

**Residential Rate Design Rulemaking
R.12-06-013 (Phase 2)
Excerpts from 2013 LINA
Appendix B to Testimony of Henry J. Contreras
For the Center for Accessible Technology
and the Greenlining Institute**

3.3.1.2 Energy Insecurity

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

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

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

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

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

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

- Single family renters are more likely to be insecure (7% are highly insecure and 39% have medium insecurity).
- “Other” language speakers³⁷ are more likely to be insecure (10% are highly insecure and 48% have medium insecurity).

3.3.1.3 Qualitative Assessment of In-Home Non-Participant Sample

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

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³⁷ Ibid.

- Those with no financial constraints had an average energy burden of 6 percent, none were highly energy insecure and 10 percent had medium insecurity.
- Those with small financial constraints had an average energy burden of 7 percent, 15 percent were highly energy insecure and 34 percent had medium insecurity.
- Those with medium financial constraints had an average energy burden of 10 percent, 5 percent were highly energy insecure and 47 percent had medium insecurity.
- Those with large financial constraints had an average energy burden of 6 percent, 7 percent were highly energy insecure and 43 percent had medium insecurity. This somewhat inconsistent result (with lower energy burden for households with larger financial constraints) is due to two outlier households that have very high burden that are in the moderate category. The median burden across the two groups is about the same (and is higher for the large financial constraint group, if the two outliers are removed).

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

- Presence of medical condition or disability
- Large number of children
- Multi-family (note that the energy burden and the income level is lower for multi-family households compared to single-family renters, so the level of financial distress is greater, but when factoring in energy costs relative to income, burden is greater for single-family renters)
- Households with seniors
- Households managed by young adults.

3.3.2 ESA Measure Benefits

This section answers the research question:

15. Which ESA measures contribute to the most benefit?

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

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

We found that HVAC and weatherization measures are most likely to generate improvements in health, comfort and safety. Larger households and homes with children were more likely to mention they noticed these benefits. (There are more members to experience benefits, and as presented in the next section, there are greater energy needs among larger households.)



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

Volume 2: Detailed Findings

Final Report

December 16, 2013

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

5.4.8 LI Program Review

Even though all these programs are offered to LI households as a free service, there are still non-financial barriers that prevent households from participating. These barriers are varied in nature but can include a lack of knowledge of the program, a distrust of utility companies or general apathy towards social service programs. Some people would prefer not to have a stranger come into their home; our contact at the Massachusetts WAP program likened some people's perception of the audit as a "benevolent invasion" of a household that may deter some people from participation. The contractor visit may be perceived as an intrusion into their space. These barriers are consistent with the barriers we noted from our research of California's ESA program!

The community agencies that administer the programs can often work to allay concerns about such an "invasion" of the home. Effective agency outreach can inform future participants to the benefits of the energy efficiency work on their home and be an advocate in the process. Some energy efficiency programs work with other kinds of community agencies, such as elderly assistance organizations, to reach out and work with populations that may be most wary of a home audit and energy efficiency work. These strategies are currently being used by the ESA program.

As mentioned above, some utilities like the Ohio EPP require customers who receive bill pay assistance to also participate in energy efficiency programs, which results in high participation rates!!

5.5 Energy Needs and LI Program Benefits

This subsection describes study results related to energy insecurity, energy burden and energy needs among the eligible population. We drew upon all the study primary and secondary research sources for this subsection!

5.5.1 Energy Insecurity

We asked telephone survey respondents a series of questions that we used to determine their level of self-reported energy insecurity. This measure is designed to make it as objective as possible, based on self-reported behaviors that indicate difficulty managing energy bills. In the next subsection, we present results on energy burden, which is based on self-reported household income and energy bill cost based on IOU billing data. In the following subsection, we present study results related to non-energy benefits, which include health, comfort and safety, which are additional aspects of the impact that energy bills and home energy equipment has on LI households.

5.5.1.1 Customer Telephone Survey

We asked survey respondents how often they or others in their home do the following!— a lot, sometimes or never:

- ∞ Cut back on food or medicine in order to pay utility bill!

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- ∞ Borrow!money!to!pay!utility!bill!
- ∞ Receive!a!disconnection!notice!for!utility!service!
- ∞ Had!utility!service!shut!off!
- ∞ Use!heat!or!cooling!less!than!needed!to!keep!utility!bill!lower!
- ∞ Use!kitchen!stove!or!oven!to!heat!home!

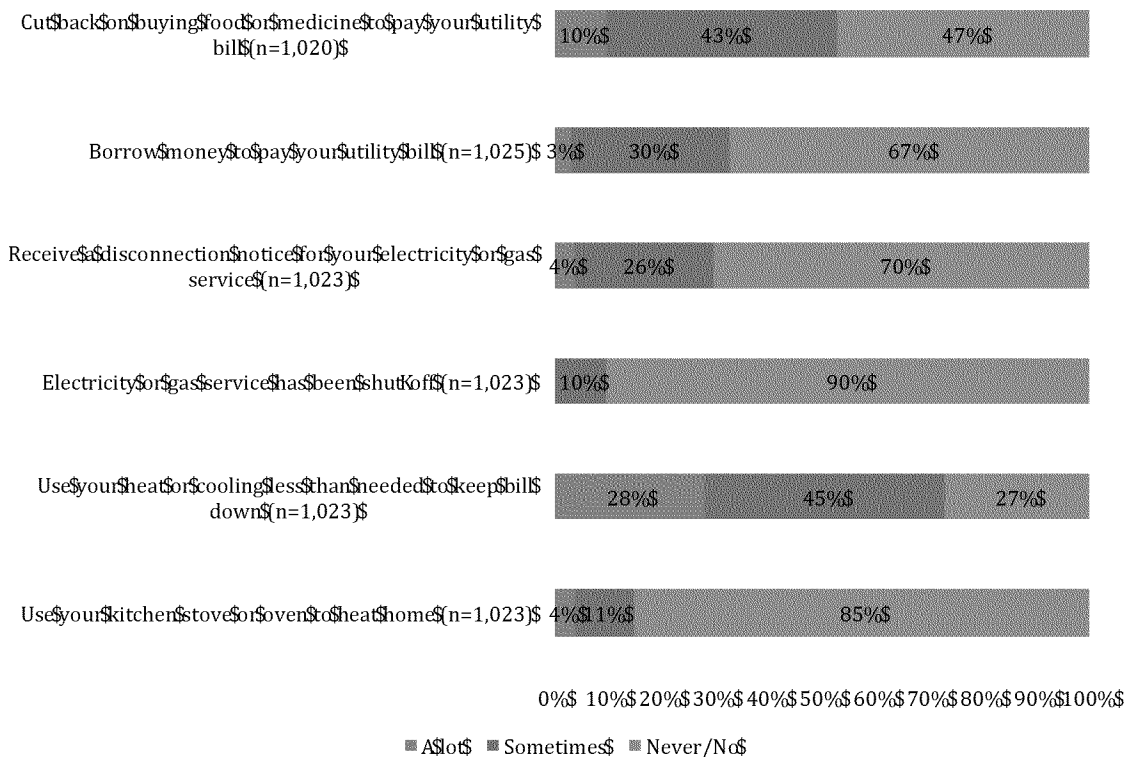
Below, we report the frequency with which respondents self-report that they take these measures, and an “energy insecurity” summary based on all of their responses.!!

As shown in Figure 41 below, the most common measure that respondents take is using heating or cooling less than needed (with 28% of the total reporting they do that “A lot” and 45% “Sometimes”), accounting for half of all the energy insecurity reported by respondents.!!

The second most commonly cited measure is cutting back on food or medicine to pay the utility bill, with 10 percent saying they do this “A lot” and 43 percent saying they do this “Sometimes”. 4 percent or fewer respondents reported that they took any of the other energy insecurity measures “A lot”.

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Figure 41. Energy Insecurity Measures (1e, 1f, 1g, 1h, 1j) for California LI Population

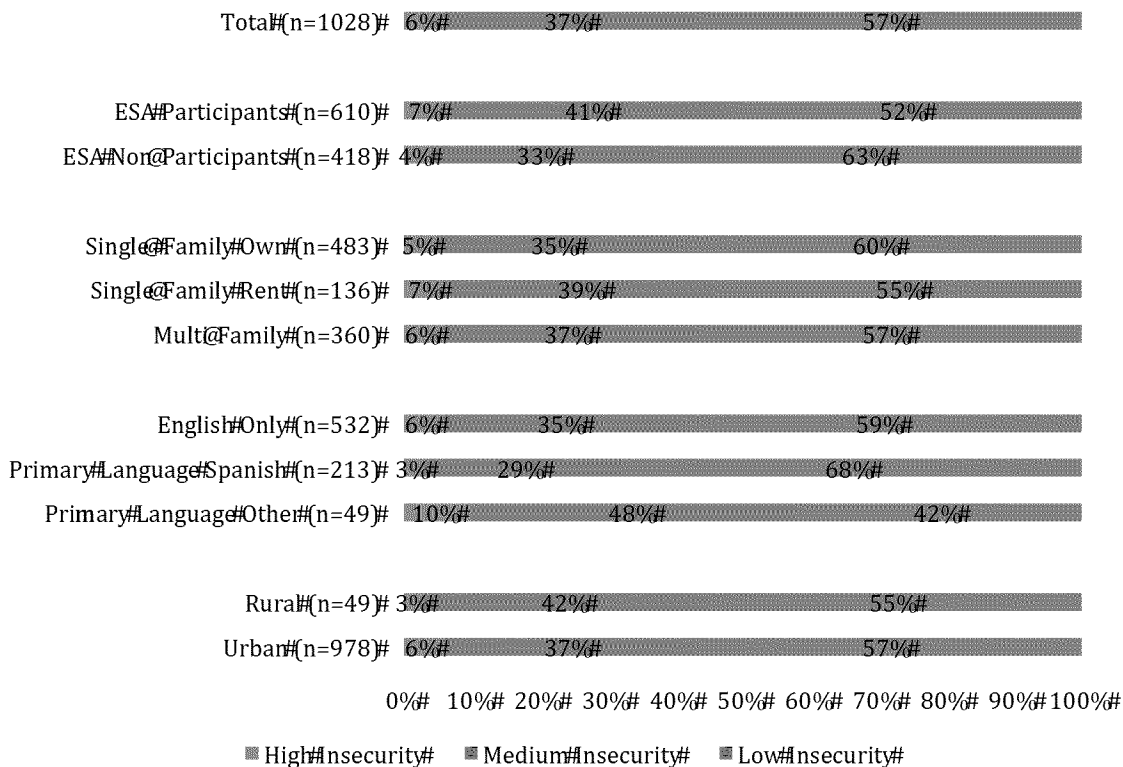


Source: 2013 CARE participant telephone survey data.

We created a summary variable based on responses to the set of six insecurity questions. We categorized respondents as having a high level of energy insecurity if they responded "A lot" to two of the questions and responded "Never" no more than twice. We categorized respondents as having a low level of energy insecurity if they answered "Never" to at least three of the questions, and never answered "A lot." We categorized the remaining respondents as having a medium level of insecurity.

Figure 42 shows the results of this summary of energy insecurity variable. 6 percent of LI households are highly energy insecure, 37 percent have medium energy insecurity, and 57 percent have low energy insecurity.

Figure 43: Summary Measure of Energy Insecurity by Home Type, Language, and Rural/Urban (1e, 1f, 1g, 1h, 1j) for California LI Population



Source: (2013) CARE participant telephone survey data.

Table 49 shows the more detailed energy insecurity survey responses by LI population segment. Single Family renters are most likely to have to cut back on food or medicine, borrow money to pay bills and to receive a notice of disconnection. Multi Family households are more likely to borrow money to pay bills. Non-English speaking households are more likely to cut back on buying food or medicine and borrow money to pay bills.

Table 49: Energy Insecurity by Home Type, Language, and Rural/Urban (I1e, H1f, H1g, I1h, H1j) for California LHPopulation

	LI Eligible Population							
	Single Family Own	Single Family Rent	Multifamily	English Only	Primary Language Spanish	Primary Language Other	Rural	Urban
Cut back on buying food or medicine to pay your utility bill								
A) lot)	10%)	8%)	11%)	11%)	9%)	16%)	11%)	10%)
Sometimes)	37%)	53%)	42%)	37%)	47%)	40%)	39%)	43%)
Never/No)	53%)	38%)	48%)	51%)	44%)	43%)	51%)	47%)
Total)(n))	(480))	(134))	(357))	(528))	(210))	(49))	(49))	(970))
Borrow money to pay utility								
A) lot)	4%)	2%)	2%)	3%)	2%)	3%)	0%)	3%)
Sometimes)	24%)	35%)	34%)	23%)	40%)	32%)	17%)	31%)
Never/No)	72%)	63%)	64%)	74%)	59%)	65%)	83%)	66%)
Total)(n))	(482))	(136))	(358))	(531))	(213))	(48))	(49))	(975))
Receive a disconnection notice for your electricity or gas service								
A) lot)	5%)	3%)	4%)	5%)	3%)	5%)	5%)	4%)
Sometimes)	21%)	33%)	26%)	25%)	32%)	16%)	26%)	26%)
Never/No)	74%)	64%)	70%)	70%)	66%)	79%)	69%)	70%)
Total)(n))	(482))	(136))	(357))	(528))	(213))	(48))	(49))	(973))
Electricity or Gas service has been shut off								
A) lot)	1%)	0%)	0%)	0%)	1%)	1%)	0%)	0%)
Sometimes)	8%)	13%)	10%)	8%)	9%)	3%)	10%)	10%)
Never/No)	92%)	87%)	90%)	92%)	91%)	96%)	90%)	90%)
Total)(n))	(481))	(135))	(358))	(529))	(213))	(48))	(48))	(974))
Use heat or cooling less than needed to keep bill down								
A) lot)	27%)	31%)	27%)	27%)	15%)	42%)	37%)	28%)
Sometimes)	42%)	43%)	48%)	43%)	53%)	43%)	26%)	45%)
Never/No)	32%)	26%)	26%)	29%)	31%)	15%)	37%)	27%)
Total)(n))	(478))	(134))	(356))	(526))	(212))	(48))	(49))	(966))
Use kitchen stove or oven to heat home								
A) lot)	2%)	4%)	6%)	4%)	2%)	10%)	0%)	4%)
Sometimes)	11%)	13%)	11%)	9%)	10%)	19%)	14%)	11%)
Never/No)	88%)	83%)	84%)	87%)	88%)	71%)	86%)	85%)
Total)(n))	(483))	(136))	(360))	(532))	(213))	(49))	(49))	(978))
Energy Insecurity Summary Variable								
High)	5%)	7%)	6%)	6%)	3%)	10%)	3%)	6%)
Medium)	35%)	39%)	37%)	35%)	29%)	48%)	42%)	37%)
Low)	60%)	55%)	57%)	59%)	68%)	42%)	55%)	57%)
Total)(n))	(483))	(136))	(360))	(532))	(213))	(49))	(49))	(978))

Source: 2013 CARE participant telephone survey data.

Households that appeared to face greater levels of financial distress included:

- ∞ Households in which a medical condition or disability is affecting costs or income;
- ∞ Households caring for a larger number of dependents, including those with adult children or parents in the home;
- ∞ Those in multi-family and mobile homes; and
- ∞ Seniors and households managed by young adults (below), although seniors were also disproportionately represented among those with no obvious level of distress.

Households that tended to be less financially distressed included:

- ∞ Households whose LI status was recent and perhaps temporary, such as those who experienced a recent job loss;
- ∞ Seniors living on fixed incomes, but who were living simple lifestyles by choice with modest expenses or had savings to draw upon; and
- ∞ Households that managed to draw upon formal or informal sources of assistance, be it laid programs or help from family members.

Refer to Section 10 for more descriptions of characteristics of the in-home ESA non-participant sample including illustrative profiles of some of the respondents.

5.5.2 Energy Burden

This section presents an analysis of energy burden, which is defined as the portion of total household income that goes toward paying utility bills. Specific questions addressed in this section include:

- ∞ What portion of annual household income is used to cover energy bills among California's LI population?
- ∞ How does the LI energy burden compare with that of the general population?
- ∞ What are the characteristics of the LI population that have the highest energy burden?
- ∞ How is energy burden related to energy insecurity?

The telephone survey (discussed in Section 8) serves as the primary source for the LI population data used to calculate energy burden and includes information on annual household income along with the other demographic information. Income was collected in the telephone survey in ranges,⁵² (e.g. Is your total household income less than \$5,000, between \$5,000 and \$10,000, etc.)

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⁵²See telephone survey in Volume 3, Section 13, Question D 12 for question wording and response categories.

5.5.2.1 A Methodological Note on the Energy Burden Calculation

We examined two approaches for calculating average energy burden, each of which can produce substantially different results. For convenience, we define these two metrics as “overall energy burden” and “customer energy burden”. The calculation method used for each is defined as follows:

- ∞ “Customer Energy Burden” is calculated by dividing the customer energy bill amount by annual income to get an energy burden ratio for each customer. The mean of these customer ratios is taken to get an overall average energy burden number.
- ∞ “Overall Energy Burden” is calculated by taking the overall average annual bill amount and dividing by the overall average income. That is, the average of the bill amount and income is calculated first, and then the ratio is calculated.

Note that household size is not explicitly factored into either estimation method.⁵³

The “overall energy burden” approach was used in the 2007 LINA and is the only method available to estimate burden for the general population. We use the “overall energy burden” approach in order to make comparisons to the prior 2007 estimate and to the general population. However, we believe that the “Customer Energy Burden” provides a better estimate of average energy burden. The intent of energy burden is to understand portion of income spent on energy by individual households. This is best represented by the ratio of household specific income to household specific energy expense. This ratio and its distribution in the low income population represents the energy burden as experienced by member households, rendering it more accurate than metrics reflecting the ration of mean income and mean energy bill. Consequently, we use that metric to present the LI population’s energy burden results. The other method is used only for comparison purposes, to show relative differences over time and with the general population.

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⁵³Though it is implicitly factored into the average income, since CARE eligibility is based on the household size.

When interpreting either the overall energy burden or the customer energy burden, we caution the reader to bear in mind the following important caveats:

- ∞ Income comes in more forms than simply dollars. There are food stamps, family services and other forms of assistance, directed largely at the lowest dollar income groups;
- ∞ Income is self-reported and may contain errors; and
- ∞ Poverty and qualification for the CARE and ESA/LI programs are a function of both income and size of household.

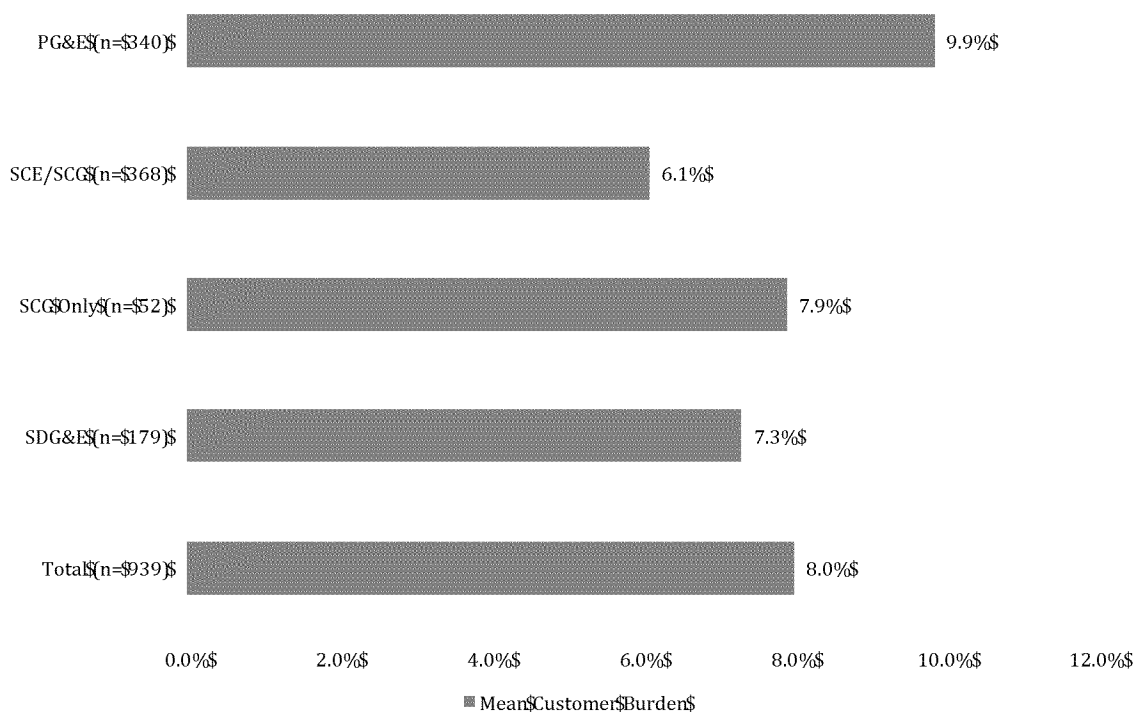
5.5.2.2 Customer Energy Burden

In this section, we present the customer energy burden results. As discussed previously, the “customer burden” is calculated differently from the “overall energy” burden. Customer burden is calculated by first taking the ratio of annual energy bills to household income for each customer, and then, in a second step, calculating an average of this ratio across all customers.

Since this calculation is different from the overall energy burden calculation used in the 2007 LINA study, the results presented below are not directly comparable with the previous research. However, while the previous LINA was published in 2007 the data was collected in 2005, so is more reflective of 2005 conditions than 2007.

Figure 44 presents the mean customer burden for the California LI population, for each IOU service territory and for the state as a whole. PG&E has the highest mean customer burden at 9.9 percent. The lowest is found within the SCE/SoCalGas territory, 6.1 percent. The result for the entire state is 8.0 percent.

Figure 44: Mean Customer Burden, 2013 California LI Population, by IOU Service Territory



Source: 2013 Analysis of IOU customer billing data, CARE participant telephone survey data, 2012 Athens data, and 2011 PUMS data.

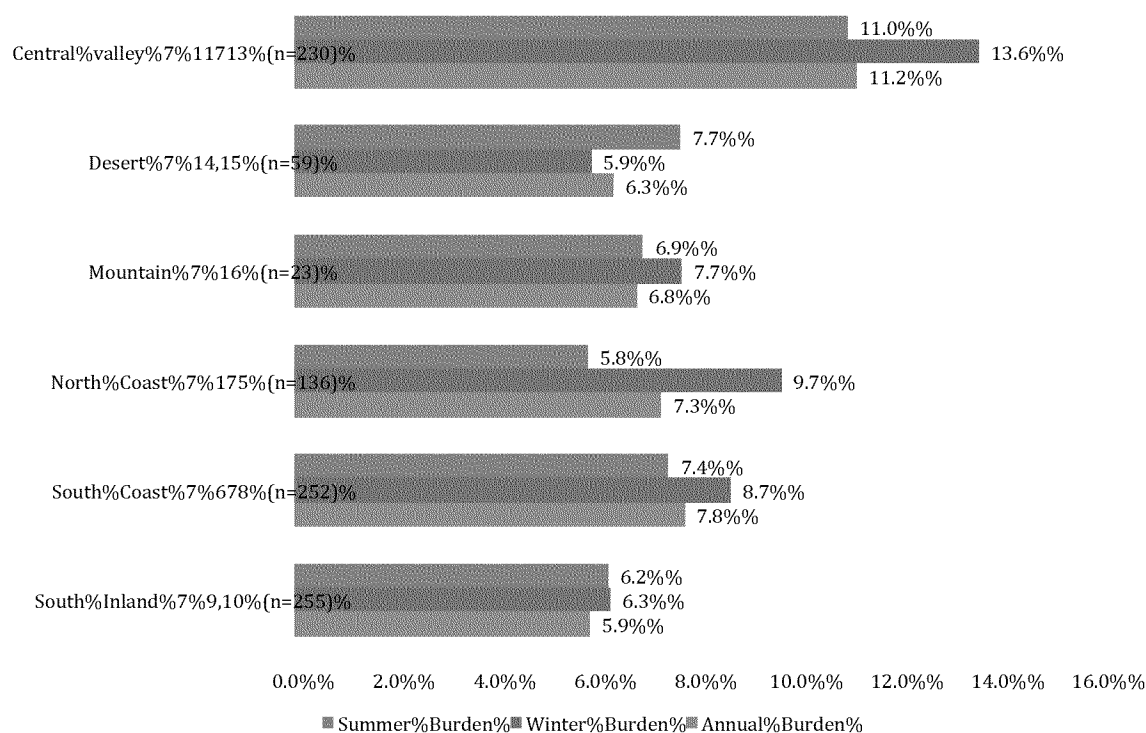
5.5.2.2.1 Differences in Customer Energy Burden by Climate

In this section, we explore differences in customer energy burden by climate. Climate areas in California differ dramatically in their cooling and heating needs, with coastal areas generally providing more temperate variations, and the inland, northern and mountain areas experiencing more heat in summer and cold in winter; and southern areas generally experiencing higher temperatures year-round versus northern areas.

Figure 45 below presents mean customer burden by climate zone region, annually and for summer and winter seasons (note that the seasonal burdens are annualized for ease of comparison). The Central Valley (11.2%) has substantially higher customer burden than any other region—at 1.4 times its runner-up, the South Coast (7.8%). For all regions except the Desert, winter burden exceeds summer burden. The difference is pronounced!

for the North Coast where winter burden is nearly 1.7 times the summer burden. The South Inland and Mountain climates have fairly equivalent winter and summer energy burdens.!!

Figure 45: Mean Energy Burden by Climate Zone Region and Season



Source: 2013 Analysis of IOU customer billing data, CARE participant telephone survey data, 2012 Athens data, and 2011 PUMS data.

5.5.2.2.2 High Energy Burden Segment Characterization

This section presents the characteristics of the highest energy burden households. The process of identifying high burden customer segments began by creating 20 ways to differentiate the population, using demographic, geographic, household and home characteristics collected via the telephone survey or present in IOU databases. This resulted in 80 segment specific annual customer energy burden values, which were ranked from highest to lowest with the top ten selected for further examination. This section presents characteristics of these high burden segments. The intent of this section is to offer information that lends insight to high burden customers, which may allow for better program customization for these segments.!!

Figure 46 below presents the mean customer burden for the highest burden segments of the LI population. Six of the ten segments shown below have a mean customer burden!

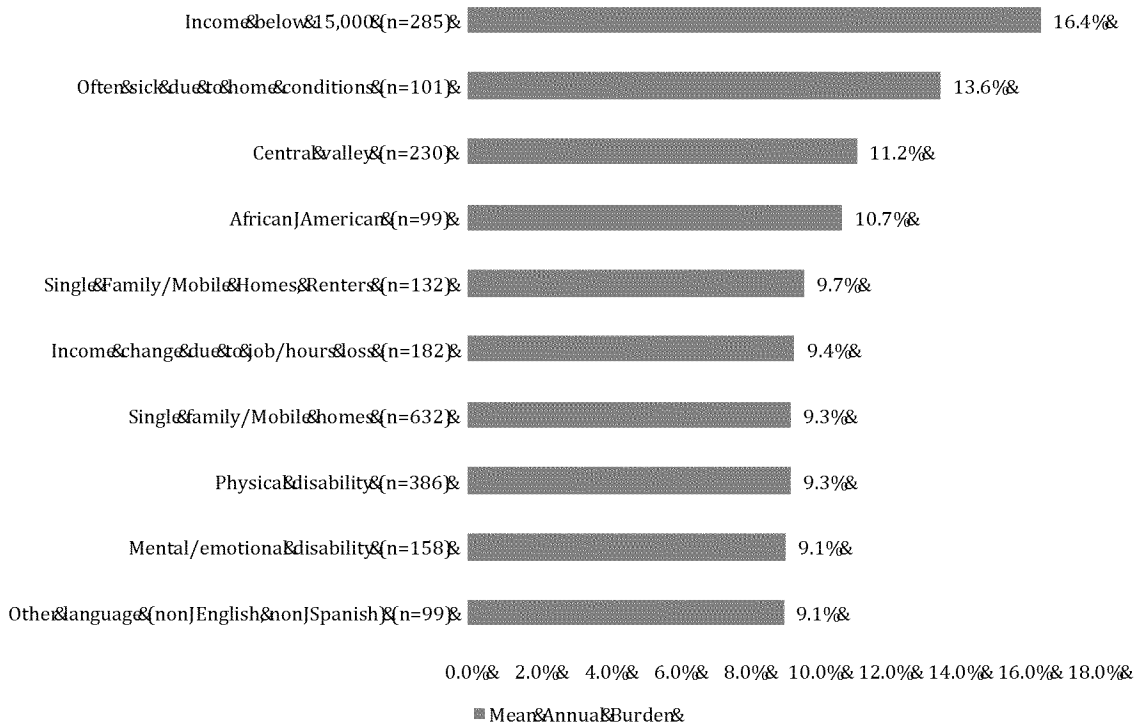
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between 9 percent and 10 percent. The remaining four segments have the highest burdens, ranging from 10 percent to 16 percent.

- ∞ The highest burden is measured for households with annual household income of \$15,000 or less. As detailed later in this section, these households make up more than one third of the LI population.
- ∞ Households that report members are often sick due to home conditions have the second highest customer burden, 13.6 percent, and comprise 11 percent of the LI population. The high burden observed in this sector is related to the use of electrically powered medical equipment. About one third (35%) of those customers also report using electrically powered medical equipment daily to manage illness or disability. In contrast, 17 percent of those reporting they are 'sometimes' or 'never' sick due to home conditions report using electric medical equipment daily.

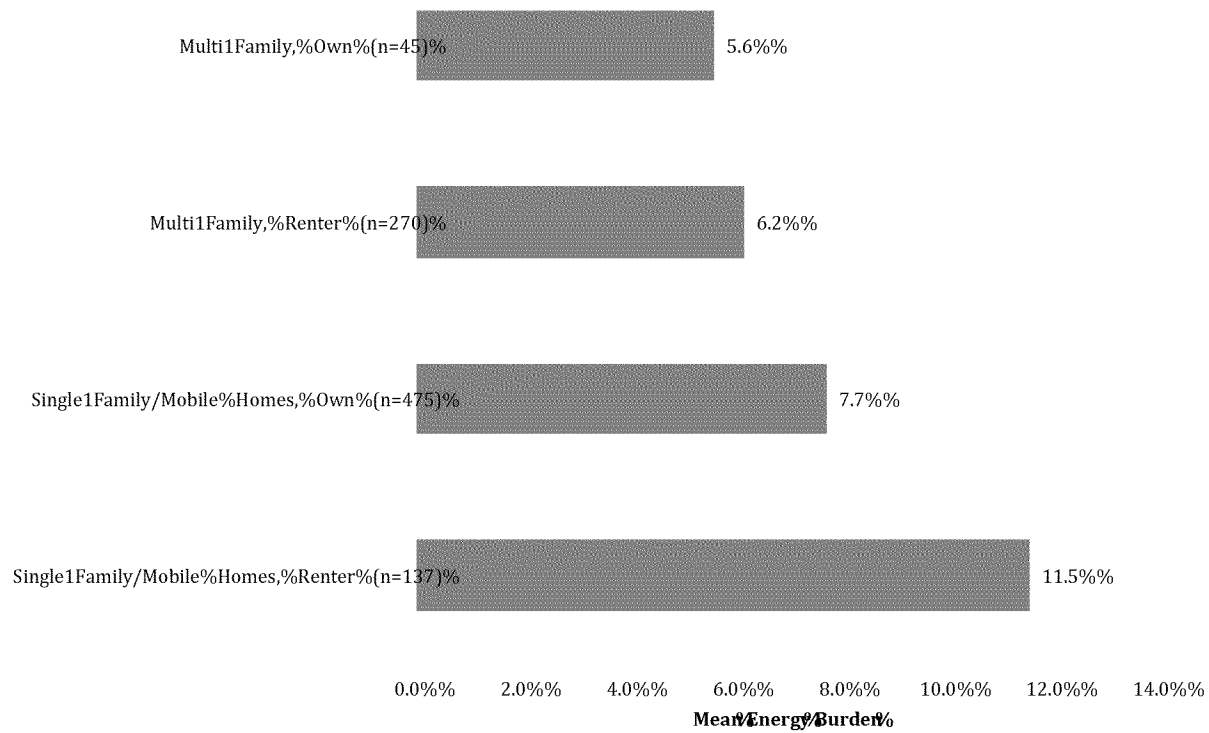
Figure 46: High-Energy-Burden Households, Mean Customer Energy Burden for Highest-Burden Segments



Source: (2013) Analysis of IOU customer billing data, (CARE) participant telephone survey data (D12, PB10, D8, S6, S5, D13, D13a, D11G D15, D5), (2012) Athens data, and (2011) PUMS data)

Home type and home ownership are associated with energy burden levels, with renters and single family homes showing higher mean burden. Figure 47 below shows mean customer energy burden by home type and home ownership, illustrating this relationship. We find that single family and mobile home renters have a relatively high mean energy burden of 9.7 percent. For comparison purposes, single family mean energy burden is 9.4 percent and multi family mean energy burden is 6.1 percent.

Figure 47: Mean Customer Energy Burden by Home Type and Home Ownership



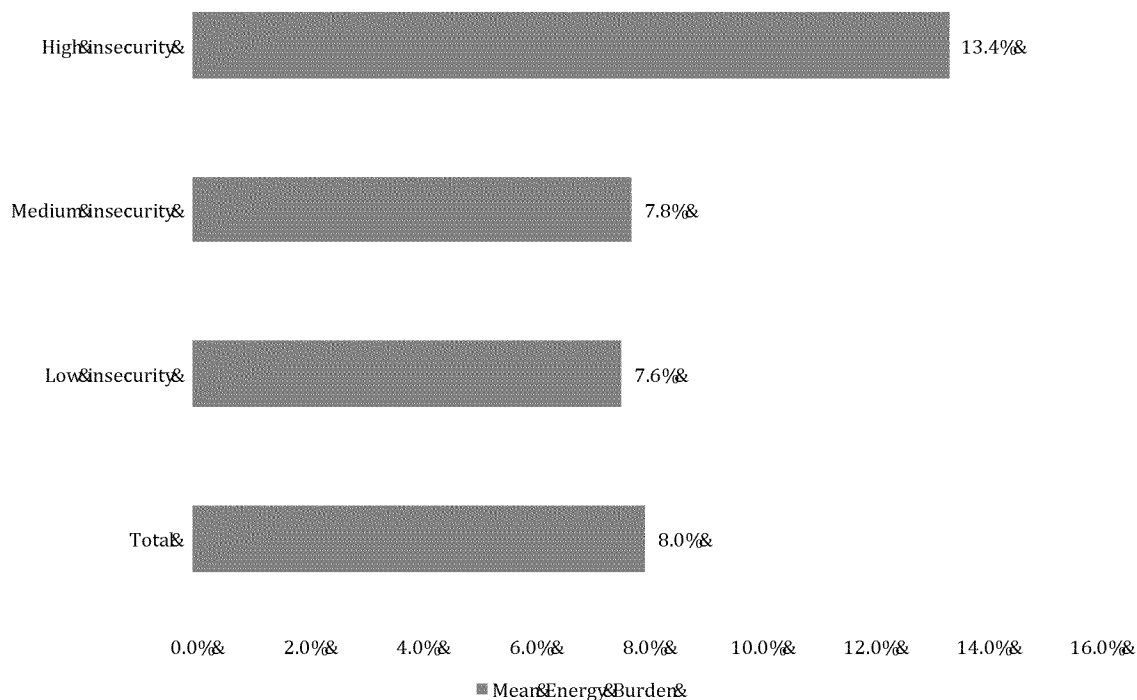
Source: 2013 Analysis of IOU customer billing data, CARE participant telephone survey data (S6, S5), 2012 Athens data, and 2011 PUMS data.

5.5.2.2.3 Energy Burden and Energy Insecurity

This section presents the results of an examination of customer energy burden by level of energy insecurity. The energy insecurity level is determined by responses to survey questions that probe various areas of vulnerability, such as having power disconnected for not paying bills, or using a stove for heat. Insecurity is categorized into three levels, high, medium and low, which represent the frequency at which the vulnerabilities arise. A more detailed discussion of energy insecurity is presented in the section preceding this one, Section 5.5.1.

As shown in Figure 48 below, there is little difference in the burden of those with 'medium' or 'low' insecurity, at 7.8 percent and 7.6 percent, respectively. Those with 'high' insecurity make up 5.7 percent of the LI population and have a notably higher mean customer burden, at 13.4 percent.

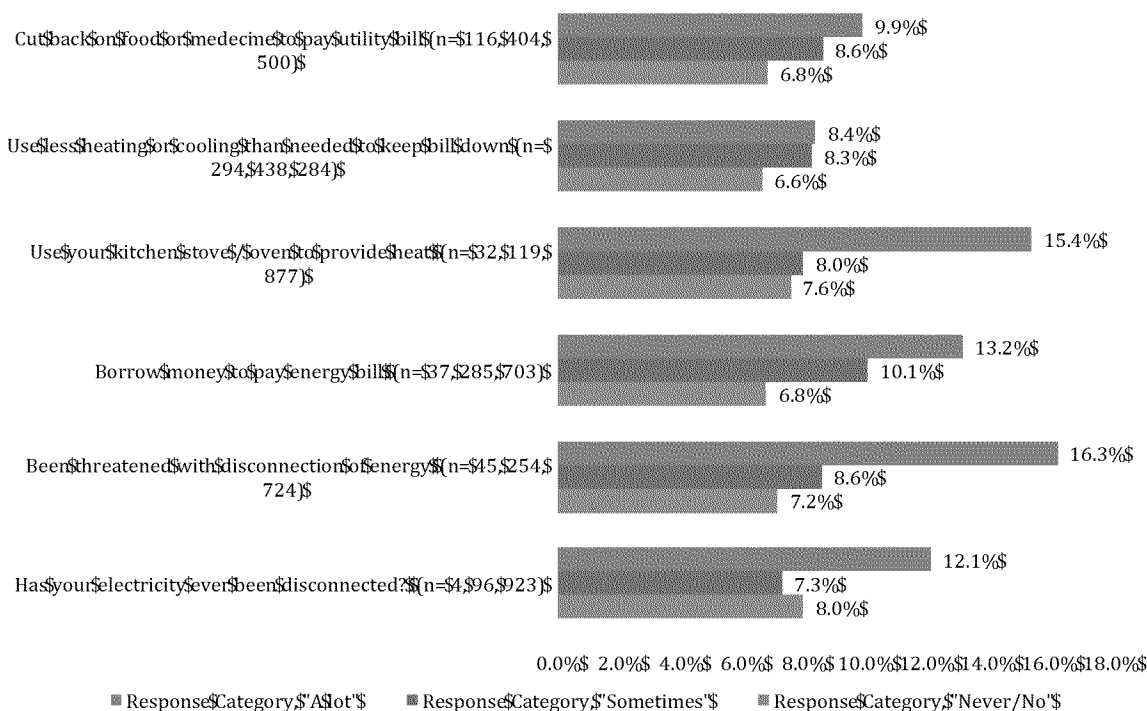
Figure 48: Mean Customer Energy Burden by Level of Energy Insecurity, Annual for California LHPopulation



Source: (2013) Analysis of (IOU) customer (billing) data, (CARE) participant (telephone) survey) data (1e31j), (2012) Athens) data, and (2011) PUMS) data.)

Figure 49 below summarizes the annual energy burden across the insecurity survey questions. The figure shows the mean customer burden for each question and response category. The questions with the greatest correlation to high energy burden are also those with the lowest rate of occurrence: whether the respondent borrows money to pay the bill, uses kitchen stove for heat, or has often been threatened with power disconnection. The mean burden for those that experience these events 'a lot' is between 13 percent and 16 percent.

Figure 49: Mean Customer Energy Burden by Insecurity Question and Response Category



Source: 2013 Analysis of IOU customer billing data, CARE participant telephone survey data (1e31), 2012 Athens data, and 2011 PUMS data.)

5.5.2.3 Comparison of 2013 Study Results to 2007

These results are intended to provide a comparison to the prior LINA study only. The customer energy burden presented above provides our estimates of the LI population mean energy burden.

In the 2007 LINA, the “overall energy burden” approach was used. The 2007 study measured the average bill to be about \$950 per year and average income to be \$23,000, yielding an overall burden of 4.2 percent. In comparison, the current study finds average income to be \$23,721 and the average bill to be \$970, yielding an overall burden of 4.1 percent, down slightly from figures reported in 2007. Note that the 2007 study reflects data collected in 2005, so should be considered reflective of 2005 conditions rather than 2007.

Our current energy burden analysis indicates that 80 percent of LI households spend less than 7 percent of their annual income on energy, and 60 percent of LI households spend 5 percent or less on their energy bill. Similar to the approach taken in the 2007

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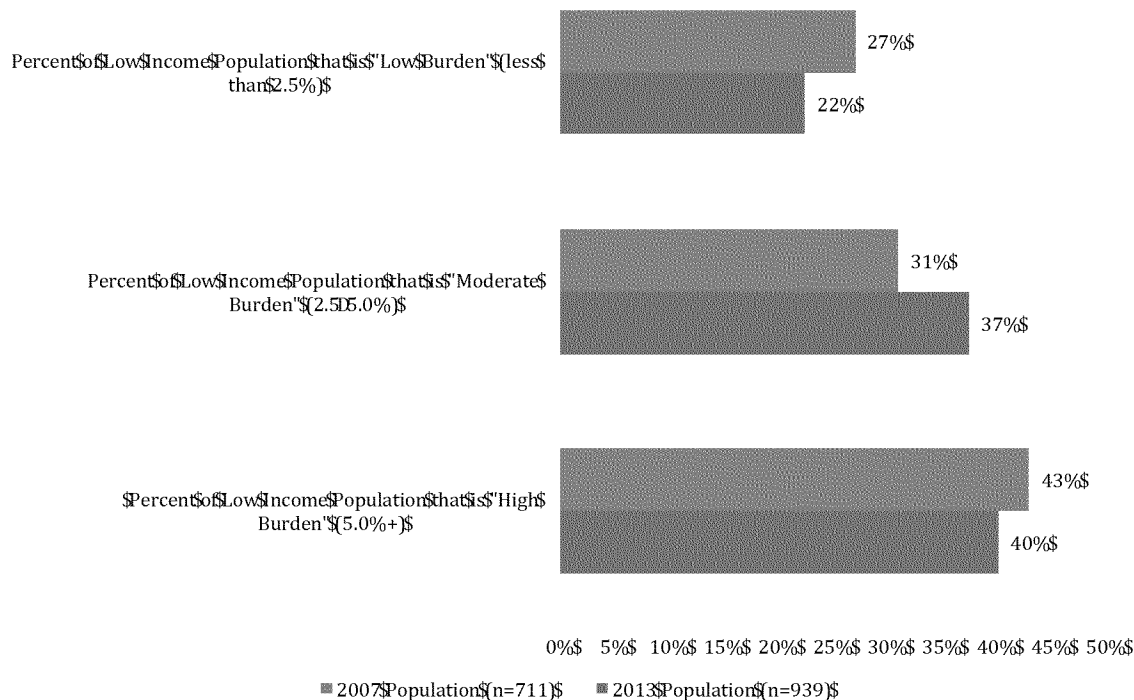


LINA, we classify the LI population into three burden categories, based on annual household income and energy expenditures:

- ∞ High Burden customers are those that spend 5 percent or more of their household income on energy, on an annual basis.
- ∞ Moderate Burden customers are those that spend between 2.5 and 5 percent of income on energy.
- ∞ Low Burden customers spend less than 2.5 percent of income on energy.

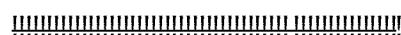
Figure 50 below shows the distribution of the LI population across the three burden classifications and compares current results to those presented in the 2007 LINA. Relative to the 2007 study findings, there are slightly fewer customers in the low burden segment (22% versus 27%) and also fewer customers in the high burden segment (40% versus 43%).

Figure 50: Energy Burden Classification and Overall Burden by Classification, 2013 versus 2007 for California LI Population – for Comparison Purposes Only



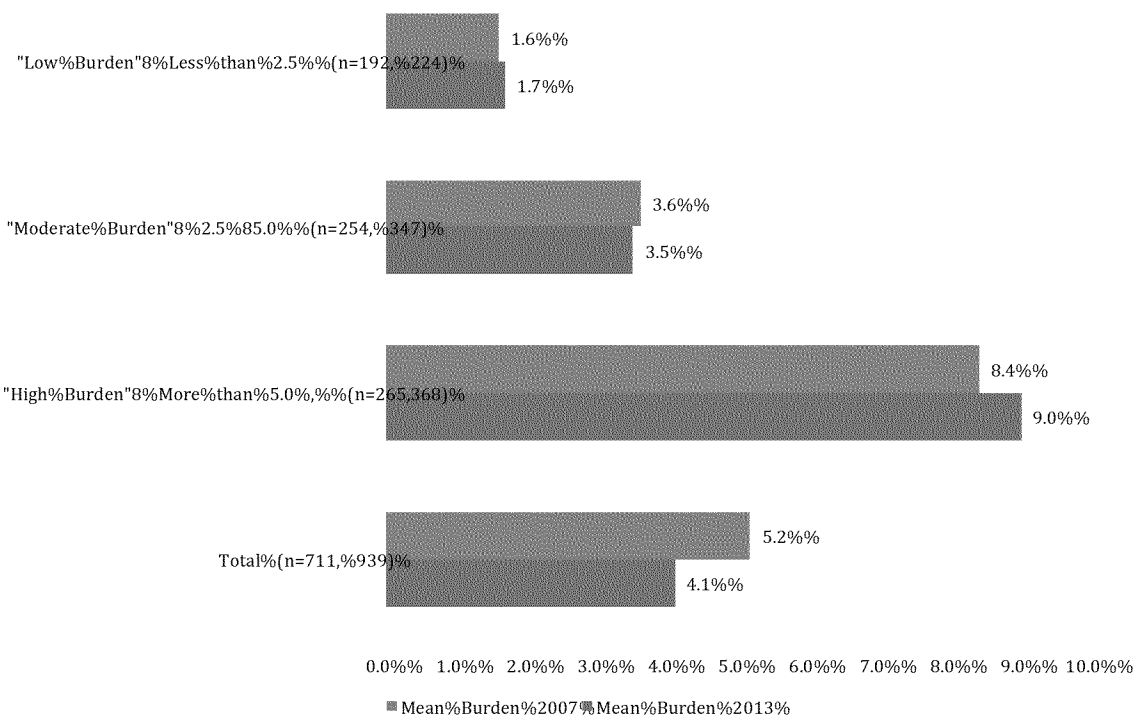
Source: (2013) Analysis of IOU customer billing data, (CARE) participant telephone survey data, (2012) Athens data, and (2011) PUMS data

The mean burden within each burden classification and for the total LI population is shown in Figure 51 below, for both 2007⁵⁴ and 2013. The mean burdens within the low and moderate classifications are similar to 2007; the mean burden within the high burden classification rose moderately, from 8.4 percent to 9.0 percent. Overall, the mean LI energy burden in 2013 is very similar to results published in the 2007 study (4.1% versus 4.2%, respectively).



⁵⁴Although the previous LINA was published in 2007, the data were collected in 2005 and should be interpreted as reflective of 2005 conditions.

Figure 51: Overall Energy Burden by Classification, 2007 Versus 2013 – for Comparison Purposes Only

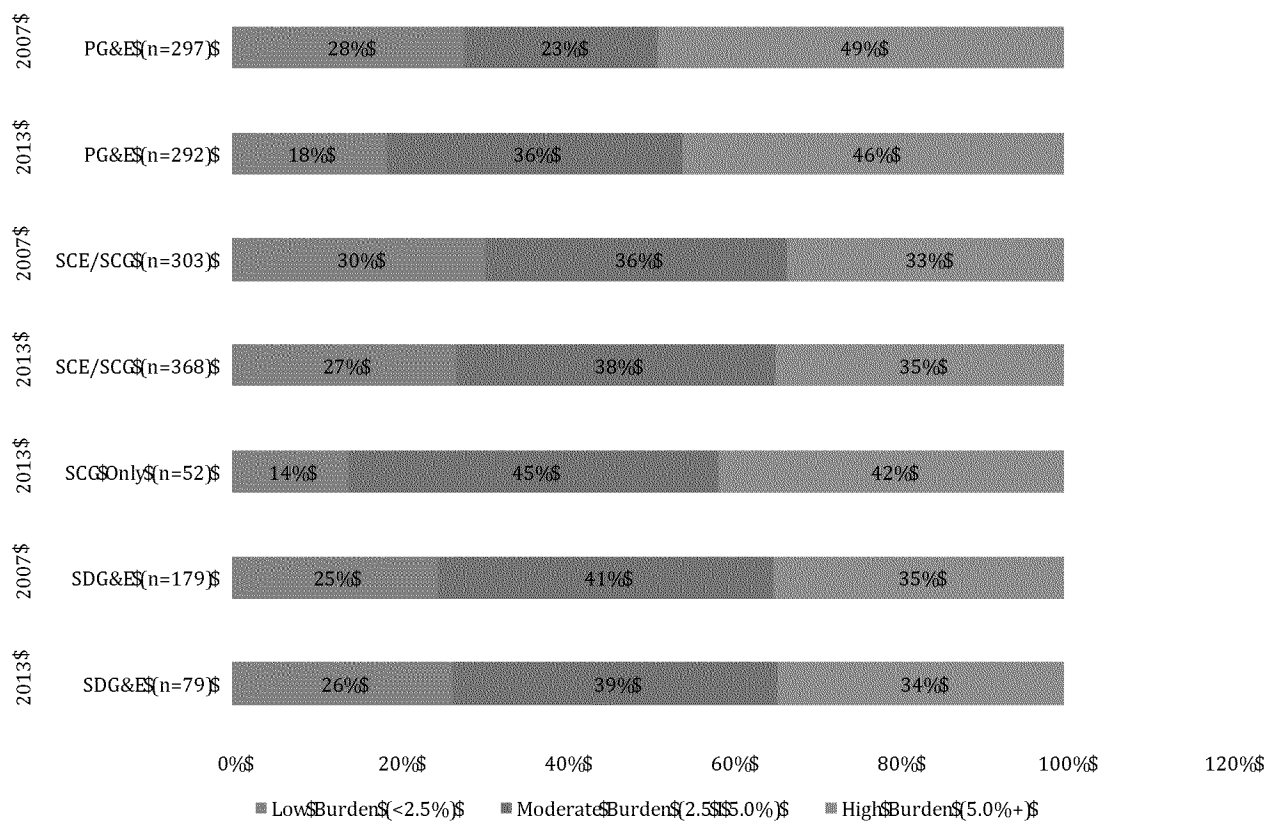


Source: 2013 Analysis of IOU customer billing data, CARE participant telephone survey data, 2012 Athens data, and 2011 PUMS data.

Figure 52 below shows the distribution of high, moderate, and low energy burden classifications within each IOU service territory, and compares the current findings to those of the 2007 LINA.

- ∞ Overall, PG&E has the highest portion of customers in the high burden segment at 46 percent. PG&E also had the highest portion in 2007, when it was measured to be 49 percent. A more significant change for PG&E relative to 2007 is the reduction (by 10%) of low burden customers. Both of these changes are reflected in a 13 percent increase in the moderate burden category.
- ∞ The SoCalGas only territory (i.e. SoCalGas territory that does not overlap with SCE) has the second highest portion of high burden households, 42 percent.
- ∞ The distribution for SDG&E is stable over the period, showing no changes in excess of 2 percent in the size of each burden category. The SCE/SoCalGas territory has made small adjustments over the period toward higher burden levels, including a slightly larger high burden segment (35% versus 33%) and a slightly smaller low burden segment (27% versus 30%).

Figure 52: Overall Energy Burden Classification Distribution by IOU, 2013 versus 2007 for California LHP Population – for Comparison Purposes Only



Source: 2013 Analysis of IOU customer billing data, CARE participant telephone survey data, 2012 Athens data, and 2011 PUMS data.

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5.5.2.4 Energy Burden of LI Versus General Population

Table 50 compares the overall energy burden of the LI population to the general population (which includes the LI population). This comparison provides greater context for interpreting the magnitude and the patterns of the LI population energy burden. These results are intended to provide a comparison to the general population only. The customer energy burden presented previously provides our estimates of the LI population mean energy burden.

In the table below, the left most column includes (a) the general population overall burden, the next column is (b) the LI population overall burden and the final column is (c) the ratio of the two results. The first two columns (a) and (b) are interim calculations only (providing “relative” estimates of burden) to produce the ratios shown in the (c) results. The previous subsections presented the LI customer energy burden results. We are unable to produce absolute customer energy burden results for the general population given the data constraints described herein.

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As shown below, the ratio of LI to general population burden is 1.8 (the ratio of 2.3% to 4.1%).



Table 50 Energy Burden for IOU Customers by Population and IOU

	General Population (a)^^					Low Income (b)^^^					Ratio of LI to GenPop (c=b/a)				
	PG&E'	SCG'	SCE'	SDG&E'	Total'	PG&E'	SCG'	SCE'	SDG&E'	Total'	PG&E'	SCG'	SCE'	SDG&E'	Total'
Annual Burden	2.6%	2.2%	2.2%	1.8%	2.3%	4.7%	3.6%	3.5%	3.8%	4.1%	1.8%	1.6%	1.6%	2.1%	1.8%
Sample Size (n)	178*	704*	187*	64*	1,132*	340	420	368	179	939					

*Thousands of records

^Source 2013 IOU customer billing data, 2012 Athens data and 2011 PUMS data. &

^^Source IOU customer billing data, CARE/ESA tracking databases, LIN& telephone survey data &

