

2025 Low Income Needs Assessment (LINA)

Public Meeting on Draft Study Report



California Public
Utilities Commission

Introductions: Study Team & Structure

Energy Division

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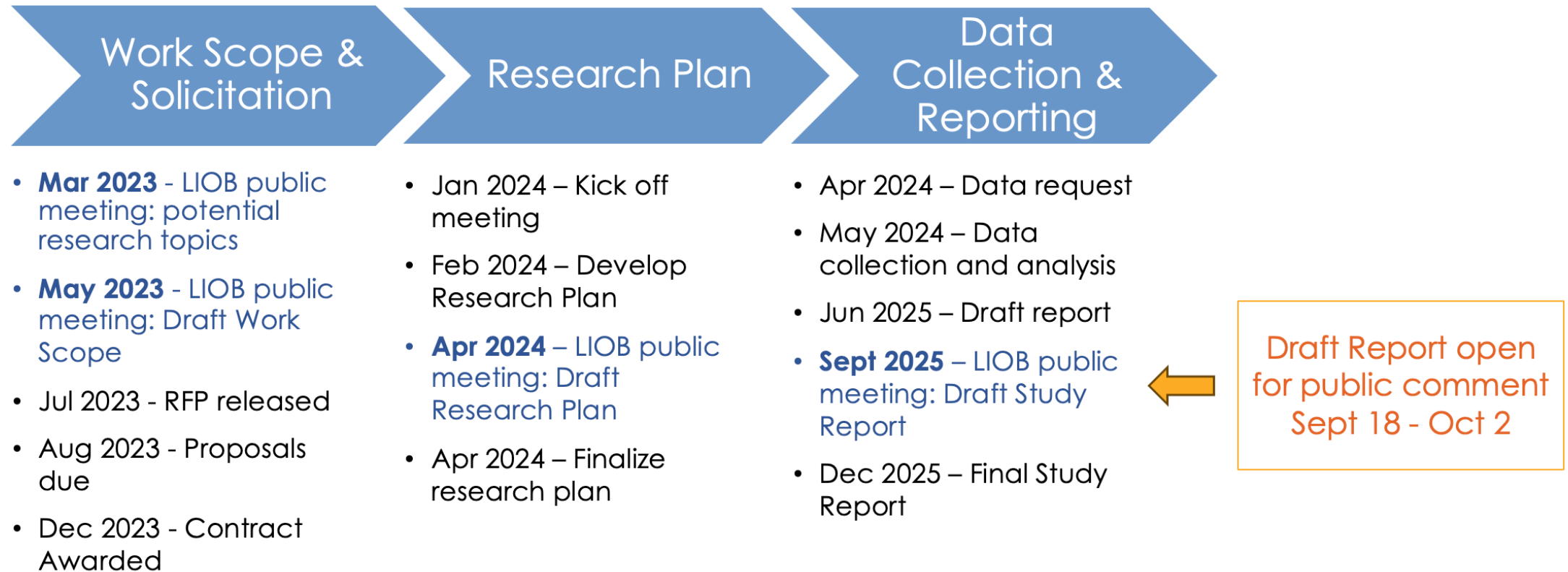
Evergreen Economics

***Lead**

Today's Purpose & Agenda

- Review public input process and timeline
- Overview of the Draft Report
- Solicit input from LINA Subcommittee and other interested stakeholders
- Review next steps

2025 Study Input Process



2025 Low Income Needs Assessment Draft Findings Webinar

September 25, 2025



Martha Wudka
Evergreen Economics

www.evergreenecon.com

Overarching Research Questions:

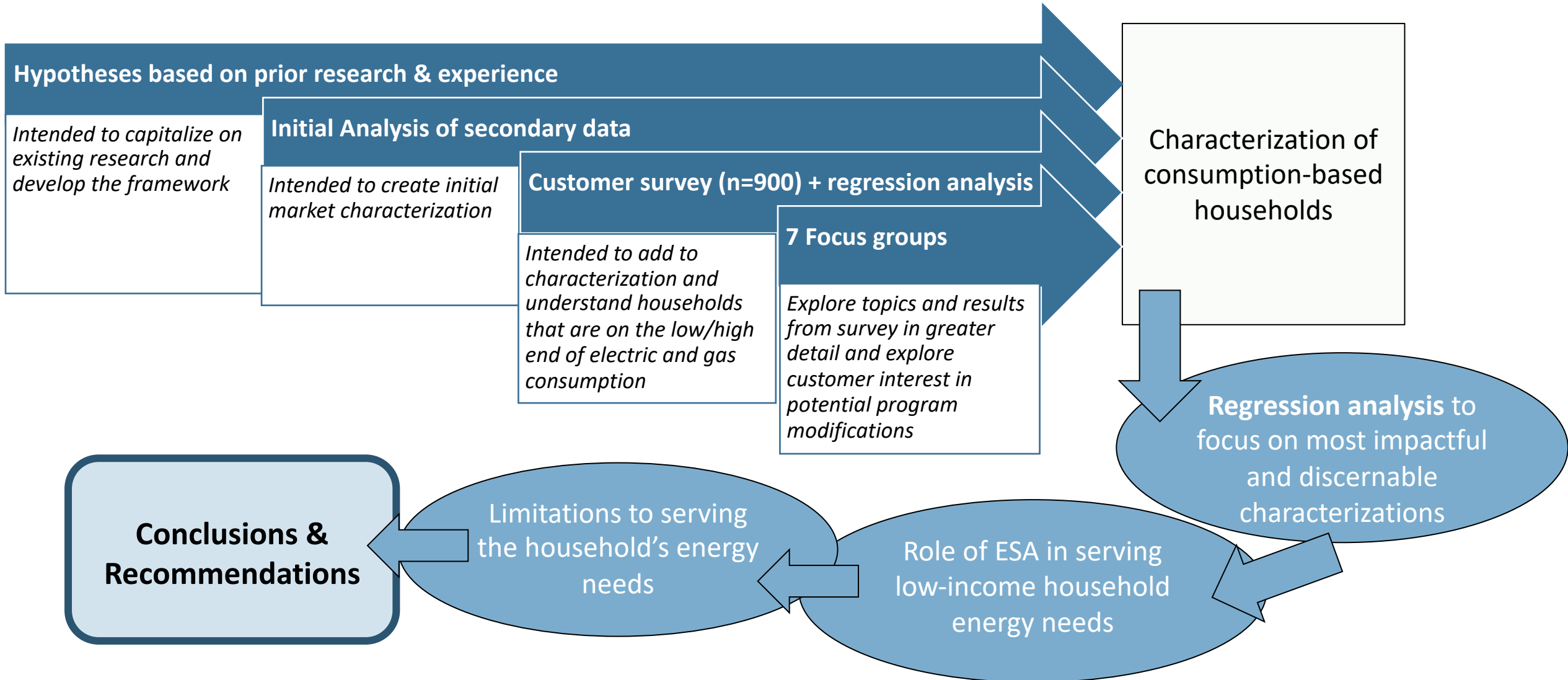
A photograph of a dirt path winding through a dense forest of tall, thin trees. Sunlight filters through the canopy, creating dappled shadows on the path.

What behaviors, household, and property characteristics contribute to relatively high and low energy consumption?

What do households with high or low consumption need to achieve greater energy savings or improvements in health, comfort, and safety?

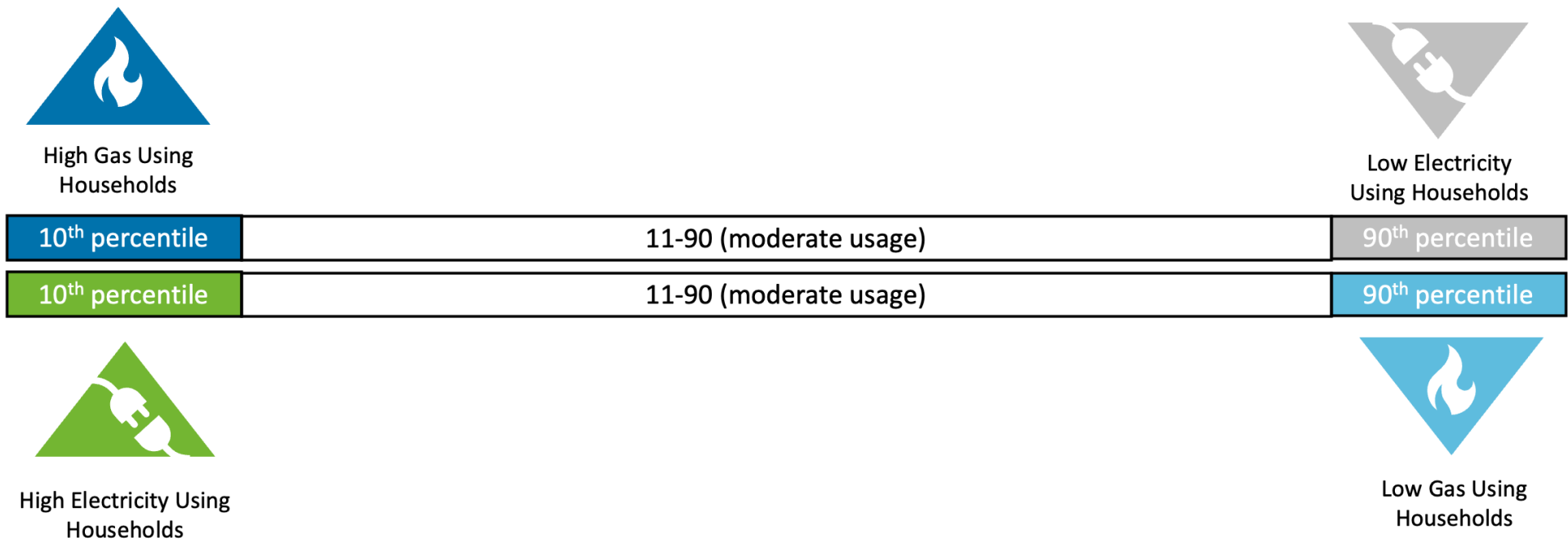
To what extent does ESA address or not address these needs?

Study Approach

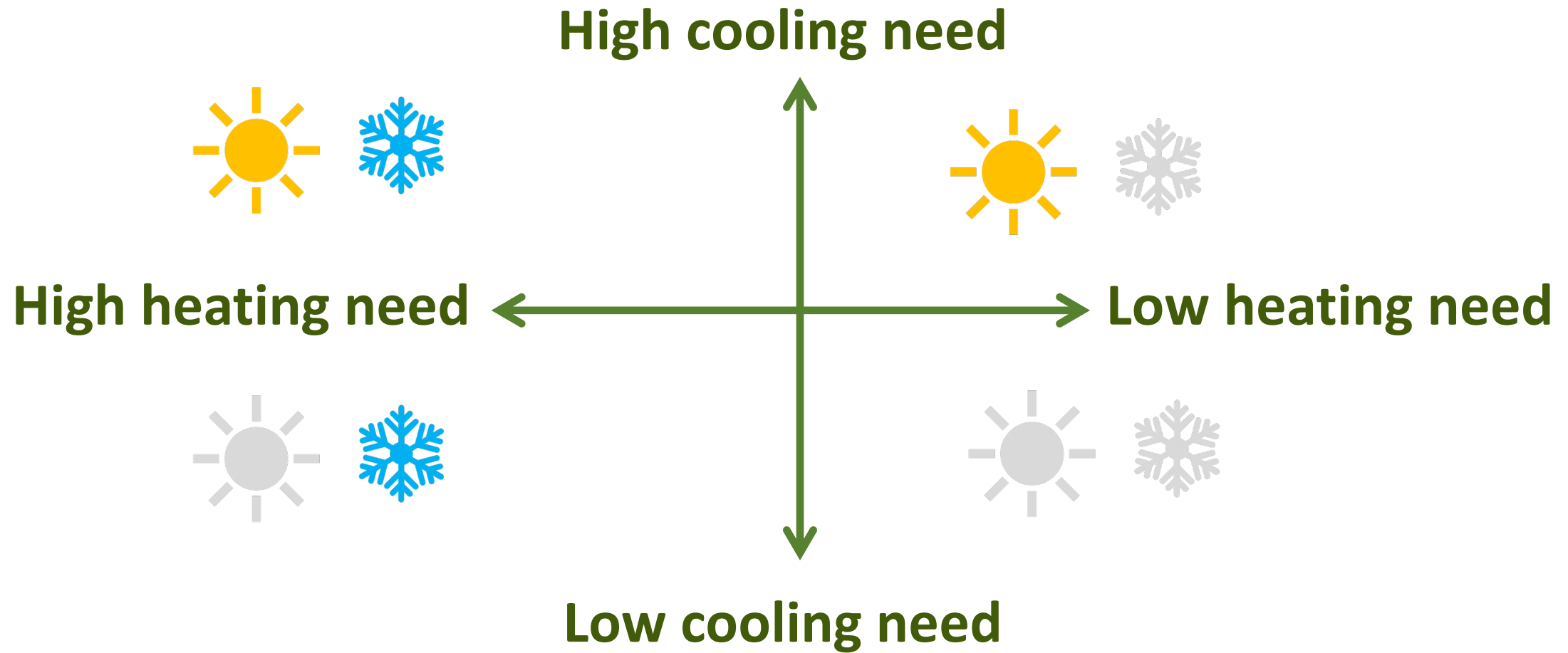


High Usage vs. Low Usage

Ranked Customers to Usage Groups



Heating and Cooling Needs



Study Approach

	Hypothesized Characteristics	
	High Users	Low Users
Behavior or Residents	Behavior: behavior driven by lack of conservation due to lack of education or other issues	Behavior: Low users who practice healthy conservation
	Behavior: Which high users can reduce usage <i>without</i> impacting HC&S?	Behavior: low usage driven by attitudes and behaviors associated with desirable conservation and/or environmental concerns Behavior: Low users conserving at expense of essential needs. Other correlated traits?
Immutable Characteristic of Home	Single-family dwellers	Multi-family dwellers
	Location (DAC, Tribal, Rural, PSPS zone, wildfire zone)	
	Large homes	Small homes
	Home vintage - older	Home vintage - newer
	Extreme climate zones	Moderate climate zones
Char of Home	Low efficiency of (appliances in) home	High efficiency of (appliances in) home
Characteristic of Residents	Age of residents (children in home, working adults in homes)	Age of residents (elderly, and elderly non-working adults)
	Disabled	
	Veteran	
	Affordability or income (3E) / energy burden, CARE/FERA enrollment	
	Homeowners	Renters
	Due to medical or health related need	No medical or health related need
	Arrearages and/or disconnections	
	Medical Baseline and/or <i>respiratory</i>	Not on medical baseline
	More residents	Fewer residents
		Others

Started with
expected
characteristics

Market Characterization



An initial market characterization examined existing data sources to develop customer profiles and provide a foundation for additional data collection and analysis.

Data Sources:

- Utility data (CIS, ESA, CARE)
- Existing market data (2019 RASS; 2022 Census; ACS data)
- Annual eligibility estimates (2023 Athens)

Analytical Value:

- Development of sample frame
- Identification of energy burden

Analysis of Utility Data

Utility Data considered for analysis included:

- Customer data for low-income customers (CARE and FERA rate), including address and contact info
- ESA participation data
- Athens data
- Additional demographic data

8.58	3651.06	3565.75	3636.12	1.6	9824.3	9849.5	10128.49	9849.5	75
2.77	3082.38	3010.37	3069.73	1.59	7453.37	7433.51	7541.29	7427.06	68
6.85	3822.14	3732.87	3806.45	1.59	6722.13	6715.81	6897.62	6707.04	7
7.78	419.87	408.76	419.28	2.56	7152.09	7137.46	7358.43	7134.41	6
6.66	2902.28	2842.46	2891.99	1.42	6643.29	6628.72	6828.68	6623.66	4
27	5633	5536.76	5608.05	1.09	4076.38	4058.9	4330.36	4055.2	
72	6979.49	6681.1	6920.02	3.16	4668.42	4678.11	4680.23	4522.67	
14	7229.17	7068.52	7191.05	1.42	1416.75	1422.12	1423.41	1327.77	
5	3156.84	3062.77	3135.81	1.82	11600.06	11601.88	11811.44	11590.76	

Customer Survey

Over 900 web surveys/phone surveys completed

- Conducted in English and Spanish
- Stratified by heating/cooling factors, household fuel type, and high and low consumption
- Included questions related to:
 - ✓ Conservation knowledge & behavior
 - ✓ Health and safety needs
 - ✓ Perceptions of comfort
 - ✓ Home condition
 - ✓ Electronics/appliances
 - ✓ Household makeup



Focus Groups

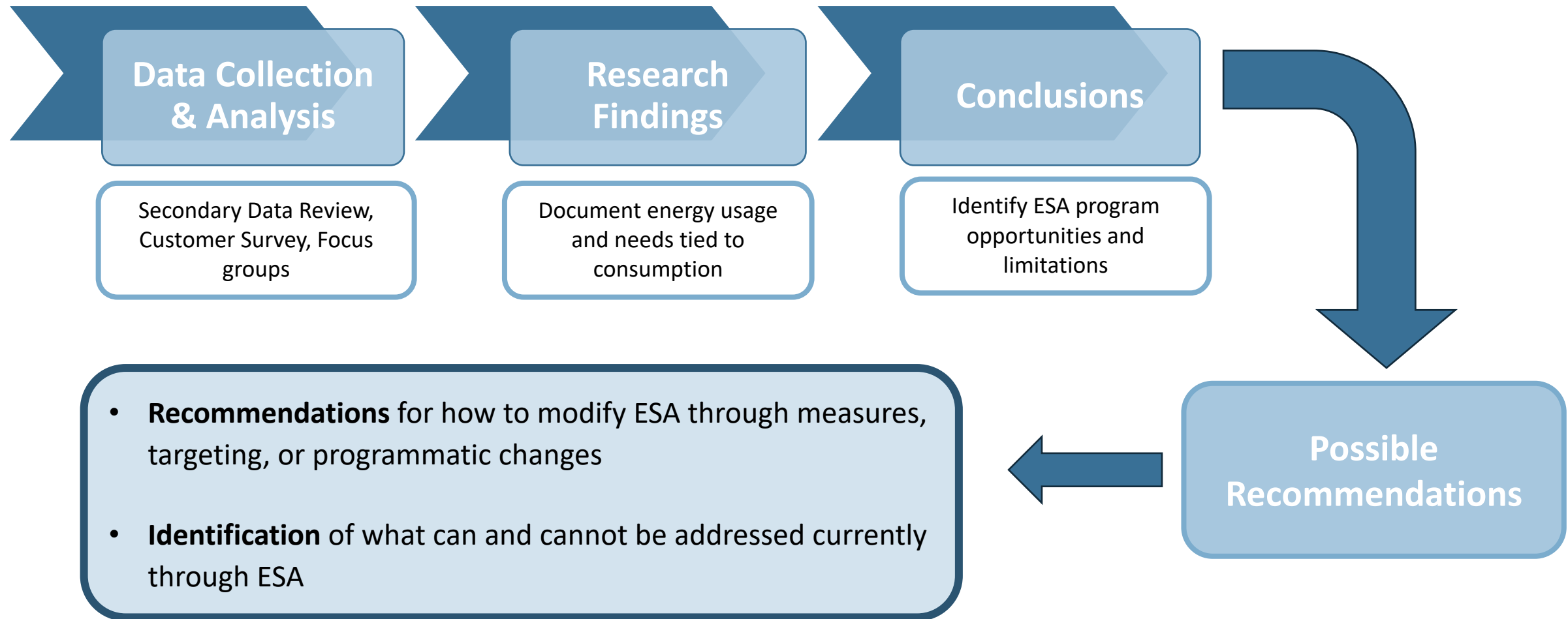


The focus groups explored:

- Topics and results from survey in greater detail
- Customer interest in potential program modifications

- 7 in-person 90 min focus groups
- 3 locations:
 - San Francisco
 - San Diego
 - Irvine
- 4 Languages
 - 4 in English
 - 1 in Spanish
 - 1 in Cantonese
 - 1 in Vietnamese

Analytical Approach



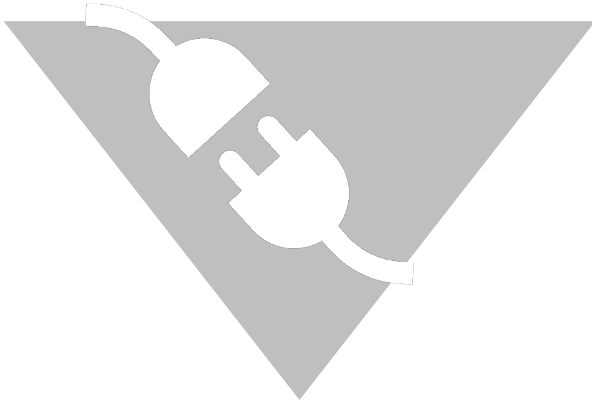
Key Drivers of Low and High Usage

High Using Households...



- Live in larger homes and are homeowners;
- Have more appliances and electronics;
- Are more likely to have children in the home;
- Prioritize comfort over conservation (particularly in regions that need more heating or cooling);
- Are more likely to be in high fire threat districts; and
- Are more likely to have medical equipment and/or be on Medical Baseline.

Low Using Households...



- Live in smaller homes and rent their homes;
- Are more likely to practice conservation “always or almost always”;
- Are willing to endure discomfort;
- Have fewer appliances, overall;
- Have fewer people in the home; and
- Are more confident about energy saving strategies.

Both High and Low Using Households...

Are similar in terms of:

- Thinking they are doing all they can to save energy;
- The presence of veterans or people with disabilities;
- Their desire for lower bills;
- Their income levels in terms of FPL categories; and
- The age of their homes.



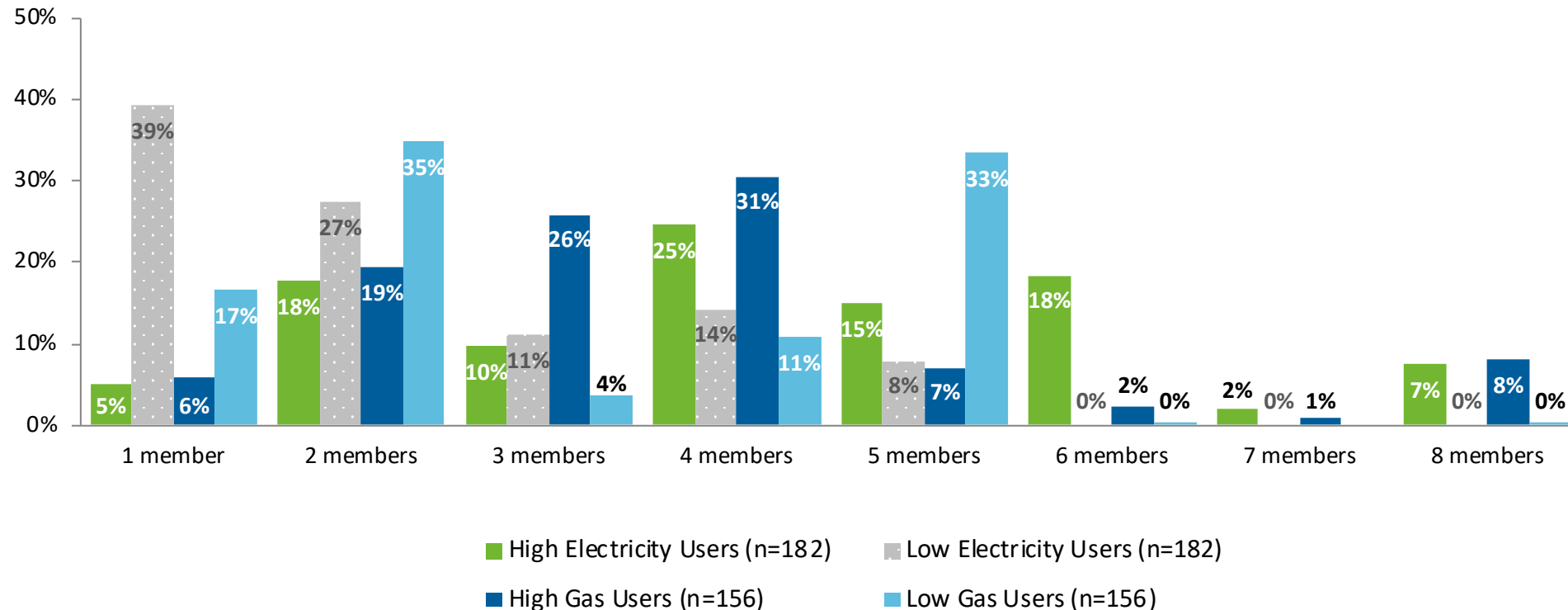
Key Drivers



- 1 Household occupancy
- 2 Geographic needs
- 3 Appliances and Plug Loads
- 4 Medical needs
- 5 Cooling equipment
- 6 Attitudes/behaviors and awareness

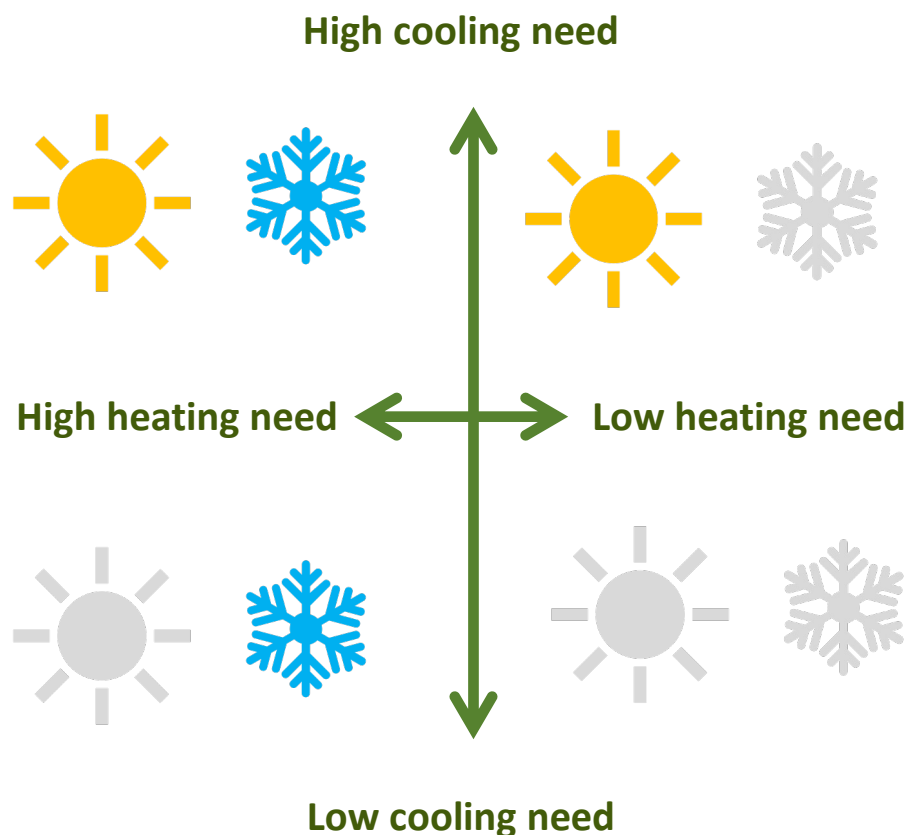
Household Occupancy

Higher using households are more likely to have more residents



Low using households' energy use is impacted by the addition of a new occupant (+26 kWh)

Geographic Location



For each additional 100 CDDs...
High electricity using households
will use an additional

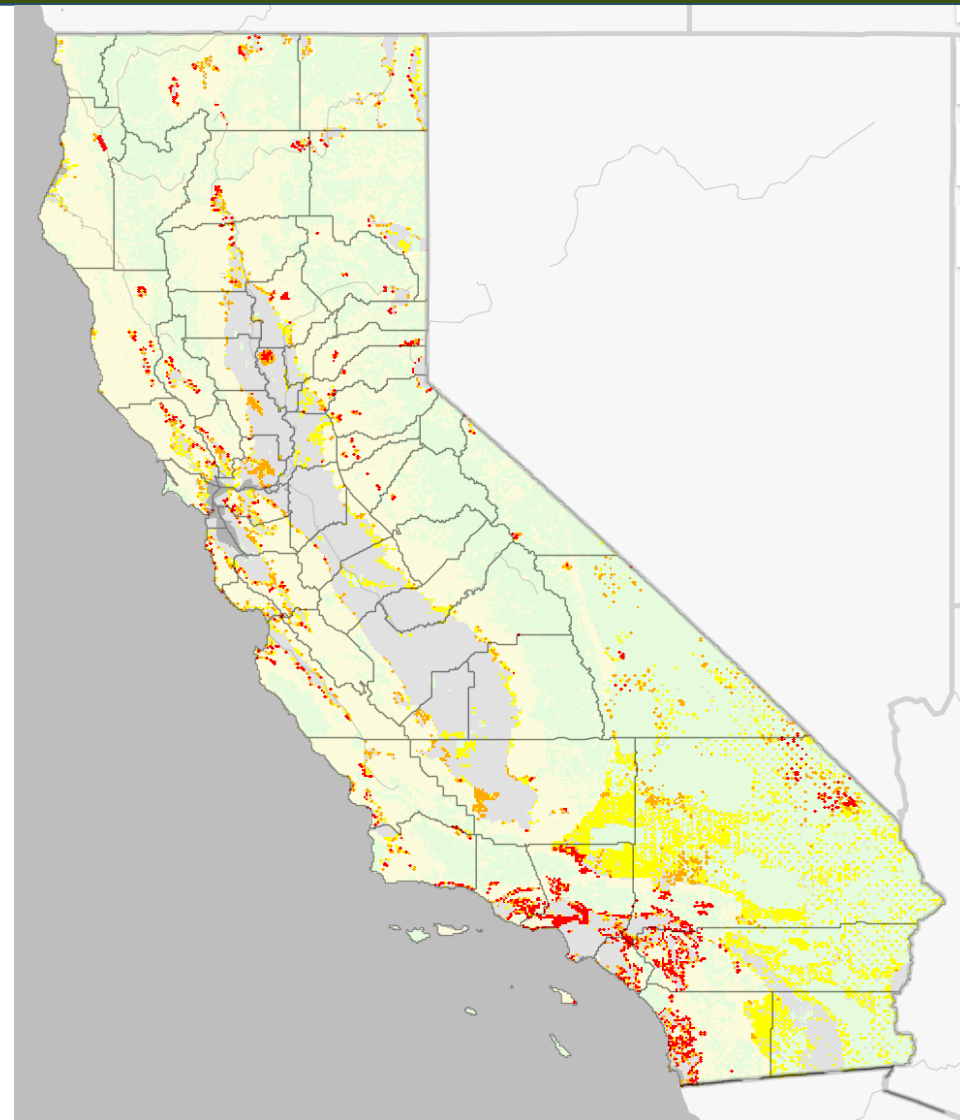
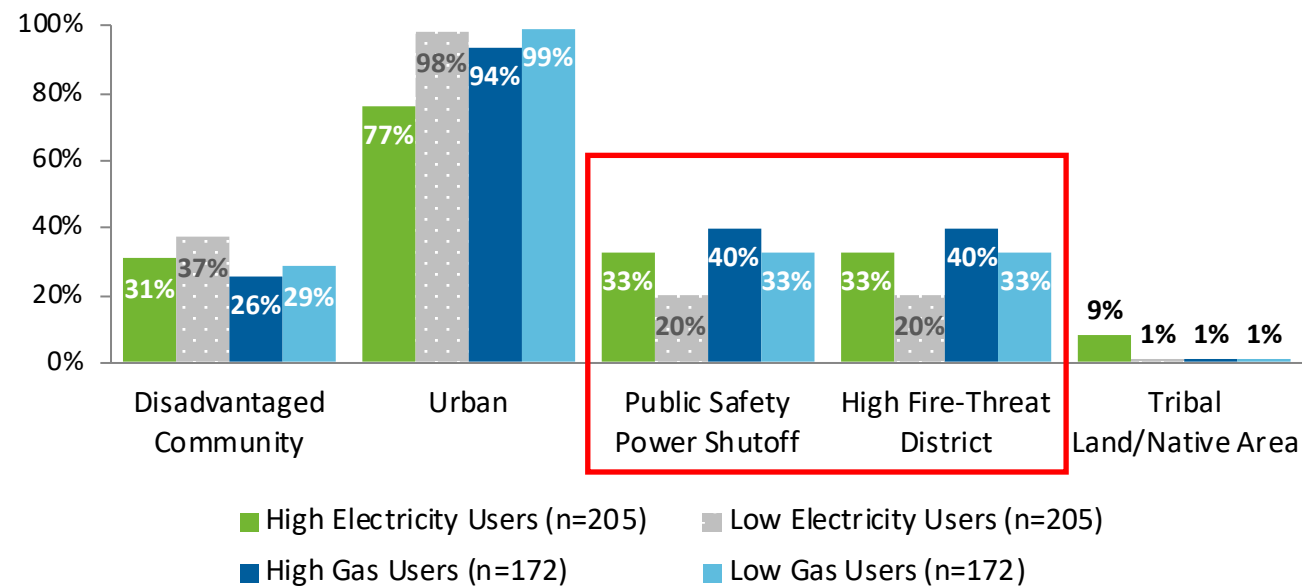
90
kWh

over the summer (vs. 20kWh for
low using households)

Geographic Location

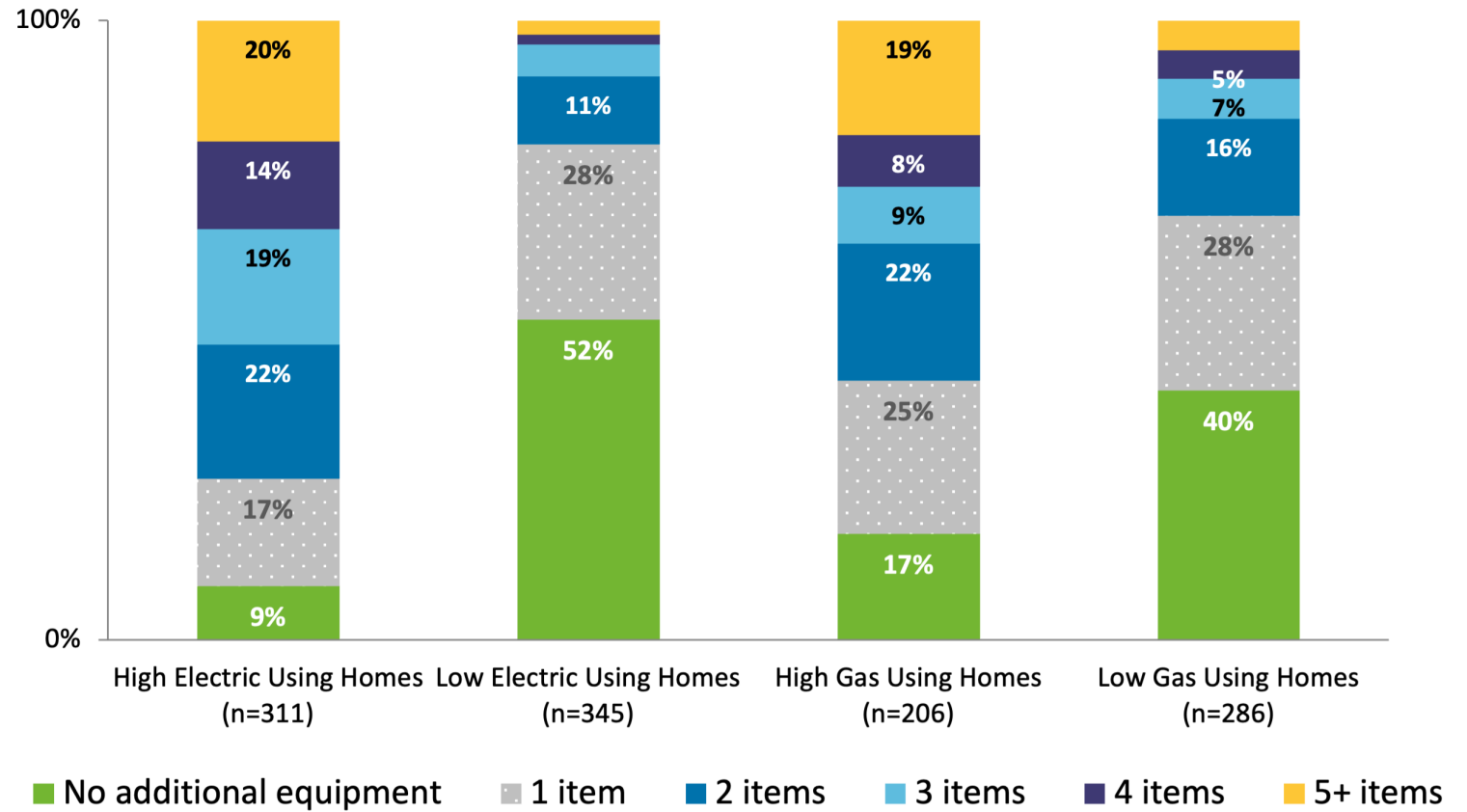
High using households are more likely to:

- Live in a high fire threat region
- Reside in areas with PSPS events



Appliances and Plug Loads

High-using households are more likely to have equipment beyond what might be considered standard



Appliances and Plug Loads

Non-HVAC Appliance Saturation

	Equipment	By Usage Type			
		High Electric Using Homes (n=311)	Low Electric Using Homes (n=345)	High Gas Using Homes (n=206)	Low Gas Using Homes (n=286)
Appliance/White Good	Oven/Stovetop	98%	95%	99%	97%
	Clothes Washer	97%	47%	97%	60%
	Clothes Dryer	95%	42%	96%	59%
	Dishwasher	77%	38%	63%	51%
	Freezer	50%	18%	41%	17%
	Second Fridge	48%	21%	52%	26%
	Air Purifier	34%	15%	27%	23%
Pump or Pump Adjacent	Pump	21%	5%	17%	7%
	Heated Pool	2%	1%	5%	1%
	Water Feature	12%	3%	15%	7%
	Hot Tub	12%	1%	10%	3%
	Large Fishtank	8%	1%	6%	4%
Plug Load	Power Tools	44%	12%	37%	18%
	Medical Equip.	34%	12%	24%	11%
	Exercise Equip.	20%	3%	18%	7%
	Dehumidifier	11%	5%	13%	7%
	Projector	7%	1%	6%	5%
	Sauna	1%	1%	4%	1%
Other	BBQ	36%	10%	33%	17%
	Unheated Pool	12%	2%	14%	3%
	EV Charger	16%	1%	5%	5%

Appliances and Plug Loads

Presence of a clothes dryer in a high electric usage household leads to an additional

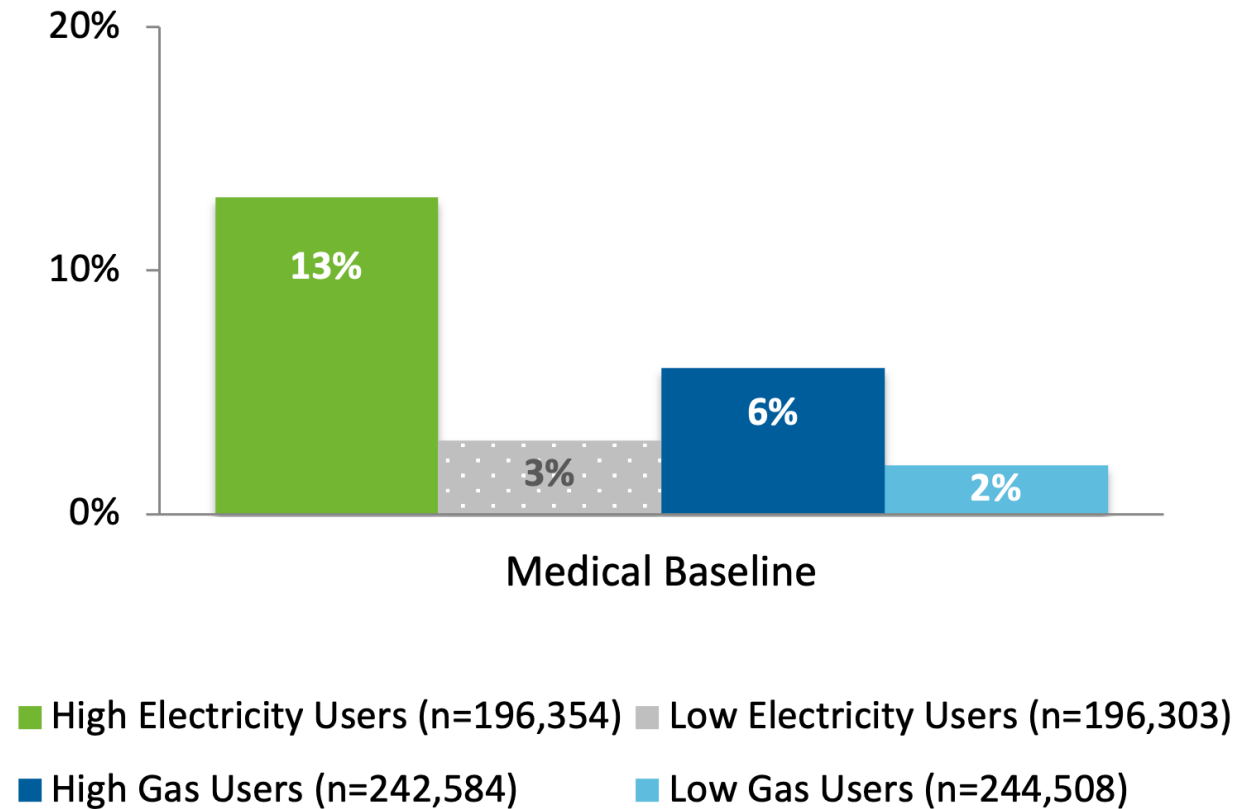


per summer

*Living in a home with a clothes dryer may indicate a **higher likelihood of having more household occupants and having more appliances in general.***

Medical Needs

Percentage of IOU Customers on Medical Baseline by Usage Category



Medical Needs

Medical Equipment in Households by Energy Use

	High Electricity- Using Homes (n=311)	Low Electricity- Using Homes (n=345)	High Gas-Using Homes (n=206)	Low Gas-Using Homes (n=286)
Medical Equipment	34%	12%	24%	11%
CPAP	21%	9%	14%	7%
Nebulizer/Ambulizer	8%	1%	8%	4%
Oxygen Concentrator	6%	1%	5%	1%
Motorized Wheelchair or Scooter	6%	2%	1%	1%
Medical Bed	2%	0%	1%	0%
Misc.	1%	0%	1%	1%

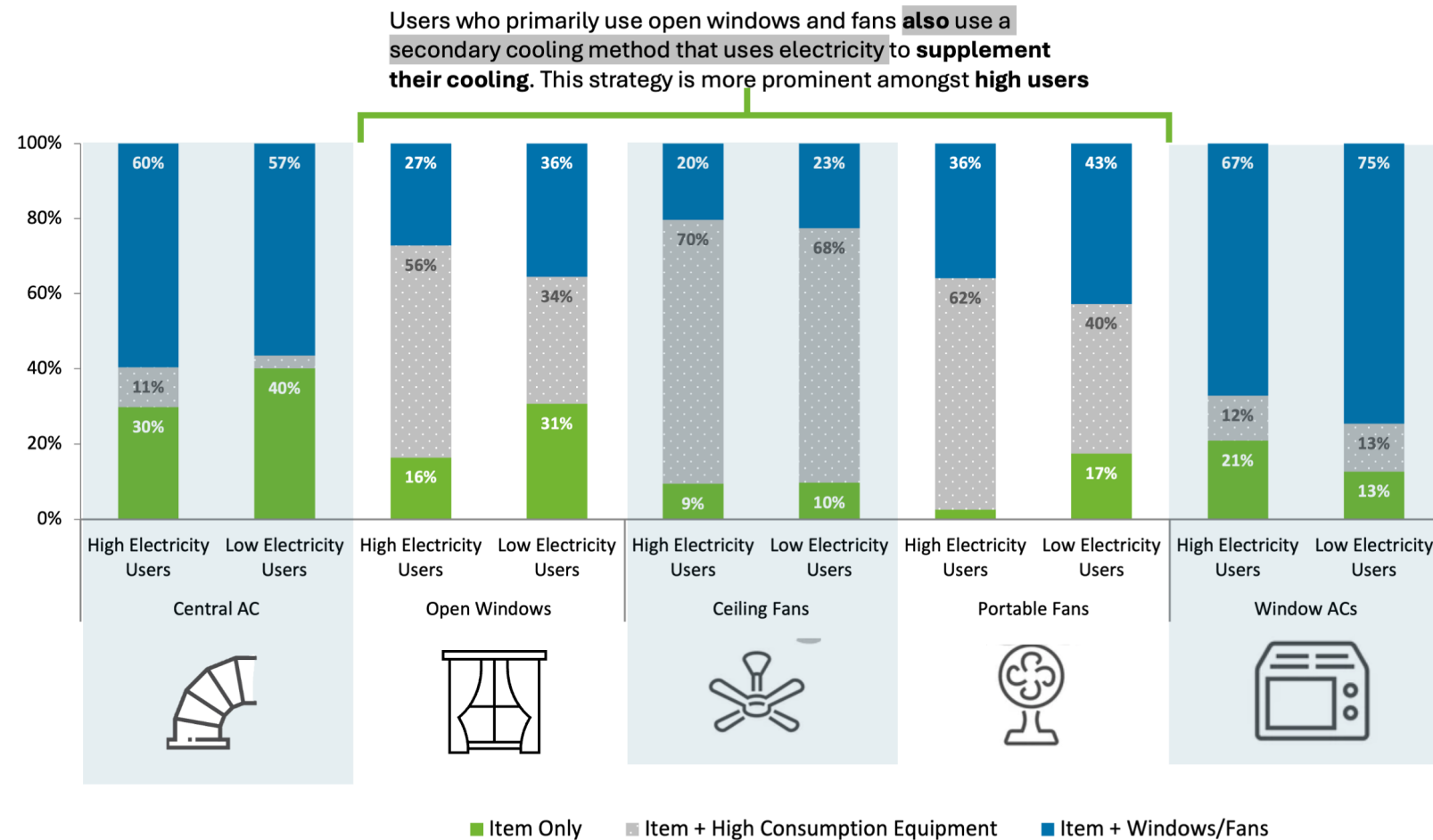
Primary Cooling

High electricity-using households are more likely to be using central AC as their primary cooling

	Irrespective of Climate		🥵 High Cooling Need Area	
	High Electricity-Using Homes (n=311)	Low Electricity-Using Homes (n=345)	High Electricity-Using Homes (n=154)	Low Electricity-Using Homes (n=164)
Central AC	40%	21%	53%	34%
Open windows	20%	35%	11%	17%
Ceiling fan(s)	13%	6%	14%	7%
Portable fan(s)	8%	21%	4%	15%
Window AC	7%	6%	8%	11%
Swamp cooler	6%	6%	5%	9%
Portable AC	4%	1%	3%	2%
Mini-split/ductless heat pump	2%	2%	2%	3%
No cooling equipment	2%	2%	1%	2%
Ducted/central heat pump	1%	0%	1%	

Secondary Cooling

Less than 30 percent of all respondents (high and low electricity-using households) rely on their primary cooling equipment *alone*.



Heating

Higher using households are more likely have furnaces whereas lower using households are more likely primarily heat with portable space heaters when compared to the other group.

	High Electricity- Using Households (n=311)	Low Electricity- Using Households (n=345)	High Gas- Using Households (n=206)	Low Gas- Using Households (n=286)
Furnace	40%	26%	39%	22%
Portable space heater	14%	24%	14%	28%
Wall heater	6%	23%	13%	16%
Ducted/central heat pump	9%	4%	9%	6%
No heating equipment	8%	10%	8%	13%

Heating – Accounting for Climate

	Irrespective of Climate		🧊 Needs Heating		Lower Heating Need	
	High-Using Households (n=229)	Low Using Households (n=223)	High-Using Households (n=153)	Low-Using Households (n=133)	High-Using Households (n=76)	Low-Using Households (n=90)
Furnace	50%	31%	43%	30%	58%	31%
Portable space heater	15%	33%	19%	28%	11%	36%
Wall heater	14%	24%	19%	22%	7%	26%
Ducted/central heat pump	9%	5%	9%	7%	9%	3%
Electric or gas fireplace	7%	2%	5%	2%	9%	2%
Mini-split/ductless heat pump	1%	1%	2%	2%		0%
Radiant heat	3%	1%	1%	3%	5%	0%
Baseboard heater	1%	2%	1%	4%	1%	

Attitudes, Behavior and Awareness

Energy Saving Activities



Turning off lights



Adjusting thermostat



Running appliances less frequently



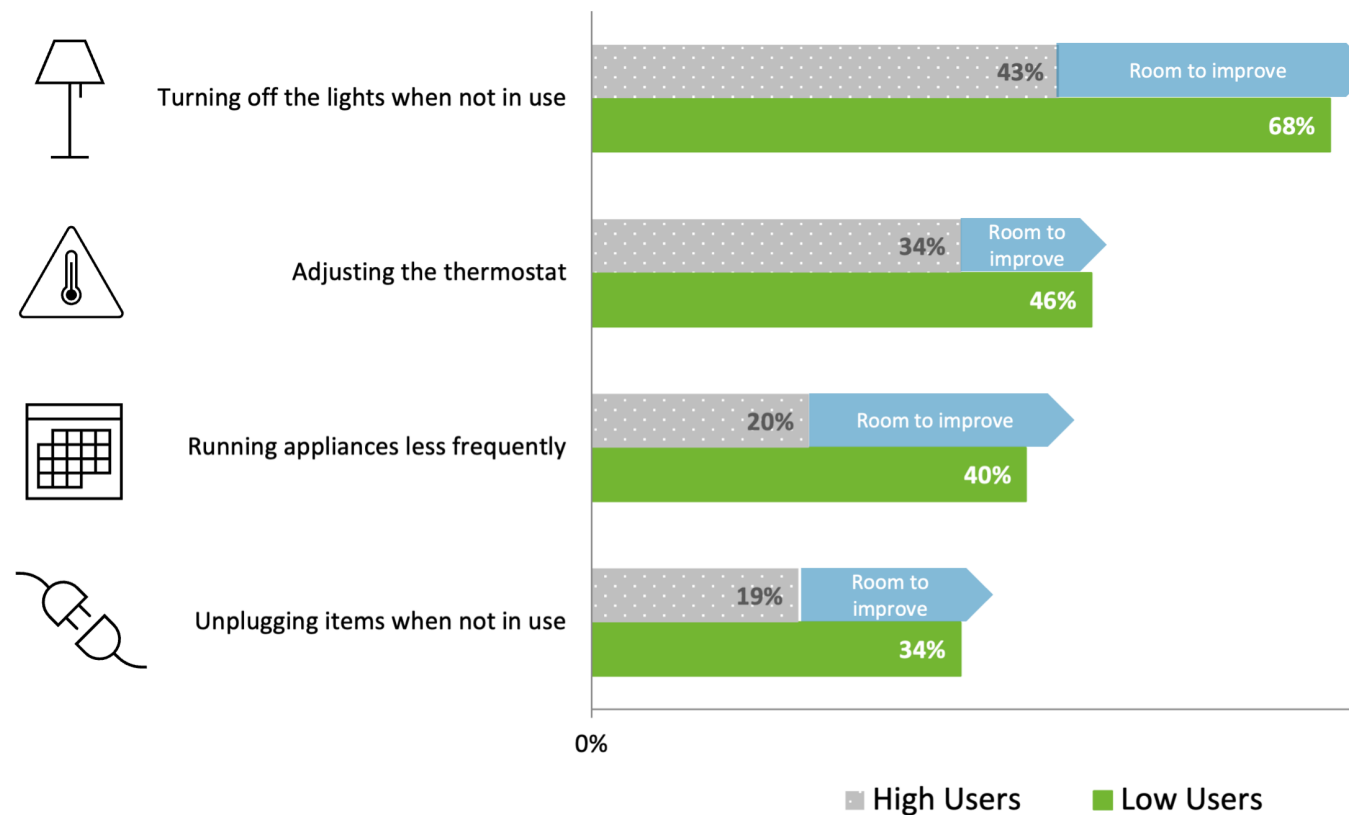
Unplugging chargers, appliances, or other items when not in use

Belief: Low using HH often are more likely to say that they are **confident that the activity saves energy**

Action: Low using HH are more likely to say they do it **always or almost always**

Attitudes, Behavior and Awareness

Percent of High and Low Using HH who Take Energy Saving Action Always or Almost Always



High use home characteristics that make it harder to take on these actions:

- Larger homes
- More appliances in home
- More central systems
- More people in homes

Attitudes, Behavior and Awareness

**Self reported desire to be comfortable was associated
with an additional**

A large blue circle containing the text '477 kWh' in white.

477
kWh

per summer for high-using households

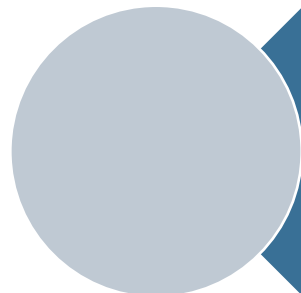
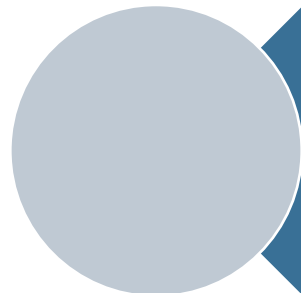
Recommendations

Recommendations

- 
- 1 Equipment replacement and upgrades
 - 2 Behavioral interventions
 - 3 Targeted outreach
 - 4 Program enhancements

Equipment replacement and upgrades

Findings support *existing* program actions:

-  Second refrigerator replacements
-  Replacements for primary cooling systems

Equipment replacement and upgrades

Other upgrades and replacement to consider:

- Expanded pump offerings
- Adding dishwashers and clothes dryer upgrades where there is old equipment
- Addressing non-central AC systems in hot regions
- Include retrofit controls for existing central systems along with property owner education for the multifamily program

Behavioral interventions

Tailored conservation for high-using households



Develop targeted material and case studies

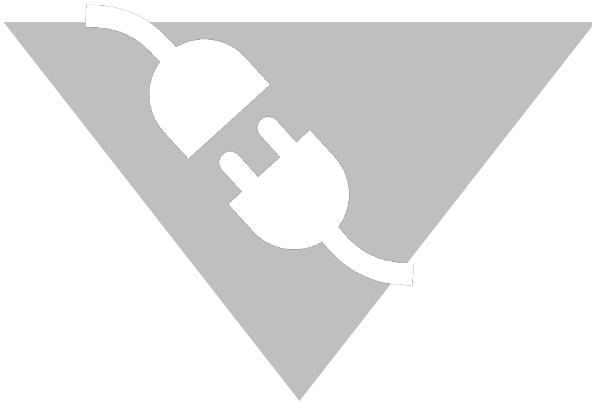
Promote medical baseline enrollment

Conduct post-program follow-ups with high using households

Encourage educational portion of visit to include as many of the occupants as possible



Targeted outreach

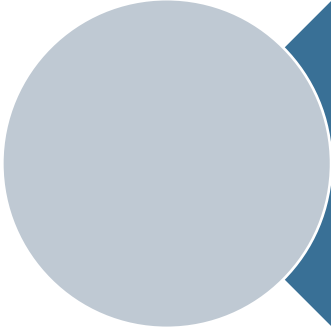


Target low-using households
with custom education

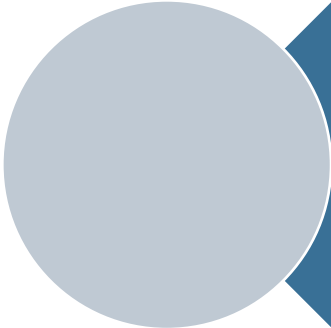


- Share comparison of impact
- Flag dangerous behaviors
- Include fact sheet about unsafe practices

Targeted outreach



Continue Spanish language
messaging – with a focus on low
users



Revisit in-language considerations
for entire process

Next steps for finalizing Report:

Provide any written comments on the draft report by **October 2**.

<https://pda.energydataweb.com/#!/documents/4219/view>

Evergreen will review comments and produce a Final Report by **October 30**.

All comments will be documented in an Excel file, along with Evergreen's response by **October 30**.

Comments and questions can be directed to:

Evergreen Economics:

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Questions?