

# **Understanding the Needs of Low Income Customers: Comprehensive, Robust Results from a Needs Assessment Study**

*Tami Rasmussen, Evergreen Economics*  
*Carol Edwards, Southern California Edison*  
*Brenda Gettig, San Diego Gas & Electric*  
*Mary O'Drain, Pacific Gas & Electric*  
*Ava Tran, California Public Utilities Commission*

## **ABSTRACT**

This paper is based on a California Low Income Needs Assessment study for the Energy Savings Assistance (ESA) and California Alternate Rates for Energy (CARE) programs. CARE provides a monthly bill discount and ESA provides no-cost weatherization services to income-qualified households. The study methods included a combination of primary and secondary research.

Based on modeling efforts, both the CARE and ESA programs have been effectively reaching households in areas with higher rates of key eligible (sub)markets in greatest need. However, the program has been less successful in reaching areas with more renters, extreme poverty and higher energy usage. The outreach and delivery channels have been effective in addressing the wide range of characteristics exhibited in the population. Key barriers to ESA participation include trusting a contractor, getting the landlord's approval, being home for appointments, and needing something the program offers. Providing income documents was not found to be a barrier, but due to survey non-response bias, it could not be ruled out as a potential barrier among the hardest to reach customers. Single-family renters have greater energy-related needs and barriers to participation than single-family homeowners and multi-family dwellers.

The paper illustrates the value of conducting research on the low-income customer segment, including primary and secondary research with modeling to comprehensively assess customer needs. Such customer feedback is vital to support major policy and program changes that will have a major impact on critical programs that serve the state's low-income population.

## **Introduction**

On August 23, 2012, the California Public Utilities Commission (CPUC) issued Decision 12-08-044, approving approximately \$5 billion for the IOUs' (Pacific Gas and Electric Company (PG&E), Southern California Edison (SCE), San Diego Gas & Electric (SDG&E), Southern California Gas Company (SCG)) 2012-2014 ESA and CARE programs. In the same Decision, the CPUC mandated that the California IOUs conduct a Needs Assessment to provide updated information to support program and regulatory decisions related to the needs of the low-income customers who are eligible for the ESA and CARE programs.

The CARE program is offered by all four IOUs and provides a monthly discount on energy bills for income-qualified households and housing facilities. 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 organization. Through categorical eligibility, customers who are enrolled

in one of several public assistance programs are also eligible for automatic enrollment in CARE. There is a 90 percent penetration goal (i.e., the ratio of the number of customers enrolled to the number that are estimated to be eligible) set for the CARE program. In 2011 and 2012, the IOUs collectively reached the goal. Given high penetration rates and uncertainty regarding the remaining potential population, Decision 12-08-044 identified the need to attend to and more proactively monitor the eligibility of enrolled customers. 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 no longer qualify.

The ESA program provides no-cost weatherization services to low-income households that meet 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. The CPUC has set a goal for 2020 that all eligible low-income customers are given the opportunity to participate in ESA. The ESA program is also intended to evolve into a resource program that garners significant energy savings.

As of the end of 2012, 32 percent of California IOU households were technically and income-eligible for CARE and ESA, with 95 percent (4.9 million) of eligible IOU households enrolled in CARE. 59 percent (2.4 million) of 2012 eligible California IOU households were treated by ESA during the period of 2002<sup>1</sup>-2012 (Athens 2012).

## Study Objectives and Approach

The overall study objective was to provide information on the needs of the low-income customers eligible for ESA and CARE. In particular, the study was expected to (1) Report estimates of eligible households; (2) Explore the accessibility of the programs; (3) Obtain customer perceptions of the programs; (4) Assess willingness and barriers to participate; (5) Assess the energy-related needs (including measures) of customers; (6) Provide data to support updates of remaining energy savings potential; (7) Collect data on energy burden and insecurity; and (8) Assess the non-energy benefits of the ESA program. The Evergreen Economics study team used numerous data and information sources for this study including primary and secondary research:

- **Literature review and program staff and contractor in-depth interviews.** Review of relevant reports and program information, combined with interviews with program staff and contractors.
- **Secondary data analyses.** Analysis of secondary data from the U.S. Census and American Community Survey, program tracking and billing data, and related low-income study data.
- **Customer telephone survey.** 1,028 surveys with households enrolled in CARE.

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<sup>1</sup> 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 2020 goal.

- **CARE and ESA modeling.** Statistical models to understand drivers of and barriers to enrollment in CARE and participation in ESA.
- **Conjoint analysis.** Conjoint survey and modeling to inform our understanding of drivers of and barriers to ESA participation.
- **In-home visits.** 88 in-home visits with current CARE enrollees whose homes had not been treated by ESA since 2002.
- **Low-income program review.** Review of several low-income energy efficiency programs operating across the country.

## CARE Program Drivers and Barriers

We developed two models to examine access to the CARE program using Census block group data on CARE eligibility, participation and demographics. The CARE models examined differences in demographic characteristics of Census block groups that had varying rates of CARE participation (Stage 1 model) and penetration (which is equal to the ratio of enrolled customers to eligible customers) (Stage 2 model). The modeling allowed the examination of each characteristic while holding all other characteristics constant. The modeling helped to tease out the most important factor since many of the characteristics we attempted to explore are correlated with each other. The Stage 1 modeling results indicated 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,
- Households with no English or Spanish speakers,
- Households on public assistance, and
- Households headed by an African-American.<sup>2</sup>

This first model largely reflects characteristics of census block groups that are at 200 percent of the federal poverty level or below, which is the CARE income-eligibility threshold. The results are not surprising and indicate 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.

The Stage 2 model that examined CARE penetration by census block group 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,

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<sup>2</sup> The Census defines householder (we use 'head of household') as a person in whose name the housing unit is rented or owned.

- Larger households,
- Households with no English or Spanish speakers,
- Households headed by an African-American,
- Households in higher population density areas, and
- Homeowners.

Some of these 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. 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, multi-family renters have relatively lower energy burden (as discussed later in this paper) and may be aware and just not interested in participating. The IOUs are working to improve landlord and tenant forms, and some IOUs offer renters basic measures even if they lack permission from their landlord.

Renters move around more than homeowners (with an average tenure of approximately 6 years compared to 17 years for homeowners based on U.S. Census data), 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.

The program may also need to focus on rural households (who our survey and interview results indicated tend not to trust the IOUs as often, tend to be unaware they are eligible, and are less likely to accept assistance). To reach rural residents may require more outreach with churches and senior centers (rural low-income households attend church more frequently than urban low-income households based on our survey results), 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.

The program may also need to focus on households at or below 100 percent of the federal poverty level (who may have greater barriers to participating and may be less likely to read their energy bills and follow through with a CARE application). 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.

We examined the correlation between poverty, CARE participation and CARE penetration across block groups. In Table 1, we show the distribution of the poverty variable in quartiles along with the corresponding CARE participation and CARE penetration rates, with penetration capped at 200 percent. This study found that the quartile of census block groups with the highest rate of households below the federal poverty level (quartile 4) has the lowest CARE penetration rate (i.e., a high number of customers living in those block groups may be enrolled, but because of the large overall proportion of households below the federal poverty level in those areas, the actual penetration rate of enrollees is actually lower). Conversely, the quartile of block groups with the lowest poverty rate (quartile 1) has the lowest CARE participation rate, but the highest CARE penetration rate. These data support our findings from above.

Table 1. Poverty rate correlation with CARE participation and penetration

Poverty rate quartile:	1 (lowest)	2	3	4 (highest)	Total
CARE participation	16%	24%	35%	53%	32%
CARE penetration	126%	97%	90%	87%	100%

Source: Evergreen Economics, *Needs Assessment for the ESA and the CARE Programs*.

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 verification 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.

Program staff and contractor interviews provided anecdotal evidence that there may be greater barriers to reaching the poorest households, 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 levels 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.

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 limiting participation to households that are truly eligible.

## ESA Program Drivers and Barriers

We developed two models to understand drivers of and barriers to participating in ESA. The ESA modeling Stage 1 results, based on customer-level population data, allow us to examine each characteristic 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 used population data in this analysis and thus represented all low-income households. However with population data there is a limitation on what variables we may observe. The Stage 2 results incorporate self-reported survey data on barriers to participate, but those results represent only the telephone survey sample. Together, however, the two sets of modeling results provide a fairly comprehensive picture of barriers to ESA participation.

### Stage 1 – Population Model Results

The Stage 1 modeling results suggest that the ESA program has been successful reaching some segments of customers that might have greater needs and/or barriers: households with seniors, single-parents, the very poor, non-English speakers (Spanish more than other languages),

and households headed by African-Americans. 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.) PG&E has likely had more success reaching rural low-income customers because with the high number of rural low-income customers in its territory, it has placed a relatively higher priority on rural outreach.

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 a medical baseline rate (indicating they have medical equipment) and those with longer tenure on CARE and in their present home, being more likely to participate. CARE enrollees who have recertified are more likely to participate in ESA, 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 did not include in the model.

ESA Stage 1 results relating to the housing stock include single-family homes, 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 an SCG or PG&E customer) 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.

## **Stage 2 – Telephone Survey Model Results**

The ESA modeling Stage 2 results are based on the survey data sample, so we incorporated self-reported information that we lacked in the Stage 1 model. However, this model has non-response bias issues due to the telephone survey on which it is based.<sup>3</sup> These results are reported in conjunction with the Stage 1 results to try to retain the best of both modeling approaches (including survey data) and reduce the impact of the phone survey bias (by incorporating Stage 1 results, which are based on the population using Census data).

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 households headed by an African-American, non-English speaking households, and 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, our modeling results indicated that “other race” households are more likely than White, Asian and Hispanic households to participate. Similar to the CARE and ESA Stage 1

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<sup>3</sup> We assume that the survey is biased for two reasons. First, the survey does not represent customers who do not speak English or Spanish, which we excluded due to budget and schedule constraints. Second, the survey method is similar to the program recruitment method. Customers who were unable or unwilling to respond to our phone survey are also those most likely to respond to ESA and CARE program outreach. The survey completion rate was about 50 percent. We applied adjustment weights to correct for the second bias issue, which resulted in higher proportions of responses from Whites (non-Hispanic), homeowners and English-speakers. We did not correct for the first bias, but the broader study drew from other sources including Census and contractor interviews that reflected the full low-income population.

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 participation.

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 likely to participate in ESA, complementing the telephone survey results 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, 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.

## **Energy 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 percent. This is likely a higher bound estimate since, relative to the general population, 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 Low Income Needs Assessment study (KEMA 2009). The low-income mean energy burden is estimated at 1.8 times that of the general population.

Figure 1 shows the mean energy burden in descending order for low-income customer segments that have higher than average burden. Factors that contribute to higher energy burden are region (those with greater heating and/or cooling needs), home type (single-family renters have the highest burden), demographics (ethnicity of head of household, language), the home's condition based on self-reported survey responses (weather or climate is a barrier to saving energy in the home, occupants report getting sick often due to the condition of the home) and income (the very poor and households that reported a recent major reduction in income).

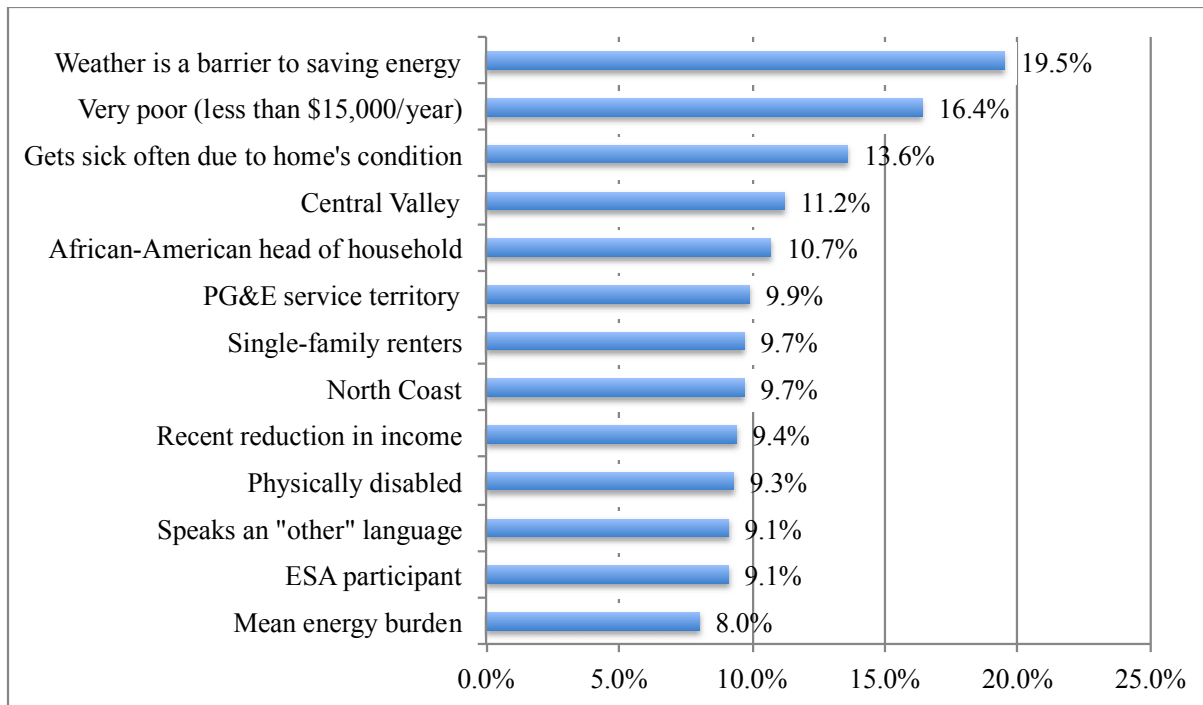


Figure 1. Mean energy burden by segment. *Source:* California IOU billing data and telephone survey.

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 self-reported income. (Non-participant self-reported income is on average 30 percent higher than participants', and non-participant energy usage is 2.5 percent higher than participants'.)

## Energy-Related Needs and Program Benefits

### Health, Comfort and Safety

Based on self-report telephone survey results, there are few current health, comfort and safety needs among the low-income population,<sup>4</sup> with 10 percent or less of respondents saying they experienced these issues “a lot”. These responses may reflect the views of participants whose needs may have already been met by the program, and those of non-participants, many of whom have fewer energy-related needs as compared to participants (e.g., lower energy burden). The in-home visits, which focused just on non-participants, found that roughly one-third of low-income non-participants have current health, comfort or safety needs (either self-reported or observed by an auditor).

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. 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

<sup>4</sup> 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.



improvements in the health of household members, based on telephone survey self-report data. The energy savings results are consistent with actual changes in bills.

### CARE Benefits

The average CARE customer saves \$29/month (33 percent savings) on their electric bill and \$6/month (18 percent savings) on their gas bill, as shown in Table 2.

Table 2. 2012 Average monthly CARE bill amount and CARE bill savings, by IOU

IOU	Monthly Electric Bill			Monthly Gas Bill		
	Usage (kWh)	Cost (\$)	Savings on CARE (\$)	Usage (therms)	Cost (\$)	Savings on CARE (\$)
PG&E	576	\$55	\$40	34	\$29	\$7
SCE	540	\$62	\$20	-	-	-
SDG&E	437	\$53	\$14	23	\$19	\$5
SCG	-	-	-	30	\$26	\$5
Average	547	\$58	\$29	31	\$27	\$6

Source: IOU ESA and CARE Programs 2012 Annual Reports.

### ESA Measures

ESA currently offers a range of measures that tend to align with what customers need and what they find helpful. 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 non-participants. The next most beneficial measure was a refrigerator.

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 is only offered for safety purposes. The IOUs could explore if there are customers where this measure might be cost-effective, based on a certain level of winter gas usage or for regions where heating degree days exceed a threshold.

There may also be different criteria where furnaces are 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.

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 SCG's CARE-eligible population) for the IOUs to coordinate more.

## Single-Family Home Renters

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

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 IOUs could also consider expanding 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 and not using ratepayer funds to subsidize improvements to private property owned by non-low income landlords.

## Screening and Prioritization

Currently, the ESA program is required to treat every eligible home, and offers each 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. 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. There are 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.

## Program Accessibility Recommendations

Below, we present a summary of the study's key recommendations related to program accessibility and barriers to participation that we presented to the IOUs and the CPUC to inform their program planning efforts.

*The programs should continue past successful approaches that have led 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

speaking non-English languages, those low-income households that are headed by an African-American, single-parent households and households with seniors.

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

*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.*

*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.*

## **Energy Needs Recommendations**

Below, we give a summary of the study's key recommendations related to energy needs.

*The ESA program should 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.*

*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 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.*

## **Conclusions**

The California IOUs have achieved high penetration rates for their low-income rate assistance and weatherization programs, in response to ambitious state goals. The research described in this paper provided vital market feedback on the remaining barriers and needs to assist the CPUC in developing program guidance and policies and the IOUs in refining their program design. The study identified that the programs have successfully reached many low-income segments that are considered hard-to-reach through aggressive marketing and outreach efforts. However, there are still customers that are facing hardship related to either their energy bills and/or the condition of the energy-using equipment in their homes. The study provided information about the existing barriers to ESA participation that remain to address those needs, including customers with non-IOU fuel sources, rural customers, customers living in areas served by two different IOUs and rental homes (particularly single-family rental homes due to their larger energy burden). The barriers to reaching the remaining eligible customers may require changes to program policies such as providing renters basic measures even without landlord permission, and/or relaxing income documentation requirements. The IOUs may also consider varying the types of assistance provided to households based on their relative energy burden in order to meet program penetration goals and attempt to balance cost-effectiveness with equity concerns.

The study provided data that suggest that the CARE program may be underserving the very poor, while at the same time enrolling customers whose income exceeds the eligibility threshold. The program must strike a balance in its eligibility requirements and enrollment process to maximize enrollment while minimizing fraud. The IOUs may consider testing additional marketing and outreach strategies (and possibly further relaxing income document requirements) in high poverty areas to attempt to increase enrollments, while maximizing the use of data to reduce enrollments of ineligible customers.

The research methods, which were designed to meet the study resource and schedule constraints, precluded a definitive assessment of low-income customers that do not speak English or Spanish and those that are not willing or able to participate in an IOU-sponsored research effort. However, anecdotal information gathered from in-depth interviews suggests that there are small but needy “very hard-to-reach” customer groups (e.g., those lacking income documents due to immigration status) that will be very difficult to serve (and study).

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