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Center for Energy Poverty and Climate



climateworks
FOUNDATION

National Cooling Standards Initiative

State and Territory Energy Office Summer Webinar Series:
Cooling Technology, State Climate Plans, and Low-Income Households

**Session 1: Preview of CEPC/NASEO Report:
“Beating the Heat: Recommendations and Considerations for States to
Support Cost-Effective Residential Cooling”**

Tuesday, June 4, 1:00 p.m. – 2:30 p.m. ET

Seminar Series Introduction

The **Center for Energy Poverty and Climate (CEPC)**, the **National Association of State Energy Officials (NASEO)**, and the **ClimateWorks Foundation** will host a series of webinars discussing several topics related to state energy plans, cooling technology, and low-income populations. Each session will include presentations by expert speakers that lay out the problem and potential solutions, followed by a moderated discussion between participants and speakers.

CEPC is working with the ClimateWorks Foundation on the **National Cooling Standards Initiative** to bring together leaders in residential energy efficiency to improve access to cooling for millions of households.

CEPC Website: <https://energyprograms.org>

NASEO Website: <https://naseo.org>

ClimateWorks Clean Cooling Collaborative Website: <https://www.cleancoolingcollaborative.org/>

Upcoming Webinars in the Series

Session 2: Protecting Vulnerable Populations from Extreme Heat

Thursday, June 13, 1:00 p.m. – 2:30 p.m. ET

In this session, experts in medicine, urban planning, and public health research will discuss the ways in which low-income populations are even more vulnerable to the effects of extreme heat due to lack of adequate cooling. The experts will also highlight potential avenues for State and Territory Energy Offices to work alongside both federal and local governments to address and prepare for the health risks associated with extreme heat.

Session 3: State Examples of Comprehensive Affordable Cooling Strategies

Thursday, June 20, 1:00 p.m. – 2:30 p.m. ET

In this session, State and Territory Energy Officials will present on the ways in which they are currently addressing the need for affordable cooling in their states, including developing comprehensive extreme heat preparedness plans, conducting needs assessments that prioritize low-income and vulnerable populations, exploring community-level electrified thermal energy solutions, and supporting the funding and financing of widely deploying energy efficient heat pumps.

Session 4: Funding & Financing the Energy Transition, Braiding Federal & State Funds

Tuesday, July 2, 1:00 p.m. – 2:30 p.m. ET

In the last session of this four-part webinar series, experts will discuss the various federal and state programs that can be braided to fund and finance highly efficient cooling equipment and supportive energy efficiency upgrades for income-constrained households.

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*National Association of
State Energy Officials*



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National Cooling Standards Initiative

Mark Wolfe, Co-Director

NEADA Energy Hardship Report

Key Findings

Energy prices and inflation have begun to stabilize since their high points during the middle of both the COVID-19 pandemic along with international instability due to the Russian invasion of Ukraine, the end of pandemic era aid and slow real wage growth has kept many families in a similarly precarious position.

Multiple factors like utility arrears and consumer debt figures indicate that vulnerable families are not experiencing the benefits of the post-pandemic recovery.

The report is divided into three sections: Prices and Energy Burden, Arrearages and Debt, and LIHEAP Outlook.

Key Findings:

- Energy prices have begun to stabilize and come down from their mid-pandemic highs, year-over-year energy prices, as of November, have decreased by 9.8%. Additionally, the average household is forecasted to spend \$868 this winter heating season, down from the pandemic era high of \$951 during the winter of 2022-2023.
- At the same time, the cost of summer cooling has been increasing rapidly. NEADA estimates that, on average across the U.S., summer cooling will cost 7.9% more per household for June-September 2024 than summer cooling for June-September 2023, from \$661 in 2023 to \$719 in 2024.
- Federal funding for LIHEAP this year is only adequate to help about one out of six eligible households and about 80% of program funds are used for heating, leaving only 20% available for home cooling despite predictions of another summer of unprecedented high temperatures.
- The percentage of low- and moderate-income households who have reduced spending on necessities has risen from 50.7% to 51.5% from October 2022 to October 2023, while the percent of those households that were unable to pay an energy bill fell to 35.9% from 36.5%.
- Preliminary forecasts show that FY 2023 saw a record number of households receiving LIHEAP support with an estimated 7.2 million households receiving some support.
- Utility arrears are forecasted to reach over \$20 billion as of the end of December 2023, the highest level since NEADA began tracking the figure at the beginning of the pandemic.
- About 21.2 million households (1 out of 6) are estimated to be under utility arrears.

Winter heating costs are expected to fall by 12.1% this winter compared to the winter of 2022-2023. Natural Gas sees the greatest drop, 21.2% in expenditures.

Home heating expenditures in the winter of 2023-2024 are projected to be lower than the previous year; however, expenditures continue to be 14.2% higher than the beginning of the pandemic.

Average Cost of Home Energy 2020-21 to 2023-24

Average Expenditure is a weighted average of all home heating sources, using the number of households by energy type.

Winter Heating Season	Electricity	Natural Gas	Propane	Heating Oil	Average Expenditures
2020-21	\$917	\$514	\$1080	\$1093	\$725
2021-22	\$974	\$658	\$1527	\$1708	\$852
2022-23	\$1078	\$763	\$1381	\$1723	\$951
2023-24	\$1024	\$602	\$1287	\$1502	\$836
\$ Difference 23-24 to 22-23	-\$55	-\$162	-\$94	-\$221	-\$115
% Difference 23-24 to 22-23	-5.1%	-21.2%	-6.8%	-12.8%	-12.1%

Source: EIA • Created with Datawrapper

Adjusted for inflation, winter heating costs are expected to fall by 14.5% this winter compared to the winter of 2022-2023. Natural Gas sees the greatest drop, 23.3% in expenditures.

Home heating expenditures in the winter of 2023-2024 are projected to be lower than the previous year, with expenditures 1.5% lower than the beginning of the pandemic.

Average Cost of Home Energy 2020-21 to 2023-24 (Constant Dollars, Adjusted for Inflation)

Average Expenditure is a weighted average of all home heating sources, using the number of households by energy type.

Winter Heating Season	Electricity	Natural Gas	Propane	Heating Oil	Average Expenditures
2020-21	\$1073	\$602	\$1264	\$1280	\$849
2021-22	\$1051	\$710	\$1647	\$1843	\$919
2022-23	\$1108	\$785	\$1420	\$1771	\$978
2023-24	\$1024	\$602	\$1287	\$1502	\$836
\$ Difference 23-24 to 22-23	-\$85	-\$183	-\$133	-\$269	-\$142
% Difference 23-24 to 22-23	-7.7%	-23.3%	-9.3%	-15.2%	-14.5%

**inflation rate calculated from march of that year compared to most recent CPI (2/24)*

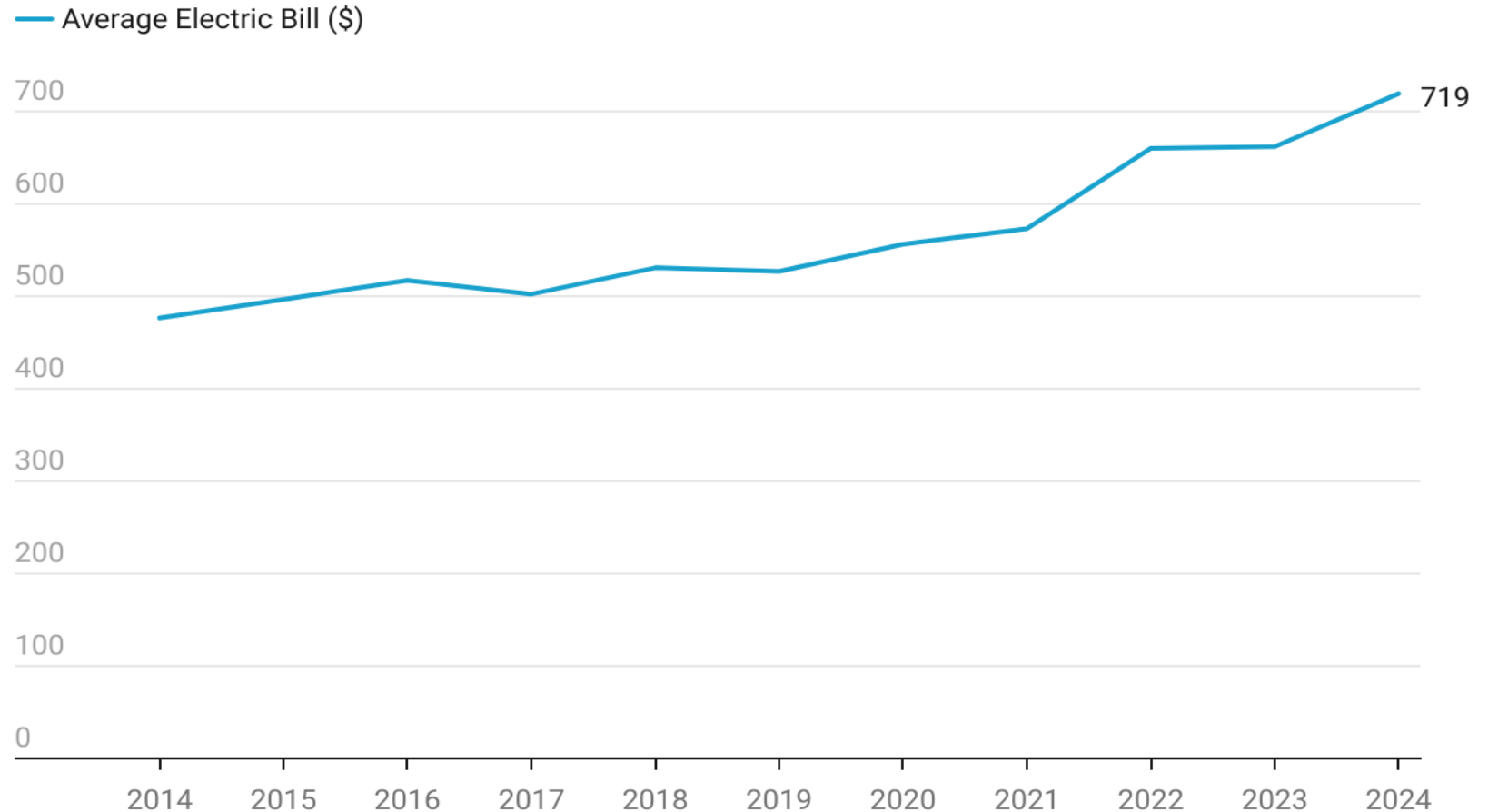
Source: EIA • Created with Datawrapper

Summer Cooling

NEADA and CEPC estimate that the cost of electricity this summer (during the core cooling months of June-September) will increase by 7.9% across the United States to an average of \$719, up from \$661 during the same period last year.

These estimates could, in fact, *understate* the final costs of home cooling this summer if temperatures continue to reach record levels.

Average US Electric Bill (June - September)

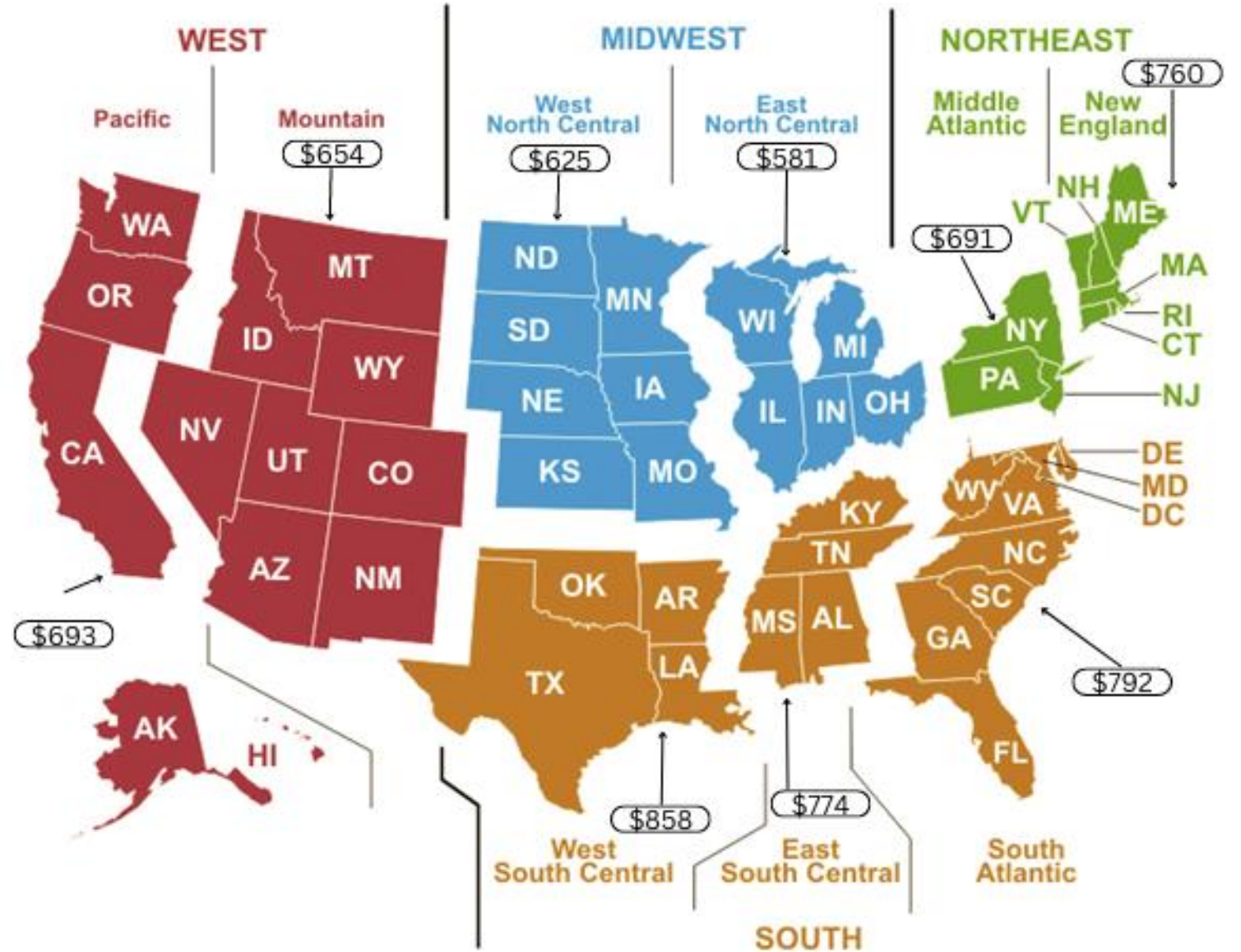


Source: EIA • Created with Datawrapper

NEADA Energy Hardship Report

Regions that NEADA and CEPC have estimated to have the largest increase in costs of summer cooling for 2024 are the Mid-Atlantic, Pacific, and East South Central, broken down according to the map seen here.

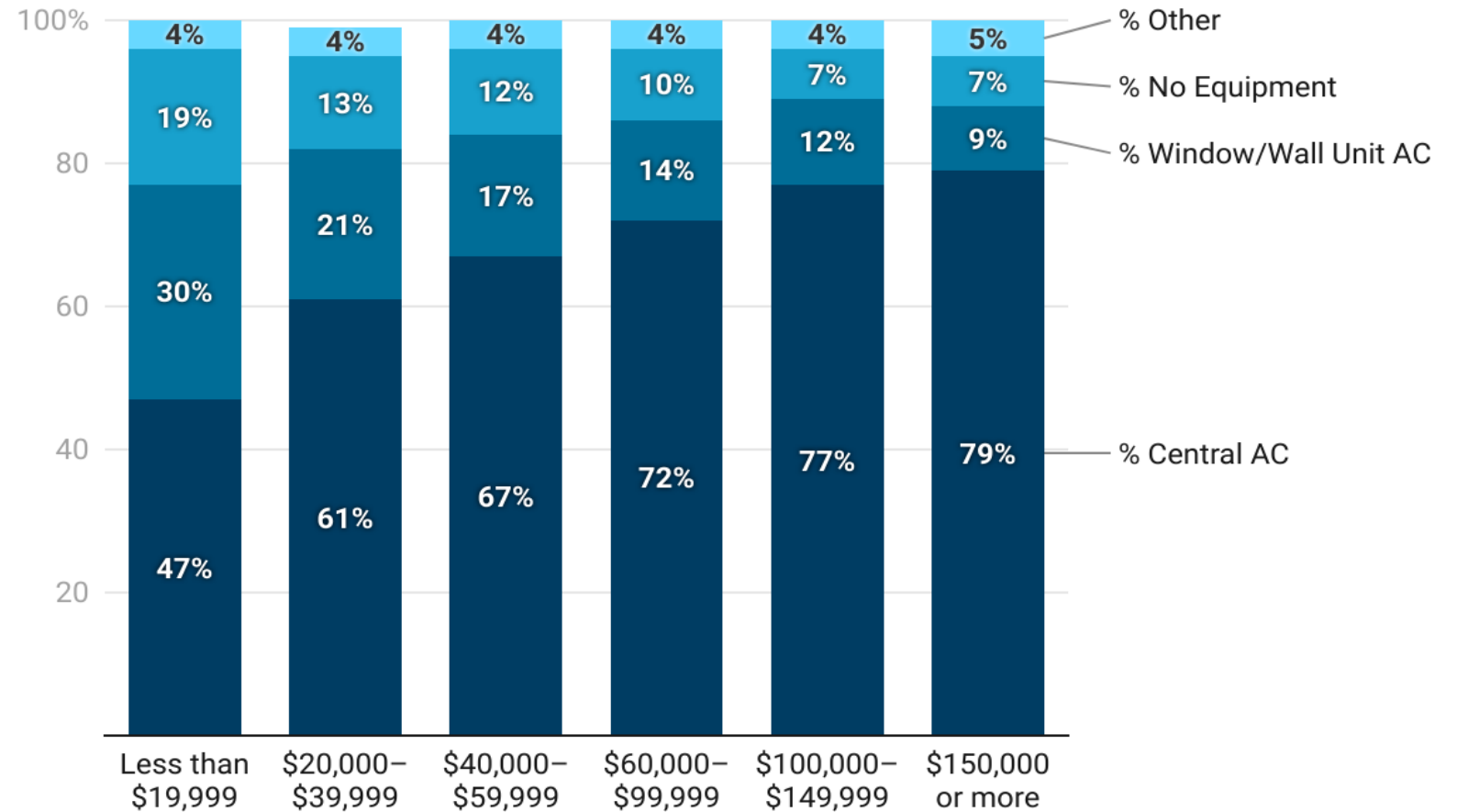
- Mid-Atlantic: \$691, up from \$606 in 2023, 12.2% increase
- Pacific: \$693, up from \$609 in 2023, 12.2% increase
- East South Central: \$774, up from \$695, 10.1% increase



Access to air conditioning during the summer months is crucial due to the health consequences of prolonged exposure to extreme heat.

However, low-income households are disproportionately without access to air conditioning, or only have access to window/wall units that are known to be less effective at cooling spaces in an energy-efficient (and fast) manner.

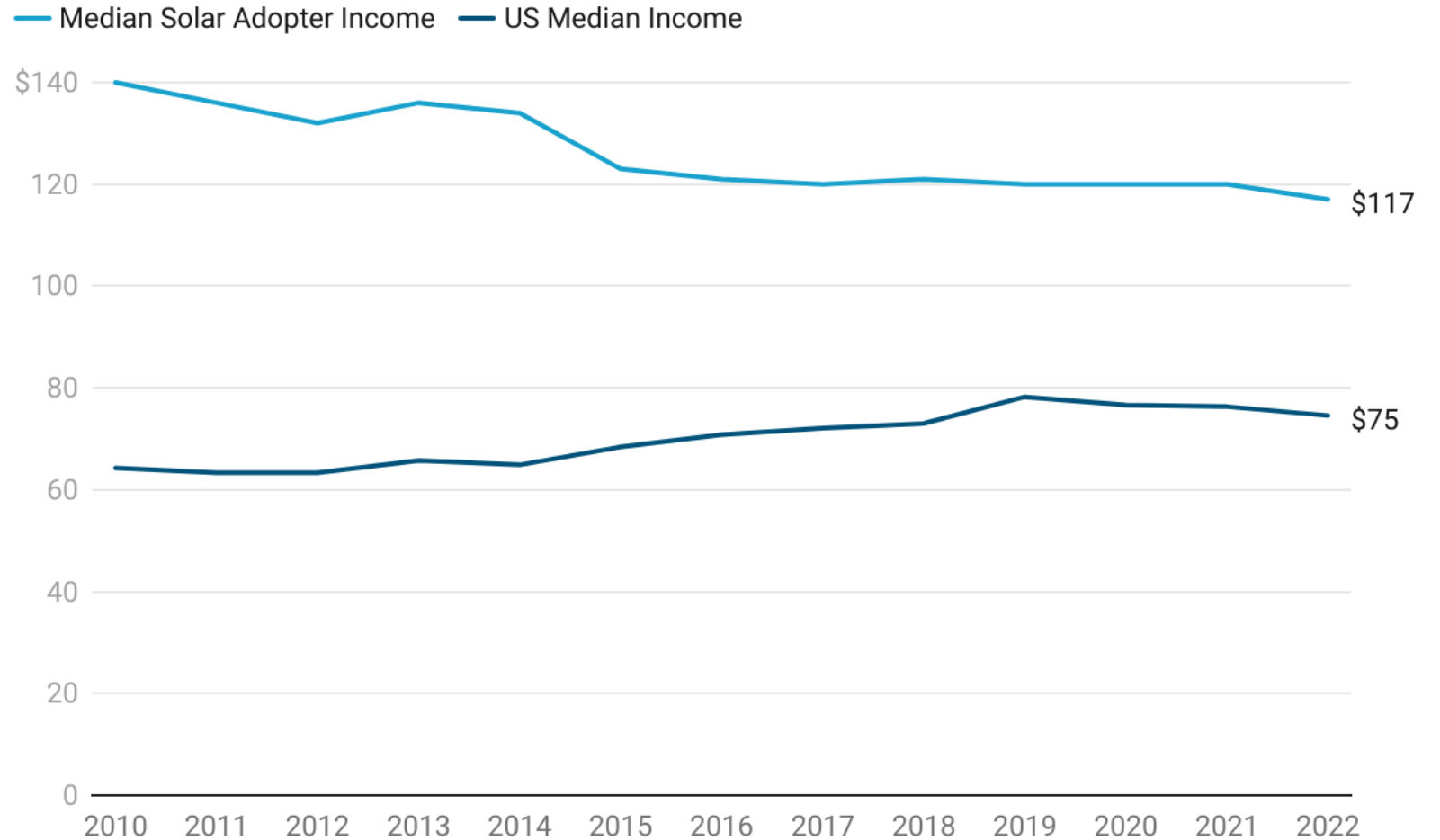
AC Equipment Type by Income



Source: EIA RECS • Created with Datawrapper

When taking the data on AC Equipment by Income in conjunction with median income data for households adopting solar power, it is clear that low-income households are being left behind in or, worse, entirely left out of the energy transition.

Median Solar Adopter Income VS US Median Income



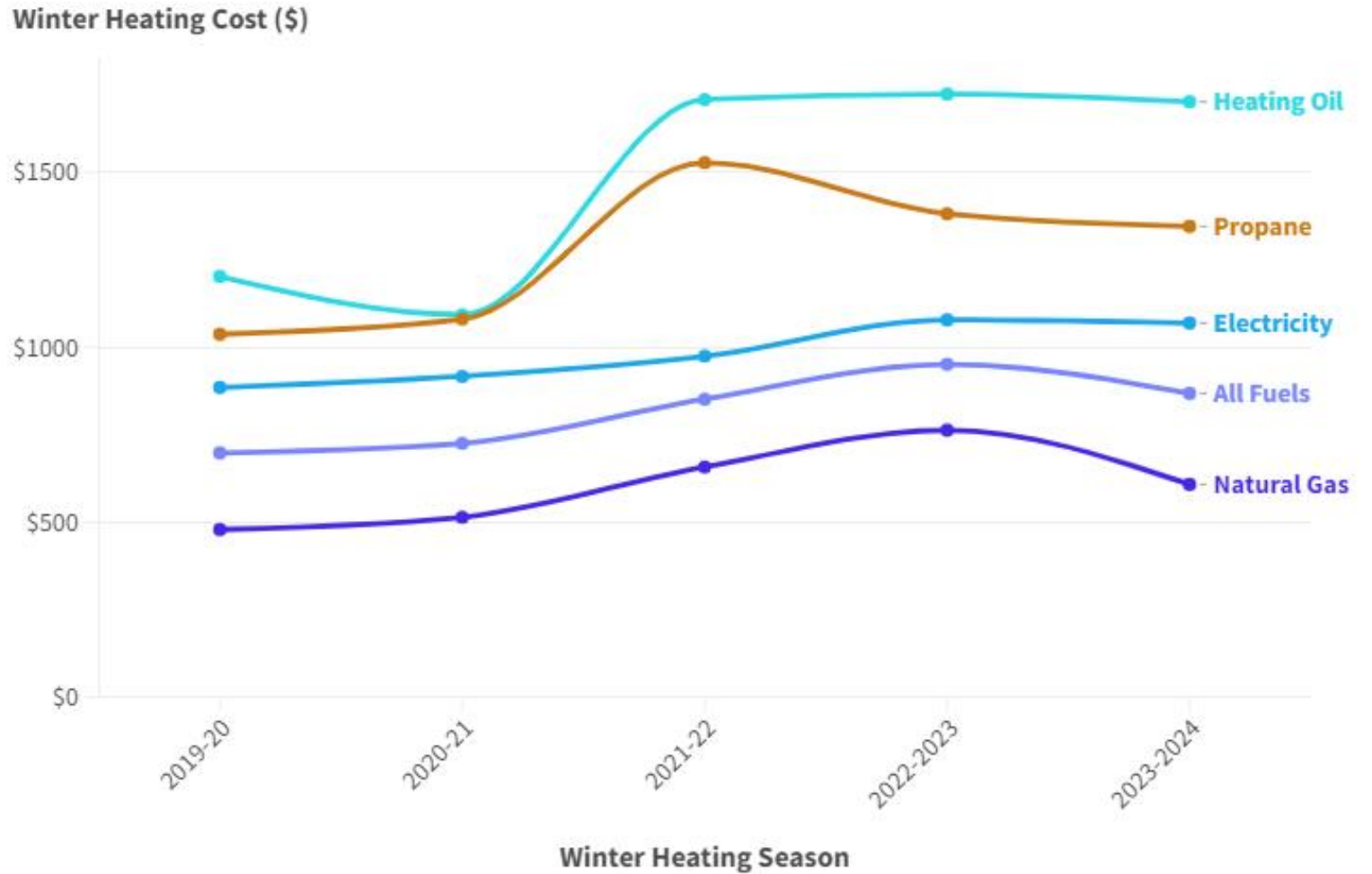
**Income in Thousands*

Source: Berkely Lab • Created with Datawrapper

While we are seeing an increase in summer cooling due to unprecedented levels of extreme heat and long-lasting heatwaves, winter heating prices are stabilizing.

We are seeing neither an increase nor a decrease in winter heating prices – particularly from 2022-2023 to 2023-2024 – despite unpredictable global events that disrupt fuel access and climate change.

Winter Heating Costs 2019 to 2024



Source: EIA

This table shows historical heating expenditure data by year and fuel type.

Expenditures are unadjusted for inflation.

Estimated Winter Heating Cost by Year

Winter Heating Season	Natural Gas	Electricity	Heating Oil	Propane	All Fuels
2018-19	\$528	\$927	\$1,386	\$1,336	\$751
2019-20	\$479	\$885	\$1,202	\$1,037	\$698
2020-21	\$514	\$917	\$1,093	\$1,080	\$725
2021-22	\$658	\$974	\$1,708	\$1,527	\$852
2022-23	\$763	\$1,078	\$1,723	\$1,381	\$951
2023-24	\$602	\$1,024	\$1,502	\$1,287	\$836

Source: EIA • Created with Datawrapper

Across all demographic categories, the percentage of households unable to pay their energy bills at least one month in the last year **increased by at least 2.7%.**

The largest increase was seen with households of color, which increased by 4.4%.

Percent of Households Unable to Pay Energy Bill

House was unable to pay an energy bill or unable to pay the full bill amount, at least one month in the last year

Time Period	National Average	Low- and Moderate-Income (<\$50k)	Households with Children	Households of Color
3/1/23 - 3/13/23	16.5%	34.6%	20.4%	21.2%
2/6/24 - 3/6/24	19.2%	38.2%	25.6%	25.6%

Table: NEADA • Source: Census Pulse Survey • Created with Datawrapper

The percentage of households that keep their home at unsafe temperatures due to financial instability has increased across all categories.

Households with children had the largest increase, by 2.7%.

Percent of Households Keeping Home at Unsafe Temperature to Save Money on Energy Bill, by Survey Period

Household kept home at a temperature that felt unsafe or unhealthy, at least one month in the last year

Time Period	National Average	Low- and Moderate-Income (<\$50k)	Households with Children	Households of Color
3/1/23 - 3/13/23	17.3%	31.5%	14.4%	19.0%
2/6/24 - 3/6/24	18.7%	33.8%	17.1%	21.1%

Table: NEADA • Source: Census Pulse Survey • Created with Datawrapper

This chart shows increases in energy insecurity across various demographics, as measured by a **household foregoing necessities to pay their energy bills**.

There are small increases across all demographic groups, but households with children experienced the largest increase, at 4.1%.

Percent of Households Foregoing Basic Necessities to Pay Energy Bills, by Survey Period

Household reduced or forewent expenses for basic household necessities, such as medicine or food, in order to pay an energy bill, at least one month in the last year

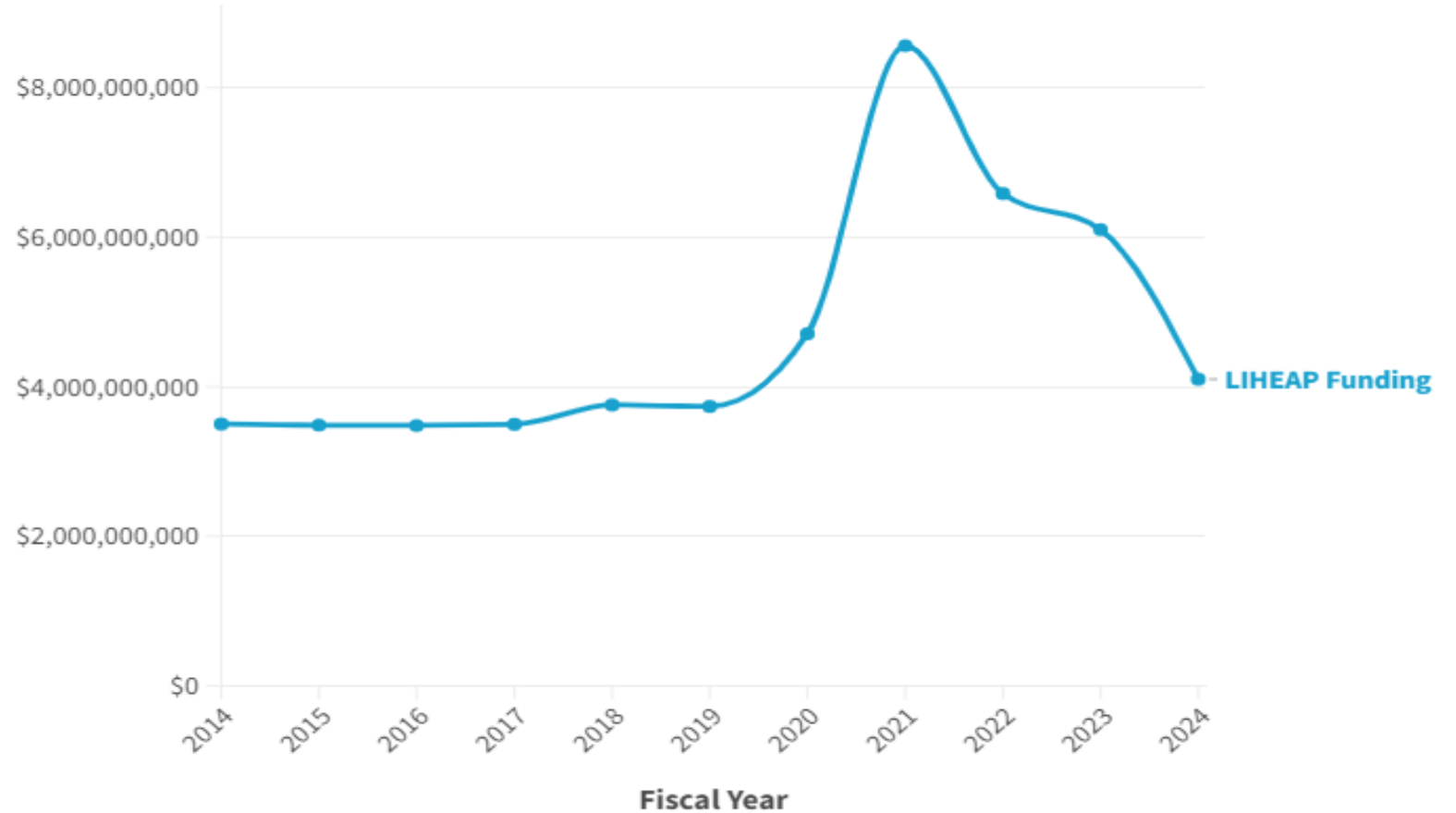
Time Period	National Average	Low- and Moderate-Income (<\$50k)	Households with Children	Households of Color
3/1/23 - 3/13/23	26.2%	50.2%	27.9%	31.3%
2/6/24 - 3/6/24	28.0%	51.7%	32.0%	34.1%

Table: NEADA • Source: Census Pulse Survey • Created with Datawrapper

LIHEAP funding as it currently stands will return to pre-pandemic levels.

For 2024, Congress funded LIHEAP at \$4.1 billion, compared to 2023's \$6 billion. However, it is clear that the extra \$2 billion are needed to help low-income families heat and cool their homes.

LIHEAP Funding FY 2014 to FY 2024

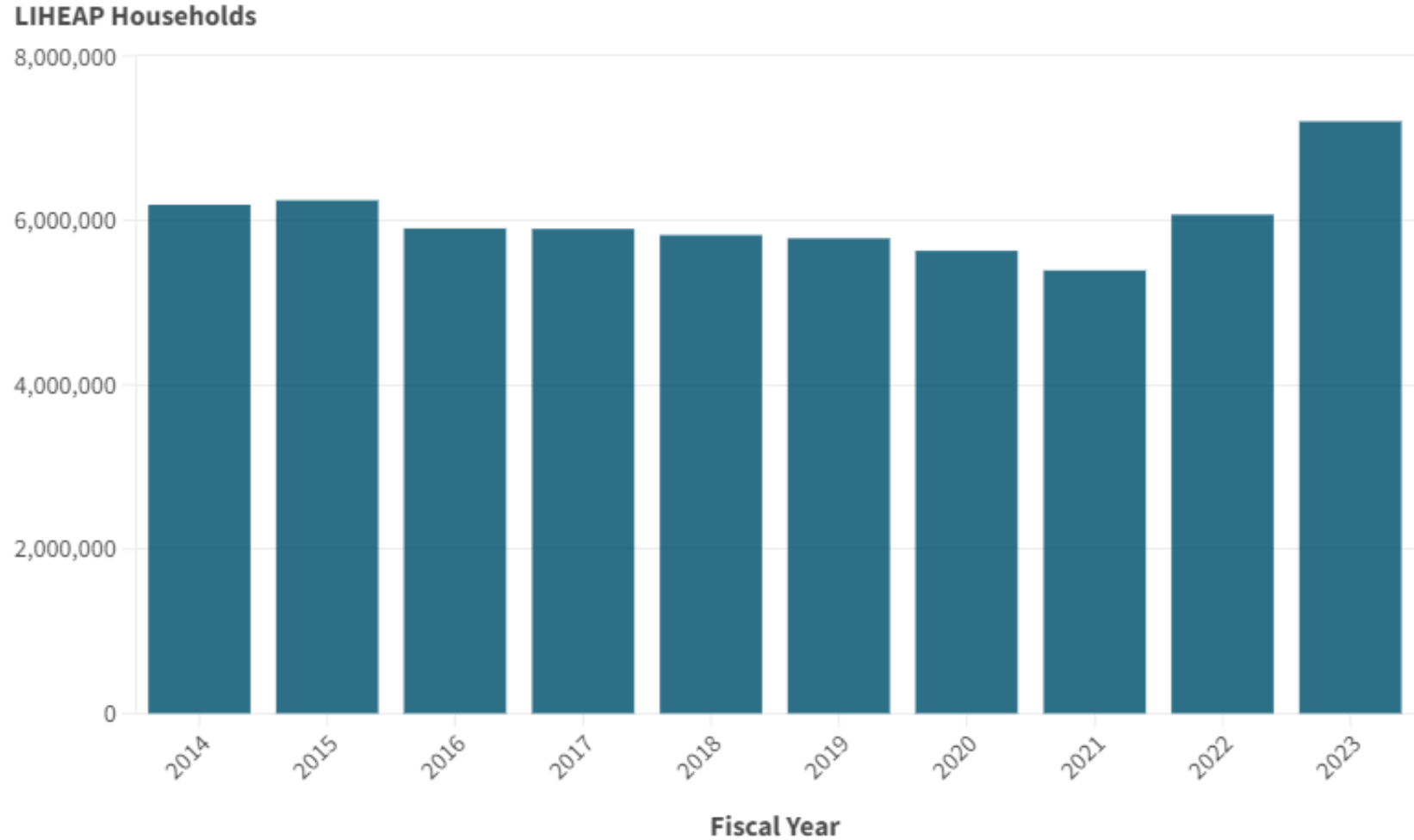


Source: LIHEAP Datawarehouse

It is estimated that the number of households assisted by LIHEAP peaked in FY 2023, with an estimated 7.2 million households.

If federal funding stays at current levels and assistance payments remain similar, NEADA estimates 5.7 million households will be assisted.

Houeshold Recieving LIHEAP Assistance FY 2014 - FY 2023



Source: LIHEAP Datawarehouse • 2023 Households are Estimated

As of December 2023, both natural gas and electric arrears are forecasted to be at record highs.

About 21.2 million households (1 out of 6) are estimated to be under utility arrears.

Sources: Publicly-available state and utility arrearage data

Natural Gas - Residential National Arrearage Estimates

	Percent Households in Arrears	Estimated Total Households in Arrears	Average Amount Owed	Estimated Natural Gas Arrearages
23-Dec	17.9%	14.3M	\$406	\$5.8B
22-Dec	17.4%	13.9M	\$351	\$4.9B

Source: Utility Arrearage Reports • Created with Datawrapper

Electricity - Residential National Arrearage Estimates

	Percent Households in Arrears	Estimated Total Households in Arrears	Average Amount Owed	Estimated Electric Arrearages
23-Dec	16.2%	21.2M	\$684	\$14.5B
22-Dec	15.3%	20.1M	\$642	\$12.9B

Source: Utility Arrearage Reports • Created with Datawrapper

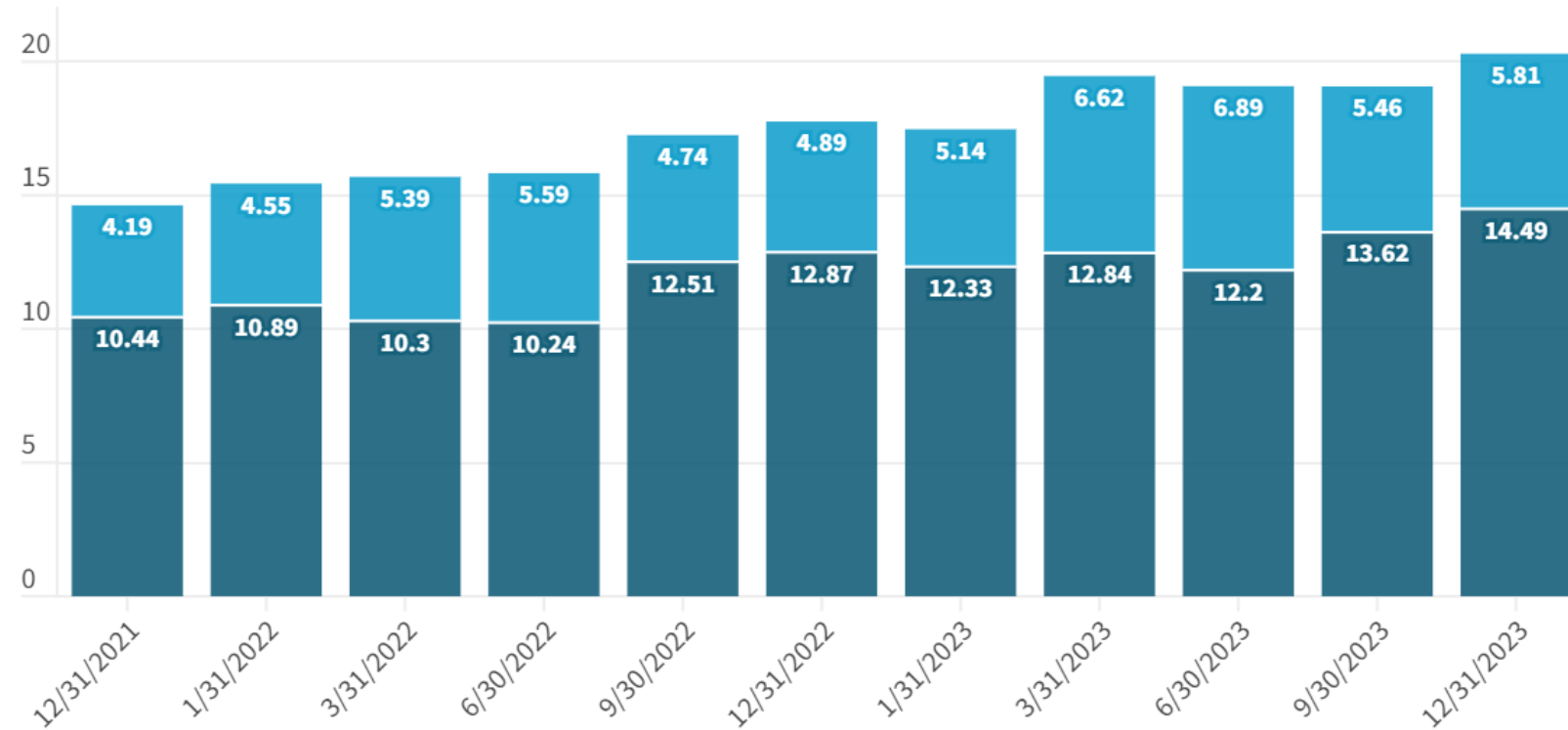
The national utility arrears balance has been steadily growing since the end of 2021. to reach a peak of \$20.3 billion at the end of December 2023.

Record arrears in December 2022 and December 2023 have been driven by major increases in electric arrears.

Residential Utility Arrears Estimates 12/2021 to 12/2023

Electric Arrears Gas Arrears

Arrears in Billions of Dollars



Source: Utility Arrearage Reports

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Beating the Heat: Recommendations and Considerations for States to Support Cost-Effective Residential Cooling

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June 4, 2024

Photo Courtesy of NASEO



NASEO Publication

Beating the Heat: Recommendations and Considerations for States to Support Cost-Effective Residential Cooling

(NASEO, May 2024)

Funded by the Center for Energy Poverty and Climate and the ClimateWorks Foundation



The Role of State and Territory Energy Offices

Adopt an Energy Efficiency-first Approach

- Reduces energy loss
- Helps ensure proper sizing and design of energy systems + HVAC equipment

Consumer Protections and Affordability

- Reducing initial cost barriers
- Protections against future energy burden

Household Prioritization

- Efficiently allocate resources for greatest program impact
- Reach underrepresented populations

Strengthening Supply Chains and Workforce

- Timely and well-done retrofit solutions
- Increased customer satisfaction and program support
- Ability to meet future operations and maintenance needs

Interagency and Intergovernmental Partnerships

- Optimize limited resources
- Expand assistance to vulnerable populations

Federal Funding Opportunities

- HOMES/HEEHRA
- Energy Auditor Training Grant (EAT)
- Training for Residential Energy Contractors (TREC)
- Low-income tax credits
- Stacking with annual programs (WAP and LIHEAP)



Photo source: NASEO

Adopting an Efficiency-First Approach: State Energy Office Examples

- **Massachusetts Department of Energy Resources (DOER):** Low- and Moderate-Income Housing Decarbonization Grant Program
- **New York State Energy Research and Development Authority (NYSERDA):** EmPower Plus Program
- Eligible measures under Weatherization Assistance Programs for states in warm climate zones
- Leveraging federal funding in combination with state programs

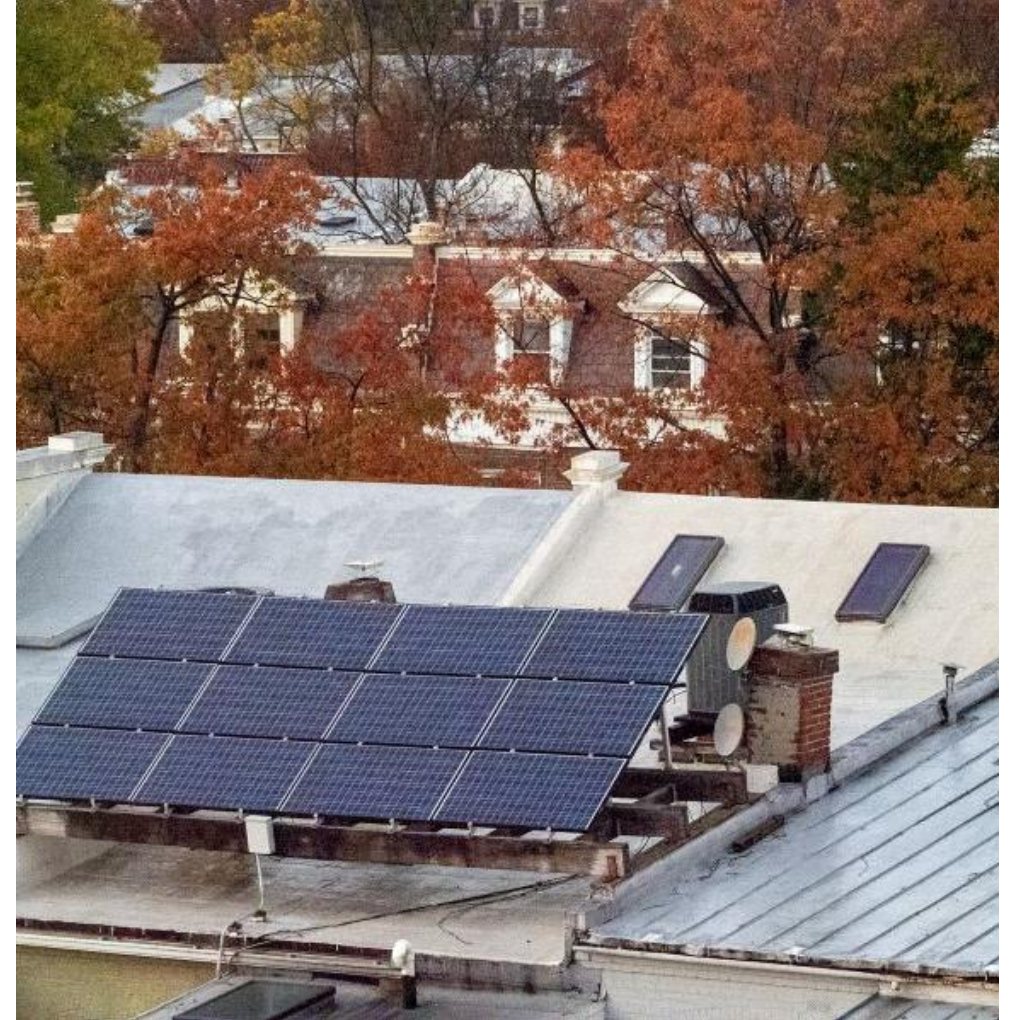


Photo source: NASEO

Consumer Protections and Affordability: State Energy Office Examples

- **DC Department of Energy and Environment + DC Sustainable Energy Utility:** Emergency HVAC Program
- **New York State** Energy Affordability Guarantee
- **Washington State** Clean Energy Transformation Act
- **Hawaii State Energy Office:** Energy Wayfinders
- Utility shut-off moratoriums across 18 states



Photo source: NASEO

Determining How to Prioritize Households: State Energy Office Examples

- **California Governor's Office:**
“Protecting Californians from Extreme Heat: A State Action Plan to Build Community Resilience”
- **Oregon State Legislature:** Senate Bill 1536
 - **Oregon Department of Energy:**
Cooling Needs Study
- **New York State's** Climate Leadership and Community Protection Act of 2019



Strengthening the Workforce and Supply Chains: State Energy Office Examples



DIVERSITY IN THE U.S. ENERGY WORKFORCE

Data Findings to Inform State Energy, Climate, and Workforce Development Policies and Programs



Energy Sector Workforce Diversity, Access, Inclusion, and the Policy Case for Investment:

Recommendations for State Energy Office Action



Fostering Interagency and Intergovernmental Partnerships: State Energy Office Examples

- Coordination between State Energy Offices and state LIHEAP and WAP agencies
- **Arizona Governor's Office of Resiliency:** coordinated statewide heat response in the form of the 2024 Extreme Heat Preparedness Plan

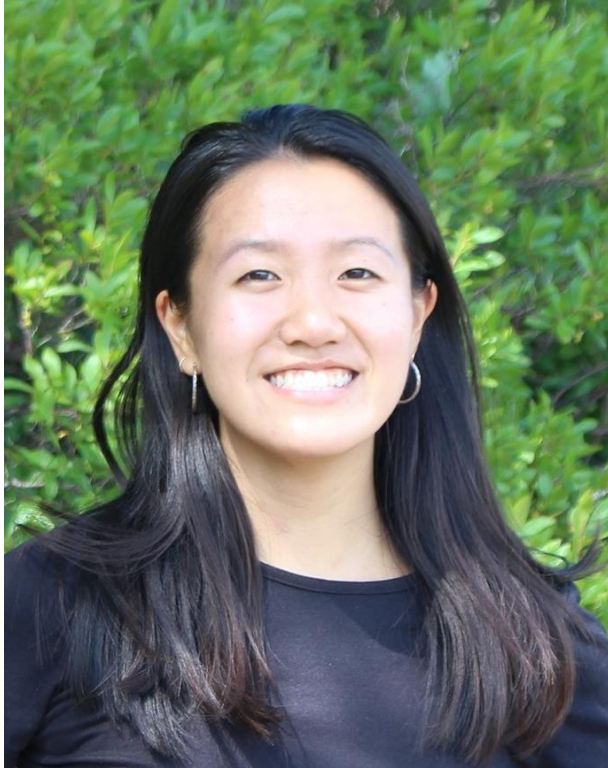


Photo source: NASEO

Appendices: Comprehensive State Energy Office Program Approaches

- Arizona, California, Colorado, Massachusetts, New York, Oregon
- **State Context** – existing state energy plans, grid resilience initiatives, all-electric appliance installation targets, etc.
- **Defining “Low-income”** – program eligibility/prioritization criteria
- **State Programming** – financial incentives, consumer education, workforce development, pilot programs
- **Research and Development** – clean energy technology demonstration and deployment, state investments generating replicable approaches
- **Program Funding Sources** – annual state budget carveouts, ratepayer-funded programs, legislation-authorized spending

Thank You!



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