Maine Energy Burden Study

ERAC Meeting

October 7, 2024

Agenda

1. Review study findings
    - Estimates of energy burden and affordability gap
    - Available assistance and closing the gap
    - Energy insecurity surveys
    - Patterns in electricity, home heating fuel, and transportation burden
    - Low income program participation
2. Discussion
    - Takeaways
    - Recommendations
    - Questions, comments, what did we miss?

Data

- Home Energy
    - LEAD Tool (spending, burden, 2018-2022)
    - RECs and ResStock (usage)
    - Versant (usage)
    - State Energy Insecurity Data
- Transportation Energy
    - SLOPE Tool
- Income, demographics
    - ACS
- Geographic scale: state and county

Home Energy Burden

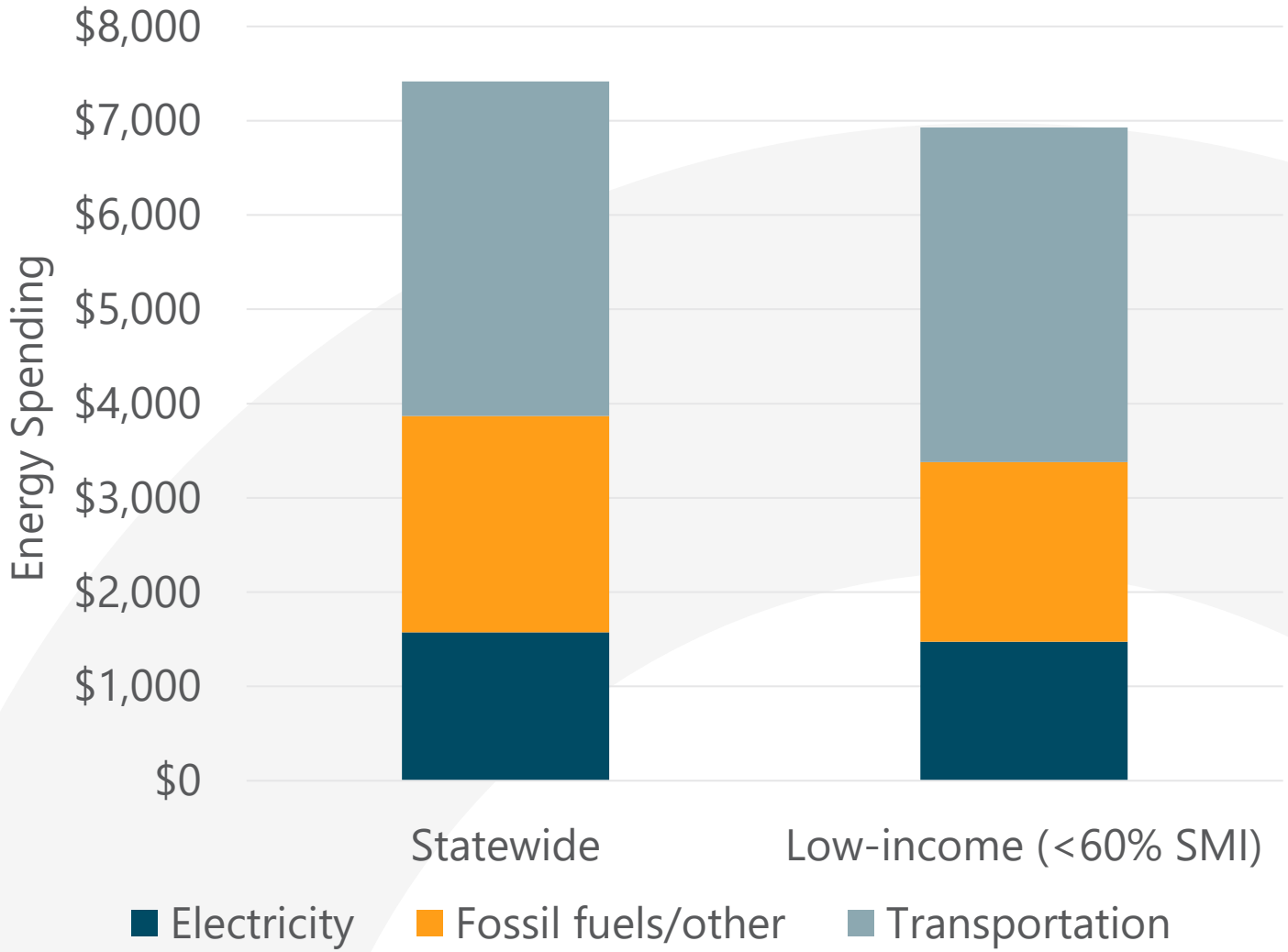
- Defining low income as 60% SMI statewide and 60% AMI by county
- Using a 6% affordability threshold for **all home energy costs** (electricity, fossil fuels and wood)
  - Affordability gap is spending in excess of 6%
- The 6% threshold is widely used (e.g., ACEEE, NY, CT, OR, IL, CO)

Home Energy Burden =

% HH income spent
for home energy uses
(electricity, fossil fuels, wood)

Energy Spending

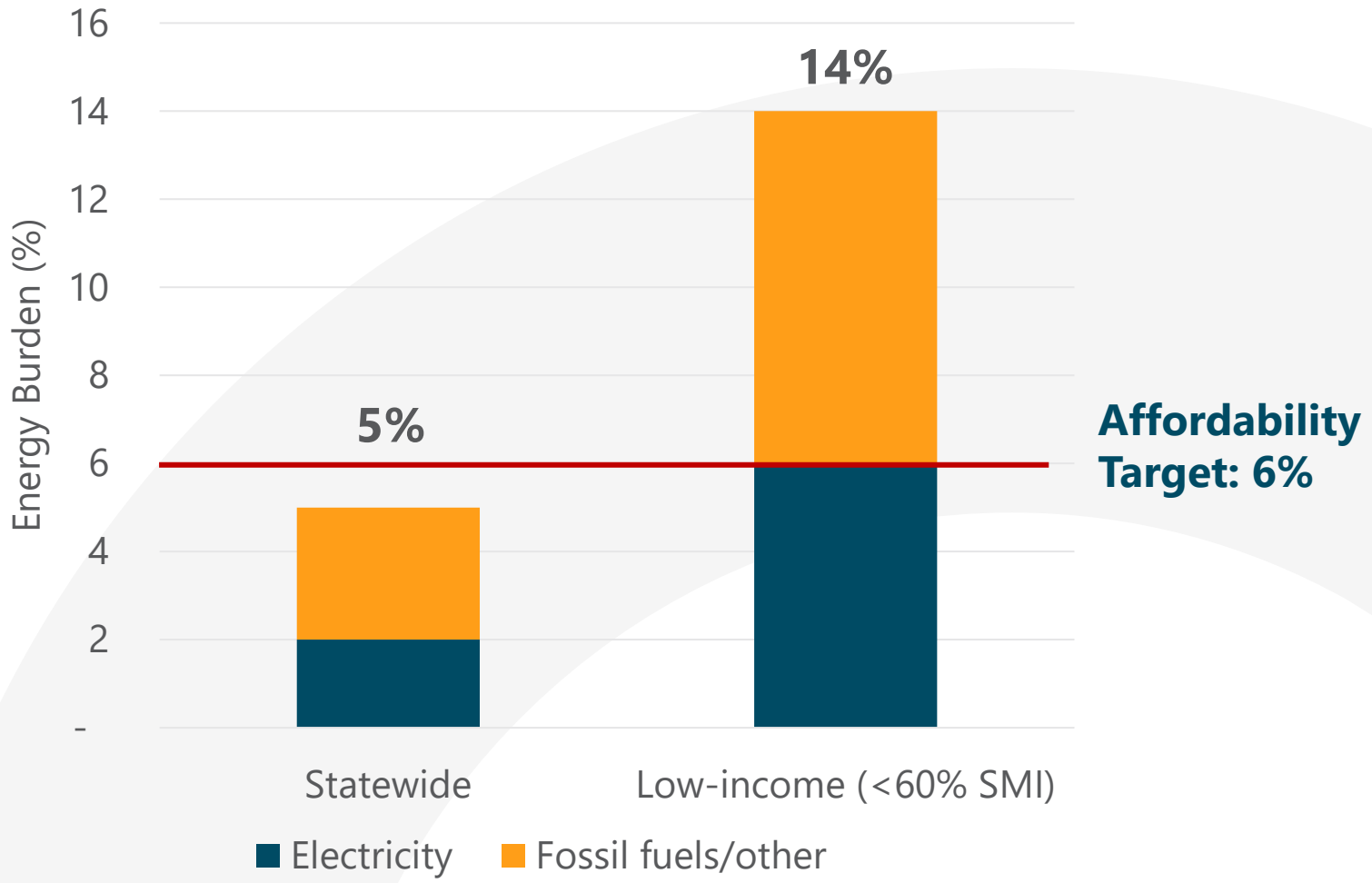
- Costs are similar across incomes
- Transportation fuel costs are similar to home energy costs
- Electricity costs are less than half (44%) of home energy costs



Source: DOE LEAD Tool (2018-2022), NREL SLOPE Tool

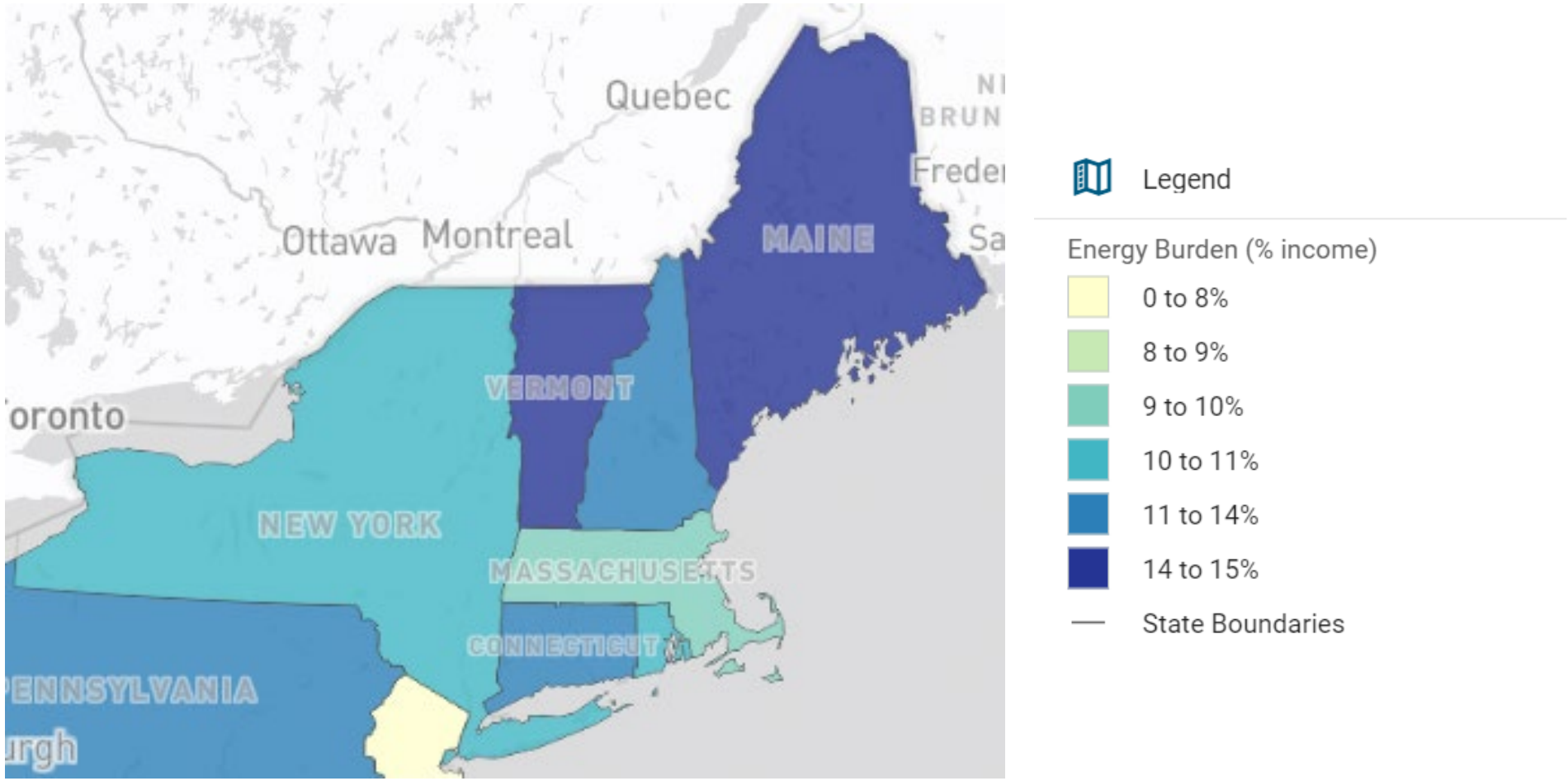
Home Energy Burden

- Home energy burden is nearly 3x higher for low-income households than the statewide average
- Electricity burden is 2% statewide; low-income electricity burden is 6%



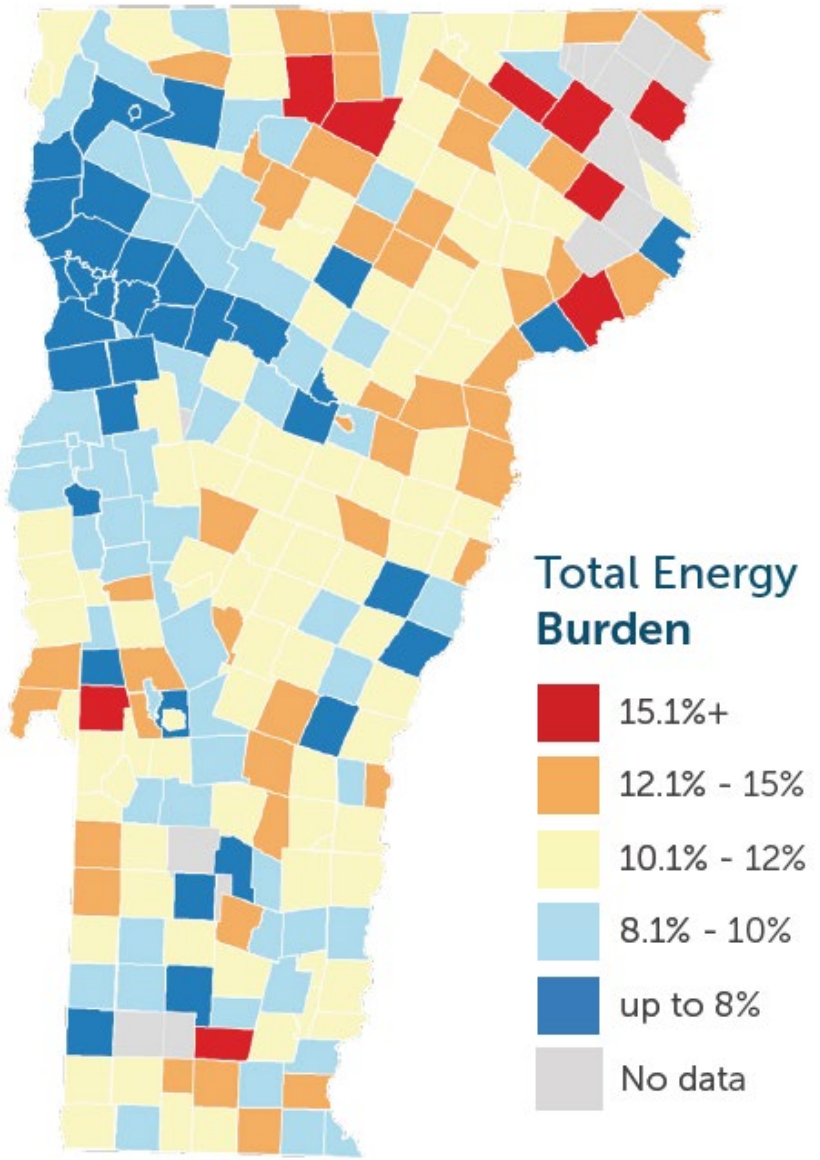
Source: DOE LEAD Tool (2018-2022), NREL SLOPE Tool

Low Income Home Energy Burden in New England

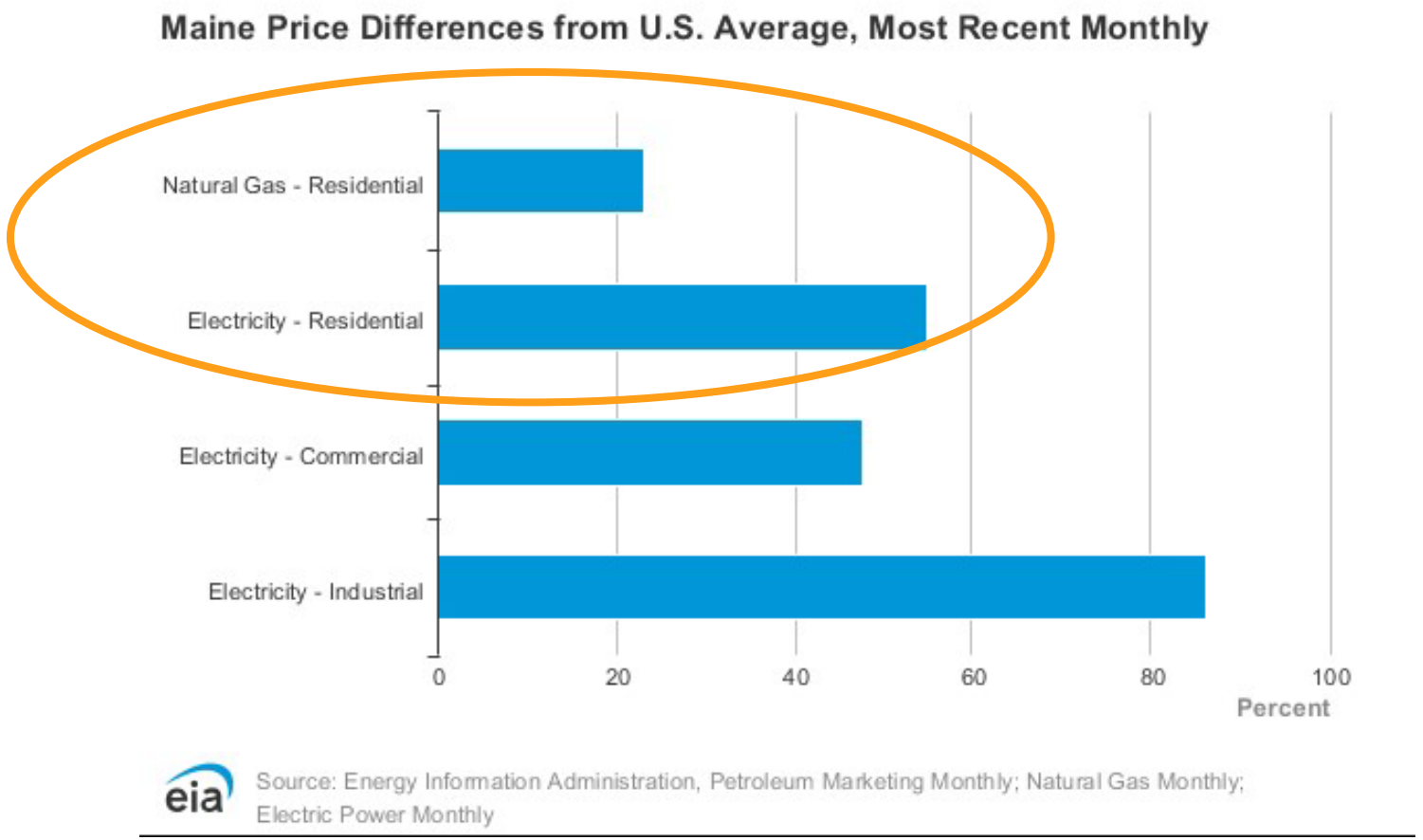


Vermont & Maine Energy Burden (all HH)

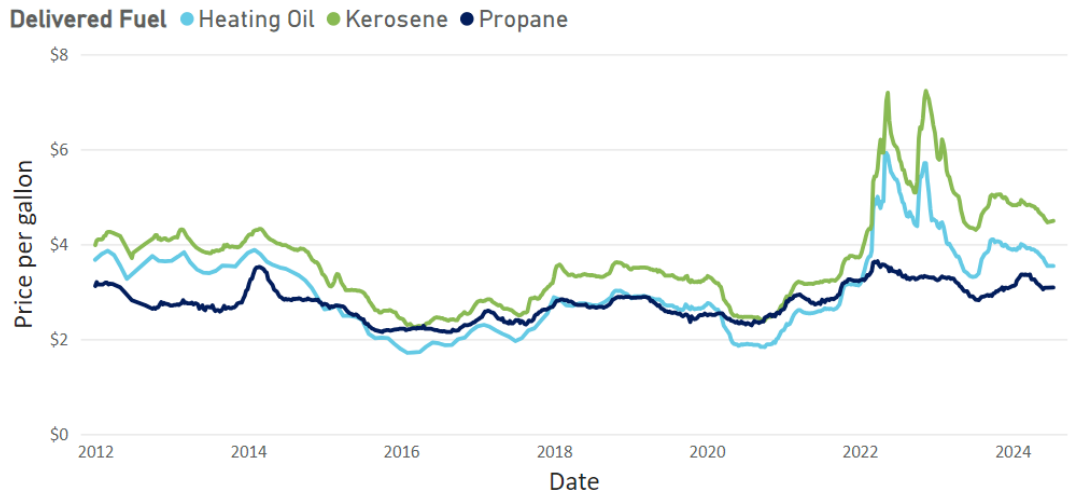
Energy spending category	Maine	Vermont
Electricity	2%	2%
Other fuels	3%	4%
Transportation energy	5%	5%
Total Energy Burden	10%	11%

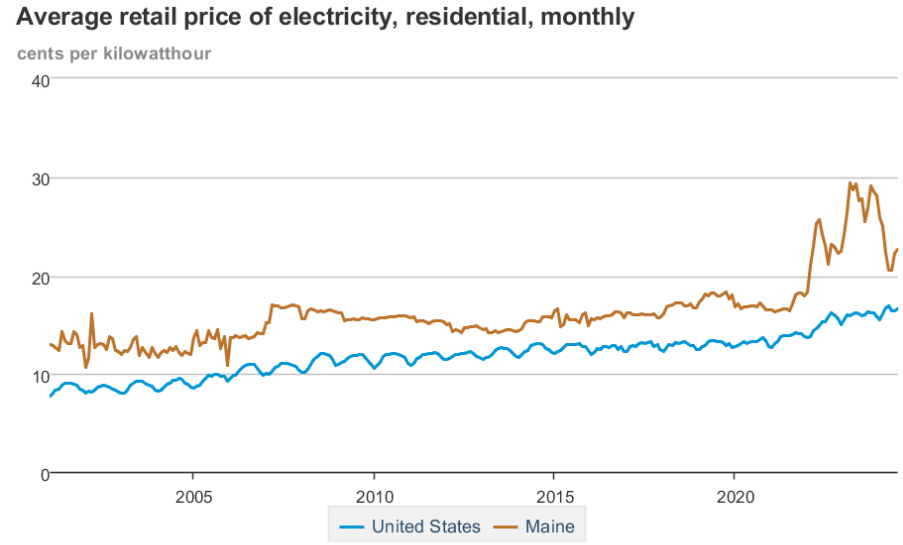


Maine energy prices

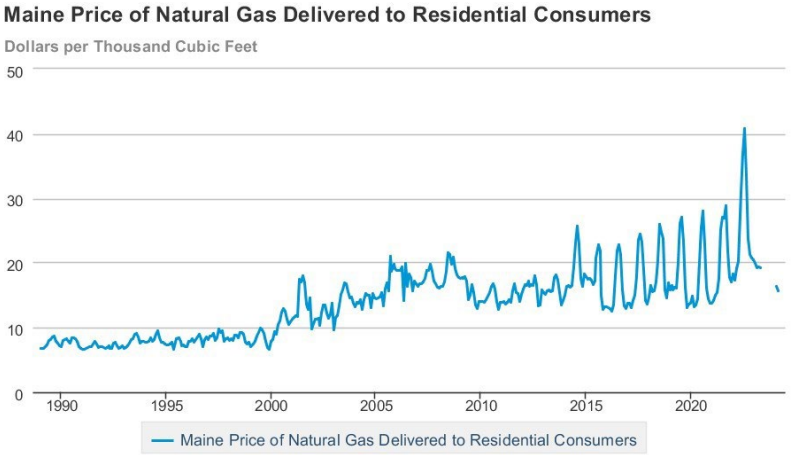


Energy prices over time





Data source: U.S. Energy Information Administration



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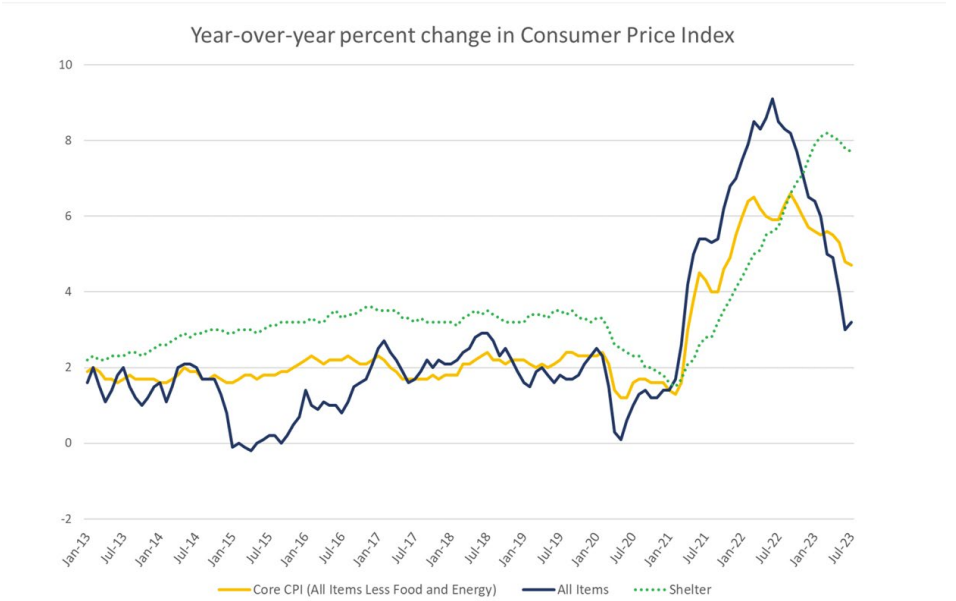
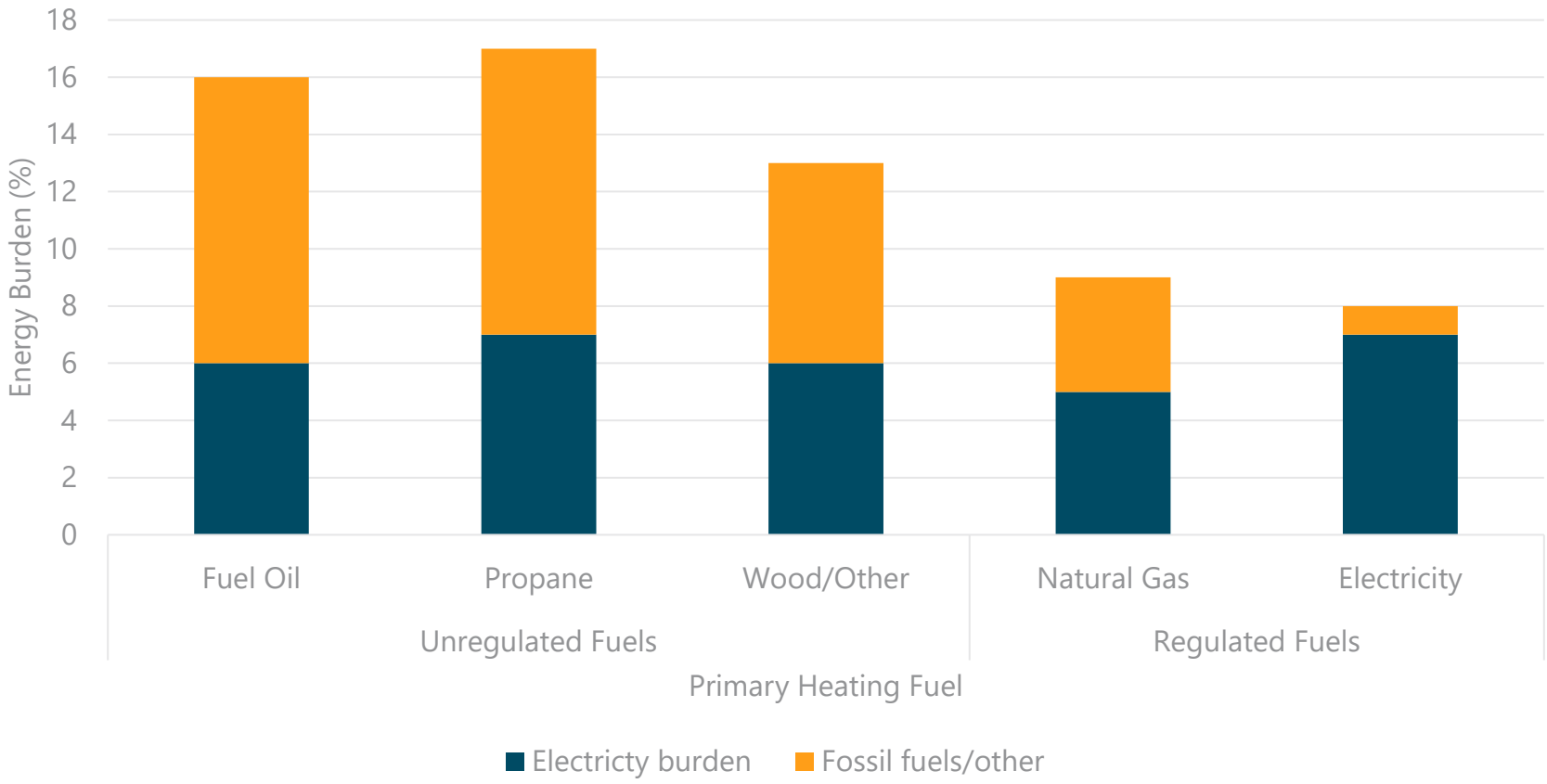


Energy Burden by Primary Heating Fuel
Low Income Households (<60% SMI)

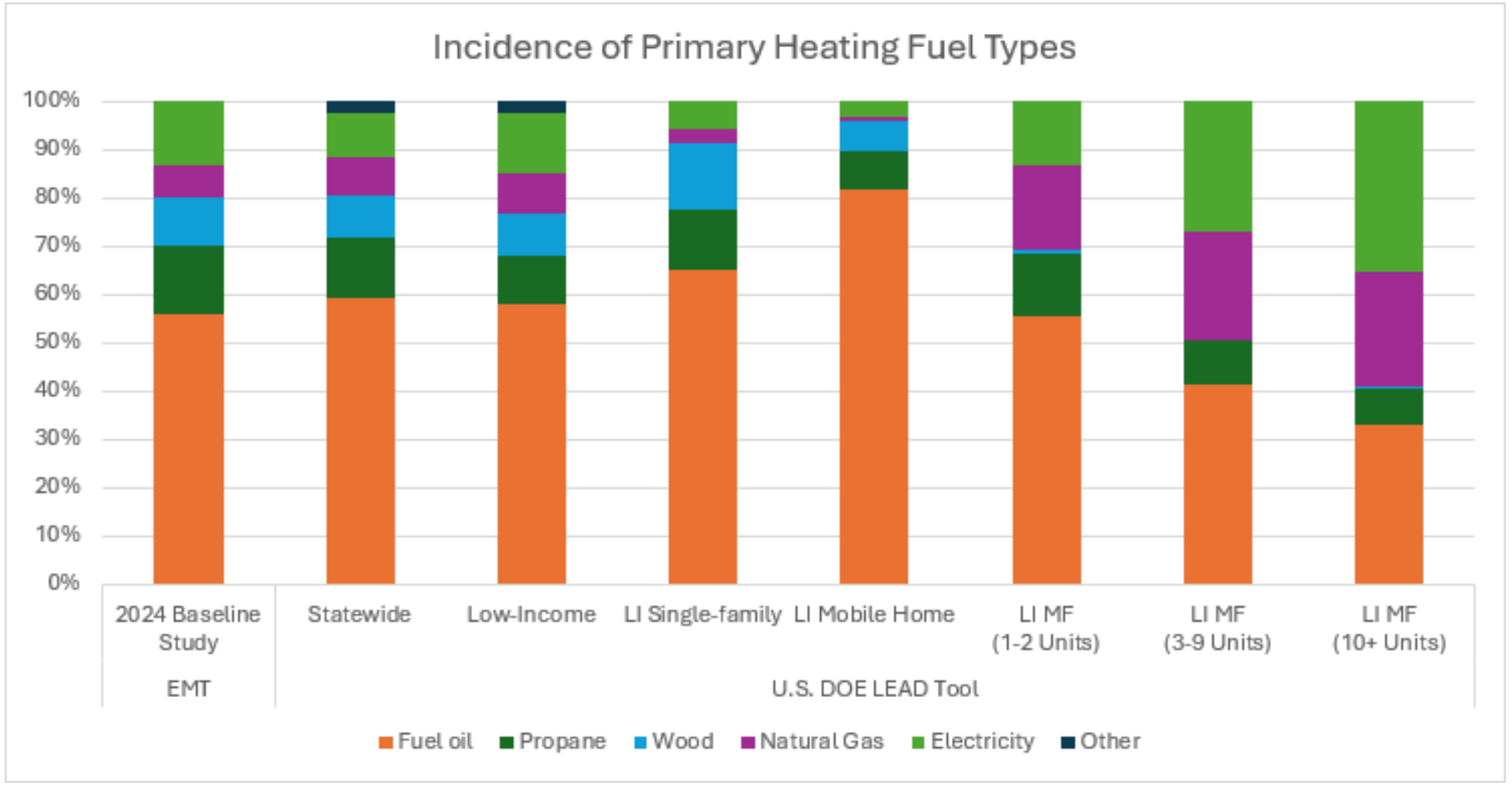
80% of LI HH homes heat w/ unregulated fuels (60% use heating oil)

Energy burden is higher for LI HH using unregulated fuels

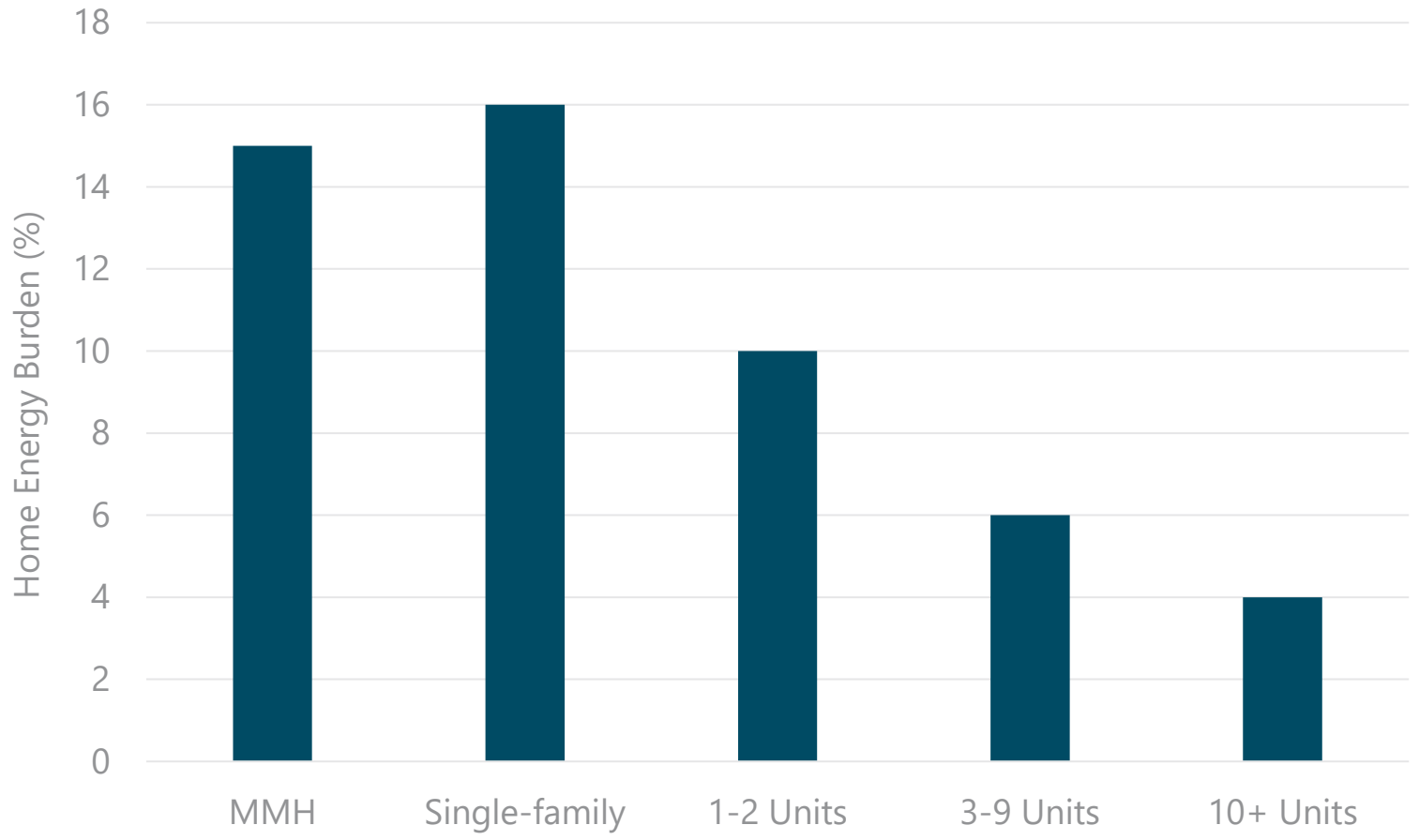


Source: DOE LEAD Tool (2018-2022 data)

Primary fuel by household & building type



Home energy burden by building type



Source: DOE LEAD Tool (2018-2022 data)

Statewide Home Energy Affordability Gap

SMI Income Band	Total # HH	Total Home Energy Costs	Home Energy Burden	HH Affordability Gap	Statewide Affordability Gap
0-30%	62,743	$3,063	**28%**	$2,411	$151,283,412
30-60%	101,237	$3,556	**11%**	$1,649	$166,972,209
60-80%	65,688	$3,719	**8%**	$689	$45,251,149
80-100%	63,341	$3,820	**6%**	-	
100%+	287,163	$4,175	**2%**	-	
				Total	**$363,506,770**

Over 40% of households have energy burden >6%

About 25% experience burdens >12%

*Even within the 80-100% SMI, some HH will fall above the 6% affordability threshold.

Source: DOE LEAD Tool; captures 5 year estimate, 2018-2022

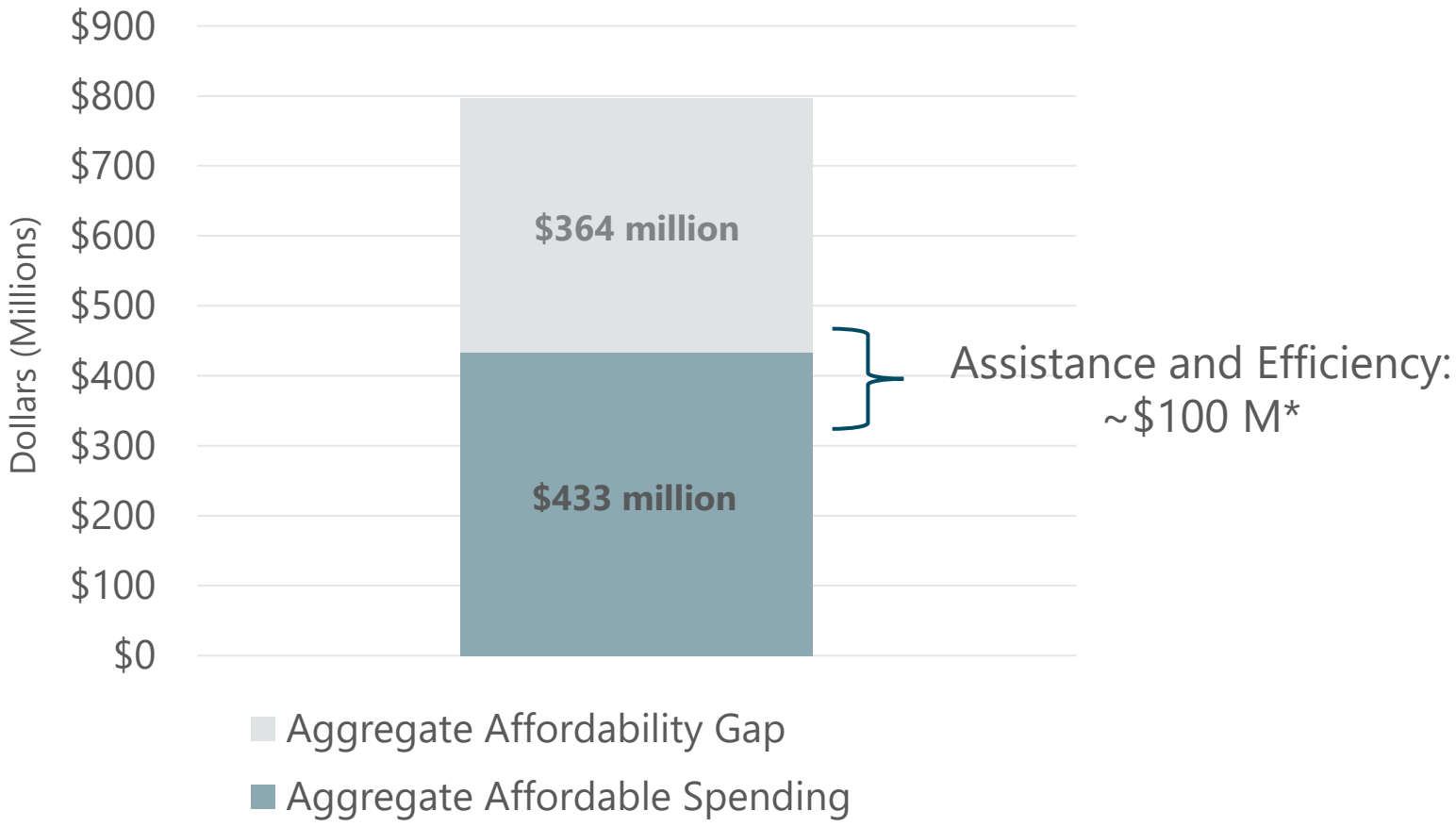
Aggregate County-level Affordability Gap

	AMI Income Band					
County	**0-30%**	**30-60%**	**60-80%**	**80-100%**	**100%+**	**Grand Total**
Androscoggin	$10,619,287	$15,405,478	$4,912,757	$405,810	$0	$31,343,332
Aroostook	$8,741,186	$10,690,136	$5,246,976	$2,559,797	$0	$27,238,095
Cumberland	$26,447,046	$14,547,767	$0	$0	$0	$40,994,813
Franklin	$2,896,060	$3,916,197	$1,308,015	$585,846	$0	$8,706,118
Hancock	$7,064,765	$7,299,504	$2,385,399	$510,959	$0	$17,260,627
Kennebec	$14,426,312	$20,599,997	$7,488,358	$2,215,542	$0	$44,730,209
Knox	$5,229,564	$4,292,440	$1,913,421	$533,632	$0	$11,969,057
Lincoln	$3,859,324	$4,381,248	$1,856,779	$465,054	$0	$10,562,406
Oxford	$6,372,072	$8,591,766	$3,121,417	$1,460,494	$0	$19,545,749
Penobscot	$19,075,042	$17,761,352	$3,426,175	$621,476	$0	$40,884,045
Piscataquis	$2,792,134	$2,850,689	$1,213,750	$577,681	$0	$7,434,254
Sagadahoc	$5,800,425	$3,859,426	$1,259,810	$445,688	$0	$11,365,349
Somerset	$7,099,082	$8,266,804	$2,760,166	$1,015,078	$0	$19,141,130
Waldo	$4,692,650	$4,996,702	$1,991,237	$1,056,741	$0	$12,737,330
Washington	$5,568,362	$6,031,809	$2,674,523	$1,282,430	$0	$15,557,123
York	$22,864,360	$21,060,250	$4,078,110	$0	$0	$48,002,720
Grand Total	**$153,547,671**	**$154,551,566**	**$45,636,893**	**$13,736,228**	**$0**	**$367,472,357**

Source: DOE LEAD Tool (2018-2022 data)

Statewide Affordability Gap

- Gap to achieving 6% energy affordability target
- Includes HH <80% SMI
- Includes home energy costs (electricity, fossil fuels, wood)



Source: DOE LEAD Tool, EIA, Governor's Energy Office
*Since energy costs are reported via surveys (among households and utilities), inclusion of benefits in cost estimates is inconsistent.
Some people may account for assistance or efficiency in what they report if it's "baked into" their bills (e.g., LIAP bill credits; savings from efficiency) while others may not account for assistance provided separate from monthly bills (e.g., HEAP payments)

Energy Affordability Program Budgets

- Some of these programs are accounted for in ratepayers' cost estimates (e.g., direct bill credits via LIAP; savings from efficiency) --> part of "Affordable Spending" on previous slide
- Benefits received separately from bills may not be included in ratepayers' cost estimates (e.g., HEAP) --> subtract from the "Affordability Gap" on previous slide

Program	Est. Annual Budget
HEAP (incl. ECIP)	$26.7 M
Low-Income Assistance Program (LIAP)	$22.5 M
Natural Gas Discount Rates	-
Arrearage Management Program (AMP)	$1 M
MaineHousing Weatherization, Heat Pumps, CHIP	$18.3 M
Efficiency Maine Low Income Programs	$34.6 M
Versant PowerMatch	$180,000
Subtotal*	$103M

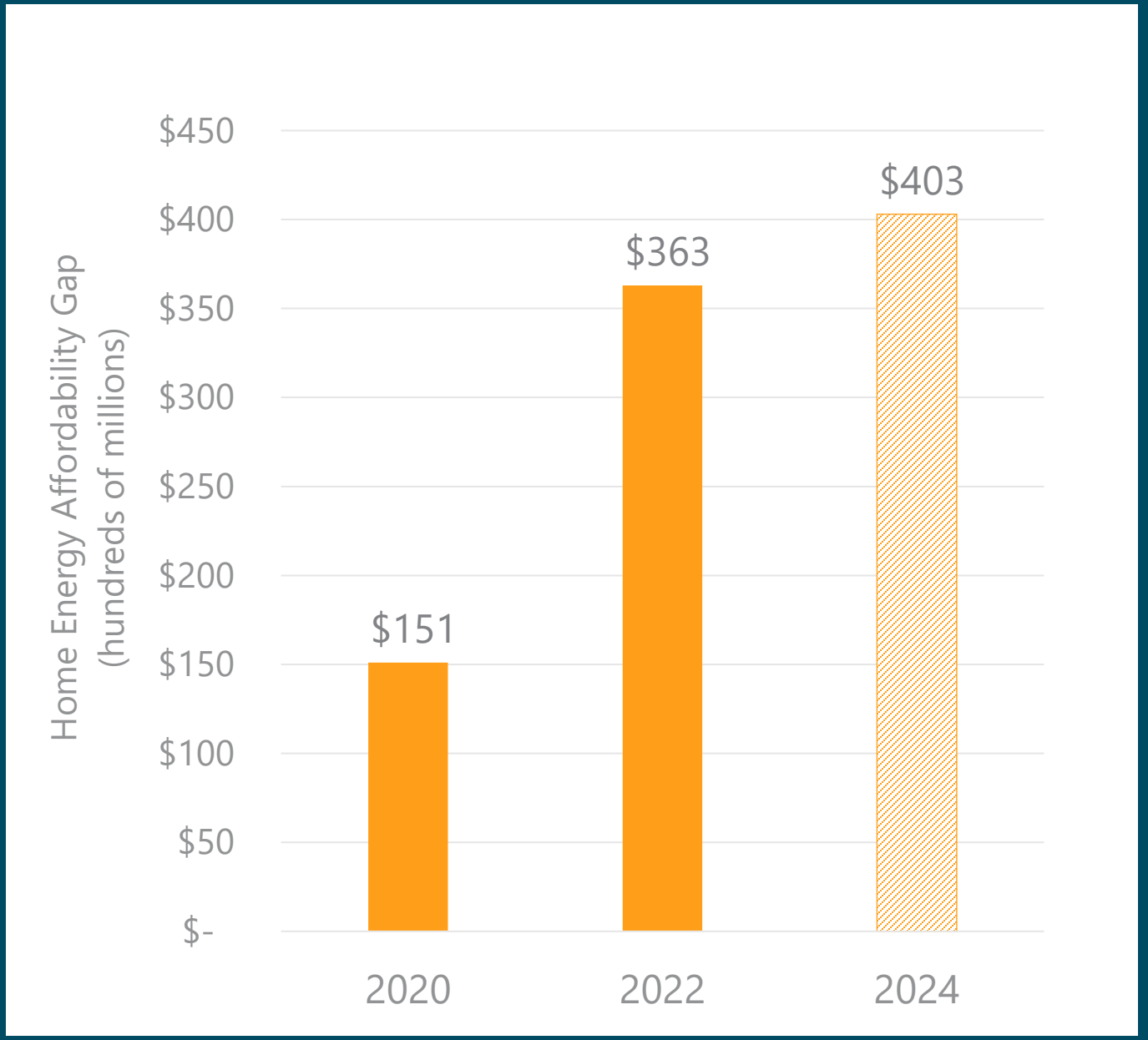
Sources: MaineHousing dashboard, MPUC docket 2023-00056, Efficiency Maine Trust 7/24/2024 ED report, ERAC 2023 Annual Report.
*Excludes local and nonprofit programs such as municipal General Assistance funds and local emergency fuel assistance

Closing the Affordability Gap

- For HH earning 30-60% SMI, the gap is $1,649; Very low income HH (>30% SMI) are facing gaps of $2,400+
- Available assistance and efficiency can yield savings of ~ $865 - $1,500+
- For a HH earning above 60% SMI, there is limited assistance to close the $689 gap
- New programs (SFA) and continued heat pump deployment offer substantial savings

Program	Annual value per HH
HEAP	$540
LIAP	$325
Weatherization	$400
Efficiency (heat pump installation)	$215-$560*
Solar	$200-$300 (15% bill savings)

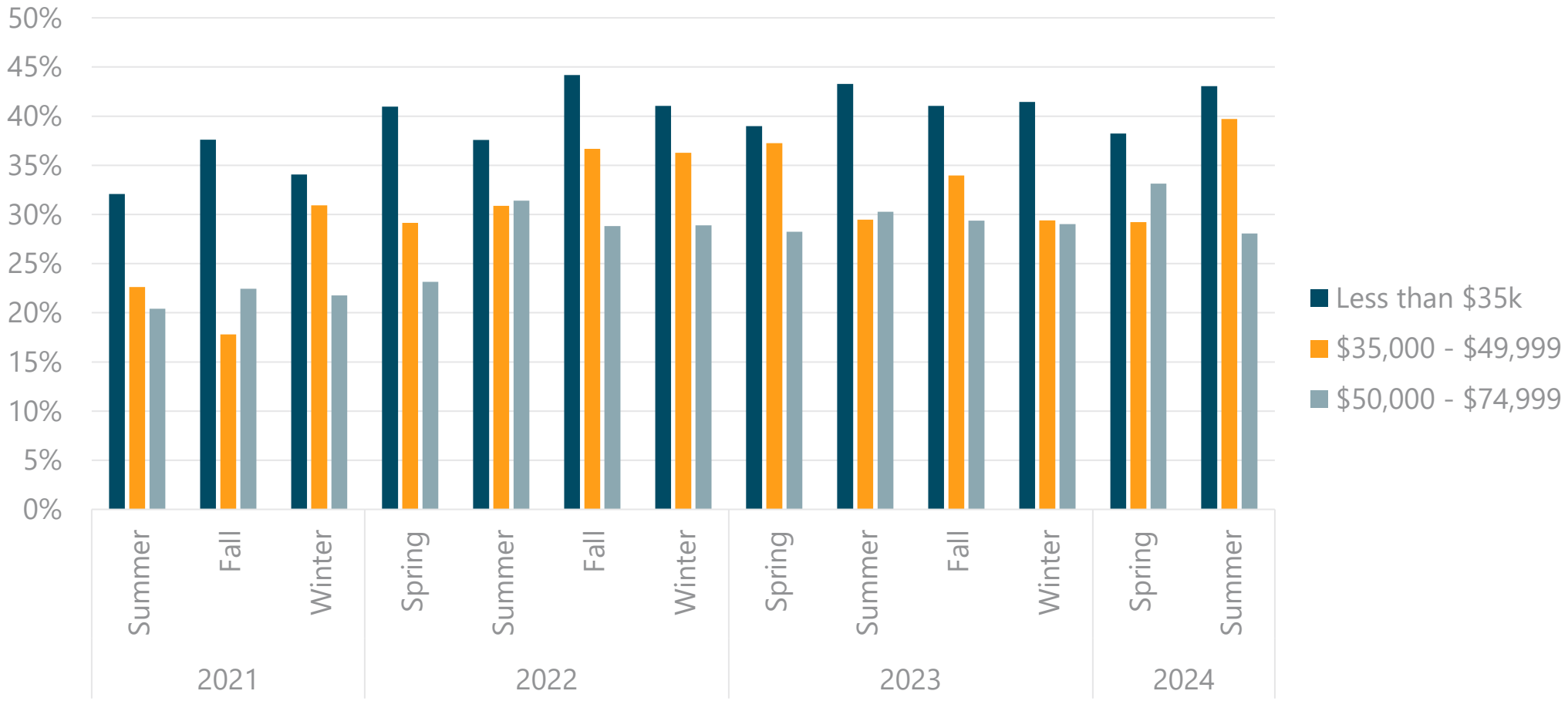
Statewide Home Energy Affordability Gap



Energy Insecurity

- Source: State Energy Insecurity Data Tool
- Reports % of respondents who indicated they were experiencing some form of energy insecurity:
  - 'Any energy insecurity'
  - Reducing spending on food or medicine to pay for energy
  - Leaving the home at an unhealthy temperature

Energy Insecurity by Season



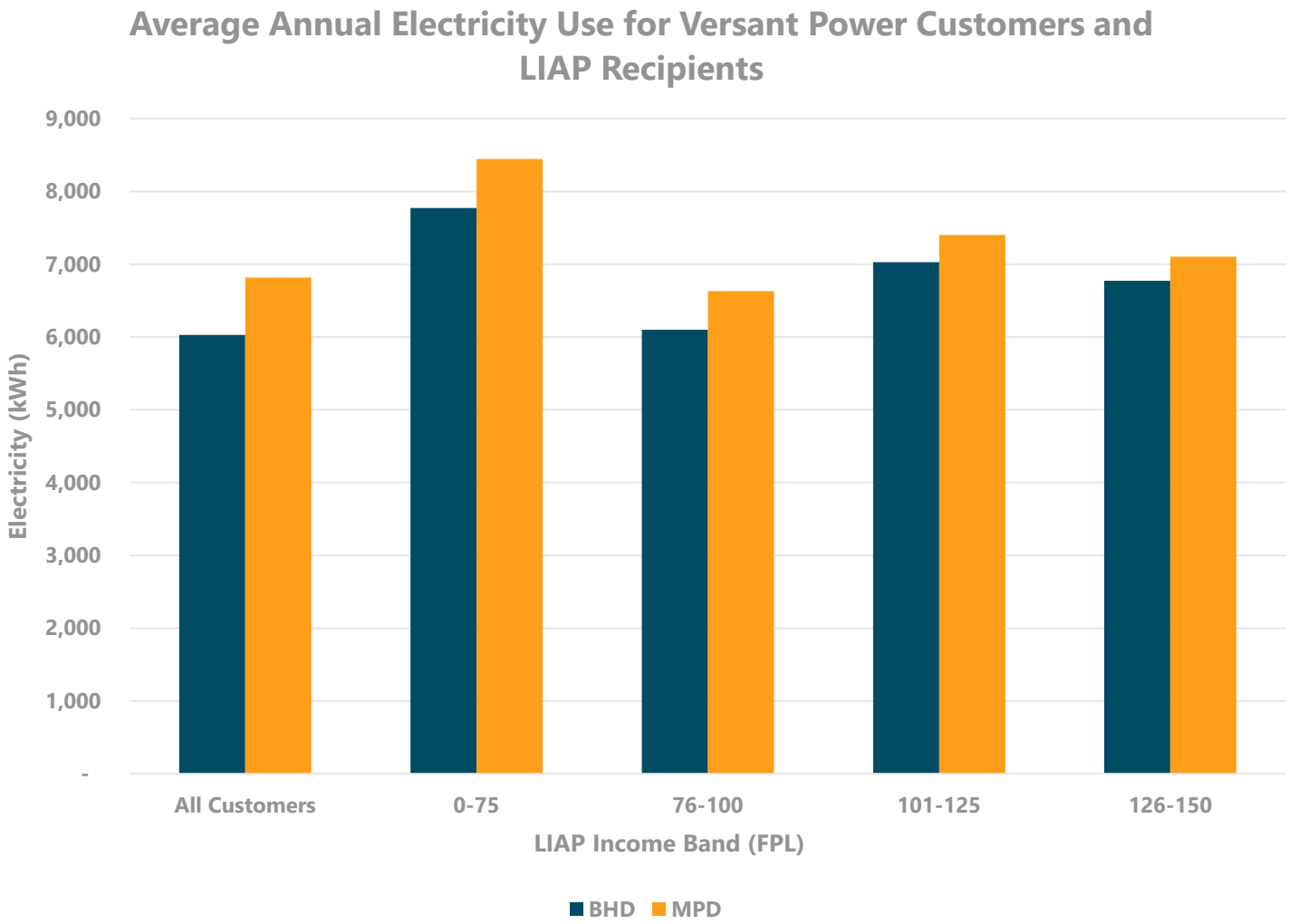
Source: State Energy Insecurity Data Tool

Electricity, other fuels, and transportation energy

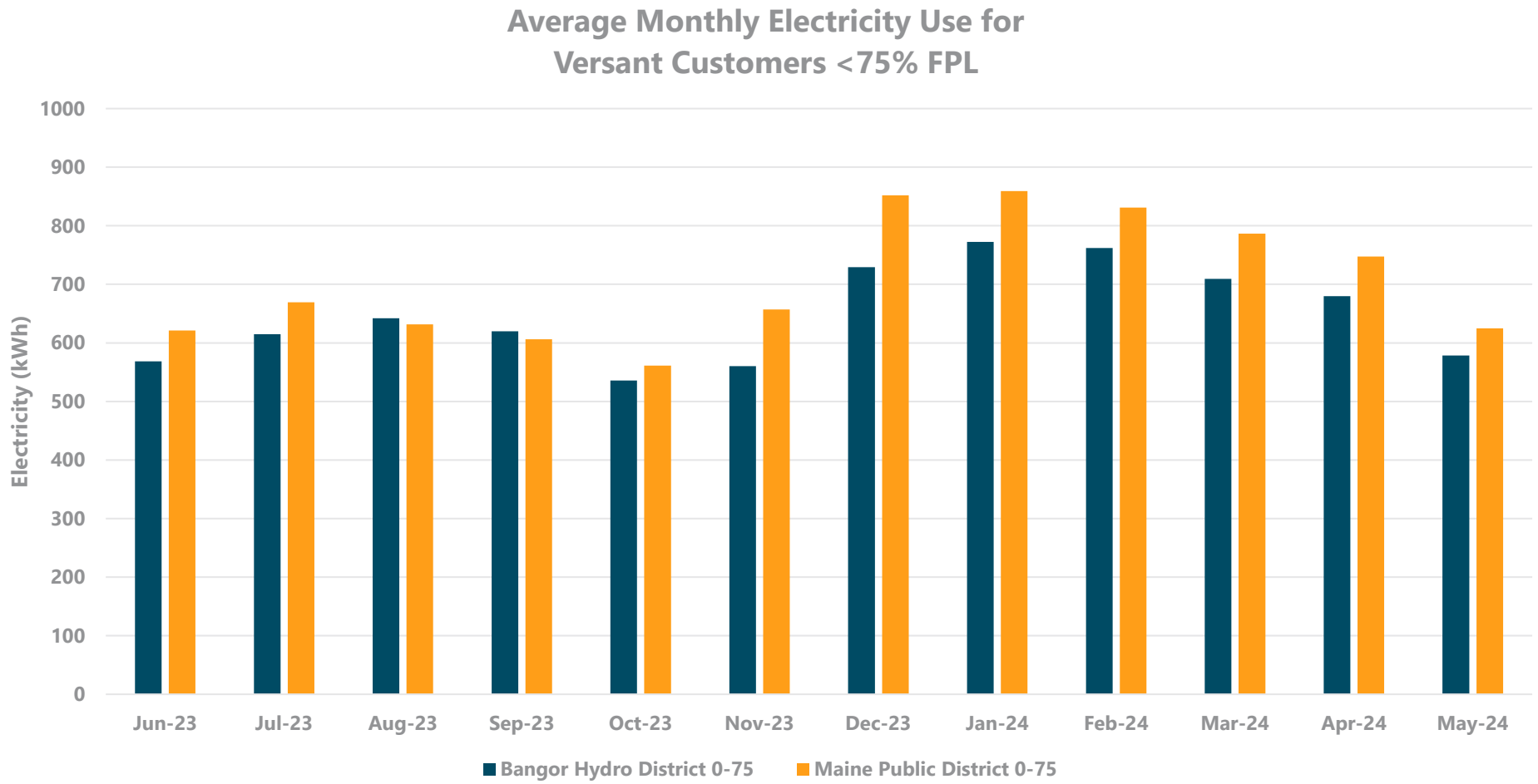
Electricity

- Based on LEAD, we estimate a 6% burden for low income households
  - Not clear to what extent that estimate captures existing assistance but a clear need for LIAP
  - Little variation among counties or income levels
- Versant provided residential usage data
  - 12,620 accounts enrolled in LIAP in 2023-2024
  - 4 benefit levels, determined by income: 0-75% FPL, 76-100% FPL, 101-125% FPL, 126-150% FPL.
  - LIAP recipients used more electricity: 7,200 kWh vs. 6,400 kWh for all residential accounts.
  - In both service districts, LIAP recipients in the lowest income bracket (0-75% FPL) had the highest levels of electricity usage, 24-30% higher than the district-average.
- Enormous potential to reduce energy burdens through efficiency

Versant LIAP recipient electricity usage



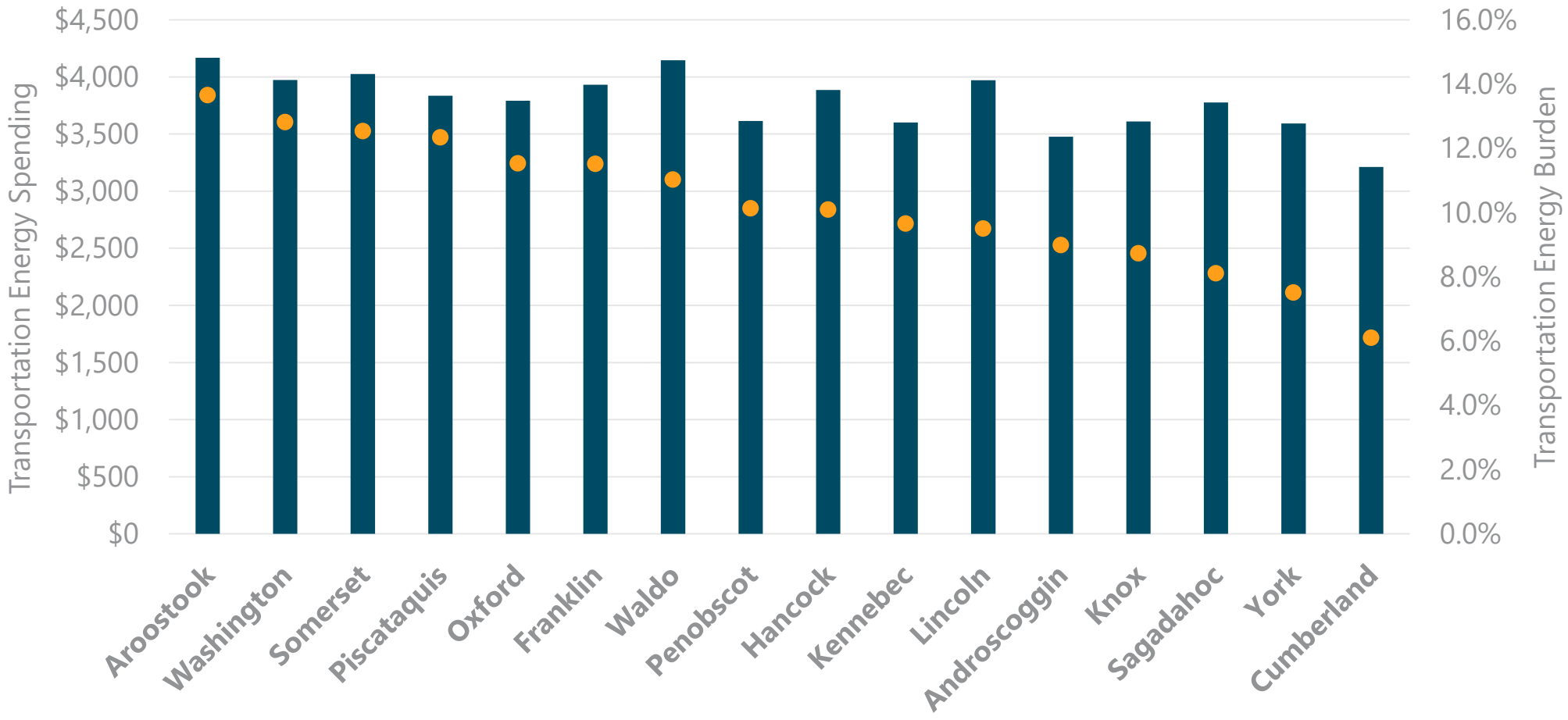
Versant LIAP recipient electricity usage



Other Fuels

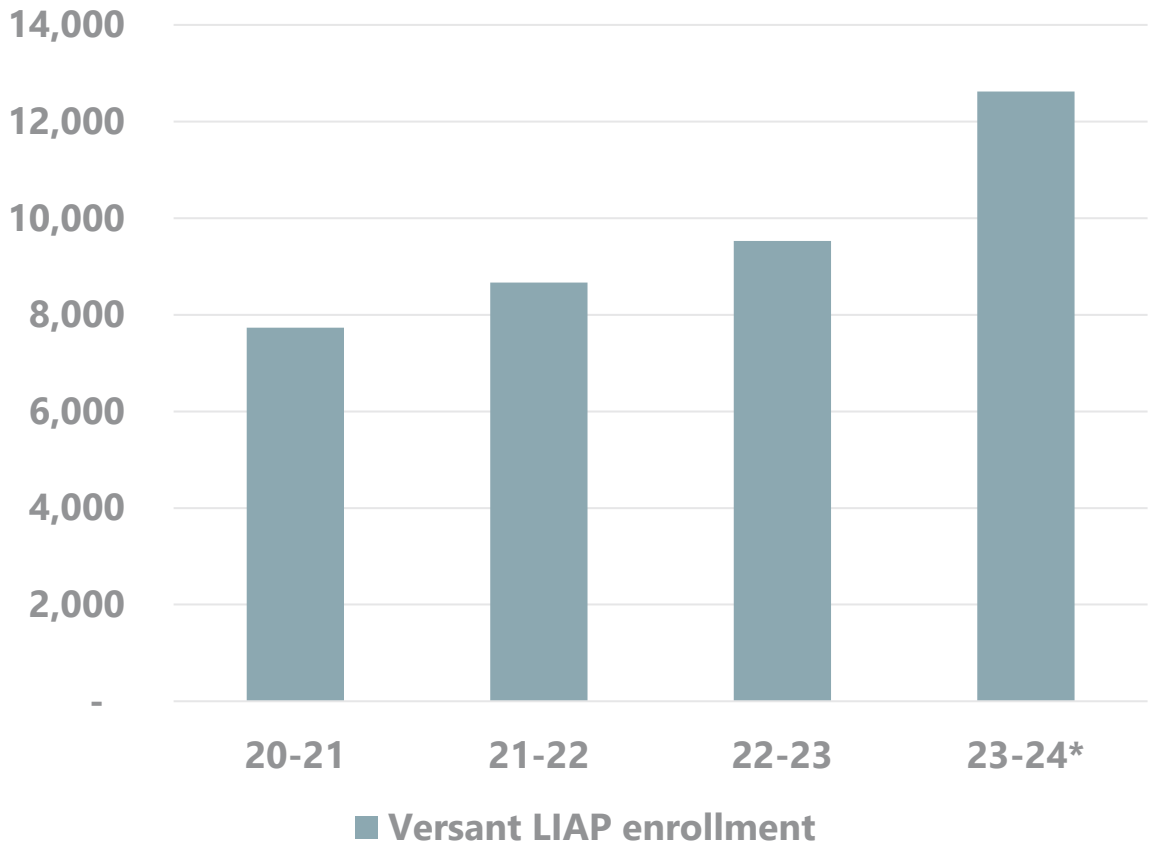
- Non-electricity costs are 56% of home energy burdens
- Most low-income households rely on unregulated fuel as their primary heating source
- Our analysis does not account for secondary and tertiary fuel sources.

Transportation Energy



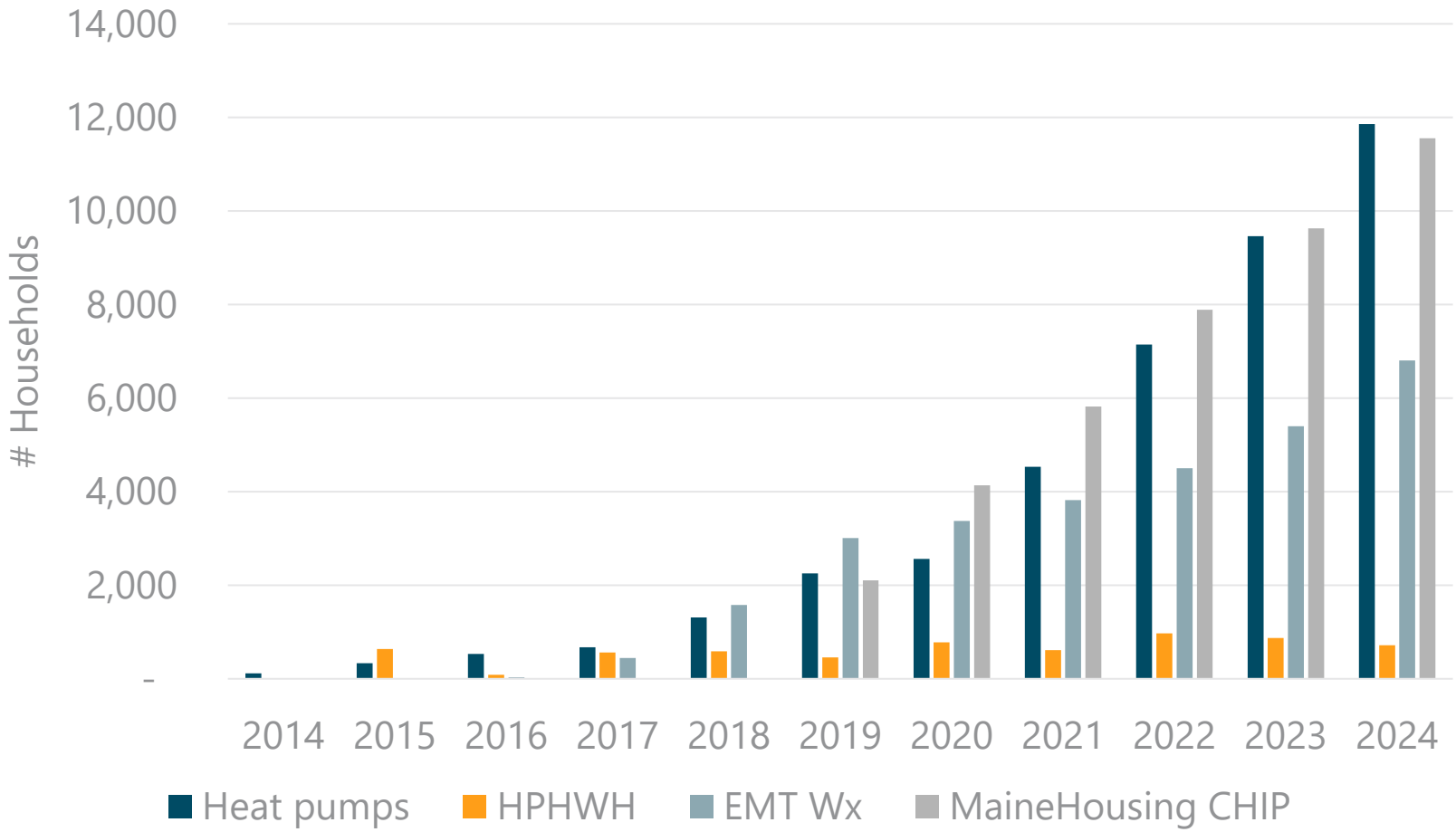
Program Data

- Enrollment in assistance programs is increasing and CAP agencies report increased requests for assistance
- HEAP participation is about 30% eligible HH (waitlist in 2024, demand up 20%)
- LIAP participation is about 50% of eligible HH
- 30% of Versant LIAP accounts carry a credit



Cumulative LI Program Participation

(also 297 LI EV rebates issued
And 2,745 homes weatherized
2015-2023 through WAP)



Key Takeaways

- Electricity is less than half (44%) of home energy costs: *a 4% electricity threshold may be too high considering other fuel costs*
- Energy burdens for LI households are more than double an affordable level (~14%)
- Moderate income HH (60-100% of SMI) are also facing high home energy burdens (6-8%) but limited access to assistance
- Participation in assistance programs is increasing
- Assistance and efficiency *significantly* reduces the gap

Recommendations

- Consider expanding assistance to HH above 60% SMI (e.g., new IRA funding for existing MMH program and new MF)
- Release LIAP credits- switch to monthly discount amount rather than lump sum [Barb says remove this recommendation- redesign the program rather than release these credits]
- Training for utility customer support representatives re: program eligibility and CAP agency services
- Consider growing need for cooling
    - Some discussion of extending LIHEAP to cover cooling costs
- Space heater education
- Move away from unregulated fuel sources may reduce energy burden, prioritize kerosene and coal

Timeline and Next Steps

	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1. Project Management		ERAC		ERAC		ERAC	ERAC	
2. Data Gathering			**M**					
3. Analysis				**M**	**M**			
4. Final Report						**M**	**M**	

Thank you

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Appendix

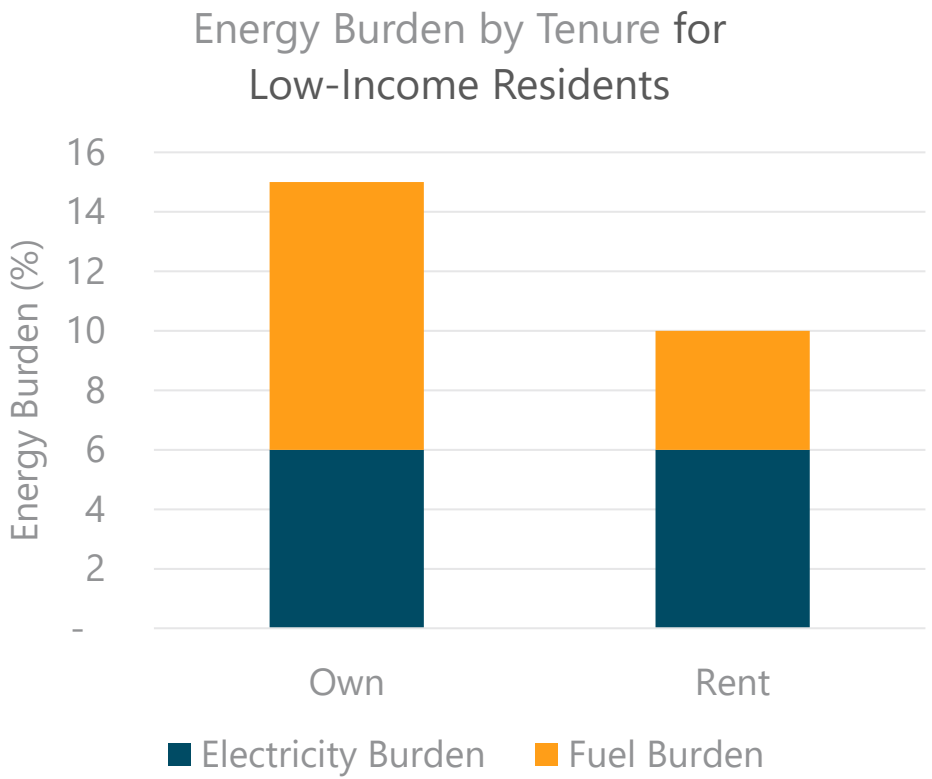
2024 Projected Statewide Affordability Gap

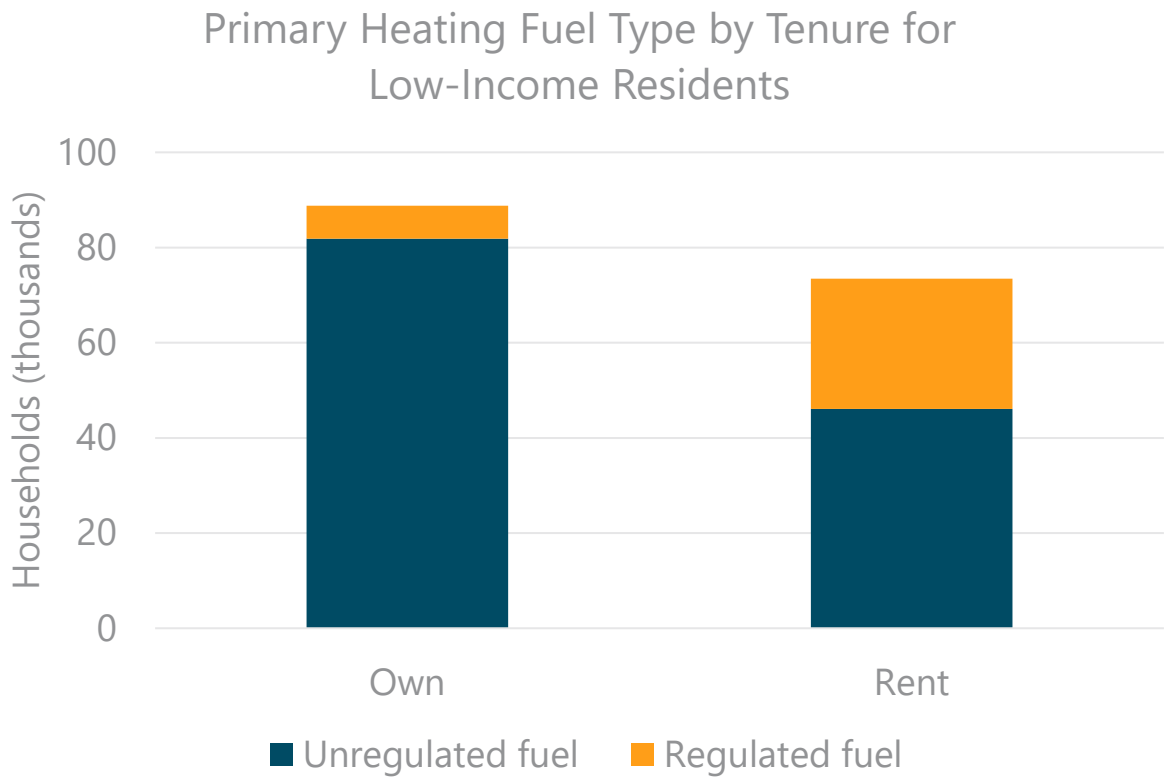
SMI Income Band	Electricity Burden	Natural Gas Burden	Other Fuel Burden	Home Energy Burden	HH Affordability Gap	Statewide Affordability Gap
0-30%	13%	3%	12%	28%	$2,719	$170,619,801
30-60%	5%	1%	5%	11%	$1,833	$185,573,293
60-80%	3%	1%	3%	7%	$716	$47,039,308
80-100%	2%	1%	3%	6%		
100%+	1%	0%	1%	3%		
					Total	**$403,232,402**

*Again, even moderate income HH are facing burdens above the 6% affordability threshold.

Source: DOE LEAD Tool; we adjusted energy prices and income for inflation to reflect years 2020-2024.

Energy Burden and Primary Heating Fuel Types by Tenure for Low-Income Residents





6% Energy Burden Threshold

Originally* based on several assumptions

- Shelter costs (mortgage, rent, energy, etc.) should not exceed 30% of income
- Energy costs should not exceed 20% of shelter costs

Since then, numerous states have adopted 6% as a target within energy affordability policies or assessments (e.g., NYSERDA, CT PUC, OR PUC, IL, CO)

California and Ohio use higher thresholds (8% and 10%)

30% shelter as % of income **x** **20%** energy as % of shelter **=** **6%** energy as % of income

Questions we heard from ERAC members:
- Is 6% a reasonable target? (and 4% for electricity?)
- How/when to account for electrification?

*This ACEEE study points to a 2003 Fisher, Sheehan and Colton Home Energy Affordability Gap Analysis as the origin of the 6% target

Defining Low Income

This study defines low-income as <**60% AMI** similar to upper threshold for HEAP eligibility:

- LIAP eligibility is <150% FPL *or* enrollment in HEAP (if <150% FPL)
- HEAP eligibility is <150% FPL *or* 60% SMI, whichever is greater

2023-2024 Income Limits

	HH size			
	1	2	3	4
150% FPL (17% of state)	$22,590	$30,660	$38,730	$46,800
60% SMI (28% of state)	$32,672	$42,725	$52,778	$62,831
State Median Income	$54,453	$71,208	$87,962	$104,719

150% FPL source: US HHS 2024 Poverty Guidelines
60% SMI source: 2023-2024 HEAP guidelines (e.g., Penquis and HHS.gov)
State Median: US LIHWAP income limits for FY 2024