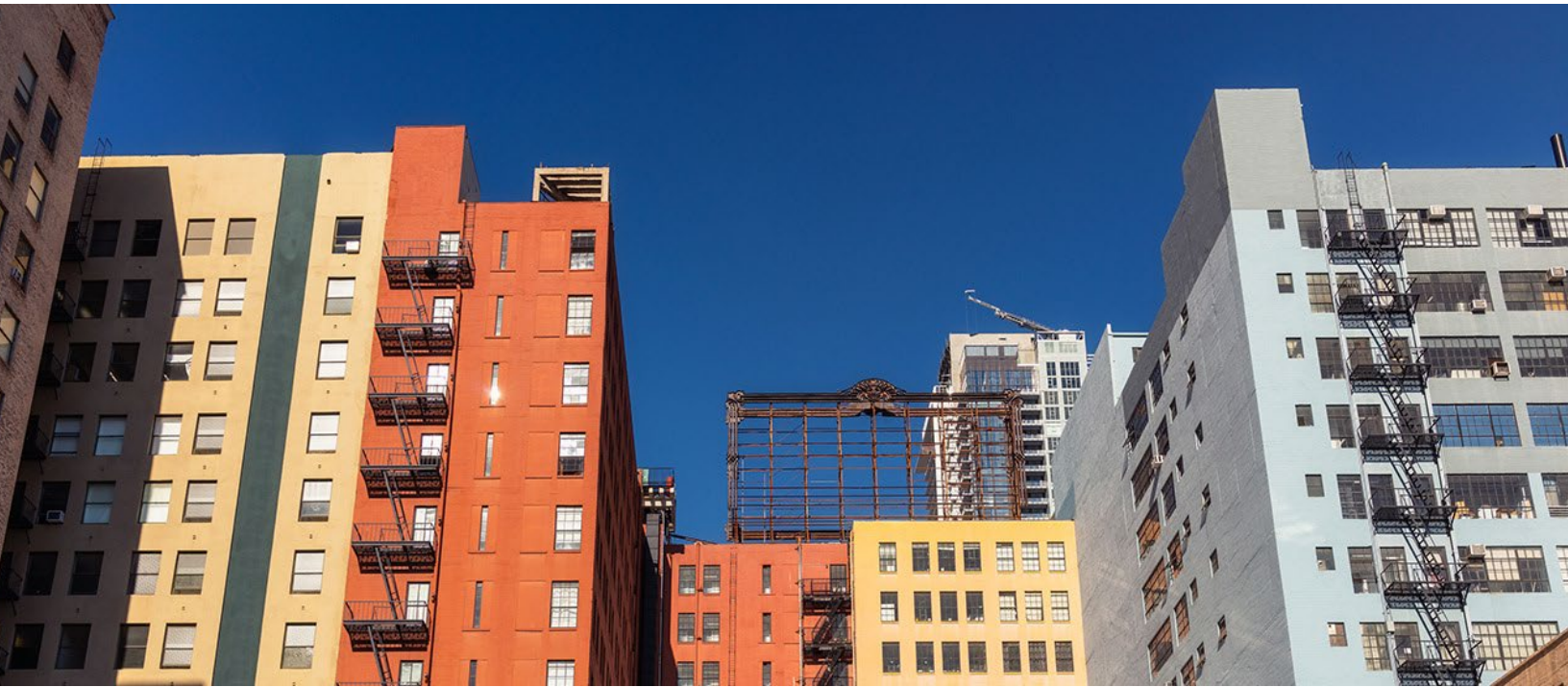




## 2022 Low Income Needs Assessment



# **Final Report**

**December 9, 2022**



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# 1 Executive Summary

## 1.1 Introduction

Assembly Bill 327 (Public Utilities Code Section 382) requires a Low Income Needs Assessment (LINA) to be conducted on behalf of the joint California investor-owned utilities (IOUs) and the Energy Division of the California Public Utilities Commission (CPUC) every three years. The 2022 LINA is the fifth report and focuses specifically on examining the rental housing market. Prior research identified challenges to serving the low-income rental market, such as the split-incentive barrier between property owners and tenants, and contractor challenges in achieving savings in multifamily units given that units tend to be smaller and that some measures exist outside of the tenant spaces.<sup>1</sup>

Much of the prior research on the low-income single-family and multifamily spaces focuses on homeowners or multifamily buildings and does not specifically address the different issues facing the renter households themselves, which span both single-family and multifamily buildings. This study built on key findings from prior research (summarized in Appendix C) and shifted focus to understanding renter household needs and participation barriers in relation to the measures and services offered through the Energy Savings Assistance (ESA) program.

## 1.2 Study Objectives

To understand renters' energy-related needs, the objectives of the 2022 LINA study are to:

1. Identify the size, key characteristics, and energy burdens of the low-income single-family and multifamily rental (and owner) markets;
2. Identify market and program barriers to serving customers residing at different types of rental properties (e.g., single-family; large, medium, and small multifamily; deed-restricted; market-rate);
3. Identify the needs that the program is meeting and/or has met, as well as needs not met by the program, for relevant sub-groups based on housing type, location, energy usage, etc.;
4. Identify and understand the needs of vulnerable populations within the rental market (e.g., households with seniors, children, disabled members); and

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<sup>1</sup> Multifamily common area spaces are served through the ESA Common Area Measure program; this program serves subsidized housing, which makes up only 6 percent of eligible market. This creates challenges, specifically in market-rate housing.

5. Identify potential opportunities (including lack of needs/opportunities) and solutions for meeting renter energy needs based on usage, type of property, etc.

## 1.3 Methods and Approach

To meet these research objectives, the Evergreen team (Evergreen Economics, CIC Research, Inc.; and the Princeton Eviction Lab) relied on numerous sources of data and analysis including:

1. Analysis of California's low-income owner and rental market using **secondary data** such as 2019 Census data, 2019 Athens Eligibility Estimates, and data from the 2019 and 2009 Residential Appliance Saturation Surveys (RASS). This provided an overall characterization of the low-income market in California.
2. A **phone/email survey** with a sample of rental customers (n=1,127) residing in single-family homes as well as in small, medium, and large multifamily homes. This provided a broad understanding of specific needs and differences in needs based on housing type and program opportunities.
3. Semi-structured **phone interviews** with a sample of renters from the phone/email survey (n=40). This activity provided additional details and explanations of energy needs among the sub-population of renters.
4. **Surveys** with a small number of ESA contractors to obtain their perspectives on barriers associated with property owners of rental properties.<sup>2</sup>
5. **Synthesis of primary and secondary data in conjunction with program and policy guidelines** to understand relevant opportunities within different types of low-income renter households. This activity supported an understanding of opportunities from the point of view of specific program offerings.

## 1.4 Key Findings and Recommendations

Key findings are shared for each of the first four research objectives. Where findings led to the identification of potential opportunities and solutions for meeting renter energy needs (objective 5), a recommendation was included along with the expected benefit from the recommendation.

A market characterization identified the eligible ESA population's size and traits, along with energy burdens for both renters and owners. Evergreen utilized these data to design the sampling plan for a large web/phone survey. Data from the market characterization were also used to frame and

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<sup>2</sup> Initially, the research plan included semi-structured phone interviews with a sample of building owners (n=30) covering a mix of ownership types and property sizes. The inability to reach property owners, however, resulted in the need to adopt an alternative approach to understanding key barriers associated with property owners. Ultimately, interviews were conducted with a small sample of ESA contractors to collect their perspectives on property owners and the eligible renter market.

contextualize findings for the other three research objectives identified from the customer surveys and in-depth interviews.

## 1 *Identify the size, key characteristics, and energy burdens of the low-income single-family and multifamily rental (and owner) markets*

**Overall characteristics of the rental market:** In California, almost two-thirds of the low-income population that is eligible for the ESA program are renters. Renters comprise only 50 percent of ESA participants, however. Of the renter households eligible for the program, 51 percent live in single-family homes and 49 percent reside in multifamily units. Among program-eligible renter households, 47 percent only speak English and 31 percent speak Spanish (either exclusively or with some English). An additional 10 percent of eligible renters are bi-lingual households that speak English and another language other than Spanish. These numbers suggest that program outreach conducted in just these two languages should be sufficient to reach the vast majority of the eligible renter population.

Based solely on the renter population numbers, it appears that more renter households could be served by the program (i.e., renter ESA participation rate is lower than the proportion of eligible renter households in the population). As discussed below, however, there are valid reasons why renters may not benefit as much from ESA and/or do not want to participate (e.g., low energy burden, limited potential for improving efficiency of the home). These reasons will be challenging for the ESA program to overcome.

**Comparing energy costs for ESA-eligible renters and owners:** Our research identified several energy-related reasons why renters may be less inclined than owners to participate in ESA:

- **Lower energy bills** (\$1,308 annually for renters compared to \$2,016 for owners); and
- **Lower overall energy burdens**<sup>3</sup> (6.8% for renters on average<sup>4</sup>, compared to 9.4% for owners). Median<sup>5</sup> energy burden is also lower for renters compared to owners (4.5% versus 6.7%).

Among the eligible renter population, single-family households tend to have higher energy burdens than multifamily renters, and single-family homes are consistently larger than multifamily units. Our customer surveys also confirmed that renter households with lower energy burdens

<sup>3</sup> Energy burden is based on a ratio of a household's income relative to its energy costs. Higher energy burden may be a result of either lower income and/or high energy costs.

<sup>4</sup> The average energy burden is skewed upwards due to a small number of households having very low reported incomes.

<sup>5</sup> The median is the point at which 50% of the values are higher and 50% are lower (i.e., the midpoint).

have less interest in participating in the ESA program; 41 percent overall expressed low interest due to already low energy bills, with this rate increasing to 54 percent for multifamily renters in medium and large buildings. Overall, these differences likely contribute to lower participation rates among **renters, who may see less benefit from the program when compared to owners with higher energy use and higher energy burdens.**

Recommendation	Expected Benefit(s)
Prioritize single family renters over multifamily renters for the ESA program.	This will help maximize the benefit of limited ESA resources, as single family renters have higher energy burdens (and therefore higher energy savings potential) than multifamily renters. Single family renters also appear to be more receptive to the ESA program, which makes them easier to recruit.

2

*Identify market and program barriers to serving rental customers residing at different types of rental properties (e.g., single-family; large, medium, and small multifamily; deed-restricted; market-rate)*

**Comparing renter demographics by ESA eligibility:**<sup>6</sup> Comparing renters who *are* eligible for ESA compared to all other renters, eligible renters are more likely to:

- Have a disabled person in the household (32% ESA-eligible, 15% non-ESA eligible);
- Have an elderly person in the household (26% ESA-eligible, 14% non-ESA eligible);
- Have a household led by a single parent (22% ESA-eligible, 12% non-ESA eligible); or
- Have a large family (18% ESA-eligible, 12% non-ESA eligible).

For this study (and summarized below), we explored differences in attitudes and perception of the ESA program among renters. The first step was to determine if there were significant differences within these demographic subgroups, and recommend potential program adjustments that might help reach these households.

- **Overall interest in ESA:** When presented with the ESA program description in the survey, 48 percent expressed little or no interest in participating. Given that the program measures

<sup>6</sup>For this analysis, CARE eligibility is used as a proxy for ESA eligibility, as the income requirements are currently the same. There are additional eligibility requirements for ESA based on building characteristics that are not accounted for in this high-level market overview.



are provided for free and will reduce energy bills, it may seem surprising that low-income renters were not more enthusiastic about participating. As noted above, however, low energy burdens are likely contributing to the lukewarm attitudes toward participating in the program. Additional issues that were explored in the customer survey are also contributing factors, as discussed below.

- **Reasons for lack of interest in ESA:** Among the most common reasons why customers reported a relatively low interest in the program include the following:
  - Customers believe that they already have energy efficient appliances (66%); and
  - Customers reported there is nothing else that will help reduce energy (60%).

These responses are all consistent with the lower energy burden observed for low-income rental households.

**This lack of need (whether real or perceived) creates a unique challenge for both policy and implementation and becomes especially relevant as the program shifts from goals to reach “all low-income customers” to increased effort to reach those with greater needs and savings opportunities.**

**Customer attitudes and relationships with landlords/property owners:** When prompted to think about recent issues in their home that they did not bring up with their landlord, 41 percent said they did not want to “annoy their landlords” about their concerns. This issue was cited more often by single-family renters than by multifamily (55% for single-family compared with 22% to 29% for multifamily).

Other concerns renters have about asking landlords for improvements include:

- **Fears that their rent will be raised (39%).** Relative to those living in single-family dwellings, customers living in small multifamily homes fear their rent will go up if upgrades are made (50% small multifamily, 33% single-family).
- **Skepticism that the program is actually free (36%).** A greater portion of small multifamily renters are skeptical that the program is truly free (49% small multifamily, 41% medium/large multifamily, 29% single-family).
- **Concerns that landlords will not do anything, even if asked.** Multifamily renters were more likely to believe that there is no use in talking to their landlords, as they will not do anything to address the reported issue (46% medium/large and 37% small multifamily, compared with 17% single-family).

Multifamily renters were also more likely to report that their landlord is not onsite or nearby (26% medium/large multifamily, 35% small multifamily compared with 17% single-family). This makes

recruiting multifamily units even more challenging as additional effort is needed by the tenant to engage with the landlord or property manager on this topic.

As these combined findings indicate, apprehension about talking to their landlord is not the most important participation barrier among renter households, although it can be a contributing factor. Most renters believe that there is little opportunity to improve energy efficiency in their homes, and without providing household-specific estimates on energy savings, this barrier will be difficult for the program to overcome, particularly if the home already has a low energy burden. There is some trepidation (mostly with single-family households) about bothering their landlord to request improvements, and this could possibly be addressed by a coordinated program outreach that targets the tenants and property owners simultaneously.

Recommendation	Expected Benefit(s)
Develop outreach strategy that engages renters and property owners simultaneously and that communicates to renters that the program will work with the landlord on their behalf.	This will help ease tenant concerns about contacting the landlord if the program does it for them. It also helps remove a logistical barrier by having the program contact owners that live offsite.

### 3 *Identify needs the program is meeting and/or has met, as well as needs not met by the program, for relevant sub-groups based on housing type, location, energy usage, etc.*

Additional research was conducted for a more in-depth exploration of the potential needs of the sub-population groups of interest, particularly those in more vulnerable or underserved groups.

- **Heating, cooling, and ventilation needs:** Over 25 percent of participants reported needing some form of additional heating, cooling, or ventilation for health reasons. Follow-up interviews with eligible participants suggested that willingness to participate may be determined by whether or not renters believe that ESA treatment of their units will result in a meaningful difference in their heating or cooling-related energy use. Additional HVAC-related findings include the following:
  - **Fifteen percent of eligible renters reported that they need additional cooling<sup>7</sup> for health reasons.** These respondents indicated that they keep their home cooler than they might otherwise due to health issues of one or more family members.

<sup>7</sup> Homes with cooling have at least one of the following appliances: central air conditioning (AC)/heat pump, window AC, swamp cooler, portable AC, AC unit built in a wall, or any other appliance that cools the temperature of a space. Those who have only ceiling fans or portable fans, or who use only windows, are reported as having no cooling.

- **Twenty-seven percent of respondents reported needing additional heating for health reasons.** This is more likely to be an issue for customers residing in subsidized properties (38%) compared to those in market-rate homes (23%).
- **Twenty-three percent of respondents would like additional ventilation for health reasons.** Respondents who reported a need for additional ventilation were also more likely to be concerned about air pollution, compared with households that did not require additional ventilation.
- **Location-specific needs:**
  - Concerns about air pollution were more common in climate group 4 (Mountain/East area, mostly served by SCE and SoCalGas), which is also identified as having higher pollution levels in the CalEnviroscreen tool.
  - Climate groups were consistent with our expectations of electric burden, with higher burdens in regions with greater cooling load.
- **Language-specific needs:** Customers who speak Spanish (and no English) participate in ESA at higher rates than the proportion of Spanish speakers in the eligible population. Based on program penetration alone, it appears that the ESA program is currently successful in recruiting and treating Spanish-speaking households, including those that only speak Spanish. The low income English-speaking population, on the other hand, appears to have a relatively lower rate of participation. There may be potential needs within these groups that the program can address, however, based on any overlapping demographic and geographic factors discussed above.

These findings indicate that the program may be able to increase renter participation by emphasizing the HVAC-related benefits of the program measures to certain groups, particularly the potential health benefits. Improved ventilation benefits might be particularly resonant in the Mountain/East climate area, where air pollution is a greater issue.

Recommendation	Expected Benefit(s)
<p>Modify program outreach messaging to leverage specific sub-population findings.</p> <ul style="list-style-type: none"> <li>● Emphasize ventilation and pollution protection benefits, particularly for renters in the Mountain/East area (Climate group 4).</li> <li>● Emphasize potential bill reduction benefits from HVAC-related measures in the North Coast region (Climate group 1).</li> </ul>	<p>This could help ensure health and comfort benefits among the population living in high pollution areas and/or areas with higher energy burdens due to heating loads.</p>

#### 4 *Identify and understand needs of vulnerable populations within the rental market (e.g., homes with seniors, children, disabled members)*

As noted above, the ESA-eligible renter population is more likely to include potentially vulnerable households (e.g., seniors, disabled, large families). Not surprisingly, the more vulnerable households expressed a greater willingness to participate and a greater reported need for additional cooling and heating due to health reasons:

- **Willingness to participate** is higher for customers residing in subsidized properties, homes where a member has a disability, and homes with a larger number of residents (67%, 64%, and 64% respectively, compared with 52% overall).
- Households with seniors and/or with disabled residents were more likely to report having a **greater need for either heating, cooling, or ventilation for health reasons** (67% of households with a disabled member mentioned needing at least one of the three between heating, cooling, and ventilation compared to only 27% of households without a disabled member).

The ESA program should consider increasing outreach to rental households that include these sub-groups, with an emphasis on providing HVAC-related measures.

Recommendation	Expected Benefit(s)
<p>Increase program outreach to renter households with seniors, disabled residents, or a larger number of residents.</p> <p>Update program marketing materials to emphasize health benefits of program HVAC-related measures, particularly for homes with seniors and/or members with health problems.</p>	<p>Increasing program outreach to these populations may improve health, comfort, and safety, while also targeting groups that have indicated a greater willingness to participate.</p>

## 2 Introduction – Background and Objectives

The Evergreen Economics team (Evergreen Economics, CIC Research, Inc., and the Princeton Eviction Lab) conducted the 2022 Low Income Needs Assessment (LINA) on behalf of the joint California investor-owned utilities (IOUs) and the Energy Division of the California Public Utilities Commission (CPUC). The IOUs provide no-cost services and reduced rates to low-income customers to alleviate their energy burden while improving health, comfort, and safety. For customers with annual incomes 200 percent or less of the federal poverty level (FPL),<sup>8</sup> these services are delivered through the Energy Savings Assistance (ESA) and California Alternate Rates for Energy (CARE) programs.

The 2022 LINA is the fifth in a series of such studies required by AB 327 (Public Utilities Code Section 328) to be conducted every three years. The requirement has a set of legislative mandates including understanding how the CARE and ESA programs address needs related to economic burden, energy bills, hardships, and language. The 2022 LINA examined potential remaining gaps in California's income-qualified programs, with a focus on renters and the rental market. By better understanding renter needs, the ESA program can better meet the intended goal of providing low-income households with energy resources that help to lower energy costs, reduce energy bills, and improve quality of life. Prior research has identified several reasons the existing programs have provided limited benefits to California's low-income rental market, including the well-known split incentive barrier between building owners and tenants. Most efforts to rectify this barrier, however, have focused on strategies to gain owner approval or provide property upgrades, which may or may not address the tenant's energy needs. The fact that the large low-income rental market has historically had ESA participation rates that are lower than its share of the population also supports the need to focus on understanding energy-related struggles more directly tied to low-income renters. The 2022 LINA research was designed to increase our understanding of renters' energy-related needs in relation to the current measures and services offered via the ESA program.

Based on this background, the primary 2022 LINA objectives were to examine the rental housing market, assess potential unmet needs and ESA program gaps, and identify opportunities (or lack of opportunities) for the program to serve low-income tenants living in different types of rental housing. This includes multifamily and single-family properties as well as deed-restricted and non-deed-restricted buildings.

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<sup>8</sup> Note that as of July 1, 2022, the percentage has increased from 200 to 250 percent. This analysis uses the previous 200 percent guidelines.

In particular, the study sought to:

1. Identify the size, key characteristics, and energy burden of the low-income single-family and multifamily rental (and owner) markets;
2. Identify market and program barriers to serving rental customers residing at different types of rental properties (e.g., single-family; large, medium, and small multifamily; deed-restricted; market-rate, etc.);
3. Identify the needs that the program is meeting and/or has met, as well as needs not met by the program, for relevant sub-groups based on housing type, location, energy usage, etc.;
4. Identify and understand the needs of vulnerable populations within the rental market such as homes with seniors, children, or disabled, etc.;
5. Identify potential opportunities (and lack of needs/opportunities) and solutions for meeting renter energy needs based on usage, type of property, etc.

## 3 Research Methodology

The study used multiple data sources and research methods to address the research objectives. Each of these are described in more detail below.

### 3.1 Market Characterization Based on Secondary Data

Evergreen utilized data from multiple existing sources to develop a statewide characterization of the low-income population that includes both renters and owners. This analysis utilized some of the same sources (with updated data) as was done for the 2013 and 2016 Low Income Needs Assessments (LINAs), which also allowed for some market-related comparisons over time. The 2022 market analyses were based on the following data sources:

- 2018-2020 utility program data for the Energy Savings Assistance (ESA) program and the 2021 California Alternate Rates for Energy (CARE) program;
- 2019 Athens Research estimates of ESA and CARE eligibility by investor-owned utility (IOU), county, and zip code;<sup>9</sup>
- 2009 California Residential Appliance Saturation Survey (RASS) characteristics of heating, cooling, and ventilation equipment used by eligible households;<sup>10</sup>
- 2019 US Census and American Community Survey (ACS) data with statistically representative estimates of program eligibility and characteristics of these households (e.g., tenure);<sup>11</sup>
- 2021 CoStar listings of multifamily properties and tenant units by building size and county;<sup>12</sup>

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<sup>9</sup> Athens Research. 2019. "Estimates of Energy Savings Assistance and California Alternate Rates for Energy Program Eligibility [Geography I]." Prepared for the California IOUs.

<sup>10</sup> KEMA, Inc. 2010. *2009 California Residential Appliance Saturation Study*. California Energy Commission. Publication number: CEC- 200-2010-004-ES.

DNV GL Energy Insights USA, Inc. 2020. *2019 California Residential Appliance Saturation Study*. California Energy Commission. Publication Number: CEC-200-2021-005-ES.

While the 2019 RASS report was public at the time of this analysis, we were unable to access the underlying data to make custom tables from the 2019 RASS data and were therefore limited to the 2009 RASS in many instances.

<sup>11</sup> U.S. Census Bureau. 2021. *2016-2020 American Community Survey 5-year Public Use Microdata Samples [JSON API]*. <https://www.census.gov/data/developers/data-sets/acs-5year.html>

<sup>12</sup> CoStar Group. 2021. *CoStar CRE Data*. <https://www.costargroup.com/>  
Data on California properties accessed in February 2021.

- 2019 US Department of Housing and Urban Development (HUD) American Housing Survey (AHS) prevalence of housing subsidies by household income, occupancy, and region;<sup>13</sup> and
- 2021 IOUs' Customer Information System (CIS) data.

The goal of compiling and analyzing these data sources was to create a general picture of the low-income population in California and develop additional detail on the renter submarket. Analysis of these secondary data sources provided the basis for the characterization of the low-income population in California including overall comparisons between low-income customers who rent versus those who own their homes. In addition, these data were used to identify unique features of these populations based on specific topics such as program enrollment rate, energy burden, geographical differences, and program opportunities.

Analysis of these data was also used to inform the sample design for the phone survey as well as the content for the in-depth interviews.

### 3.1.1 Data Sources

Table 1 provides an overview of the data used for the energy burden calculations,<sup>14</sup> along with details such as sample size and data year, associated with each data source. There is no single data source that provides all the information needed to understand differences between CARE-eligible<sup>15</sup> homeowners and renters. While each of the data sources have strengths and weaknesses, for the analyses of each population of interest, the data source(s) were selected to maximize accuracy and sample size. While secondary sources provided a great deal of insights needed for the analysis, the primary research that surveyed customers includes details and information not available in the secondary sources.

**Table 1: Data Sources for Energy Burden Calculation Inputs**

Population	Data Source	Sample Size	Concerns
CARE-eligible households (also split by own vs. rent)	2019 American Community Survey Public Use Microdata Sample ( <b>ACS PUMS</b> ) estimates for small geographic areas or	n=151,700 households in California	Anonymized; geographic sampling regions do not align with IOU service territory boundaries; self-reported income and energy bills

<sup>13</sup> U.S. Department of Housing and Urban Development (HUD). 2022. *2021 American Housing Survey (AHS)* [Public Use File]. <https://www.census.gov/programs-surveys/ahs/data.html>

<sup>14</sup> Energy burden is a commonly used metric to understand relative impact of energy costs for different customers based on their income. Energy burden is generally calculated as the ratio of energy costs to total household income.

<sup>15</sup> Note that CARE eligibility, at the time of this report, uses the same income and home occupancy qualifications as ESA. ESA eligibility does have additional housing requirements that do not exist for CARE.



Population	Data Source	Sample Size	Concerns
	Public Use Microdata Areas (PUMAs)		
CARE participants	Income recorded during CARE or ESA program enrollment in 2018-2020 and monthly <b>utility billing</b> data from 2018-2021 provided by the <b>IOUs</b>	n=24,208 random sample of CARE customers (a mix of owners and renters)	<p>Only includes low-income program participants (no option to compare against eligible non-participants); most categorically eligible customers will be excluded from the energy burden analysis because they do not have to report income to the IOU (some of them were retained by imputing income based on the CARE income limit [% of FPL] when occupancy was reported).</p> <p>Records of households served by multiple utilities were not linked (this would only be feasible with a complete extract of CARE participants and manual address matching).</p>
CARE renters	Self-report from <b>customer survey</b> in 2021-2022 (recruited from the pool of IOU contacts)	n=1,127 CARE customers who rent	Potential non-response bias, which is often more of an issue for low-income/hard-to-reach households. Our concerns about relying on self-reported income and bill costs were mitigated by merging IOU-provided income and bills, wherever possible.

### CARE-Eligible Households

For analysis of the overall CARE-eligible population including low-income property owners, the 2019 ACS PUMS was the primary data source, with self-reported expenditures on electricity and natural gas as well as self-reported household income by source. The top and bottom 5 percent of households by income and by energy expenditure (for both gas and electric) were removed prior to analysis to limit the influence of outliers on our population estimates.

### CARE Participants

The utility data include a random sample of CARE participants from all four IOUs. Actual electric and/or natural gas utility bills were received and reviewed; however, Evergreen was limited to

analyzing electric only or gas only bills for households that were served by two separate utilities.<sup>16</sup> To process these billing data, duplicated bills (by date) and overlapping bills were removed first. Next, each customer was required to have at least one bill provided in each of the four seasons and that each season be represented by at least 10 days. The top and bottom 5 percent of energy bills across all IOUs were removed to limit the influence of outliers. The CARE participant data and billing data were matched by customer and premise ID (where applicable), for a total of 17,504 electric and 6,704 gas accounts available for the analysis.

The best available reported household income from the utility data for each customer was selected. Where feasible, IOU-provided income recorded during the most recent CARE program enrollment was relied upon. When this field was incomplete or not available, household income reported during ESA program enrollment was used. If both values were unavailable, the household's income was imputed, based on reported household occupancy and the CARE program eligibility threshold (200% of federal poverty level [FPL] for that occupancy).<sup>17</sup> If household occupancy was also unavailable, the customer was dropped from the energy burden analysis.

Table 2 provides an overview of the CARE participant sample with sufficient viable data by IOU. The sample began with a total of 48,600 electric and 34,003 gas accounts from participants in CARE. Approximately 26 percent of electric accounts and 13 percent of gas accounts were dropped because the bills did not reflect at least 10 days from all four seasons. The primary reason records were eliminated from the original dataset was due to a lack of household income data, with 29 percent of electric accounts and 50 percent of gas accounts having no reported household income in the CARE or ESA program tracking data, and no reported occupancy that was usable to impute income. Southern California Gas (SoCalGas) and San Diego Gas & Electric (SDG&E) accounts were more likely to not have an income level estimate for the account, resulting in more accounts being dropped from these two IOUs.

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<sup>16</sup> Linking electric and gas accounts data for each customer would need to be done manually and is very labor intensive. For this reason, it was decided during the research planning phase not to pursue this and instead focus project resources on other higher priority research tasks.

<sup>17</sup> We did some sensitivity analysis, estimating household energy burden with and without these imputed incomes and found that there were no statistically significant differences in the electric burden and only small changes to gas burden. The proportion of households with low or very low gas burden decreased from 72 percent to 69 percent and high burden increased from 28 percent to 30 percent. See Appendix B for details.

**Table 2: Number of CARE Participants with Valid Data by IOU**

	PG&E		SCE	SoCalGas	SDG&E	
	Electric	Gas	Electric	Gas	Electric	Gas
Received billing data	14,942	10,756	22,206	17,458	11,452	5,789
Has 10+ days from all four seasons	6,862	9,808	20,878	15,384	8,307	4,275
Links to CARE and/or ESA participant file	6,862	9,808	20,878	15,384	8,307	4,275
Trim top and bottom 5% of bills	6,026	8,406	18,445	14,324	7,964	3,788
Reported household income or occupancy (for an imputed income) in CARE or ESA	4,635	6,520	13,628	2,883	178	106
<b>Final sample for energy burden analysis</b>	<b>4,635</b>	<b>6,520</b>	<b>13,628</b>	<b>2,883</b>	<b>178</b>	<b>106</b>

The phone/web survey of low-income renters provided an opportunity to request household income data from more customers and calculate a separate energy burden for CARE renters with these additional data. A customer's actual bill costs were used for the energy burden calculations from the survey, as self-reported energy bills were less reliable. See Appendix B for more findings from our analysis comparing IOU energy bills and income to the self-reported values from the survey.

### Modified Energy Burden<sup>18</sup>

"Modified burden" adjusts the income of the burden calculation to include financial value of several public assistance programs including the Supplemental Nutrition Assistance Program (SNAP), Medicaid, or housing vouchers). This is done to better compare the "disposable" income that is available to pay their energy bill since customers without the subsidies pay a larger share of income for these other essential needs. When non-cash benefits such as housing vouchers and subsidies, food subsidies, and medical insurance are included, prior research has shown the energy burden for households at the lowest income levels is significantly reduced.<sup>19</sup> Survey data

<sup>18</sup> Modified energy burden refers to an adjusted burden calculation that includes other subsidies a customer may receive to offset expenses that are typically paid from one's income. To better understand the "true" burden a customer faces, the value of housing, food, and medical subsidies are calculated and included as part of the "income" in the burden calculation.

<sup>19</sup> Fraser, Jenny, Tami Rasmussen, Ingo Bensch, and Carol Edwards. 2017. "More Tools in the Toolbox – An Examination of Metrics for Low-Income Customer Energy Burden." International Energy Program Evaluation

supplemented these data, and the surveys gathered additional information (e.g., other sources of support, income for categorically enrolled customers) relevant to energy burden calculations, but not collected when the IOU contractors enrolled customers in CARE or ESA.

### 3.2 Renter Phone and Web Survey

The phone/web survey was conducted with 1,127 renters to understand relevant differences across the rental market including both renters of single-family homes and those living in multifamily buildings. The following information was gathered via the surveys:

- Demographics (number in household, ethnicity, age of household members, tenure at current home, type of lease, language spoken, age of bill payer);
- Building characteristics (building type, vintage, heating and cooling types);
- Household financial information (income, monthly rent, employment status);
- COVID-19 pandemic impacts;
- Household approach(es) to managing various bills; concerns specifically associated with energy bills and costs, as well as energy-related health, comfort, and safety;
- Nature and frequency of interactions with landlords, interest in communicating with landlord, and utility bill responsibility (renter or landlord); and
- ESA program awareness and interest including reasons for lack of interest.

The survey was conducted with renters either over the phone (1,055, 195 of which were in Spanish) or via an on-line web survey (72). A web survey allowed us to reach respondents who are wary of answering unknown phone calls or who may not have time to take a phone survey at the time of a call. All of the customers in the sample frame were enrolled in CARE (i.e., screened for income-eligibility by the IOU) at the time the contact data were pulled by the IOUs; all known owners were removed (own versus rent was only reported for ESA participants), and respondents were asked to confirm that they were renters before moving forward with the survey.

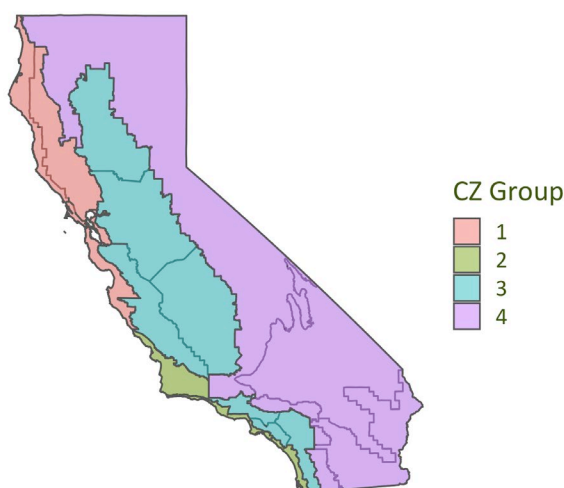
The following tables show how the survey sample was divided across several different markets and population subgroups. The market characterization supported the development of a sample frame for the primary data collection and facilitated statistically representative results across key strata. In all cases, the survey quotas were designed to get a mix of building types between single-family homes and multifamily complexes of different sizes.

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Conference. [https://www.iepec.org/wp-content/uploads/2018/02/2017paper\\_fraser\\_rasmussen\\_bensch\\_edwards-1.pdf](https://www.iepec.org/wp-content/uploads/2018/02/2017paper_fraser_rasmussen_bensch_edwards-1.pdf)

Climate zones were grouped as shown in Figure 1. Climate group 1 consists of climate zones 1, 2, and 3 along the North Coast; climate group 2 consists of climate zones 5, 6, and 7 on the South Coast; climate group 3 consists of climate zones 4, 8, 9, 10, 11, 12, and 13 in the Central Valley; and climate group 4 consists of climate zones 14, 15, and 16 in the Mountain/East regions.<sup>20</sup> Table 3 provides an overview of weather in each climate group in terms of the typical heating and cooling degree days (HDD and CDD), as well as the record high and low temperatures. Climate group 4 has the most extreme weather, with hot summers and cold winters. Climate groups 1 and 2 along the coast are more moderate, group 1 requires more heating, and group 2 requires more cooling. The climate in each region will impact renter priorities for making upgrades to their heating, cooling, and air tightness (i.e., weatherization).

**Figure 1: Map of Climate Groups and CEC Building Climate Zones**



**Table 3: Climate Group Definitions**

Climate Group	CEC Building Climate Zones	HDD (base 65°)	CDD (base 80°)	Record High (°F)	Record Low (°F)
1 – North Coast	1-3	2,563 - 4,554	0 - 894	113	14
2 – South Coast	5-7	742 - 2,954	173 - 1,201	111	20
3 – Central Valley	4, 8-13	1,154 - 4,287	220 - 2,246	119	19
4 – Mountain/East	14-16	1,080 - 5,991	235 - 6,565	122	-7

Source: Pacific Energy Center, October 2006<sup>21</sup>

<sup>20</sup> A map of the climate zones can be found at

<https://caenergy.maps.arcgis.com/apps/webappviewer/index.html?id=5cfefd9798214bea91cc4fddaa7e643f>

<sup>21</sup> *The Pacific Energy Center's Guide to: California Climate Zones and Bioclimatic Design*. 2006.

[https://www.pge.com/includes/docs/pdfs/about/edusafety/training/pec/toolbox/arch/climate/california\\_climate\\_zones\\_01-16.pdf](https://www.pge.com/includes/docs/pdfs/about/edusafety/training/pec/toolbox/arch/climate/california_climate_zones_01-16.pdf)

Table 4 provides the count of income-eligible customers by climate group within each IOU service territory. Eligible households served by SCE and SoCalGas are primarily located in climate group 3, households served by SDG&E are primarily in group 2, and PG&E households are split between groups 1 and 3. See Appendix B for more information about the geographic distribution of eligible customers within each IOU service territory.

**Table 4: Concentration of Income Eligible Households by IOU and Climate Group**

IOU Served	Climate Group 1	Climate Group 2	Climate Group 3	Climate Group 4
PG&E	35%	3%	55%	6%
SCE	0%	16%	66%	18%
SDG&E	0%	66%	31%	3%
SoCalGas	0%	13%	75%	12%

Table 5 reflects survey responses across these four climate groups and building types. The climate groups (North Coast, South Coast, Central Valley, and Mountain/East) were developed to differentiate general weather conditions to help understand the needs and impacts of the ESA program. The sample quotas also allowed for sufficient representation of rural households.<sup>22</sup> Strata for different categories of rental properties were created to ensure that a mix of building and ownership types were adequately represented. The survey prioritized obtaining responses from as many residents of large multifamily properties as possible. Ultimately, given the small number of large (40+ unit) properties, the renter responses from medium and large properties were combined into one group.

If a randomly selected CARE participant were to be called, there would be a 57 percent<sup>23</sup> chance that they would be an owner and therefore ineligible for the survey, depending on which climate zone they reside in. To reduce the number of calls made to owners, the sample was stratified by renter concentration within each zip code. We received more contacts and made more phone calls to the zip codes with higher concentrations of renters, supplementing these with calls to zip codes with lower concentrations to ensure that responses from a wide range of geographies were received. With this stratification, a call to a randomly selected CARE participant in our sample frame had a 44 percent chance of being an owner (down from 57%). This approach is similar to the

<sup>22</sup> The survey completes include 277 responses from rural renters (25%).

<sup>23</sup> Based on Evergreen analysis of the 2019 Census ACS public use microdata for income-eligible households in California by own versus rent.

method that was deployed for the 2016 LINA to identify CARE-eligible non-participating customers. This made the renter survey recruitment process more efficient.

Table 5 shows the number of respondents by housing type and climate group. A total of 1,055 surveys were conducted via phone, and of those phone interviews, 195 were conducted in Spanish (17%). Most of the contact data used for the survey recruitment (n=40,737 contacts) came from the IOUs. After exhausting all the IOU contacts in climate groups 2 and 3, 4,425 additional low-income renter contacts were purchased from Data Axle, a consumer data provider with a large database of customer contacts linked to demographic information. These Data Axle contacts led to 12 of the 1,127 total completes (or 1%).

**Table 5: Phone/Web Survey Completes by Housing Type and Climate Group**

Building Category	Climate Group 1	Climate Group 2	Climate Group 3	Climate Group 4	Total Survey Completes
Single-Family	71	41	59	51	222
Multifamily - Small (2 to 10 units)	78	79	100	55	312
Multifamily - Medium (11 to 39 units)	156	137	199	101	593
Multifamily - Large (40+ units) <sup>24</sup>					
<b>Total</b>	<b>305</b>	<b>257</b>	<b>358</b>	<b>207</b>	<b>1,127</b>

Note: The target of 75 single-family completes from climate group 2 and 100 in climate group 3 was not achieved. At the conclusion of this research, the target for medium to large multifamily completes was not met in climate groups 2 (n=150) or 3 (n=200).

Several key demographic sub-populations were also identified, and minimum survey soft quotas were established to ensure that statistically representative survey results were obtained for each group (Table 6). Note that the totals for these groups are less than the full 1,200 survey targets; consequently, some groups received more than the targeted minimum shown in the table.

<sup>24</sup> Given the small number of large (40+ unit) properties, the tenant responses from medium and large properties were combined into one group.

**Table 6: Renter Survey Completes by Quota Group**

Building Category	Large Family	Elderly	Disabled	Other Language Spoken in Home	Single Parent	Subsidized	Market-Rate
Single-Family	80	33	56	108	24	28	194
Multifamily - Small (2 to 10 units)	58	69	88	160	33	44	268
Multifamily - Medium (11 to 39 units)	37	49	60	119	23	57	163
Multifamily - Large (40+ units)	53	111	126	165	48	134	239
<b>Total</b>	<b>228</b>	<b>262</b>	<b>330</b>	<b>552</b>	<b>128</b>	<b>263</b>	<b>864</b>

Note: The single-family quotas for 70 survey completes from elderly, disabled, single-parent, or subsidized housing were not achieved.

See Appendix A for information on how responses were weighted to represent the population of low-income renters in California.

### 3.3 Discussions with ESA Contractors and Tenants

The quantitative analysis of secondary data and survey data was complemented by additional qualitative data collection to provide additional context and deeper insights into the issues identified in the renter survey. These efforts consisted of:

- Phone interviews with 11 ESA contractors;
- Phone interviews with 36 renters living in all types of housing; and
- A brief survey of 8 contractors specifically soliciting information on property owners' barriers and perspectives.<sup>25</sup>

<sup>25</sup> This was added to accommodate the inability to get direct input from property owners and was not part of the original research plan.



### 3.3.1 Initial Interviews with ESA Contractors

Telephone interviews with 11 ESA contractors covered:

- Contractor organization background;
- Perspectives on the energy needs of low-income renters; and
- Experience with non-English and non-Spanish-speaking households.

Interviews were conducted in spring 2022 and lasted about 45 minutes each. The interviews also informed the design of the survey and other data collection efforts.

### 3.3.2 Final Discussions with ESA Contractors

Evergreen faced challenges in reaching property owners.<sup>26</sup> As a result, the study team opted to try to learn more about property owner-related barriers and interests indirectly through a small number of ESA contractors that have extensive experience providing ESA treatments to low-income renters. Each IOU provided a brief list of questions to employees in management roles at several active ESA contractor firms.

The questions covered the following:

- How contractors reach out to and engage with decision makers of different types of multifamily and single-family properties;
- Contractors' perceptions of customer interest, property owner interest, program opportunities, and other barriers associated with reaching the rental market; and
- The types of properties most difficult to find or treat.

### 3.3.3 Tenant Interviews

Following the larger phone survey, renters were recruited for one-on-one phone discussions to provide additional insights and details regarding issues covered in the initial phone survey. The follow-up interviews provide context and depth on the relative importance of the drivers and barriers, and how they reveal themselves during customer decision-making.

Ultimately, 36 interviews were conducted with renters who had completed the initial phone survey. Interviewees fell into one or more of the following four segments: single-family renters, multifamily renters in market-rate buildings, multifamily renters in affordable housing, and higher energy users, which are defined as renters at or above the 80<sup>th</sup> percentile of energy usage among the survey respondents.

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<sup>26</sup> See Appendix A for additional detail on disposition.

Table 7 lists the completions by sample group. The 30-minute interviews were conducted between May and July 2022. Though customers fell into one of the four segments, there were too few per segment to support reliable analysis by segment.

**Table 7: Renter Interviews by Segment**

Segment	Completions	Population Size in Survey
Single-family renters	12	132
Multifamily renters in market-rate buildings	13	136
Multifamily renters in affordable housing	11	398
High users	11	128
<b>Total</b>	<b>36</b>	<b>666</b>

Of the 36 interviewees, 5 indicated that they may have participated in the program in the past after hearing a description of what it offers. Three other interviewees had other on-going or past experience with the program, including one each who (1) recently applied to a program that fits ESA's description and was waiting to hear back, (2) was going through the process of being treated by a program that fits ESA's description, and (3) had participated as a landlord previously.

Topics addressed included follow up on initial survey questions associated with

- The tenant-landlord relationship;
- ESA program interest; and
- Health, comfort, and safety needs.

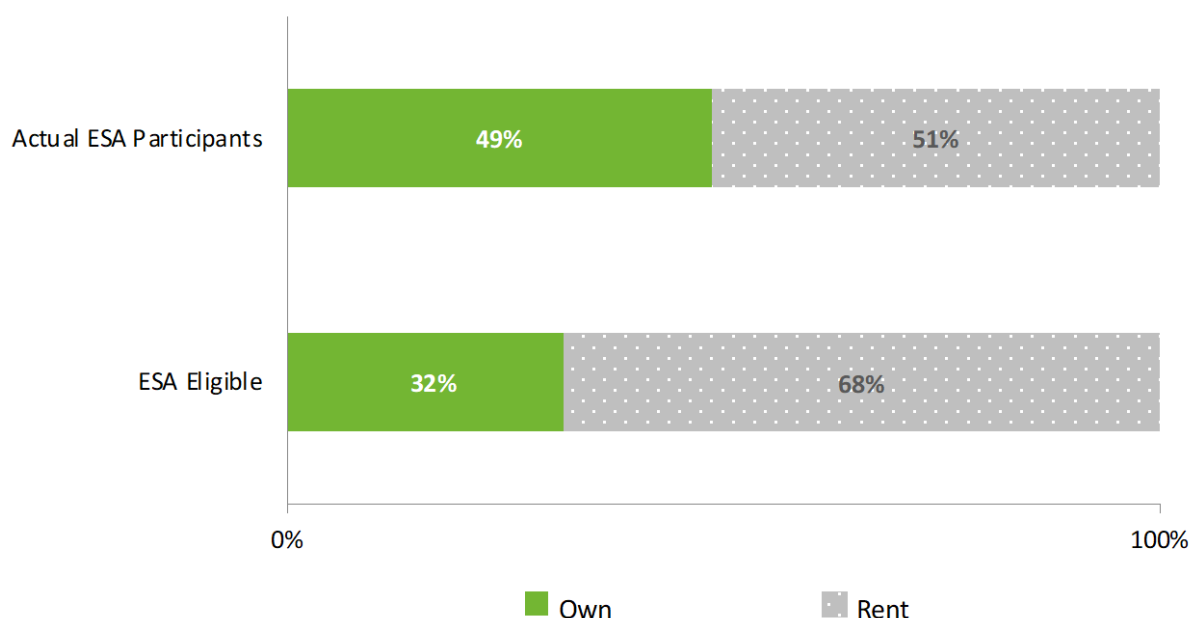
## 4 Findings

This section combines results from the market characterization, phone and web surveys of California Alternate Rates for Energy (CARE)-eligible renters, in-depth interviews with renters and Energy Savings Assistance (ESA) contractors, and our analysis of energy burden. Where findings in tables are statistically significant at the 90 percent confidence level, they are identified with an asterisk.

ESA income-eligible renters are defined as customers who are qualified for the CARE program (200% of federal poverty level [FPL]), though it is worth noting that in June 2022, the FPL requirement for ESA was expanded to 250 percent of FPL.

Renters have been significantly underrepresented in the ESA program (Figure 2). Renters account for only 51 percent of participants, compared to 68 percent of ESA-eligible households being renters.

**Figure 2: ESA Program Enrollment Rate by Housing Tenure**



Source: Evergreen analysis of ESA participation reported by the investor-owned utilities (IOUs) between 2018 and 2020, and 2019 Census American Community Housing Survey Public Use Microdata Sample estimates of ESA income eligibility.

The remainder of this section further explores the eligible renter population and identifies reasons why renters may be less interested in participating in the program compared to owners (and therefore more challenging to serve), including lower energy burdens and lower bills. As part of this exploration, the research covers energy bills, housing type differences, heating and cooling needs, relationships with landlords, and program interest and reasons for disinterest.

The first subsection (4.1) covers these topics across the eligible renter population (sometimes by home type or IOU), and the second subsection (4.2) covers how these differ between subsidized and market-rate properties, and for households with unique needs.

## 4.1 Summary Findings

### 4.1.1 Energy Bills and Energy Burdens

This section explores challenges reported with energy bills, and then connects bills and income to show how energy burdens differ among the eligible population by IOU, climate group, and home type.

Energy burden was estimated for households in California using three data sources:

1. Census data for all CARE-eligible households in the state of California;
2. California IOU utility billing data of a random sample of CARE participants; and
3. Survey data of CARE participants that are also renters.

As a general rule, we used whichever source had the most accurate data (or the largest available sample) to answer each research question established for this study, and there was no single data source that could address all of the energy burden topics.

The Census data were needed to estimate energy burden for CARE-eligible owners and non-English/non-Spanish speakers (as they were not surveyed or identified in the IOU data), while the LINA survey was needed to report on energy burden for topics like the willingness to participate in ESA. There is no singular source that could address all our research objectives.

The biggest difference between the energy burden estimates of CARE-eligible (#1) and the CARE participants (#2-3) is that the Census has only self-reported energy costs by fuel type, whereas we had access to actual utility bills for the sample of CARE participants and all survey respondents.<sup>27</sup> Most of the survey respondents also provided their household income, reflecting the same year as

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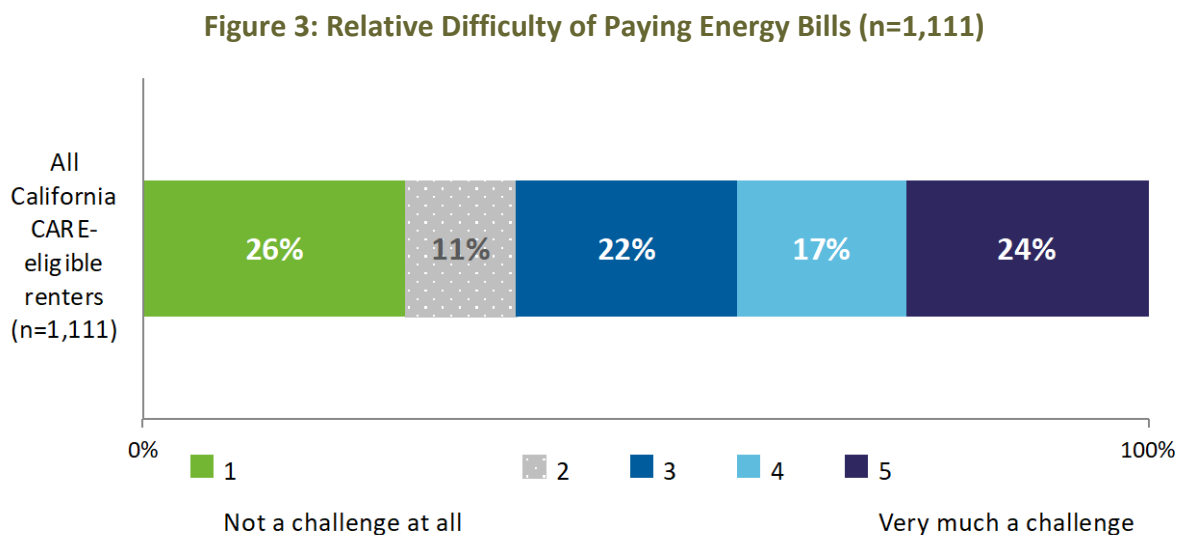
<sup>27</sup> As noted previously, we relied on the IOU utility bill data rather than Census energy bill estimates as the utility data provide a more accurate estimate of actual energy costs. In the survey, self-reported utility bills were consistently higher than the actual utility bills (as shown in Appendix B), which would bias the energy burden estimates.

the energy bills. Because we believe that the utility billing data and survey responses are likely more accurate than the Census data for our sample, we relied on them to calculate energy burden for renters. The Census data were used to estimate energy burden for the full population of CARE eligible households (including owners) and for customer segments that were not surveyed (e.g., owners and non-English/non-Spanish speakers). We also used Census data for some customer segments where the survey sample was not sufficient enough to make a reliable comparison (e.g., energy burden by disability).

The table/figure titles and labels provide important information about the population being described (e.g., all CARE-eligible households versus just CARE-eligible renters). The table/figure footnotes list the data source unless it came from our primary data collection, the survey of CARE-participating renters. See section 3.1.1 for a longer discussion of the benefits and caveats for each data source.

### *Energy Bills*

Figure 3 shows that CARE-eligible renters vary widely in their perceptions that their bills are or are not a challenge to pay relative to other bills.



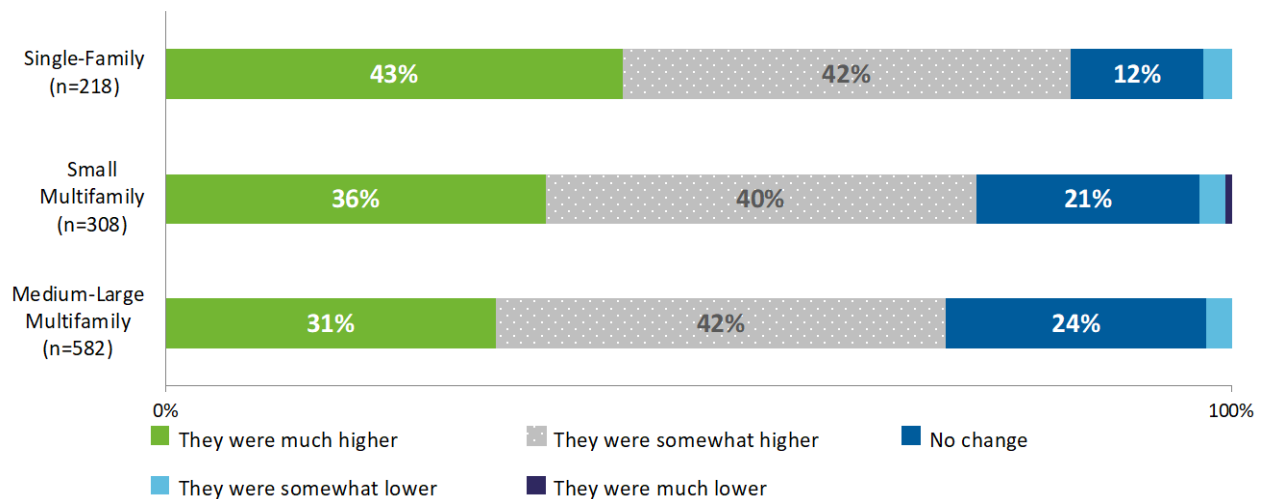
Some low-income customers may also struggle to pay their rent or utility bills on a regular schedule:

- Nineteen percent of renters reported negotiating payment plans with their landlords for late or missing rent. Renters in single-family homes are more likely than renters in multifamily residences to have negotiated a payment plan with their landlord for late or missing rent (See Summarized Findings by Housing Type in Appendix B). This difference is statistically significant.

- Fourteen percent of renters called their utility in the past year asking to get an extension or help paying their bill. This accounted for about a third (33%) of all customer communications with their utility.

COVID-19 impacted the majority of eligible participants, with renters in single-family homes reporting much higher bills with greater frequency than medium-large multifamily homes (statistically significant, Figure 4). Renters in single-family homes also had a higher chance of having negotiated a payment plan with their landlord for rent when compared to renters in multifamily buildings.

**Figure 4: COVID-19 Impact on Energy Bills by Home Type**



### *Energy Burdens*

Overall, energy burdens are higher for:

- Eligible owners compared to eligible renters;
- Eligible renters in single-family homes compared to renters in multifamily homes;
- PG&E's service territory (and lowest for SDG&E's service territory); PG&E's service territory has a higher concentration of households with higher energy burdens; and
- Climate groups requiring more heat (both gas and electric burdens).

Additional detail on each of these groups and the differences in energy burden are below.

### Eligible Renters Compared to Eligible Owners

Within the income-eligible population, renters are more likely to have lower energy burdens than owners. On average, renters have lower annual incomes, but they also have much lower average energy bills, leading to a lower energy burden than owners (Table 8) – all three of these differences are statistically significant.

**Table 8: Energy Burden for Eligible Owner versus Eligible Renter Households**

	Average Annual Income*	Average % of FPL	Average Energy Bill (Annual)*	Average Total Energy Burden*	Median Total Energy Burden*	Average Occupancy	Median Occupancy
Owners	\$25,358	117%	\$2,016	9.4%	6.7%	2.5	2
Renters	\$22,858	103%	\$1,308	6.8%	4.5%	2.7	2

Source: 2019 Census ACS PUMS

### Comparisons Across Eligible Renter Home Types

Within the subgroup of CARE-eligible renters, households that rent single-family homes have consistently higher energy burdens than renters in multifamily homes (Table 9 average and median energy burden). Bills overall are lower for small multifamily renters, likely because they have less space to heat or cool. Renters and owners of units in large multifamily properties consistently have lower incomes and lower bills. The median energy burden is also a useful metric, with 50 percent of eligible renters above this value and 50 percent below. The average is higher than the median due to some high energy burdens in households with especially low incomes. Renters in medium-large multifamily properties represent the smallest proportion of renters with high electric burdens and the largest portion with very low gas burdens (See Figure 40 titled CARE Renter Gas Energy Burdens by Home Type in Appendix B).

**Table 9: Comparison of Energy Burdens for CARE-Eligible Renters by Home Type**

	Home Type	Average Annual Income	Average Percent FPL	Average Energy Bill	Average Energy Burden	Median Energy Burden	Average Occupancy	Median Occupancy
Renters	All	\$22,900	103%	\$1,300	6.8%	4.5%	2.7	2
	Single-Family	\$26,600*	109%	\$1,900*	8.6%*	6.1%*	3.3	3
	Small Multifamily	\$22,900*	104%	\$1,200*	6.8%*	4.5%*	2.7	2
	Large Multifamily	\$19,800*	98%	\$900*	5.4%*	3.3%*	2.1	1

Source: 2019 Census ACS PUMS

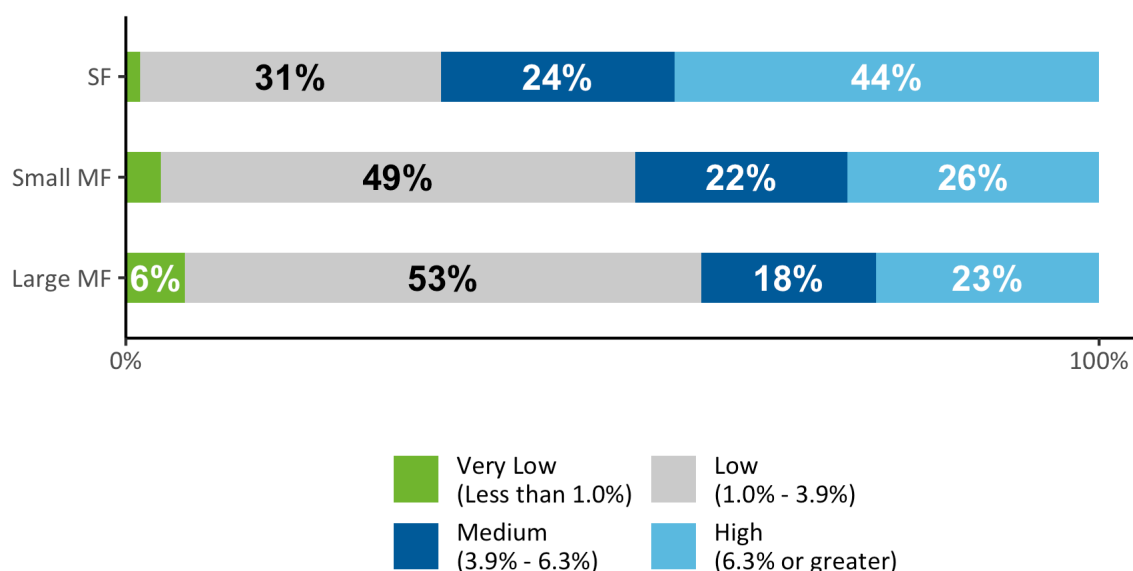
\* This is statistically significantly different than the other two home types.

When considering the impact of public assistance benefits on income,<sup>28</sup> single-family eligible households still report higher modified energy burdens, followed by small multifamily. Figure 5 displays modified energy burden by home type, which includes the value of public assistance benefits (e.g., Medicaid, housing subsidies) in annual household income.<sup>29</sup> Overall, single-family households had the smallest percent facing a low or very low energy burden (32% single-family versus 52% small multifamily and 59% large multifamily) and the highest percent facing a medium or large energy burden (68% single-family versus 48% small multifamily and 41% large multifamily). Households in large multifamily properties faced lower energy burdens than those in smaller multifamily properties, with a larger percent of households facing a very low or low energy burden (59% large multifamily versus 52% small multifamily). Single-family households have consistently higher energy burdens as well as higher *modified* energy burdens.

<sup>28</sup> Modified energy burden refers to an adjusted burden calculation that includes other public assistance benefits that a customer may receive to offset expenses that are typically paid from one's income. To better understand the "true" burden a customer faces, the value of housing, food, and medical subsidies are calculated and included as part of the "income" in the *modified* energy burden calculation.

<sup>29</sup> Small multifamily is defined as buildings with 9 or fewer units, and large multifamily as apartment buildings with 10 or more units.



**Figure 5: Total Modified Energy Burden by Home Type in all CARE-Eligible Households**


Source: 2019 Census ACS PUMS estimates of income-eligible households.

### Comparisons across IOU Service Territories of CARE Renters

Figure 6 displays gas and electric energy burdens (separately) of CARE renters by IOU and fuel type.<sup>30</sup> When the fuels are presented separately, we see a higher concentration of customers with very low electric and gas energy burden. This is to be expected, as many customers will have both electric and gas energy bills (e.g., very low energy burden of 0.9% electric and 0.8% gas = low 1.7% overall energy burden). See Appendix B for a comparison of electric energy burden split by fuel service (i.e., electric-only versus dual fuel service).

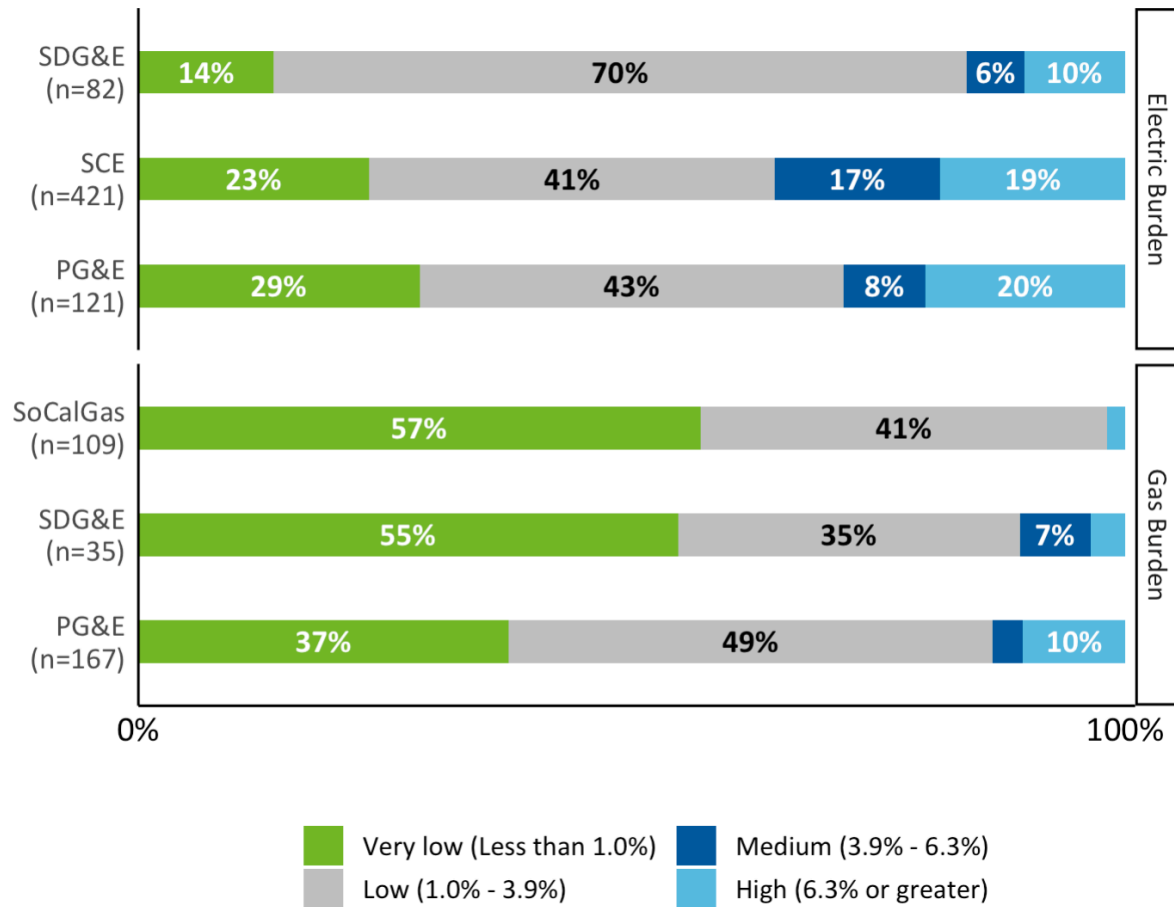
SDG&E's service territory had the highest proportion of CARE renters with very low or low electric burdens (84%) and fewer customers experiencing high electric burden (10%). These differences are likely tied to climate related differences but are relevant to understanding the differences in

<sup>30</sup> Please note, this figure shows energy burden for gas and electric fuels separately, whereas Figure 5 provided total energy burden across all fuels simultaneously; these are not comparable. All households with gas service also have electric service, but not all households with electric service also have gas service.

Due to limitations in identifying electric and gas accounts for a single customer served by two separate utilities, customers who were served by multiple IOUs had gas or electric data available for analysis, but not both. Therefore, we were limited to reporting on electric and gas burden separately, relying on the Census analysis of all CARE-eligible households (e.g., Figure 5) for an estimate of the total energy burden across all fuels.

“need” for ESA across the state. SCE provides electricity to many of these SoCalGas homes, as well as to a large population of electric-only homes.

**Figure 6: CARE Renter Energy Burden by IOU**

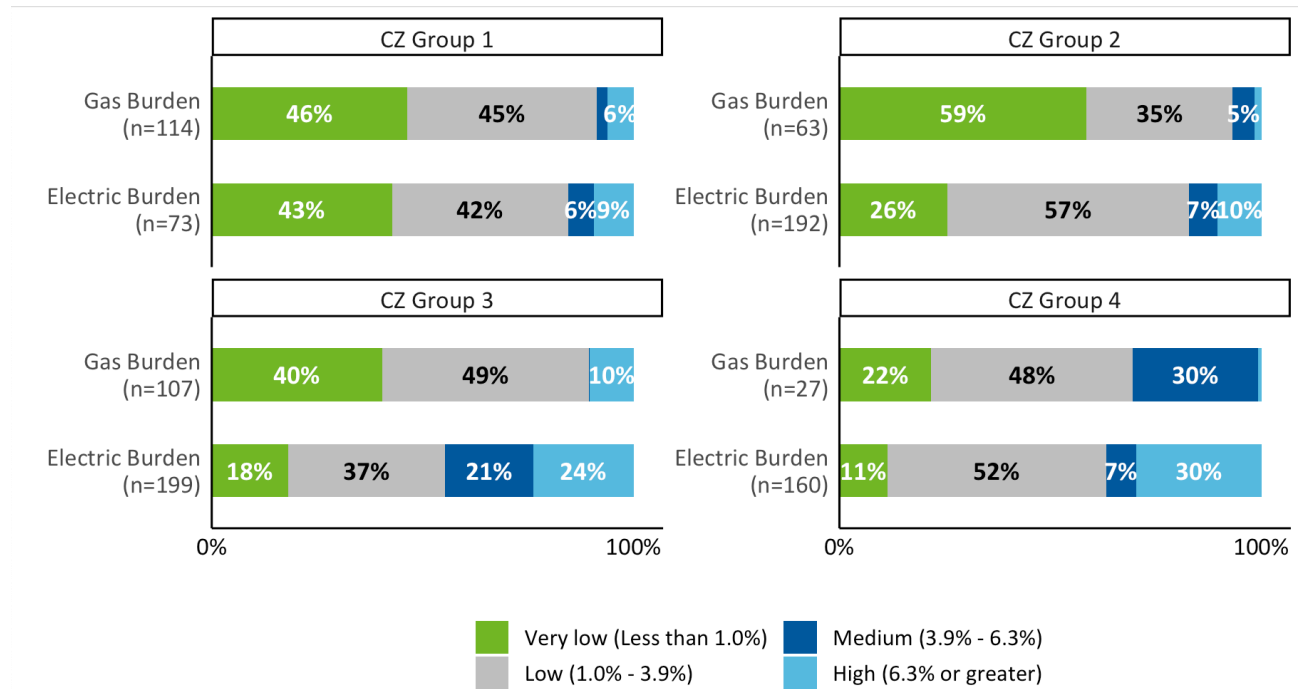


Source: 2021-2022 phone and web survey of CARE renters with actual utility bills provided by the IOUs in 2021.

### Comparison by Climate Group of CARE Renters

Gas and electric energy burdens by climate group are displayed in Figure 7. Climate group 2 along the South Coast has the lowest gas energy burden (59% very low), with the lowest need for space heating. Climate groups were consistent with our expectations of electric burden, with higher burdens in regions with greater cooling load.

**Figure 7: CARE Renter Energy Burden by Climate Group and Fuel Type**

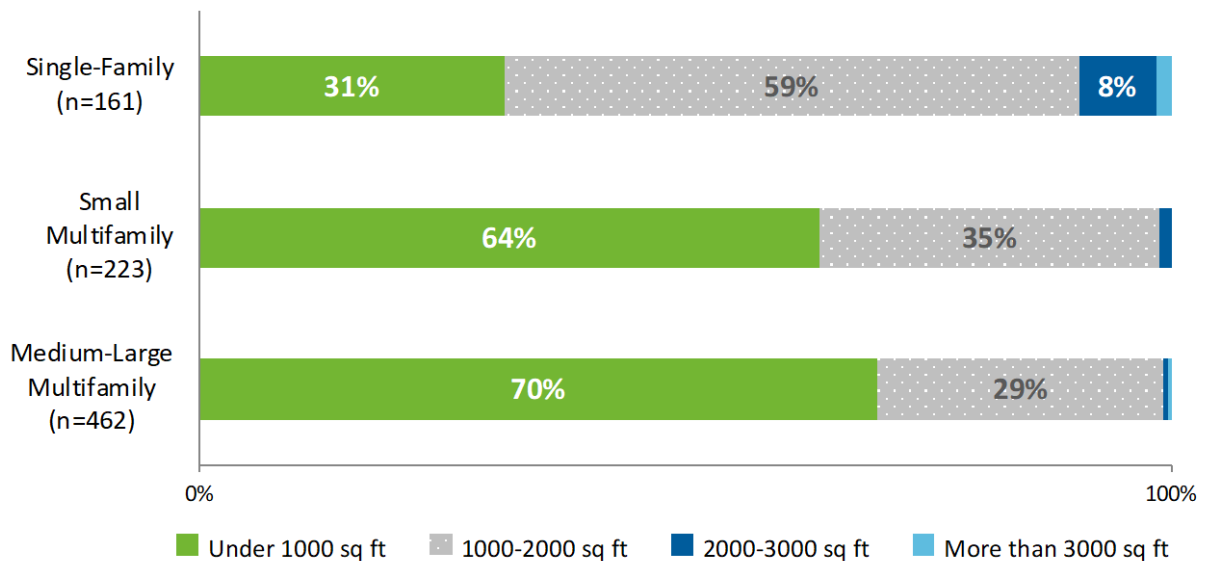


Source: 2021-2022 phone and web survey of CARE renters with 2021 utility bill data provided by the IOUs.

### 4.1.2 Housing Characteristics

Home size is a known driver of energy bills; single-family homes being larger with higher energy bills on average explains part of the difference in energy bills described in the prior section.

Eligible renters who live in single-family homes have more square footage compared to those that live in multifamily units (Figure 8).

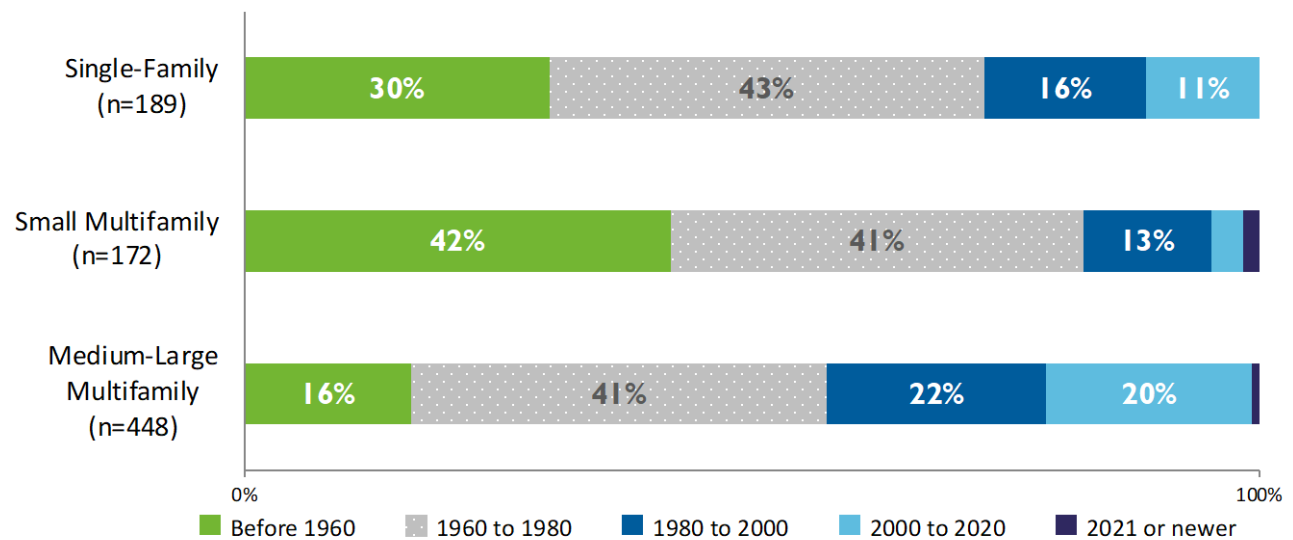
**Figure 8: Home Size by Home Type**

Differences are statistically significant between single-family homes and multifamily homes.

Across housing types, approximately half of renters have lived in their current home for less than five years (54% single-family, 42% small multifamily, 53% medium-large multifamily). Shorter term stays may be a cause for lower interest in ESA participation.

There are statistically significant differences in the age of homes based on the type of rental unit, with small multifamily units more likely to be built before 1960 compared to both single-family and medium-large multifamily homes (Figure 9). Medium-large multifamily homes are also less likely to be built before 1960 when compared to single-family homes. This may influence the age of equipment in each building type, but we did not see a correlation between home age and tenant energy bills or energy burden (as we observed with home size).

Figure 9: Home Age by Home Type



Given that this research is focusing on renters specifically, it is important to note that findings will be more relevant in certain regions of the state. Renters make up less of the eligible households in climate group 4, which is more rural and also has a higher concentration of single-family homes (Figure 10).

Figure 10: Concentration of Renters among Eligible Households by Climate Group

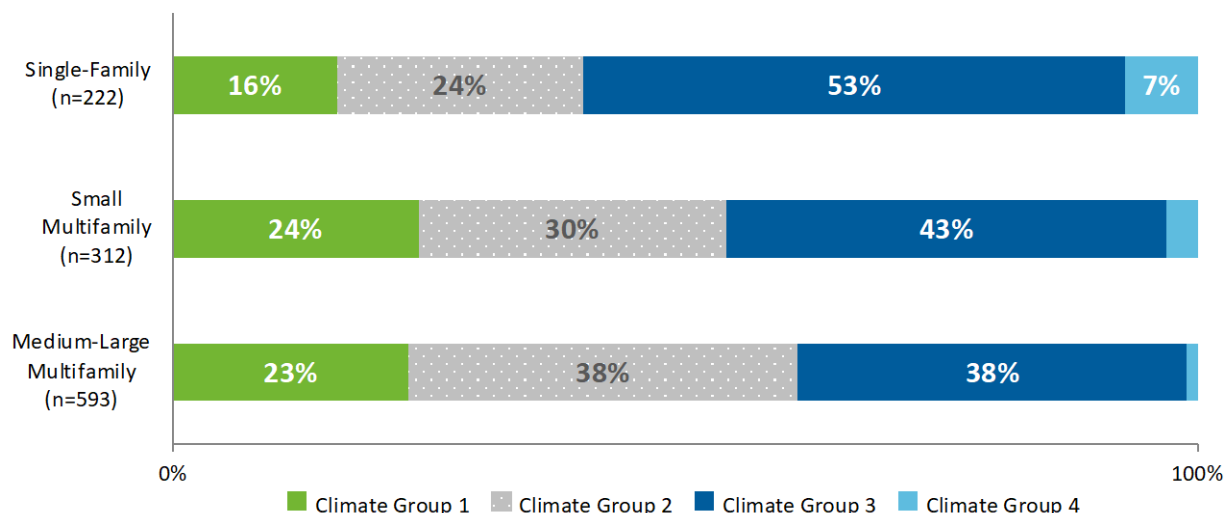


Climate Group	Renters	Owners
1	71%	29%
2	72%	28%
3	70%	30%
4	59%	41%
<b>Total</b>	<b>68%</b>	<b>32%</b>

Source: 2019 Census ACS PUMS

Program findings specific to renters in single-family homes may be more applicable in regions of the state that have a higher prevalence of single-family homes such as climate group 3 (Central Valley). For example, if the program is interested in focusing on homes with higher energy burdens amongst the group of eligible renters (i.e., single-family rented homes), they will find a greater prevalence of eligible single-family homes in climate group 3 (Figure 11).

**Figure 11: Prevalence of Home Types in Climate Groups**



### 4.1.3 Cooling and Heating Needs

Respondents were asked about their heating and cooling appliances along with whether anyone in their household requires them to use additional heating or cooling due to health reasons. The majority of income-eligible renters in California pay for their space and water heating.<sup>31</sup>

#### Cooling

Fifty-three percent of small multifamily households have cooling compared to 66 percent of larger multifamily households and 65 percent of single-family homes. There are no significant differences in the prevalence of or need to use heating for health reasons when comparing across building type.

Overall, fifteen percent of renters reported using additional cooling for health reasons. Most of this 15 percent of respondents already have cooling but reported still using more for health

<sup>31</sup> According to the 2009 RASS, among tenants that *have* heating or cooling, 14 percent of them do not pay for heating and 22 percent do not pay for cooling because it is included in their rent.

reasons, and about a fifth of respondents are currently without cooling entirely (Table 10).<sup>32</sup> Although this is only 3 percent of the overall population of CARE-eligible renters, it points to a need for added cooling.<sup>33</sup> It is also possible that even if a utility program were able to offer cooling for health reasons, there might be other feasibility issues unrelated to program offerings (not allowed in rental agreement, not feasible in the space).

**Table 10: Overall Cooling Needs (n=1,126)**

Cooling Needs	Has Cooling	Does Not Have Cooling	Total
Requires additional cooling for health reasons	12%	3%	<b>15%</b>
Does not require additional cooling for health reasons	50%	34%	<b>84%</b>
<b>Total</b>	<b>62%</b>	<b>37%</b>	<b>100%</b>

Note: Due to rounding, totals may not add up to 100 percent.

## Heating

For heating, 1 percent of eligible renters require additional heating for health reasons and do not have any heating appliances in their homes (Table 11).

**Table 11: Overall Heating Needs (n=1,114)**

Heating Needs	Has Heating	Does Not Have Heating	Total
Requires additional heating for health reasons	26%	1%	<b>27%</b>
Does not require additional heating for health reasons	64%	10%	<b>74%</b>
<b>Total</b>	<b>90%</b>	<b>11%</b>	<b>100%</b>

Note: Due to rounding, totals may not add up to 100 percent.

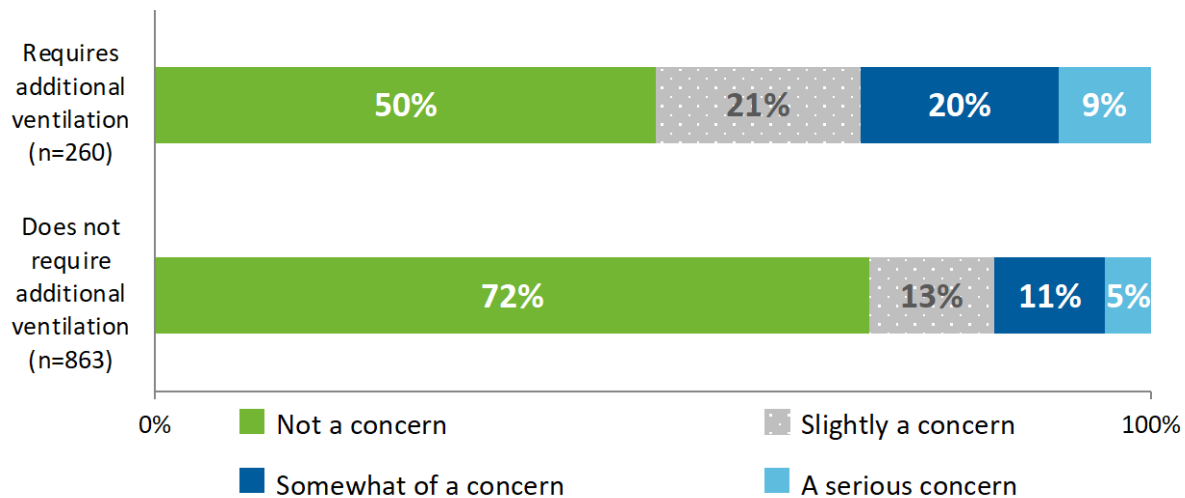
<sup>32</sup> Homes with cooling have at least one of the following appliances: central AC/heat pump, window AC, swamp cooler, portable AC, AC unit built in a wall, or any other appliance that cools the temperature of a space. Those that have only ceiling fans, portable fans, or use only windows are reported as having no cooling.

<sup>33</sup> The utility programs will upgrade an inefficient cooling system. The draft version of the Statewide ESA 2021-2026 Policies and Procedures manual notes that portable ACs will be part of the offering for Medical Baseline, Disadvantaged Communities, and Tribal or Rural customers in Climate Zones 11-14.

## Ventilation

Twenty percent of the respondents reported needing additional ventilation for health reasons. Respondents who reported needing additional ventilation were also more likely to say they were somewhat to seriously concerned about air quality (Figure 12).

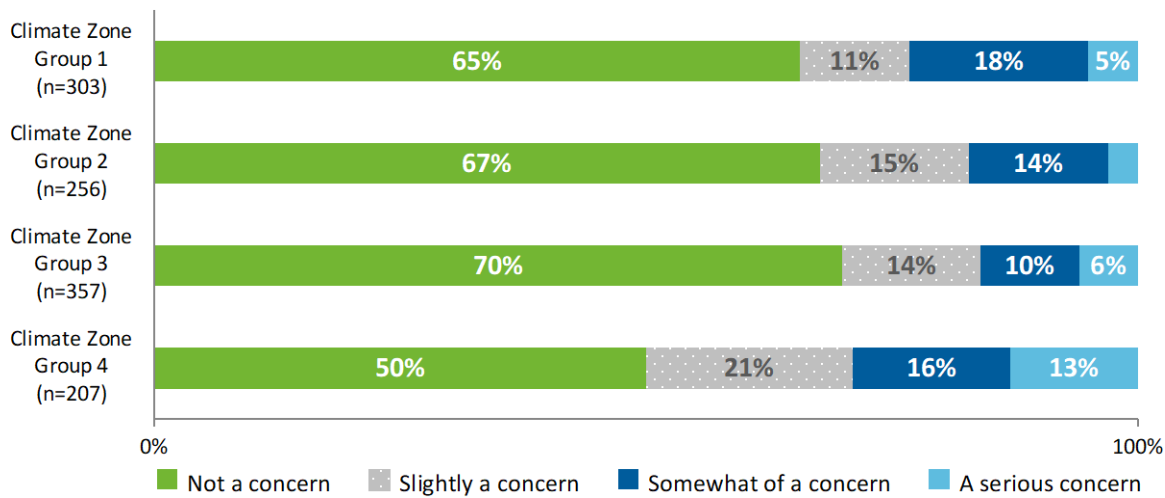
**Figure 12: Concern for Air Quality by Need for Additional Ventilation**



While climate group 4 tends to be mostly rural and has relatively fewer customers and renters overall, a large share of those living in the region reside in single-family properties. Customers in this region reported concerns with air quality (Figure 13<sup>34</sup>), which may provide some valuable opportunities for ESA.

<sup>34</sup> This finding is supported by data from CalEnviroscreen, which finds higher pollution burdens in this area.



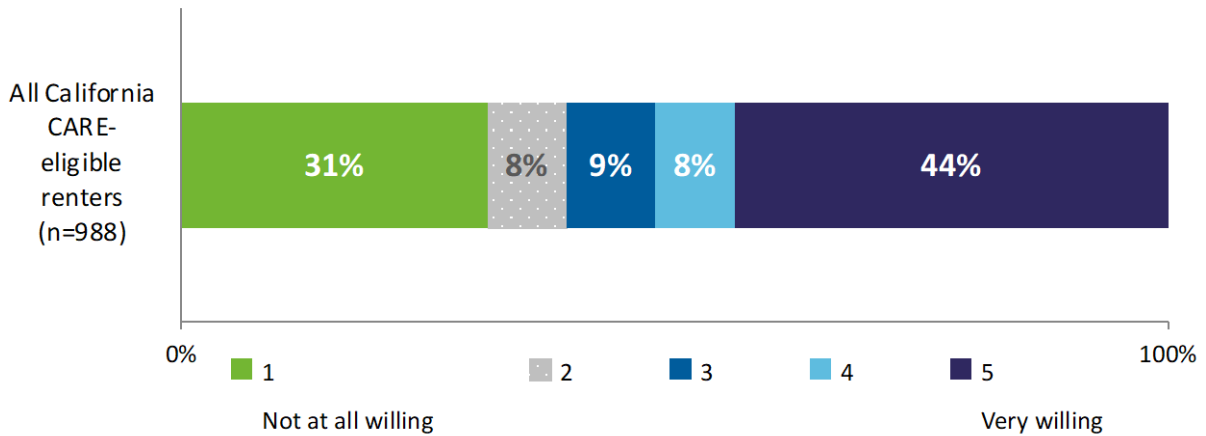
**Figure 13: Indoor Air Quality Concerns by Climate Group**

There are no statistically significant differences in the level of concern for indoor air quality between renters in multifamily units and renters in single-family homes.

#### 4.1.4 Willingness to Participate

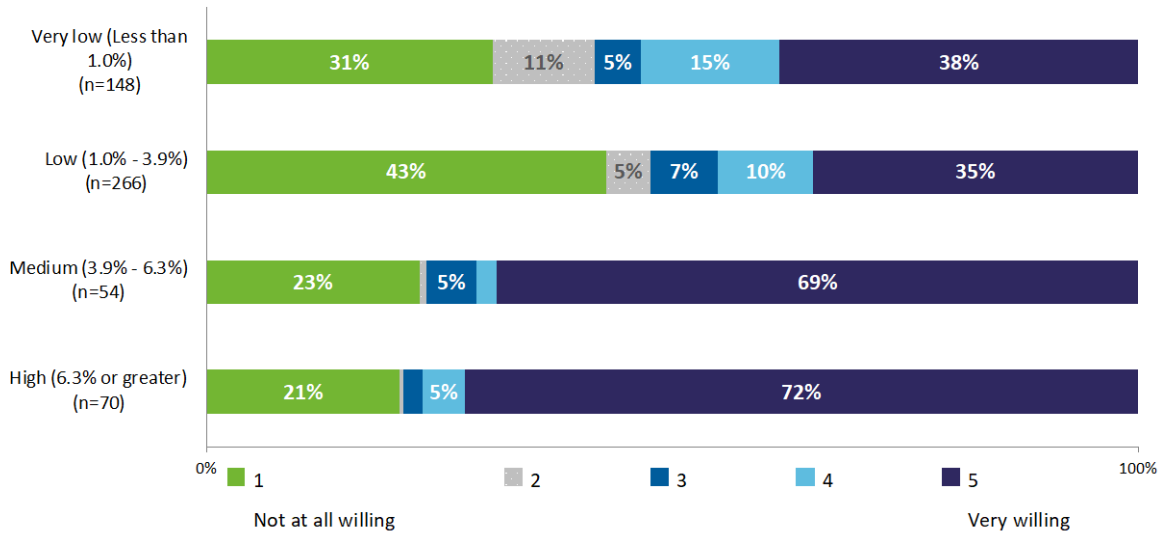
A brief explanation of the ESA program was described to respondents who were then asked about their likelihood of participating in such a program.<sup>35</sup> While the largest proportion of respondents reported being somewhat to very willing to participate in ESA (52%), there remain almost a third of the respondents who are not at all willing to participate (Figure 14). The main reasons why respondents reported that they were uninterested were because they thought their appliances were already efficient or because they did not think the program could help them conserve more energy than they already do.

<sup>35</sup> Customers were provided a description of the steps and requirements to receive the measures and services provided via ESA prior to responding as to whether they would be willing to participate in ESA.

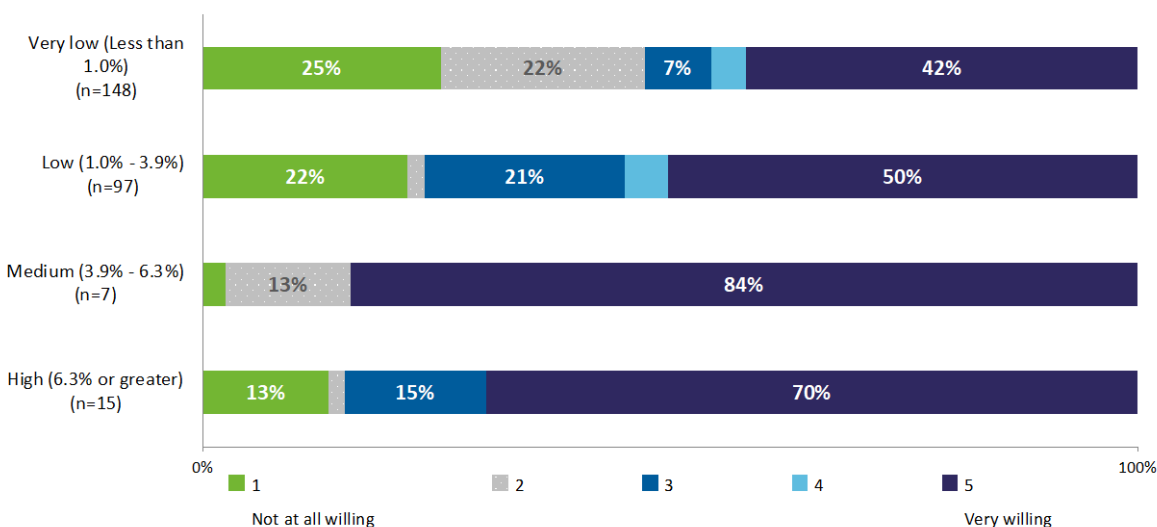
**Figure 14: Willingness to Participate in ESA**

Renters in subsidized properties are more willing (somewhat to very willing, 64%) to participate in ESA than renters in market-rate residences (50%).

Not surprisingly, respondents with greater energy burdens are more interested in ESA as a possible solution to reduce their energy costs (Figure 15 and Figure 16).

**Figure 15: Survey Electric Energy Burdens by Willingness to Participate in ESA**

Source: 2021-2022 phone and web survey of CARE renters.

**Figure 16: Survey Gas Energy Burdens by Willingness to Participate in ESA**

Source: 2021-2022 phone and web survey of CARE renters.

### 4.1.5 Reasons for Lack of Interest in the ESA Program

If respondents reported a general unwillingness to participate (i.e., rated their willingness to participate as a 1, 2, or 3 on a 5-point scale), they were then asked about what barriers might exist that make them hesitant. Respondents were then asked to assess a series of possible participation barriers, and these results are shown in Table 12.

Most renters less interested in ESA identified having little need as the primary reason for their lack of interest in ESA. The lack of need includes both already having efficient appliances and/or not being able to do more to save energy. Surprisingly, the “landlord barrier” was less of an issue than expected. This issue is discussed in greater detail below.

**Table 12: Barriers to ESA Participation Reported by Households That Were Unwilling to Participate in ESA<sup>36</sup>**

Barrier	% of Population
We already have energy efficient appliances (n=453)	66%
There is little we can do to save energy beyond what we are already doing (n=451)	60%
It's too much trouble to get approval from the landlord (n=419)	47%
The program doesn't appear to offer much that would help us save energy (n=424)	45%
We don't want strangers in our home (n=484)	44%
We don't want to provide the personal information required to participate (n=473)	42%
Our bills are low already (n=463)	41%
We are afraid our rent will go up if upgrades are made (n=466)	39%
We are skeptical that it is really free (n=473)	36%
Saving energy is not a priority in our household (n=481)	26%
We move often (n=487)	18%

These survey results are broken out by housing type in Table 13. There are only a few significant differences between single-family and multifamily renters in terms of their reasons for being disinterested in ESA. Small multifamily renters are more likely than single-family renters to fear their rent will increase if upgrades are made (50% small multifamily, 33% single-family) and that the program is truly free (49% small multifamily, 29% single-family). Renters in medium-large multifamily residences are more likely than single-family renters to cite low bills as a barrier to ESA participation (54% medium-large multifamily, 34% single-family).

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<sup>36</sup> If respondents reported their willingness to participate in ESA as a 1, 2, or 3 on a scale of 1 to 5 with 1 being not at all willing and 5 being extremely willing, or if they did not know what their willingness was, they were then asked about what barriers might exist that make them unwilling to participate.

**Table 13: Barriers to ESA Participation Reported by Households That Were Unwilling to Participate in ESA<sup>37</sup> by Home Type**

Barriers	% of SF	% of Small MF	% of Med-Large MF
We already have energy efficient appliances	66% (n=85)	66% (n=120)	65% (n=248)
There is little we can do to save energy beyond what we are already doing	54% (n=79)	70% (n=118)	64% (n=254)
It's too much trouble to get approval from the landlord	43% (n=79)	50% (n=111)	53% (n=229)
The program doesn't appear to offer much that would help us save energy	45% (n=81)	46% (n=108)	43% (n=235)
We don't want strangers in our home	40% (n=88)	46% (n=130)	50% (n=266)
We don't want to provide the personal information required to participate	41% (n=89)	46% (n=128)	41% (n=256)
Our bills are low already	34% (n=85)	45% (n=124)	54%** (n=254)
We are afraid our rent will go up if upgrades are made	33% (n=83)	50%** (n=127)	42% (n=256)
We are skeptical that it is really free	29% (n=85)	49%** (n=127)	41% (n=261)
Saving energy is not a priority in our household	24% (n=87)	27% (n=130)	31% (n=264)
We move often	21% (n=90)	11% (n=130)	15% (n=267)

\*Difference is statistically significant compared to both other home types.

\*\*Difference is statistically significant compared to single-family home type.

<sup>37</sup> If respondents reported their willingness to participate in ESA as a 1, 2, or 3 on a scale of 1 to 5 with 1 being not at all willing and 5 being extremely willing, or if they did not know what their willingness was, they were then asked about what barriers might exist that make them unwilling to participate.

The qualitative interviews with renters and an informal survey of ESA contractors confirmed that energy bill and cost savings are the key drivers for participation and a perceived lack of benefit is the primary deterrent from participation in the program.

### **Reasons for Disinterest in ESA Participation Identified in Interviews**

Renters gave the following reasons for lack of interest in ESA during interviews:

- Home already has energy efficient appliances
- There is little household can do to save energy beyond what they are already doing
- The program does not appear to offer much that would help save energy
- Bills are low already
- Tenant moves often

These issues came up frequently among the renters that were interviewed and generally confirm the findings from the phone survey. Note that these reasons all emphasize the lack of perceived benefit relating to reducing energy bills; tenants believe they have already done all that they can. Also note that the interview responses did not indicate significant concerns about approaching their landlord in order to participate.

### **4.1.6 Drivers for ESA Participation**

#### **Drivers Identified in Interviews**

The qualitative interviews with renters (a subsample of survey respondents) confirmed the findings of the phone/web survey/previous research.<sup>38</sup> They shared unsurprising insights on what is likely to motivate interest in ESA based on the description provided to them.

The most common driver for stated interest was the desire to save money or lower bills (volunteered by 11 interviewees). Other stated drivers included general references to saving energy that we interpreted in the context of the discussion as a possible environmental concern (four mentions), and interest in upgraded appliances (two mentions).

Mentions of attempts to save on energy costs and bills were common among interviewees; most stated that they were actively trying to cut back on energy use, which corroborates past research and confirms the conceptual value of ESA to eligible households. Interviewees went further,

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<sup>38</sup> Nine of the interview respondents reported having participated in ESA in the past and participation from five of the nine respondents is confirmed with IOU data. The IOUs reported an additional three respondents who participated but did not self-report participation in the interviews.

however, and described their efforts to cut back on energy usage and relevant perceptions about the ESA program. Specifically, interviewees indicated the following:

- There is a balancing act between most interviewees' efforts to sacrifice comfort to keep energy bills low and compromising on energy bills to keep comfort high. This involves a general, self-reported effort to use less energy on an everyday basis with a focus on heating, cooling, lighting, electronic use, and the timing of their usage.
- Most described their efforts as impacting them moderately, with few interviewees describing any major inconveniences; it is simply "something that they do."
- Their conservation efforts are guided by their perceptions and understanding that their heating and cooling was the primary source of their energy costs.

These comments suggest that interest in ESA and willingness to participate may be driven in most renters' cases by either an impression that ESA treatment of their units will make a meaningful difference in their heating or cooling-related energy use or new information provided as part of program marketing promising meaningful energy savings through other measures that will be provided. The value of ESA participation is likely viewed in the same way as tenants' own efforts to control their energy costs; they balance the perceived benefit with the effort or hassle involved.

#### **4.1.7 – Landlord Relationship**

In the phone/web survey, renters were asked a battery of questions related to their relationship with their landlords to better understand the split-incentive barrier<sup>39</sup> from the perspective of the tenant. The role of the landlord is relevant for customers participating in ESA since customers do not own the property where measures are being installed. As such, customers' experiences and relationships with their landlord impact their interest and participation in the ESA program.

Renter communication with landlords seems to occur minimally. Seventy-seven percent of renters never talk to their landlords or do so only two to three times a year about issues regarding their home.

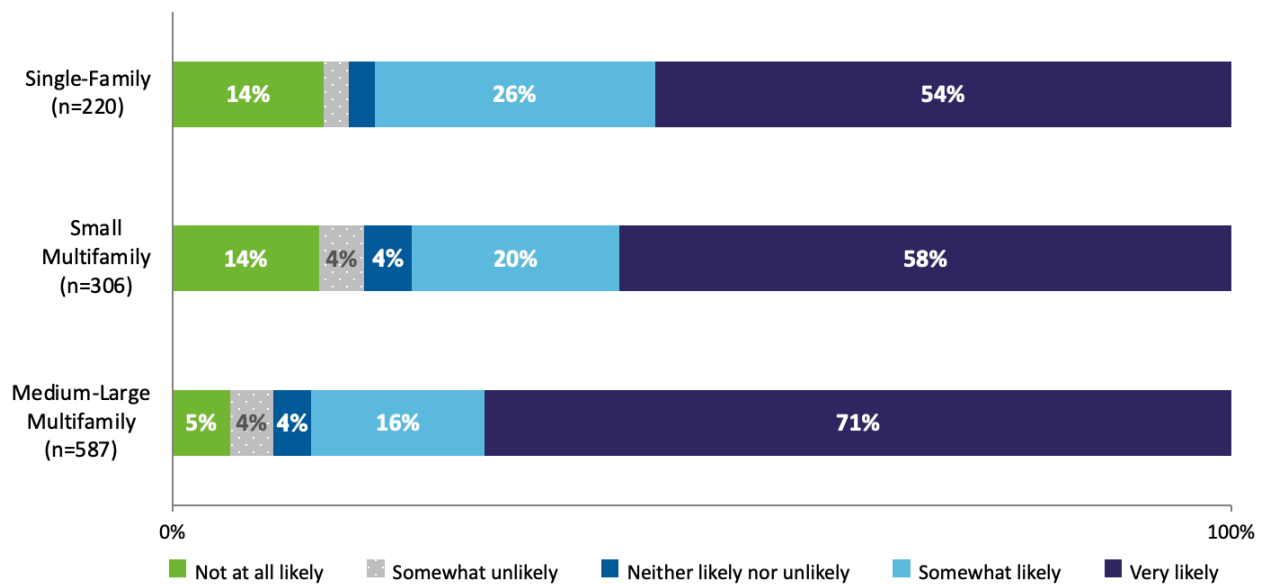
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<sup>39</sup> The split incentive barrier identifies the struggle between multifamily property managers/owners and renters to make energy upgrades since the upgrades that require owner/manager permission and engagement end up benefiting tenants who pay their own energy bills. This identifies the challenge of the benefits of the actions of one party accruing to another.

The survey asked questions of renters about what other issues they bring up with their landlord and their perceived responsiveness of their landlord to get a better sense of how the landlord relationship may impact the success of ESA:

- Most renters (82%) reported that they would be somewhat likely or very likely to discuss replacing poorly functioning equipment with their landlords. Customers in larger multifamily properties are significantly more likely to bring up their needs regarding a broken appliance (Figure 17).

**Figure 17: Likelihood to Bring Up Poorly Functioning Appliance by Home Type**



- 16 percent of eligible renters reported having issues that they had not brought up with their landlord, which suggests that renters are generally willing to reach out to their landlords should problems occur.

Approximately 88 percent of renters across housing types reported that their landlords are responsive to fixing things.

Broken appliances are sometimes not brought to the attention of their landlords (Table 14). This is largely due to a desire not to annoy the landlord or the fear of having their rent increased (see Appendix B). As such, it is unlikely most of these renters will pursue participation in the ESA program.



**Table 14: Recent Issues Not Brought Up (n=156)**

Issues	% of Population
Plumbing issues	32%
Broken appliances	32%
General repairs	22%
Pest issues	9%
Flooring issues	5%

While the overall percent of renters who do not bring up issues is small, among those who do refrain, the majority (41%) did not want to annoy their landlord and had concerns about their rent being raised (40%). The qualitative interviews reiterated this concern, stating that landlords can be difficult to reach and the chain of command or hierarchy that needs to be navigated can be cumbersome.

Table 15 shows the reasons why tenants have not brought up recent issues with their landlords. Renters in multifamily properties are less inclined to bring up issues because their landlord is not nearby and is unlikely to do anything. Single-family renters are less inclined to bring up issues due to a desire not to annoy their landlord and fear that their rent will go up if they do.

**Table 15: Reasons Recent Issues Are Not Brought Up with Landlord by Home Type**

Reasons	% of SF (n=31)	% of Small MF (n=56)	% of Med- Large MF (n=78)
Concerns about rent being raised	49%	33%	26%
Don't like talking to the landlord	15%	23%	18%
Don't want landlord/maintenance in their home	7%	21%	12%
Don't want to annoy the landlord	55%*	29%	22%
Landlord is not onsite or nearby	9%*	35%	26%
No use – landlord won't do anything	17%	37%	46%**
Problem is not something the landlord can do anything about	7%	10%	10%

\*Difference is statistically significant compared to both other home types.

\*\*Difference is statistically significant compared to single-family home type.

When interviewed, customers often reported that their units and appliances functioned in line with their expectations and generally did not need attention. There was recognition that landlords can be difficult to reach and that, in some cases, there is a chain of command or hierarchy that needs to be navigated. Only a few renters expressed reservations about reaching out when their unit has a need, however.

Landlord-related barriers mentioned by tenants addressed both issues related to the property owner approval process and aspects of the site visits. As noted above, survey respondents reported that:

- It is too much trouble to get approval from the landlord.
- They are afraid their rent will go up if upgrades are made.

Tenant interviewees were split on whether the landlord-related components of the ESA process were hindrances. Most stated that they have no qualms about bringing up unit-related issues with their landlords and do so when needed, and only 6 of the 37 interviewees mentioned any hesitancy about asking landlords about unit-related issues, including, presumably, ESA participation. These interviewees seemed willing to reach out if they thought participation would be beneficial to them. For renters who do have hesitancy, they weigh whether the hassle of approaching the landlord with a request is worth the benefit.

Broader issues related to outreach to landlords also included difficulty reaching the landlord and anticipated difficulty obtaining landlord approval. These factors would weigh into tenant assessments of the hassle factor concerning ESA participation as well.

Other aspects of the application process and the ESA visits made up the remaining barriers that were identified. Again, as noted above, some survey respondents agreed with the following barriers when they were presented:

- We don't want strangers in our home.
- We don't want to provide the personal information required to participate.
- We are skeptical that it is really free.
- Saving energy is not a priority in our household.

Eight ESA contractors offered a different perspective on barriers to serving renters. Contractors consider owner or landlord approval for unit participation and simply reaching owners and landlords to be a mid-level barrier, and lack of tenant interest and opportunities to serve units to be less of a barrier (Appendix B).

Contractors indicated that the specific documentation required to verify owner is the most substantial landlord-related barrier to participation; access to the documents specified in the

program and procedure manual presents a greater hurdle than landlord motivation or willingness to approve treatment by the program.

When asked how often the absence of approval prevents treatment of rental units, contractors gave very varied responses, ranging from about a quarter to three quarters of the time. Inability to reach the right person to obtain approval appears to be about twice as prevalent as outright refusal. Some contractors did note that owners (and sometimes renters) fear that they will ultimately be financially responsible, which is consistent with some of the responses from the renter survey expressing skepticism that the program is actually free.

ESA contractors reported that their outreach involves a mix of contacting tenants directly and contacting property owners and managers for most building types, but direct tenant outreach appears to be more common for single-family renters (who tend to have higher energy use and higher measure opportunities).

## 4.2 Findings by Subgroup

The two subsections that follow cover renter subgroups:

- Renters in subsidized and market-rate housing; and
- Renters in subgroups identified through the market characterization (disabled member in household, large households, etc.).

This section only mentions differences that are statistically significant at the 90 percent confidence level; additional findings on the identified subgroups can be found in Appendix B.

### 4.2.1 Comparison of Subsidized Properties and Market-Rate Properties

For the purpose of this analysis, subsidized housing refers to subsidized properties and includes public housing and deed-restricted privately-owned housing.<sup>40</sup> As illustrated in Figure 18 below, housing subsidized by the US Department of Housing and Urban Development (HUD) comprises only 6 percent of the low-income market in California. The purpose of this differentiation is to illustrate differences between criteria used to treat properties expected to be dominated by low-

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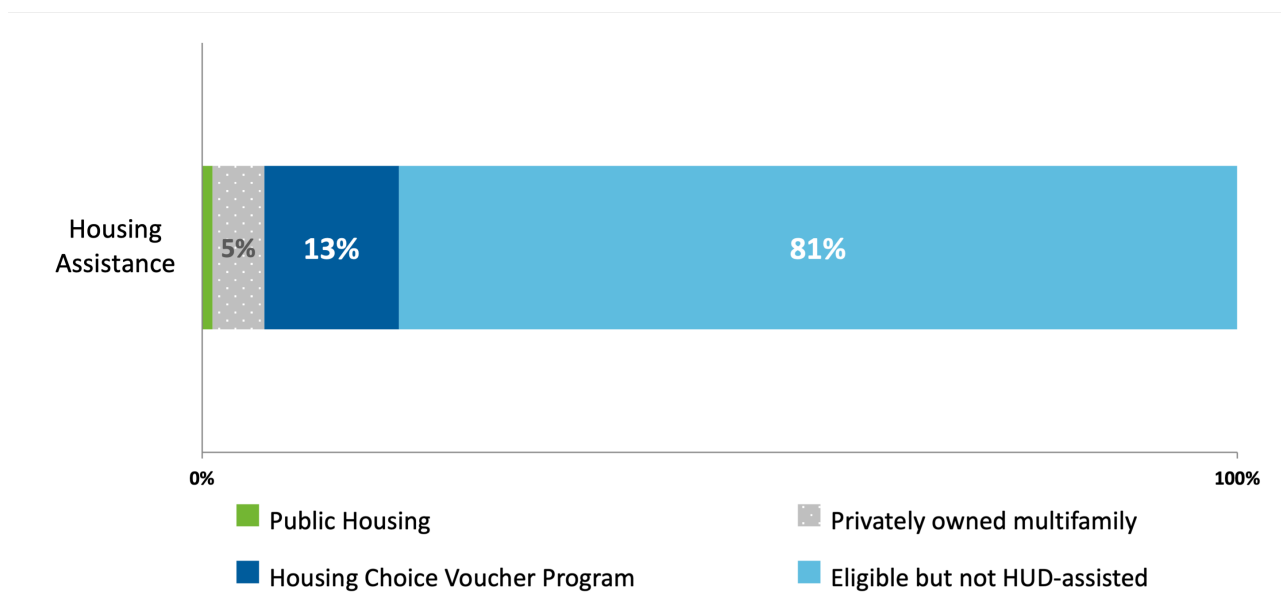
<sup>40</sup> We asked a series of questions about housing subsidies. First, we asked “is your rent lower because you are in a government-housing program?” to identify all types of housing subsidies. Then “as part of your rental agreement, do you have to show your landlord your income every year to determine how much rent you pay?” to identify subsidized properties, including public and deed-restricted private housing. As part of a larger battery about assistance benefits, we also asked “In 2020, did you receive assistance from any of the following government programs or services? How about section 8 vouchers for housing?” to specifically identify customers with housing choice vouchers; these subsidies move with the tenant and are not tied to the property.

income customers (as per deed-restriction) compared to the 13 percent of customers who receive housing vouchers or rental discounts while residing in market-rate housing.

According to data from HUD, less than 20 percent of income-eligible renters receive housing assistance.<sup>41</sup> Figure 18 shows the distribution of the types of housing assistance received, with the most common being housing choice vouchers (previously named “Section 8”) (13% of eligible households). As mentioned in the introduction, the Multifamily Common Area Measure (CAM) initiative that upgrades common areas of buildings with low-income customers only targets deed-restricted properties because existing methods to identify customers and enforce rules are tied to the deeds of these properties.

Since program activities and opportunities for whole building treatments are tied (only) to these low-income property dwellers, understanding the needs of this sub-sector of renters relative to other low-income tenants is relevant and important.

**Figure 18: Distribution of Housing Assistance Received Among HUD-Eligible Renters**



Source: 2019 American Housing Survey (AHS), sponsored by HUD and conducted by the U.S. Census Bureau

<sup>41</sup> HUD eligibility thresholds are based on 50 percent of the area median income to account for differences in costs of living. HUD eligibility aligns more closely with the CARE income thresholds in urban areas more often than in rural areas (which have lower than average costs of living).

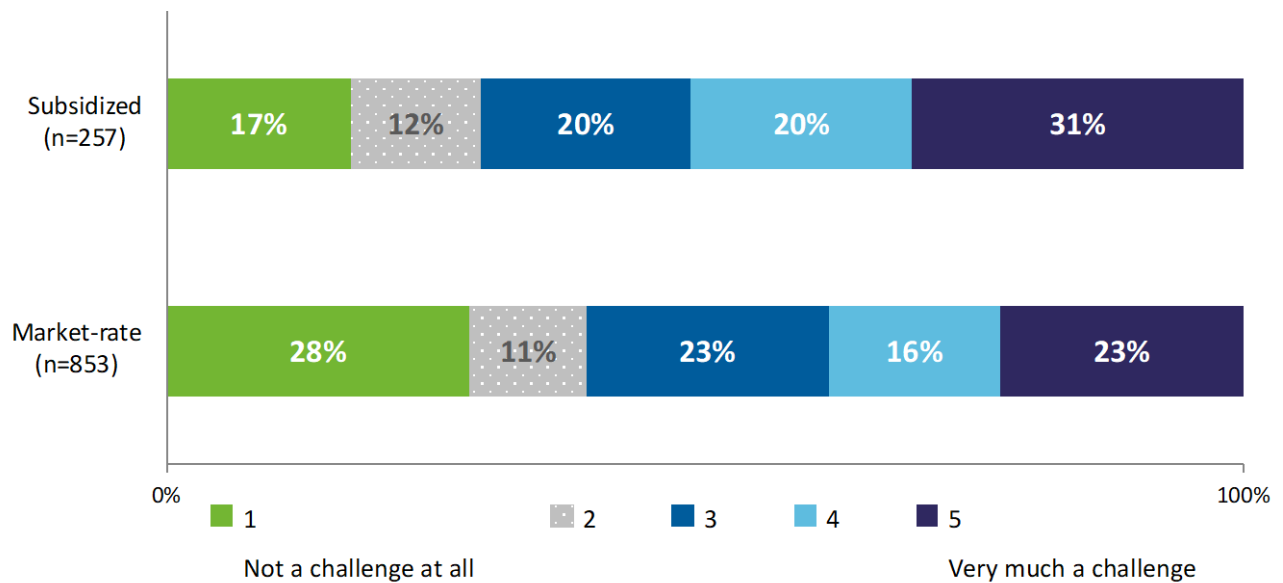
HUD assisted privately owned multifamily includes Rent Supplement, Section 221(d)(3) Below Market Interest Rate (BMIR), Section 236, Section 202 Supportive Housing for the Elderly, Project-Based Section 8, Moderate Rehabilitation, and other, smaller programs.

Our survey found a different distribution of housing subsidies reported by CARE-participating renters. In the renter survey, 23 percent of respondents reported living in public or privately-owned affordable housing, which far exceeds the 6 percent estimate from HUD. We suspect that this difference is due to respondent confusion on the survey questions regarding the subsidized properties and housing vouchers (e.g., the survey questions were asking about property subsidies and not vouchers, but respondents may have been considering both when answering). Only one percent of respondents reported receiving a housing choice voucher as their only housing subsidy, which is substantially lower than the 13 percent estimate from HUD. HUD does not rely on self-reported housing subsidies in the AHS, however, but instead use the respondent's name and address to perform manual lookups against HUD's databases of subsidized properties and voucher recipients. As we do not have access to these databases, our analysis is limited to the self-reported subsidy types. Another potentially confounding factor is California's COVID-19 rent relief that offered a temporary housing subsidy to households between April 2020 and March 2022, and which coincided with the LINA study period.

### *Energy Bills*

Households that reported living in market-rate properties faced lower electric and gas energy burdens than those in subsidized buildings, with 93 percent of households in market-rate housing having very low or low gas energy burdens compared to 72 percent of subsidized housing households and 67 percent of market-rate for (Appendix B). The differences in burden between these groups, however, is largely driven by the differences in income, as opposed to energy costs. Renters in market-rate housing on average have higher bills but also have greater average incomes than renters in subsidized housing.

Fifty-one percent of renters that reported living in subsidized housing said that it was very much or somewhat of a challenge to pay their energy bills relative to other bills, compared to 39 percent of renters in market-rate housing.

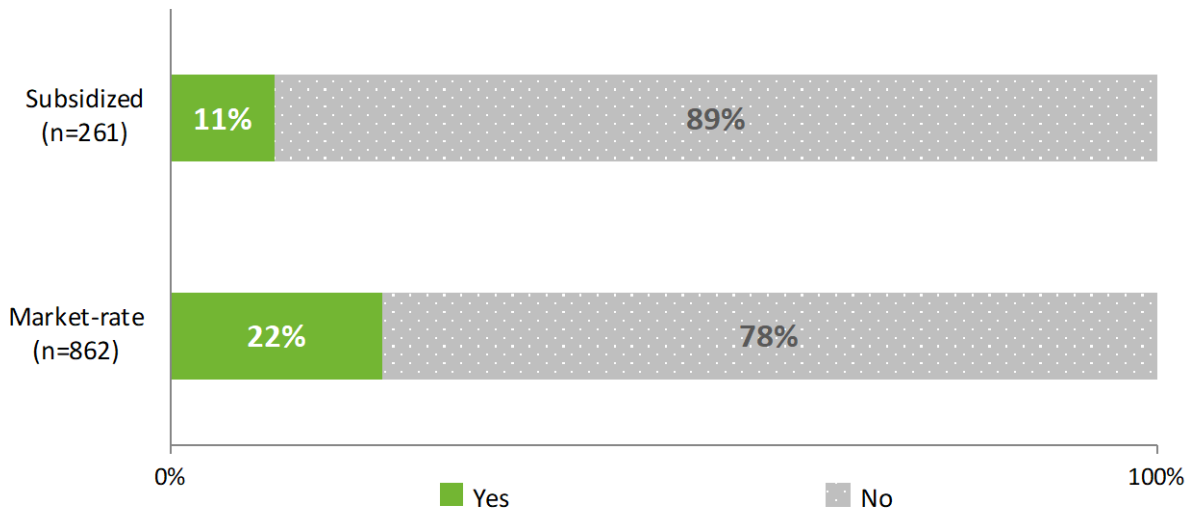
**Figure 19: Difficulty Paying Energy Bills Relative to Other Bills by Subsidized and Market-Rate**


The majority of renters in both subsidized and market-rate housing reported that their energy bills were either much higher or somewhat higher because of the COVID-19 pandemic (80% subsidized housing renters, 81% market-rate renters). Seven percent of renters that reported living in subsidized housing said that their energy bills were somewhat lower, compared to 1 percent of renters in market-rate housing (this finding is statistically significant).

**Figure 20: Impact of the COVID-19 Pandemic on Energy Bills by Subsidized and Market-Rate**

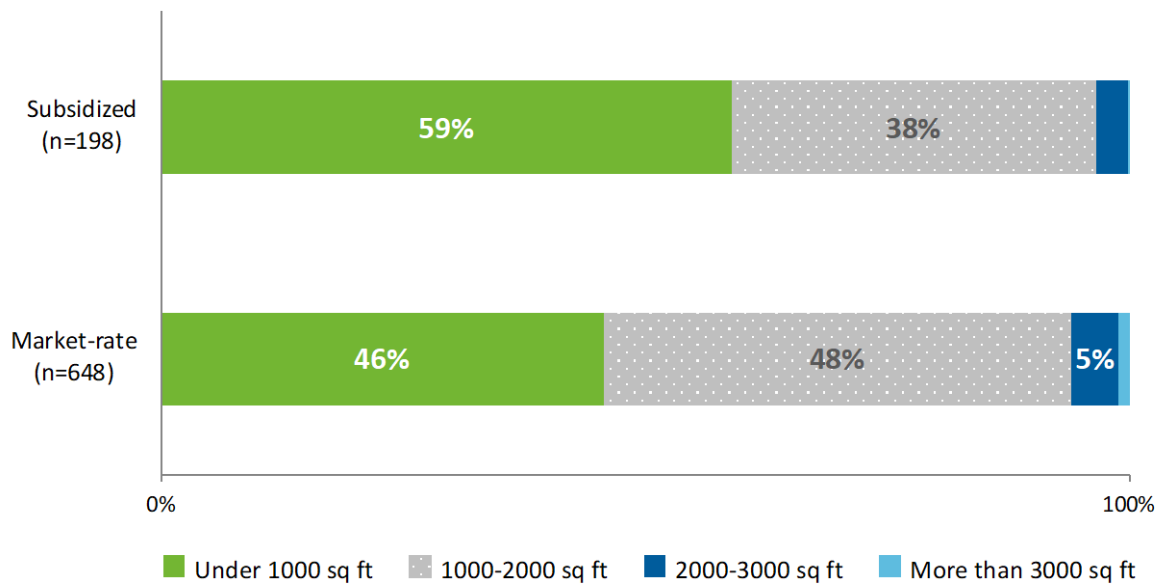

Figure 21 shows that a greater portion of renters in market-rate housing than renters in subsidized housing have negotiated a payment plan with their landlord for late or missing rent (22% of renters in market-rate housing, 11% of renters in subsidized housing). This finding is statistically significant.

**Figure 21: Renter Negotiated Rental Payment Plan with Landlord  
by Subsidized and Market-Rate**

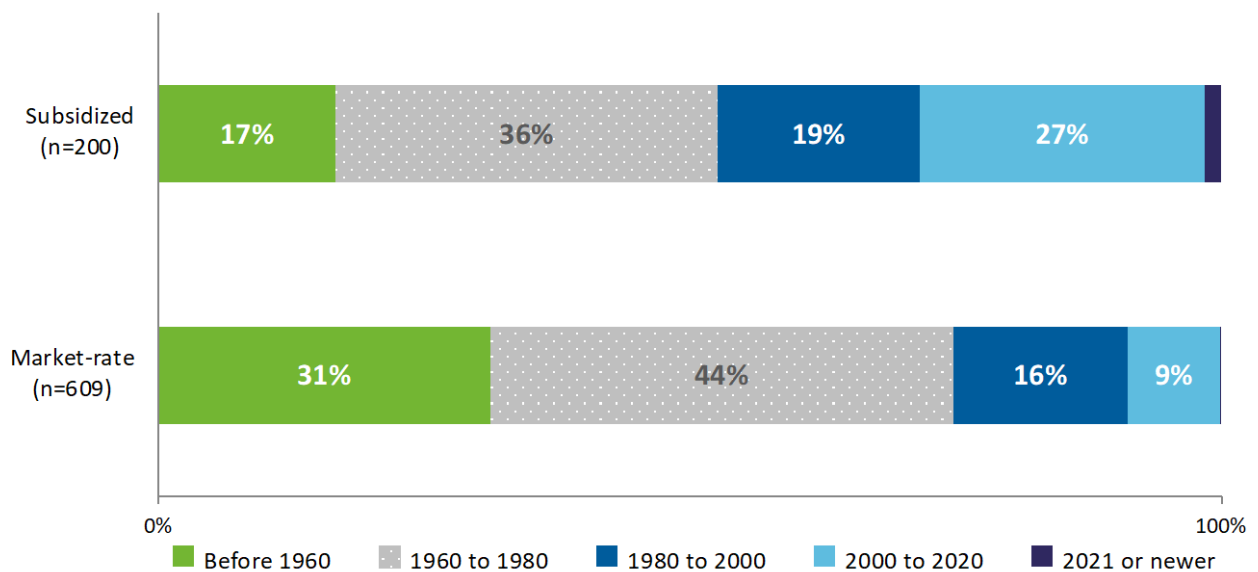


### *Housing Characteristics*

Renters residing in subsidized properties have smaller homes relative to those living in market-rate properties, with a greater portion of subsidized properties under 1,000 square feet than market-rate residences. This difference is statistically significant (Figure 22) and likely means that the homes are less expensive to heat and cool.

**Figure 22: Home Size by Subsidized and Market-Rate**

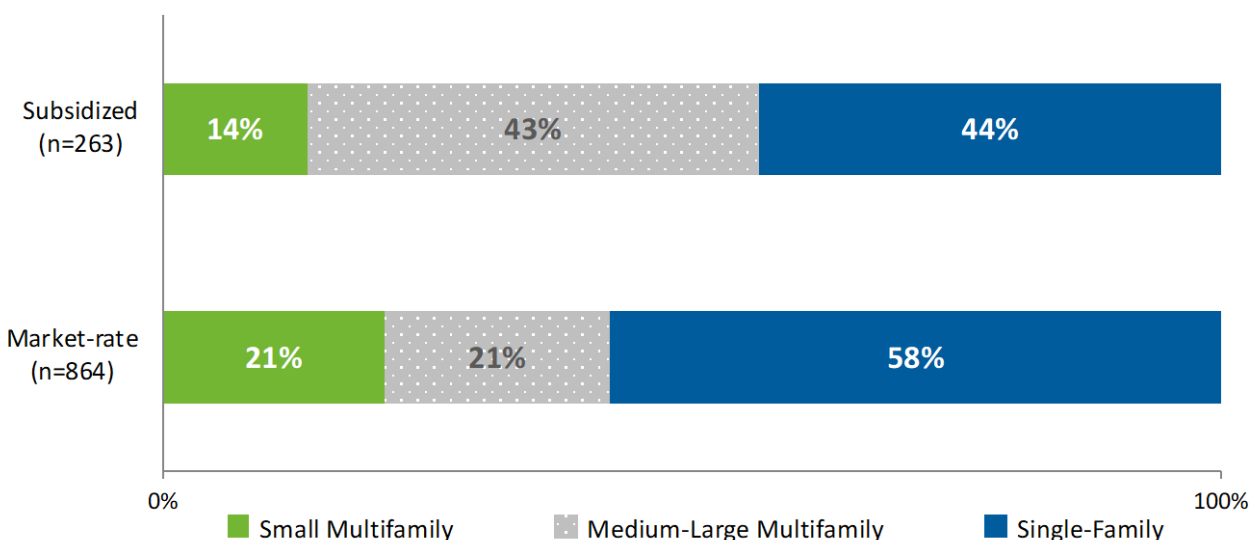
Given that subsidized properties tend to be of newer vintage (Figure 23), energy bill-related concerns for these customers are more likely income-related and less likely to be mitigated by property upgrades provided via ESA. This difference is statistically significant when comparing homes built in 2000 or after.

**Figure 23: Home Age by Subsidized and Market-Rate**



As Figure 24 illustrates, relative to market-rate homes, a relatively larger share of the renters that reported living in subsidized properties are in multifamily homes instead of single-family homes.<sup>42</sup> This difference is statistically significant.

**Figure 24: Home Type by Subsidized and Market-Rate**



### *Heating and Cooling*

Notably, while a larger proportion of renters in subsidized housing express a need for additional heat for health reasons than do those in market-rate housing (38% subsidized, 24% market-rate, difference is statistically significant), all renters in subsidized housing who need additional heat have heating appliances (Figure 25).

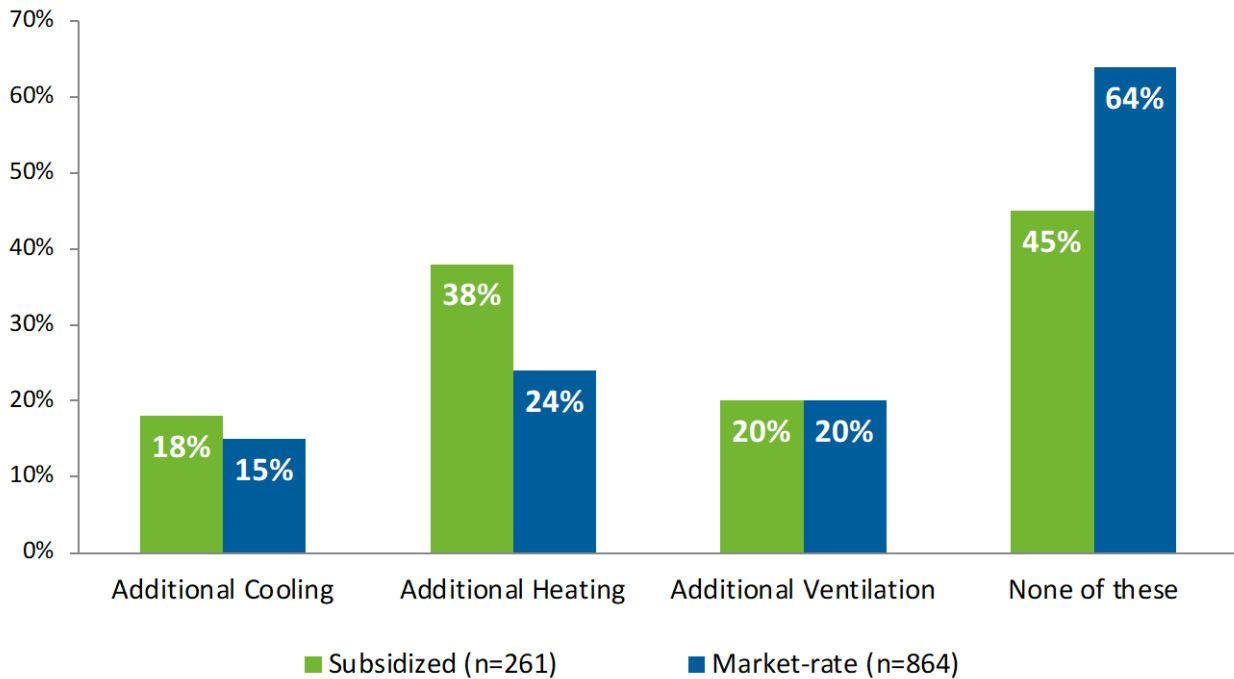
There are no significant differences in cooling needs and the presence of cooling equipment between renters in subsidized housing and market-rate housing.

<sup>42</sup> Home type was self-reported; respondents were asked “do you live in a single-family home or an apartment?”. California has many subsidized single-family homes, both owned (e.g., deed restricted affordable properties) and rented (e.g., public housing). We did verify a sample of survey respondents who reported living in publicly owned single-family housing were accurately reported, but others were inconclusive. It is also possible that some of the survey respondents misreported their housing subsidy type, classifying themselves as affordable housing when they have a voucher or other type of subsidy. See the following HUD article on public housing for more information on HUD’s housing subsidies:

U.S. Department of Housing and Urban Development (HUD). “HUD’s Public Housing Program.”  
[https://www.hud.gov/topics/rental\\_assistance/phprog](https://www.hud.gov/topics/rental_assistance/phprog)

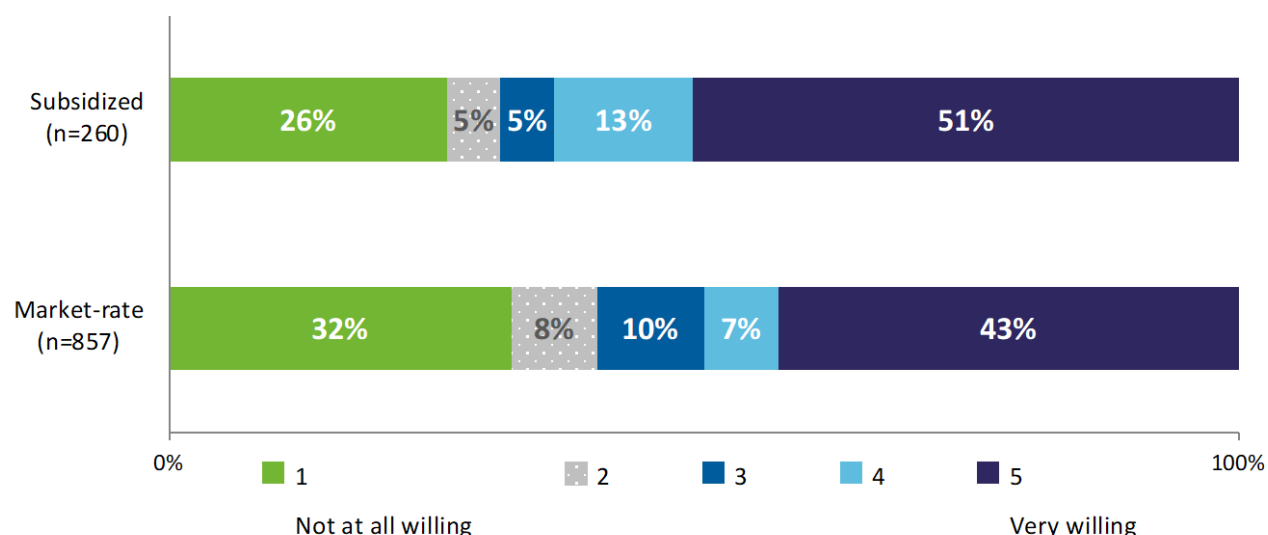
Eligible renters in market-rate housing were more likely than renters that reported living in subsidized housing to say that they do not need additional heating, cooling, or ventilation for health reasons (Figure 25).

**Figure 25: Need for Additional Heating, Cooling, or Ventilation for Health Reasons**



### *Willingness to Participate*

Figure 26 shows that renters who reported living in subsidized housing are more willing to participate in ESA than renters in market-rate residences. Sixty-four percent of renters in subsidized housing are willing to participate compared to 50 percent of renters in market-rate housing (“willing” is defined as responding with a 4 or 5 on a 5-point scale where 1 is not at all willing and 5 indicates very willing).

**Figure 26: Willingness to Participate by Subsidized or Market-Rate Homes**

### *Reasons for Lack of Interest*

Renters in subsidized housing and in market-rate housing expressed similar reasons for not being interested in ESA participation (Table 16).

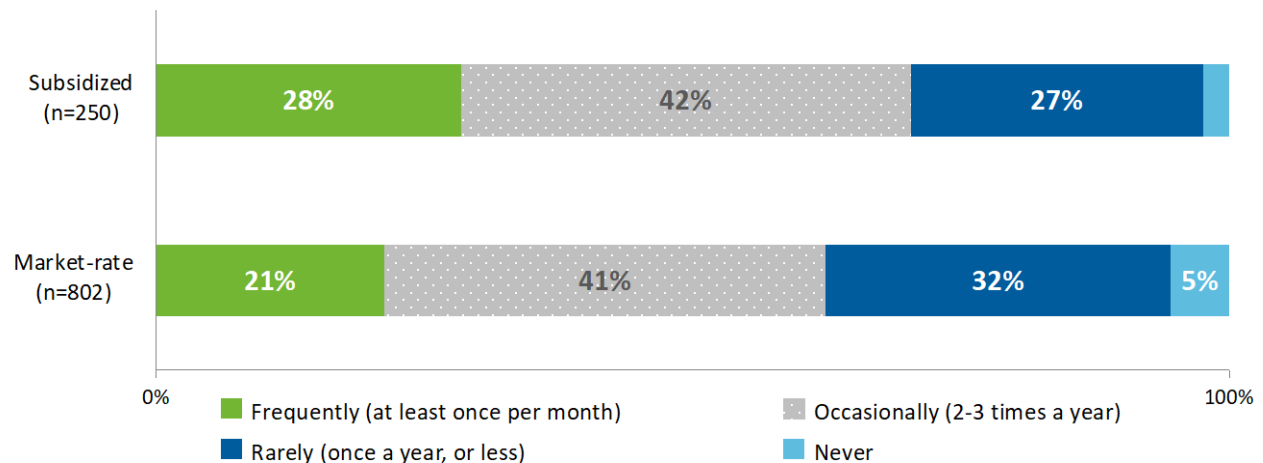
**Table 16: Barriers to ESA Participation for Renters in Subsidized Housing**

Barrier	% of Renters in Subsidized Housing	% of Renters in Market-Rate Housing
We already have energy efficient appliances	70% (n=105)	65% (n=203)
There is little we can do to save energy beyond what we are already doing	63% (n=110)	60% (n=341)
We don't want to provide the personal information required to participate	50% (n=111)	40% (n=362)
Our bills are low already	46% (n=113)	41% (n=350)
It's too much trouble to get approval from the landlord	41% (n=98)	48% (n=321)
We don't want strangers in our home	40% (n=116)	45% (n=368)
The program doesn't appear to offer much that would help us save energy	37% (n=99)	46% (n=325)
We are skeptical that it is really free	37% (n=110)	36% (n=363)
We are afraid our rent will go up if upgrades are made	37% (n=111)	39% (n=355)
Saving energy is not a priority in our household	21% (n=111)	27% (n=370)
We move often	15% (n=116)	18% (n=371)

### *Landlord Relationship*

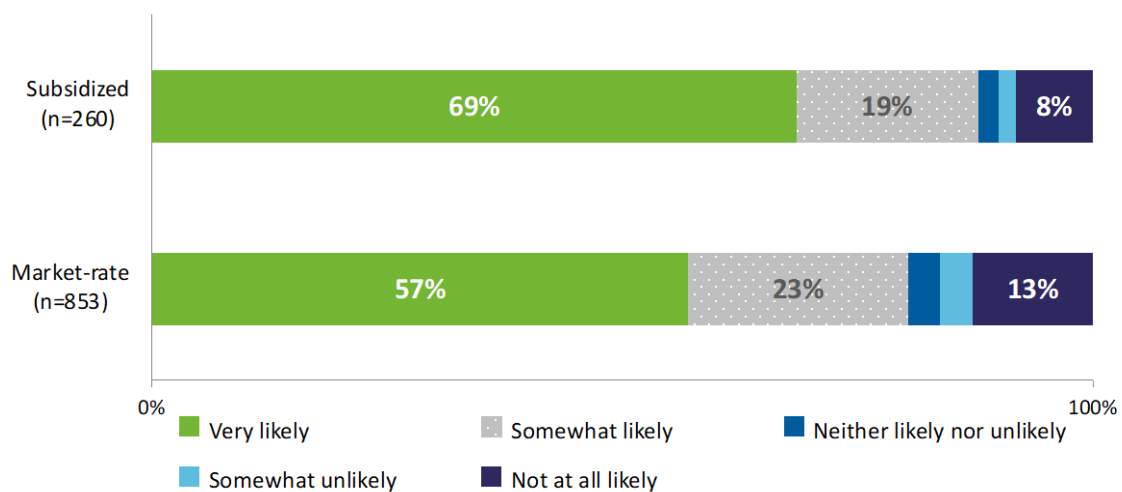
As indicated in Figure 27, renters that reported living in subsidized housing interact with their landlord more often than renters in market-rate properties. There are no differences, however, in landlords' responsiveness based on housing type.

**Figure 27: Frequency of Landlord Interactions by Subsidized and Market-Rate**



Renters that reported living in subsidized housing are more likely to bring up poorly functioning appliances with their landlords. Figure 28 shows that 69 percent of renters in subsidized properties compared to 57 percent of renters in market-rate properties are very likely to bring up a poorly functioning appliance with their landlord. Conversely, 8 percent of subsidized housing renters are not at all likely to do so, compared to 13 percent of renters in market-rate properties. Both of these differences are statistically significant.

**Figure 28: Likelihood to Bring-Up Poorly Functioning Appliance by Subsidized and Market-Rate**



As indicated in Table 17, renters that reported living in subsidized housing are more likely to avoid discussing broken appliances (62%), whereas renters in non-subsidized properties are most likely to avoid discussing plumbing issues (37%).

**Table 17: Recent Issues Not Brought-Up with Landlord by Subsidized and Market-Rate**

Issues	% Renters in Subsidized Housing (n=27)	% Renters in Market-Rate Housing (n=129)
Broken appliances	62%*	27%
Common area	0%	0%
Flooring	25%*	2%
General repairs	11%	24%
Heating or cooling	0%	2%
Mold	1%	2%
Neighbors	5%	3%
Other	16%	14%
Pests	1%*	10%
Plumbing issues	9%*	37%
Rent payments	5%	3%
Safety	1%	5%
Yard	0%*	5%

\*Difference is statistically significant compared to market-rate housing

Table 18 shows the reasons why tenants have not brought up recent issues with their landlords. The most common reasons for renters in subsidized housing are that they do not like talking to their landlord (35%) and that they do not want to annoy their landlord (35%). For renters in market-rate housing, their most common reason for not bringing up a recent issue is that they have concerns about rent being raised (42%) and they do not want to annoy their landlord (42%).

The only statistically significant difference between renters that reported living in subsidized properties and those in market-rate homes is that renters in subsidized properties are more likely to report that the reason they have not brought up recent issues is that they do not like talking to their landlord (35% subsidized, 15% market-rate).

**Table 18: Reasons Recent Issues are Not Brought Up with Landlord  
by Subsidized and Market-Rate**

Reasons	% of Subsidized (n=28)	% of Market- Rate (n=137)
Concerns about rent being raised	29%	42%
Don't like talking to the landlord	35%*	15%
Don't want landlord/maintenance in their home	4%	13%
Don't want to annoy the landlord	35%	42%
Landlord is not onsite or nearby	10%	21%
No use – landlord won't do anything	18%	30%
Problem is not something the landlord can do anything about	5%	9%

\*Difference is statistically significant compared to market-rate housing.

### 4.2.2 Unique Needs and Vulnerabilities of Sub-Populations

The following five renter groups were also created for analysis: large families, households with at least one senior, households with at least one member with a disability, single-parent households, and non-English speakers. The section below includes significant findings for these renter groups to highlight their specific needs and differences.

First, we compared CARE-eligible renters to non-CARE eligible renters to identify how the population of low-income renters may differ from the broader pool of renters (Table 19). Renters who *are* income-eligible are more likely to have a disabled or elderly person in the home, be led by a single parent, or have a large family than households that are not income-eligible. CARE-eligible renters are also slightly more likely to have no English and no Spanish speakers in the home.

**Table 19: Concentrations of Subgroups among California Renters**

Sub-Population	CARE-Eligible Renters	Not CARE-Eligible Renters
Disabled person in the home	32%*	15%
Elderly person in the home	26%*	14%
Household led by a single parent	22%*	12%
Large family	18%*	12%
Non-English primary language	56%	46%
No English speakers	21%	7%
No English and no Spanish speakers	8%*	3%

Source: 2019 Census ACS PUMS estimates of households that rent their home.

\* This group is statistically significantly different than the not CARE-eligible renters.

### *Energy Usage*

Within the income-eligible renter population, households led by single parents face higher energy burden. On average, both single-parent households and large families have higher incomes, but they also have much higher average energy bills than the average CARE-eligible renter (Table 20).

**Table 20: Energy Burden of Sub-Populations of CARE-Eligible Renters**

	Average Annual Income	Average % of FPL	Average Energy Bill (Annual)	Average Total Energy Burden	Median Energy Burden	Average Occupancy	Median Occupancy
All Renters	\$22,900	103%	\$1,300	6.8%	4.5%	2.7	2
Disabled	\$20,800*	98%	\$1,300	7.0%	4.7%	2.4	2
Senior in Home	\$18,800*	99%	\$1,000*	6.2%*	3.9%*	1.8	1
Single Parent	\$26,400*	103%	\$1,700*	8.0%*	5.3%*	4.0	4
Large Family	\$38,300*	114%	\$2,000*	6.4%*	4.3%	5.8	5

Source: 2019 Census ACS PUMS

\* This group is statistically significantly different than the overall average for CARE-eligible renters.

Income, bill, and household metrics were reviewed by language to see if the households who do not speak any English or Spanish had more unmet needs than those who speak some or only English. On average, households with no English or Spanish speakers have the lowest average annual income, but they also have the lowest average annual energy bills, keeping their energy burdens on the lower end of the language groups (Figure 19). Households with only English

speakers have the highest energy burden relative to homes with members who speak other languages.

Bilingual households that speak both English and Spanish have the highest average energy bills, but also the highest annual income and occupancy; their overall energy burden is similar to other bilingual and Spanish-speaking households.

**Table 21: Energy Burdens by Languages Spoken in Eligible Renter Households**

Language	Average Annual Income	Average Percent FPL	Average Energy Bill	Average Energy Burden	Median Energy Burden	Average Occupancy	Median Occupancy
All Renters	\$22,900	103%	\$1,300	6.8%	4.5%	2.7	2
English Only	\$19,600*	100%	\$1,300	7.7%*	5.1%*	2.0	1
Bilingual English and Other Language	\$22,3300	99%	\$1,300	6.5%	4.3%	2.9	3
Bilingual English and Spanish	\$30,500*	116%	\$1,500*	6.3%*	4.3%	3.9	4
Spanish Only	\$23,300	103%	\$1,100*	5.9%*	3.8%*	2.9	2
No English or Spanish	\$16,400*	86%	\$800*	5.7%*	3.6%*	1.9	2

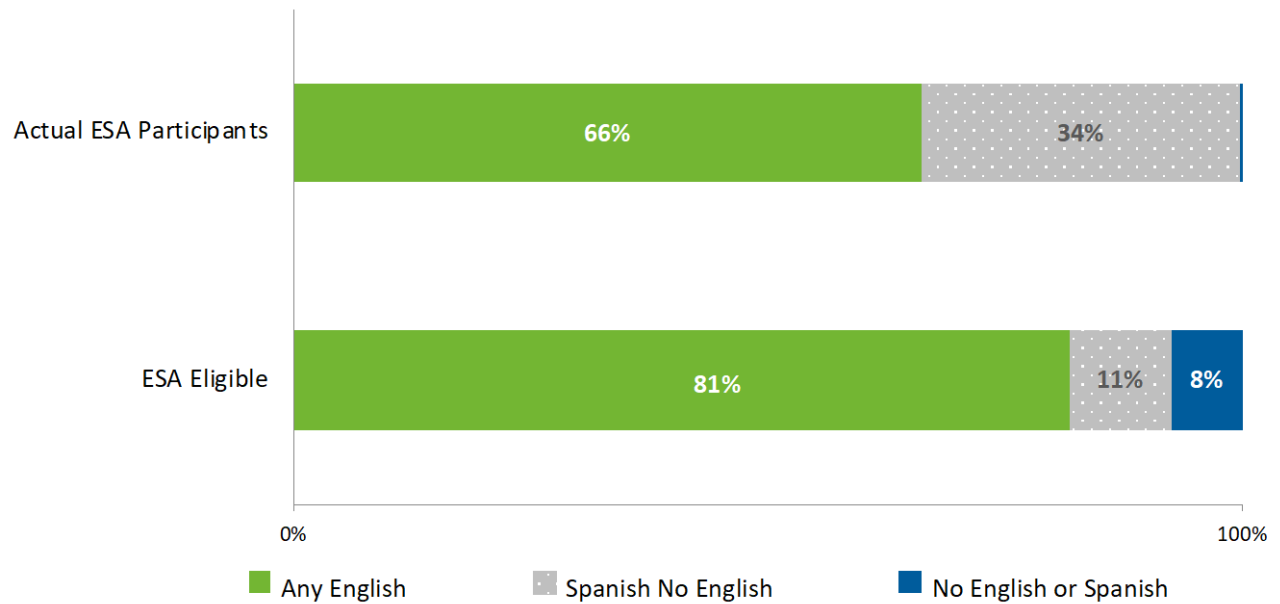
Source: 2019 Census ACS PUMS

\* This group is statistically significantly different than the overall average for CARE-eligible renters.

Figure 29 shows the ESA program enrollment rate by language spoken in the household. Based on only the comparison of ESA participation rates to their respective eligible populations, it appears that English-speaking households are under-represented in the program while Spanish-speaking households are over-represented. At a minimum, it is apparent that the current program efforts are meeting the need to recruit Spanish-speaking renters into the program. As discussed throughout this report, however, there are additional factors that drive participation among key sub-populations beyond just which languages are spoken in the household.



Figure 29: ESA Program Enrollment Rate by Language



Source: Evergreen analysis of ESA participation reported by the IOUs between 2018 and 2020, and 2019 Census ACS PUMS estimates of ESA income-eligibility.

### *Health, Comfort, and Safety*

Households with disabled members were more likely to note that they require additional heating, cooling, or ventilation for health reasons compared to households without a disabled member (67% - or 100% minus 33% - versus 27%). All differences shown in Figure 30 are statistically significant.

**Figure 30: Self-Reported Need for Additional Heating, Cooling, or Ventilation for Health Reasons by Household Disability Status**

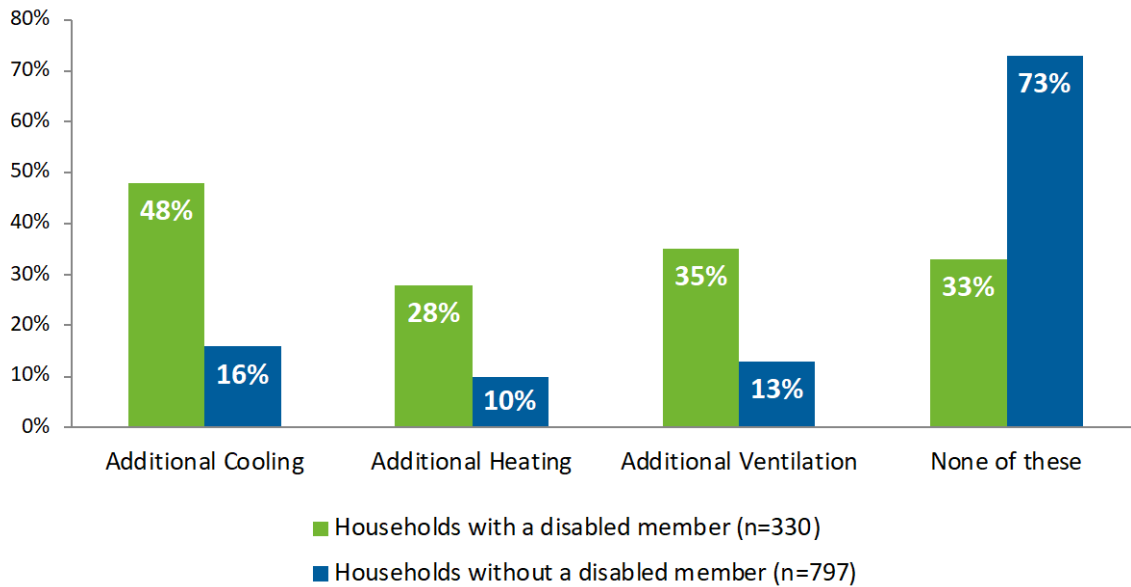
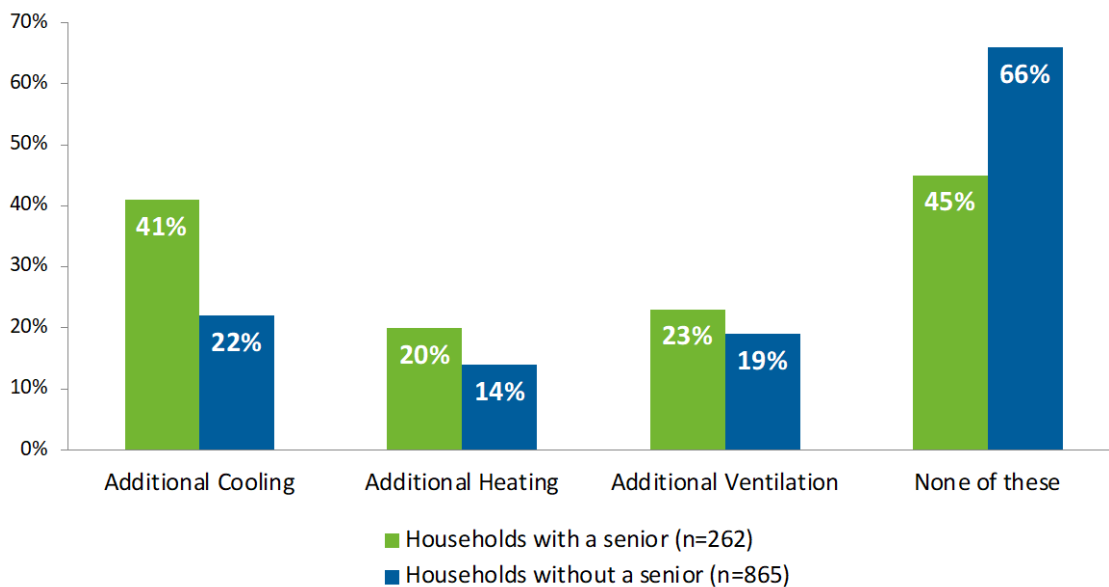


Figure 31 shows that households with seniors are more likely to report that they need more heating for health reasons. This difference is statistically significant.

**Figure 31: Self-Reported Need for Additional Heating, Cooling, or Ventilation for Health Reasons by Household Senior Tenant Status**



### *Willingness to Participate*

Households with a disabled member are more likely to be very willing to participate in the ESA program. This finding is statistically significant (Figure 32).

**Figure 32: Willingness to Participate by Household Disability Status**

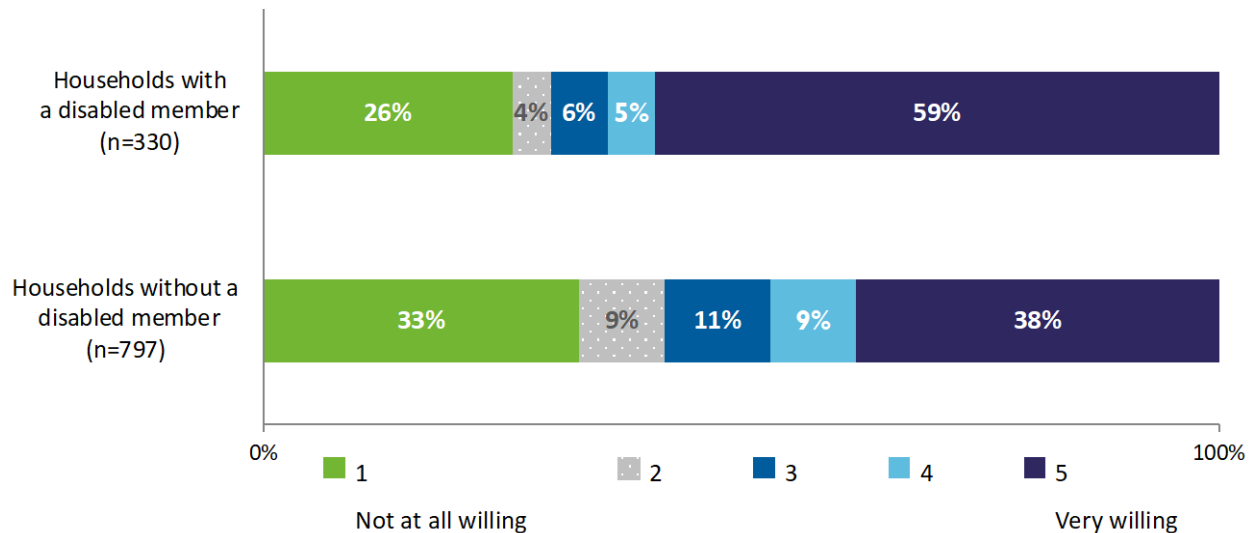
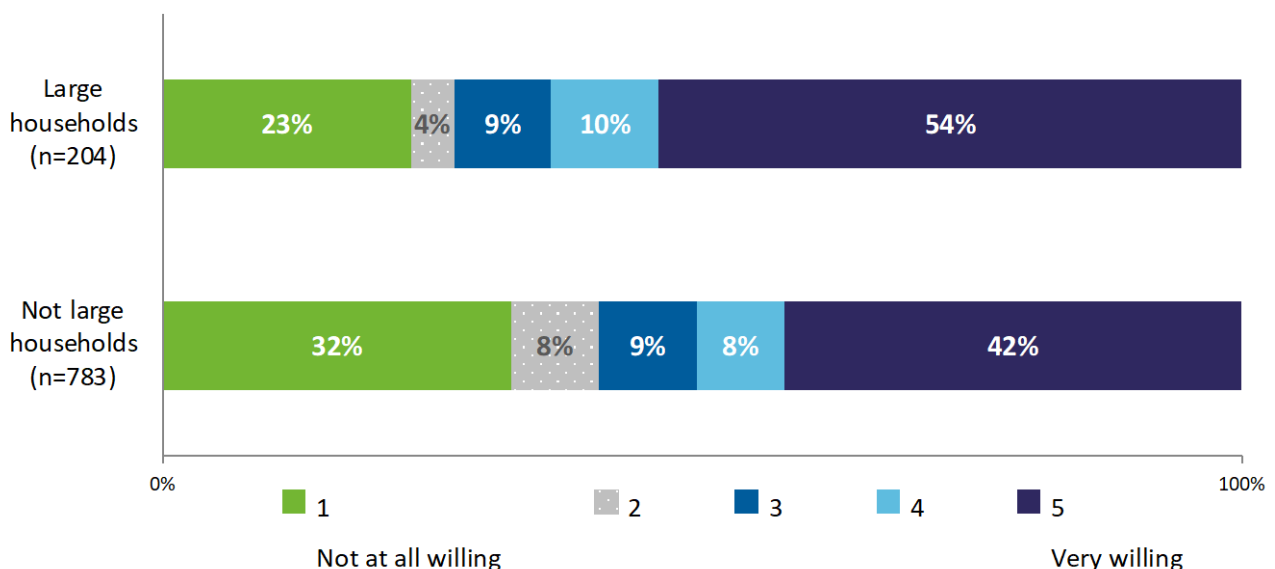


Figure 33 shows that there is a greater willingness to participate in the ESA program amongst larger households when compared to smaller households, with 54 percent of large households reporting they would be very willing to participate, compared to 42 percent of smaller households (difference is statistically significant).

**Figure 33: Willingness to Participate by Household Size**



## 5 Conclusions and Recommendations

As discussed throughout this report, the primary 2022 LINA objectives were to examine the rental housing market, assess unmet needs and ESA program gaps, and identify opportunities for the program to serve low-income tenants living in different types of rental housing.

Key findings are shared for each of the first four research objectives. Where findings led to the identification of potential opportunities and solutions for meeting renter energy needs (objective 5), a recommendation was included along with the expected benefit from the recommendation.

### **1** *Identify the size, key characteristics, and energy burdens of the low-income single-family and multifamily rental (and owner) markets*

**Overall characteristics of the rental market:** In California, almost two-thirds of the low-income population that is eligible for the ESA program are renters. Renters comprise only 50 percent of ESA participants, however. Of the renter households eligible for the program, 51 percent live in single-family homes and 49 percent reside in multifamily units. Among program-eligible renter households, 47 percent only speak English and 31 percent speak Spanish (either exclusively or with some English). An additional 10 percent of eligible renters are bi-lingual households that speak English and another language other than Spanish. These numbers suggest that program outreach conducted in just these two languages should be sufficient to reach the vast majority of the eligible renter population.

Based solely on the renter population numbers, it appears that more renter households could be served by the program (i.e., renter ESA participation rate is lower than the proportion of eligible renter households in the population). As discussed below, however, there are valid reasons why renters may not benefit as much from ESA or otherwise may not want to participate (e.g., low energy burden, limited potential for improving efficiency of the home). These reasons will be challenging for the ESA program to overcome.

**Comparing energy costs for ESA-eligible renters and owners:** Our research identified several energy-related reasons why renters may be less inclined than owners to participate in ESA:

- **Lower energy bills** (\$1,308 annually for renters compared to \$2,016 for owners); and

- **Lower overall energy burdens** (6.8% for renters on average<sup>43</sup>, compared to 9.4% for owners). Median energy burden is also lower for renters compared to owners (4.5% versus 6.7%).

Among the eligible renter population, single-family households tend to have higher energy burdens than multifamily renters, and single-family homes are consistently larger than multifamily units. Our customer surveys also confirmed that renter households with lower energy burdens have less interest in participating in the ESA program; 41 percent overall expressed low interest due to already low energy bills, with this rate increasing to 54 percent for multifamily renters in medium and large buildings. Overall, these differences likely contribute to lower participation rates among **renters, who may see less benefit from the program when compared to owners with higher energy use and higher energy burdens.**

Recommendation	Expected Benefit(s)
Prioritize single family renters over multifamily renters for the ESA program.	This will help maximize the benefit of limited ESA resources, as single family renters have higher energy burdens (and therefore higher energy savings potential) than multifamily renters. Single family renters also appear to be more receptive to the ESA program, which makes them easier to recruit.

## 2 *Identify market and program barriers to serving rental customers residing at different types of rental properties (e.g., single-family; large, medium, and small multifamily; deed-restricted; market-rate)*

**Comparing renter demographics by ESA eligibility:** Comparing renters who *are* eligible for ESA compared to all other renters, eligible renters are more likely to:

- Have a disabled person in the household (32% ESA-eligible, 15% non-ESA eligible);
- Have an elderly person in the household (26% ESA-eligible, 14% non-ESA eligible);
- Have a household led by a single parent (22% ESA-eligible, 12% non-ESA eligible); or
- Have a large family (18% ESA-eligible, 12% non-ESA eligible).

For this study (and summarized below), we explored differences in attitudes and perception of the ESA program among renters. The first step was to determine if there were significant differences

<sup>43</sup> The average energy burden is skewed upwards due to a small number of households having very low reported incomes.

within these demographic subgroups, and recommend potential program adjustments that might help reach these households.

- **Overall interest in ESA:** When presented with the ESA program description in the survey, 48 percent expressed little or no interest in participating. Given that the program measures are provided for free and will reduce energy bills, it may seem surprising that low-income renters were not more enthusiastic about participating. As noted above, however, low energy burdens are likely contributing to the lukewarm attitudes toward participating in the program. Additional issues that were explored in the customer survey are also contributing factors, as discussed below.
- **Reasons for lack of interest in ESA:** Among the most common reasons why customers reported a relatively low interest in the program include the following:
  - Customers believe that they already have energy efficient appliances (66%); and
  - Customers reported there is nothing else that will help reduce energy (60%).

These responses are all consistent with the lower energy burden observed for low-income rental households.

**This lack of need (whether real or perceived) creates a unique challenge for both policy and implementation and becomes especially relevant as the program shifts from goals to reach “all low-income customers” to increased effort to reach those with greater needs and savings opportunities.**

**Customer attitudes and relationships with landlords/property owners:** When prompted to think about recent issues in their home that they did not bring up with their landlord, 41 percent said they did not want to “annoy their landlords” about their concerns. This issue was cited more often by single-family renters than by multifamily (55% for single-family compared with 22% to 29% for multifamily).

Other concerns renters have about asking landlords for improvements include:

- **Fears that their rent will be raised (39%).** Relative to those living in single-family dwellings, customers living in small multifamily homes fear their rent will go up if upgrades are made (50% small multifamily, 33% single-family).
- **Skepticism that the program is actually free (36%).** A greater portion of small multifamily renters are skeptical that the program is truly free (49% small multifamily, 41% medium/large multifamily, 29% single-family).
- **Concerns that landlords will not do anything, even if asked.** Multifamily renters were more likely to believe that there is no use in talking to their landlords, as they will not do

anything to address the reported issue (46% medium/large and 37% small multifamily, compared with 17% single-family).

Multifamily renters were also more likely to report that their landlord is not onsite or nearby (26% medium/large multifamily, 35% small multifamily compared with 17% single-family). This makes recruiting multifamily units even more challenging as additional effort is needed by the tenant to engage with the landlord or property manager on this topic.

As these combined findings indicate, apprehension about talking to their landlord is not the most important participation barrier among renter households, although it can be a contributing factor. Most renters believe that there is little opportunity to improve energy efficiency in their homes, and without providing household-specific estimates on energy savings, this barrier will be difficult for the program to overcome, particularly if the home already has a low energy burden. There is some trepidation (mostly with single-family households) about bothering their landlord to request improvements, and this could possibly be addressed by a coordinated program outreach that targets the renters and property owners simultaneously.

Recommendation	Expected Benefit(s)
Develop outreach strategy that engages renters and property owners simultaneously and that communicates to renters that the program will work with the landlord on their behalf.	This will help ease tenant concerns about contacting the landlord if the program does it for them. It also helps remove a logistical barrier by having the program contact owners that live offsite.

3

*Identify needs the program is meeting and/or has met, as well as needs not met by the program, for relevant sub-groups based on housing type, location, energy usage, etc.*

Additional research was conducted for a more in-depth exploration of the potential needs of the sub-population groups of interest, particularly those in more vulnerable or underserved groups.

- Heating, cooling, and ventilation needs:** Over 25 percent of participants reported needing some form of additional heating, cooling, or ventilation for health reasons. Follow-up interviews with eligible participants suggested that willingness to participate may be determined by whether or not renters believe that ESA treatment of their units will result in a meaningful difference in their heating or cooling-related energy use. Additional HVAC-related findings include the following:
  - Fifteen percent of eligible renters reported that they need additional cooling for health reasons.** These respondents indicated that they keep their home cooler than they might otherwise due to health issues of one or more family members.

- **Twenty-seven percent of respondents reported needing additional heating for health reasons.** This is more likely to be an issue for customers that reported residing in subsidized properties (38%) compared to those in market-rate homes (23%).
- **Twenty-three percent of respondents would like additional ventilation for health reasons.** Respondents who reported a need for additional ventilation were also more likely to be concerned about air pollution, compared with households that did not require additional ventilation.
- **Location-specific needs:**
  - Concerns about air pollution were more common in climate group 4 (Mountain/East area, mostly served by SCE and SoCalGas), which is also identified as having higher pollution levels in the CalEnviroscreen tool.
  - Climate groups were consistent with our expectations of electric burden, with higher burdens in regions with greater cooling load.
- **Language-specific needs:** Customers who speak Spanish (and no English) participate in ESA at higher rates than the proportion of Spanish speakers in the eligible population. Based on program penetration alone, it appears that the ESA program is currently successful in recruiting and treating Spanish-speaking households, including those that only speak Spanish. The low income English-speaking population, on the other hand, appears to have a relatively lower rate of participation. There may still be potential needs within these groups that the program can help address, however, based on any overlapping demographic and geographic factors discussed above.

These findings indicate that the program may be able to increase renter participation by emphasizing the HVAC-related benefits of the program measures to certain groups, particularly the potential health benefits. Improved ventilation benefits might be particularly resonant in the Mountain/East climate area, where air pollution is a greater issue.

Recommendation	Expected Benefit(s)
<p>Modify program outreach messaging to leverage specific sub-population findings.</p> <ul style="list-style-type: none"> <li>● Emphasize ventilation and pollution protection benefits, particularly for renters in the Mountain/East area (Climate group 4).</li> <li>● Emphasize potential bill reduction benefits from HVAC-related measures in the North Coast region (Climate group 1).</li> </ul>	<p>This could help ensure health and comfort benefits among the population living in high pollution areas and/or areas with higher energy burdens due to heating loads.</p>



#### 4 *Identify and understand needs of vulnerable populations within the rental market (e.g., homes with seniors, children, disabled members)*

As noted above, the ESA-eligible renter population is more likely to include potentially vulnerable households (e.g., seniors, disabled, large families). Not surprisingly, the more vulnerable households expressed a greater willingness to participate and a greater reported need for additional cooling and heating due to health reasons:

- **Willingness to participate** is higher for customers residing in subsidized properties, homes where a member has a disability, and homes with a larger number of residents (67%, 64%, and 64% respectively, compared with 52% overall).
- Households with seniors and/or with disabled residents were more likely to report having a **greater need for either heating, cooling, or ventilation for health reasons** (67% of households with a disabled member mentioned needing at least one of the three between heating, cooling, and ventilation compared to only 27% of households without a disabled member).

The ESA program should consider increasing outreach to rental households that include these sub-groups, with an emphasis on providing HVAC-related measures.

Recommendation	Expected Benefit(s)
<p>Increase program outreach to renter households with seniors, disabled residents, or a larger number of residents.</p> <p>Update program marketing materials to emphasize health benefits of program HVAC-related measures, particularly for homes with seniors and/or members with health problems.</p>	<p>Increasing program outreach to these populations may improve health, comfort, and safety, while also targeting groups that have indicated a greater willingness to participate.</p>