Maine Energy Burden Study: Early Findings

Electric Ratepayer Advisory Council

August 5, 2024

Early Findings Agenda

1. Review study scope and approach
    - Defining low-income
    - Affordable energy burden threshold
2. Early quantitative analysis
    - Estimates of energy burden
    - Statewide affordability gap
3. Takeaways and Discussion

Analysis continuing in August/September

Draft report in October for ERAC member review (word doc)

Study Scope & Goals

- Characterize household spending & burden statewide and by county for:
  - Electricity
  - Other fuels (fossil fuels and wood)
  - Transportation
- Integrate utility and program data (CMP, Versant, PUC, LIAP, HEAP, EMT, MaineHousing)
- Interviews with stakeholders: program landscape, low-income ratepayer experience, recommendations
- Provide recommendations

Approach

- Estimate energy burden by county and income level, and aggregate statewide (underway)
- Calculate a benefits cliff statewide (underway; we are seeing high energy burdens even in moderate income HH)
- Interviews with partners and Community Action Agencies to understand (a) program landscape and (b) energy burden experiences (mostly complete)

Defining Low Income

This study defines low-income as <**60% SMI** to match 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

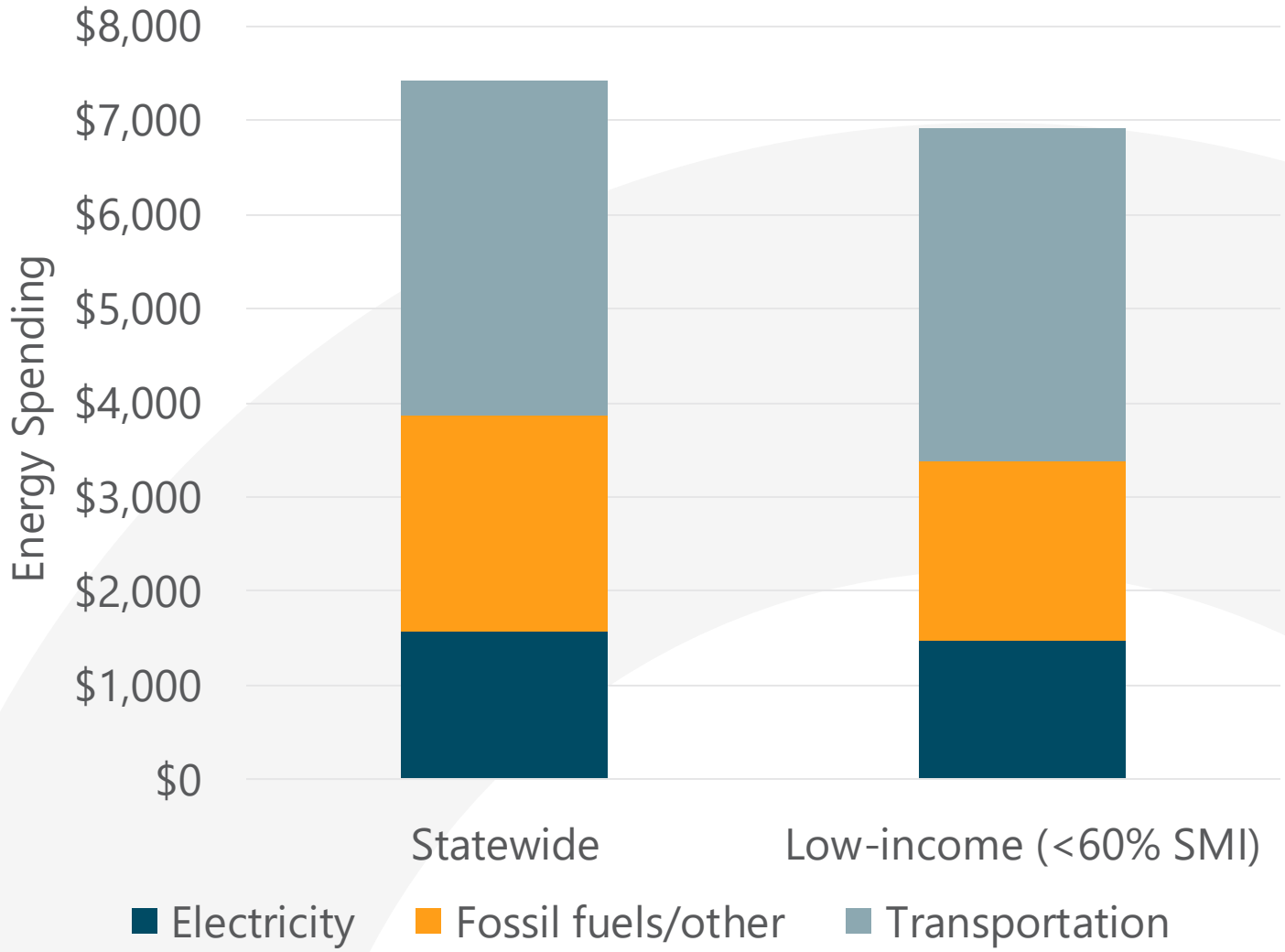
2023-2024 Income Limits

	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

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

- Using a 6% affordability threshold for **all home energy costs** (electricity, fossil fuels and wood)
- The 6% threshold is widely used (e.g., ACEEE, NY, CT, OR, IL, CO) - *see next slide for origin story*
- 2023 ERAC consultant benchmarked several states (see 2023 ERAC Annual Report)

Home Energy Burden =

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

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%)

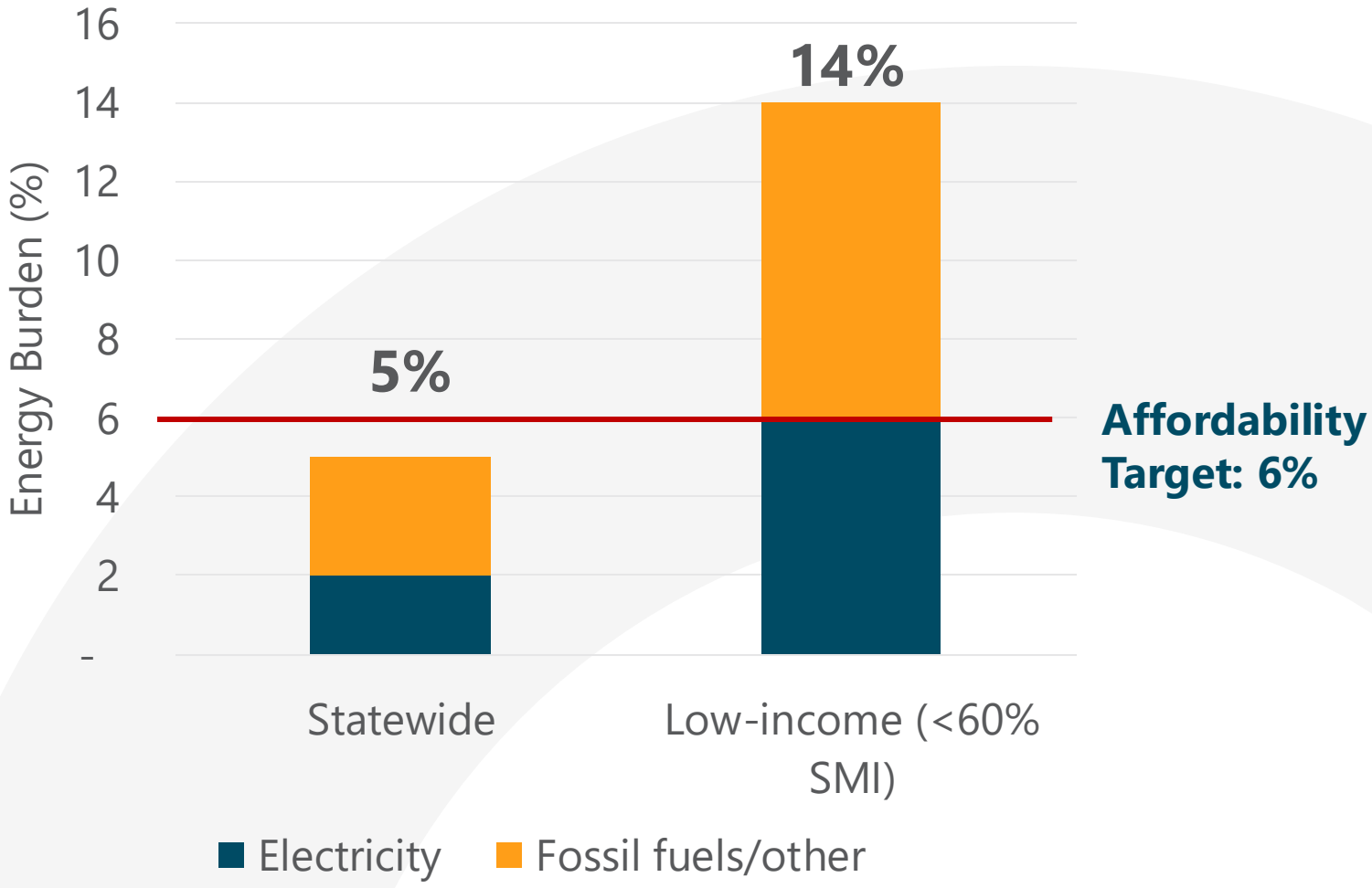
30% shelter as % of income **x** **20%** energy as % of shelter **=** **6%** energy as % of income

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

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

How do energy burden metrics compare?

- **For all incomes,** average energy burden (5%) is just below the affordability target (6%)
- **Low-income** energy burden is more than 2x the affordability threshold for <60% SMI, and about 4x the threshold for <150% FPL
- Low-income burden improved slightly, while overall burden increased slightly

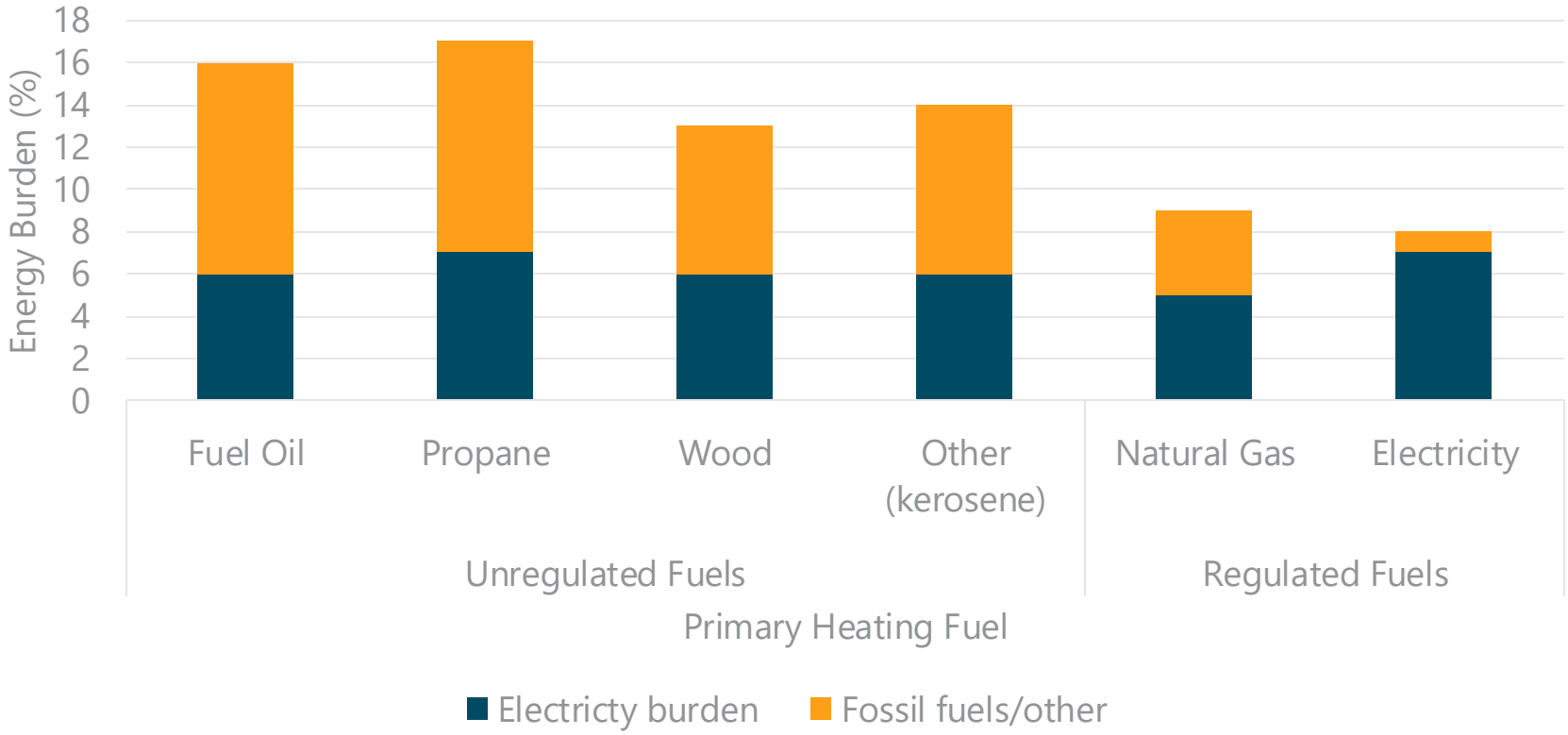
Income Metric	# HH	Average HH Income*	Home Energy Burden (2024 study)	Home Energy Burden (2019 study)
<150% FPL	97,448 (17% of state)	$15,909	20%	19%
<60% SMI	163,980 (28% of state)	$23,776	14%	-
All Incomes	580,172	$91,835	5%	6%

Source: DOE LEAD. 2024 study data is from 2018-2022; 2019 study data is from 2011-2015.
**These are averages for the 2018-2022 period. State median household income was $68,251 and average was $91,599 during 2018-2022 analysis period.*

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

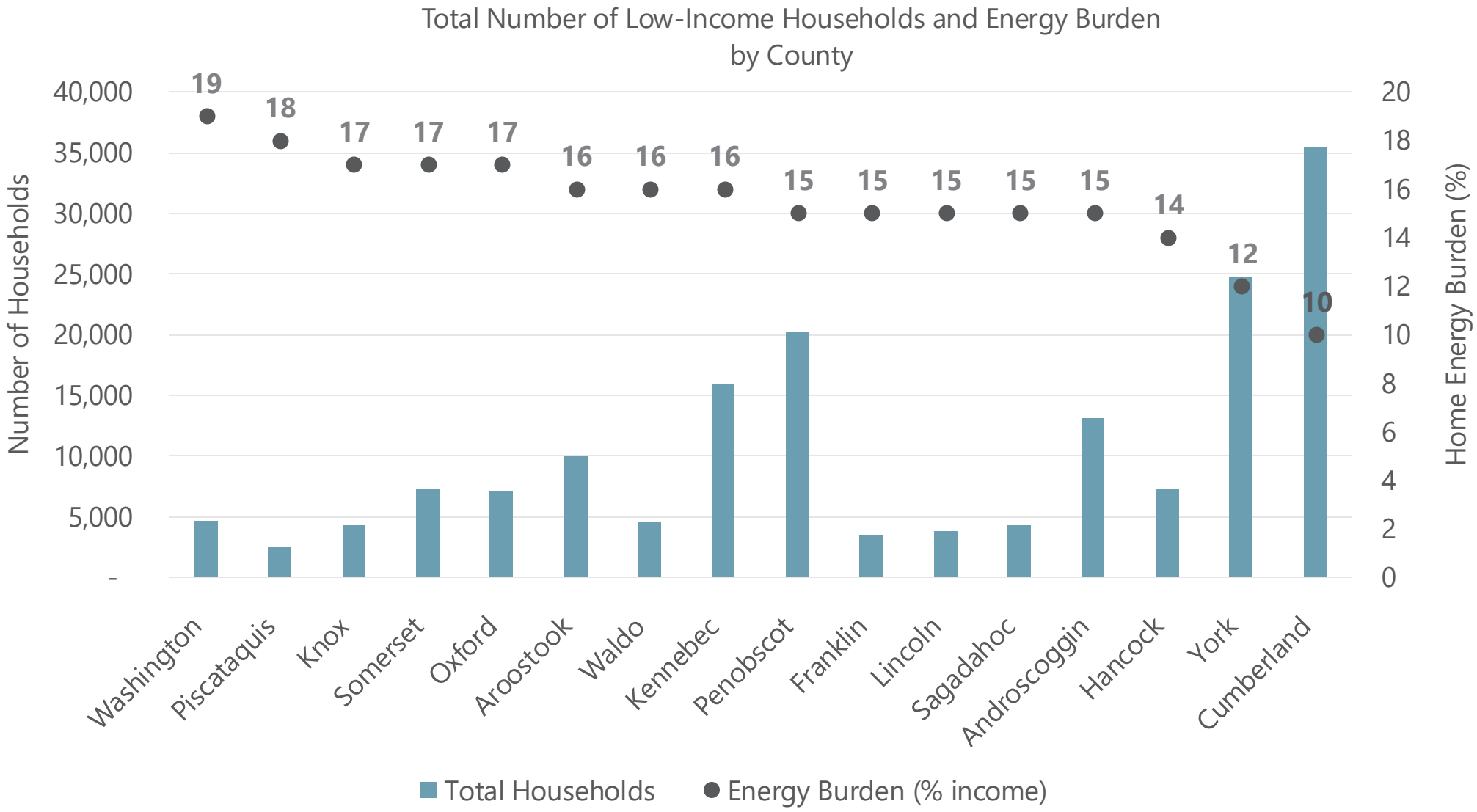
80% of LI HH homes heat w/ unregulated fuels (and about 60% use heating oil)

Energy burden is higher for low-income households with unregulated fuels



Source: DOE LEAD Tool (2018-2022 data)

Low-Income Home Energy Burden by County



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%

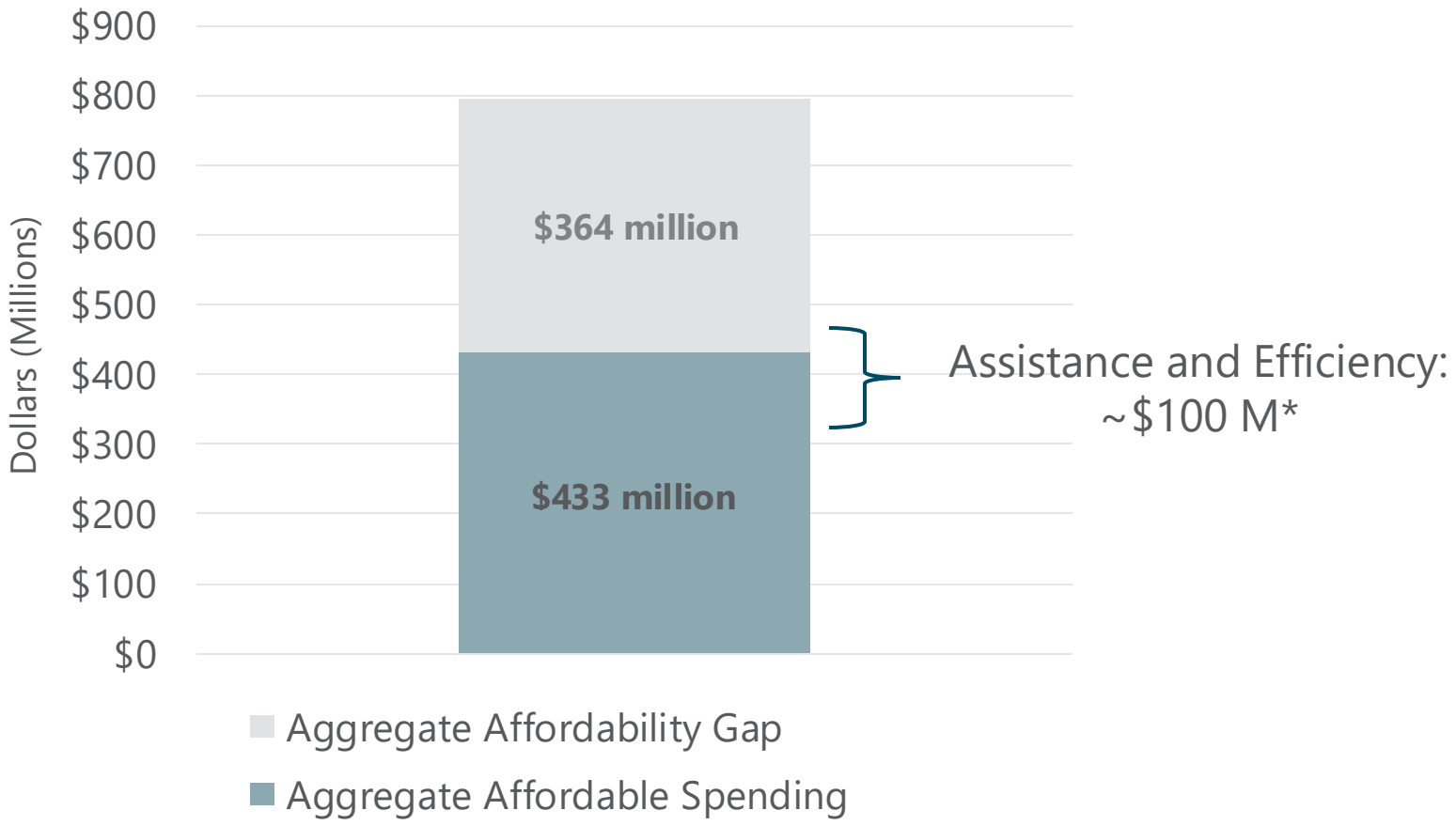
About 25% experience burdens >12%

*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

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

OPA and ERAC members, can you please check and help fill in these 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

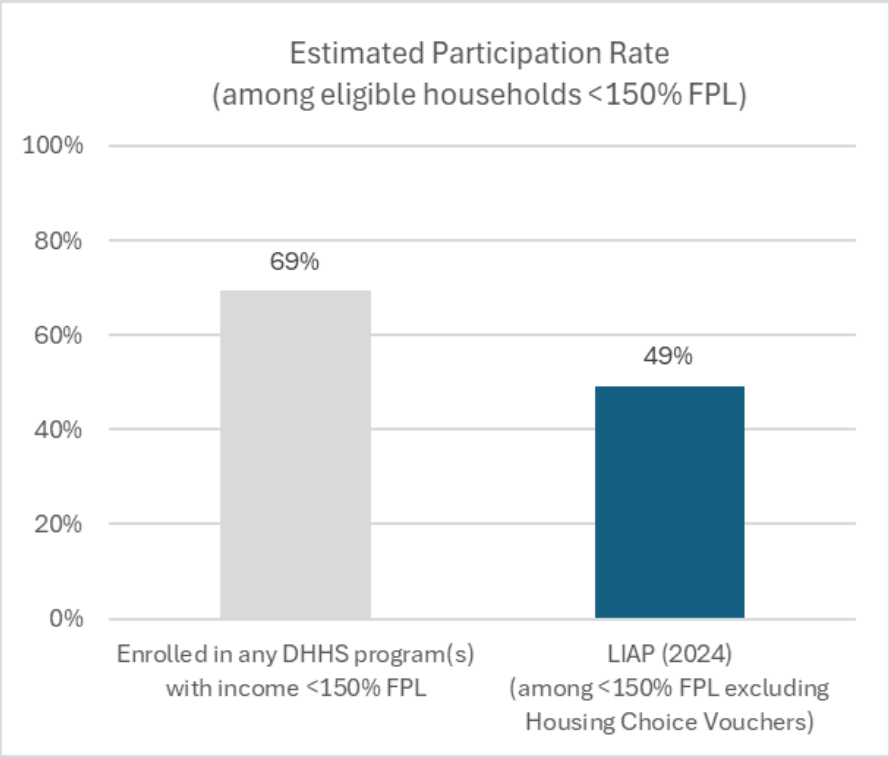
Program	Est. Annual Budget
HEAP (incl. ECIP)	$26.7 M
Low-Income Assistance Program (LIAP)	$22.5 M
Natural Gas Discount Rates	?
Arrearage Management Program (AMP)	$1 M
MaineHousing Weatherization, Heat Pumps, CHIP	$18.3 M
Efficiency Maine Low Income Programs	$34.6 M
Versant PowerMatch	?
Subtotal*	

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

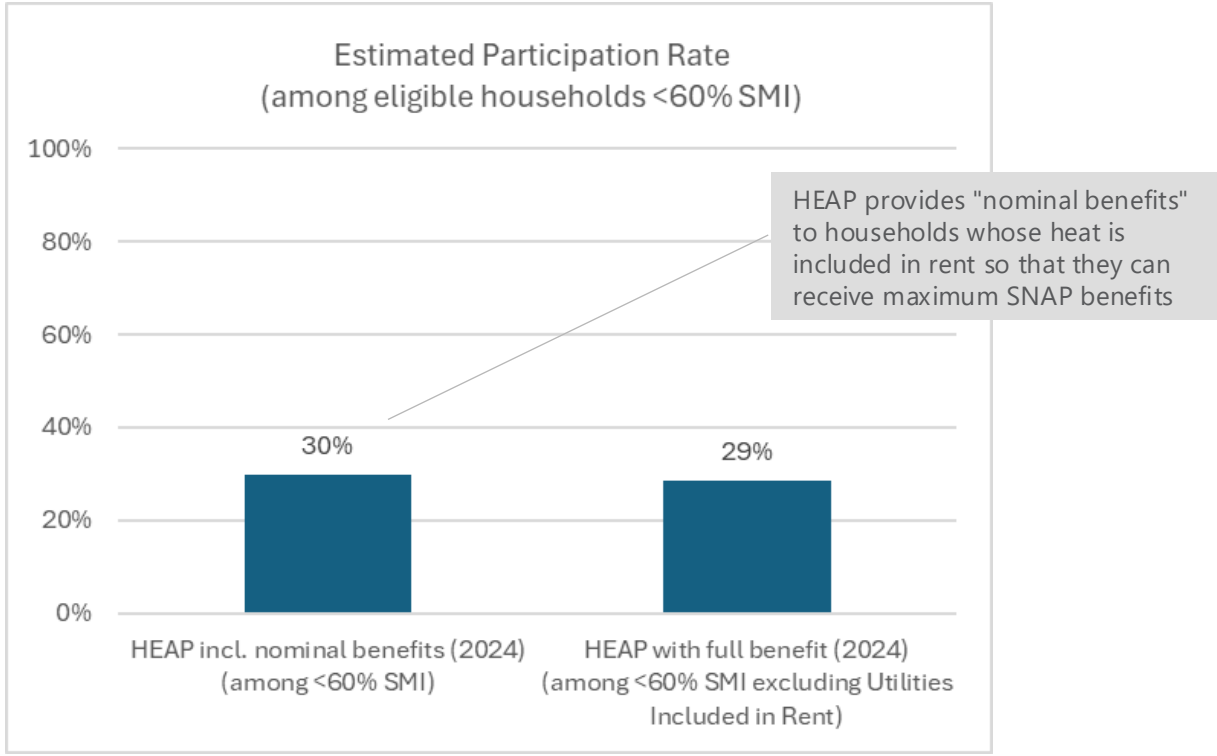
Participation in LIAP and HEAP

LIAP participation is ~50% of eligible households, and 61% of HHs DHHS mailed about eligibility



Sources:
DHHS participants (n=67,573): MPUC Docket 2023-00056
LIAP participants (n=40,973): Derek Davidson, MPUC
Houshold count (n=97,449): DOE LEAD (2018-2022)
Housing Choice Vouchers (n=14,313): HUD Dashboard

HEAP participation is about 30% of households with incomes <60% SMI



Sources:
All HEAP participants (n=49,923): MaineHousing dashboard
HEAP with full benefits (n=42,001): MaineHousing dashboard
Houshold count (n=163,980): DOE LEAD (2018-2022)
Utilities Included in Rent (estimated n~17,000): Census ACS (2018-2022) and DOE LEAD

Moderate Income Households and the Benefits Cliff

What are energy burdens of households who aren't eligible for assistance programs?

Burdens above 60% State Median Income (the HEAP limit):

- 60-80% SMI: About 65,000 HH are facing home energy burdens of **8%**

  Of these, about 39,000 have incomes the 60% *state* median income limit but below 60% of their *area* median income (i.e., low-income within county but not state)

- 80-100% SMI: About 63,000 HH at edge of affordability with **6%** energy burdens

About 127,000 residential households carry past-due CMP & Versant balances each month; utilities report that many are **not** low-income.

"Benefits Cliff": Income level at which households transition from being eligible/enrolled in multiple assistance programs (e.g., MaineCare, SNAP, TANF, housing vouchers, HEAP) to few, and may experience higher cost burden

Question for OPA or ERAC: Do you have a preferred definition for Moderate Income? (Is 60-100% SMI or AMI okay?)

Key Takeaways (so far!)

- Transportation fuel costs are similar to home energy costs annually (~$3,500 for low-income households)
- 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%)
- LIAP uptake is relatively strong (42%) while fewer eligible households are enrolled in HEAP
- Aggregate affordability gap is large compared with total benefits available

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	

Sept 12 meeting with MeCAP Energy Council

QA/QC; integrating utility and state program data (incl. CMP, Versant, MaineHousing, EMT)

Draft report in October for all ERAC members to review

Thank you

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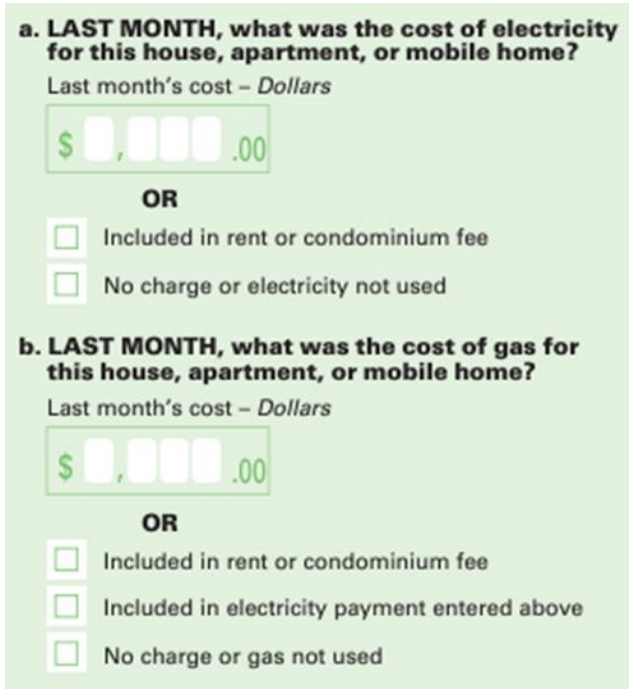
Appendix

Data

- DOE LEAD Tool
    - Primary data set for HH energy spending and household income
    - Recently updated through 2022 (captures 5 years estimates, 2018-2022)
    - We also estimated spending and burden through 2024
    - Cross-referencing with the Residential Energy Consumption Survey and the NREL ResStock tool
- NREL SLOPE Tool (Transportation)
- US Census data (demographics)
- Program data (requested, some received- thank you!)
- Interviews (mostly complete, MeCAP scheduled September 12th)
- Regulatory Filings and annual reports

Energy expenditures from DOE LEAD are based on self-reported estimates

- From American Community Survey (ACS) which samples 2-4% of addresses per year (~11% over 5 years; more in smaller areas)
- Some customers may account for discounts or credits if they "experience" them as part of monthly costs (e.g., LIAP credits; savings from efficiency or heat pumps)
- Others may not account for assistance received after the billing period (e.g., HEAP received later in season)
- While these are calibrated/validated to some utility data, the underlying estimates are from self-report



a. LAST MONTH, what was the cost of electricity for this house, apartment, or mobile home?

Last month's cost – *Dollars*

$, .00

OR

☐ Included in rent or condominium fee

☐ No charge or electricity not used

b. LAST MONTH, what was the cost of gas for this house, apartment, or mobile home?

Last month's cost – *Dollars*

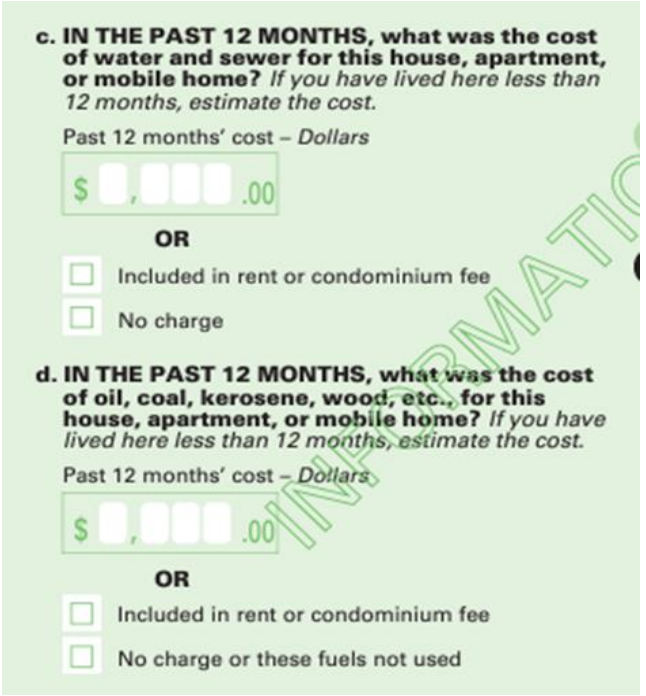
$, .00

OR

☐ Included in rent or condominium fee

☐ Included in electricity payment entered above

☐ No charge or gas not used



c. IN THE PAST 12 MONTHS, what was the cost of water and sewer for this house, apartment, or mobile home? *If you have lived here less than 12 months, estimate the cost.*

Past 12 months' cost – *Dollars*

$, .00

OR

☐ Included in rent or condominium fee

☐ No charge

d. IN THE PAST 12 MONTHS, what was the cost of oil, coal, kerosene, wood, etc., for this house, apartment, or mobile home? *If you have lived here less than 12 months, estimate the cost.*

Past 12 months' cost – *Dollars*

$, .00

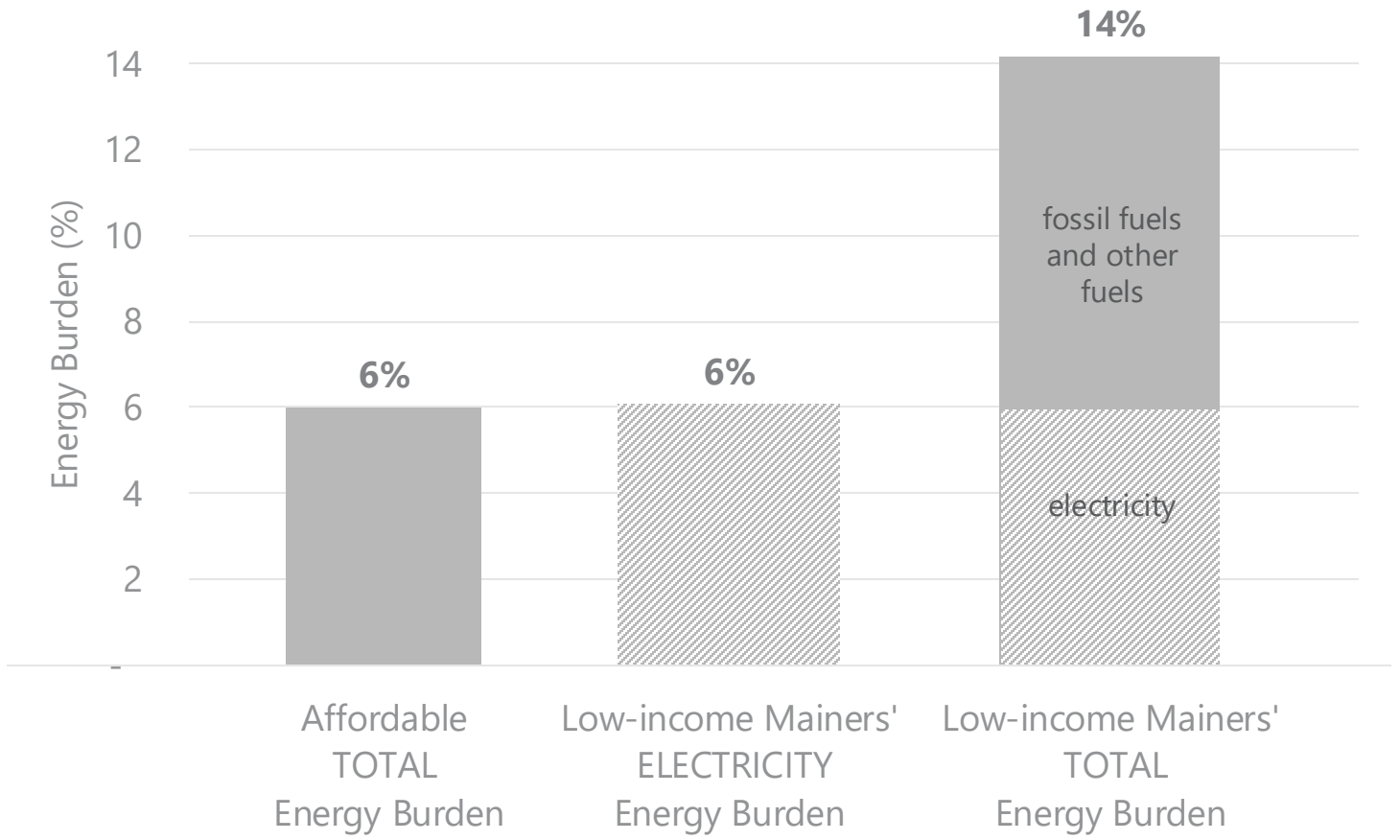
OR

☐ Included in rent or condominium fee

☐ No charge or these fuels not used

DOE Lead Methodology: https://lead.openei.org/docs/LEAD-Tool-Methodology.pdf

Energy Burden – What is Affordable?



For low-income Mainers, the cost of electricity alone meets the threshold for affordable energy burden for all fuels.

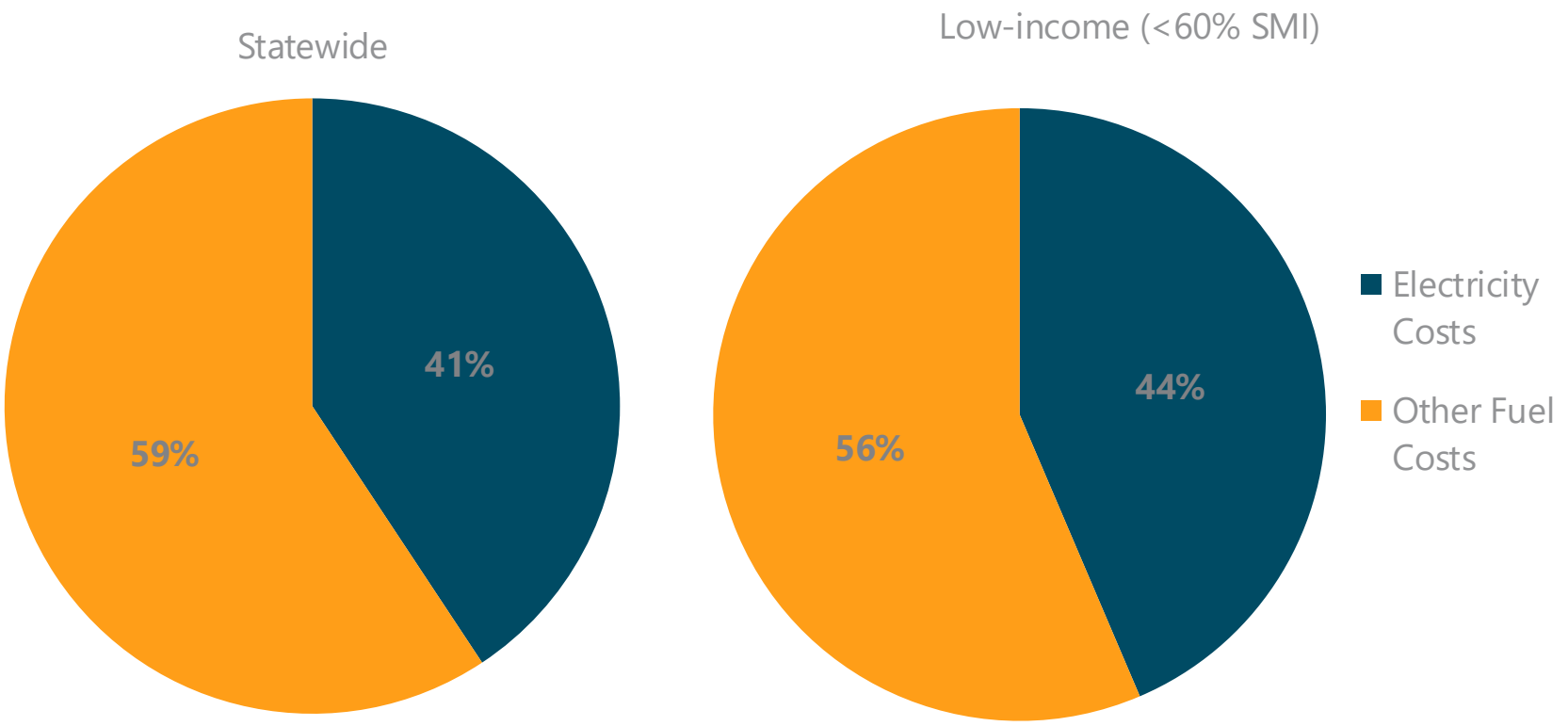
A quarter of Maine households are experiencing total energy burdens more than twice what is considered affordable.

Example Affordability Thresholds

Source: 2023 ERAC Annual Report

State	Electricity Affordability Percentage of Income	Natural Gas Affordability Percentage of Income	Comments
Maine	4%		4% is the electricity affordability percentage used for LIAP. Oil and natural gas heat costs are assisted by LIHEAP.
Rhode Island	3% with no electric heat 6% with electric heat		Proposed legislation.
Connecticut	3% implied	3% implied	The program is 6% affordability total for all building energy costs.
New Jersey	2% with no electric heat 4% with electric heat	2%	The program is 4% affordability total for electricity and natural gas.
Ohio	5% with no electric heat 10% with electric heat	5%	The program is 10% affordability total for electricity and natural gas.
Illinois	3% implied	3% implied	The program is 6% affordability total for electricity and natural gas.
Colorado	3% implied	3% implied	The program is 6% affordability total for electricity and natural gas.
California	4%	4%	This is a four-year pilot program begun in 2021 covering 15,000 customers in each of four utilities.
Source: Internet research			

Energy Burden – What is Affordable?



Electricity accounts for about 40% of total energy costs for all Mainers, and 44% among low-income households.

Applying this value to the affordability target of 6% total energy burden equates to an expected electricity burden of roughly 2.5%-3%

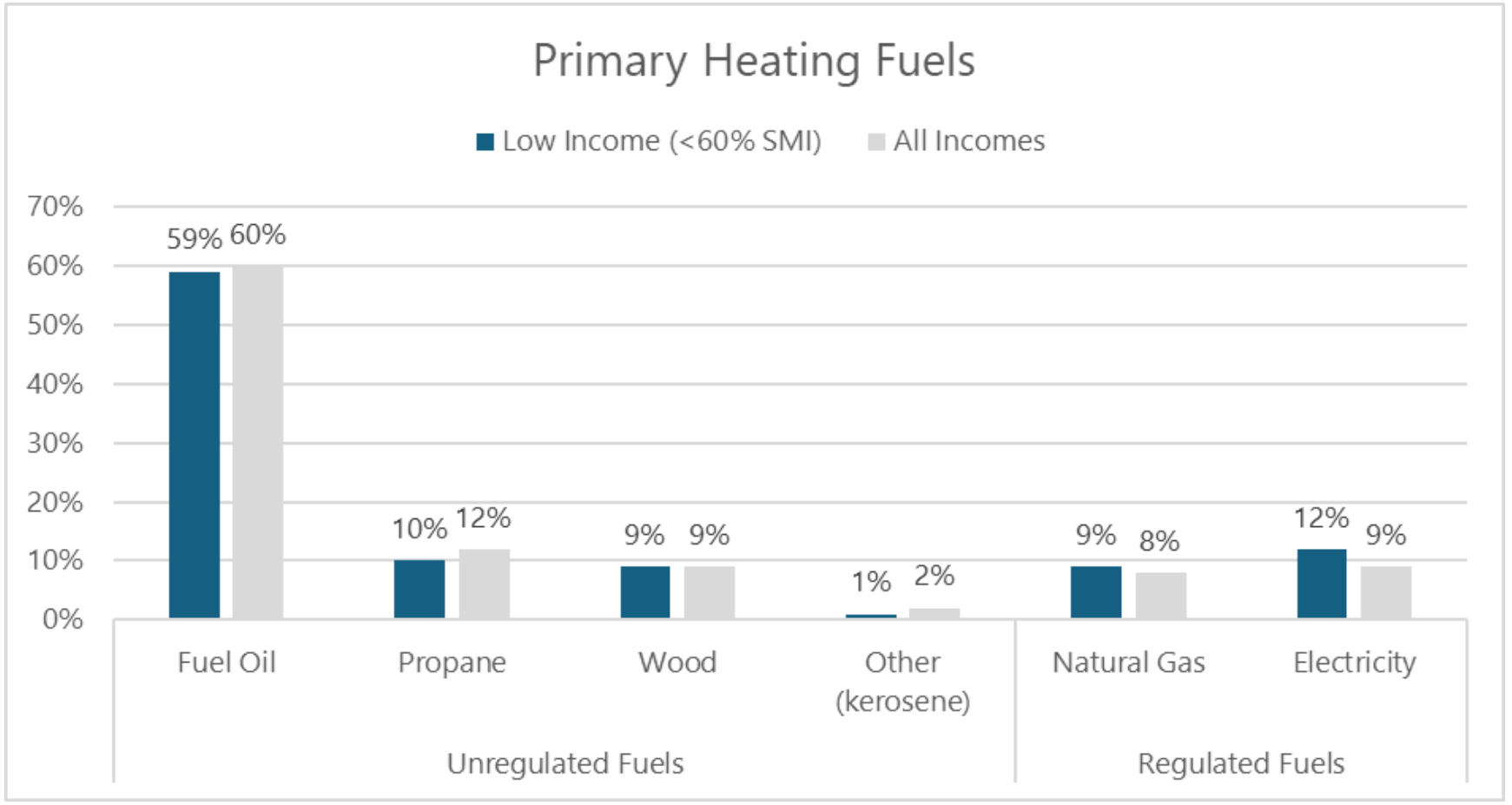
2024 *Projected* Statewide Affordability Gap

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**

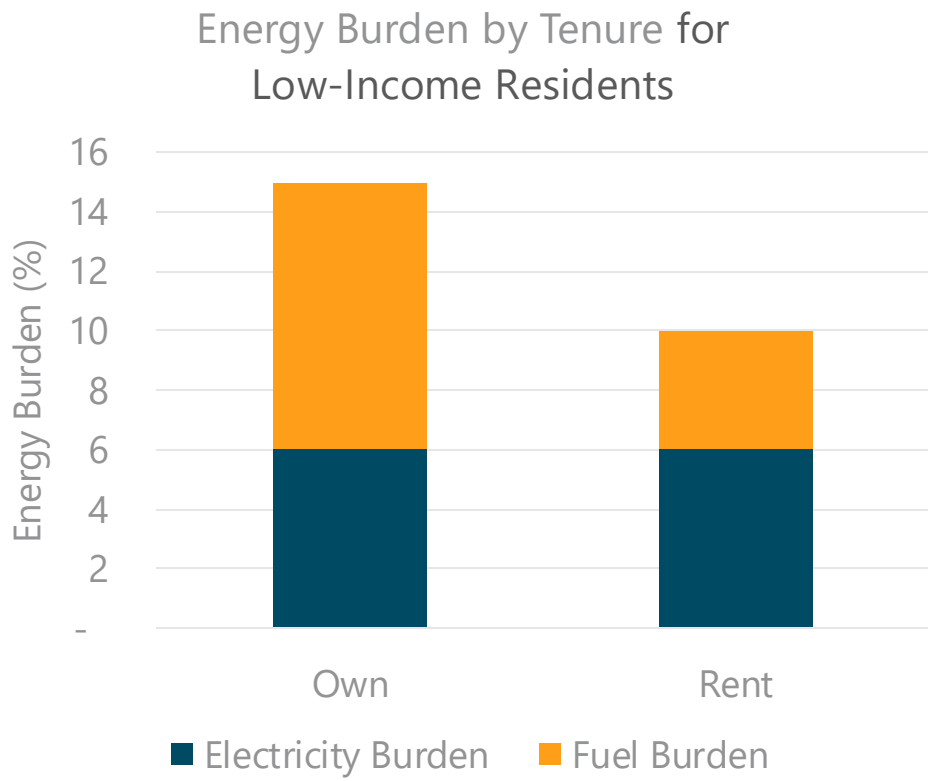
*Again, even moderate income HH are facing burdens above the 6% affordability threshold.

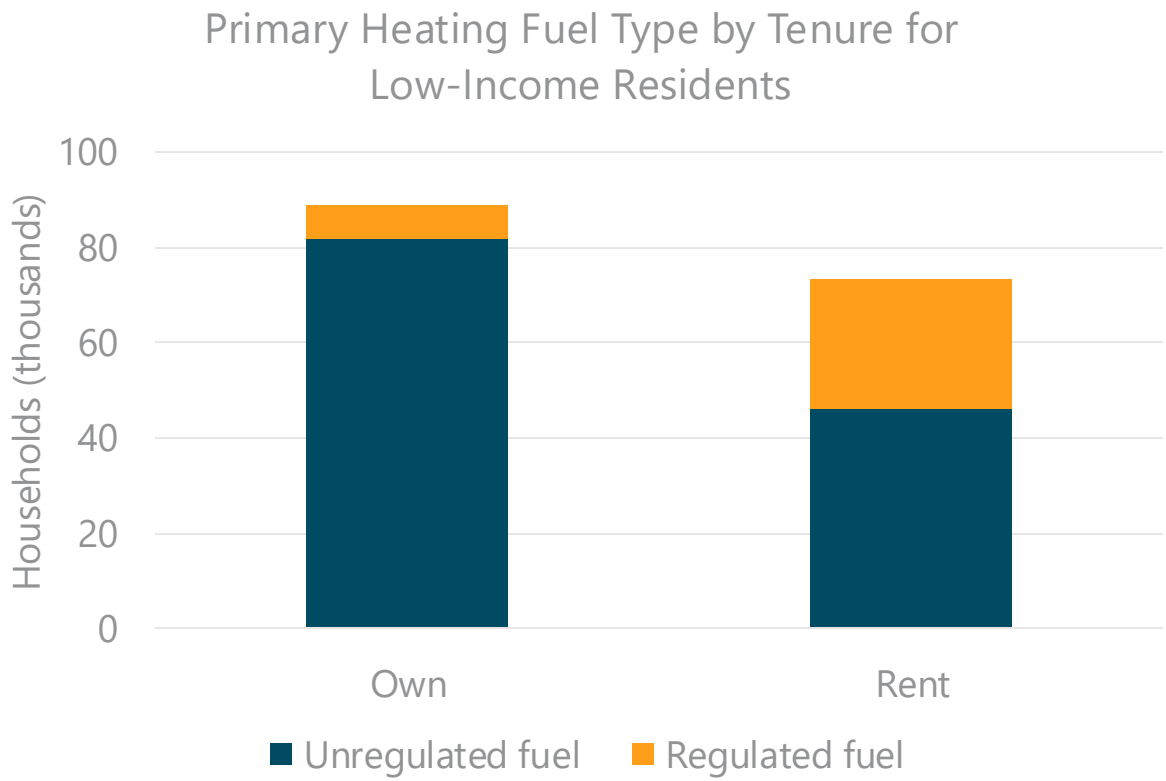
Source: DOE LEAD Tool; we adjusted energy prices and income for inflation to reflect years 2020-2024.

Heating Fuels



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





Suggestions we've heard (in stakeholder interviews)

Program Opportunities

- Recognize existing payment management programs - for some customers these work well.

Funding

- Release LIAP funds on Versant accounts that are overpaid (credits exceed billing)

Data/Analysis Needs

- Heat pump cost impacts among low-income customers (including partial and whole-home installation)
- Estimate / consider future cooling cost burden
- Further disaggregation of data (e.g., consideration of women 75+)