telephone Survey.
Note: we miscoded some of the PG&E measures such that a small fraction of participants were asked whether some measures that they had already received would be helpful. We moved those cases to "not applicable/don't need" if they were a recent participant who recalled participating.
Note: Question was phrased differently when asked of participants and non-participants due to their varying level of experience with the program.

Table 367: Level of Helpfulness in Clothes Washer Replacement (EN2f) by Home Type, Language, Rural and Urban for California LI Population

	Single-Family Own	Single-Family Rent	Multi-Family	Mobile	English Only	Primary Language Spanish	Primary Language Other	Urban	Rural
Level of helpfulness in clothes washer replacement									
Very helpful	46%	57%	39%	63%	38%	62%	30%	46%	36%
Somewhat helpful	18%	10%	9%	12%	10%	14%	15%	12%	18%
Not at all helpful/No	26%	25%	19%	16%	30%	12%	37%	22%	38%
Not applicable - did not receive/do not need	10%	8%	33%	10%	22%	12%	19%	20%	7%
Total (n)	388	115	319	35	440	194	39	823	37

Source: 2013 CARE Participant Telephone Survey.
Note: we miscoded some of the PG&E measures such that a small fraction of participants were asked whether some measures that they had already received would be helpful. We moved those cases to "not applicable/don't need" if they were a recent participant who recalled participating.
Note: Question was phrased differently when asked of participants and non-participants due to their varying level of experience with the program.

Table 368: Level of Helpfulness in Clothes Washer Replacement (EN2f) by Climate Zone for California LI Population

	Central Valley	Desert	Mountain	North Coast	South Coast	South Inland	RAC Replace and Evaporative Cooler Install	CAC Replacement
Level of helpfulness in clothes washer replacement								
Very helpful	45%	45%	33%	41%	49%	47%	44%	46%
Somewhat helpful	12%	8%	27%	12%	15%	9%	12%	13%
Not at all helpful/No	28%	23%	26%	24%	17%	22%	25%	22%
Not applicable - did not receive/do not need	16%	23%	14%	24%	19%	22%	19%	19%
Total (n)	206	48	21	132	227	227	398	110

Source: 2013 CARE Participant Telephone Survey.
Note: we miscoded some of the PG&E measures such that a small fraction of participants were asked whether some measures that they had already received would be helpful. We moved those cases to “not applicable/don't need" if they were a recent participant who recalled participating.
Note: Question was phrased differently when asked of participants and non-participants due to their varying level of experience with the program.

Table 369: Level of Helpfulness in Water Heater Replacement (EN2g) by ESA Participation and Utility for California LI Population

	Total	Participant	Non-Participant	PG&E	SCE	SDG&E	SoCalGas	SCE & SoCalGas
Level of helpfulness in water heater replacement								
Very helpful	47%	51%	44%	43%	48%	41%	51%	49%
Somewhat helpful	15%	15%	15%	16%	15%	15%	14%	15%
Not at all helpful/No	24%	21%	26%	27%	23%	25%	21%	23%
Not applicable - did not receive/do not need	14%	13%	15%	14%	13%	19%	14%	13%
Total (n)	841	435	406	312	324	157	368	320

Source: 2013 CARE Participant Telephone Survey.
Note: we miscoded some of the PG&E measures such that a small fraction of participants were asked whether some measures that they had already received would be helpful. We moved those cases to "not applicable/don't need" if they were a recent participant who recalled participating.
Note: Question was phrased differently when asked of participants and non-participants due to their varying level of experience with the program.

Table 370: Level of Helpfulness in Water Heater Replacement (EN2g) by Home Type, Language, Rural and Urban for California LI Population

	Single-Family Own	Single-Family Rent	Multi-Family	Mobile	English Only	Primary Language Spanish	Primary Language Other	Urban	Rural
Level of helpfulness in water heater replacement									
Very helpful	42%	60%	44%	49%	36%	67%	46%	47%	36%
Somewhat helpful	18%	11%	16%	14%	14%	16%	16%	15%	20%
Not at all helpful/No	27%	16%	24%	34%	32%	13%	25%	23%	40%
Not applicable - did not receive/do not need	14%	14%	16%	3%	18%	5%	13%	15%	4%
Total (n)	387	112	304	34	428	190	39	802	38

Source: 2013 CARE Participant Telephone Survey.
Note: we miscoded some of the PG&E measures such that a small fraction of participants were asked whether some measures that they had already received would be helpful. We moved those cases to “not applicable/don't need" if they were a recent participant who recalled participating.
Note: Question was phrased differently when asked of participants and non-participants due to their varying level of experience with the program.

Table 371: Level of Helpfulness in Water Heater Replacement (EN2g) by Climate Zone for California LI Population

	Central Valley	Desert	Mountain	North Coast	South Coast	South Inland	RAC Replace and Evaporative Cooler Install	CAC Replacement
Level of helpfulness in water heater replacement								
Very helpful	52%	38%	37%	37%	49%	50%	48%	56%
Somewhat helpful	12%	17%	15%	21%	15%	13%	13%	11%
Not at all helpful/No	20%	36%	36%	30%	20%	23%	24%	20%
Not applicable - did not receive/do not need	16%	10%	12%	13%	15%	14%	15%	13%
Total (n)	201	48	21	127	220	224	392	109

Source: 2013 CARE Participant Telephone Survey.
Note: we miscoded some of the PG&E measures such that a small fraction of participants were asked whether some measures that they had already received would be helpful. We moved those cases to “not applicable/don't need" if they were a recent participant who recalled participating.
Note: Question was phrased differently when asked of participants and non-participants due to their varying level of experience with the program.

Table 372: Level of Helpfulness of Safety/Comfort Information (EN2h) by ESA Participation and Utility for California LI Population

	Total	Participant	Non-Participant	PG&E	SCE	SDG&E	SoCalGas	SCE & SoCalGas
Level of helpfulness of information about things to do in home for safety/comfort								
Very helpful	65%	71%	59%	60%	66%	58%	70%	66%
Somewhat helpful	26%	23%	29%	28%	26%	31%	24%	27%
Not at all helpful/No	9%	6%	11%	12%	7%	11%	5%	7%
Not applicable - did not receive/do not need	0%	0%	1%	0%	1%	0%	1%	1%
Total (n)	1,019	603	416	383	384	200	432	380

Source: 2013 CARE Participant Telephone Survey.
Note: we miscoded some of the PG&E measures such that a small fraction of participants were asked whether some measures that they had already received would be helpful. We moved those cases to "not applicable/don't need" if they were a recent participant who recalled participating.
Note: Question was phrased differently when asked of participants and non-participants due to their varying level of experience with the program.

Table 373: Level of Helpfulness of Safety/Comfort Information (EN2h) by Home Type, Language, Rural and Urban for California LI Population

	Single-Family Own	Single-Family Rent	Multi-Family	Mobile	English Only	Primary Language Spanish	Primary Language Other	Urban	Rural
Level of helpfulness of information about things to do in home for safety/comfort									
Very helpful	57%	73%	67%	53%	54%	88%	69%	66%	45%
Somewhat helpful	30%	22%	24%	31%	33%	10%	23%	26%	26%
Not at all helpful/No	12%	5%	8%	16%	13%	2%	8%	8%	28%
Not applicable - did not receive/do not need	0%	0%	1%	0%	1%	0%	0%	0%	0%
Total (n)	478	134	358	42	525	212	49	970	48

Source: 2013 CARE Participant Telephone Survey.
Note: we miscoded some of the PG&E measures such that a small fraction of participants were asked whether some measures that they had already received would be helpful. We moved those cases to “not applicable/don't need" if they were a recent participant who recalled participating.
Note: Question was phrased differently when asked of participants and non-participants due to their varying level of experience with the program.

Table 374: Level of Helpfulness of Safety/Comfort Information (EN2h) by Climate Zone for California LI Population

	Central Valley	Desert	Mountain	North Coast	South Coast	South Inland	RAC Replace and Evaporative Cooler Install	CAC Replacement
Level of helpfulness of information about things to do in home for safety/ comfort								
Very helpful	62%	68%	32%	63%	68%	69%	61%	69%
Somewhat helpful	27%	29%	26%	28%	25%	24%	28%	25%
Not at all helpful/No	11%	3%	42%	9%	6%	7%	10%	6%
Not applicable - did not receive/do not need	0%	0%	0%	1%	1%	0%	0%	0%
Total (n)	251	59	23	153	270	263	481	132

Source: 2013 CARE Participant Telephone Survey.
Note: we miscoded some of the PG&E measures such that a small fraction of participants were asked whether some measures that they had already received would be helpful. We moved those cases to “not applicable/don't need" if they were a recent participant who recalled participating.
Note: Question was phrased differently when asked of participants and non-participants due to their varying level of experience with the program.

Table 375: Level of Helpfulness in Refrigerator Replacement (EN2) by ESA Participation and Utility for California LI Population

	Total	Participant	Non-Participant	PG&E	SCE	SDG&E	SoCalGas	SCE & SoCalGas
Level of helpfulness in refrigerator replacement								
Very helpful	57%	66%	50%	51%	60%	67%	60%	59%
Somewhat helpful	17%	18%	16%	20%	14%	16%	15%	14%
Not at all helpful/No	17%	12%	22%	22%	16%	12%	14%	16%
Not applicable - did not receive/do not need	9%	4%	12%	7%	10%	6%	11%	10%
Total (n)	629	311	318	251	259	86	289	256

Source: 2013 CARE Participant Telephone Survey.
Note: we miscoded some of the PG&E measures such that a small fraction of participants were asked whether some measures that they had already received would be helpful. We moved those cases to "not applicable/don't need" if they were a recent participant who recalled participating.
Note: Question was phrased differently when asked of participants and non-participants due to their varying level of experience with the program.

Table 376: Level of Helpfulness in Refrigerator Replacement (EN2) by Home Type, Language, Rural and Urban for California LI Population

	Single-Family Own	Single-Family Rent	Multi-Family	Mobile	English Only	Primary Language Spanish	Primary Language Other	Urban	Rural
Level of helpfulness in refrigerator replacement									
Very helpful	45%	69%	60%	59%	46%	73%	52%	57%	44%
Somewhat helpful	21%	10%	15%	16%	18%	19%	16%	17%	10%
Not at all helpful/No	24%	14%	15%	20%	25%	8%	22%	17%	40%
Not applicable - did not receive/do not need	10%	7%	10%	4%	11%	1%	10%	9%	6%
Total (n)	298	82	221	25	297	176	28	605	23

Source: 2013 CARE Participant Telephone Survey.
Note: we miscoded some of the PG&E measures such that a small fraction of participants were asked whether some measures that they had already received would be helpful. We moved those cases to “not applicable/don't need" if they were a recent participant who recalled participating.
Note: Question was phrased differently when asked of participants and non-participants due to their varying level of experience with the program.

Table 377: Level of Helpfulness in Refrigerator Replacement (EN2) by Climate Zone for California LI Population

	Central Valley	Desert	Mountain	North Coast	South Coast	South Inland	RAC Replace and Evaporative Cooler Install	CAC Replacement
Level of helpfulness in refrigerator replacement								
Very helpful	49%	51%	50%	59%	60%	61%	51%	55%
Somewhat helpful	20%	18%	15%	21%	18%	12%	17%	23%
Not at all helpful/No	23%	14%	30%	17%	13%	15%	21%	12%
Not applicable - did not receive/do not need	8%	17%	5%	4%	8%	12%	11%	10%
Total (n)	160	32	15	107	148	167	289	84

Source: 2013 CARE Participant Telephone Survey.
Note: we miscoded some of the PG&E measures such that a small fraction of participants were asked whether some measures that they had already received would be helpful. We moved those cases to “not applicable/don't need" if they were a recent participant who recalled participating.
Note: Question was phrased differently when asked of participants and non-participants due to their varying level of experience with the program.

Table 378: Level of Helpfulness in Window/Door/Wall/Floor Replacement (EN2k) by ESA Participation and Utility for California LI Population

	Total	Participant	Non-Participant	PG&E	SCE	SDG&E	SoCalGas	SCE & SoCalGas
Level of helpfulness in window/door/wall/floor replacement								
Very helpful	58%	65%	53%	53%	62%	62%	62%	61%
Somewhat helpful	15%	16%	15%	17%	12%	12%	15%	12%
Not at all helpful/No	20%	14%	24%	24%	18%	20%	16%	18%
Not applicable - did not receive/do not need	7%	6%	7%	7%	9%	5%	7%	9%
Total (n)	882	468	414	325	329	177	376	325

Source: 2013 CARE Participant Telephone Survey.
Note: we miscoded some of the PG&E measures such that a small fraction of participants were asked whether some measures that they had already received would be helpful. We moved those cases to "not applicable/don't need" if they were a recent participant who recalled participating.
Note: Question was phrased differently when asked of participants and non-participants due to their varying level of experience with the program.

Table 379: Level of Helpfulness in Window/Door/Wall/Floor Replacement (EN2k) by Home Type, Language, Rural and Urban for California LI Population

	Single-Family Own	Single-Family Rent	Multi-Family	Mobile	English Only	Primary Language Spanish	Primary Language Other	Urban	Rural
Level of helpfulness in window/door/wall/floor replacement									
Very helpful	49%	64%	64%	62%	49%	74%	63%	59%	34%
Somewhat helpful	19%	15%	12%	15%	16%	11%	12%	15%	19%
Not at all helpful/No	23%	17%	18%	14%	26%	13%	21%	19%	32%
Not applicable - did not receive/do not need	9%	5%	6%	9%	10%	2%	5%	6%	15%
Total (n)	398	122	323	35	448	197	41	842	39

Source: 2013 CARE Participant Telephone Survey.
Note: we miscoded some of the PG&E measures such that a small fraction of participants were asked whether some measures that they had already received would be helpful. We moved those cases to “not applicable/don't need" if they were a recent participant who recalled participating.
Note: Question was phrased differently when asked of participants and non-participants due to their varying level of experience with the program.

Table 380: Level of Helpfulness in Window/Door/Wall/Floor Replacement (EN2k) by Climate Zone for California LI Population

	Central Valley	Desert	Mountain	North Coast	South Coast	South Inland	RAC Replace and Evaporative Cooler Install	CAC Replacement
Level of helpfulness in window/door/wall/floor replacement								
Very helpful	59%	57%	32%	49%	64%	61%	56%	58%
Somewhat helpful	15%	8%	30%	17%	14%	16%	15%	16%
Not at all helpful/No	21%	29%	15%	28%	17%	15%	20%	22%
Not applicable - did not receive/do not need	5%	6%	24%	7%	5%	9%	8%	4%
Total (n)	209	48	21	133	240	231	405	110

Source: 2013 CARE Participant Telephone Survey.
Note: we miscoded some of the PG&E measures such that a small fraction of participants were asked whether some measures that they had already received would be helpful. We moved those cases to "not applicable/don't need" if they were a recent participant who recalled participating.
Note: Question was phrased differently when asked of participants and non-participants due to their varying level of experience with the program.

Table 381: Level of Helpfulness of Efficient Light Bulbs/Fixtures (EN2L) by ESA Participation and Utility for California LI Population

	Total	Participant	Non-Participant	PG&E	SCE	SDG&E	SoCalGas	SCE & SoCalGas
Level of helpfulness of light bulbs/fixtures								
Very helpful	60%	65%	55%	54%	62%	60%	64%	62%
Somewhat helpful	19%	20%	18%	20%	17%	20%	18%	17%
Not at all helpful/No	14%	11%	17%	20%	13%	12%	10%	13%
Not applicable - did not receive/do not need	7%	4%	10%	7%	9%	7%	8%	9%
Total (n)	933	517	416	340	347	198	391	343

Source: 2013 CARE Participant Telephone Survey.
Note: we miscoded some of the PG&E measures such that a small fraction of participants were asked whether some measures that they had already received would be helpful. We moved those cases to "not applicable/don't need" if they were a recent participant who recalled participating.
Note: Question was phrased differently when asked of participants and non-participants due to their varying level of experience with the program.

Table 382: Level of Helpfulness of Efficient Light Bulbs/Fixtures (EN2L) by Home Type, Language, Rural and Urban for California LI Population

	Single-Family Own	Single-Family Rent	Multi-Family	Mobile	English Only	Primary Language Spanish	Primary Language Other	Urban	Rural
Level of helpfulness of light bulbs/ fixtures									
Very helpful	49%	66%	66%	52%	48%	81%	64%	61%	35%
Somewhat helpful	23%	15%	18%	14%	23%	14%	16%	19%	17%
Not at all helpful/No	20%	13%	8%	26%	18%	4%	18%	13%	30%
Not applicable - did not receive/do not need	8%	6%	7%	8%	10%	2%	3%	7%	18%
Total (n)	423	124	340	41	480	200	43	886	46

Source: 2013 CARE Participant Telephone Survey.

Note: we miscoded some of the PG&E measures such that a small fraction of participants were asked whether some measures that they had already received would be helpful. We moved those cases to "not applicable/don't need" if they were a recent participant who recalled participating.

Note: Question was phrased differently when asked of participants and non-participants due to their varying level of experience with the program.

Table 383: Level of Helpfulness of Efficient Light Bulbs/Fixtures (EN2L) by Climate Zone for California LI Population

	Central Valley	Desert	Mountain	North Coast	South Coast	South Inland	RAC Replace and Evaporative Cooler Install	CAC Replace-ment
Level of helpfulness of light bulbs/fixtures								
Very helpful	57%	51%	19%	58%	63%	66%	54%	59%
Somewhat helpful	20%	18%	14%	20%	23%	15%	19%	23%
Not at all helpful/No	18%	20%	35%	17%	8%	10%	18%	12%
Not applicable - did not receive/do not need	5%	12%	31%	5%	6%	9%	10%	5%
Total (n)	217	55	24	140	255	242	433	123

Source: 2013 CARE Participant Telephone Survey.
Note: we miscoded some of the PG&E measures such that a small fraction of participants were asked whether some measures that they had already received would be helpful. We moved those cases to "not applicable/don't need" if they were a recent participant who recalled participating.
Note: Question was phrased differently when asked of participants and non-participants due to their varying level of experience with the program.

Table 384: Level of Helpfulness of Evaporative/Swamp Cooler Replacement (EN2n) by ESA Participation and Utility for California LI Population

	Total	Participant	Non-Participant	PG&E	SCE	SDG&E	SoCalGas	SCE & SoCalGas
Level of helpfulness of evaporative/swamp cooler replacement								
Very helpful	41%	48%	37%	38%	46%	34%	43%	45%
Somewhat helpful	11%	9%	11%	5%	10%	13%	12%	10%
Not at all helpful/No	22%	17%	25%	29%	19%	24%	19%	19%
Not applicable - did not receive/do not need	26%	26%	27%	28%	26%	29%	26%	26%
Total (n)	617	314	303	130	313	133	350	309

Source: 2013 CARE Participant Telephone Survey.
Note: we miscoded some of the PG&E measures such that a small fraction of participants were asked whether some measures that they had already received would be helpful. We moved those cases to "not applicable/don't need" if they were a recent participant who recalled participating.
Note: Question was phrased differently when asked of participants and non-participants due to their varying level of experience with the program.

Table 385: Helpfulness of Evaporative/Swamp Cooler Replacement (EN2n) by Home Type, Language, Rural and Urban for California LI Population

	Single-Family Own	Single-Family Rent	Multi-Family	Mobile	English Only	Primary Language Spanish	Primary Language Other	Urban	Rural
Level of helpfulness of evaporative/ swamp cooler replacement									
Very helpful	33%	63%	39%	27%	30%	61%	46%	41%	45%
Somewhat helpful	7%	10%	14%	2%	4%	21%	17%	11%	6%
Not at all helpful/No	32%	14%	18%	39%	30%	11%	19%	21%	39%
Not applicable - did not receive/do not need	28%	14%	30%	31%	36%	7%	17%	27%	10%
Total (n)	292	75	226	21	274	174	26	596	20

Source: 2013 CARE Participant Telephone Survey.
Note: we miscoded some of the PG&E measures such that a small fraction of participants were asked whether some measures that they had already received would be helpful. We moved those cases to “not applicable/don't need" if they were a recent participant who recalled participating.
Note: this question was added after the survey was already in the field, and has a slightly lower sample size as a result.
Note: Question was phrased differently when asked of participants and non-participants due to their varying level of experience with the program.

Table 386: Helpfulness of Evaporative/Swamp Cooler Replacement (EN2n) by Climate Zone for California LI Population

	Central Valley	Desert	Mountain	North Coast	South Coast	South Inland	RAC Replace and Evaporative Cooler Install	CAC Replace-ment
Level of helpfulness of evaporative/swamp cooler replacement								
Very helpful	43%	48%	43%	43%	40%	40%	43%	48%
Somewhat helpful	6%	6%	12%	5%	14%	12%	7%	6%
Not at all helpful/No	28%	20%	33%	21%	17%	23%	24%	17%
Not applicable - did not receive/do not need	22%	26%	12%	30%	30%	25%	26%	29%
Total (n)	102	48	10	54	196	207	271	94

Source: 2013 CARE Participant Telephone Survey.
Note: we miscoded some of the PG&E measures such that a small fraction of participants were asked whether some measures that they had already received would be helpful. We moved those cases to "not applicable/don't need" if they were a recent participant who recalled participating.
Note: this question was added after the survey was already in the field, and has a slightly lower sample size as a result.
Note: Question was phrased differently when asked of participants and non-participants due to their varying level of experience with the program.

Table 387: Level of Helpfulness in Furnace Replacement (EN2m) by ESA Participation and Utility for California LI Population

	Total	Participant	Non-Participant	PG&E	SCE	SDG&E	SoCalGas	SCE & SoCalGas
Level of helpfulness - furnace replacement								
Very helpful	47%	55%	41%	45%	51%	46%	49%	50%
Somewhat helpful	16%	14%	18%	15%	17%	21%	17%	17%
Not at all helpful/No	21%	17%	23%	22%	21%	21%	19%	21%
Not applicable - did not receive/do not need	16%	14%	17%	18%	12%	12%	15%	12%
Total (n)	844	439	405	315	321	160	365	317

Source: 2013 CARE Participant Telephone Survey.
Note: we miscoded some of the PG&E measures such that a small fraction of participants were asked whether some measures that they had already received would be helpful. We moved those cases to "not applicable/don't need" if they were a recent participant who recalled participating.
Note: this question was added after the survey was already in the field, and has a slightly lower sample size as a result.
Note: Question was phrased differently when asked of participants and non-participants due to their varying level of experience with the program.

Table 388: Level of Helpfulness in Furnace Replacement (EN2m) by Home Type, Language, Rural and Urban for California LI Population

	Single-Family Own	Single-Family Rent	Multi-Family	Mobile	English Only	Primary Language Spanish	Primary Language Other	Urban	Rural
Level of helpfulness – furnace replacement									
Very helpful	42%	53%	48%	50%	34%	70%	53%	48%	29%
Somewhat helpful	16%	17%	17%	13%	18%	13%	16%	17%	3%
Not at all helpful/No	24%	14%	20%	22%	29%	10%	17%	20%	43%
Not applicable - did not receive/do not need	18%	16%	15%	15%	19%	6%	14%	16%	24%
Total (n)	380	113	312	35	428	190	40	807	36

Source: 2013 CARE Participant Telephone Survey.
Note: we miscoded some of the PG&E measures such that a small fraction of participants were asked whether some measures that they had already received would be helpful. We moved those cases to "not applicable/don't need" if they were a recent participant who recalled participating.
Note: this question was added after the survey was already in the field, and has a slightly lower sample size as a result.
Note: Question was phrased differently when asked of participants and non-participants due to their varying level of experience with the program.

Table 389: Helpfulness of Furnace Replacement (EN2m) by Climate Zone for California LI Population

	Central Valley	Desert	Mountain	North Coast	South Coast	South Inland	RAC Replace and Evaporative Cooler Install	CAC Replace-ment
Level of helpfulness of furnace replacement								
Very helpful	46%	42%	25%	49%	52%	47%	46%	50%
Somewhat helpful	18%	24%	5%	14%	18%	14%	17%	22%
Not at all helpful/No	18%	28%	23%	26%	16%	21%	20%	19%
Not applicable - did not receive/do not need	18%	7%	48%	11%	13%	18%	17%	8%
Total (n)	201	47	21	130	220	225	393	107

Source: 2013 CARE Participant Telephone Survey.
Note: we miscoded some of the PG&E measures such that a small fraction of participants were asked whether some measures that they had already received would be helpful. We moved those cases to “not applicable/don't need" if they were a recent participant who recalled participating.
Note: this question was added after the survey was already in the field, and has a slightly lower sample size as a result.
Note: Question was phrased differently when asked of participants and non-participants due to their varying level of experience with the program.

Table 390: Proportion of CFLs (EN14) by ESA Participation and Utility for California LI Population

	Total	Participant	Non-Participant	PG&E	SCE	SDG&E	SoCalGas	SCE & SoCalGas
Proportion of CFLs								
All	26%	28%	25%	27%	27%	23%	26%	27%
More than half	21%	20%	22%	22%	20%	23%	20%	20%
About half	19%	18%	19%	19%	18%	18%	19%	18%
Less than half	19%	19%	19%	19%	20%	19%	19%	20%
None	12%	11%	12%	10%	11%	11%	13%	11%
Don't know how many are CFLs	3%	2%	3%	2%	4%	4%	3%	4%
Don't know what a CFL is	1%	2%	0%	1%	1%	2%	1%	1%
Total (n)	1,028	610	418	389	384	203	432	380

Source: 2013 CARE Participant Telephone Survey.

Table 391: Proportion of CFLs (EN14) by Home Type, Language, Rural and Urban for California LI Population

	Single-Family Own	Single-Family Rent	Multi-Family	Mobile	English Only	Primary Language Spanish	Primary Language Other	Urban	Rural
Proportion of CFLs									
All	21%	28%	29%	22%	26%	28%	8%	26%	32%
More than half	29%	20%	16%	13%	23%	14%	39%	21%	31%
About half	20%	18%	17%	24%	16%	21%	9%	19%	15%
Less than half	19%	18%	20%	32%	21%	15%	22%	19%	19%
None	9%	14%	13%	8%	10%	18%	17%	12%	2%
Don't know how many are CFLs	1%	2%	5%	0%	3%	2%	5%	3%	0%
Don't know what a CFL is	2%	0%	1%	2%	1%	2%	0%	1%	1%
Total (n)	483	136	360	42	532	213	49	978	49

Source: 2013 CARE Participant Telephone Survey.

Table 392: Proportion of CFLs (EN14) by Climate Zone for California LI Population

	Central Valley	Desert	Mountain	North Coast	South Coast	South Inland	RAC Replace and Evaporative Cooler Install	CAC Replacement
Proportion of CFLs								
All	24%	30%	47%	28%	19%	31%	27%	27%
More than half	23%	17%	21%	21%	22%	19%	23%	17%
About half	19%	21%	15%	18%	19%	18%	19%	22%
Less than half	21%	29%	17%	20%	19%	15%	20%	27%
None	10%	4%	0%	11%	15%	13%	8%	5%
Don't know how many are CFLs	2%	0%	0%	2%	4%	4%	3%	1%
Don't know what a CFL is	1%	0%	0%	0%	2%	0%	1%	0%
Total (n)	253	59	24	156	273	263	484	132

Source: 2013 CARE Participant Telephone Survey.

Table 393: Proportion of Homes that Need Other Equipment Replaced (EN12a) by ESA Participation and Utility for California LI Population

	Total	Participant	Non-Participant	PG&E	SCE	SDG&E	SoCalGas	SCE & SoCalGas
Proportion of homes that need other equipment replaced								
Yes	10%	12%	8%	10%	11%	14%	9%	10%
No	90%	88%	92%	90%	89%	86%	91%	90%
Total (n)	871	509	362	235	383	202	430	379

Source: 2013 CARE Participant Telephone Survey.
Note: this question was added after the survey was already in the field, and has a slightly lower sample size as a result.

Table 394: Proportion of Homes that Need Other Equipment Replaced (EN12a) by Home Type, Language, Rural and Urban for California LI Population

	Single-Family Own	Single-Family Rent	Multi-Family	Mobile	English Only	Primary Language Spanish	Primary Language Other	Urban	Rural
Proportion of homes that need other equipment replaced									
Yes	8%	14%	9%	24%	11%	7%	13%	10%	18%
No	92%	86%	91%	76%	89%	93%	87%	90%	82%
Total (n)	407	114	315	29	423	200	42	839	31

Source: 2013 CARE Participant Telephone Survey.
Note: this question was added after the survey was already in the field, and has a slightly lower sample size as a result.

Table 395: Proportion of Homes that Need Other Equipment Replaced (EN12a) by Climate Zone for California LI Population

	Central Valley	Desert	Mountain	North Coast	South Coast	South Inland	RAC Replace and Evaporative Cooler Install	CAC Replacement
Proportion of homes that need other equipment replaced								
Yes	10%	11%	12%	10%	11%	8%	10%	9%
No	90%	89%	88%	90%	89%	92%	90%	91%
Total (n)	170	59	17	92	271	262	394	119

Source: 2013 CARE Participant Telephone Survey.
Note: this question was added after the survey was already in the field, and has a slightly lower sample size as a result.

Table 396: Equipment that Needs Replacement (EN12b_opn) by ESA Participation and Utility (among those that said they needed equipment replaced) for California LI Population

	Total	Participant	Non-Participant	PG&E	SCE	SDG&E	SoCalGas	SCE & SoCalGas
Equipment that needs replacement								
Water appliances (toilet, tub)	16%	16%	15%	8%	17%	6%	23%	18%
Electrical	14%	17%	9%	8%	16%	11%	14%	11%
Plumbing	13%	9%	20%	14%	18%	0%	17%	19%
Ceiling fan(s)	8%	8%	8%	5%	10%	8%	6%	5%
Flooring	6%	9%	1%	0%	10%	8%	9%	11%
Lighting	6%	7%	4%	14%	1%	9%	1%	1%
Infiltration	5%	8%	0%	14%	0%	3%	0%	0%
Ceiling	4%	3%	6%	0%	8%	0%	7%	8%
Freezer	4%	5%	3%	0%	6%	9%	1%	1%
Roof	4%	5%	2%	8%	2%	6%	2%	2%
Showerhead	4%	7%	0%	8%	2%	6%	2%	2%
Stove fan/hood	4%	3%	5%	7%	4%	1%	4%	4%
Fireplace issues	3%	1%	7%	0%	5%	3%	5%	6%
Garbage disposal	3%	3%	3%	6%	2%	1%	2%	2%
Gate/Fence	3%	1%	5%	2%	4%	0%	4%	5%
Kitchen appliance	3%	1%	5%	0%	5%	3%	5%	5%
Screens	3%	4%	3%	0%	6%	3%	6%	6%
Swamp cooler	3%	4%	0%	2%	4%	0%	4%	4%
Weather-strip	3%	1%	6%	0%	4%	3%	4%	5%
Carpet	2%	3%	0%	6%	0%	0%	0%	0%
Faucet(s)	2%	2%	3%	0%	2%	9%	2%	2%
Garage door	2%	1%	2%	3%	2%	0%	2%	2%
Hot tub	2%	3%	0%	0%	4%	0%	4%	4%

	Total	Participant	Non-Participant	PG&E	SCE	SDG&E	SoCalGas	SCE & SoCalGas
Insulation	2%	3%	0%	2%	2%	0%	2%	2%
Kitchen cabinets	2%	3%	0%	0%	3%	0%	3%	3%
Sprinkler system	2%	1%	3%	0%	3%	0%	3%	3%
Thermostat	2%	0%	5%	7%	0%	0%	0%	0%
Lighting (exterior)	1%	1%	0%	0%	0%	5%	0%	0%
N/A	1%	0%	2%	0%	1%	0%	1%	1%
Water cooler	1%	1%	0%	0%	1%	3%	1%	1%
Yard/Driveway	1%	1%	0%	2%	0%	0%	0%	0%
Bathroom	0%	0%	1%	0%	0%	4%	0%	0%
Cabinets	0%	1%	0%	0%	1%	0%	1%	1%
Electronics	0%	1%	0%	0%	0%	3%	0%	0%
Pool heater	0%	1%	0%	0%	1%	0%	1%	1%
Ventilation	0%	0%	1%	0%	0%	4%	0%	0%
Walls	0%	1%	0%	0%	1%	0%	1%	1%
Windows	0%	1%	0%	0%	1%	0%	1%	1%
Total (n)	97	69	28	22	46	26	48	45

Source: 2013 CARE Participant Telephone Survey.

Table 397: Equipment that Needs Replacement (EN12b_opn) by Home Type, Language, Rural and Urban for California LI Population

	Single-Family Own	Single-Family Rent	Multi-Family	Mobile	English Only	Primary Language Spanish	Primary Language Other	Urban	Rural
Equipment that needs replacement									
Water appliances (toilet, tub)	21%	18%	13%	0%	13%	27%	0%	17%	0%
Roof	11%	3%	1%	0%	6%	7%	0%	3%	26%
Ceiling fan(s)	7%	4%	13%	0%	8%	11%	12%	9%	0%
Electrical	7%	0%	32%	0%	19%	4%	39%	15%	0%
Garage door	7%	0%	0%	0%	3%	2%	0%	2%	0%
Insulation	6%	0%	0%	0%	1%	2%	0%	1%	11%
Plumbing	6%	5%	22%	35%	11%	32%	7%	14%	0%
Screens	6%	5%	1%	0%	4%	0%	0%	3%	17%
Sprinkler system	6%	0%	0%	0%	2%	0%	0%	2%	0%
Garbage disposal	4%	0%	5%	0%	0%	0%	0%	3%	0%
Lighting	4%	3%	10%	0%	2%	2%	0%	6%	0%
Swamp cooler	4%	5%	0%	0%	3%	2%	0%	3%	0%
Faucet(s)	3%	4%	0%	0%	0%	8%	0%	2%	0%
Fireplace issues	3%	7%	0%	0%	5%	0%	0%	1%	34%
Gate/Fence	3%	0%	6%	0%	6%	0%	0%	3%	0%
Showerhead	3%	10%	0%	0%	5%	2%	7%	4%	0%
Yard/Driveway	3%	0%	0%	0%	1%	0%	0%	1%	0%
Cabinets	2%	0%	0%	0%	0%	2%	0%	0%	0%
Freezer	2%	4%	7%	0%	7%	0%	0%	4%	0%
Hot tub	2%	5%	0%	0%	0%	0%	7%	2%	0%
Kitchen appliance	2%	0%	7%	0%	4%	2%	0%	3%	0%
Lighting (exterior)	2%	0%	0%	0%	1%	0%	0%	1%	0%
Pool heater	2%	0%	0%	0%	1%	0%	0%	0%	0%

	Single-Family Own	Single-Family Rent	Multi-Family	Mobile	English Only	Primary Language Spanish	Primary Language Other	Urban	Rural
Stove fan/hood	2%	12%	0%	0%	0%	13%	0%	4%	0%
Walls	2%	0%	0%	0%	0%	0%	0%	0%	0%
Water cooler	2%	0%	1%	0%	1%	2%	0%	1%	0%
Bathroom	0%	0%	1%	0%	1%	0%	0%	1%	0%
Carpet	0%	0%	5%	0%	4%	0%	0%	2%	0%
Ceiling	0%	12%	0%	0%	0%	12%	0%	4%	0%
Electronics	0%	0%	1%	0%	1%	0%	0%	0%	0%
Flooring	0%	10%	4%	27%	4%	11%	8%	5%	24%
Infiltration	0%	8%	6%	0%	4%	0%	0%	5%	0%
Kitchen cabinets	0%	5%	0%	0%	0%	0%	0%	2%	0%
N/A	0%	0%	2%	0%	0%	0%	10%	1%	0%
Thermostat	0%	7%	0%	0%	4%	0%	0%	2%	0%
Ventilation	0%	0%	1%	0%	0%	0%	0%	1%	0%
Weather-strip	0%	0%	1%	38%	1%	0%	0%	3%	0%
Windows	0%	0%	1%	0%	1%	0%	0%	1%	0%
Total (n)	39	19	36	3	44	19	7	92	5

Source: 2013 CARE Participant Telephone Survey.

Table 398: Equipment that Needs Replacement (EN12b_opn) by Climate Zone for California LI Population

	Central Valley	Desert	Mountain	North Coast	South Coast	South Inland	RAC Replace and Evaporative Cooler Install	CAC Replacement
Equipment that needs replacement								
Infiltration	19%	0%	0%	0%	1%	0%	9%	0%
Plumbing	13%	0%	0%	12%	23%	8%	6%	0%
Water appliances (toilet, tub,	13%	6%	0%	0%	28%	16%	11%	7%
Electrical	11%	6%	0%	17%	27%	2%	6%	21%
Carpet	9%	0%	0%	0%	0%	0%	4%	0%
Stove fan/hood	9%	0%	0%	0%	0%	8%	6%	0%
Ceiling fan(s)	7%	0%	0%	0%	15%	8%	8%	0%
Hot tub	7%	0%	0%	0%	0%	2%	3%	12%
Roof	4%	6%	0%	11%	3%	2%	3%	3%
Lighting	3%	0%	0%	26%	3%	3%	3%	0%
Swamp cooler	3%	6%	0%	0%	0%	6%	6%	9%
Kitchen appliance	2%	0%	0%	0%	1%	9%	6%	3%
Bathroom	0%	0%	0%	0%	2%	0%	0%	0%
Cabinets	0%	0%	0%	0%	0%	2%	0%	0%
Ceiling	0%	0%	0%	0%	0%	15%	0%	0%
Electronics	0%	0%	0%	0%	1%	0%	0%	0%
Faucet(s)	0%	0%	0%	0%	4%	3%	1%	0%
Fireplace issues	0%	6%	100%	0%	1%	0%	6%	3%
Flooring	0%	20%	0%	0%	3%	15%	5%	12%
Freezer	0%	0%	0%	0%	8%	7%	4%	0%
Garage door	0%	6%	0%	7%	0%	2%	1%	3%
Garbage disposal	0%	14%	0%	14%	0%	1%	3%	8%

	Central Valley	Desert	Mountain	North Coast	South Coast	South Inland	RAC Replace and Evaporative Cooler Install	CAC Replacement
Gate/Fence	0%	0%	0%	6%	7%	0%	0%	0%
Insulation	0%	0%	0%	6%	0%	3%	1%	0%
Kitchen cabinets	0%	0%	0%	0%	0%	6%	0%	0%
Lighting (exterior)	0%	0%	0%	0%	2%	0%	0%	0%
N/A	0%	0%	0%	0%	0%	3%	0%	0%
Pool heater	0%	0%	0%	0%	0%	2%	1%	0%
Screens	0%	20%	0%	0%	5%	2%	4%	11%
Showerhead	0%	0%	0%	18%	0%	7%	3%	0%
Sprinkler system	0%	0%	0%	0%	0%	6%	1%	0%
Thermostat	0%	0%	0%	15%	0%	0%	0%	0%
Ventilation	0%	0%	0%	0%	2%	0%	0%	0%
Walls	0%	0%	0%	0%	0%	2%	1%	0%
Water cooler	0%	0%	0%	0%	1%	2%	1%	0%
Weather-strip	0%	29%	0%	0%	0%	2%	6%	17%
Windows	0%	0%	0%	0%	2%	0%	0%	0%
Yard/Driveway	0%	0%	0%	6%	0%	0%	0%	0%
Total (n)	16	8	1	10	27	35	47	13

Source: 2013 CARE Participant Telephone Survey.

8.2.9 Demographics

Table 399: Year Home Built (S7) by ESA Participation and Utility For California LI Population

	Total	Participant	Non-Participant	PG&E	SCE	SDG&E	SoCalGas	SCE & SoCalGas
2011 or more recently	1%	0%	1%	0%	1%	0%	1%	1%
2001 to 2010	7%	5%	9%	9%	7%	6%	6%	7%
1990 to 2000	10%	8%	12%	12%	9%	9%	8%	9%
1970 to 1989	33%	34%	31%	30%	35%	39%	34%	35%
1950 to 1969	29%	30%	28%	30%	28%	33%	27%	27%
1949 or earlier	20%	22%	18%	18%	20%	13%	24%	20%
Total (n)	859	508	351	334	319	165	357	316

Source: 2013 CARE Participant Telephone Survey.

Table 400: Year Home Built (S7) by Home Type, Language, Rural and Urban For California LI Population

	Single-Family Own	Single-Family Rent	Multi-Family	Mobile	English Only	Primary Language Spanish	Primary Language Other	Urban	Rural
2011 or more recently	0%	0%	2%	0%	0%	2%	0%	1%	0%
2001 to 2010	6%	5%	10%	5%	7%	6%	18%	7%	13%
1990 to 2000	11%	6%	11%	10%	8%	15%	8%	10%	12%
1970 to 1989	26%	25%	43%	68%	33%	32%	37%	33%	38%
1950 to 1969	35%	35%	20%	17%	31%	23%	30%	30%	19%
1949 or earlier	22%	29%	15%	0%	20%	21%	6%	20%	18%
Total (n)	454	100	260	38	479	144	40	812	46

Source: 2013 CARE Participant Telephone Survey.

Table 401: Year Home Built (S7) by Climate Zone For California LI Population

	Central Valley	Desert	Mountain	North Coast	South Coast	South Inland
2011 or more recently	1%	0%	0%	0%	1%	1%
2001 to 2010	11%	26%	18%	5%	2%	4%
1990 to 2000	16%	17%	19%	8%	4%	7%
1970 to 1989	33%	38%	34%	27%	31%	37%
1950 to 1969	26%	11%	15%	32%	32%	33%
1949 or earlier	14%	7%	13%	28%	30%	18%
Total (n)	220	55	23	126	222	213

Source: 2013 CARE Participant Telephone Survey.

Table 402: Years Lived at Address (S8, S8a) by ESA Participation and Utility For California LI Population

	Total	Participant	Non-Participant	PG&E	SCE	SDG&E	SoCalGas	SCE & SoCalGas
23 months or less	9%	7%	12%	9%	11%	7%	10%	11%
2 to 4 years	24%	17%	31%	25%	24%	25%	23%	24%
5 to 9 years	17%	17%	17%	19%	14%	17%	14%	13%
10 to 19 years	24%	27%	22%	21%	28%	27%	27%	28%
20 to 29 years	12%	15%	8%	13%	11%	8%	12%	11%
30 years or more	14%	17%	10%	13%	12%	16%	14%	12%
Total (n)	1,028	610	418	389	384	203	432	380

Source: 2013 CARE Participant Telephone Survey.

Table 403: Years Lived at Address (S8, S8a) by Home Type, Language, Rural and Urban For California LI Population

	Single-Family Own	Single-Family Rent	Multi-Family	Mobile	English Only	Primary Language Spanish	Primary Language Other	Urban	Rural
23 months or less	3%	10%	15%	4%	8%	11%	17%	9%	8%
2 to 4 years	8%	36%	31%	9%	21%	23%	29%	24%	25%
5 to 9 years	12%	19%	19%	27%	17%	15%	21%	17%	18%
10 to 19 years	27%	25%	21%	36%	24%	32%	15%	25%	21%
20 to 29 years	20%	6%	10%	16%	12%	14%	12%	12%	15%
30 years or more	30%	4%	6%	8%	18%	5%	6%	14%	13%
Total (n)	483	136	360	42	532	213	49	978	49

Source: 2013 CARE Participant Telephone Survey.

Table 404: Years Lived at Address (S8, S8a) by Climate Zone For California LI Population

	Central Valley	Desert	Mountain	North Coast	South Coast	South Inland
23 months or less	11%	15%	0%	8%	9%	8%
2 to 4 years	30%	43%	8%	19%	21%	21%
5 to 9 years	18%	11%	21%	20%	17%	15%
10 to 19 years	19%	19%	41%	22%	28%	28%
20 to 29 years	11%	7%	24%	17%	10%	12%
30 years or more	12%	4%	6%	15%	15%	17%
Total (n) n	253	59	24	156	273	263

Source: 2013 CARE Participant Telephone Survey.

Table 405: Of Multi-family Homes, Number of Units in Building (S6a) by ESA Participation and Utility For California LI Population

	Total	Participant	Non-Participant	PG&E	SCE	SDG&E	SoCalGas	SCE & SoCalGas
2 to 4 units	19%	21%	17%	19%	18%	16%	19%	17%
5 to 10 units	30%	30%	31%	34%	23%	24%	29%	23%
11 to 20 units	14%	13%	16%	10%	20%	16%	17%	20%
More than 20 units	36%	37%	36%	37%	40%	44%	35%	41%
Total (n)	274	145	129	81	82	90	102	81

Source: 2013 CARE Participant Telephone Survey.

Table 406: Of Multi-family Homes, Number of Units in Building (S6a) by Home Type, Language, Rural and Urban For California LI Population

	Single-Family Own	Single-Family Rent	Multi-Family	Mobile	English Only	Primary Language Spanish	Primary Language Other	Urban	Rural
2 to 4 units	0%	0%	19%	0%	17%	22%	35%	19%	0%
5 to 10 units	0%	0%	30%	0%	31%	31%	24%	30%	100%
11 to 20 units	0%	0%	14%	0%	14%	20%	4%	15%	0%
More than 20 units	0%	0%	36%	0%	38%	27%	37%	36%	0%
Total (n)	-	-	274	-	135	64	14	273	1

Source: 2013 CARE Participant Telephone Survey.

Table 407: Of Multi-family Homes, Number of Units in Building (S6a) by Climate Zone For California LI Population

	Central Valley	Desert	Mountain	North Coast	South Coast	South Inland
2 to 4 units	16%	9%	0%	25%	27%	7%
5 to 10 units	33%	27%	0%	33%	29%	29%
11 to 20 units	3%	0%	0%	18%	12%	26%
More than 20 units	47%	64%	0%	24%	32%	38%
Total (n)	39	11	-	47	108	69

Source: 2013 CARE Participant Telephone Survey.

Table 408: Number of People in Home at least Nine Months of the Year (D1) by ESA Participation and Utility For California LI Population

	Total	Participant	Non-Participant	PG&E	SCE	SDG&E	SoCalGas	SCE & SoCalGas
1 persons	26%	28%	25%	34%	19%	28%	21%	20%
2 persons	20%	18%	21%	19%	21%	21%	20%	21%
3 persons	15%	16%	15%	13%	19%	11%	17%	19%
4 persons	13%	11%	15%	14%	14%	12%	13%	14%
5 or more persons	26%	26%	25%	21%	27%	28%	29%	26%
Total (n)	1,026	609	417	389	383	202	431	379

Source: 2013 CARE Participant Telephone Survey.

Table 409: Number of People in Home at least Nine Months of the Year (D1) by Home Type, Language, Rural and Urban For California LI Population

	Single-Family Own	Single-Family Rent	Multi-Family	Mobile	English Only	Primary Language Spanish	Primary Language Other	Urban	Rural
1 persons	25%	10%	33%	35%	40%	8%	12%	27%	20%
2 persons	24%	12%	19%	24%	26%	11%	20%	19%	27%
3 persons	17%	16%	14%	14%	14%	11%	10%	15%	25%
4 persons	10%	20%	12%	11%	8%	22%	21%	13%	8%
5 or more persons	24%	41%	21%	15%	12%	47%	38%	26%	20%
Total (n)	482	136	360	41	531	213	49	976	49

Source: 2013 CARE Participant Telephone Survey.

Table 410: Number of People in Home at least Nine Months of the Year (D1) by Climate Zone For California LI Population

	Central Valley	Desert	Mountain	North Coast	South Coast	South Inland
1 persons	29%	30%	17%	39%	24%	17%
2 persons	19%	26%	14%	17%	20%	20%
3 persons	16%	15%	30%	9%	14%	18%
4 persons	14%	13%	8%	14%	14%	11%
5 or more persons	22%	15%	31%	21%	28%	33%
Total (n)	253	59	24	156	273	261

Source: 2013 CARE Participant Telephone Survey.

Table 411: Number of People in Home in Age Groups (D2, D2A-D2K) by ESA Participation and Utility For California LI Population

	Total	Participant	Non-Participant	PG&E	SCE	SDG&E	SoCalGas	SCE & SoCalGas
Children under 6 present in home	20%	20%	20%	19%	21%	20%	20%	21%
Children 6 to 17 present in home	35%	34%	36%	34%	35%	35%	35%	34%
Adults present in home	74%	72%	75%	67%	78%	71%	79%	78%
Seniors present in home	49%	54%	45%	51%	45%	52%	48%	46%
Total (n)	1,024	607	417	387	383	202	431	379

Source: 2013 CARE Participant Telephone Survey.

Table 412: Number of People in Home in Age Groups (D2, D2A-D2K) by Home Type, Language, Rural and Urban For California LI Population

	Single-Family Own	Single-Family Rent	Multi-Family	Mobile	English Only	Primary Language Spanish	Primary Language Other	Urban	Rural
Children under 6 present in home	14%	26%	22%	16%	10%	35%	16%	20%	9%
Children 6 to 17 present in home	27%	53%	34%	24%	22%	59%	21%	35%	40%
Adults present in home	68%	86%	75%	59%	60%	91%	90%	74%	67%
Seniors present in home	67%	38%	39%	64%	59%	36%	59%	49%	61%
Total (n)	482	136	358	41	530	213	49	974	49

Source: 2013 CARE Participant Telephone Survey.

Table 413: Number of People in Home in Age Groups (D2, D2A-D2K) by Climate Zone For California LI Population

	Central Valley	Desert	Mountain	North Coast	South Coast	South Inland
Children under 6 present in home	20%	20%	0%	21%	23%	18%
Children 6 to 17 present in home	33%	40%	53%	33%	36%	34%
Adults present in home	69%	65%	68%	65%	76%	83%
Seniors present in home	49%	48%	69%	50%	46%	51%
Total (n)	251	59	24	156	273	261

Source: 2013 CARE Participant Telephone Survey.

Table 414: Average Age of Respondent (D3) by ESA Participation and Utility For California LI Population

	Total	Participant	Non-Participant	PG&E	SCE	SDG&E	SoCalGas	SCE & SoCalGas
Average age	56	58	55	58	54	54	55	58
Respondent is under 30	7%	5%	10%	7%	7%	4%	8%	7%
Respondent is between 30 and 60	52%	51%	52%	48%	59%	53%	54%	59%
Respondent is 60 years or older	41%	44%	38%	45%	34%	43%	38%	34%
Total (n)	1,004	598	406	380	373	200	420	369

Source: 2013 CARE Participant Telephone Survey.

Table 415: Average Age of Respondent (D3) by Home Type, Language, Rural and Urban For California LI Population

	Single-Family Own	Single-Family Rent	Multi-Family	Mobile	English Only	Primary Language Spanish	Primary Language Other	Urban	Rural
Average age	62	51	53	66	61	49	52	56	62
Respondent is under 30	2%	7%	12%	0%	3%	12%	18%	8%	0%
Respondent is between 30 and 60	43%	65%	54%	32%	42%	66%	42%	52%	49%
Respondent is 60 years or older	55%	28%	33%	68%	54%	22%	40%	41%	51%
Total (n)	471	133	351	42	522	210	48	956	47

Source: 2013 CARE Participant Telephone Survey.

Table 416: Average Age of Respondent (D3) by Climate Zone For California LI Population

	Central Valley	Desert	Mountain	North Coast	South Coast	South Inland
Average age	56	57	65	58	56	54
Respondent is under 30	9%	7%	0%	5%	6%	10%
Respondent is between 30 and 60	48%	50%	33%	52%	58%	51%
Respondent is 60 years or older	43%	44%	67%	43%	37%	38%
Total (n)	248	57	24	151	268	256

Source: 2013 CARE Participant Telephone Survey.

Table 417: Marital Status of Respondent (D4) by ESA Participation and Utility For California LI Population

	Total	Participant	Non-Participant	PG&E	SCE	SDG&E	SoCalGas	SCE & SoCalGas
Married	36%	30%	43%	32%	42%	38%	39%	41%
Divorced	19%	20%	18%	19%	19%	23%	19%	19%
Separated	5%	5%	6%	4%	5%	4%	6%	4%
Widowed	18%	21%	14%	21%	14%	14%	15%	14%
Never married	12%	14%	11%	12%	12%	11%	12%	13%
Living with a partner	10%	10%	9%	11%	8%	10%	9%	8%
Total (n)	1,007	600	407	382	378	196	425	374

Source: 2013 CARE Participant Telephone Survey.

Table 418: Marital Status of Respondent (D4) by Home Type, Language, Rural and Urban For California LI Population

	Single-Family Own	Single-Family Rent	Multi-Family	Mobile	English Only	Primary Language Spanish	Primary Language Other	Urban	Rural
Married	46%	46%	26%	32%	27%	47%	63%	36%	46%
Divorced	16%	16%	22%	25%	26%	7%	7%	19%	15%
Separated	2%	6%	7%	2%	4%	8%	12%	5%	4%
Widowed	23%	11%	13%	39%	23%	9%	8%	17%	23%
Never married	8%	8%	19%	1%	14%	10%	8%	13%	3%
Living with a partner	5%	14%	12%	1%	6%	20%	2%	10%	9%
Total (n)	476	136	347	41	520	211	49	957	49

Source: 2013 CARE Participant Telephone Survey.

Table 419: Marital Status of Respondent (D4) by Climate Zone For California LI Population

	Central Valley	Desert	Mountain	North Coast	South Coast	South Inland
Married	39%	36%	64%	23%	34%	42%
Divorced	18%	30%	6%	22%	20%	16%
Separated	4%	2%	0%	3%	5%	8%
Widowed	20%	18%	31%	21%	13%	16%
Never married	9%	0%	0%	18%	17%	11%
Living with a partner	10%	15%	0%	13%	10%	7%
Total (n)	250	58	24	152	267	256

Source: 2013 CARE Participant Telephone Survey.

Table 420: Language Spoken in Home (D5, D5_1-D5_20) by ESA Participation and Utility For California LI Population

	Total	Participant	Non-Participant	PG&E	SCE	SDG&E	SoCalGas	SCE & SoCalGas
English	95%	96%	95%	96%	94%	95%	94%	94%
Spanish	40%	43%	37%	26%	49%	37%	51%	49%
Mandarin	0%	0%	1%	0%	1%	0%	1%	1%
Cantonese	0%	0%	1%	1%	0%	0%	0%	0%
Tagalog/Filipino	1%	1%	1%	1%	1%	2%	1%	1%
Korean	0%	0%	1%	0%	0%	0%	0%	0%
Vietnamese	1%	0%	1%	0%	1%	1%	1%	1%
Other	4%	5%	3%	5%	1%	5%	2%	1%
German	1%	0%	1%	1%	0%	1%	0%	0%
Chinese	1%	1%	2%	2%	1%	0%	1%	1%
Danish	0%	0%	0%	1%	0%	0%	0%	0%
Russian	0%	0%	0%	0%	0%	0%	0%	0%
Arabic	1%	1%	1%	1%	1%	1%	1%	1%
French	1%	1%	2%	1%	1%	1%	2%	1%
Japanese	1%	0%	1%	0%	0%	3%	1%	0%
Italian	0%	0%	1%	1%	0%	1%	0%	0%
Portuguese	0%	0%	0%	1%	0%	0%	0%	0%
Farsi	0%	0%	1%	1%	0%	0%	0%	0%
Total (n)	1,024	607	417	386	383	203	431	379

Source: 2013 CARE Participant Telephone Survey.
Note: Multiple responses allowed.

Table 421: Language Spoken in Home (D5, D5_1-D5_20) by Home Type, Language, Rural and Urban For California LI Population

	Single-Family Own	Single-Family Rent	Multi-Family	Mobile	English Only	Primary Language Spanish	Primary Language Other	Urban	Rural
English	95%	96%	95%	98%	100%	86%	71%	95%	100%
Spanish	36%	44%	44%	23%	0%	100%	6%	41%	7%
Mandarin	0%	0%	1%	0%	0%	0%	4%	1%	0%
Cantonese	1%	0%	1%	0%	0%	0%	5%	0%	0%
Tagalog/Filipino	1%	1%	1%	0%	0%	0%	11%	1%	0%
Korean	0%	0%	0%	0%	0%	0%	6%	0%	0%
Vietnamese	1%	1%	0%	0%	0%	0%	1%	1%	0%
Other	3%	6%	3%	0%	0%	0%	43%	4%	0%
German	0%	1%	1%	0%	0%	0%	3%	1%	0%
Chinese	2%	3%	0%	0%	0%	0%	19%	1%	0%
Danish	0%	1%	0%	0%	0%	0%	0%	0%	1%
Russian	0%	0%	0%	0%	0%	0%	5%	0%	0%
Arabic	1%	3%	1%	6%	0%	0%	15%	1%	0%
French	2%	2%	1%	0%	0%	0%	9%	1%	0%
Japanese	1%	0%	0%	0%	0%	0%	1%	1%	1%
Italian	1%	0%	0%	0%	0%	0%	0%	0%	0%
Portuguese	0%	1%	0%	0%	0%	0%	0%	0%	0%
Farsi	0%	1%	0%	0%	0%	0%	6%	0%	0%
Total (n)	479	136	360	42	532	213	49	974	49

Source: 2013 CARE Participant Telephone Survey.
Note: Multiple responses allowed.

Table 422: Language Spoken in Home (D5, D5_1-D5_20) by Climate Zone For California LI Population

	Central Valley	Desert	Mountain	North Coast	South Coast	South Inland
English	98%	98%	100%	95%	96%	92%
Spanish	27%	41%	3%	31%	46%	54%
Mandarin	0%	0%	0%	1%	0%	1%
Cantonese	0%	0%	0%	2%	0%	0%
Tagalog/Filipino	1%	0%	0%	2%	1%	1%
Korean	0%	0%	0%	0%	1%	0%
Vietnamese	0%	0%	0%	1%	1%	1%
Other	5%	4%	0%	5%	0%	5%
German	0%	2%	0%	1%	0%	0%
Chinese	2%	0%	0%	2%	0%	2%
Danish	0%	0%	0%	1%	0%	0%
Russian	0%	0%	0%	0%	0%	0%
Arabic	2%	1%	4%	0%	0%	2%
French	0%	2%	0%	1%	0%	3%
Japanese	0%	1%	0%	0%	1%	1%
Italian	1%	0%	0%	1%	0%	0%
Portuguese	1%	0%	0%	1%	0%	0%
Farsi	1%	0%	0%	0%	0%	1%
Total (n)	251	59	24	155	273	262

Source: 2013 CARE Participant Telephone Survey.
Note: Multiple responses allowed.

Table 423: Primary Language Spoken in Home (D6) by ESA Participation and Utility For California LI Population

	Total	Participant	Non-Participant	PG&E	SCE	SDG&E	SoCalGas	SCE & SoCalGas
English	72%	72%	72%	79%	69%	80%	66%	69%
Spanish	23%	25%	22%	16%	28%	14%	31%	28%
Asian	2%	1%	3%	2%	2%	1%	2%	2%
Other	3%	2%	4%	3%	1%	5%	2%	1%
Total (n)	1,021	607	414	384	383	202	431	379

Source: 2013 CARE Participant Telephone Survey.

Table 424: Primary Language Spoken in Home (D6) by Home Type, Language, Rural and Urban For California LI Population

	Single-Family Own	Single-Family Rent	Multi-Family	Mobile	English Only	Primary Language Spanish	Primary Language Other	Urban	Rural
English	76%	66%	70%	97%	100%	0%	0%	71%	98%
Spanish	20%	26%	27%	3%	0%	100%	0%	24%	2%
Asian	2%	2%	1%	0%	0%	0%	36%	2%	0%
Other	2%	6%	2%	0%	0%	0%	64%	3%	0%
Total (n)	479	136	357	42	532	213	49	971	49

Source: 2013 CARE Participant Telephone Survey.

Table 425: Primary Language Spoken in Home (D6) by Climate Zone For California LI Population

	Central Valley	Desert	Mountain	North Coast	South Coast	South Inland
English	80%	84%	100%	74%	70%	61%
Spanish	14%	16%	0%	21%	28%	33%
Asian	2%	0%	0%	2%	1%	2%
Other	4%	0%	0%	2%	1%	5%
Total (n)	251	59	24	153	273	261

Source: 2013 CARE Participant Telephone Survey.

Table 426: Race of Respondent (D8) by ESA Participation and Utility For California LI Population

	Total	Participant	Non-Participant	PG&E	SCE	SDG&E	SoCalGas	SCE & SoCalGas
White (non-hispanic)	39%	35%	44%	50%	32%	49%	29%	32%
African-American	11%	12%	11%	9%	11%	10%	13%	10%
Asian	3%	3%	4%	4%	3%	3%	2%	3%
Hispanic	36%	38%	33%	25%	44%	28%	46%	44%
Other	2%	1%	3%	2%	2%	2%	2%	2%
Two or more	8%	11%	6%	10%	8%	8%	7%	8%
Total (n)	996	594	402	376	375	194	422	371

Source: 2013 CARE Participant Telephone Survey.

Table 427: Race of Respondent (D8) by Home Type, Language, Rural and Urban For California LI Population

	Single-Family Own	Single-Family Rent	Multi-Family	Mobile	English Only	Primary Language Spanish	Primary Language Other	Urban	Rural
White (non-hispanic)	45%	36%	33%	71%	62%	4%	29%	37%	85%
African-American	9%	7%	16%	2%	20%	0%	1%	12%	0%
Asian	4%	5%	3%	0%	0%	0%	41%	3%	0%
Hispanic	33%	39%	39%	19%	6%	91%	5%	37%	2%
Other	1%	4%	2%	2%	2%	0%	20%	2%	2%
Two or more	9%	9%	8%	6%	9%	5%	3%	8%	11%
Total (n)	468	132	347	42	517	209	46	946	49

Source: 2013 CARE Participant Telephone Survey.

Table 428: Race of Respondent (D8) by Climate Zone For California LI Population

	Central Valley	Desert	Mountain	North Coast	South Coast	South Inland
White (non-hispanic)	54%	56%	94%	40%	24%	31%
African-American	5%	9%	0%	13%	27%	4%
Asian	2%	0%	0%	8%	2%	3%
Hispanic	25%	30%	2%	31%	42%	49%
Other	2%	2%	0%	1%	1%	4%
Two or more	12%	4%	4%	8%	5%	10%
Total (n)	244	57	24	152	264	255

Source: 2013 CARE Participant Telephone Survey.

Table 429: Education Level of Respondent (D9) by ESA Participation and Utility For California LI Population

	Total	Participant	Non-Participant	PG&E	SCE	SDG&E	SoCalGas	SCE & SoCalGas
Never attended school or only attended kindergarten	1%	1%	1%	1%	0%	2%	1%	0%
Grades 1 through 8 (Elementary)	12%	14%	9%	10%	12%	6%	14%	13%
Grades 9 through 11 (Some high school)	10%	12%	8%	11%	8%	9%	10%	8%
Grade 12 or GED (High school graduate)	26%	27%	25%	25%	27%	28%	26%	26%
College 1 year to 3 years (Some college, technical school, Associates)	32%	30%	35%	32%	35%	28%	34%	35%
College 4 years or more (College graduate)	19%	16%	22%	21%	18%	26%	15%	17%
Total (n)	1,014	604	410	385	378	199	426	374

Source: 2013 CARE Participant Telephone Survey.

Table 430: Education Level of Respondent (D9) by Home Type, Language, Rural and Urban For California LI Population

	Single-Family Own	Single-Family Rent	Multi-Family	Mobile	English Only	Primary Language Spanish	Primary Language Other	Urban	Rural
Never attended school or only attended kindergarten	2%	1%	0%	0%	0%	4%	0%	1%	4%
Grades 1 through 8 (Elementary)	8%	19%	11%	7%	2%	41%	1%	12%	0%
Grades 9 through 11 (Some high school)	8%	13%	10%	12%	6%	19%	11%	10%	6%
Grade 12 or GED (High school graduate)	24%	24%	30%	25%	27%	22%	15%	26%	19%
College 1 year to 3 years (Some college, technical school, Associates)	35%	28%	31%	39%	43%	7%	30%	31%	59%
College 4 years or more (College graduate)	23%	15%	18%	17%	22%	8%	42%	19%	12%
Total (n)	476	135	354	42	528	212	46	964	49

Source: 2013 CARE Participant Telephone Survey.

Table 431: Education Level of Respondent (D9) by Climate Zone For California LI Population

	Central Valley	Desert	Mountain	North Coast	South Coast	South Inland
Never attended school or only attended kindergarten	0%	0%	9%	1%	1%	2%
Grades 1 through 8 (Elementary)	13%	5%	0%	8%	12%	16%
Grades 9 through 11 (Some high school)	12%	6%	3%	9%	5%	14%
Grade 12 or GED (High school graduate)	26%	22%	10%	29%	32%	21%
College 1 year to 3 years (Some college, technical school, Associates)	31%	47%	67%	28%	29%	33%
College 4 years or more (College graduate)	18%	20%	11%	26%	20%	14%
Total (n)	250	57	24	155	268	260

Source: 2013 CARE Participant Telephone Survey.

Table 432: Employment of People in Home 18 Years or Older (D10) by ESA Participation and Utility For California LI Population

	Total	Participant	Non-Participant	PG&E	SCE	SDG&E	SoCalGas	SCE & SoCalGas
Working full-time	26%	31%	22%	24%	29%	23%	28%	29%
Working part-time	16%	17%	16%	13%	18%	17%	18%	18%
Not working and looking for work	18%	17%	20%	17%	19%	17%	19%	18%
Not working and not looking for work	39%	35%	43%	45%	34%	43%	35%	35%
Total (n)	2240	890	1350	748	925	443	1038	914

Source: 2013 CARE Participant Telephone Survey.
Note: The total (n) reflects the total number of adults over the age of 18 in 988 surveyed households. Data from 40 households was omitted due to missing information.

Table 433: Employment of People in Home 18 Years or Older (D10) by Home Type, Language, Rural and Urban For California LI Population

	Single-Family Own	Single-Family Rent	Multi-Family	Mobile	English Only	Primary Language Spanish	Primary Language Other	Urban	Rural
Working full-time	25%	32%	26%	27%	16%	20%	35%	21%	16%
Working part-time	14%	17%	19%	15%	4%	15%	19%	14%	14%
Not working and looking for work	15%	18%	21%	16%	28%	15%	18%	27%	13%
Not working and not looking for work	46%	33%	34%	41%	53%	50%	28%	38%	57%
Total (n)	1136	337	682	1482	76	968	579	144	97

Source: 2013 CARE Participant Telephone Survey.
Note: The total (n) reflects the total number of adults over the age of 18 in 988 surveyed households. Data from 40 households was omitted due to missing information.

Table 434: Employment of People in Home 18 Years or Older (D10) by Climate Zone For California LI Population

	Central Valley	Desert	Mountain	North Coast	South Coast	South Inland
Working full-time	23%	26%	20%	29%	26%	28%
Working part-time	13%	18%	11%	14%	17%	20%
Not working and looking for work	19%	10%	14%	16%	19%	20%
Not working and not looking for work	45%	47%	55%	41%	38%	32%
Total (n)	510	117	53	298	609	653

Source: 2013 CARE Participant Telephone Survey.
Note: The total (n) reflects the total number of adults over the age of 18 in 988 surveyed households. Data from 40 households was omitted due to missing information.

Table 435: Household Income Now, Compared to Three Years ago (D13) by ESA Participation and Utility For California LI Population

	Total	Participant	Non-Participant	PG&E	SCE	SDG&E	SoCalGas	SCE & SoCalGas
A lot more	3%	1%	5%	3%	3%	4%	3%	3%
Somewhat more	14%	14%	13%	16%	11%	13%	12%	11%
Somewhat less	17%	18%	15%	17%	18%	18%	17%	18%
A lot less	21%	20%	22%	18%	26%	21%	23%	26%
About the same / no change	46%	46%	45%	47%	42%	44%	45%	42%
Total (n)	989	591	398	375	370	193	417	366

Source: 2013 CARE Participant Telephone Survey.

Table 436: Household Income Now, Compared to Three Years ago (D13) by Home Type, Language, Rural and Urban For California LI Population

	Single-Family Own	Single-Family Rent	Multi-Family	Mobile	English Only	Primary Language Spanish	Primary Language Other	Urban	Rural
A lot more	3%	4%	3%	0%	2%	4%	5%	3%	1%
Somewhat more	12%	14%	15%	22%	12%	15%	9%	14%	12%
Somewhat less	20%	15%	15%	13%	15%	19%	23%	17%	18%
A lot less	20%	20%	23%	36%	25%	14%	16%	21%	25%
About the same / no change	46%	48%	44%	29%	44%	49%	47%	46%	44%
Total (n)	469	131	341	41	521	199	45	939	49

Source: 2013 CARE Participant Telephone Survey.

Table 437: Household Income Now, Compared to Three Years ago (D13) by Climate Zone For California LI Population

	Central Valley	Desert	Mountain	North Coast	South Coast	South Inland
A lot more	2%	3%	0%	3%	1%	5%
Somewhat more	16%	5%	16%	16%	12%	13%
Somewhat less	16%	26%	30%	17%	13%	18%
A lot less	19%	19%	22%	14%	25%	24%
About the same / no change	47%	46%	32%	50%	48%	40%
Total (n)	243	56	24	151	263	252

Source: 2013 CARE Participant Telephone Survey.

Table 438: What Caused Household Income to Change (D13a) by ESA Participation and Utility For California LI Population

	Total	Participant	Non-Participant	PG&E	SCE	SDG&E	SoCal Gas	SCE & SoCalGas
Moved out	3%	2%	3%	2%	3%	5%	2%	3%
Job change	9%	6%	12%	9%	9%	9%	9%	9%
Job loss/not working	23%	25%	21%	22%	26%	29%	23%	26%
Cut in hours	13%	13%	14%	9%	16%	12%	16%	15%
Increase in hours	2%	1%	4%	3%	3%	2%	2%	3%
Pay decrease	5%	5%	4%	3%	8%	5%	6%	8%
Pay raise/increase	9%	7%	10%	9%	7%	9%	8%	7%
Additional household members working	4%	4%	4%	5%	3%	3%	4%	3%
Assistance from other programs stopped	4%	5%	3%	5%	3%	2%	4%	3%
Something else	13%	16%	10%	16%	13%	14%	12%	13%
Retired	6%	6%	7%	4%	7%	5%	8%	7%
Death in the family	5%	5%	5%	4%	3%	5%	5%	3%
Increase in social security/welfare/unemployment/pension	7%	11%	3%	8%	7%	9%	6%	7%
Hurt/injured	2%	1%	2%	3%	0%	1%	0%	0%
Economy/inflation/cost of living/recession	6%	4%	8%	8%	3%	2%	6%	4%
Medical reasons/health/got sick/disabled	8%	6%	10%	7%	8%	8%	9%	8%
Rent/bills/expenses increased	3%	3%	3%	3%	3%	5%	3%	3%
Decrease in social security/welfare/unemployment/pension	4%	4%	3%	5%	3%	2%	3%	3%
Separated/divorced	2%	1%	2%	3%	1%	2%	1%	1%
Change in child support payments	1%	1%	0%	1%	0%	0%	0%	0%
Total (n)	542	321	221	203	208	109	227	205

Source: 2013 CARE Participant Telephone Survey.
Note: Multiple Mentions allowed.

Table 439: What Caused Household Income to Change (D13a) by Home Type, Language, Rural and Urban For California LI Population

	Single-Family Own	Single-Family Rent	Multi-Family	Mobile	English Only	Primary Language Spanish	Primary Language Other	Urban	Rural
Moved out	2%	5%	2%	6%	4%	1%	2%	3%	0%
Job change	8%	14%	8%	2%	6%	11%	9%	9%	3%
Job loss/not working	22%	28%	22%	25%	22%	21%	22%	23%	22%
Cut in hours	11%	15%	15%	4%	7%	25%	16%	14%	3%
Increase in hours	3%	2%	3%	3%	2%	3%	11%	2%	6%
Pay decrease	5%	4%	6%	0%	5%	3%	2%	5%	8%
Pay raise/increase	6%	10%	10%	5%	7%	11%	8%	9%	5%
Additional household members working	5%	8%	2%	0%	2%	9%	7%	4%	3%
Assistance from other programs stopped	1%	7%	3%	16%	6%	2%	7%	4%	16%
Something else	10%	17%	11%	25%	16%	7%	14%	13%	28%
Retired	9%	4%	5%	14%	8%	5%	3%	6%	0%
Death in the family	8%	5%	3%	6%	5%	3%	6%	5%	0%
Increase in social security/welfare/unemployment/pension	5%	3%	9%	14%	10%	2%	8%	7%	15%
Hurt/injured	2%	3%	1%	0%	2%	0%	0%	1%	10%
Economy/inflation/cost of living/recession	9%	5%	5%	3%	10%	1%	4%	5%	18%
Medical reasons/health/got sick/disabled	13%	7%	6%	0%	10%	6%	6%	8%	14%
Rent/bills/expenses increased	4%	1%	4%	0%	3%	5%	8%	3%	3%
Decrease in social security/welfare/unemployment/pension	3%	3%	4%	8%	4%	0%	4%	4%	0%
Separated/divorced	2%	5%	0%	0%	3%	0%	0%	2%	7%
Change in child support payments	0%	0%	1%	3%	0%	0%	0%	1%	0%
Total (n)	252	72	192	24	286	97	30	516	26

Source: 2013 CARE Participant Telephone Survey.
Note: Multiple Mentions allowed.

Table 440: What Caused Household Income to Change (D13a) by Climate Zone For California LI Population

	Central Valley	Desert	Mountain	North Coast	South Coast	South Inland
Moved out	1%	9%	0%	2%	3%	2%
Job change	8%	9%	6%	10%	8%	11%
Job loss/not working	24%	25%	14%	21%	26%	22%
Cut in hours	11%	8%	6%	5%	14%	20%
Increase in hours	3%	6%	0%	6%	0%	2%
Pay decrease	3%	10%	13%	4%	4%	5%
Pay raise/increase	5%	0%	0%	16%	10%	9%
Additional household members working	5%	1%	0%	5%	2%	5%
Assistance from other programs stopped	5%	0%	27%	2%	2%	5%
Something else	17%	16%	50%	7%	11%	12%
Retired	6%	9%	0%	3%	10%	6%
Death in the family	6%	2%	0%	3%	2%	8%
Increase in social security/welfare/unemployment/pension	11%	1%	21%	3%	6%	6%
Hurt/injured	4%	3%	0%	3%	0%	0%
Economy/inflation/cost of living/recession	10%	1%	13%	4%	7%	4%
Medical reasons/health/got sick/disabled	7%	19%	6%	7%	7%	9%
Rent/bills/expenses increased	4%	7%	3%	1%	3%	3%
Decrease in social security/welfare/unemployment/pension	4%	6%	0%	6%	2%	3%
Separated/divorced	6%	0%	0%	0%	0%	1%
Change in child support payments	0%	0%	0%	2%	0%	0%
Total (n)	130	29	15	80	139	149

Source: 2013 CARE Participant Telephone Survey.
Note: Multiple Mentions allowed.

Table 441: Adults in Household Unable to Work due to Physical, Mental, or Emotional Disability (D11) by ESA Participation and Utility For California LI Population

	Total	Participant	Non-Participant	PG&E	SCE	SDG&E	SoCalGas	SCE & SoCalGas
Yes	37%	40%	34%	38%	35%	38%	36%	36%
No	63%	60%	66%	62%	65%	62%	64%	64%
Total (n)	1,008	599	409	377	381	199	428	377

Source: 2013 CARE Participant Telephone Survey.

Table 442: Adults in Household Unable to Work due to Physical, Mental, or Emotional Disability (D11) by Home Type, Language, Rural and Urban For California LI Population

	Single-Family Own	Single-Family Rent	Multi-Family	Mobile	English Only	Primary Language Spanish	Primary Language Other	Urban	Rural
Yes	35%	33%	37%	62%	43%	28%	37%	36%	50%
No	65%	67%	63%	38%	57%	72%	63%	64%	50%
Total (n)	473	135	351	42	526	211	46	958	49

Source: 2013 CARE Participant Telephone Survey.

Table 443: Adults in Household Unable to Work due to Physical, Mental, or Emotional Disability (D11) by Climate Zone For California LI Population

	Central Valley	Desert	Mountain	North Coast	South Coast	South Inland
Yes	45%	33%	58%	29%	36%	35%
No	55%	67%	42%	71%	64%	65%
Total (n)	246	58	24	151	269	260

Source: 2013 CARE Participant Telephone Survey.

Table 444: Person in Household with a Hearing Impairment or Wearing a Hearing Aid (D15a) by ESA Participation and Utility For California LI Population

	Total	Participant	Non-Participant	PG&E	SCE	SDG&E	SoCalGas	SCE & SoCalGas
Yes	13%	14%	12%	14%	12%	19%	12%	12%
No	87%	86%	88%	86%	88%	81%	88%	88%
Total (n)	1,010	600	410	381	380	198	427	376

Source: 2013 CARE Participant Telephone Survey.

Table 445: Person in Household with a Hearing Impairment or Wearing a Hearing Aid (D15a) by Home Type, Language, Rural and Urban For California LI Population

	Single-Family Own	Single-Family Rent	Multi-Family	Mobile	English Only	Primary Language Spanish	Primary Language Other	Urban	Rural
Yes	16%	12%	9%	12%	15%	9%	24%	12%	27%
No	84%	88%	91%	88%	85%	91%	76%	88%	73%
Total (n)	475	134	352	42	529	210	47	960	49

Source: 2013 CARE Participant Telephone Survey.

Table 446: Person in Household with a Hearing Impairment or Wearing a Hearing Aid (D15a) by Climate Zone For California LI Population

	Central Valley	Desert	Mountain	North Coast	South Coast	South Inland
Yes	17%	6%	36%	9%	13%	11%
No	83%	94%	64%	91%	87%	89%
Total (n)	248	58	24	153	268	259

Source: 2013 CARE Participant Telephone Survey.

Table 447: Adults in Household with a Vision Impairment that Cannot be Corrected with Eyeglasses or Contact Lenses (D15b) by ESA Participation and Utility For California LI Population

	Total	Participant	Non-Participant	PG&E	SCE	SDG&E	SoCalGas	SCE & SoCalGas
Yes	12%	13%	10%	9%	11%	12%	13%	11%
No	88%	87%	90%	91%	89%	88%	87%	89%
Total (n)	1,004	598	406	377	378	198	425	374

Source: 2013 CARE Participant Telephone Survey.

Table 448: Adults in Household with a Vision Impairment that Cannot be Corrected with Eyeglasses or Contact Lenses (D15b) by Home Type, Language, Rural and Urban For California LI Population

	Single-Family Own	Single-Family Rent	Multi-Family	Mobile	English Only	Primary Language Spanish	Primary Language Other	Urban	Rural
Yes	9%	13%	11%	16%	13%	11%	14%	12%	12%
No	91%	87%	89%	84%	87%	89%	86%	88%	88%
Total (n)	471	135	349	42	523	210	47	956	47

Source: 2013 CARE Participant Telephone Survey.

Table 449: Adults in Household with a Vision Impairment that Cannot be Corrected with Eyeglasses or Contact Lenses (D15b) by Climate Zone For California LI Population

	Central Valley	Desert	Mountain	North Coast	South Coast	South Inland
Yes	10%	10%	10%	12%	16%	9%
No	90%	90%	90%	88%	84%	91%
Total (n)	245	56	24	152	268	259

Source: 2013 CARE Participant Telephone Survey.

Table 450: Person in Household requires the use of a Cane, Walker, Wheelchair, or other Assistance to move Around Safely (D15c) by ESA Participation and Utility For California LI Population

	Total	Participant	Non-Participant	PG&E	SCE	SDG&E	SoCalGas	SCE & SoCalGas
Yes	28%	33%	23%	31%	26%	32%	26%	27%
No	72%	67%	77%	69%	74%	68%	74%	73%
Total (n)	1,009	601	408	381	380	197	427	376

Source: 2013 CARE Participant Telephone Survey.

Table 451: Person in Household requires the use of a Cane, Walker, Wheelchair, or other Assistance to move Around Safely (D15c) by Home Type, Language, Rural and Urban For California LI Population

	Single-Family Own	Single-Family Rent	Multi-Family	Mobile	English Only	Primary Language Spanish	Primary Language Other	Urban	Rural
Yes	34%	18%	27%	53%	35%	17%	20%	28%	42%
No	66%	82%	73%	47%	65%	83%	80%	72%	58%
Total (n)	473	135	352	42	527	211	47	959	49

Source: 2013 CARE Participant Telephone Survey.

Table 452: Person in Household requires the use of a Cane, Walker, Wheelchair, or other Assistance to move Around Safely (D15c) by Climate Zone For California LI Population

	Central Valley	Desert	Mountain	North Coast	South Coast	South Inland
Yes	35%	21%	42%	24%	28%	26%
No	65%	79%	58%	76%	72%	74%
Total (n)	248	58	24	153	266	260

Source: 2013 CARE Participant Telephone Survey.

Table 453: Person in Household has Emotional, Nervous or Psychiatric Problems (D15d) by ESA Participation and Utility For California LI Population

	Total	Participant	Non-Participant	PG&E	SCE	SDG&E	SoCalGas	SCE & SoCalGas
Yes	17%	19%	14%	16%	18%	17%	18%	18%
No	83%	81%	86%	84%	82%	83%	82%	82%
Total (n)	997	593	404	373	377	197	423	373

Source: 2013 CARE Participant Telephone Survey.

Table 454: Person in Household has Emotional, Nervous or Psychiatric Problems (D15d) by Home Type, Language, Rural and Urban For California LI Population

	Single-Family Own	Single-Family Rent	Multi-Family	Mobile	English Only	Primary Language Spanish	Primary Language Other	Urban	Rural
Yes	13%	16%	20%	28%	21%	12%	5%	17%	12%
No	87%	84%	80%	72%	79%	88%	95%	83%	88%
Total (n)	468	133	347	42	523	208	46	949	47

Source: 2013 CARE Participant Telephone Survey.

Table 455: Person in Household has Emotional, Nervous or Psychiatric Problems (D15d) by Climate Zone For California LI Population

	Central Valley	Desert	Mountain	North Coast	South Coast	South Inland
Yes	21%	17%	15%	11%	17%	17%
No	79%	83%	85%	89%	83%	83%
Total (n)	244	58	24	149	265	257

Source: 2013 CARE Participant Telephone Survey.

Table 456: Person in Household has Other Chronic Medical Conditions (D15e) by ESA Participation and Utility For California LI Population

	Total	Participant	Non-Participant	PG&E	SCE	SDG&E	SoCalGas	SCE & SoCalGas
Yes	44%	49%	39%	47%	40%	55%	41%	41%
No	56%	51%	61%	53%	60%	45%	59%	59%
Total (n)	999	596	403	375	379	195	425	375

Source: 2013 CARE Participant Telephone Survey.

Table 457: Person in Household has Other Chronic Medical Conditions (D15e) by Home Type, Language, Rural and Urban For California LI Population

	Single-Family Own	Single-Family Rent	Multi-Family	Mobile	English Only	Primary Language Spanish	Primary Language Other	Urban	Rural
Yes	47%	40%	42%	65%	54%	26%	45%	44%	57%
No	53%	60%	58%	35%	46%	74%	55%	56%	43%
Total (n)	467	135	348	42	520	210	46	950	48

Source: 2013 CARE Participant Telephone Survey.

Table 458: Person in Household has Other Chronic Medical Conditions (D15e) by Climate Zone For California LI Population

	Central Valley	Desert	Mountain	North Coast	South Coast	South Inland
Yes	50%	48%	61%	41%	44%	39%
No	50%	52%	39%	59%	56%	61%
Total (n)	243	57	24	152	264	259

Source: 2013 CARE Participant Telephone Survey.

Table 459: Care for Illness or Condition Needs Medical Equipment on Ongoing or Daily Basis that Requires Use of Electricity (D17) by ESA Participation and Utility For California LI Population

	Total	Participant	Non-Participant	PG&E	SCE	SDG&E	SoCalGas	SCE & SoCalGas
Yes	36%	37%	35%	34%	38%	35%	39%	38%
No	64%	63%	65%	66%	62%	65%	61%	62%
Total (n)	542	341	201	218	177	121	203	177

Source: 2013 CARE Participant Telephone Survey.

Table 460: Care for Illness or Condition Needs Medical Equipment on Ongoing or Daily Basis that Requires Use of Electricity (D17) by Home Type, Language, Rural and Urban For California LI Population

	Single-Family Own	Single-Family Rent	Multi-Family	Mobile	English Only	Primary Language Spanish	Primary Language Other	Urban	Rural
Yes	31%	45%	35%	44%	36%	29%	44%	36%	37%
No	69%	55%	65%	56%	64%	71%	56%	64%	63%
Total (n)	262	60	187	28	330	74	19	510	32

Source: 2013 CARE Participant Telephone Survey.

Table 461: Care for Illness or Condition Needs Medical Equipment on Ongoing or Daily Basis that Requires Use of Electricity (D17) by Climate Zone For California LI Population

	Central Valley	Desert	Mountain	North Coast	South Coast	South Inland
Yes	38%	28%	30%	29%	42%	37%
No	62%	72%	70%	71%	58%	63%
Total (n)	140	30	17	80	142	133

Source: 2013 CARE Participant Telephone Survey.

Table 462: Ownership of Home (S5) by ESA Participation and Utility For California LI Population

	Total	Participant	Non-Participant	PG&E	SCE	SDG&E	SoCalGas	SCE & SoCalGas
Own	34%	34%	35%	35%	32%	38%	33%	33%
Rent	63%	62%	65%	61%	65%	62%	65%	65%
Other	0%	0%	1%	0%	1%	0%	1%	1%
Someone else owns/don't pay rent/live here for free	2%	4%	0%	4%	2%	0%	1%	2%
Total	1,028	610	418	389	384	203	432	380

Source: 2013 CARE Participant Telephone Survey.

Table 463: Ownership of Home (S5) by Home Type, Language, Rural and Urban For California LI Population

	Single-Family Own	Single-Family Rent	Multi-Family	Mobile	English Only	Primary Language Spanish	Primary Language Other	Urban	Rural
Own	100%	0%	4%	58%	37%	29%	32%	33%	61%
Rent	0%	100%	95%	42%	59%	70%	68%	64%	39%
Other	0%	0%	1%	0%	0%	2%	0%	1%	0%
Someone else owns/don't pay rent/live here for free	0%	0%	0%	0%	4%	0%	0%	2%	0%
Total	483	136	360	42	532	213	49	978	49

Source: 2013 CARE Participant Telephone Survey.

Table 464: Ownership of Home (S5) by Climate Zone For California LI Population

	Central Valley	Desert	Mountain	North Coast	South Coast	South Inland
Own	39%	34%	65%	25%	30%	36%
Rent	55%	65%	35%	71%	70%	61%
Other	0%	1%	0%	0%	0%	1%
Someone else owns/don't pay rent/live here for free	5%	0%	0%	4%	0%	1%
Total	253	59	24	156	273	263

Source: 2013 CARE Participant Telephone Survey.

Table 465: Home Type (S6) by ESA Participation and Utility For California LI Population

	Total	Participant	Non-Participant	PG&E	SCE	SDG&E	SoCalGas	SCE & SoCalGas
Single-Family	55%	56%	55%	58%	52%	52%	53%	53%
Multi-Family 2-4 Units	12%	13%	12%	11%	12%	10%	13%	12%
Multi-Family 5-10 Units	10%	9%	11%	9%	8%	9%	11%	8%
Multi-Family 11-20 Units	5%	4%	6%	3%	7%	6%	6%	7%
Multi-Family Over 20 Units	12%	11%	12%	10%	15%	16%	13%	15%
Multi-Family Unknown Units	3%	4%	3%	5%	3%	2%	2%	2%
Mobile Home	3%	4%	2%	4%	3%	5%	2%	3%
Total (n)	1,028	610	418	389	384	203	432	380

Source: 2013 CARE Participant Telephone Survey.

Table 466: Home Type (S6) by Home Type, Language, Rural and Urban For California LI Population

	Single-Family Own	Single-Family Rent	Multi-Family	Mobile	English Only	Primary Language Spanish	Primary Language Other	Urban	Rural
Single-Family	100%	100%	0%	0%	56%	52%	65%	54%	88%
Multi-Family 2-4 Units	0%	0%	30%	0%	11%	14%	17%	13%	0%
Multi-Family 5-10 Units	0%	0%	24%	0%	10%	12%	5%	10%	3%
Multi-Family 11-20 Units	0%	0%	11%	0%	4%	8%	1%	5%	0%
Multi-Family Over 20 Units	0%	0%	28%	0%	12%	11%	8%	12%	0%
Multi-Family Unknown Units	0%	0%	7%	0%	3%	2%	4%	3%	0%
Mobile Home	0%	0%	0%	100%	4%	0%	0%	3%	9%
Total (n)	483	136	360	42	532	213	49	978	49

Source: 2013 CARE Participant Telephone Survey.

Table 467: Home Type (S6) by Climate Zone For California LI Population

	Central Valley	Desert	Mountain	North Coast	South Coast	South Inland
Single-Family	67%	56%	75%	48%	43%	58%
Multi-Family 2-4 Units	8%	3%	0%	18%	22%	7%
Multi-Family 5-10 Units	7%	10%	0%	12%	13%	9%
Multi-Family 11-20 Units	1%	0%	0%	6%	6%	8%
Multi-Family Over 20 Units	10%	23%	0%	8%	14%	12%
Multi-Family Unknown Units	3%	2%	0%	7%	2%	3%
Mobile Home	5%	6%	25%	1%	0%	3%
Total (n)	253	59	24	156	273	263

Source: 2013 CARE Participant Telephone Survey.

9 Detailed Modeling Results

9.1 CARE Modeling

Table 468 contains the results of the CARE *Participation* model and Table 469 contains the results of the CARE *Penetration* model. Because we estimated the models based on a logit-transformation of the proportion of households enrolled in CARE, the coefficient estimates (column b) have little intuitive meaning. They represent our estimates of the (marginal) change in the log-odds that a household would be enrolled in CARE based on a one-unit increase in the value of the respective independent variable, while holding the value of all other independent variables constant. While there is little or no intuitive meaning to the coefficient estimates, the sign of the coefficient (positive or negative) indicate if a one-unit increase in the independent variable would lead to an increase or decrease in the proportion of households enrolled in CARE. The standard errors (column c) are a measure of the precision of the coefficient estimates—the smaller the standard error, the greater the precision of the estimated coefficient. The t-statistic (column d) is a statistical measure of whether the true parameter is different from zero and is computed by dividing the coefficient by the standard error.[13] The larger the absolute value of the t-statistic, the greater the statistical evidence that the true parameter differs from zero. The t-statistic for each coefficient is statistically significant at the 0.05 level or greater, indicating a strong relationship between the respective explanatory variable and the dependent variable.[14]

[13] The null hypothesis is that the true parameter is equal to zero (i.e., the independent variable does not affect the dependent variable) versus the alternative that the true parameter is different from zero (i.e., the independent variable has either a positive or negative effect on the dependent variable).

[14] In fact, most t-statistics are significant at the .001 level (or better), indicating a very strong relationship between the dependent and independent variable.

Table 468: CARE Participation Model Results

a	*b*	*c*	*d*	*e*	*f*
Variable	**Coefficient**	**Standard Error**	**t-Statistic***	**Change in Odds Ratio**	**Change in Proportion on CARE**
(Constant)	-2.822	0.022	-126.0		
% HH < 100% FPL	0.009	0.000	22.3	0.90%	0.75%
Average Number Persons Per HH	0.423	0.011	38.6	52.65%	0.73%
% HHs with Person >= 65	0.013	0.000	39.2	1.31%	0.84%
% Spanish Speaking HHs	0.009	0.000	32.5	0.90%	1.49%
% Home Ownership	-0.008	0.000	-29.0	-0.80%	-1.34%
% Non English/Spanish HHs	0.003	0.000	11.3	0.30%	0.27%
% Single Parent HHs	0.050	0.001	46.2	5.13%	1.91%
% HHs on Public Assistance	0.009	0.001	11.4	0.90%	0.25%
% HHs with Income > $200K	-0.046	0.000	-111.5	-4.50%	-2.53%
% African-American HHs	0.007	0.000	20.7	0.70%	0.20%

Model Summary Statistics: Adj. R2 = 0.83; n = 22,712; F-statistic = 9,991
* All coefficients statistically significant at 0.001 level.

Column *e* of Table 468 shows the marginal change in the odds ratio associated with a one-unit change in the respective independent variable. This is not the same as the marginal change in the proportion of households enrolled in CARE. Rather, it's the effect on the *odds* that a household will be on a CARE rate. Recall that the odds are calculated as the ratio of the proportion of households on CARE to the proportion not on CARE. The values in Column e are estimates of the percent change in this ratio due to a one-unit change in the independent variable. Positive values in column e indicate that the odds that a household will be on a CARE rate increase when the respective independent variable increases by one unit. For example, the coefficient on the independent variable "*% HH < 100% FPL*" in Table 468 indicates that the odds that a household will be on a CARE rate increases by 0.90 percent if the percent of households living below the federal poverty level in that Census block group increases by one percentage point.

Likewise, negative values indicate that the odds that a household will be on a CARE rate decreases when the respective independent variable increases by one unit. For example, the independent variable "*% Home Ownership*" in Table 468 indicates that the odds that a household will be on a CARE rate decreases by 0.70 percent if the home ownership rate in that Census block group increases by one percentage point.

Column f in Table 468 shows the estimated percent change in the proportion of households on CARE due to a one-unit change in the value of the independent variable.[15] Because the model was estimated based on the log-odds transformation of the proportion of households on CARE, developing estimates of the marginal change on the CARE proportion requires the following non-linear transformation:

$$\Delta CARE = \left(e^{\Delta_k \bar{x}} \Big/ 1 + e^{\Delta_k \bar{x}} \right) \Delta \left(e^{\Delta_k \bar{x}+1} \Big/ 1 + e^{\Delta_k \bar{x}+1} \right)$$

$$Where:$$

$$\Delta CARE = Marginal\ change\ in\ CARE\ rate$$

$$e^{\Delta_k \bar{x}} = Estimated\ odds\ evaluated\ at\ mean\ value\ of\ independent\ variable$$

$$e^{\Delta_k \bar{x}+1} = Estimated\ odds\ evaluated\ at\ mean\ value\ of\ independent\ variable\ plus\ one\ unit$$

The estimates of marginal change must be evaluated at a "point of approximation." The standard point of approximation and the one used for this analysis is the mean value of the independent variable. The point of approximation matters because, as the formula above shows, the transformation is non-linear and so the estimated marginal impacts will differ based on the point at which the function is evaluated. Table 469 provides an interpretation of the estimated marginal impact on the proportion of CARE households (in a block group) associated with each of independent variables in the model. We will discuss these estimates of marginal change in detail in the *Finding from the CARE Models* section below.

Columns e and f of Table 469 show the same information as the corresponding columns in Table 468, but with respect to the penetration for CARE eligible households to be on a CARE rate. We will discuss the estimates of marginal impacts shown in column *f* in detail in the *Finding from the CARE Models* section below.

[15] These values also represent estimates of the marginal change in the probability that a randomly drawn household will be on a CARE rate.
Note: the estimates of the marginal change in the proportion on CARE were calculated at the mean value of the respective independent variable.

Table 469: CARE Penetration Model Results

a	*b*	*c*	*d*	*e*	*f*
Variable	**Coefficient**	**Standard Error**	**t-Statistic***	**Change in Odds Ratio**	**Change in Proportion on CARE**
(Constant)	0.243	0.086	2.822**		
% HH < 100% FPL	-0.100	0.001	-75.24	-9.52%	-1.51%
Average Number Persons Per HH	0.843	0.036	23.179	132.33%	4.32%
% HHs with Person >= 65	0.013	0.001	11.935	1.31%	0.32%
% Spanish Speaking HHs	0.012	0.001	13.101	1.21%	0.29%
% Home Ownership	0.002	0.001	1.94***	0.20%	0.05%
% Non English/Spanish HHs	0.006	0.001	6.944	0.60%	0.15%
% Single Parent HHs	0.120	0.004	33.728	12.75%	2.08%
% HHs on Public Assistance	0.022	0.003	8.043	2.22%	0.55%
% HHs with Income > $200K	-0.040	0.001	-29.231	-3.92%	-0.98%
% African-American HHs	0.019	0.001	16.665	1.92%	0.47%
Avg Annual BTUs CARE HHs	-0.009	0.001	-12.53	-0.90%	-0.21%
Population Density	0.00001	0.000	3.561	0.00%	0.03%

Model Summary Statistics: Adj. R2 = 0.41; n = 22,715; F-statistic = 1,304
* Unless indicated, statistically significant at .001 level or better.
** Statistically significant at 0.01 level.
**Statistically significant at 0.05 level.

9.1.1 Other Variables Considered for the CARE Models

In addition to the variables shown in Table 468 and Table 469 that were included as explanatory variable in the final CARE Participation and Penetration models, we considered numerous other potential explanatory variables, but did not include them because of one or more of the following reasons:

1) The variable was not statistically significant based on the t-statistic.
2) The variable was highly collinear with one or more variables already in the model.
3) Inclusion of the variable reduced the overall significance of the model as measured by the F-statistic.

Variables considered, but ultimately not included in the model are shown in Table 470.

Table 470: Variables Considered, but not Included in the Participation or Penetration Models

Type	Variable	Description	Reason Not Included
Income	Median Income	Median household income for block group	Not statistically significant*
	Percent FPL	Proportion of households below some percent of FPL	Highly collinear with the variable "***% HH < 100% FPL***"
	Income Level	Percent of households below various income thresholds	Highly collinear with the variable "***% HH < 100% FPL***"
Demographic	Pacific Islander	Percent of households that are Pacific Island	Not statistically significant*
	Population density	Persons per square mile	Marginally statistically significant; Reduced F-statistic (*Participation* model only)
	Medicaid	Proportion of households on Medicaid	Collinear with "***% HH < 100% FPL***"
Geographic	Climate zone	Dummy variable indicator for each climate zone (1 if block group in climate zone; else 0)	Highly collinear with one or more other variables; no theoretical reason to believe climate zone should influence CARE participation or penetration
	IOU territory	Dummy variable indicator for each IOU territory (1 if block group in climate zone; else 0)	Highly collinear with one or more other variables; no theoretical reason to believe climate zone should influence CARE participation or penetration
	Housing units	Count of housing units in block group	Not statistically significant*
Utility	CARE kWh	Average annual kWh for households in CARE program	Converted to BTUs and added with average gas usage in BTUs
	CARE Therms	Average annual Therm for households in CARE program	Converted to BTUs and added with average kWh usage in BTUs

*These variables were not statistically significant in the context of the overall model. However, each of these variables may be statistically significantly related to the dependent variable, but that relationship is not incremental beyond those variables already in the model.

It is important to note that for many of the variables considered, but not included in either the Participation or Penetration model, their exclusion does not imply that the variables are not related to the dependent variable. Rather, many of the excluded variables contain high levels of the same information contained in the explanatory variables included in the regression model.

9.2 ESA Modeling

9.2.1.1 Model Results

In this section, we present detailed results of the Stage 1 and Stage 2 ESA models. Because the logistic regression model is non-linear, the coefficient values do *not* represent the marginal change in the dependent variable associated with a small change in the covariate (as they do in OLS regression), but rather the direction and relative magnitude of the contribution of that explanatory variable. Of greater use is information on how each explanatory variable affects the probability that a CARE enrollee will also participate in the ESA program. That is, a measure of the marginal impact that each explanatory variable has on the likelihood of ESA participation. To obtain estimates of the marginal impact for each explanatory variable, we used the same non-linear transformation we used for the CARE models (Equation 1).

Equation 1: Formula for Computing Marginal Impacts to Probability of Participating in ESA

$$\Delta Prob(ESA) = \left(e^{\beta_k \bar{x}} \Big/ 1 + e^{\beta_k \bar{x}} \right) \Delta \left(e^{\beta_k \bar{x}+1} \Big/ 1 + e^{\beta_k \bar{x}+1} \right)$$

$$Where:$$

$$\Delta Prob(ESA) = \text{Marginal change in probability of participating in ESA}$$

$$e^{\beta_k \bar{x}} = \text{Estimated odds evaluated at median value of explanatory variable}$$

$$e^{\beta_k \bar{x}+1} = \text{Estimated odds evaluated at 60th percentile value of explanatory variable}$$

For explanatory variables that are continuous, we computed the estimates of marginal impact based on a change from the median value the 60th percentile value.[16] For explanatory variables that are discrete and countable (e.g. number of failed payments to the utility), we used the median value and the median plus one unit. Finally, for binary explanatory variables (e.g. customer has medical equipment in home), we computed the marginal impact based on the difference between "yes" (1) and "no" (0).

The results of the ESA models are presented in the following five tables as follows:

- Table 471 contains the Stage 1 result for SCE

[16] Alternatively, we could have used the change in value between any two other "points of approximation," such as the mean and one standard deviation above the mean. Because percentiles are robust to extreme values (unlike parametric statistics such as the mean and standard deviation), we believe they provide a more realistic and reliable point of approximation for developing estimates of marginal change.

Note: The point of approximation does matter. As Equation 1 shows, the transformation is non-linear and so the estimated marginal impacts will differ (at least slightly) based on the point at which the function is evaluated.

- Table 472 contains the Stage 1 results for SoCalGas
- Table 473 contains the Stage 1 results for SDG&E
- Table 474 contains the Stage 1 results for PG&E
- Table 475 contains the Stage 2 results from the phone survey

The modeling results are segmented into three groups based on the type of explanatory variable: continuous, discrete and countable, and binary. The points of approximation for computing the odds ratios and marginal impacts differ for each of type of variable as explained above.

The coefficient estimates **(column b)** in each table have little intuitive meaning. They represent our estimates of the (marginal) change in the log-odds that a household would be enrolled in CARE based on a one-unit increase in the value of the respective independent variable, while holding the value of all other independent variables constant. The sign of each coefficient (positive or negative) indicate if an increase in the value of the independent variable would lead to an increase or decrease in the probability that a CARE enrollee lives in a home treated through the ESA program, either by choosing to participate in the program or by living in a home already treated. For independent variables that are binary, a positive coefficient indicates that the presence of that factor (e.g. "room AC eligible") has a positive impact on the probability of ESA participation.

The standard errors **(column c)** are a measure of the precision of the coefficient estimates—the smaller the standard error, relative to the coefficient, the greater the precision of the estimated coefficient.

The Wald-statistic **(column d)** is a statistical measure of whether the true parameter is different from zero and, therefore, has an impact on the probability that a CARE enrollee will participate in ESA. The Wald-statistic is computed as the ratio of the square of the coefficient to the square of the standard error.[17] The larger the absolute value of the Wald-statistic, the greater the statistical evidence that the true parameter differs from zero. Below each table is a note indicating the statistical significance of the respective coefficients. Most are significant at the 0.01 level or better.

Column e shows the marginal change in the odds ratio for each explanatory variable. This is not the same as the marginal change in the probability that a CARE enrollee will participate in ESA, rather, it's the effect on the *odds* that a CARE enrollee will participate in CARE (i.e. the ratio of the probability of ESA participation to the probability of not participating in ESA).

[17] The null hypothesis is that the true parameter is equal to zero (i.e., the explanatory variable does not affect the dependent variable) versus the alternative that the true parameter is different from zero (i.e., the explanatory variable has either a positive or negative effect on the dependent variable).

The values in **Column e** are estimates of the percent change in this ratio due to a one-unit change in the explanatory variable. Positive values in column e indicate that the odds that a CARE enrollee will participate in ESA increases when the respective explanatory variable increases. For example, the value in column e for the variable "*Household Size*" in Table 471 indicates that the odds that a CARE enrollee will participate in ESA is seven percent greater for households with one more than the median household size, while holding all else constant.

Likewise, negative values in column e indicate that the odds that a CARE enrollee will participate in ESA decreases when the respective independent variable increases. For example, the explanatory variable "*Coastal Location*" indicates that the odds that a enrollee will participate in ESA decreases by 20.1 percent for enrollees in a coastal location (i.e., "*Coastal Location*" = 1).

Column f shows the estimated percent change in the probability that a CARE enrollee will participate in ESA due to a change in the value of the explanatory variable from one point of approximation to another.[18]

[18] For continuous variables, the points of approximation are the median and the median plus one; for discrete and countable variables the points of approximation are the median and the median plus one; for binary variables the points of approximation are zero and one.

Note: the estimates of the marginal change in the proportion on CARE were calculated at the mean value of the respective independent variable.

Table 471: Stage 1 ESA Participation Model Results—SCE

a	*b*	*c*	*d*	*e*	*f*
Variable	**Coefficient**	**Standard Error**	**Wald-Statistic***	**Change in Odds Ratio**	**Change in Prob. of ESA Participation**
Constant	-3.549	0.137	673.95	NA	NA
Continuous Variables (Impacts evaluated at Median & 60th %tile)					
Account Age	0.037	0.002	546.96	-2.6%	2.3%
Median Income	-0.005	0.001	28.59	3.8%	-0.6%
Population Density	0.006	0.005	1.39	-0.5%	0.1%
Percent Spanish	1.754	0.090	382.85	0.6%	2.3%
Percent Non-English/Spanish	0.366	0.135	7.33	1.8%	0.3%
Percent 65 and Over	0.614	0.184	11.15	0.4%	0.3%
Months on CARE Rate	0.029	0.002	143.70	0.6%	0.5%
Average Home Age	0.003	0.001	4.42	2.9%	0.6%
Percent Black	1.12	0.128	76.41	0.3%	0.6%
Discrete and Countable Variables (Impacts evaluated at Median & Median + 1)					
Household Size	0.068	0.009	51.51	7.0%	1.7%
Failed Utility Payment Count	0.013	0.005	8.36	1.3%	0.3%
Overdue Utility Payment Count	0.022	0.005	17.58	2.2%	0.6%
Binary Variables (Impacts evaluated at 0 and 1)					
Categorically Qualified	0.154	0.033	21.89	16.6%	3.8%
Central & Room AC Eligible	0.656	0.071	84.99	92.7%	15.8%
Room AC Eligible	0.777	0.052	226.18	117.5%	18.5%
Medical Equipment in Home	0.560	0.099	32.27	75.1%	13.7%
Coastal Location	-0.225	0.044	26.07	-20.1%	-5.6%
Single-Family Home	0.784	0.035	497.00	119.0%	18.7%
CARE App Recertified	0.574	0.033	309.45	77.5%	14.0%

* All coefficients, except on Pop Density, are statistically significant at 0.05 level or better.

Table 472: Stage 1 ESA Participation Model Results—SoCalGas

a	*b*	*c*	*d*	*e*	*f*
Variable	**Coefficient**	**Standard Error**	**Wald-Statistic***	**Change in Odds Ratio**	**Change in Prob. of ESA Participation**
Constant	-2.785	0.127	480.296	NA	NA
Continuous Variables (Impacts evaluated at Median & 60th %tile)					
Median Income	-0.011	0.001	151.52	-1.1%	-1.39%
Avg. Daily Therms	-0.005	0.021	0.05	-0.5%	-0.02%
Account Age	0.007	0.001	32.49	0.7%	0.45%
Percent Spanish	0.986	0.091	118.69	1.0%	2.10%
Percent Non-English/Spanish	-1.307	0.116	127.42	-1.3%	-1.01%
Percent 65 and Over	0.782	0.182	18.53	0.8%	0.35%
Months on CARE Rate	0.050	0.004	152.29	5.1%	0.87%
Avg. Household Size	0.368	0.025	210.73	44.5%	1.49%
Percent Single Parent Families	0.459	0.365	1.58	0.5%	0.22%
Percent Black	1.533	0.112	187.37	1.5%	0.62%
Binary Variables (Impacts evaluated at 0 and 1)					
Medical Equipment in Home	0.736	0.115	40.982	108.8%	17.61%
Coastal	-0.590	0.031	361.213	-44.6%	-14.34%
Has IOU Electricity	0.346	0.032	118.736	41.3%	8.56%

* All coefficients, except on *Avg Daily Therms* and *Percent Single Parent Families*, are statistically significant at 0.05 level or better.

Table 473: Stage 1 ESA Participation Model Results—SDG&E

a	*b*	*c*	*d*	*e*	*f*
Variable	**Coefficient**	**Standard Error**	**Wald-Statistic***	**Change in Odds Ratio**	**Change in Prob. of ESA Participation**
Constant	-1.198	0.105	129.61	NA	NA
Continuous Variables (Impacts evaluated at Median & 60th %tile)					
Avg Daily kWh	-0.029	0.002	247.24	-2.86%	-1.32%
Service Account Age	-0.005	0.002	11.29	-0.50%	-0.21%
Median Income	-0.013	0.001	210.22	-1.29%	-2.01%
Population Density	0.018	0.003	30.21	1.82%	0.37%
Spanish Speaking	0.299	0.097	9.53	0.30%	0.42%
Non-English/Spanish Speaking	-1.351	0.118	130.67	-1.34%	-0.66%
Percent Over 65	0.305	0.160	3.66	0.31%	0.17%
Percent Single Parent Families	5.659	0.387	213.61	5.82%	2.70%
Average Building Age	0.011	0.002	43.95	1.11%	0.30%
Percent on Medicaid	3.478	0.209	275.78	3.54%	3.78%
Discrete and Countable Variables (Impacts evaluated at Median & Median + 1)					
Count of Calls to Customer	0.014	0.002	84.40	1.41%	0.35%
Count of Failed Payments	-0.075	0.030	6.23	-7.23%	-1.87%
Count of Utility Disconnects	-0.096	0.034	8.01	-9.15%	-2.40%
Count of Overdue Payments	0.003	0.002	3.76	0.30%	0.07%
Binary Variables (Impacts evaluated at 0 and 1)					
Coastal	-0.108	0.034	9.89	-10.24%	-2.70%

* All coefficients are statistically significant at 0.10 level or better.

Table 474: Stage 1 ESA Participation Model Results—PG&E

a	*b*	*c*	*d*	*e*	*f*
Variable	**Coefficient**	**Standard Error**	**Wald-Statistic***	**Change in Odds Ratio**	**Change in Prob of ESA Participation**
Constant	-2.715	0.107	640.025	NA	NA
Continuous Variables (Impacts evaluated at Median & 60th %tile)					
Average Daily kWh	-0.006	0.001	25.103	-0.6%	-0.5%
Service Account Age	0.013	0.001	109.389	1.3%	0.8%
Median Income	-0.003	0.001	13.522	-0.3%	-0.6%
Population Density	-0.015	0.005	7.821	-1.5%	-0.2%
Spanish Speaking	0.957	0.089	115.359	0.1%	1.5%
Non-English/Spanish Speaking	0.502	0.101	24.535	0.1%	0.6%
Percent 65 & Older	1.554	0.162	92.026	0.2%	0.8%
Percent Single-Parent Families	1.584	0.363	19.024	0.4%	0.6%
Average Building Age	0.007	0.001	66.193	0.7%	0.7%
Percent on Medicaid	2.041	0.172	141.115	0.2%	1.8%
Discrete and Countable Variables (Impacts evaluated at Median & Median + 1)					
Count of Utility Disconnects	-0.156	0.060	6.833	-14.4%	-3.9%
Number of Failed Payments	-0.114	0.054	4.432	-10.8%	-2.9%
Binary Variables (Impacts evaluated at 0 and 1)					
IOU Provides kWh & Gas	0.734	0.044	283.782	108.3%	17.6%
IOU Provides Only kWh	0.214	0.055	15.344	23.9%	5.3%
Medical Equipment in Home	0.246	0.057	18.462	27.9%	6.1%

* All coefficients are statistically significant at 0.05 level or better.

Table 475: Stage 2 ESA Participation Model Results—Phone Survey

a	*b*	*c*	*d*	*e*	*f*
Variable	**Coefficient**	**Standard Error**	**Wald-Statistic***	**Change in Odds Ratio**	**Change in Prob of ESA Participation**
Constant	-2.715	0.107	640.025	NA	NA
Continuous Variables (Impacts evaluated at Median & 60th %tile)					
Avg. Daily kWh	-0.026	0.015	3.085	-2.6%	-3.8%
Population Density	-0.028	0.019	2.070	-2.8%	-3.1%
Home Tenure	0.044	0.006	52.431	4.5%	12.0%
Household Income	-0.014	0.005	7.274	-1.4%	-5.6%
Discrete and Countable Variables (Impacts evaluated at Median & Median + 1)					
Household Size	0.160	0.046	11.948	17.4%	3.7%
Binary Variables (Impacts evaluated at 0 and 1)					
Male	-0.329	0.156	4.482	-28.0%	-8.2%
Married	-0.481	0.171	7.864	-38.2%	-11.8%
English Proficient	-0.377	0.191	3.885	-31.4%	-9.3%
Home Built 1970-1989	0.339	0.164	4.308	40.4%	8.4%
Other Race**	0.406	0.215	3.579	50.1%	10.0%
Primary Lang not English/Spanish	-0.635	0.378	2.825	-47.0%	-15.4%
Chronic Medical Condition	0.333	0.149	4.979	39.5%	8.3%
Aware of CARE Rate	-0.305	0.175	3.043	-26.3%	-7.6%
Forego Heating/Cooling***	0.522	0.158	10.895	68.5%	12.8%
ESA Offered Something Needed	0.414	0.153	7.293	51.3%	10.2%
Not a Barrier: Landlord	0.463	0.158	8.552	58.9%	11.4%
Not a Barrier: Being Home	0.455	0.160	8.075	57.6%	11.2%
Not a Barrier: Documentation	-0.273	0.169	2.607	-23.9%	-6.8%
Not a Barrier: Contractor	0.614	0.152	16.259	84.8%	14.9%

* All coefficients are statistically significant at 0.05 level or better.

9.2.1.2 Other Variables Considered for the ESA Models

In addition to the variables shown in the tables above, Table 476 describes the types of variables we considered as explanatory variables in the ESA participation models. The explanatory variables included in the regression models are a subset of these variables and were included in the models based on their ability to predict the dependent variable (i.e., that a residential premise was treated through the ESA program).

Table 476: Potential Explanatory Variables for Stage 1 ESA Participation Models

Variable	Source	Level	Description
Location and climate	Census/Athens	Census Block Group	Population per square mile; rural/urban distinctions and climate zone
Household demographic & income, Workforce	Census/Athens	Census Block Group	Such as persons per home, race/ethnicity, seniors, children and disabled member information, primary languages; median household income; employment statistics
Participation in non-energy LI assistance programs	Athens, Census	Census Block Group	Public assistance income, SSI income, food stamp recipients, etc.
Housing stock and related economic data	CIS, Census, Athens, housing authority	Customer and Census Block Group	Distributions of home type, home size, home vintage, own versus rent,
Energy Usage and IOU territory	CIS/billing	Customer	Monthly kWh and therm consumption, Serviced by kWh/Gas IOU
IOU tariff/rate and payment information	CIS/billing	Customer	FERA, Medical Baseline. Arrearages and service interruptions
ESA Participation	ESA data	Customer	If and when home was retrofit through ESA
CARE enrollment characteristics	CARE data	Customer	Household is currently enrolled in CARE; timing of current enrollment; enrollment type (categorical versus income)

Many pairs of variables within the data set are highly correlated—i.e., have a strong positive or negative linear relationship. Because of this, they have the same or very similar relationship with the dependent variable, which can lead to problems in the estimation of the econometric model.[19] Including two (or more) highly correlated explanatory variables in the regression model would not only be unnecessary, but would likely result in large variances on the coefficient estimates of the collinear variables because the variables provide essentially the same information for predicting the dependent variable (likelihood that a residence participated in the ESA program). It is, therefore, important to note that for many of the variables considered, but not included in the ESA models, their exclusion does not imply that the variables are not related to the dependent variable. Rather, many of the excluded variables contain high levels of the same information contained in the explanatory variables included in the regression model.

[19] The estimation problem, multicollinearity (or simply collinearity), is a condition occurring when two or more independent variables in the same regression model contain high levels of the same information and, consequently, are strongly correlated with one another. When significant collinearity is present, the coefficients of the independent variables in the regression model can be unstable, and even the signs of these coefficients may change when different variables are included, making it difficult to interpret the regression coefficients. In addition, standard errors may be inflated, resulting in insignificant t-statistics and incorrect conclusions regarding the statistical significance of the coefficients.

9.3 Conjoint Analysis

Table 477 below shows the results for ESA program Option 1 participation model. In this model, the coefficients should be interpreted as contributing to the overall probability of the customer participating in the ESA program. As with the previous model, the sign and magnitude of the coefficient estimates on all variables are as expected. The coefficient on Income Verification is not statistically significant—meaning it is not statistically different from zero—so no inference about this variables effect on the likelihood on participation can be made from this model.

Table 477: Conjoint Results – ESA Program Option 1 – Participation Model

Attribute	Estimate	Standard Error	Significance
Monthly Energy Savings	0.03494997	0.00522182	< 1%
Number of Home Visits	-0.28122272	0.08454755	< 1%
Income Verification	-0.32067475	0.21471195	14%
Comfort	0.97350353	0.20730736	< 1%
Total Time in Home	-0.24797019	0.06503928	< 1%

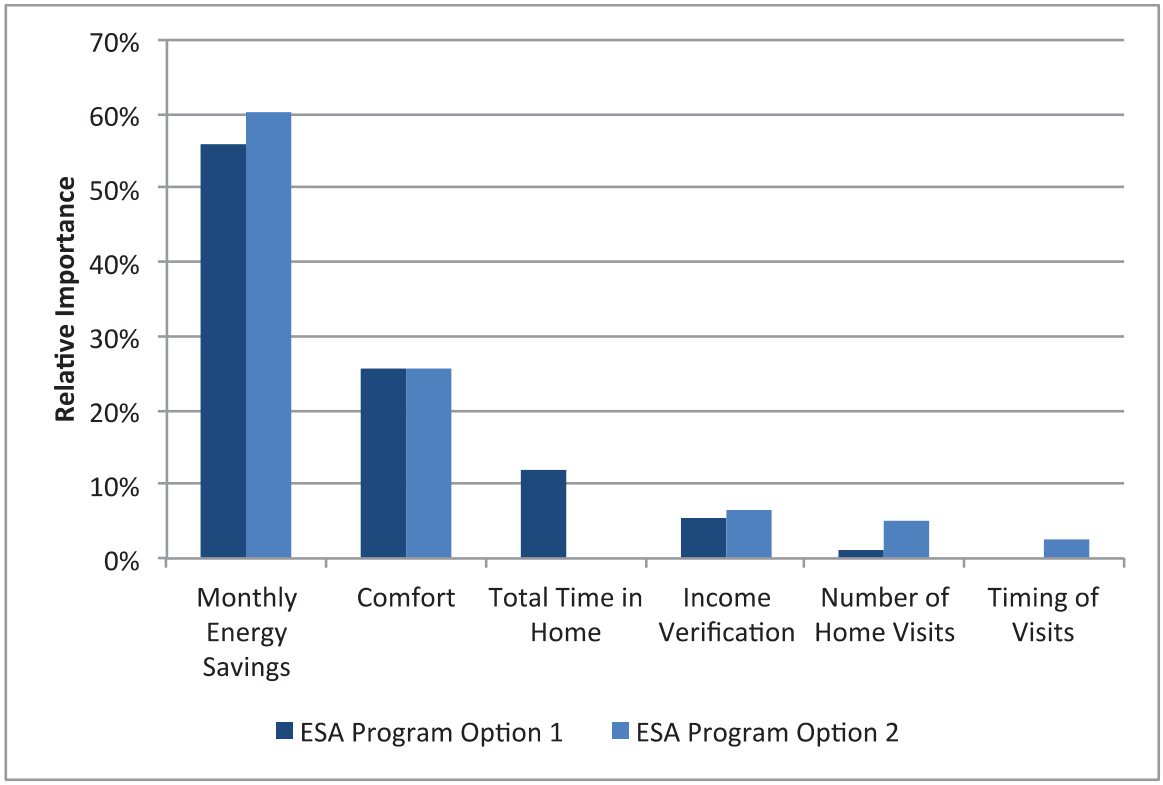
Table 478 below shows the results for the ESA program Option 2 participation model. In this model, the coefficients should be interpreted as contributing to the overall probability of the customer participating in the ESA program. More so than the rank model, the sign and magnitude of the coefficient estimates on all variables are as expected. The coefficient on Income Verification and Timing of Home Visits are not statistically significant—meaning they are not statistically different from zero—so no inference about these variables effect on the likelihood on participation can be made from this model.

Table 478: Conjoint Results – ESA Program Option 2 – Participation Model

Attribute	Estimate	Standard Error	Significance
Monthly Energy Savings	0.02984359	0.00509824	< 1%
Number of Home Visits	-0.47088404	0.08558553	< 1%
Income Verification	-0.11586613	0.2054695	57%
Comfort	0.82316006	0.20553007	< 1%
Timing of Home Visits	-0.27037356	0.21180599	20%

Figure 1 below shows a chart of the relative importance statistics that were reported above. It is apparent that monthly energy savings and comfort are the most important factor to customers.

Figure 1: Relative Importance of Attributes



9.3.1 ESA Program Option Participation Probabilities

Once the above models for ESA Program Option 1 and Option 2 participation decisions were estimated, the probability of participation was calculated by combining the coefficient estimates with attribute levels for different scenarios. These probabilities were calculated such that participation was minimized and maximized representing an ESA program that is least and most likely to evoke participation. Additionally, the analysis included a scenario that matched the current ESA program features as closely as possible. The three scenarios had the following characteristics for ESA Program Option 1:

- "Worst" Participation Scenario
  - Monthly Energy Savings: $0
  - Number of Home Visits: 3
  - Income Verification: Documentation Required
  - Comfort: No Change
  - Total Time in Home: 4 hours

- "Best" Participation Scenario
    - Monthly Energy Savings: $50
    - Number of Home Visits: 1
    - Income Verification: None
    - Comfort: Improvement
    - Total Time in Home: 1 hour
- Current Program Design Participation Scenario
    - Monthly Energy Savings: $10
    - Number of Home Visits: 1
    - Income Verification: Documentation Required
    - Comfort: Improvement
    - Total Time in Home: 1 hour

Likewise for ESA Program Option 2:

- "Worst" Participation Scenario
    - Monthly Energy Savings: $0
    - Number of Home Visits: 3
    - Income Verification: Documentation Required
    - Comfort: No Change
    - Timing of Home Visits: Evenings/Weekends Only
- "Best" Participation Scenario
    - Monthly Energy Savings: $50
    - Number of Home Visits: 1
    - Income Verification: None
    - Comfort: Improvement
    - Timing of Home Visits: Days Only
- Current Program Design Participation Scenario
    - Monthly Energy Savings: $10
    - Number of Home Visits: 1
    - Income Verification: Documentation Required
    - Comfort: Improvement
    - Total Time in Home: 1 hour

Table 479 below shows the participation scenarios for ESA Program Option 1 and the participation probability for each scenario. The first row reflects that the likelihood of participation is approximately 10 percent, meaning that 10 percent of those surveyed would be willing to participate in a program with attributes corresponding to those included in the same row. The purchase probability for the "best" participation scenario is 90 percent, and the purchase probability for the reasonable program design is 62 percent.

Table 479: ESA Program Option 1 Participation Probabilities

Participation Scenario	Attribute Values	Purchase Probability
"Worst"	Energy Savings: $0 Number of Visits: 3 Verification: Documentation Req. Comfort: No Change Time in Home: 4 hours	0.104
"Best"	Energy Savings: $50 Number of Visits: 1 Verification: None Comfort: Improvement Time in Home: 1 hour	0.900
Current Program Design	Energy Savings: $10 Number of Visits: 1 Verification: Documentation Req. Comfort: Improvement Time in Home: 1 hour	0.616

Using the probabilities above for the three program scenarios and assuming a linear trend, we were able to calculate the monthly bill savings amount that is equivalent to:

1) Increasing the number of home visits by one.
2) Requiring income verification documentation.
3) Participants experiencing no change in comfort versus a significant change in comfort.
4) Increasing the duration of home visits by one hour.

As exhibited in Figure 2, participants must realize an additional $8 in monthly bill savings if the program requires one additional home visit and the same level of program participation is to be maintained. Similarly, a program with no change in comfort versus one in which a significant improvement in comfort is experienced is equivalent to an additional $28 in monthly bill savings. In other words, if there were no improvement in comfort, customers would need an additional $28 a month in bill savings in order to maintain the same levels of participation. Given the higher amount in bill savings equivalence, it is apparent that improvements in comfort are more important to customers than other factors (except savings) when determining program participation.

Figure 2: Equivalent Monthly Bill Savings Amounts – ESA Program Option 1

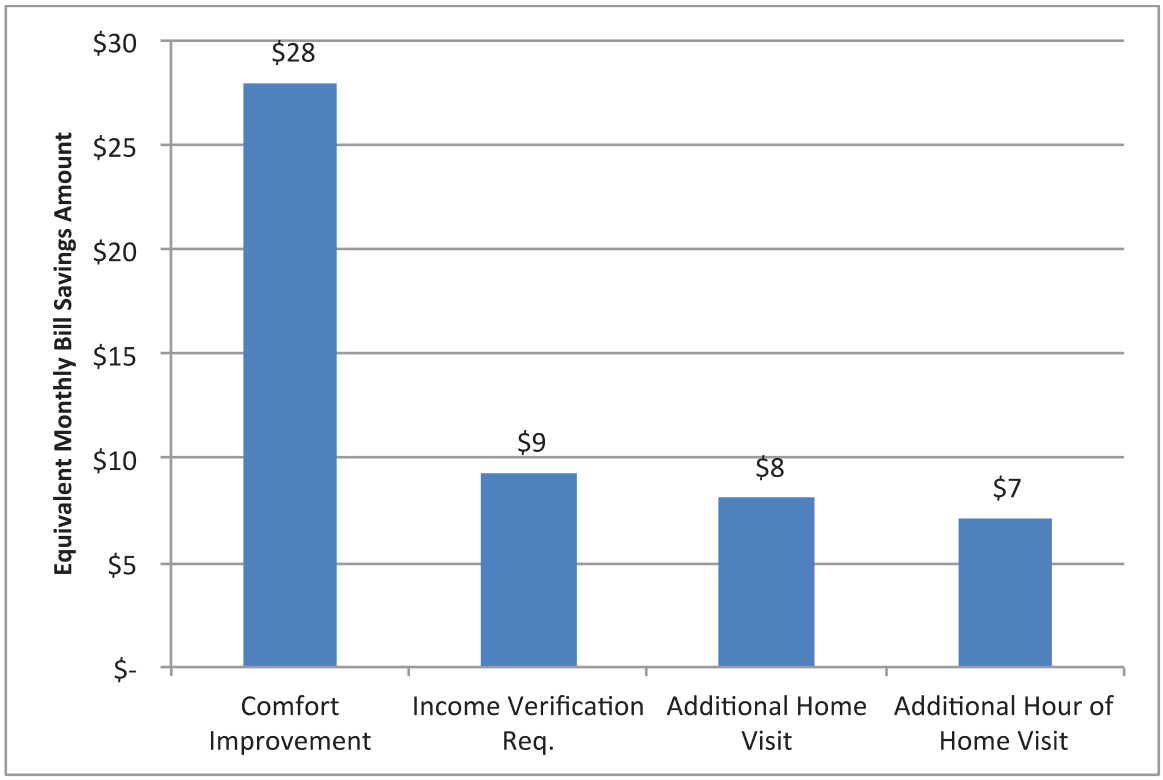


Table 480 below shows the participation scenarios for ESA Program Option 2 and the participation probability for each scenario. The first row reflects that the likelihood of participation is approximately 14 percent, meaning that 14 percent of those surveyed would be willing to participate in a program with attributes corresponding to those included in the same row. The purchase probability for the "best" participation scenario is 86 percent, and the purchase probability for the current program design is 63 percent. It is important to note that the probability values themselves are only hypothetical, because they are based on hypothetical program scenarios, but the relative magnitude of probabilities between different scenarios do reflect real customer preferences.

Table 480: ESA Program Option 2 Participation Probabilities

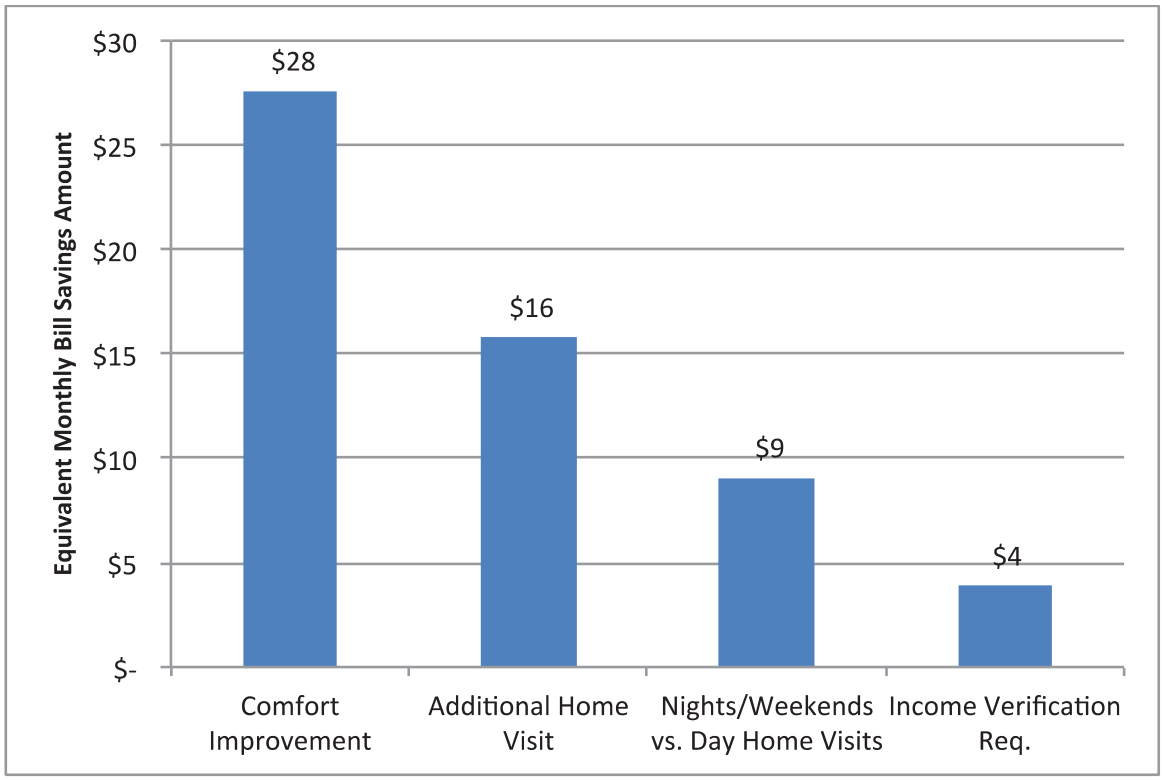
Participation Scenario	Attribute Values	Purchase Probability
"Worst"	Energy Savings: $0 Number of Visits: 3 Verification: Documentation Req. Comfort: No Change Timing: Nights/Weekends Only	0.142
"Best"	Energy Savings: $50 Number of Visits: 1 Verification: None Comfort: Improvement Timing: Days Only	0.863
Current Program Design	Energy Savings: $10 Number of Visits: 1 Verification: Documentation Req. Comfort: Improvement Timing: Days Only	0.631

As above, we were able to calculate the monthly bill savings amount that is equivalent to:

1) Increasing the number of home visits by one.
2) Requiring income verification documentation.
3) Participants experiencing no change in comfort versus a significant change in comfort.
4) Having home visits on nights/weekends versus days only.

As shown in Figure 3, participants must realize an additional $32 in monthly bill savings (or $16 per visit) if the program requires three home visits instead of one and the same level of program participation is to be maintained. Moreover, a program with no change in comfort versus one in which a significant improvement in comfort is experienced is equivalent to $28 in monthly bill savings. As in the ESA Program Option 1 scenarios, changes in comfort are much more valuable to customers than any other factor when determining program participation.

Figure 3: Equivalent Monthly Bill Savings Amounts – ESA Program Option 1



10 In-Home Interview Detail

While our aim in conducting in-home visits was to provide actionable insights about households that are eligible for ESA but not currently participating, we would be remiss if we didn't first paint a picture of the range of households we visited and the diversity of situations in which they find themselves. We do not seek to replicate past characterization studies that cover this topic more fully, but are simply striving to provide context for the reader that we think is helpful in thinking about how the program interacts with its target population.

Perhaps one of the most important items to consider when thinking about eligible non-participants is that this population is not *one* group that ESA will seek to reach in upcoming years, but a collection of a great variety of individuals, households, housing situations, needs, circumstances, and approaches to dealing with life. The households we visited all have their own individual stories that defy stereotypes and simple classification. Before discussing the more applied aspects of our in-home research, we seek to describe this diversity by briefly presenting their characteristics and describing the stories of a few of them in more detail for illustrative purposes.

10.1.1 Household Types

We encountered a variety of household types comprising combinations of adults and children. Table 481 summarizes these household types.

Table 481: Types of Households

Household Type	Number
Adults with child(ren)	30
Single parent with child(ren)	8
Senior(s)-only	15
Adult(s) without children	16
Multiple generations –adults only	11
Multiple adult generations—with child(ren)	8

The ages of our primary interviewees ranged from about 25 to 90. Young adults, middle-aged adults, and seniors were all well-represented among eligible non-participants, as shown in Table 482.

Table 482: Age of Primary Interviewee

Age Category	Number
Young adult (<40)	17
Middle-aged adult (40-64)	45
Senior (65+)	26

10.1.2 Major Energy-Using Equipment

As part of our visit, we conducted a walk-through to assess energy-using equipment and identify the degree to which measure opportunities appear to exist among eligible non-participants. These data allow us to characterize the major energy-using systems in the home.

As shown in Table 483, the large majority of homes are heated with natural gas, either a stand-alone, central forced-air furnace (57%) and wall furnace (17%) or a package unit that combines a gas, forced air furnace and a central AC unit (11%). We encountered only three high-efficiency, condensing furnaces among the sampled homes. Nearly a third of the households reported using some form of supplementary heating, mostly electric space heaters and fireplaces.

Half of the interview sample has central air conditioning, and about a quarter has one or more room or sleeve AC units. Evaporative coolers were uncommon in the study sample. About a quarter of the sample had no air conditioning or evaporative coolers: these were nearly all in coastal areas (Climate Zones, 3, 6, 7 and 8) where a mix of homes with and without air conditioning equipment was encountered.

The large majority of homes in the sample have a conventional, gas-fired water heater. These are fairly evenly divided among units located inside, outside and in garages.

Delivered hot-water temperature at the kitchen sink ranged from 107F to 156F, with an average of 127F. About one in five homes (21%) had a measured hot-water temperature that exceeded 135F (Figure 4). The Department of Energy recommends temperature settings of 120F to save on heating energy.

Measured flow for the primary showerhead in the home ranged from less than 1 gpm to more than 5 gpm, with an average of 1.98 gpm. About one in ten homes (12%) had a showerhead with a flow rate that exceeded 2.5 gpm, which is the current federal standard for new showerheads (Figure 5).

Most of the homes in the sample had a primary refrigerator that was manufactured after 2000 (Figure 6). Only about 6 percent of homes had a refrigerator that dated to earlier than 1992.

Table 483: Selected Heating, Cooling and Water Heating Characteristics (based on 88 in-home visits)

Primary heating system	*Type*	Forced-air furnace	57%
		Wall furnace	17%
		Package furnace/AC unit	11%
		Electric	8%
		Fireplace/Stove	3%
		Multifamily central heat	1%
		Unable to determine	2%
	Fuel	Natural gas	83%
		Electricity	8%
		Propane	3%
		Wood	2%
		Unable to determine	3%
	High efficiency? (for furnaces, wall furnaces and package units)	Yes	4%
		No	82%
		Unable to determine	14%
	Functional?	Yes	90%
		No	7%
		Unable to determine	3%
Supplemental heat	*Used?*	Yes	30%
		No	69%
		Unable to determine	1%
	Type (if used) (multiple sources may be present)	Electric space heater(s)	65%
		Fireplace	46%
		Oven/range	12%
Cooling system	*Type* (multiple types may be present)	Central AC	49%
		Room/sleeve AC	23%
		Central evaporative cooler	3%
		Room evaporative cooler	3%
		None	25%
		Unable to determine	1%
Water heater	*Type*	Tank	83%
		Tankless	3%
		Multifamily central	9%
		Unable to determine	5%
	Fuel (for non-central systems)	Natural Gas	85%
		Electricity	5%
		Propane	6%
		Unable to determine	4%
	Location (for non-central systems)	Indoors	35%
		Outdoors (or in exterior closet)	34%
		Garage	28%
		Unable to determine	4%

Figure 4: Measured Hot Water Temperature at Kitchen Sink

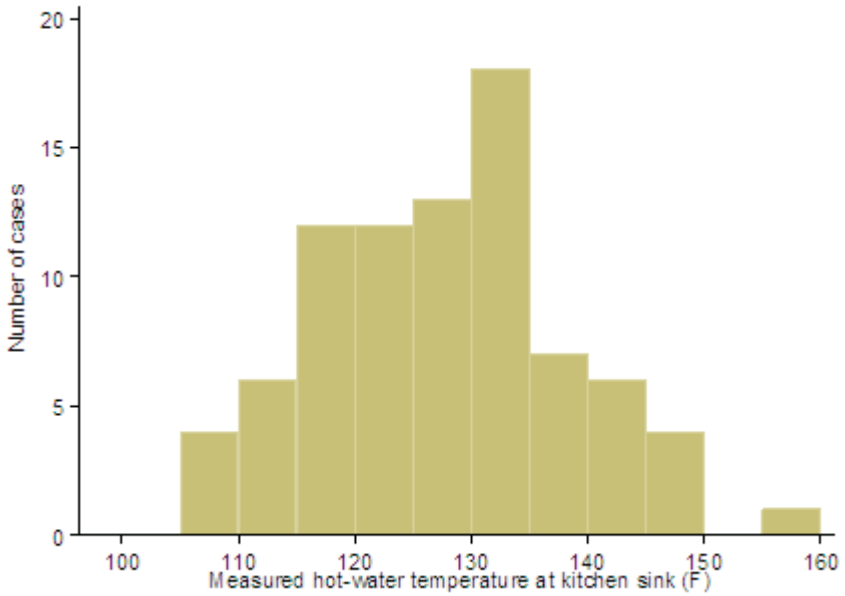


Figure 5: Measured Showerhead Flow

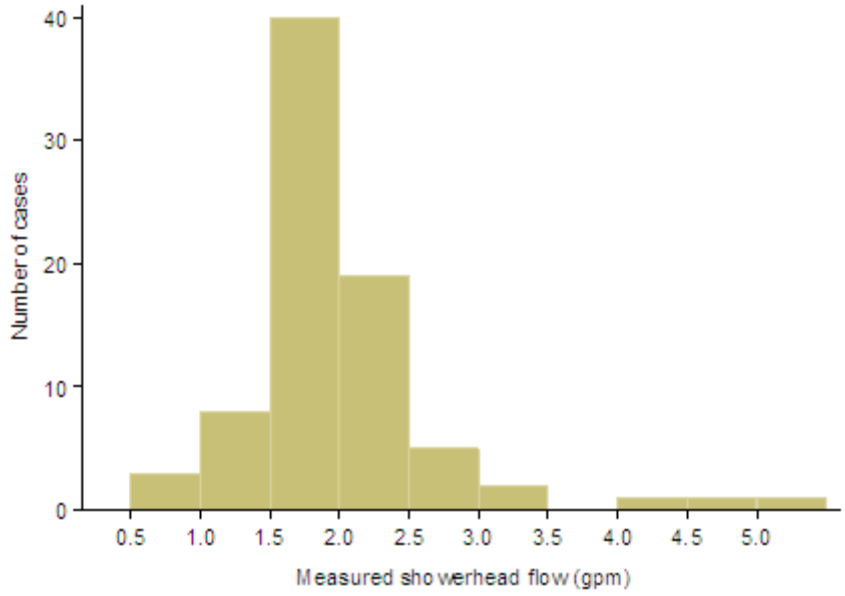
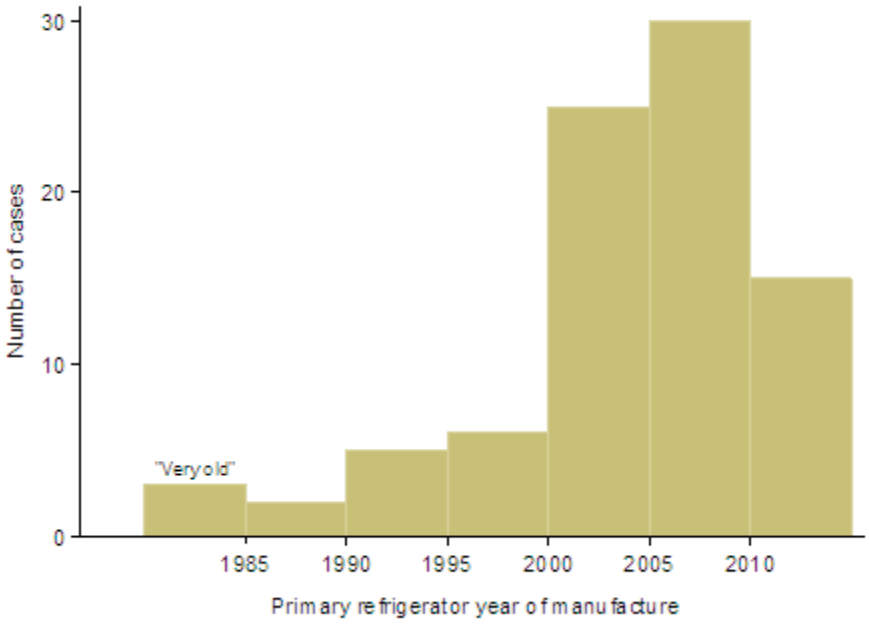


Figure 6: Primary Refrigerator Age



10.1.3 Selected Illustrative Profiles

We have included below the stories we heard from a few of the households we visited. These profiles are qualitative descriptions of the range of circumstances we encountered. We have changed people's names and described their locations only very generally to protect the privacy of the households we are describing.

Illustrative Example: "Janet" – a frugal energy miser
Janet is an 80-year-old retired widow who lives in an apartment in a coastal (temperate) climate zone. She lives on a fixed income that qualifies her for CARE and ESA, but seems to be getting by just fine. She declined the $100 Visa gift card we were offering for the in-home visits because she does not use credit cards and did not think she needed the funds. She is a low energy user, choosing to spend her time reading and engaging in social activities at her church. She has very few energy-using devices. Her average monthly energy bills are about $30 for electricity and natural gas combined. While there are technical opportunities in her home—replacing incandescent light bulbs and repairing a window that does not close tightly—the savings would probably be minimal. She would decline participation because she knows her usage is low and doesn't think she needs the help.

Illustrative Example: "Jim" – a self-sufficiency-minded high user
Jim and his wife are raising four minor children in a large home they had built in the foothills of the Sierra Nevada before Jim suffered a neck injury. He believes in living a self-sufficient lifestyle and in neighbors helping neighbors and has mixed feelings about social programs. He is on the CARE rate, but only because his IOU contacted him to offer it. He would generally not seek out assistance on his own. The home is highly efficient in most respects, and Jim is very well-informed about energy efficiency, having done much to make his home efficient. He has converted to LED lights, verified wall insulation with an infrared camera, and ensured that doors and windows were tight-fitting. The only remaining efficiency needs according to Jim are completing a switch to double-paned windows, which he can't afford, and fixing insulation underneath the house that he says is falling apart. Nevertheless, Jim is a high energy user whose electric bills average around $200 per month, at least in part due to a well pump that he operates to irrigate food he grows and hydrate vegetation on his sizable property to mitigate against perennial fire danger. Comfort is a substantial issue at times. Jim heats with wood that he manages to collect and buy. A few years ago, he was only able to acquire half the wood he would have needed and said the house dropped to freezing temperatures on occasions. Conversely, during the summer, the evaporative coolers stop cooling effectively once the temperature surpasses 100 degrees Fahrenheit. He says the family leaves the house at those times and spends time at the local creek or in air-conditioned spaces.

Illustrative Example: "Fred" – grateful participant who can't use all the measures
Fred and his wife have lived in the same 800 square foot house in a pleasant and very temperate ocean-side neighborhood for multiple decades. They are around retirement age, and Fred has stopped working after suffering an accident that left him with a disability. They have custody of three grandchildren, and an adult son lives with them too while he is finishing his education. The large family size makes them a moderate energy user with combined monthly bills of around $80, and the large number of dependents qualifies them for LI programs. They appear to have participated in ESA recently after their IOU called them to offer the CARE rate and efficiency improvements. They are grateful for the measures they received, but are benefitting from only some of them. They received a new showerhead and refrigerator, which they are using although its size is a bit small for a household of six people. They also received a new "more efficient" microwave to supplement the one they still have, making their kitchen space tighter. And they

received two standing lamps with CFLs, but they have only been able to find room for one in their tight quarters. They do still have one leaky door that leaves them with drafts in the "cold season," but they are careful not to complain since they think they live in "paradise" and don't really experience any comfort issues.

Illustrative Example: "Sharon" – highly stressed "shut-in"

Sharon is a 70-year-old widow who moved to a small in-land town after her husband died to be closer to her daughter, but was surprised to find herself having very little contact with her daughter. She lives in a rented unit in a triplex and has modest energy bills that she struggles to pay on her fixed income. Other than her television set, which she runs for companionship, she tries to use energy very sparingly to save money, compromising on comfort.

Energy is only part of her struggles, however. We observed that her refrigerator was nearly completely empty, for example, probably as a result of lack of funds and lack of mobility. (She does not drive and has some medical issues that make it difficult to board the bus or walk to the grocery store.)

Even small levels of assistance would go a long way toward improving Sharon's quality of life. A IOU contractor had already visited her about ESA three months before our in-home visit, and she was waiting for the contractor to return to install measures. Obvious opportunities included a substantial gap around one exterior door, an old refrigerator, and CFLs. (It should be noted, however, that Sharon does not think she can afford CFLs on her own, so she would be likely to return to incandescent light bulbs once CFLs burn out.)

Illustrative Example: "Ed" – immigrant family

Ed is an employed man in his mid-twenties who lives with his wife, two other unrelated adults and three young children (two of which are his children) in a small two bedroom rented apartment that is in a state of disrepair. They have two small room A/C units and a wall heater that they do not use because it's old and they don't trust it. They described comfort issues in the winter during the coldest times of year. The building management does not respond well to request for updates and upkeep of the apartment.

While there are three working adults in the household, money is continually tight. A few times throughout the year they have to defer payment on their energy bills, although they have never had their energy cut off. They do not know of ways to reduce their energy usage but would be open to anything that could help them save

money and improve their comfort in their home, including participating in ESA as long as they can schedule a time for a program visit when someone can be home. They have a secondary refrigerator, but it is full and does not seem to be needlessly running. There are many air sealing opportunities, including broken windows and door gaps large enough to allow a lizard in the house.

11 LI Program Review Detail

11.1 Results Table

Name	Relationship to federal WAP	Statewide ratepayer-funded EE budget (2010 LIHEAP Clearinghouse)	Income eligibility limit ($ shown is for 4-person hhld)	Target high usage hhld's	Criteria for high usage screening	Enrollment Process	Income docs/proof of other LI qualification required?	Renters: landlord approval required
PECO LIURP Program	Separate from WAP	$29,881,000	200% of FPL ($47,100)	Yes	If on CAP rate: >500 kWH, Non CAP rate electric heating: 1400 kWH. Gas: >50CCF	Referred through the Customer Assistance Program (utility rate discount program)	Yes, at time of audit	Yes
MA Weather-ization Assistance Program	Is WAP	$29,860,000	60% of state median income ($60,137)	Yes	If the client receives a LIHEAP high energy benefit (highest 30% of LIHEAP population)	Call/visit weatherization agency	Need to be on the LIHEAP program	Yes
NYSERDA Empower	Both separate and complementary from WAP, because offer some EE measures that WAP does not.	$27,708,000	60% of the state median income ($49,333)	No	N/A	Application process, referrals through private contractors, LI agencies or WAP	Verification by a utility, human service organization or other approved entity. Only requested if not already verified.	No

Name	Relationship to federal WAP	Statewide ratepayer-funded EE budget (2010 LIHEAP Clearinghouse)	Income eligibility limit ($ shown is for 4-person hhld)	Target high usage hhld's	Criteria for high usage screening	Enrollment Process	Income docs/proof of other LI qualification required?	Renters: landlord approval required
New Jersey Comfort Partners	Separate from WAP	$35,300,000	225% of FPL ($52,988)	Yes	< 600 therms, baseload measures only 600-1000: one EE measure >1000: more than 1 EE measure	Referred through the Universal Service Fund (percent of income program)	Yes, income verification may be requested	Yes
Wisconsin WAP	Is WAP	$5,500,000	60% of state median income ($46,697)	Yes	Outreach prioritized to hhld's with highest energy burden	Referred by LIHEAP program or call/visit weatherization agency		
Ohio Energy Partnership Program (EPP)	Complementary to WAP, as they offer electric measures which WAP does not.	$11,900,000	150% of FPL ($35,325)	Yes	5000 kWh annually or above.	Referred through the Percent of Income Program (PIPP)	Verification required for PIPP	
CA Energy Savings Assistance Program	Separate from WAP	$231,732,000	200% of FPL ($47,100)	No	N/A	Online and telephone enrollment. Wide range of outreach.	Yes	

(Table is continued)

Name	Eligible Measures (programmatic level)	Delivery models	Req's to implement measures?	Year prgm began	# homes treated in 2012 (# since inception)	Level of participation of MF or renters	Total # eligible households
PECO LIURP Program	Comprehensive (both Wx and electric)	For-profit vendor implements the audits and measures	Cost effective calculation aren't performed during audit	1992	9,100 (98,000)		
MA Weather-ization Assistance Program	Focus on heating measures, if natural gas or oil-heated	Community action coalitions (CAC) implement the audits and measures	Savings to Investment Ratio >=1.0	1978	1,841 (130,000)	Few; state utilities fund separate LI-MF program administered by WAP network.	~180,000
NYSERDA Empower	Comprehensive (both Wx and electric)	Program is implemented by state-wide subcontractors and overseen by Honeywell.		2004	13,000 (79,000)	14% MF HH's. Renter percent unknown; likely higher amount than MF	
New Jersey Comfort Partners	Comprehensive (both Wx and electric)	Consortium of utilities that each work with a set of contractors	Follow BPI Wx protocol, do not use SIR ratio. Health and safety upgrades a priority	2001	7,897 (82,693)	Low MF. Only MF up to 12 units are eligible.	

Name	Eligible Measures (programmatic level)	Delivery models	Req's to implement measures?	Year prgm began	# homes treated in 2012 (# since inception)	Level of participation of MF or renters	Total # eligible households
Wisconsin WAP	Comprehensive (both Wx and electric)	CAC's implement the audits & measures	SIR Ratio >=1.0, plus health and safety upgrades	1976	7,472 in 2013 (~102,000 since mid-1990's)	30% MF units, 39% of units were renters	
Ohio Energy Partnership Program (EPP)	Electric baseload	CAC's implement the audits & measures	SIR Ratio >=1.0	2001	14,155 (140,000)	Very few MF or renters	108,288 (as of July 2013)
CA Energy Savings Assistance Program	Comprehensive (both Wx and electric)	Contractor implementation, but varies by utility.					

12 Study Methods Detail

12.1 Telephone Survey Detailed Methods

This subsection provides additional detail on the telephone survey sampling (the frame of which was also used for the ESA modeling), weights and call disposition.

12.1.1 Sample Frame

The IOUs provided us with CARE and ESA data that we used to construct the sample frame for the telephone survey and the ESA modeling dataset:

- CARE: we received the full CARE population from PG&E, SCE and SDG&E and a 20 percent sample of CARE customers (customers enrolled on CARE anytime during the period 2010-2012) from SoCalGas;
- ESA: we received the population of premises that have had ESA treatment since 2002.

We combined the ESA and CARE data to determine which households from the CARE data had been treated by ESA. We combined the data and attempted to match premises within IOU and then across IOUs where there is overlap. We conducted the matching and developed the sample frame based on several stages of sampling.

First, we pulled a sample of 10 percent of census blocks that have IOU service territory in the state. Next, we pulled a sample of 20 percent of CARE customers for PG&E and SCE (excluding SoCalGas, which had only provided a 20 percent sample, and SDG&E, whose population is about 20 percent of the other IOUs.)

We then conducted matching of CARE and ESA customer data within census blocks. We used the premise identification number to match CARE and ESA data for a single IOU. We used address matching to match across IOUs, screening out from the ESA Non-Participant sample frame any households that were a likely match.

Finally, we pulled a sample of 20 percent of ESA recent and prior participants for PG&E, SCE and SoCalGas (we kept all of SDG&E's due to their smaller relative number of customers).

Table 484 below shows the CARE and ESA population by IOU and Table 485 the telephone survey and the ESA modeling dataset.

Table 484: ESA and CARE Population by IOU

	CARE Participants	ESA Recent Participants	ESA Prior Participants	ESA Non-Participants
PG&E	30,654	7,439	7,439	15,776
SCE	28,751	4,284	4,284	20,183
SoCalGas only	7,690	1788	1788	4113
SDG&E	30,860	6,448	6,448	17,963
Total	97,954	19,595	19,959	58,035

Source: IOU LI program tracking and billing data.

Table 485: Telephone Survey Sample Frame and ESA Modeling Dataset

	CARE Participants	ESA Recent Participants	ESA Prior Participants	ESA Non-Participants
PG&E	30,654	7,439	7,439	15,776
SCE	28,751	4,284	4,284	20,183
SoCalGas only	7,690	1788	1788	4113
SDG&E	30,860	6,448	6,448	17,963
Total	97,954	19,595	19,959	58,035

Source: IOU LI program tracking and billing data.

For the CARE modeling, we used the population (all) of census block groups based on the Athens Research data. For the second stage ESA modeling, we used the telephone survey completes, shown in Section 2.5.

12.1.2 Call Disposition

Table 486 shows the disposition of calls for the phone survey. 70 percent of non-participants agreed to be recruited for the in-home visits.

Table 486: Telephone Survey Disposition of Calls

Quota	Level	Recent Participant (2010-Present)				Prior Participant (2002-2010)				Nonparticipant or Early Participant (> 2002)			
	IOU	PG&E	SCE	SDG&E	SoCalGas Only	PG&E	SCE	SDG&E	SoCalGas Only	PG&E	SCE	SDG&E	SoCalGas Only
SCG Flag	SCG Customers	0	111	0	14	0	115	0	14	0	157	0	17
Meter Type	Master Metered	0	0	0	0	0	0	0	0	0	0	0	0
	Submetered	0	0	0	0	0	0	0	0	0	0	0	0
	Unknown Meter	111	111	61	14	114	117	59	14	156	159	79	17
Home Type	Single Family	79	83	28	9	66	89	17	6	96	94	38	8
	Multifamily	35	35	35	5	43	31	50	10	64	84	52	14
	Mobile home	4	6	4	0	10	4	1	0	3	4	4	0
	Other	3	1	1	1	2	1	2	0	6	3	0	0
Ownership	Own	69	74	31	9	64	77	15	6	77	80	42	9
	Rent	37	36	30	4	46	34	44	8	76	78	36	8
	Other	5	1	0	1	4	6	0	0	3	1	1	0
Urban	Rural	11	1	0	0	10	2	0	0	17	6	2	0
	Urban	100	110	61	14	103	115	59	14	139	153	77	17
Geography	Inland	94	74	26	9	73	88	12	11	113	106	25	11
	Coastal	17	37	35	5	41	29	47	3	43	53	54	6
Climate Zone	Climate Zone 1	5	0	0	0	5	0	0	0	6	0	0	0
	Climate Zone 2	11	0	0	0	5	0	0	0	5	0	0	0
	Climate Zone 3	12	0	0	0	36	0	0	0	37	0	0	0
	Climate Zone 4	10	0	0	0	10	0	0	0	10	0	0	0
	Climate Zone 5	0	0	0	0	0	0	0	0	0	0	0	0
	Climate Zone 6	0	6	0	0	0	3	0	0	0	9	0	0
	Climate Zone 7	0	0	35	0	0	0	47	0	0	0	54	0
	Climate Zone 8	0	31	0	5	0	26	0	3	0	44	0	6
	Climate Zone 9	0	20	0	8	0	28	0	8	0	40	0	8
	Climate Zone 10	0	27	24	1	0	29	12	2	0	26	23	3

Quota	Level	Recent Participant (2010-Present)				Prior Participant (2002-2010)				Nonparticipant or Early Participant (> 2002)			
	IOU	PG&E	SCE	SDG&E	SoCalGas Only	PG&E	SCE	SDG&E	SoCalGas Only	PG&E	SCE	SDG&E	SoCalGas Only
	Climate Zone 11	13	0	0	0	15	0	0	0	18	0	0	0
	Climate Zone 12	49	0	0	0	27	0	0	0	55	0	0	0
	Climate Zone 13	9	11	0	0	10	13	0	0	18	10	0	0
	Climate Zone 14	0	7	2	0	0	12	0	0	0	17	2	0
	Climate Zone 15	0	7	0	0	0	4	0	1	0	8	0	0
	Climate Zone 16	2	2	0	0	6	2	0	0	7	5	0	0

*Multifamily is defined as: Duplex/Triplex/Quadplex, Apartment, Resort cottage or cabin, Townhouse or condominium, Co-op/Retirement Community
Source: Tetra Tech

(Table is continued)

Quota	Level	Overall			
	IOU	PG&E	SCE	SDG&E	SoCalGas Only
SCG Flag	SCG Customers	0	383	0	45
Meter Type	Master Metered	0	0	0	0
	Submetered	0	0	0	0
	Unknown Meter	381	387	199	45
Home Type	Single Family	241	266	83	23
	Multifamily	142	150	137	29
	Mobile home	17	14	9	0
	Other	11	5	3	1
Ownership	Own	210	231	88	24
	Rent	159	148	110	20
	Other	12	8	1	1
Urban	Rural	38	9	2	0
	Urban	342	378	197	45
Geography	Inland	280	268	63	31
	Coastal	101	119	136	14
Climate Zone	Climate Zone 1	16	0	0	0
	Climate Zone 2	21	0	0	0
	Climate Zone 3	85	0	0	0
	Climate Zone 4	30	0	0	0
	Climate Zone 5	0	0	0	0
	Climate Zone 6	0	18	0	0
	Climate Zone 7	0	0	136	0
	Climate Zone 8	0	101	0	14
	Climate Zone 9	0	88	0	24
	Climate Zone 10	0	82	59	6
	Climate Zone 11	46	0	0	0

Quota	Level	Overall			
	IOU	PG&E	SCE	SDG&E	SoCalGas Only
	Climate Zone 12	131	0	0	0
	Climate Zone 13	37	34	0	0
	Climate Zone 14	0	36	4	0
	Climate Zone 15	0	19	0	1
	Climate Zone 16	15	9	0	0

*Multifamily is defined as: Duplex/Triplex/Quadplex, Apartment, Resort cottage or cabin, Townhouse or condominium, Co-op/Retirement Community
Source: Tetra Tech

Table 487 isolates the disposition categories that may be classified as "unreachable". The final row shows the percent of the total sample that was unreachable for the survey (52% of the total).

Table 487: Disposition Categories That May Be Classified as Unreachable

Level	Recent Participant (2010-2012)				Prior Participant (2002-2009)				Nonparticipant				Total
IOU	PG&E	SCE	SDG&E	SoCalGas	PG&E	SCE	SDG&E	SoCalGas	PGE	SCE	SDG&E	SoCalGas	
Total sample provided	**1113**	**1538**	**611**	**163**	**1024**	**1555**	**609**	**209**	**1556**	**2030**	**895**	**210**	11513
Not at number	204	632	128	48	203	573	126	59	375	856	186	46	3436
Fax/data line	4	19	4	0	11	20	3	2	12	33	11	2	121
Business number	5	21	2	5	3	24	3	5	5	51	5	2	131
Ineligible - Incorrect Address or Utility Information	11	23	5	4	7	14	6	1	16	66	9	3	165
Hard Refusal	8	10	8	0	12	13	2	0	19	33	10	5	120
Soft Refusal	129	95	51	17	132	119	56	16	197	118	117	13	1060
Incompletes (partial interviews)	5	4	1	0	4	0	2	0	6	2	5	0	29
Unavailable for duration	6	12	3	3	8	15	5	0	10	12	8	2	84
Incapable/incoherent	10	10	3	0	12	17	6	2	18	20	13	1	112
Language barrier - Other	22	27	18	3	42	30	33	5	50	44	19	13	306
Called out	1	1	1	0	0	0	1	0	0	445	0	0	449
Total not reachable	405	854	224	80	434	825	243	90	708	1680	383	87	6013
Percent not reachable	36%	56%	37%	49%	42%	53%	40%	43%	46%	83%	43%	41%	52%

Source: Tetra Tech

12.1.3 Weights

We constructed sample weights for the telephone survey based on the CARE enrollee population, the self-reported rates of ESA awareness we collected during the phone survey and using PUMs housing information on ownership/rental rates and home type,[20] Table 488 shows the rates of ESA awareness reported by ESA participation category and IOU. The population data was reallocated based on the percents shown in the table below.

Table 488: ESA Awareness Rates of Population by ESA Participation Category and IOU

IOU	Aware of ESA	Recent ESA Participants	Prior ESA Participants	Non-participants
PG&E	Yes	79%	62%	71%
	No	21%	38%	29%
SCE	Yes	79%	72%	55%
	No	21%	28%	45%
SoCalGas only	Yes	50%	62%	45%
	No	50%	38%	55%
SDG&E	Yes	81%	71%	66%
	No	19%	29%	34%

Source: Tetra Tech

[20] Multi-family homes are defined as any housing structure with two or more units. This differs from the 2007 KEMA study were multi-family homes are defined as housing structures with five or more units. This also differs from the concurrent Cadmus multi-family LI study, which also defines multi-family homes as housing structures with five or more units.

Table 489 presents the population data that was used for the sample weights after it was allocated (using PUMs data as described in section 8.1) to account for home type and ownership.

Table 489: Telephone Survey Population

IOU	ESA Participation	Home Type	Own	Rent	Other
PG&E	ESA Non-Participant	Multi-Family	9,279	240,621	2,835
		Single-Family/Mobile	224,656	165,452	17,674
	ESA Participant	Multi-Family	11,672	302,689	3,566
		Single-Family/Mobile	282,606	208,130	22,233
SCE	ESA Non-Participant	Multi-Family	15,601	323,452	2,922
		Single-Family/Mobile	236,070	175,306	14,466
	ESA Participant	Multi-Family	12,887	267,179	2,413
		Single-Family/Mobile	194,999	144,807	11,949
SoCalGas Only	ESA Non-Participant	Multi-Family	5,216	109,388	989
		Single-Family/Mobile	78,697	59,539	4,865
	ESA Participant	Multi-Family	4,129	86,589	783
		Single-Family/Mobile	62,295	47,130	3,851
SDG&E	ESA Non-Participant	Multi-Family	2,559	46,230	305
		Single-Family/Mobile	40,861	23,667	2,139
	ESA Participant	Multi-Family	4,285	77,413	510
		Single-Family/Mobile	68,424	39,631	3,582

Source: IOU CARE program tracking and billing data for population numbers; 2011 PUMS for % home type and own versus rent.

Table 490 presents the survey participant numbers that were used for creating weights.

Table 490: Telephone Survey Respondents

IOU	ESA Participation	Home Type	Own	Rent	Other
PG&E	ESA Non-Participant	Multi-Family	4	52	-
		Single-Family/Mobile	78	27	-
	ESA Participant	Multi-Family	11	54	-
		Single-Family/Mobile	128	30	5
SCE	ESA Non-Participant	Multi-Family	8	49	1
		Single-Family/Mobile	72	26	-
	ESA Participant	Multi-Family	9	37	-
		Single-Family/Mobile	149	31	2
SoCalGas Only	ESA Non-Participant	Multi-Family	2	7	-
		Single-Family/Mobile	7	4	-
	ESA Participant	Multi-Family	3	13	-
		Single-Family/Mobile	13	3	-
SDG&E	ESA Non-Participant	Multi-Family	8	31	-
		Single-Family/Mobile	35	7	-
	ESA Participant	Multi-Family	11	60	-
		Single-Family/Mobile	35	16	-

Source: Telephone survey data.

Table 491 presents the sample weights that we applied by strata by combining the data from the previous two tables.

Table 491: Telephone Survey Sample Weights

IOU	ESA Participation	Home Type	Own	Rent	Other
PG&E	ESA Non-Participant	Multi-Family	2,320	4,627	N/A
		Single-Family/Mobile	2,880	6,128	N/A
	ESA Participant	Multi-Family	1,061	5,605	N/A
		Single-Family/Mobile	2,208	6,938	11,885
SCE	ESA Non-Participant	Multi-Family	1,950	6,601	11,885
		Single-Family/Mobile	3,279	6,743	N/A
	ESA Participant	Multi-Family	1,432	7,221	N/A
		Single-Family/Mobile	1,309	4,671	11,885
SoCalGas Only	ESA Non-Participant	Multi-Family	2,608	15,627	N/A
		Single-Family/Mobile	11,242	14,885	N/A
	ESA Participant	Multi-Family	1,376	6,661	N/A
		Single-Family/Mobile	4,792	15,710	N/A
SDG&E	ESA Non-Participant	Multi-Family	320	1,491	N/A
		Single-Family/Mobile	1,167	3,381	N/A
	ESA Participant	Multi-Family	390	1,290	N/A
		Single-Family/Mobile	1,955	2,477	N/A

12.2 CARE Modeling Detailed Methods

Using regression analysis, we statistically analyzed the factors that affect the rate of CARE participation and penetration by block group. Regression analysis allows us to estimate the individual impacts that demographic, economic, and program characteristics have on the likelihood (probability) that a residential customer will participate in the CARE program. The dependent variable for both the Participation and Penetration models is the "log-odds ratio of CARE participation" (or more simply as the "log-odds").[21] It is instructive to both describe what the log-odds transformation is and why it was used for this study. We performed the same transformation for the same reason for both the CARE Participation and Penetration models, but we explain the how and why with respect to the CARE Participation model only.

To begin, the parameter of interest to us in the Participation model is the proportion of households in each block group enrolled in CARE, based on data provided by Athens Research.

[21] This method of regression is also referred to as logit-transformed linear regression.

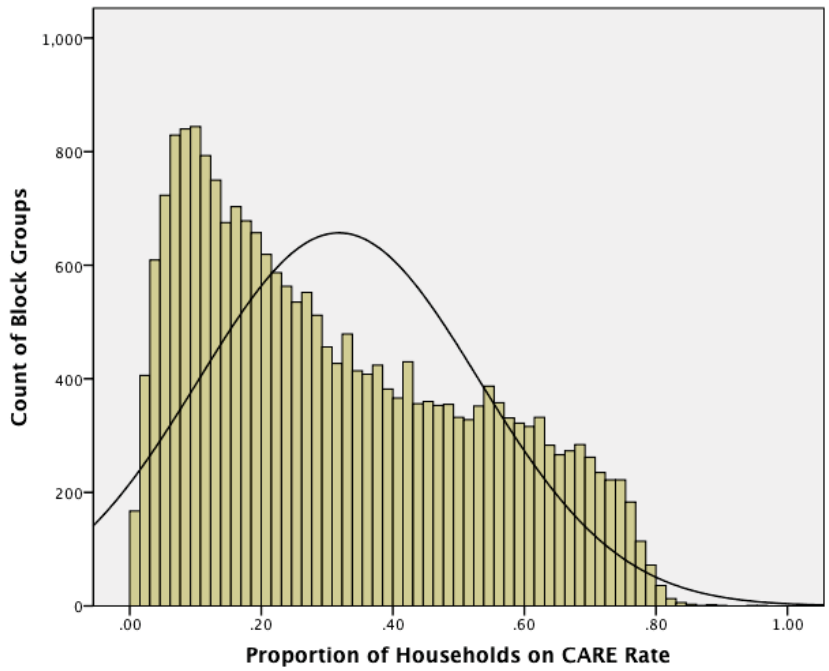
CARE Participation = Count of CARE Participants / Count of Residential Customers

Figure 7 shows the distribution of the proportion of households on the CARE rate in 2012 for the more than 20,000 block groups in California. As the figure shows, the proportion must range between zero (no household enrolled on the CARE rate) and 1.0 (all households enrolled on the CARE rate). In practice, the CARE proportion is unlikely to be at either extreme value, however, there are many block groups with a low (less than 10 percent) proportion of households on CARE.

The fact that the variable of interest is bounded by 0 and 1 can cause problems for estimating the linear regression model. Specifically, *predicted* values of the dependent variable (proportion enrolled in CARE) are nonsensical when they are less than 0 (i.e., less than 0 percent of households are enrolled in CARE) and greater than 1 (i.e., more than 100 percent of households are enrolled in CARE).[22] In fact, because there are many block groups with low rates of CARE participation (less than 20 percent), there will be many predicted values of CARE participation that will be less than 0 (percent). Even if the estimated values lying outside of the 0-to-1 range are assigned the values 0 and 1, it's not useful to consider prediction outcomes where no household within a block group is enrolled in CARE or all households within a block group are enrolled in CARE.

[22] In addition, the variance of the proportions gets smaller at zero and one resulting in estimation problems due to heteroskedasticity.

Figure 7: Proportion of Households on CARE Rate by Block Group



Source: Analysis by Evergreen Economics of Data from Athens Research.

A standard solution to the problem of a dependent variable that is a proportion (and therefore bounded by 0 and 1) is to transform the variable to the real line.[23] To do this, we first compute the odds ratio (the "odds") of the proportion on CARE, which is simply the ratio of the proportion over 1 – the proportion:

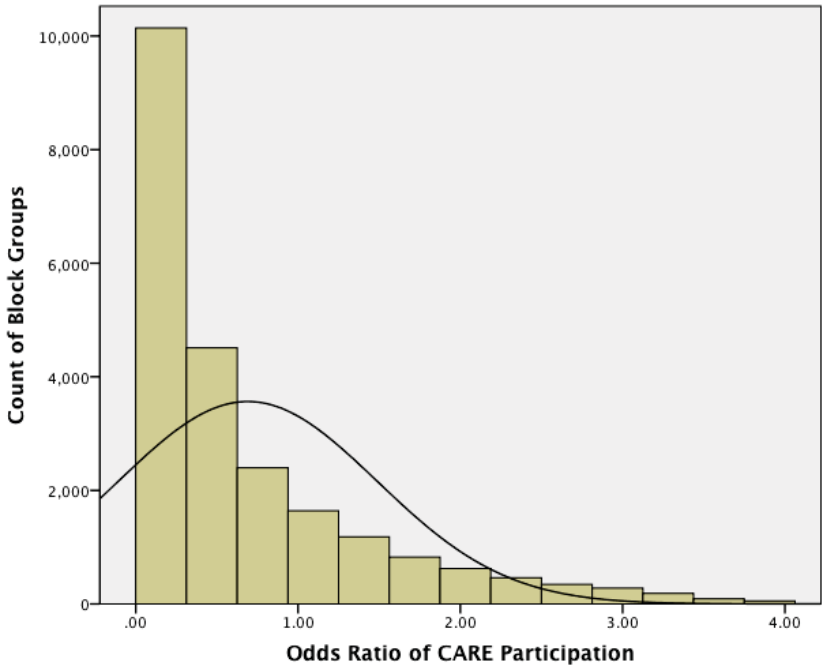
$$Odds\ of\ CARE\ Participation = \frac{p}{(1 - p)} = \frac{Proportion\ of\ Households\ on\ CARE}{Proportion\ of\ Households\ Not\ on\ CARE}$$

In this instance, the odds represents the probability that a household is on a CARE rate to the probability that a household is not on a CARE rate. If the proportion of households in a block group on a CARE rate is 75 percent, then the odds that a randomly drawn household from that block group is on a CARE rate is 0.75 / (1 - 0.75) = 3, which is interpreted as "the odds are 3 to 1 that a household is on a CARE rate." Alternatively, if the proportion of households in a block group on a CARE rate is 25 percent, then the odds that a randomly drawn house from that block group is on a CARE rate is 0.25 / (1 - 0.25) = 0.33, which is interpreted as "the odds are 1 to 3 that a household is on a CARE rate."

[23] The real line is simply the horizontal line that extends from zero in both directions to infinity.

Figure 8 shows the distribution of odds of CARE participation computed using the data on CARE participation by block group shown in Figure 7. Unlike the proportional data, the odds are not restricted to be less than or equal to 1.0, but the odds are still restricted to be greater than zero (cannot have negative odds).

Figure 8: Distribution of Odds of CARE Participation by Block Group



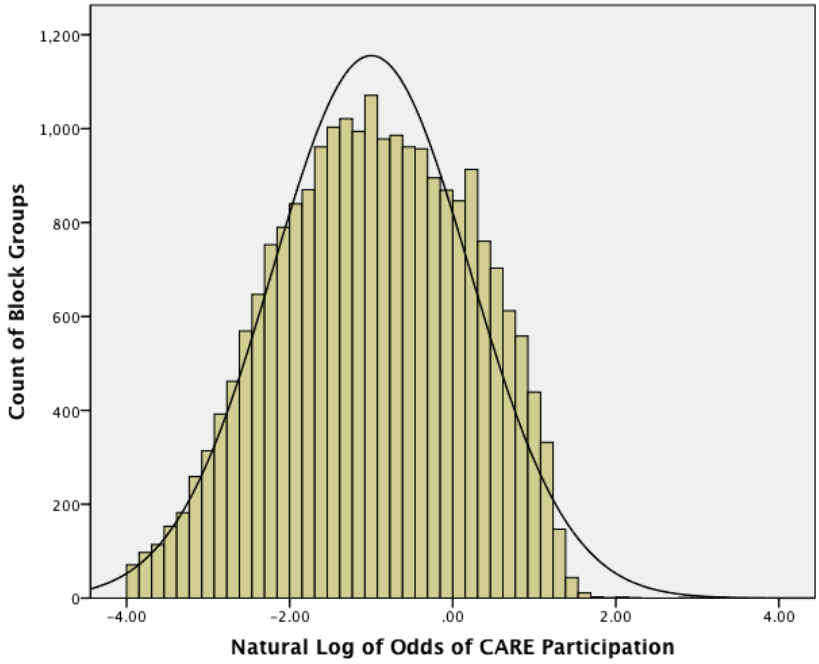
Source: Analysis by Evergreen Economics of Data from Athens Research.

The next step of the transformation is to take the log of the odds ratio (i.e., the "log-odds") of the dependent variable.

Ln(odds ratio) = Ln[CARE Proportion / (1 – CARE Proportion)]

The log- odds-ratio transformation results in a dependent variable that is continuous and no longer bounded by zero and one, though in practice, most values tend to lie within a relatively tight range. Figure 9 shows the distribution of CARE proportions altered by the log-odds transformation. Comparing Figure 7 to Figure 9, we see that the log-odds transformation not only eliminates the constraint that data lie within the 0-to-1 interval, but also redistributes the data from a distribution that is truncated at 0 and right skewed, to one that is largely normally distributed.

Figure 9: Distribution of Log Odds of CARE Participation



Source: Analysis by Evergreen Economics of Data from Athens Research.

While the transformation eliminates the intuitive meaning of the CARE proportion, a simple transformation of the estimated coefficients provides estimates of the impact on the odds of a household being enrolled on a CARE rate, associated with a one unit change in the value of the independent variable, holding all else constant. A slightly more complex transformation provides estimates of the impact on the proportion of households enrolled on a CARE rate associated with a one-unit change in the independent variable. For most readers, this measure of marginal impact has greater intuitive meaning. Nevertheless, all of these estimates of marginal impacts provide information on which economic, demographic, and other characteristics are associated with—or even influence—CARE participation, and how strong the relationship is.

The general form of the regression model is as follows:

Ln(odds) = f(demographic, economic, housing, utility)

Where:

> ***Ln(odds)*** is the log of the odds ratio of CARE participation *(P(enrolled) / (1-P(enrolled))*;
> ***F(.)*** denotes "a function of";
> **demographic** are block group level demographic variables
> **housing** are block group level housing characteristics

utility are indicator variables of electric and/or gas utility

In addition to the information provided by the individual coefficients, we use the estimated model to predict the proportion of residential households participating in the CARE program at the block group level using the following formula:

$$\text{CARE participation rate} = 1 / (1 + e^{-x})$$

Where:

e is the exponential function

x is the estimated regression equation

12.2.1 Interpreting Coefficients from a Logit Model

The coefficients from log-odds model possess little intuitive meaning. Nevertheless, the sign (negative or positive) and the magnitude (relative to zero) are important indicators of the relationship between the independent variable and either the probability that a household will be on a CARE rate or the proportion of households in a block group on a CARE rate.

When the independent variable is a continuous variable, a positive coefficient value indicates that a unit increase in the independent variable will lead to an increase in the odds that a household will be on CARE. Conversely, a negative coefficient value indicates that a unit increase in the value of the (continuous) independent variable will lead to a decrease in odds that a household will be on a CARE rate. To calculate the estimated change in the odds that a household will be on a CARE rate, the coefficient must be exponentiated (raised to the base *e*, also referred to as the "antilog"*)*, which transforms the coefficient from log-odds to an odds ratio.

$$\Delta Odds = e^{\beta_k} - 1$$

Where:

$\Delta Odds$ = *Change in the odds ratio*

β_k = *Estimated coefficient on continuous variable*

e= is the number 2.7182...

12.2.2 Transforming from Proportion to Log-odds

The variable of interest, proportion of households on the CARE rate, is analogous to a probability. For example, if the proportion of households within a block group that are on a CARE rate is 60 percent, then there is a 60 percent probability that a randomly drawn household from that block group is on a CARE rate. Keeping with this same example, the proportion of households not on a CARE rate is equal to 1 minus the proportion that are on a CARE rate (1 – 0.60 = 0.40 or 40 percent). This of course is also the probability that a randomly chosen house in the block group is not on a CARE rate. The ratio of these two proportions (or probabilities) is called the "odds" or the "odds ratio."

$$Odds = \frac{p}{(1 - p)}$$

$$Where:$$

$$p = Proportion\ on\ a\ CARE\ rate$$

For our example, the odds ratio that a household in that block group is on a CARE rate is equal to 0.6/0.4 = 1.5. Odds are generally expressed as an integer, therefore, we would say the odds are 3 to 2 that a randomly drawn household in that block group is on a CARE rate.[24]

The transformation from a proportion to an odds ratio is a monotonic transformation, which simply means that the odds increase as the proportion increases (and vice versa). While the proportion is bounded by 0 and 1, transforming the proportion into the odds eliminates the upper bound, but not the lower bound. Since both the numerator and denominator of the odds ratio are positive, the odds are always positive and is, therefore, bounded from below at zero. To remove the lower bound, the odds ratio is transformed by the natural logarithm to derive the log-odds or "logit" transformation.

The log-odds transformation results in a variable that is not bounded at either end and, like the transformation from proportion to odds, the transformation from odds to log-odds is monotonic. This is important point, because, while we need to transform the proportion due to its restricted range, we want to ensure that relationship between proportion values is preserved. Table 492 shows the relationship between a select number of proportions and their odds and log-odds transformations.

[24] If the proportion of CARE households is 50 percent, then the odds are 0.5/(1-0.5) = 1.0. Thus the odds that a randomly drawn household is on the CARE rate is 1 to 1 or 50 percent.

Table 492:Relationship Between Proportions, Odds, and Log-odds

Proportion	Odd	Log-odds (Logit)
0.05	0.05	-2.94
0.10	0.11	-2.20
0.20	0.25	-1.39
0.30	0.43	-0.85
0.40	0.67	-0.41
0.50	1.00	0.00
0.60	1.50	0.41
0.70	2.33	0.85
0.80	4.00	1.39
0.90	9.00	2.20
0.95	19.00	2.94

Proportion Range 0 to 1
Odds Range: 0 to infinity
Log-odds Range: negative infinity to infinity

12.3 ESA Modeling Detailed Methods

12.3.1 ESA Methods

12.3.1.1 Statistical Models of ESA Participation

We developed and estimated regression models to examine the factors that explain participation in the ESA program. Eligibility for the ESA program is based on the same income criteria as the CARE program, and to participate in the ESA program the customer must be enrolled in the CARE program. However, whereas a customer can move into and out of the CARE program, once a premise is treated—based on the income criteria of the customer—it is treated. In general, once a premise has been treated through the ESA program, it is ineligible to be treated again. Therefore, a LI customer that otherwise would be eligible to participate in ESA is not eligible to do so if the premise was treated previously when occupied by a prior CARE enrollee. Table 493 shows the counts of premises treated through the ESA program while occupied by the current resident and prior resident, as well as the count of premises occupied by CARE enrollees that have not been treated through the ESA program.

Table 493: Counts of ESA-Treated Premises Occupied by CARE Enrollees

IOU	Premises Occupied by CARE Enrollee Treated Through ESA Program		CARE-Occupied Premises Not Treated Through ESA	% CARE Premises Treated
	Current Resident	Prior Resident		
PG&E	5,442*	5,407	19,123	36%
SCE	3,633*	2,900	20,321	24%
SoCaLGas	4,572	4,585	25,199	27%
SDG&E	4,985*	8,484	19,053	40%

* The count of premises treated while occupied by current CARE enrollees and treated while occupied by past CARE enrollee are as follows: PG&E=46, SCE=79, SoCalGas=0, CDG&E=262.
Source: Analysis by Evergreen Economics of data provided by the California IOUs.

Separate models were developed for each of the four California investor-owned utilities (IOUs). We estimated the regression models based on household-level data provided by the IOUs, but also include data on the characteristics of the block group in which each residence is located.[25] The dependent variable, explained in greater detail below, is a binary variable that equals 1 if the premise received measures through the ESA program at any time between 2002 and 2012 and equals 0 if it did not.

For the SCE, SDG&E, and PG&E models, only residential customers that were on a CARE rate at any time after October 31, 2012 were included in the analysis. For the SoCalGas model, only those residential customers on a CARE rate during April 2013 were included in the analysis.[26]

12.3.1.2 Model description

Using regression analysis, we statistically analyzed the factors that affect the probability that a CARE enrollee lives in a residence treated through the ESA program either by applying for the ESA program or by living in a premise previously treated through the ESA program.[27]

The dependent variable in each of the IOU-level models is a binary indicator that is equal to 1 if the premise was treated through the ESA program and 0 if it was not. We estimated the Stage 1 and Stage 2 ESA models using a logistic regression. The logistic regression model is a non-linear, S-shaped distribution function that constrains the estimated probabilities to a

[25] The block group-level data came from two sources: The U.S. Census Bureau; Athens Research (provided by the IOUs). A block group is a geographical designation used by the U.S. Census Bureau that consists of a cluster of census blocks having the same first digit of their four-digit identifying numbers within a census tract. Block groups generally contain between 600 and 3,000 people, with an optimum size of 1,500 people. Block groups never cross the boundaries of states, counties, or statistically equivalent entities, except for a block groups delineated by American Indian tribal authorities, and then only when tabulated within the American Indian hierarchy. Block groups never cross the boundaries of census tracts. Source: http://www.census.gov/geo/www/geo_defn.html [May 29, 2012]
[26] The alternative criteria for SoCalGas is due to the way data were pulled by the IOU.
[27] While exceptions may exist, an otherwise eligible customer is not eligible for ESA if they live in a premise previously treated through the ESA program.

distribution between zero and one. The logistic regression model is by far the most popular method for estimating regression models when the dependent variable is binary. This is because the logit function is mathematically straightforward to estimate (using statistical software) and the estimated probabilities are easy to calculate and fall within the zero-to-one interval (i.e., zero percent up to 100 percent chance of occurring). Mathematically, the logistic regression model is expressed as:

Equation 2: Generalized Logistic Regression Model

$$PROB(y=1) = \frac{e^{\square'\square}}{1+e^{\square'\square}}$$

$$Where:$$

$$PROB(y=1) = \textit{ is the probability that a an event occurs (e.g. a household is low-income)}$$

$$e = \textit{ is the exponential function, equal to 2.718}$$

$$\square = \textit{ is a vector of coefficients to be estimated in the model}$$

$$\square = \textit{ is a vector of values for the covariates in the model}$$

Empirically, the Stage 1 logistic regression models, which we estimated separately for each of the four IOUs, were specified as follows:

Equation 3: Stage 1 Logistic Regression Model

$$ESA_i = \square_0 + \square_j Customer_{ij} + \square_k BlockGroup_{ik} + \square$$

$$Where:$$

$$ESA_i = Indicator\ variable\ of\ ESA\ participation\ (1{=}ESA\ Particiant;\ 0{=}not)$$

$$Customer_j = Array\ of\ variables\ from\ IOUs\ characterizing\ the\ customer$$

$$BlockGroup_k = Array\ of\ variables\ from\ Census\ and\ Athens\ Research\ characterizing\ the\ block\ grou$$

$$ESA = Indicator\ variable\ of\ ESA\ participation\ (1{=}ESA\ Particiant;\ 0{=}not)$$

$$\square, \square, \square = Coefficients\ to\ be\ estimated\ in\ the\ model$$

$$\square = Random\ error\ term,\ assumed\ log\text{-}normal$$

We estimated the Stage 2 logistic regression model using data from the household survey and other sources of data. Because the focus of the Stage 2 model was to examine the relationship between ESA participation and information provided by the survey respondents, the Stage 2 model was based only on the 1,020 CARE enrollees that completed the telephone survey. The Stage 2 model is specified as follows:

Equation 4: Stage 2 Logistic Regression Model

$$ESA_i = \square_0 + \square_1 kWh_i + \square_j Survey_{ij} + \square_k BlockGroup_{ik} + \square_i$$

$$Where:$$

$$ESA_i = Indicator\ variable\ of\ ESA\ participation\ (1{=}ESA\ Particiant;\ 0{=}not)$$

$$kWh_i = Array\ of\ variables\ from\ IOUs\ characterizing\ the\ customer$$

$$Survey_{ij} = Array\ of\ variables\ from\ phone\ survey\ characterizing\ each\ customer$$

$$BlockGroup_k = Array\ of\ variables\ from\ Census\ and\ Athens\ Research\ characterizing\ the\ block\ group$$

$$ESA = Indicator\ variable\ of\ ESA\ participation\ (1{=}ESA\ Particiant;\ 0{=}not)$$

$$\square_0, \square_1, \square_j, \square_k, = Coefficients\ to\ be\ estimated\ in\ the\ model$$

$$\square = Random\ error\ term,\ assumed\ log\text{-}normal$$

12.3.1.3 Interpreting Coefficients from a Logit Model

The coefficients estimated in a logistic regression model possess little intuitive meaning. Nevertheless, the sign (negative or positive) and the magnitude (relative to zero) are important indicators of the relationship between, respectively, the explanatory variable and the probability that a CARE enrollee will also participate in the ESA program.

A positive coefficient value indicates that a unit increase in the explanatory variable will lead to an increase in the odds that a household will be on CARE. Conversely, a negative coefficient value indicates that a unit increase in the value of the explanatory variable will lead to a

decrease in odds that a household will be on a CARE rate. To calculate the estimated change in the *odds* that a household will be on a CARE rate, the coefficient must be exponentiated (raised to the base *e*, also referred to as the "antilog"), which transforms the coefficient from log-odds to an odds ratio.

$$\Delta Odds = e^{\beta_k} - 1$$

$$Where:$$

$$\Delta Odds = Change\ in\ the\ odds\ ratio$$

$$\beta_k = Estimated\ coefficient\ on\ continuous\ variable$$

$$e = is\ the\ number\ 2.7182...$$

12.4 Conjoint Analysis Detailed Methods

Conjoint analysis is a stated preference survey technique that involves having respondents review and rank options that reflect different choice options. In this application, the conjoint data collection was done using a website that asked respondents to rank a series of choices relating different possible ESA program participation experience**s**. For the ESA scenarios, each program choice is defined by several attributes (discussed below) and respondents were asked to rank the options from most to least preferred based on these attributes. Respondents were also asked to identify which program choices they would actually be willing to participate in after they complete the ranking exercise.

Conjoint analysis has the advantage of presenting several program characteristics simultaneously, which forces the respondent to make tradeoffs between attributes. By presenting attributes simultaneously, respondents must decide which features are most important, deciding whether or not to participate in an energy efficiency program. Past experience as well as existing literature indicates that the most successful conjoint designs limit each exercise to ranking 16 choices at a time, with four to six attributes defining each choice. Including more than 16 options or additional attributes tends to overwhelm respondents and results in less reliable data.

For this conjoint exercise, respondents were provided with a general description of the ESA program:

> The Energy Savings Assistance (ESA) Program is a program offered by [utility] to help LI households save money on their energy bills. This is accomplished by scheduling a home inspection to establish eligibility and identify what types of efficiency equipment should be installed, followed by additional home visits to install the equipment. Depending on the needs of the household, customers can receive a variety of things such as information on safety and ways to save energy, energy efficient light bulbs, refrigerators, attic insulation, caulking, maintenance services for some appliances, and in some areas heating and air

conditioning systems. The ESA Program pays 100 percent of the cost of the energy efficiency equipment – there is no charge to the homeowner.

With this program description as context, respondents are asked to rank eight possible options for the ESA program.[28] Each program option is defined as a combination of energy savings, number of home visits, income verification requirements, etc. The various attribute levels for each of these characteristics are shown in Table 494. These attribute levels are randomly assigned to create 18 possible programs that the respondent then ranked during the on-line conjoint session. Descriptions of these program attributes given to respondents during the survey are as follows:

- **Monthly Energy Savings:** Amount that households can expect to save on their monthly energy bill if they participate in the ESA program.
- **Income verification:** Whether or not customers must provide income verification such as a tax return to prove program eligibility.
- **Number of home visits:** Number of times that someone from the ESA program (both initial visit and measure installation) will visit the home, with each visit requiring some sort of scheduling and coordination on the part of the homeowner.
- **Timing of home visits:** Installation work done during the day (requiring that someone be at the home), evenings, or a combination of evenings and weekends.
- **Duration of home visits:** Total amount of time that program staff will spend at the home (both initial visit and installations).
- **Comfort:** Change in comfort level due to participation, defined as home being less drafty during cold weather and cooler during warm weather.

The values used to describe each choice option are randomly assigned, which forces the respondent to choose which attributes to focus on to rank the choices. To accomplish this, the conjoint application uses an orthogonal design, which means that there is zero correlation between each of the choice attributes. This is critical to the analysis, as correlation across attributes results in a loss of precision and makes it difficult to estimate the importance that respondents place on each attribute. For example, consider the situation where monthly energy savings and comfort are two of the characteristics being evaluated, and on each choice the monthly energy savings are high and the comfort level is also high. Since monthly energy savings and comfort are perfectly correlated, there is no way to determine from the data if a respondent is ranking the choices based on savings or comfort. For this reason, having an orthogonally designed study is essential.

[28] Respondents are first given a practice conjoint exercise to complete using a non-energy example in order to get them familiar with the online conjoint ranking process.

Once all the choices are ranked, the respondent is then asked to indicate which of the eight program options (if any) they would be willing to participate in, given their current living conditions. The participation choices and the ranking information are then automatically captured on the website for analysis.

Respondents will be asked to rank two different ESA program options, defined with slightly different characteristics. The various attribute and levels for both program options are shown in Table 494.

Table 494: ESA Program Choice Characteristics

ESA Program Option 1	Possible Values
Monthly Energy Savings	$0, $25, $60
Number of Home Visits	1,3
Income Verification	None, Documentation required
Comfort	No Change, Improvement
Total Time in Home	1 hour, 4 hours
ESA Program Option 2	**Possible Values**
Monthly Energy Savings	$0, $25, $60
Number of Home Visits	1,3
Income Verification	None, Documentation required
Comfort	No Change, Improvement
Timing of Home Visits	Days Only, Evenings/Weekends Only

12.4.1 Sample Design and Recruitment

Respondents for the conjoint analysis were recruited from a phone survey of LI households currently on the CARE rate and eligible to participate in the ESA program. If the phone survey respondents were willing to take the conjoint survey, their email addresses were collected and a separate email directing them to the conjoint website was sent out. Of the 166 customers that started the survey, 33 completed the conjoint survey. Additionally, a further 20 customers completed at least the first half of the survey, and 17 of these 20 completed the entire survey as part of our onsite verification efforts. Respondents completed the conjoint survey in September 2013.

12.4.2 Conjoint Discrete Choice Models

Once the conjoint surveys are completed, the conjoint data will be used in a discrete choice model. Using the ranking data, a conditional logit model will be developed to estimate how the attribute levels influence the rankings for program choices using the following equation (shown for ESA Option 1):

$$Rank_i = \square' Saving_i + \square' Duration_i + \square' Income_i + \square' Time_i + \square' Comfort_i + \square_i$$

Where :

$Rank_i$ = *Rank value between 1 and 18, based on respondents' relative assessment of each choice*

$Saving_i$ = *Monthly bill savings for option i*

$Duration_i$ = *Total amount of time spent in the home for option i*

$Income_i$ = *Income verification required for option i*

$Time_i$ = *Timing of home visits for option i*

$Comfort_i$ = *Change in comfort level resulting from option i*

$\square_i$ = *Random error term assumed logistically distributed*

$\square$ = *Coefficient to be estimated*

A second model (a binomial logit) will also be estimated to determine the influence of the attribute levels on the willingness to participate in the ESA program:

$$Participate_i = \square' Saving_i + \square' Duration_i + \square' Income_i + \square' Time_i + \square' Comfort_i + \square_i$$

Where :

$Participate_i$ = *Indicator (0,1) on willingness to participate in program option i*

$Saving_i$ = *Monthly bill savings for option i*

$Duration_i$ = *Total amount of time spent in the home for option i*

$Income_i$ = *Income verification required for option i*

$Time_i$ = *Timing of home visits for option i*

$Comfort_i$ = *Change in comfort level resulting from option i*

$\square_i$ = *Random error term assumed logistically distributed*

$\square$ = *Coefficient to be estimated*

12.4.3 Relative Importance

While coefficients estimates from the logit models provide some information on the influence of the variable on total utility, it is misleading to look only at the coefficient to gauge the influence of that variable. For example, if the comfort coefficient is ten times the magnitude of the savings coefficient, this is due in part to differences in the magnitude of the variable values, where the indicator variable comfort (0,1) is only a fraction of the value of the monthly energy savings ($ per month). Only looking at the magnitude of the coefficients would give the misleading impression that comfort is considered much more important than savings. To address this issue, “relative importance statistics” are calculated that combine both the coefficient and attribute value to get an overall measure of the influence on total utility. The relative importance statistic can be interpreted as each attribute’s contribution to total “utility”, or the perceived benefit associated with that choice. This statistic measures the

importance of one design feature, relative to that of all other design features in determining the total utility for each program option.

The total utility of each option can be calculated by inserting attribute values into the estimated regression equation:

$$Total\ Utility_i\ (U_i) = \beta' Saving_i + \beta' Duration_i + \beta' Income_i + \beta' Time_i + \beta' Comfort_i$$

Using the coefficient estimates and the values for the variables used in the conjoint analysis, the importance statistic is defined as:

$$Relative\ Importance_j = \frac{\Delta u_j}{\Delta U} = \frac{Maximum\ utility\ change\ due\ to\ attribute\ j}{Maximum\ utility\ change\ due\ to\ all\ attributes}$$

The importance statistic measures the percentage of the total maximum change in utility across all choices that is attributable to a single feature. Stated another way, the importance statistic measures each feature's contribution to the total utility based on the attributes included in the conjoint analysis.

12.4.4 Participation Probabilities

To assist in the interpretation of the binomial logit models, the probability of participating in the program is calculated by combining the coefficient estimates with program attributes within the logit probability function:

$$Prob(Participate) = \frac{exp(\beta' X)}{1 + exp(\beta' X)},$$

where β'X reflects the sum of the coefficient estimates used in the conjoint analysis. By using different values for savings, comfort, home visits, and income verification to simulate different programs, this equation can be used to determine the overall effect on utility of alternative program designs. The probabilities can also be used to determine the value a respondent places on savings and timing of installation visits, for example.

We will calculate the probability of participation in ESA by using values for the variables that match the current program design as much as possible. Given that this estimate is determined using only five factors included in the conjoint, when in reality there are many other factors that are influencing this decision, the result should not be interpreted as a direct estimate of potential market share. Nevertheless, we will explore options for using the probability calculations to determine a threshold level of willingness to participate. One possibility would be to calculate the probability using the highest (i.e., most attractive) values for all variables and using the resulting value (i.e., 1-probability) as an estimate of the portion of customers that are unlikely to participate in the ESA program under any circumstances.

13 Research Instruments

Phone

In-home

Contractor

13 Research Instruments

Phone

In-home

Contractor

California CPUC/IOU
Low Income Needs Assessment Study
Telephone Survey Codebook

NOTE:
- Variable names are in bold type.
- A code of (-2) means the question was removed July 11th
- A code of (-3) means the question was added July 11th
- A code of (-4) means there was an interviewer error and the question was skipped
- A code of (-5) means programming error (i.e., the question was skipped and it should not have been)
- A code of (-6) means programmed skip (i.e., a skip that was purposely programmed based on skip patterns)
- A code of (-8) means don't know.
- A code of (-9) means refused.
- Questions were asked of all respondents unless indicated otherwise.
- Response codes with an asterisk (*) are recoded responses to open-ended questions, or responses added during data cleaning.

Sample Variables

CASEID	Unique case identification number
EVERGRID	Evergreen unique case identification number
INTDATE	Date of interview (yyyymmdd)
ESA_RCNT	ESA Recent participant
ESA_PRIR	ESA Prior participant
ESA_NONP	ESA Non-participant
MEASFURN	Received new furnace
MEASWATR	Received low flow shower heads or faucet aerators
MEASAC	Received air conditioner
MEASMCRW	Received microwave
MEASCLWA	Received clothes washer
MSWTRHTR	Received water heater
MSFRNREP	Received furnace repair
MEASFRDG	Received new refrigerator

MSAIRSEL	Received air sealing/infiltration
MSELIGHT	Received efficient lighting
MEASREPR	Received repairs to walls or windows
MSEVACOL	Received evaporative cooler
SCE	SCE utility flag
SCG	SCG utility flag
SDGE	SDGE utility flag
PGE	PGE utility flag
ELECSCE	SCE electric flag
ELECPGE	PGE electric flag
ELECSDGE	SDGE electric flag
GASSCG	SCG gas flag
GASPGE	PGE gas flag
GASSDGE	SDGE gas flag

Computed Variables

ESAaware	Flag for awareness of the ESA program (if S17 = 1 or S17b = 1, 2, 3, 4, 5, or 6)
CAREaware	Flag for awareness of the CARE program (if S11 = 1 or S10 = 1)
RCTRCAL	Recent participant who recalls participating flag (if S18 = 1)
NPRTFLAG	Non-recent participant or recent participant who does not recall participating flag (if S18 <> 1)
D5SUM	Flag used to indicate more than one language spoken in the home (if more than one mentioned in D5_1 to D5_14)

Introduction (All)

INTRO1 Hello, this is _____ and I'm calling on behalf of the California Public Utility Commission. May I speak with *[NAME]*?

1 Yes
2 No

INTRO2 We are calling to conduct a survey about energy use in your area. The results will be used for planning several programs offered by [utility]. You may have got a letter from the California PUC in the mail telling you the reason for this call.

[PRESS 1 TO CONTINUE]

INTRO3 **[WHY ARE YOU CONDUCTING THIS STUDY?]** The California PUC, along with [utility] is working with a research firm to help address the needs of our gas and electric customers.

[TIMING] This survey should take about 20 minutes of your time. Is this a good time for us to talk with you? [IF NOT, SET UP CALL BACK APPOINTMENT OR OFFER TO LET THEM CALL US BACK AT 1-800-454-5070].

[SALES CONCERN] I am not selling anything; we would simply like to learn about your experiences with your utility providers. This information will help design and deliver program to assist residential customers. Please be assured that your individual responses will remain confidential and will not be published or provided to anyone. If you would like to talk with someone about this study, feel free to call the CPUC at (415) 703-2782.

INTRO4 Can I confirm I've reached [address]? *[SELECT ONE]*

1 Yes
2 No *[THANK AND TERMINATE]*

INTRO5 Are you the person knowledgeable about your household's utility bills? *[SELECT ONE]*

1 Yes *[SKIP TO INTRO7]*
2 No

INTRO6 Is that person available? *[SELECT ONE]*

1 Yes *[SKIP TO INTRO1]*
2 No *[SCHEDULE A CALLBACK]*
-6 Programmed skip

INTRO7 And can I verify you are 18 years of age or older? *[SELECT ONE]*

1 Yes
2 No *[ASK FOR ADULT IN HOUSEHOLD: SKIP TO INTRO1]*

INTRO8 Before we begin, I would like to inform you that for quality control purposes, this call will be recorded and monitored.

[PRESS 1 TO CONTINUE]

Screener/ESA Awareness (All)

S5 First, I have a few questions about your home. Do you own or rent your home? *[SELECT ONE]*

1 Own
2 Rent
3 Other *[SPECIFY]*
4* Someone else owns it but I don't pay rent/live here for free

S5_3_opn Specify home ownership.

_____
-6 Programmed skip

S6 Is your home a single-family detached home, apartment, or something else? *[SELECT ONE]*

1 Single-family detached home
2 Duplex (two-family home), triplex, or quadplex
3 Apartment
4 Resort cottage or cabin
5 Town house or condominium
6 Mobile or manufactured/modular home
7 Boat/RV
8 Co-op, Retirement community
9 Other [SPECIFY]
-8 Don't know
-9 Refused

S6SPEC_opn [IF S6<>9, SKIP] Specify home type.

_____
-6 Programmed skip

S17a [Utility] offers a variety of rebates and other support to help customers save energy and money. Are you aware of any programs sponsored by [utility] that provide income-qualified customers with equipment and services for their homes at no cost? *[SELECT ONE]*
[source: KEMA LINA, a3]

[Interviewer note: this is for utility sponsored programs, not government programs]

1	Yes	
2	No	[*SKIP TO S17]*
-2	Question removed July 11th	
-8	Don't know	[*SKIP TO S17]*
-9	Refused	*[SKIP TO S17]*

S17b [IF S17a<>1, SKIP] What are the names of the programs you are familiar with? *[SELECT ALL THAT APPLY]*

[INTERVIEWER NOTE: only select if the respondent mentions the specific program name.]

[NOTE: IF S17b=1,2,3,4,5, or 6 then ESA aware.]

For S17b_1 through S17b_10:

0	Not mentioned
1	Mentioned
-2	Question removed July 11th
-6	Programmed skip

S17b_1	The Energy Savings Assistance Program, ESA or ESAP
S17b_2	EMA, Energy Management Assistance
S17b_3	Energy Team
S17b_4	Energy Partners
S17b_5	Low Income Energy Efficiency or LIEE
S17b_6	Direct Assistance Program
S17b_7	LIHEAP, Low Income Home Energy Assistance Program / HEAP
S17b_8	WAP, Weatherization Assistance Program
S17b_9	Other (specify)
S17b_10	Don't know
S17b_11*	CARE

S17b_9_opn Other program(s) that you are familiar with

_____
-6 Programmed skip

S17 [IF S17b<> ESAaware, SKIP. After July 11th, everyone asked] One of [utility's] programs, Energy Savings Assistance, provides free home improvements to income-qualified households.

It offers information on safety and ways to save energy, energy efficient light bulbs, and sometimes improvements such as refrigerators or attic insulation.

Before today, have you heard of the program that I just described? *[SELECT ONE]*

1	Yes	
2	No	*[SKIP TO NEXT SECTION]*
-6	Programmed skip	
-8	Don't know	*[SKIP TO NEXT SECTION]*
-9	Refused	*[SKIP TO NEXT SECTION]*

[NOTE: IF S17=1 then ESA aware.]

S18 *[IF ESA_RCNT<>1, SKIP]* Do you know if your household got free home improvements from this program? *[SELECT ONE]*

[NOTE: This is to screen respondents for recall of ESA participation for screening in survey batteries. We'll use tracking data for analysis.]

1	Yes	
2	No	*[SKIP TO NEXT SECTION]*
-4	Interviewer error	
-6	Programmed skip	
-8	Don't know	*[SKIP TO NEXT SECTION]*
-9	Refused	*[SKIP TO NEXT SECTION]*

[IF S18=1 THEN ESA PARTICIPANT]
[IF S18<>1 THEN ESA NONPARTICIPANT]

E1 How did you find out about [utility]'s Energy Savings Assistance? *[DO NOT READ; SELECT ALL THAT APPLY]*

For E1_1 through E1_14:

0 Not mentioned
1 Mentioned
-4 Interviewer error
-5 Programming error
-6 Programmed skip

E1_1 A bill insert
E1_2 An advertisement on your door
E1_3 A phone call to me/the household
E1_4 I called the utility
E1_5 Someone stopped by house
E1_6 Utility website *[SPECIFY SCE, SCG, SDG&E, PG&E]*
E1_7 A friend, family member, or colleague
E1_8 I learned about it when I signed up for another program
E1_9 From a community based organization (CBO)
E1_10 Other *[SPECIFY HOW AND FROM WHOM]*
E1_11 Don't know / Don't remember
E1_12 Utility rep that was in my home for another reason
E1_13 Mailing/Letter
E1_14 Apartment manager/landlord
E1_15* Television
E1_16* Newspaper/News media
E1_17* Social Worker/Case Manager
E1_18* Utility sponsored event *(e.g., Earth Day event)*
E1_19* Radio
E1_20* 211
E1_21* Internet *(general response, other than Utility website)*
E1_22* Utility (*general response: e.g., PG&E contacted me)*

E1_6_opn Specify Utility website where you learned about the ESA program.

_____
-6 Programmed skip

E1_10_opn Specify other way you learned about the ESA program.

_____
-6 Programmed skip

Energy Insecurity and Sources (All)

I1 Do you receive a paper copy of your [utility] bill each month or do you receive your bill electronically? *[SELECT ONE]*

1 Paper bill
2 Electronic bill
3 Both paper and electronic
-2 Question removed July 11th
-3 Question added July 11th
-8 Don't know
-9 Refused

I1INT These next few questions ask about your ability to meet your household's energy needs.

[PRESS 1 TO CONTINUE]

I1 Please tell me if you or others in your home do the following a lot, sometimes, or never. *[SELECT ONE FOR EACH; READ LIST]*

For I1a through I1j:

1 A lot
2 Sometimes
3 Never/No
-3 Question added July 11th
-5 Programming error
-6 Programmed skip
-8 Don't know
-9 Refused

I1a *[IF I1<>1 or I1<>3, SKIP]* Do you read the inserts or flyers that come with your [utility] bill?
I1aa *[IF I1<>2 or I1<>3 SKIP]* Do you read the emails from [utility]?
I1b Do you go to the [utility] website?
I1c Do you pay your utility bill online?
I1d Do you call [utility]?
I1e Do you cut back on buying food or medicine in order to pay your [utility] bill?
I1f Do you borrow money to pay your [utility] bill?
I1g Do you receive a disconnection notice for your electricity?
I1h Has your electricity service been shut-off?
I1i Do you use your heat or cooling less than you need to keep your [utility] bill lower?
I1j Do you use your kitchen stove or oven to heat your home?

I1_b [IF I1j<>1 or 2; SKIP] Can you explain more about why you use your kitchen stove or oven to heat your home? *[DO NOT READ; SELECT ALL THAT APPLY]*

For I1_b_1 through I1_b_5:

0 Not mentioned
1 Mentioned
-2 Question removed July 11th
-6 Programmed skip
-8 Don't know
-9 Refused

I1_b_1 Furnace does not work
I1_b_2 Don't have another heating source
I1_b_3 Home is too cold
I1_b_4 Think it is more efficient than heating the whole house
I1_b_5 Other *[SPECIFY]*

I1_b_5_opn Other reason for using stove/oven to heat home

_____
-2 Question removed July 11th
-6 Programmed skip

Willingness to Participate in ESA – All but recent ESA parts who recall (S18 not equal 1, who skip to Next Section)
(actual nonparticipants from tracking data, ESA parts that don't recall and prior ESA parts

O2INT The next few questions are about [utility]'s Energy Savings Assistance program that I described a few minutes ago.

O2OWN *[If S5<>1, SKIP]* If you sign up for Energy Savings Assistance, a contractor will visit your home and look at your income and home ownership documents and fill out an application with you. A different contractor will come on another day and look at your home to see what home improvements you may qualify for, such as energy efficient light bulbs, weather stripping around doors and windows, and sometimes new appliances or equipment to replace old or broken ones. These home improvements would be installed by another contractor during another visit or two to your home.

O2RENT *[If S5=1, SKIP]* If you sign up for Energy Savings Assistance, a contractor will visit your home and look at your income and home ownership documents and fill out an application with you. The contractor will also need to have papers signed by your landlord approving the work. A different contractor will come on another day and look at your home to see what home improvements you may qualify for, such as energy efficient light bulbs, weather stripping around doors and windows, and sometimes new appliances or equipment to replace old or broken ones. These home improvements would be installed by another contractor during another visit or two to your home.

O2 How willing would you be to enroll in this program? Would you say not at all willing, somewhat willing, or very willing? *[SELECT ONE]*

1	Not at all willing	
2	Somewhat willing	*[SKIP TO NEXT SECTION]*
3	Very willing	*[SKIP TO NEXT SECTION]*
-4	Interviewer error	
-6	Programmed skip	
-8	Don't know	[SKIP TO NEXT SECTION]
-9	Refused	[SKIP TO NEXT SECTION]

O2a_opn [IF O2<>1, SKIP] Under what situation would you be willing? *[RECORD RESPONSE]*

_____

-2	Question removed July 11th
-6	Programmed skip

O2b_opn *[IF O2<>1, SKIP]* Why is that? *[RECORD RESPONSE]*

[IF NEEDED] Why would you be not at all willing to participate?

_____

-3	Question added July 11th
-4	Interviewer error
-6	Programmed skip

ESA Participation Drivers - All
Participant version: recent participants who recall (S18)
Nonparticipant version: all else (actual non-participants from tracking data, ESA parts that don't recall and prior ESA parts)

E1a *[IF RCTRCAL=1, READ]* Households participate in assistance programs for different reasons. Why did you decide to enroll in the Energy Savings Assistance program that I described a few minutes ago? *[DO NOT READ; SELECT ONE]*

[IF NPRTFLAG=1, READ] What is the most likely reason you would sign up for this program? *[DO NOT READ; SELECT ONE]*

1 Lower energy bill(s)/save money/lower utility cost
2 Get free assistance/I need the help/We are qualified for it/Because it was offered/financial reasons
3 Help the environment
4 Our landlord (encourages/suggests)
5 We need(ed) something that the program offers *[NOTE: what it was – e.g. refrigerator, furnace repair, ac, education on ways to save energy, window/door repairs, water saving equipment, tools to make the home more comfortable/less drafty, improved safety/comfort of home.]*
6 It was/sounds easy
7 [Utility] sponsored
8 Someone I know participated/got services from ESA or recommended it
9 Other *[SPECIFY]*
10 Save energy
11* Low/fixed income/retired/disabled *(i.e., "can't afford repairs")*
12* If I owned my own home/didn't rent
13* Don't know
14* No reason
15* No need/No interest
16* To see what could be done/if anything needs to be fixed
-6 Programmed skip

e1a_5_opn Other specify for what was needed

_____
-4 Interviewer error
-6 Programmed skip

e1a_9_opn Other specify for reason did/would enroll

_____
-6 Programmed skip

E2INT *[IF RCTRCAL=1, READ]* How important ***were*** each of the following in getting your household to sign up for the program? Would you say not important, somewhat important, or very important? *[SELECT ONE FOR EACH]*

[IF NPRTFLAG=1, READ] How important ***would*** each of the following be in getting you to sign up for the program that I told you about? Would you say not important, somewhat important, or very important? *[SELECT ONE FOR EACH]*

E2 How important was the following/would the following be in getting your household to sign up for Energy Savings Assistance? *[READ LIST]*

For E2a through E2h:

1	Not important
2	Somewhat important
3	Very important
4	Not applicable
-2	Question removed July 11th
-4	Interviewer error
-6	Programmed skip
-8	Don't know
-9	Refused

E2a Lower energy bills?
E2b Getting free help?
E2c Helping the environment?
E2d The encouragement or suggestion by your landlord?
E2e Your need for something that [utility] offers through Energy Savings Assistance?
E2f It is sponsored by [utility]?
E2g The ease of enrollment?
E2h Someone you know signed up or recommended it?

ESA Barriers/drawbacks of participation - All
Participant version: recent participants who recall (S18)
Nonparticipant version: all else (actual non-participants from tracking data, ESA parts that don't recall and prior ESA parts)

B1a *[IF RCTRCAL=1, READ]* Did you have any problems with enrolling and getting home improvements from [utility]'s program? *[SELECT ONE]*

[IF NPRTFLAG=1, READ] Based on what I told you about signing up for [utility]'s Energy Savings Assistance, is there anything such as enrolling, being home for visits, or having contractors in your home that might be a problem for you? *[SELECT ONE]*

1	Yes	
2	No	*[SKIP TO B2C]*
-3	Question added July 11th	
-6	Programmed skip	
-8	Don't know	*[SKIP TO B2C]*
-9	Refused	*[SKIP TO B2C]*

B1 *[IF B1a<>1, SKIP]* [*IF RCTRCAL=1, READ]* What part was most difficult? *[DO NOT READ; SELECT ONE]*

[IF NPRTFLAG=1, READ] What part would be most difficult? *[DO NOT READ; SELECT ONE]*

1	Nothing
2	Have not heard of it/do not know enough
3	Do not think I need it/will benefit
4	Proving my household's income
5	*[if own]* Proving I own my home
6	*[if rent]* Getting my landlord's permission
7	Not worth the paperwork, having to find/provide income docs
8	Number of visits
9	Too hard to be home during the visits/taking off work
10	Adjusting/getting used to the new equipment/repairs *[SPECIFY: EQUIP]*
11	Trusting utility or utility representatives
12	Trusting contractors
13	Other *[SPECIFY]*
14	Dissatisfied with equipment or repairs
15	Dissatisfied with contractor/installation
16	Having contractors/people in my home
17*	Don't know
18*	Installing the equipment
19*	Enrolling/scheduling/signing up
-4	Interviewer error
-6	Programmed skip

B1_13spc_opn *[IF B1<>13, SKIP]* Other reason participation was or would be difficult

_____

-6 Programmed skip

B2 *[IF RCTRCAL=1, READ]* How easy or hard was it to do each of the following to participate in [utility]'s program? Was it easy, somewhat hard, or very hard? *[SELECT ONE FOR EACH]*

[IF NPRTFLAG=1, READ] How easy or hard would it be to do each of the following to participate in the program? Would it be easy, somewhat hard, or very hard? *[SELECT ONE FOR EACH; READ LIST]*

For B2c through B2j:

1 Easy
2 Somewhat hard
3 Very hard
-2 Question removed July 11th
-4 Interviewer error
-6 Programmed skip
-8 Don't know
-9 Refused

B2C *[IF S5<>2 or 3, SKIP]* How easy or hard was it/would it be getting your landlord's permission?

B2D How easy or hard was it/would it be filling out a program application with the contractor?

B2E How easy or hard [was it/would it be] arranging to be home for contractor visits?

B2F *[IF RCTRCAL<>1, SKIP]* How easy or hard [was it/would it be] getting used to new equipment or repairs?

B2G *[IF NPRTFLAG<>1, SKIP]* How easy or hard [was it/would it be] getting used to new equipment in your home?

B2A How easy or hard [was it/would it be] providing income documentation such as a tax return?

B2B *[IF S5<>1, SKIP]* How easy or hard [was it/would it be] providing documentation of home ownership?

B2H How easy or hard [was it/would it be] trusting [utility]?

B2I How easy or hard [was it/would it be] trusting the contractors?

B2J How easy or hard [was it/would it be] scheduling the appointments?

B3 *[IF B2F <> 2 or 3, SKIP] [IF RCTRCAL<>1, SKIP]* What is difficult about getting used to the new equipment or repairs? *[DO NOT READ; SELECT ALL THAT APPLY]*

For B3_1 through B3_8:

0 Not mentioned
1 Mentioned
-2 Question removed July 11th
-6 Programmed skip
-9 Refused

B3_1 Does not work like my other equipment
B3_2 Too many new features
B3_3 Hard to use
B3_4 I like the way my old one looked better
B3_5 Does not match my other stuff
B3_6 Installation contractor did not teach them how to use it
B3_7 Other *[SPECIFY]*
B3_8 Don't know

B3_7_opn *[IF B3_7<>1, SKIP]* Other reason difficult getting used to new equipment or repairs

_____
-2 Question removed July 11th
-6 Programmed skip

ESA Participation Benefits – All
Participant version: recent participants who recall (S18)
Nonparticipant version: all else (actual non-participants from tracking data, ESA parts that don't recall and prior ESA parts)

PB8a *[IF RCTRCAL<>1, SKIP TO PB9a]* Since you got home improvements from [utility], have you noticed... Your gas and/or electric bills have gone down? Would you say a lot, somewhat or no change?

1 A lot
2 Somewhat
3 No change/No
4 Bills have gone up
-6 Programmed skip
-8 Don't know
-9 Refused

PB8b Since you got energy saving equipment and services from [utility], have you noticed…Your home is more comfortable in terms of the temperature? Would you say a lot, somewhat, or no change?

1 A lot
2 Somewhat
3 No change/No
-6 Programmed skip
-8 Don't know
-9 Refused

PB8c Since you got energy saving equipment and services from [utility], have you noticed…Members of the household experience fewer illnesses such as colds, flus, or asthma problems? Would you say a lot, somewhat, or no change?

1 A lot
2 Somewhat
3 No change/No
-6 Programmed skip
-8 Don't know
-9 Refused

PB8d *[IF MSFRNREP<>1, SKIP]* Since you got energy saving equipment and services from [utility], have you noticed…You are able to use heating equipment not previously working well? Would you say a lot, somewhat, or no change?

1 A lot
2 Somewhat
3 No change/No
-5 Programming error
-6 Programmed skip
-8 Don't know
-9 Refused

PB8e Since you got energy saving equipment and services from [utility], have you noticed…You and other members of your household feel safer as a result of the equipment and services you received? Would you say a lot, somewhat, or no change?

1 A lot
2 Somewhat
3 No change/No
-6 Programmed skip
-8 Don't know
-9 Refused

PB8f *[IF MEASWATR<>1, SKIP]* Since you got energy saving equipment and services from [utility], have you noticed…You have reduced your water usage? Would you say a lot, somewhat or no change?

1 A lot
2 Somewhat
3 No change/No
-6 Programmed skip
-8 Don't know
-9 Refused

PB8g Since you got energy saving equipment and services from [utility], have you noticed…You or other members of your household are able to do things around your home to save more energy? Would you say a lot, somewhat, or no change?

1 A lot
2 Somewhat
3 No change
-6 Programmed skip
-8 Don't know
-9 Refused

PB9a *[IF NPRTFLAG<>1, SKIP TO PB10]* Can you tell me how comfortable your home is in terms of the temperature? Is it very, somewhat, or not at all comfortable?

1 Very comfortable
2 Somewhat comfortable
3 Not at all comfortable
-6 Programmed skip
-8 Don't know
-9 Refused

PB9aa Can you tell me how comfortable your home is in terms of the draftiness? Is it very, somewhat, or not at all comfortable?

1 Very comfortable
2 Somewhat comfortable
3 Not at all comfortable
-3 Question added July 11th
-6 Programmed skip
-8 Don't know
-9 Refused

PB9b Can you tell me how safe you and other members of your household feel in your home?

1 Very safe
2 Somewhat safe
3 Not at all safe
-2 Question removed July 11th
-6 Programmed skip
-8 Don't know
-9 Refused

PB9c These next two questions ask about how safe you feel in your home.

First, thinking about the condition of windows and doors in your home, do you and other members of your household feel very safe, somewhat safe, or not at all safe?

1 Very safe
2 Somewhat safe
3 Not at all safe
-3 Question added July 11th
-6 Programmed skip
-8 Don't know
-9 Refused

PB9d Thinking about how you heat and cool your home and the condition of that equipment, do you and other members of your household feel very safe, somewhat safe, or not at all safe?

1 Very safe
2 Somewhat safe
3 Not at all safe
-3 Question added July 11th
-6 Programmed skip
-8 Don't know
-9 Refused

PB10 How often do members of the household get sick or have asthma that may be due to the condition of your home or not being able to heat or cool your home to keep your bill down? *[READ LIST]*

1 Very often
2 Sometimes
3 Never/No
-8 Don't know
-9 Refused

Energy Needs (met and unmet) and Attitudes - All
Participant version: recent participants who recall (S18)
Nonparticipant version: all else (actual non-participants from tracking data, ESA parts that don't recall and prior ESA parts)

EN1 *[IF RCTRCAL=1, READ]* Of the energy savings assistance you got from [utility], what was most helpful to your household in helping to control your energy bills and improve the comfort and safety of your home? *[DO NOT READ; SELECT ONE]*

[IF NPRTFLAG=1, READ] Of the things that I told you your household might get, what would be most helpful to your household in helping to control your energy bills and improve the comfort and safety of your home? *[DO NOT READ; SELECT ONE]*

1 Furnace
2 Weatherstripping (insulation, caulking)/reducing leaks or drafts/weatherization/infiltration measures
3 Doors/windows
4 Air conditioning unit (central or window)
5 Evaporative/swap cooler
6 Refrigerator
7 CFLs (lights or bulbs)
8 Other relamping
9 Pool pump
10 Water saving equipment (showerhead, aerators)
11 Repair/service of furnace
12 Repair of windows, doors
13 Energy info/education or service to save energy/be more comfortable
14 Efficient lighting or compact fluorescent lamps and fixtures
15 Microwave
16 Efficient clothes washer
17 Water heater
18 Other *[SPECIFY]*
20* Nothing/Don't need anything done
21* Solar panels
22* Attic insulation
23* Up-to-date/energy efficient appliances
24* Stove/oven
25* Lower bill/assistance with bill
-8 Don't know

EN1SPEC_opn Other assistance that was/would be most helpful

_____
-6 Programmed skip

EN2INT *[IF RCTRCAL=1, READ]* How helpful were each of the following that you got from [utility]? Was it very helpful, somewhat helpful or not at all helpful? *[SELECT ONE]*

[IF NPRTFLAG=1, READ] How helpful would each of the following be? Would they be very helpful, somewhat helpful, or not at all helpful? *[SELECT ONE]*

[INTERVIEWER NOTE: Nonparticipants are asked all questions. Participants are asked only for the ESA measures they received based on the sample.]

[PRESS 1 TO CONTINUE]

EN2a *[IF NPRTFLAG =1, SKIP] [IF RCTRCAL=1 AND MEASFURN<>1, SKIP]* Was/would... Getting a new furnace to replace your old one (be) *[READ LIST]*

1 Very helpful
2 Somewhat helpful
3 Not at all helpful/No
4 Not applicable – do not have/did not receive/do not need
-6 Programmed skip
-8 Don't know
-9 Refused

EN2b *[IF RCTRCAL=1 & MSAIRSEL<>1, SKIP]* Was/would...Sealing leaks to reduce drafts (be) *[READ LIST]*

1 Very helpful
2 Somewhat helpful
3 Not at all helpful/No
4 Not applicable – do not have/did not receive/do not need
-6 Programmed skip
-8 Don't know
-9 Refused

EN2c *[IF RCTRCAL=1 & MEASAC<>1, SKIP]* Was/would…Getting a new air conditioner to replace your old one (be) *[READ LIST]*

1 Very helpful
2 Somewhat helpful
3 Not at all helpful/No
4 Not applicable – do not have/did not receive/do not need
-6 Programmed skip
-8 Don't know
-9 Refused

EN2d *[IF RCTRCAL=1 & MEASWATR<>1, SKIP]* Were/would… Water saving showerheads or faucet restrictors (be) *[READ LIST]*

1 Very helpful
2 Somewhat helpful
3 Not at all helpful/No
4 Not applicable – do not have/did not receive/do not need
-6 Programmed skip
-8 Don't know
-9 Refused

EN2e *[IF RCTRCAL=1 & MEASMCRW<>1, SKIP]* Was/would… Getting a microwave (if you don't already have one be) *[READ LIST]*

1 Very helpful
2 Somewhat helpful
3 Not at all helpful/No
4 Not applicable – do not have/did not receive/do not need
-6 Programmed skip
-8 Don't know
-9 Refused

EN2f *[IF RCTRCAL=1 & MEASCLWA<>1, SKIP]* Was/would… Getting a new clothes washer to replace your old one (be) *[READ LIST]*

1 Very helpful
2 Somewhat helpful
3 Not at all helpful/No
4 Not applicable – do not have/did not receive/do not need
-6 Programmed skip
-8 Don't know
-9 Refused

EN2g *[IF RCTRCAL=1 & MSWTRHTR<>1, SKIP]* Was/would… Getting a new water heater to replace your old one (be) *[READ LIST]*

1 Very helpful
2 Somewhat helpful
3 Not at all helpful/No
4 Not applicable – do not have/did not receive/do not need
-6 Programmed skip
-8 Don't know
-9 Refused

EN2h Was/would…Information about things you can do in your home to save energy and be more comfortable (be) *[READ LIST]*

1 Very helpful
2 Somewhat helpful
3 Not at all helpful/No
4 Not applicable – do not have/did not receive/do not need
-8 Don't know
-9 Refused

EN2i *[NPRTFLAG=1, SKIP] [IF MSFRNREP<>1, SKIP]* Was/would…The repair or service of your furnace (be) *[READ LIST]*

1 Very helpful
2 Somewhat helpful
3 Not at all helpful/No
4 Not applicable – do not have/did not receive/do not need
-6 Programmed skip
-8 Don't know
-9 Refused

EN2j *[IF RCTRCAL=1 & MEASFRDG<>1, SKIP]* Was/would…Getting a new refrigerator to replace your old one (be) *[READ LIST]*

1 Very helpful
2 Somewhat helpful
3 Not at all helpful/No
4 Not applicable – do not have/did not receive/do not need
-5 Programming error
-6 Programmed skip
-8 Don't know
-9 Refused

EN2k *[IF RCTRCAL=1 & MEASREPR<>1, SKIP]* Were/would…Repairs to broken or leaky windows, doors, walls or floors (be) *[READ LIST]*

1 Very helpful
2 Somewhat helpful
3 Not at all helpful/No
4 Not applicable – do not have/did not receive/do not need
-6 Programmed skip
-8 Don't know
-9 Refused

EN2l *[IF RCTRCAL=1 & MSELIGHT<>1, SKIP]* Were/would…Efficient light bulbs and fixtures (be) *[READ LIST]*

1 Very helpful
2 Somewhat helpful
3 Not at all helpful/No
4 Not applicable – do not have/did not receive/do not need
-6 Programmed skip
-8 Don't know
-9 Refused

EN2m *[IF NPRTFLAG<>1, SKIP]* Would the repair or replacement of your furnace be *[READ LIST]*

1 Very helpful
2 Somewhat helpful
3 Not at all helpful/No
4 Not applicable - do not need/already have one/not old
-3 Question added July 11th
-6 Programmed skip
-8 Don't know
-9 Refused

EN2n Was/Would…Getting a new evaporative or swamp cooler to replace your old one (be) *[READ LIST]*

1 Very helpful
2 Somewhat helpful
3 Not at all helpful/No
4 Not applicable - do not need/already have one/not old
-3 Question added July 11th
-6 Programmed skip
-8 Don't know
-9 Refused

EN3 *[IF RCTRCAL<>1 AND EN2a-EN2n<>3, SKIP]* Why was the [EQUIPMENT FROM EN2] not at all helpful? *[DO NOT READ; SELECT ALL THAT APPLY]*

For EN3_1_1 through EN3_13_9:

0 Not mentioned
1 Mentioned
-3 Question added July 11th
-6 Programmed skip
-8 Don't know
-9 Refused

EN3_1 The new furnace
EN3_2 Sealing leaks to reduce drafts
EN3_3 The new air conditioner
EN3_4 The water saving showerheads and/or faucet restrictors
EN3_5 The new microwave
EN3_6 The new clothes washer
EN3_7 The new water heater
EN3_8 The information with energy-saving tips to make your home more comfortable
EN3_9 The furnace repair or service
EN3_10 The new refrigerator
EN3_11 The repairs to broken or leaky windows, doors, walls or floors
EN3_12 The efficient light bulbs and fixtures
EN3_13 The new evaporative or swamp cooler

_1 Do not match decor
_2 Does not work like my other equipment
_3 Too many new features
_4 Hard to use
_5 I like the way my old one looked better
_6 Does not match my other stuff
_7 Installation contractor did not teach me how to use it
_8 Other *[SPECIFY]*
_9 Don't know
_10* It didn't save energy/It didn't make any difference
_11* The work was not done properly or the fix was not permanent
_12* No work was done/ nothing was replaced

EN3_1_8_opn to EN3_13_8_opn Other reason why [EQUIPMENT FROM EN2] was not at all helpful

_____
-6 Programmed skip

EN4 If your household wanted to lower your [utility] bill, would you know what to do? *[SELECT ONE]*

1	Yes	
2	No	*[SKIP TO EN6]*
-8	Don't know	
-9	Refused	*[SKIP TO EN6]*

EN5 *[IF EN4<>1 OR -8, SKIP]* If you had to lower your energy bill, what would you and members of your household do? *[DO NOT READ; SELECT ALL THAT APPLY]*

For EN5_1 through EN5_13:

0	Not mentioned
1	Mentioned
-6	Programmed skip
-9	Refused

EN5_1 Adjust thermostat
EN5_2 Unplug equipment not in use
EN5_3 Adjust water heater temperature
EN5_4 Don't use the heater
EN5_5 Don't use the air conditioner
EN5_6 Wash laundry in cold water
EN5_7 Line dry clothes
EN5_8 Buy energy efficient lighting/CFLs
EN5_9 Other *[SPECIFY]*
EN5_10 Don't know
EN5_11 Turn off lights
EN5_12 Shorter showers
EN5_13 Not use equipment during peak hours
EN5_14* Close or Open windows/blinds/curtains/doors
EN5_15* Cut back on/turn off television/computer/electronics
EN5_16* Turn AC/Heater down
EN5_17* Replace sidings/doors/windows/equipment/appliances
EN5_18* Contact Utility
EN5_19* Seal windows/doors
EN5_20* Wear more/less clothes/blankets depending on season
EN5_21* Insulation
EN5_22* Install solar panels
EN5_23* Cut back on laundry
EN5_24* Leave home to avoid having to heat/cool home
EN5_25* Use less electricity
EN5_26* Use fans
EN5_27* Already doing everything that we can/Don't know what more to do

EN5_9_opn Other method you would use to lower your energy bill

_____
-4 Interviewer error
-6 Programmed skip

EN6 How often does your household try to save energy? Would you say most or all of the time, sometimes, or never? *[SELECT ONE]*

1 Most or all of the time
2 Sometimes
3 Never/No
-8 Don't know
-9 Refused

EN7 *[IF EN6 <> 1 or 2, SKIP]* Why do you try to save energy? *[DO NOT READ; SELECT ALL THAT APPLY]*

For EN7_1 through EN7_9:

0 Not mentioned
1 Mentioned
-2 Question removed July 11th
-6 Programmed skip
-8 Don't know
-9 Refused

EN7_1 Saving money
EN7_2 Health
EN7_3 Protecting the environment
EN7_4 For the benefit of future generations
EN7_5 Reducing our dependence on foreign oil
EN7_6 Helping California lead the way on saving energy
EN7_7 Other *[SPECIFY]*
EN7_8 Don't know
EN7_9 Refused
EN7_10* To avoid wasting energy

EN7_7_opn Other reason you try to save energy

_____
-2 Question removed July 11th
-6 Programmed skip

EN8 Is there anything making it hard for you to try to save energy? *[DO NOT READ; SELECT ALL THAT APPLY]*

For EN8_1 through EN8_8:

0	Not mentioned
1	Mentioned
-6	Programmed skip
-8	Don't know
-9	Refused

EN8_1	No/None
EN8_2	Not able to control our usage
EN8_3	Children/members of the household not interested or able
EN8_4	It's not a priority for us
EN8_5	We need to use the heat/air conditioner/appliances
EN8_6	We don't pay the bill, someone else pays it
EN8_7	Other *[SPECIFY]*
EN8_8	Lack of information/don't know how
EN8_9*	Weather/temperature/very hot/cold climate
EN8_10*	No money/Low income
EN8_11*	Age and condition of equipment/appliance/home
EN8_12*	Insulation
EN8_13*	Medical/health reasons
EN8_14*	Drafts/leaks/lack of insulation

EN8_7_opn Other thing making it hard for you to save energy

_____

-4	Interviewer error
-6	Programmed skip

EN9 Do you need any of the following to help reduce your [utility] bill and to make your home more comfortable and safe? *[SELECT ONE FOR EACH]*

[NOTE: non-parts are only asked the * items since they were asked what might be helpful in EN2 about all ESA measures; and don't ask about any equipment they told us they don't have from EN2; participants: don't ask about any measures they already have from the tracking data]

For EN9A through EN9P:

1 Yes
2 No
3 Not applicable
-2 Question removed July 11th
-5 Programming error
-6 Programmed skip
-8 Don't know
-9 Refused

EN9A A new furnace to replace your old one
EN9B Sealing leaks to reduce drafts
EN9C A new air conditioner to replace your old one
EN9D Water saving showerheads or faucet restrictors
EN9E A microwave, only if you don't have one already
EN9F A new clothes washer to replace my old one
EN9G A new water heater to replace your old one
EN9H Information on ways to save energy
EN9I Repair or service of your furnace
EN9J A new refrigerator to replace your old one
EN9K Repairs to broken or leaky windows or doors
EN9L Efficient light bulbs or fixtures
EN9M A new, more efficient TV to replace your old one*
EN9N A new, efficient clothes dryer*
EN9O A new, efficient dishwasher*
EN9P A thermostat to control your heater or air conditioner*

EN10 Is there anything else we have not mentioned that might help you reduce your [utility] bill and make your home more comfortable and safe? *[SELECT ONE]*

1 Yes
2 No *[SKIP TO EN11INT]*
-2 Question removed July 11th
-8 Don't know *[SKIP TO EN11INT]*
-9 Refused *[SKIP TO EN11INT]*

EN10a_opn What do you need? *[RECORD RESPONSE]*

_____
-2 Question removed July 11th
-6 Programmed skip

EN11INT Please tell me if each of the following appliances in your home is working well, in need of repair, not working at all or if you do not have one. For some appliances, I will also ask if it is more than 10 years old.

EN11b *[READ AS NECESSARY]* Please tell me if each of the following appliances in your home is working well, in need of repair, not working at all, or if you do not have one. Furnace or heater?

1 Working well
2 In need of repair
3 Not working at all
4 Not applicable - do not have/do not have in home
-8 Don't know
-9 Refused

EN11bb *[IF EN11b=4, SKIP]* Is your furnace or heater more than 10 years old?

1 Yes
2 No
-3 Question added July 11th
-6 Programmed skip
-8 Don't know
-9 Refused

EN11c *[READ AS NECESSARY]* Please tell me if each of the following appliances in your home is working well, in need of repair, not working at all, or if you do not have one. Central air conditioner?

1 Working well
2 In need of repair
3 Not working at all
4 Not applicable - do not have/do not have in home
-8 Don't know
-9 Refused

EN11cc *[IF EN11c=4, SKIP]* Is your central air conditioner more than 10 years old?

1 Yes
2 No
-3 Question added July 11th
-6 Programmed skip
-8 Don't know
-9 Refused

EN11d *[READ AS NECESSARY]* Please tell me if each of the following appliances in your home is working well, in need of repair, not working at all, or if you do not have one. Window or room air conditioner?

1 Working well
2 In need of repair
3 Not working at all
4 Not applicable - do not have/do not have in home
-8 Don't know
-9 Refused

EN11dd *[IF EN11d=4, SKIP]* Is your window or room air conditioner more than 10 years old?

1 Yes
2 No
-3 Question added July 11th
-6 Programmed skip
-8 Don't know
-9 Refused

EN11g *[READ AS NECESSARY]* Please tell me if each of the following appliances in your home is working well, in need of repair, not working at all, or if you do not have one. Water heater?

1 Working well
2 In need of repair
3 Not working at all
4 Not applicable - do not have/do not have in home
5 It's centrally provided
-8 Don't know
-9 Refused

EN11gg *[IF EN11g=4 OR 5, SKIP]* Is your water heater more than 10 years old?

1 Yes
2 No
-3 Question added July 11th
-6 Programmed skip
-8 Don't know
-9 Refused

EN11h *[READ AS NECESSARY]* Please tell me if each of the following appliances in your home is working well, in need of repair, not working at all, or if you do not have one. Clothes washer?

1 Working well
2 In need of repair
3 Not working at all
4 Not applicable - do not have/do not have in home
-8 Don't know
-9 Refused

EN11hh *[IF EN11h=4, SKIP]* Is your clothes washer more than 10 years old?

1 Yes
2 No
-3 Question added July 11th
-6 Programmed skip
-8 Don't know
-9 Refused

EN11i *[READ AS NECESSARY]* Please tell me if each of the following appliances in your home is working well, in need of repair, not working at all, or if you do not have one. Pool pump?

1 Working well
2 In need of repair
3 Not working at all
4 Not applicable - do not have/do not have in home
-8 Don't know
-9 Refused

EN11ii *[IF EN11a=4, SKIP]* Is your pool pump more than 10 years old?

1 Yes
2 No
-3 Question added July 11th
-6 Programmed skip
-8 Don't know
-9 Refused

EN11j *[READ AS NECESSARY]* Please tell me if each of the following appliances in your home is working well, in need of repair, not working at all, or if you do not have one. Refrigerator?

1 Working well
2 In need of repair
3 Not working at all
4 Not applicable - do not have / do not have in home
-8 Don't know
-9 Refused

EN11jj *[IF EN11j=4, SKIP]* Is your refrigerator more than 10 years old?

1 Yes
2 No
-3 Question added July 11th
-8 Don't know
-9 Refused

EN11L *[READ IF NECESSARY]* Please tell me if each of the following appliances in your home is working well, in need of repair, not working at all, or if you do not have one. Clothes dryer?

1 Working well
2 In need of repair
3 Not working at all
4 Not applicable - do not have/do not have in home
-3 Question added July 11th
-8 Don't know
-9 Refused

EN11LL *[IF EN11L=4, SKIP]* Is your clothes dryer more than 10 years old?

1 Yes
2 No
-3 Question added July 11th
-6 Programmed skip
-8 Don't know
-9 Refused

EN11m *[READ AS NECESSARY]* Please tell me if each of the following appliances in your home is working well, in need of repair, not working at all, or if you do not have one. Dishwasher?

1 Working well
2 In need of repair
3 Not working at all
4 Not applicable - do not have/do not have in home
-3 Question added July 11th
-8 Don't know
-9 Refused

EN11mm *[IF EN11m=4, SKIP]* Is your dishwasher more than 10 years old?

1 Yes
2 No
-3 Question added July 11th
-4 Interviewer error
-6 Programmed skip
-8 Don't know
-9 Refused

EN11k_1 Do you have a microwave?

1 Yes
2 No
-2 Question removed July 11th

EN11k_2 *[READ IF NECESSARY]* Please tell me if each of the following appliances in your home is working well, in need of repair, not working at all, or if you do not have one. Microwave?

1 Working well
2 In need of repair
3 Not working at all
4 Not applicable - do not have/do not have in home
-3 Question added July 11th
-8 Don't know
-9 Refused

EN11a *[READ AS NECESSARY]* Please tell me if each of the following appliances in your home is working well, in need of repair, not working at all or if you do not have one. Stove or oven?

1 Working well
2 In need of repair
3 Not working at all
4 Not applicable - do not have/do not have in home
-8 Don't know
-9 Refused

EN11e *[READ AS NECESSARY]* Please tell me if each of the following appliances in your home is working well, in need of repair, not working at all, or if you do not have one. Doors?

1 Working well
2 In need of repair
3 Not working at all
4 Not applicable - do not have/do not have in home
-8 Don't know
-9 Refused

EN11f *[READ AS NECESSARY]* Please tell me if each of the following appliances in your home is working well, in need of repair, not working at all, or if you do not have one. Windows?

1 Working well
2 In need of repair
3 Not working at all
4 Not applicable - do not have/do not have in home
-8 Don't know
-9 Refused

EN12 *[IF ESA_RCNT=1, SKIP][IF MEASFRDG<>1, SKIP]* Approximately how old is your main refrigerator? Would you say it is …? *[READ LIST; SELECT ONE]*

1 Less than one-year old
2 1 to 5 years old
3 6 to 10 years old
4 11 to 15 years old
5 16 or more years old
-2 Question removed July 11th
-6 Programmed skip
-8 Don't know
-9 Refused

EN12a Is there any other equipment that we have not mentioned that needs to be repaired or replaced? *[SELECT ONE]*

1 Yes
2 No *[SKIP TO EN14]*
-3 Question added July 11th
-8 Don't know *[SKIP TO EN14]*
-9 Refused *[SKIP TO EN14]*

EN12b_opn What is it? *[RECORD RESPONSE]*

_____
-3 Question added July 11th
-6 Programmed skip

EN13 [IF RCTRCAL=1 & MEASAC=1, SKIP] [IF EN11c=4 or EN11d=4] Approximately how old is your air conditioner? Would you say it is …? *[READ LIST; SELECT ONE]*

1 Less than one-year old
2 1 to 5 years old
3 6 to 10 years old
4 11 to 15 years old
5 16 or more years old
-2 Question removed July 11th
-4 Interviewer error
-6 Programmed skip
-8 Don't know
-9 Refused

EN14 Thinking about the light bulbs installed in your home, how many are compact fluorescent lights or CFLs? Would you say it is …? *[READ LIST; SELECT ONE]*

1 All
2 More than half
3 About half
4 Less than half
5 None
6 Don't know how many are CFLs (which may imply they have some)
7 Don't know what a CFL is
-9 Refused

Awareness and Participation in CARE – All

S9INT I was asking you about [utility]'s Energy Savings Assistance program, and now I'd like to ask you about other support [utility] offers to help households like yours.

S9 Are you aware [utility] provides a discounted rate on monthly [gas or electric] bills to income qualified customers? *[SELECT ONE] [source: KEMA LINA, a3]*

1	Yes	
2	No	*[SKIP TO S11]*
-2	Question removed July 11th	
-8	Don't know	*[SKIP TO S11]*
-9	Refused	*[SKIP TO S11]*

S10 *[CARE unaided name awareness]* Can you tell me the name of the program that is associated with this discount rate? *[DO NOT READ; SELECT ALL THAT APPLY]*

For S10_1 through S10_4:

0	Not mentioned
1	Mentioned
-2	Question removed July 11th
-6	Programmed skip
-8	Don't know
-9	Refused

S10_1 CARE or California Alternative Rates for Energy
S10_2 Other (specify)
S10_3 Don't know
S10_4 Refused

S10_2_opn Other name of the program associated with that discount

_____

-2	Question removed July 11th
-6	Programmed skip

S11 *[CARE aided awareness]* The CARE program, which stands for California Alternative Rates for Energy, offers a monthly discount on gas or electric utility bills for income-qualified households.

Before today, have you heard of this discounted rate program? *[SELECT ONE]*

1	Yes	
2	No	*[SKIP TO F14INT]*
-6	Programmed skip	
-8	Don't know	*[SKIP TO F14INT]*
-9	Refused	*[SKIP TO F14INT]*

S12 Has your household ever been on CARE, and received this discount rate? *[SELECT ONE]*

1	Yes	
2	No	*[SKIP TO F14INT]*
-6	Programmed skip	
-8	Don't know	*[SKIP TO F14INT]*
-9	Refused	*[SKIP TO F14INT]*

E22 How did your household find out about the CARE bill discount? *[DO NOT READ; SELECT ALL THAT APPLY]*

For E22_1 through E22_15:

0 Not mentioned
1 Mentioned
-3 Question added July 11th
-4 Interviewer error
-6 Programmed skip
-9 Refused

E22_1 A bill insert
E22_2 An advertisement on your door
E22_3 A phone call to me or the household
E22_4 I called the utility
E22_5 Someone stopped by house
E22_6 Utility website *[SPECIFY SCE, SCG, SDG&E, PG&E]*
E22_7 A friend, family member, or colleague
E22_8 Learned about it though the utility when I signed up for another program
E22_9 Through a community based organization (CBO)
E22_10 A utility representative who was at the home for another reason
E22_11 Other (specify how and from whom)
E22_12 Don't know/Don't remember (including I didn't sign us up, someone else did)
E22_13 The discount is listed on my bill
E22_14 I paid my bill at the [utility] office/bill pay center
E22_15 Mailing/letter/brochure in mail
E22_16* Newspaper
E22_17* Learned about it through landlord/property manager/manager of home
E22_18* Television
E22_19* 211
E22_20* Utility *(general response: e.g., PG&E contacted me)*
E22_21* Utility sponsored event *(e.g., Earth Day an event sponsored by SCG)*
E22_22* Social Services/Case Worker
E22_23* Learned about it after receiving medical equipment/through doctor
E22_24* Through/because I receive Welfare/Unemployment/Social Security/Disability
E22_25* Previously on CARE

E22_6_opn Utility website where your household found out about the CARE bill discount

_____
-4 Interviewer error
-6 Programmed skip

E22_11_opn Other way your household found out about the CARE bill discount

_____
-6 Programmed skip

E30b How did you submit the application? *[DO NOT READ; SELECT ONE]*

1 Online – on my own
2 Mailed in my hard-copy application on my own
3 My utility customer service representative helped me
4 Through a community based organization
5 At a billing processing center/kiosk
6 I don't remember
7 Other *[SPECIFY]*
8 Phone
9* Faxed in application
10* Turned in application to the office
-4 Interviewer error
-6 Programmed skip
-8 Don't know including I didn't submit the application, someone else did
-9 Refused

E30b_7_opn Other way you submitted the application

_____
-6 Programmed skip

E22a Compared to your bills before you were on the CARE discount, are your electric and gas bills now a lot less, somewhat less, somewhat more, a lot more, or about the same [as they were before you were on the CARE discount]?

1 A lot less
2 Somewhat less
3 Somewhat more
4 A lot more
5 About the same as they were before the CARE discount
-4 Interviewer error
-6 Programmed skip
-8 Don't know
-9 Refused

E22b Compared to your energy use before you were on the CARE discount, does your household use a lot more gas and electricity now, somewhat more gas and electricity now, somewhat less, a lot less, or is your gas and electricity use about the same now as it was before you were on the CARE discount?

1 A lot more
2 Somewhat more
3 Somewhat less
4 A lot less
5 About the same as it was before the CARE discount
-4 Interviewer error
-6 Programmed skip
-8 Don't know
-9 Refused

Information Sources (All)

F14INT [Utility] informs people about assistance programs in different ways. I'm going to ask you a few questions to help [utility] improve how it reaches out to households like yours.

F14a Do you visit a local community center or attend community meetings a lot, sometimes, or never?

1 A lot
2 Sometimes
3 Never
-8 Don't know
-9 Refused

F14b Do you go to a religious service a lot, sometimes, or never?

1 A lot
2 Sometimes
3 Never
-8 Don't know
-9 Refused

F0a_1 How do you like to be contacted to learn about programs that could help you and your household? (Do not read; Select one, record first mention)

1 None / Don't want information
2 News: Television, Radio
3 Newspapers
4 Stores / Retailer (e.g., Home Depot)
5 Government partnerships
6 Utility employees / in-person
7 Utility advertising: TV, radio, Internet
8 Utility bill or inserts in the bill
9 Utility separate mail
10 Utility website
11 Word-of mouth: Friends, neighbors, etc.
12 Internet / Websites / Google search
13 Contractors / electricians
14 Community or assistance organizations
15 Other (specify)
16* Phone
17* Email
-2 Question removed July 11th
-8 Don't know
-9 Refused

F0a_2 How would you like to learn about programs that could help you and your household? *(DO NOT READ; SELECT ONE; RECORD FIRST MENTIONED)*

[Note: Response categories changed to the following July 11th]

1 None/Don't want information
2 Phone
3 Email
4 Mail
5 TV
6 Word-of mouth (Friends, neighbors, etc.)
7 Contractors/electricians
8 Community or assistance organizations
9 Other [*SPECIFY]*
12* Come to my home
13* Bill insert/through bill
14* Online/internet
15* Flyer/brochure/print media *(i.e., newspaper)*
16* Any way/doesn't matter how
-3 Question added July 11th
-8 Don't know
-9 Refused

F0aSPEC_opn How would you like to learn about programs that could help you and your household *[From F0a_1 option 15, F0a_2 option 9]*

_____
-6 Programmed skip

F15 *[IF I1=2 or 3 or I1c=1 or 2, SKIP]* Do you have Internet access in your home?

1 Yes
2 No
-5 Programming error
-6 Programmed skip
-8 Don't know
-9 Refused

Household and Demographics Characteristics (All)

S7 This is the final set of questions. Please remember that we will keep your answers confidential and will be used only for reporting about groups of people so we are sure we represent all types of households.

In what year was your home built? Would you say it was built in …? *[READ LIST; SELECT ONE]*

1 2011 or more recently
2 2001 to 2010
3 1990 to 2000
4 1970 to 1989
5 1950 to 1969
6 1949 or earlier
-8 Don't know
-9 Refused

S8 How many years have you lived at *[*address*]*? *[RECORD WHOLE NUMBER] [SOURCE: KEMA LINA, d1]*

___ years at *current* address
-7 Less than one year
-8 Don't know
-9 Refused

S8a *[IF S8<>-8, SKIP]* Would you say it has been…? *[READ LIST; SELECT ONE]*

1 Less than 3 years
2 3-5 years
3 6-10 years
4 11-15 years
5 16-20 years
6 More than 20 years
-6 Programmed skip
-8 Don't know

S6a *[IF S6<>3 or 5, SKIP]* And about how many units are in your building? Is it 2 to 4 units, 5 to 10 units, 11 to 20 units, or more than 20 units? *[SELECT ONE]*

1 2 to 4 units
2 5 to 10 units
3 11 to 20 units
4 More than 20 units
-5 Programming error
-6 Programmed skip
-8 Don't know
-9 Refused

D1 Thinking about the people in your household, including you, how many people live in your home at least 9 months of the year? *[RECORD WHOLE NUMBER]*

____ number in household
-8 Don't know
-9 Refused

D2 How many people in your household, including you, fit into the following age groups? *[ENTER NUMBER OF PERSONS IN EACH AGE GROUP]*

For D2A through D2K:

___ Record response
-6 Programmed skip
-8 Don't know
-9 Refused

D2A Less than 6 years old
D2B 6 to 17 years old
D2C 18 to 24
D2D 25 to 34
D2E 35 to 39
D2F 40 to 49
D2G 50 to 59
D2H 60 to 69
D2I 70 to 79
D2J 80 to 90
D2K Older than 90
[VERIFY: SUM HERE SHOULD EQUAL RESPONSE TO D1]

D3 In what year were you born? *[ENTER 4-DIGIT YEAR]*

____ year born
-9 Refused

D4 Are you married, divorced, separated, widowed, never married, or living with a partner? *[SELECT ONE]*

1 Married
2 Divorced
3 Separated
4 Widowed
5 Never married
6 Living with a partner
-8 Don't know
-9 Refused

D5 What languages are spoken in your home? Are there any other languages? *[SELECT ALL THAT APPLY]*

For D5_1 through D5_14:

0 Not mentioned
1 Mentioned
-8 Don't know
-9 Refused

D5_1 English
D5_2 Spanish
D5_3 Mandarin
D5_4 Cantonese
D5_5 Tagalog/Filipino
D5_6 Korean
D5_7 Vietnamese
D5_8 Other *[SPECIFY]*
D5_9 Don't know
D5_10 Refused
D5_11 German
D5_12 Chinese
D5_13 Danish
D5_14 Russian
D5_15* Arabic
D5_16* French
D5_17* Japanese
D5_18* Italian
D5_19* Portuguese
D5_20* Farsi

D5_8_opn Other language spoken in your home

_____
-6 Programmed skip

D6 *[IF D5SUM <=1, SKIP]* What language is spoken in your home most of the time? *[SELECT ONE]*

1	English
2	Spanish
3	Mandarin
4	Cantonese
5	Tagalog/Filipino
6	Korean
7	Vietnamese
8	Other *[SPECIFY]*
9	Don't know
10	Refused
11	German
12	Chinese
13	Danish
14	Russian
15*	Arabic
16*	French
17*	Japanese
18*	Italian
19*	Portuguese
20*	Farsi
-5	Programming error
-6	Programmed skip
-8	Don't know
-9	Refused

D6_8_opn Other language spoke most of the time in your home

_____

-6 Programmed skip

D8 How would you describe your race? *[READ LIST IF NEEDED; SELECT ALL THAT APPLY]*

For D8_1 through D8_18:

0 Not mentioned
1 Mentioned
-8 Don't know
-9 Refused

D8_1 White *(includes Irish, Italian and European)*
D8_2 Hispanic/Latino *(includes Mexican and Spanish)*
D8_3 Black or African American
D8_4 Asian
D8_5 Native Hawaiian
D8_6 Other Pacific Islander
D8_7 American Indian or Alaska Native
D8_8 Chinese
D8_9 Filipino
D8_10 Japanese
D8_11 Korean
D8_12 Vietnamese
D8_13 Other Asian
D8_14 Guamanian or Chamorro
D8_15 Samoan
D8_16 Some other race *[SPECIFY]*
D8_17 Don't know
D8_18 Refused
D8_19* American

D8_16_opn Other description of respondent's race

_____
-4 Interviewer error
-6 Programmed skip

D9 What is the highest grade or year of school that you have completed? *[SELECT ONE] [READ CATEGORIES ONLY IF NECESSARY TO PROBE] [SOURCE: brfss]*

1 Never attended school or only attended kindergarten
2 Grades 1 through 8 (Elementary)
3 Grades 9 through 11 (Some high school)
4 Grade 12 or GED (High school graduate)
5 College 1 year to 3 years (Some college, technical school, Associates degree)
6 College 4 years or more (College graduate)
-8 Don't know
-9 Refused

D10 [IF D2c through D2k NOT -8 or -9] You mentioned there are *[FILL FROM D2 ABOVE]* people in your home 18 years of age or older. How many of these people are … *[READ LIST; ENTER WHOLE NUMBER OF EACH]*

For D10a through D10d:

___ Record response
-4 Interviewer error
-5 Programming error
-6 Programmed skip
-8 Don't know
-9 Refused

D10a Working full-time, that is working for pay at least 35 hours a week
D10b Working part-time, that is working for pay less than 35 hours a week
D10c Not working and looking for work
D10d Not working and not looking for work
[VERIFY: SUM HERE SHOULD EQUAL TO D2]

D12 Including income from jobs, pensions, disability payments, social security, and other government programs and income, which of the following best describes the income of all members of your household in 2012? Please stop me when I come to the category for your household. Would you say it is...? *[READ LIST; SELECT ONE]*

1 Less than $5,000
2 $5,000 to less than $10,000
3 $10,000 to less than $15,000
4 $15,000 to less than $20,000
5 $20,000 to less than $25,000
6 $25,000 to less than $30,000
7 $30,000 to less than $35,000
8 $35,000 to less than $40,000
9 $40,000 to less than $45,000
10 $45,000 to less than $50,000
11 $50,000 to less than $60,000
12 $60,000 to less than $75,000
13 $75,000 to less than $100,000
14 $100,000 to less than $125,000
15 $125,000 to less than $150,000
16 $150,000 or more
-8 Don't know
-9 Refused

D13 Compared to three years ago, is your household's total income now a lot more, somewhat more, somewhat less, a lot less, or about the same as it was three years ago? *[SELECT ONE]*

1	A lot more	
2	Somewhat more	
3	Somewhat less	
4	A lot less	
5	About the same/no change	*[SKIP TO D11]*
-8	Don't know	*[SKIP TO D11]*
-9	Refused	*[SKIP TO D11]*

D13a *[IF D13=5 or -8 or -9, SKIP]* Tell me more about that. *[SELECT ALL THAT APPLY]*

For D13a_1 through D13a_15:

0	Not mentioned
1	Mentioned
-6	Programmed skip
-8	Don't know
-9	Refused

D13a_1	Moved out
D13a_2	Job change
D13a_3	Job loss/not working
D13a_4	Cut in hours
D13a_5	Increase in hours
D13a_6	Pay decrease
D13a_7	Pay raise/increase
D13a_8	Additional household members working
D13a_9	Assistance from other programs stopped
D13a_10	Something else *[SPECIFY]*
D13a_11	Don't know
D13a_12	Refused
D13a_13	Retired
D13a_14	Death in the family
D13a_15	Increase in SS/SSI/welfare/unemployment/pension
D13a_16*	Hurt/injured
D13a_17*	Economy/Inflation/Cost of living/Recession
D13a_18*	Medical reasons/Health/Got sick/Disabled
D13a_19*	Rent/Bills/Expenses Increased
D13a_20*	Decrease in SS/SSI/welfare/unemployment/pension
D13a_21*	Separated/divorced
D13a_22*	Change in child support payments

D13a_10_opn Other reason your income has changed in the past 3 years

_____
-6 Programmed skip

D11 Are any adults in your household currently unable to work due to a physical, mental, or emotional disability? *[SELECT ONE]*

1 Yes
2 No
-8 Don't know
-9 Refused

D15a Do you or anyone in your household have a hearing impairment or wear a hearing aid?

1 Yes
2 No
-8 Don't know
-9 Refused

D15b Do you or anyone in your household have a vision impairment that cannot be corrected with eyeglasses or contact lenses?

1 Yes
2 No
-8 Don't know
-9 Refused

D15c Do you or anyone in your household require the use of a cane, walker, wheelchair, or other assistance to move around safely?

1 Yes
2 No
-8 Don't know
-9 Refused

D15d Do you or anyone in your household have emotional, nervous, or psychiatric problems?

1 Yes
2 No
-8 Don't know
-9 Refused

D15e Do you or anyone in your household have other chronic medical conditions?

1 Yes
2 No
-8 Don't know
-9 Refused

D17 *[IF D15C<>1 or D15E<>1, SKIP]* Does care for this illness or condition need medical equipment on an ongoing or daily basis that requires the use of electricity? *[SELECT ONE]*

1 Yes
2 No
-4 Interviewer error
-6 Programmed skip
-8 Don't know
-9 Refused

In-home recruitment (Nonparticipants) ESA_NONP=1

R1a *[IF NPRTFLAG<>1, SKIP TO END]* As part of this study, we are also conducting home visits to help us better learn about households like yours so [utility] can improve its programs. If you participate, an interviewer will come to your home and ask you about your household and will record information about your appliances. This visit will be in August and early September and take an hour or two, and you will get a $100 gift card after the visit.

Are you interested in participating in this home visit and receiving $100 if you are selected by our team? *[SELECT ONE]*

[IF NEEDED: Can we take your contact information and you can decide when the technician calls you in a few weeks?]

[IF NEEDED: Participants will receive a $100 Visa gift card.]

1 Yes
2 No *[SKIP TO R1]*
-6 Programmed skip
-9 Refused

R1b_opn If we select you, who should we contact to schedule this visit? *[RECORD NAME OF CONTACT]*

_____
-4 Interviewer error
-6 Programmed skip

R1c_opn and what is the best number to reach you at to schedule this visit? *[RECORD RESPONSE]*

_____
-4 Interviewer error
-6 Programmed skip

WTP recruitment (Nonparticipants)

R1 As another part of this research, we are asking people to complete a short online survey. The survey is short, about 20 minutes and for your time, you will be provided with a $10 gift card. Would you be willing to complete this web survey? *[DO NOT READ; SELECT ONE]*

1 Yes, I can do a web survey
2 No *[SKIP TO END]*
3 Yes, but not online *[DON'T PROMPT BUT RECORD IF THEY SAY THIS – WE MIGHT DO A PHONE OR IN-PERSON VISIT]*
-6 Programmed skip
-9 Refused

R2_opn If you are selected, to what email address should I send a link to the survey? *[RECORD VERBATIM]*

_____
-4 Interviewer error
-6 Programmed skip

Post-call Questions (All)

END Those are all the questions I have. Thank you for your time.

[RECORD AFTER THE CALL]

P1 Gender of respondent. *[SELECT ONE]*

1 Male
2 Female
-1 Not recorded

P2 Language survey was conducted in. *[SELECT ONE]*

1	English - proficient English speaker
2	Spanish
3	Other *[SPECIFY]*
4	English - some trouble with English
-1	Not recorded

California LINA Interview Protocol
Draft for Review
August 9, 2013 – timelines added

Introduction (5 mins) [cumulative clock: 0:00]

Arrival
Hello I am _____ from the Energy Center of Wisconsin here for the energy survey.

Is <participant> available (or ask if he/she is <participant>, if appropriate)? (*Show ID if requested.)*

(*Upon entry, offer to take off shoes if that appears to be the practice – esp if Asian residents – use judgment.)*

If we could sit at a table that would be easiest for me.

Upon sitting down…
(I usually say…) I have a bit of an introduction to read to you to start off. Thank you for taking the time to do this. Again, I'm with the Energy Center of Wisconsin, an independent nonprofit energy research company in Madison, Wisconsin. We are conducting this study for <client> to seek ways to better meet customer needs. We are interviewing 100 households like yours, to better understand the household, energy use, thoughts and experiences with energy and non-energy programs, and programs offered by the utility. Your responses are kept anonymous; they are only used with the overall group, and will not be tied back to your household.

Our report (based on the 100 interviews) will be presented to the California Public Utilities Commission and used to help improve services to households. The interview will take 60-90 minutes, and as part of it I may want to take a look at some of your energy using equipment, and take some pictures of your home and appliances. When we are done, I will give you a $100 Visa gift card from <client> as a thank you for going through this with me. I will also need to get your signature confirming that I gave you the card.

I like to use this mini-recorder to record the interview to make sure I don't miss anything. Would that be ok with you? *(Start it and set it on the table.)*

Do you have any questions for me before we get started?

[cumulative clock: 5:00]

Overview for Interviewers & Reviewers: We want to get to know the household to understand the household composition, decision-making dynamics, constraints and challenges, and trusted social contacts. This will provide useful context for interpreting later responses and analysis. We also will be listening for unprompted indications of energy-related needs and potential drivers and barriers to program participation.

I'd like to get started by learning a bit more about your home and your household.

A1) How long have you lived in this home? [Keep brief, focused on energy issues and implications]

> Would you mind sharing the story of what led you to this particular [house / apartment]?
>
> *(If not mentioned)* Do you know how old your home is? Do you know how many square feet it is?
>
> How do you like the [house / apartment]? [*Probe for additional information on the house or apartment and listen for energy security issues such as livability, safety, comfort]*

A2) How many other people live here with you most of the time?

> Probe for relationship.

A3) Now I have a couple of questions about how your household goes about making decisions. I'm particularly interested in who would be involved in the decision and what factors tend to play the biggest role. Suppose, for example that a major house appliance like a refrigerator or furnace was old and not working well anymore.

> Who would decide whether to repair or replace it?
>
> What things would you (he/she) consider in deciding whether to repair or replace it? **Response coding options** (Cost, convenience, time, household dynamics, landlord)
>
> What information sources would you turn to when deciding what to buy? *[Listen for people, formal information channels, etc.]* **Response coding options** (community group, church, friends/family, information source – list)

A4) Let's focus now on money-saving opportunities. Say you could reduce your monthly bills for services like water, gas or electricity by changing how you do things, or exploring alternative rates or payment plans, but there'd be some time and effort involved to make the arrangements.

Who would decide whether to switch to a different rate plan?

What would be the important factors you (he/she) would consider? [*Probe: Is there a $ amount of savings that would be meaningful enough to make a difference? What is the tipping point between time/effort and money?]* ***Response coding options*** *(Cost, convenience, time, household dynamics.)*

What information sources would you turn to when deciding?

A5) *[if needed]* Are there people outside the home with you'd be likely to talk to when making decisions like this [*refer to examples above*]? [*If needed, offer these examples/* ***Response coding options****: neighbors, family members, friends, co-workers, people in groups you belong to?]*

A6) If you were looking for community or neighborhood information where would you look? [*If needed, probe for detail on the kinds of local groups from which they get information*] **Response coding options** (community group, church, friends/family)

[cumulative clock: 15:00]

B) Non-Energy Programs (3-5 mins)

Overview for Interviewers & Reviewers: In this part of the interview, we intend to capture general attitudes about income-qualified programs, both to identify barriers to utility program participation and to identify information sources through which programs effectively reach participants.

Next, I have a few questions about your opinions about government or social programs intended to help people.

B1) Have you heard of programs like Head Start, Medicaid, WIC, and CalWORKs? What do you think of them?

B2) Have you ever received benefits or services from any of these programs? Which ones?

For each, probe:

Where did you find out about the program?

What was the benefit of being part of that program?

Was there a downside to receiving benefits from that program?

B2.5) [If aware and never participated in any] As far as you know have you ever been eligible for any of these programs? [If yes] Why did you choose not to participate?

[cumulative clock: 20:00]

C) Energy Costs (3-5 mins)

Overview for Interviewers & Reviewers: This section of the interview is intended to understand the interviewee's knowledge of household energy costs and understand the level of energy burden in practical terms. (i.e., What trade-offs does the household need to make or how would they use money not spent on energy costs?) Interviewers will have actual usage data so they know how informed interviewees are.

Let's talk a bit about energy / electricity (gas)...

Energy providers/usage

C1) Can you tell me who your electricity provider is?

C2) Do you have natural gas service as well?

What company provides natural gas service?

C3) Who in your home pays the energy bills?

C4) Do you have a sense of how much you spend on electricity and natural gas per year? [If don't know annual amount, ask whether respondent knows monthly amount.]
Response coding options (note if close to amount we have or not – higher, lower or about the same)

About how much is it? [Note whether annual or monthly. Note we are doing our visits during summer, which may be higher for those in hotter areas than their typical electricity bill.]

How much of that is for electricity and how much for natural gas?

Compared to your other monthly expenses is this high? Low?

C5) *[if multi-family and not already addressed above]* Are any other energy costs included in your rent? If so, which ones?

C6) Do you use any other fuels, such as propane, wood, or heating oil?

[Probe: For what? (for wood: How often)?]

Energy bills / ability to pay

C7) Now let's discuss energy bills in relation to other bills or necessities you have to pay for. Does the energy bill ever make the difference between paying for all your necessities and not being able to afford everything you need?

[if yes]

How often does that happen?

[if regular (a few times a year or more)]

What competes with the energy bill? How do you decide which bill to pay?

Coding options - Apparent self-reported energy burden – none, low (can't afford luxuries such as data plans for a cell phone, big/flat screen TV, premium cable or sat. TV, going out to dinner often), medium (not as comfortable), high (impacting their health, cutting back on food and/or medication, impacting their safety)

[Note: If we recruit supplemental in-home visits (i.e., not via the telephone survey), we will add the telephone survey's energy insecurity questions in this section.]

[cumulative clock: 25:00]

D) Perceived energy-saving opportunities (5-10 mins)

Overview for Interviewers & Reviewers: By asking about perceived energy saving opportunities, we want to get a sense of whether the interviewee thinks that energy efficiency could result in meaningful cost savings, begin to identify available opportunities, and identify barriers to having perceived opportunities realized.

D1) Are there any specific things you have done since moving in to this home to reduce your energy usage?

What did you do?

How did that come about?

[Probe: What level of effort or cost was involved in doing that? *Note to interviewer: we are trying to understand whether the choice was perceived as being costly or difficult/easy to do.]*

How much of a difference do you think that made in your energy bills?

Response coding options: no activity, some activity, high activity
Response coding options: type = practice or investment

D2) What do you think keeps you from saving more energy?

D3) Are there specific steps you can think of that your household could take to reduce your energy bills?

What could you do? *[Probe for specific types of improvements, such as any appliances that seem like they use a lot of energy and could save you money if you replaced them, change your practices, etc. Probe until exhausted.]*

Response coding options: none, few, many
Response coding option: behavior, investment, education/training

How much do you think you could reduce your energy bills if you did all these things? [*If needed, provide choices: no savings per month, a few dollars per month, tens of dollars per month, or hundreds of dollars per month?)*

Which of the things you listed do you think would save you the most?

What prevents you from doing that?

Response coding options: unable to control our usage; can't control members of the household; need it to maintain health (e.g., CAC)

D4) Where would you look if you were interested in more information about ways to save energy? (Probe: if buying a new appliance, if energy bill is high, etc.)

What do you think of [utility] as a source of information on energy and bill savings?

In the past couple years, have you contacted your utility about anything? If so, what?

Have you ever visited the utility Web site and if so, why? [Probe on what, how long ago.]

Response coding options: utility not top of mind, thinks of utility as an information source but not preferred, utility is a preferred source.

[cumulative clock: 35:00]

E) Utility programs (5-10 mins)

Overview for Interviewers & Reviewers: Questions about utility programs will assess what interviewees would like utility programs to do for them (unaided), assess awareness of CARE and ESA, and seek to understand perceptions of ESA among aware non-participants. We will be watching for barriers to ESA participation and missed opportunities to market the program effectively in responses from aware non-participants'. Responses to these questions, together with those about non-energy programs (above), will also provide an indication of willingness to participate. Currently, the section is light on CARE questions and we would expand those questions, but we don't want to duplicate questions on the telephone survey too much.

E1) What, if anything, do you wish your utility (utilities) did to make energy bills easier to afford? (After they say "lower prices" probe for other things…)

[If mention lower rates / charge less]

There is a program called California Alternate Rates for Energy whereby income-qualified households pay a lower rate for energy. Have you heard of this program?

[if yes]

Where did you hear of the program?

Do you know whether you qualify for this program?

[if yes]

Are you currently on the CARE rate?

E2) California's utilities offer something called the Energy Savings Assistance program to help qualified households save money through energy-saving opportunities. Before the telephone survey how much if anything did you know about this program? Can you describe it? (what's in it for them, what does it take to participate)

[If yes]

Do you remember where you heard of it?

[if not mentioned] Have you ever been approached by your utility or a contractor and invited to participate in this program?

[Probe for whether they declined, signed up and didn't follow through, or think they participated.]

What do you think of it?

Response coding options: positive, negative, mixed, no opinion
Response coding options: useful, mixed, not useful/not worth the effort

Probe on:

- what have you heard is involved to get ESA
- perceived benefits

Have you taken advantage of this program? Why/why not?

If yes, when? What was it like? Was it in this home?

If no, is it something you would ever be willing to participate in?

Response codes: not at all, somewhat, very willing

[Probe on which parts of the program would be a deterrent: providing proof of income, get landlord's permission (if rent) or prove ownership (if own), have a contractor in the home, and be home for an hour or more for 2-3 visits]

Response coding options: number of visits, duration of visits, proof of eligibility – income, proof of home ownership/title, landlord permission, can't be home – all adults are working, don't trust contractors, don't trust utility, don't believe it is really free

[If haven't heard of it]

Let me describe the program. The Energy Savings Assistance program involves sending a contractor out to qualified households to identify energy-saving opportunities and then replacing inefficient equipment or make other energy-saving changes for free. You usually need to show documents to prove your income and [owners] proof that you own your home [renters] get your landlord to sign a form. It usually takes a few visits to enroll in the program, find out which equipment you qualify for, and then to do the installations.

Just based on that brief description, is it something you would ever be willing to participate in?

Response codes: not at all, somewhat, very willing

Why/why not?

In order to participate in this program, you would have to take the following steps: provide proof of income, get your landlord's permission (if you rent) or prove you own your home (if you own), have a contractor in your home, and be home for an hour or more for 2-3 visits. Would any of these steps be particularly inconvenient or difficult to do for you or our household?
Response coding options: number of visits, duration of visits, proof of eligibility– income, proof of home ownership/title, landlord permission, can't be home – all adults are working, don't trust contractors, don't trust utility, don't believe it is really free

What do you think would be the best way to let eligible households know about a program like this?

[cumulative clock: 45:00]

F) Home and Equipment (5-10 mins)

Overview for Interviewers & Reviewers: In this section, we will get a sense of the major energy-using equipment in the home, how it's used, and how it's performing. We will be looking for both the degree to which energy-saving opportunities are readily apparent and additional insights on energy insecurity (such as not using equipment to avoid the cost).

Now I'd like to talk about your home and appliances.

F1) What kind of heating system do you have?

F1a) Do you know how old it is?

F1b) Is it working properly? (Probes: If not, describe how it is malfunctioning. How long has it been not working properly? What is keeping it from getting fixed?) (Cost, don't use it, low priority, someone else/landlord is responsible for it)

F1c) Do you use your heating system during the winter?

[if yes]

When or how often do you use it? What factors into your decision to use or not use it? (probe deeply on factors affecting how they use their heating – adapt to what they say and record it)

At what temperature do you keep your home in winter?

[Probe to understand whether the household varies the temperature, how much, and what prompts them to change the temperature setting.]

Is this temperature (are these temperatures) comfortable for you and the rest of your household?

Response options: very, somewhat, not at all comfortable

[If not comfortable, Prompt/record how it impacts them – major (e.g., impacting their health) or minor]

[if no]

Do you heat your home at all? How?

[Probe to understand why.]

F1d) *[If not already mentioned]* Is your house drafty during cold times of year? Where?

Response options: very, somewhat, not at all comfortable

[If drafty, Prompt/record how it impacts them – major (e.g., impacting their health) or minor]

F2) Do you have a cooling system?

F2a) What type is it? *[For example: central air conditioner, window AC, room/sleeve AC, evaporative cooler]*

F2b) Is it working properly? (Probes: If not, describe how it is malfunctioning. How long has it been not working properly? What is keeping it from getting fixed?) (Cost, don't use it, low priority, someone else/landlord is responsible for it)

[Probe/record if it's broken or they just don't use it – how much it impacts them]

Comfort: Response options: very, somewhat, not at all comfortable

[If not comfortable, Prompt/record how it impacts them – major (e.g., impacting their health) or minor]

F2c) Do you use it in the summer? *[If more than one type of cooling system in use, ask about each type separately]*

[if yes]

When or how often?

At what temperature do you keep your home when it is hot outside?

[Probe to understand whether the household varies the temperature, how much, and what prompts them to change the temperature setting.]

Is this temperature (are these temperatures) comfortable for you and the rest of your household?
Response options: very, somewhat, not at all comfortable

[If not comfortable, Prompt/record how it impacts them – major (e.g., impacting their health) or minor]

F3) How many refrigerators do you have?

F3a) How old are they?

F4) Do you have any stand-alone freezers?

F5) Do you use any of those swirly energy-saving light bulbs that are also called compact fluorescent light bulbs? *[Probe on perception and whether they would use if the bulbs were free or inexpensive*]

[if yes]

Roughly what percentage of your lights are compact fluorescent light bulbs?

(if not vast majority) Why don't you use more CFLs? (probe: cost, light quality, bulb performance, impractical in some fixtures, etc.)

F6) Do you have any issues with your windows or doors?

F6a) Are any broken or in need of repair? (Probes: If not, describe problems. How long has it been not working properly? What is keeping it from getting fixed?) (Cost, don't use it, low priority, someone else/landlord is responsible for it)

F6b) Are any of your windows and/or doors drafty? (Which ones?)

Comfort: Response options: very, somewhat, not at all drafty

[If drafty, Prompt/record how it impacts them – major (e.g., impacting their health and major comfort) or minor]

F7) Before continuing on to the walk-through, is there anything you think you need to help better manage your energy usage and feel comfortable and safe in your home? *[if needed]* This might include information about how to save energy or training on how to use and maintain equipment or appliances in your home.

[cumulative clock: 55:00]

G) Onsite Form – see attached

H) Conjoint Analysis Data Collection (10 mins, when done)

[For up to 25 respondents, we will attempt to collect responses to the conjoint survey – using paper manipulatives.]

Interview Close-out (2-3 mins)

Upon completion of the interview, the interviewer will:

- indicate that those are all the questions he/she had
- thank the interviewee for his/her responses and insights
- provide the $100 Visa gift card
- have the interviewee sign a receipt to confirm receipt of the gift card
- answer any questions the interviewee might have
- if interviewee asks for more information about ESA, provide utility leave-behind with contact information

Post-Interview Summary

Overview for Interviewers & Reviewers: After leaving the home, interviewers will record their perceptions on the following topics based on the combination of household responses, non-verbal indicators, interviewer observation, telephone survey responses, and the consistency across all of these metrics.

Summary description of the household (occupants age, household composition, house age, household dynamics or decision making, major challenges).

Information sources

What are the most effective ways to reach this household with information about energy efficiency or programs? Where does the household seem to get its information and whom would the household trust?

Utility web site	Email	Post flyer at:	Direct mail
Television ad	Text message	Community group:	Visit
Newspaper ad	Phone call	Other	Word of mouth/ social networks

Energy burden

To what extent do energy bills impose a burden on this household?

No burden	Small burden	Medium burden	Large burden	Can't tell

Program participation, drivers, and barriers

How likely does it seem that this household would participate in ESA, if offered in the right way? What would be the drivers toward program participation (based on what we learned drives household choices)? What would be the major barriers?

Very unlikely	Unlikely	Likely	Very likely	Inconsistent

Energy needs

What are the self-reported and observed energy needs in this home? What obvious difference could an energy efficiency program make in lowering energy cost or improving health, comfort, or safety?

Space heating	Space cooling	Water heater	Windows	Door(s)

Lighting	Weatherization	Pool pumps	Insulation	Refrigeration
Other				

ESA Interview Topic/Question Areas:

A. **Intro: We are conducting a study with "<utilityname>", other California utilities and the California Public Utilities Commission to better understand the needs of low income customers, particularly regarding their energy using equipment, characteristics of their homes' energy use and the burden of energy costs to them. We also want to understand how well the utility programs currently are –or potentially could – meet the needs of low-income customers. This objective of this interview is to get your perspectives on various customers' needs, in particular with respect to the ESA program. (*Pause for questions – if there are any.*)**

B. **Would you mind starting out with a short summary of the work that you do with the ESA program – which geographical areas/customer segments that you focus on?**

C. Generating Leads & Doing Outreach

- **How do you target customers to conduct outreach to? How are most of your leads generated?**
  IF THERE ARE MULTIPLE WAYS – ASK
  - *What % of your leads come from these different sources?*
  - *Which ones do you use the most? Why?*

- **Do you find some targeting or outreach methods more successful in terms of finding the "right" customers or those most likely to be eligible for the program?**

- **Do you tailor your outreach strategies or messaging differently depending on how the lead was generated? Please describe.**

- **Are some of your outreach methods or strategies more successful in terms of getting customers to actually enroll?**
  - *To what extent does recruitment success depend on how the lead was generated? Are there strategies that work better or worse? Please describe.*

D. Getting folks to Enroll / Participate

- **Also, along the lines of obtaining enrollments, what do you see as the main barriers to getting more customers to enroll in the program? What are the main reasons customers cannot or choose not to enroll in the ESA program?**

- **Are there any other barriers that you have recognized?**
  [I'd FIRST ASK VERY OPEN ENDED – THEN PROBE INTO A VARIETY OF POSSIBLE THINGS AS APPROPRIATE and RELEVANT: E.G.,

    - *eligibility*

        - *documentation requirements*
        - *time to fill out paperwork*
        - *time to participate*
        - *lack of need or perceived need*
        - *lack of desire for what program offers*
        - *other things priority*
        - *fear of being found out as illegal*
        - *not sure I trust you – in general,*
        - *etc.*

- **Have you noticed barriers differ based on who you are talking to, particular personal/situational circumstances, or home characteristics?**
    - If not mentioned – probe for barriers related to renters/landlords
    - PROBE to DESCRIBE/ELABORATE.

- **Based on your observations, what do you think might help reduce some of these barriers to participation?**
    - **[**IF YOU FEEL APPROPRIATE YOU CAN PICK OR CHOOSE FROM POSSIBLE ADDITIONAL PROBES BASED ON WHAT WAS ALREADY NOTED]

E. Benefits of Participation

- **Based on your observations, what do you see as the greatest BENEFITS customers receive from participation?** (PROBE AS APPROPRIATE)
    - *free measures*
    - *saving energy*
    - *saving money*
    - *learning about their energy use and other resources available to them*
    - *other non-energy benefits that may be reflected in things like health, comfort and safety*
    - *etc.*

- **In what ways do these BENEFITS vary – depending on customers' particular personal/situational circumstances, or home characteristics?**
    - PROBE to DESCRIBE/ELABORATE.

F. Assessment of Needs

- **Also, based on your observations, what do you recognize as the greatest energy-related NEEDS of customers?**
    - PROBE AS APPROPRIATE:

        - energy savings, NEBs- health, comfort & safety, free measures, learning about their energy use and other resources available to them, etc.)?
        - **specific equipment, need for repairs or improvements/retrofits.**
        - **needs the program doesn't currently offer/meet – but could /should consider offering**

- **Do you feel that the program addresses these needs?**
    - *Why/Why Not? Gaps?*

- **Have you noticed ways in which these NEEDS vary – depending on customer's particular personal/situational circumstances, or home characteristics?**
    - PROBE to DESCRIBE/ELABORATE.

Those are all the questions we have for you today. Thank you for your time and good information!

CARE Interview Topic/Question Areas:

A. **Intro: We are conducting a study with "<utilityname>", other California utilities and the California Public Utilities Commission to better understand the needs of low income customers, particularly regarding their energy using equipment, characteristics of their homes' energy use and the burden of energy costs to them. We also want to understand how well the utility programs currently are –or potentially could – meet the needs of low-income customers. This objective of this interview is to get your perspectives on various customers' needs, in particular with respect to the CARE program. (*Pause for questions – if there are any.*)**

B. **Would you mind starting out with a short summary of the work that you do with CARE? – a little bit about your organization – and your role there – and the organization's involvement with CARE/ how CARE fits in to your activities?**

C. Outreach / Finding eligible customers

- **How do you target customers to outreach to?**
  - *Are there strategies or sources you use that are more effective or productive for you? DESCRIBE*

- **Do you have difficulties finding the appropriately "eligible"?**

- **Do you take specific steps to try to be sure that the customers are eligible for the program under the current program rules?**

- **Do you find some outreach methods or strategies are more successful in terms of finding customers who are more likely to be eligible for the program?**

- **Are some of your outreach methods or strategies more successful in terms of getting customers to actually enroll?**

D. Eligibility and Getting folks to Enroll / Participate

- **Also, along the lines of obtaining enrollments, what do you see as the main barriers to getting more customers to enroll in the program? What are the main reasons customers cannot or choose not to enroll in the CARE program?**

  [I'd FIRST ASK VERY OPEN ENDED – THEN PROBE INTO A VARIETY OF POSSIBLE THINGS AS APPROPRIATE and RELEVANT: E.G.,
  - *eligibility*
  - *time to fill out paperwork*

        - *lack of need or perceived need*
        - *other things priority*
        - *fear of being found out as illegal*
        - *not sure I trust you – general,*
        - *etc.*

- **Are there any other barriers that you have recognized?**
    - **[**IF YOU FEEL APPROPRIATE YOU CAN PICK OR CHOOSE FROM POSSIBLE ADDITIONAL PROBES BASED ON WHAT WAS ALREADY NOTED]

- **Have you noticed different issues or barriers based on <u>who</u> you are talking to, particular personal/situational circumstances, cultures, age of folks, usage levels, etc.?**
    - PROBE to DESCRIBE/ELABORATE.
    - Are there some groups or types of customers that are easier to reach and get to enroll? Why?

- **What do you think might help reduce some of these barriers?**

- **Based on what you have seen and how you do your work, do you have ideas about how to better reach the "right" customers and reduce the number of customers who get enrolled that may not be eligible?**

E. <u>Customer Needs and CARE</u>

- **What are you hearing about whether customer needs are being met - are they satisfied with the rate?**
- **Considering what you know about the low-income customers you work with in your organization - what would you say are the greatest needs surrounding energy, in terms of energy use and equipment as well as and managing the burden of energy costs?**

Those are all the questions we have for you today. Thank you for your time and good information!

(End of Attachments)