

More Tools in the Toolbox – An Examination of Metrics for Low-Income Customer Energy Burden

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Study Background

California Low-Income Needs Assessment

- California Alternate Rates for Energy (CARE)
- Energy Savings Assistance (ESA) Program
- Customers eligible at and below 200% of the federal poverty level (FPL)



Study Background

Four main topic areas of study:

- Energy burden, insecurity, and hardship
- Unique customer needs
- Beneficial energy efficiency measures
- Income documentation



Study Data Sources

1. Utility billing data

2. Customer Survey

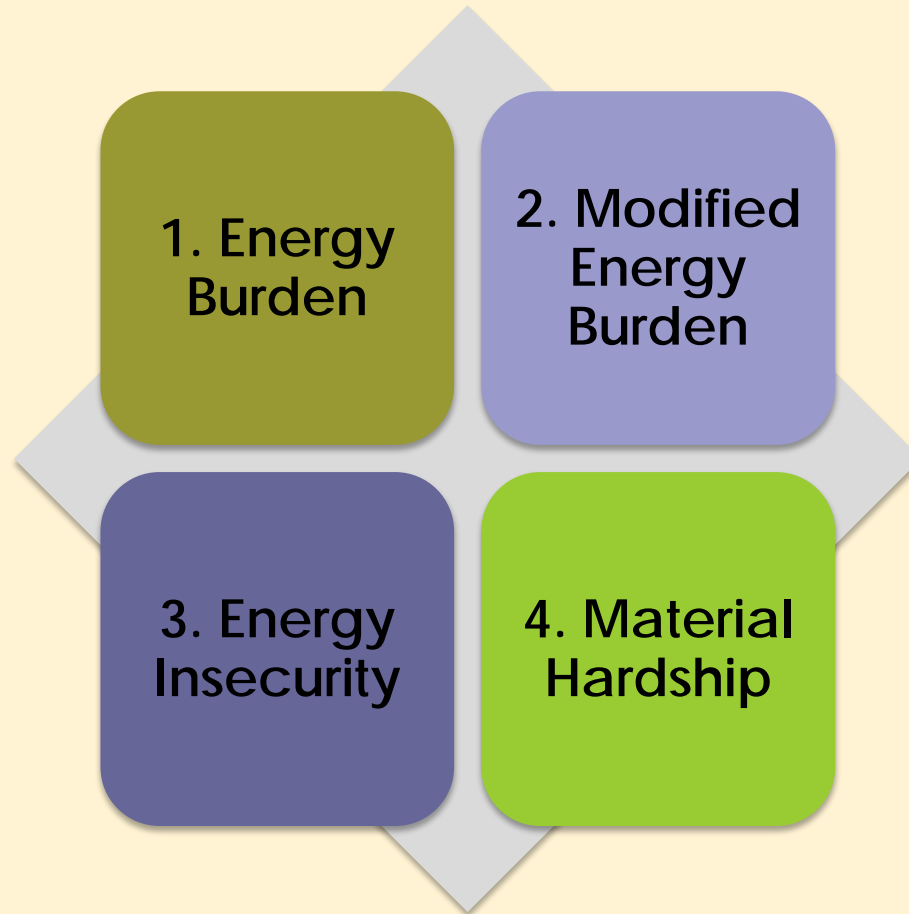
- 905 households across California
- Questions on:
 - Household income
 - Government assistance
 - Difficulty paying energy bills
 - Energy conservation practices
 - Difficulty keeping home warm or cool enough
 - Difficulty paying for basic living expenses



Research Objectives

- Define characteristics of households at or near 200% FPL
- Identify which groups are most likely to need assistance
- Examine the factors affecting energy-related needs

Calculations and results for four metrics:





1. Energy Burden

What it measures:

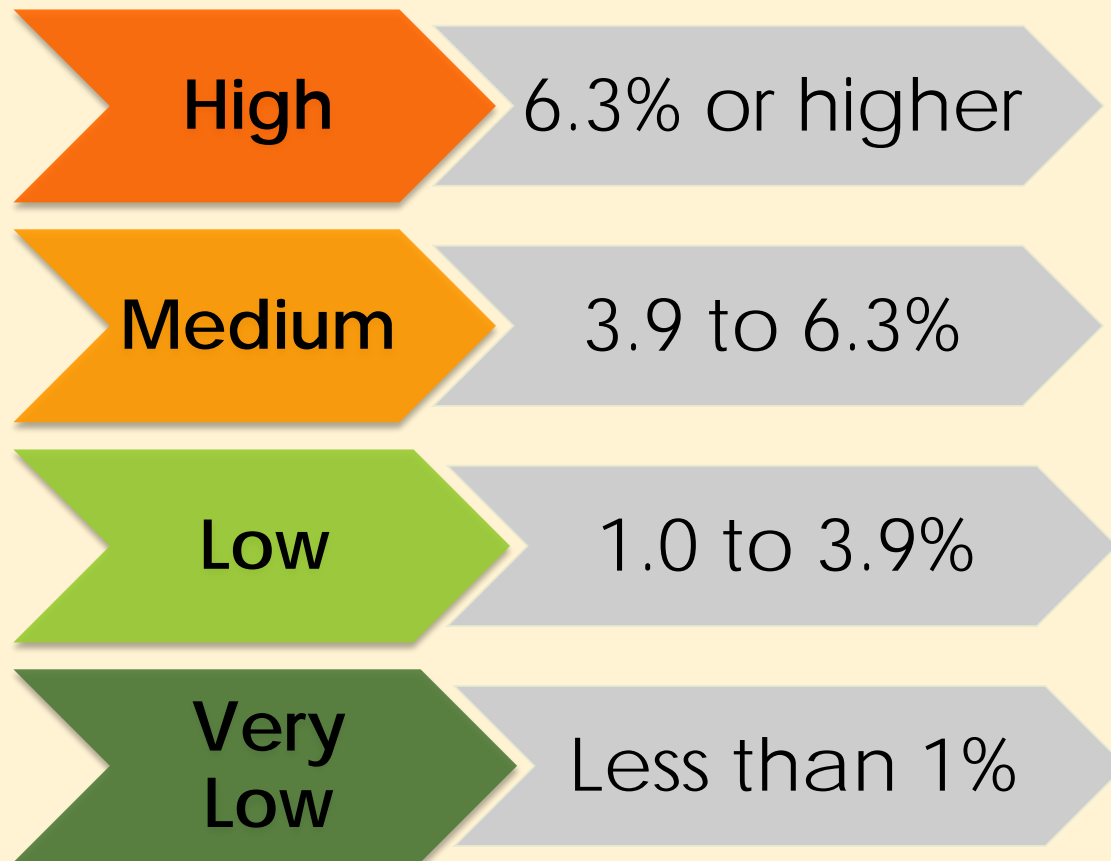
- Home energy costs as a percentage of household income

Calculation method:

$$\frac{\text{Household energy bill}}{\text{Self-reported household income}}$$

1. Energy Burden

Categories of Energy Burden:





1. Energy Burden – Findings

Average and Maximum Energy Burden by Income Category

Income Category	Average	Max
Low Income 1 (up to 100% FPL)	8.2%	41%
Low Income 2 (101% - 200% FPL)	3.5%	17%
Moderate Income 1 (201% - 300% FPL)	2.8%	14%
Moderate Income 2 (301% - 400% FPL)	1.4%	8%
High Income (over 400% FPL)	1.3%	6%
Total All Households	3.7%	--



1. Energy Burden – Findings

Low-income households facing higher energy burdens:

- Households in desert/mountain regions
- Multifamily renters
- Households led by working-age adults without dependents
- Households with members who have disabilities



2. Modified Energy Burden

What it measures:

- Home energy costs as a percentage of household income including assistance

Calculation method:

Household energy bill

Household income + Value of Govt. assistance

Same categories as Energy Burden



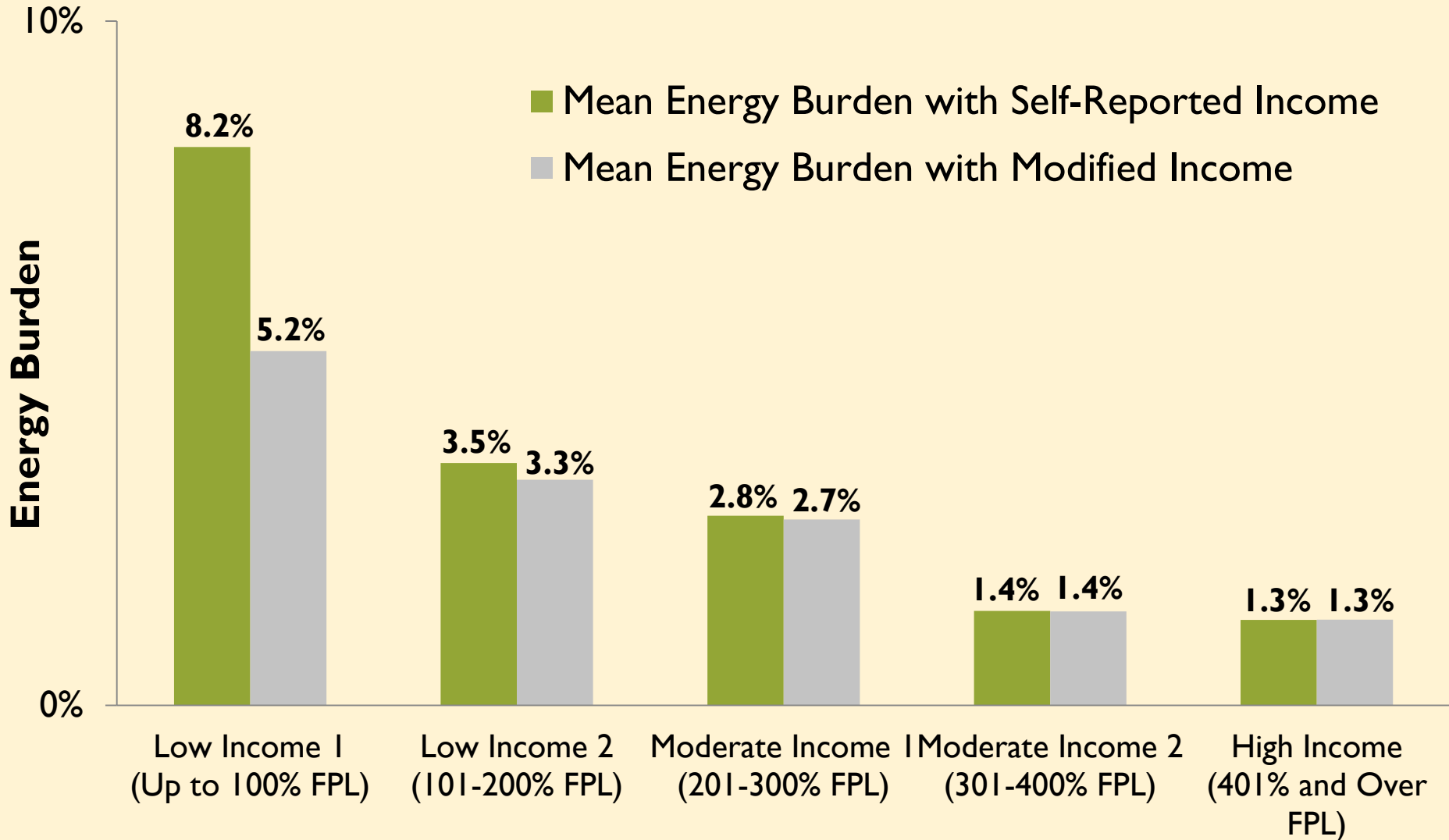
2. Modified Energy Burden

Government assistance included:

- Housing assistance
 - Public housing, privately owned subsidized housing, Section 8 housing vouchers
- Food benefits
 - CalFresh (SNAP), WIC, other food assistance
- Medical benefits
 - MediCal (Medicaid)
- Other forms of cash assistance
 - CalWORKS (TANF)



2. Modified Energy Burden – Findings





3. Energy Insecurity

What it measures:

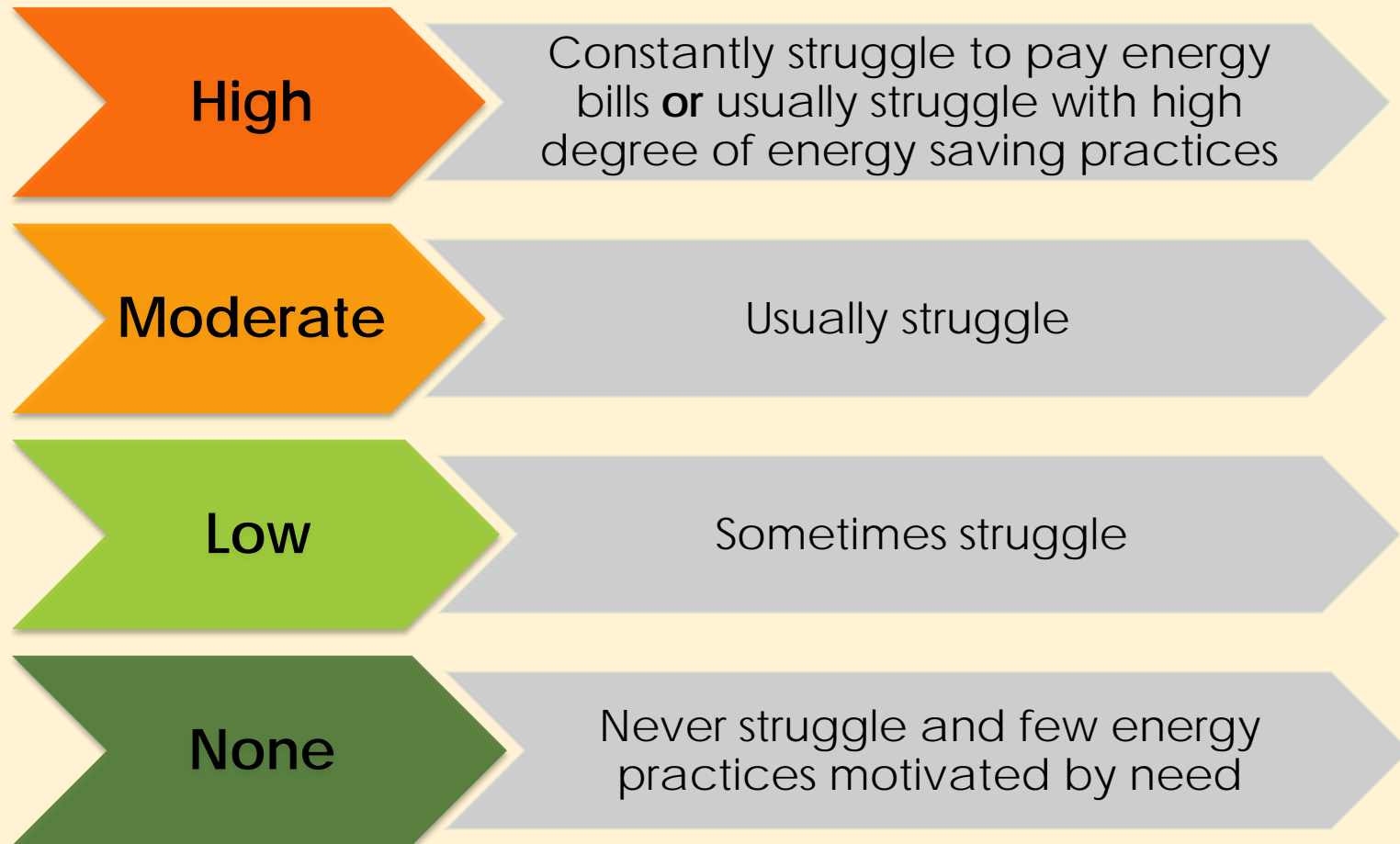
- Household challenges paying energy bills and monthly trade-off between meeting energy needs and bill payments

Calculation method:

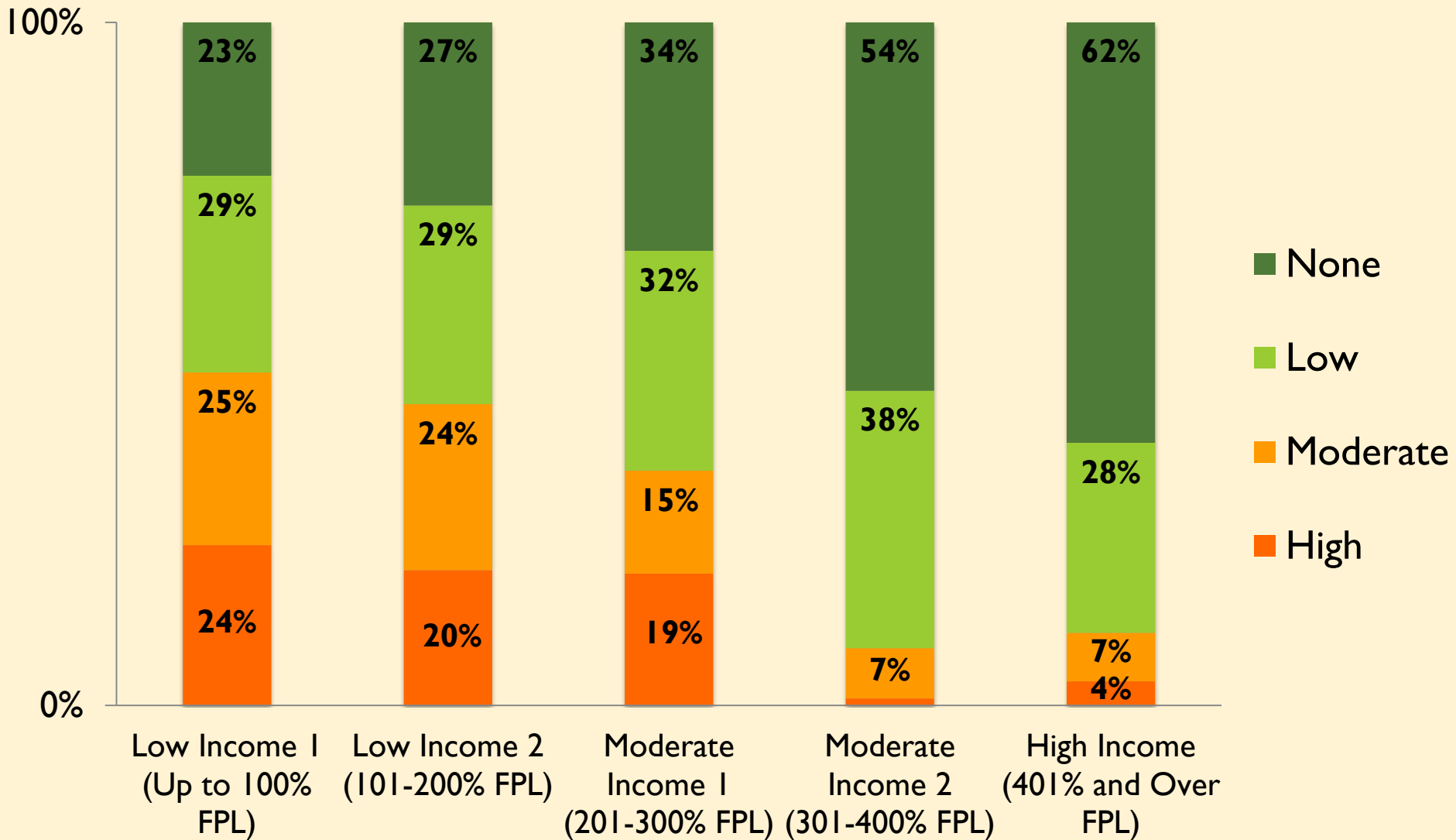
- Index based on:
 - Difficulty paying energy bill
 - Household motivation/ability to save energy
 - Equipment-related inability to keep home a comfortable temperature

3. Energy Insecurity

Categories of Energy Insecurity:



3. Energy Insecurity – Findings





3. Energy Insecurity – Findings

Households facing higher energy insecurity:

- Households below 300% FPL
- Households in desert/mountain regions
- Households in single-family homes, especially owner-occupants
- Households with seniors
- Households with members who have disabilities



4. Material Hardship

What it measures:

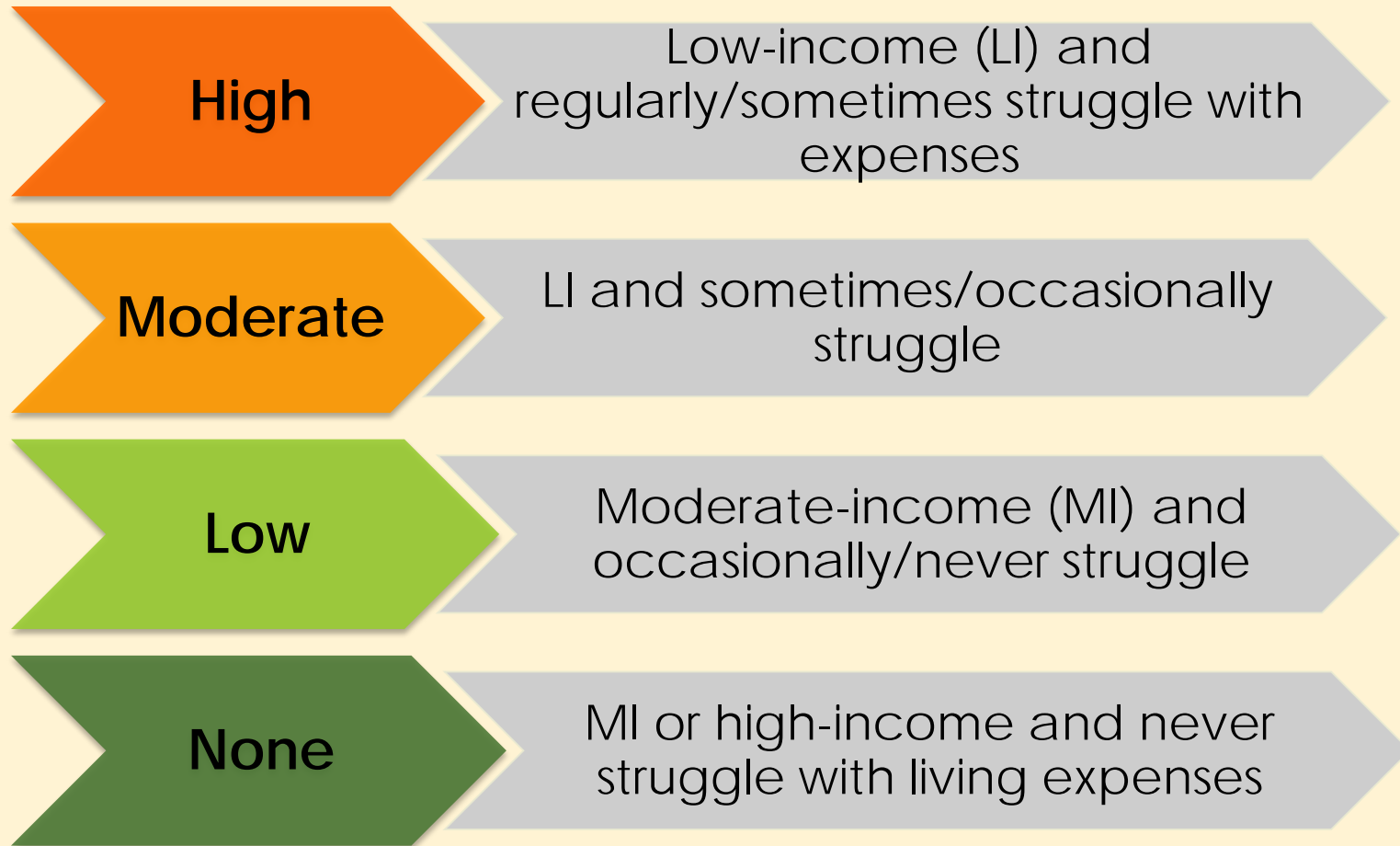
- Household challenges regarding broader affordability of basic necessities (food, shelter, bills, etc.)

Calculation method:

- Index based on:
 - Federal Poverty Level (FPL) of household
 - Survey question about difficulty paying household bills and basic living expenses

4. Material Hardship

Categories of Material Hardship:





4. Material Hardship – Findings

Low-income households facing higher levels of material hardship:

- Households in desert/mountain regions
- Renters of single-family or multifamily homes
- Working-age adults with dependents
- Households with members who have disabilities



Summary of Results

Households facing challenges:

- Low-income in mountain and desert regions
- Low-income with household members with disabilities



Summary of Results

Variation at different poverty levels:

- Income criteria (200% FPL) do not necessarily reflect need
- Households below 50% FPL have highest energy burdens
- Households below 300% FPL have higher energy insecurity



Summary of Results

Variation by household characteristics:

- Low-income seniors more likely to have higher **energy insecurity**
- Low-income working-age adults more likely to have higher **material hardship**
- Low-income in all housing types have elevated hardship
 - MF renters have higher **energy burdens**
 - SF owners have higher **modified burden**



Key Takeaways

- Understand customer energy burden in context of **complex factors** – what “affordability” means for a household
- Different metrics can **provide more visibility** to these issues
- Distinguish between **actionable energy-related needs** and other factors
- There is value in considering potential use of **alternate metrics**



Contact Info

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CALMAC study ID (calmac.org):

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