ACADIA CENTER EXPLAINS

Energy Burden

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WHAT DOES HOME ENERGY BURDEN MEAN?

Energy burden—the percentage of household income spent on energy costs—is generally considered high when energy expenditures account for 6% or higher of household income. Energy burden is severe when 10% or more is allocated to energy costs (APPRISE 2005). Traditionally, this metric for energy burden has included costs for electricity and any heating fuels, whether from gas, oil, propane, or other sources. Importantly, the 6% metric has not traditionally factored in transportation fuel costs – suggesting a potential evolution of the metric as a result of vehicle electrification trends (and transportation costs begin to show up in electric bills).

In New England, the median energy burden for low-income households is 9.1%, compared to the median energy burden of 3.2% for all households. (ACEEE 2020). This means that low-income households in New England are suffering from severe energy burdens. These elevated energy burdens are also worsened by factors such as older housing stock, inadequate insulation, inefficient appliances, inefficient heating and cooling systems prevalent in low-income residences in the northeast. Typically, these super-emitting housing units are located in lower-income communities and communities of color and include residents who speak languages other than English. By reforming programs in recognition of these conditions, states have an opportunity to accelerate progress towards reaching their greenhouse gas reduction targets while reducing energy burdens and fostering energy justice.

WHAT'S THE CHALLENGE WITH ADDRESSING HOME ENERGY BURDEN?

The households most affected by high energy burdens are also among the most likely to need energy upgrades and the least likely to access them. Targeting high energy-consuming homes for comprehensive retrofits will relieve the energy burden among low-income households and renters while substantially reducing emissions from the residential sector.

Recent analysis of energy efficiency potential among households below 80% of Area Median income (AMI) showed potential household electricity savings between 13% and 31% (NERL 2023). However, significant state, federal, and private funding will be required for such programs.

Data from the U.S. Energy Information Agency (EIA) shows:

- **Low-income households are disproportionately concentrated in high-emitting homes**— 73% of the highest-emitting homes are low-income, compared to 36% of the lowest-emitting homes.
- **Renters face unique barriers**—More than half of the highest-emitting homes are rentals, meaning occupants cannot make energy efficiency improvements without landlord approval.
- **Fuel type matters**—Two-thirds (66%) of the highest emitting homes in the region heat with fuel oil, and about one-third (30%) heat with gas.

A major challenge in reducing energy burden is the tradeoff between short-term and long-term solutions. Some of the most affordable short-term options to relieve excess burdens (e.g., direct utility bill discounts) require yearly renewals/expenditures, whereas solutions offering more durable/long-lasting savings (e.g., whole home retrofits and weatherization measures) likely require a higher upfront cost or some type of financing.

WHO FACES THE HIGHEST HOME ENERGY BURDENS, AND WHY?

The burden of high energy costs falls disproportionately on low-income households, renters, and communities with inefficient housing stock. Households with high energy burdens often face the difficult balancing of choosing between paying their energy bills or covering other home essentials like food, healthcare or rent. The Massachusetts DPU's new proceeding examining energy affordability (DPU 24-15) cited evidence that "23% of households reported having to go without expenses like food or healthcare to pay their energy bill in the last year". Research Acadia Center has been conducting in other neighboring states also indicates that the bottom quartile of low-income households (e.g., $0-$15,000 in income) represents an outsized portion of excess energy burden totals (approximately 47% in that state). This reveals that directing resources to these households would yield outsized benefits and reductions to overall excess energy burden costs. Furthermore, ACEEE's recent policy brief published in 2024 found that "on average low-income residents, Black households, and Hispanic households experience higher energy burdens."

Many of these households live in pre-war, pre-code, less energy efficient homes that lack proper insulation, have outdated heating and cooling systems, and experience frequent air leaks. Older homes lead to higher energy costs per square foot where households with modest consumption levels will have excessive costs for energy. The communities most affected by high energy burdens are often the least able to afford the upfront costs of energy efficiency and weatherization upgrades that could help lower their energy bills.

WHAT IS ACADIA CENTER'S RECOMMENDATION FOR ALLEVIATING HOME ENERGY BURDEN?

Energy burden and affordability are increasingly important issues for the Northeast to address. Energy equity and affordability involves mitigating and remediating social, economic, and health burdens stemming from the energy system, while ensuring equitable participation in—and an opportunity to benefit from—the clean energy transition. Acadia Center recommends the following to address energy burdens in the Northeast:

States should revamp and boost uptake of utility discount programs for LMI households, removing barriers to ensure that far greater percentages of eligible households benefit from relief measures available. Improved discount rate design can offer more granularly tiered discount rates by income level and potentially tie discounts to a metric like a 6% income cap while still preserving strong incentives for energy efficiency and conservation.

States should **also adopt advanced rate design reforms** with special attention to protections for and delivering benefits to LMI households. This can include income-based rate structures, time-of-use (TOU) pricing with protections, and fixed charge reductions to ensure energy costs are affordable for low-income customers and prevent disproportionate impacts on those who can least afford it. For TOU rates in particular, numerous studies show that, if designed carefully and supported with comprehensive customer education, TOU rates can help to reduce both bills and usage for LMI households.

Reforming existing energy efficiency programs to target high-emitting, lower-income homes can significantly increase savings, reduce emissions, and improve health in low-income and environmental justice communities. Acadia Center is recommending reforms to the energy efficiency program, including updating the cost-effectiveness tests to better account for health and equity benefits, increasing funding for deep retrofits in underinvested communities, and expanding eligibility criteria to reach more high-need households.

States should **establish clear, enforceable targets for clean heating deployment and weatherization in lower-income homes** to maximize climate and equity benefits. Prioritizing the highest-emitting homes, often housing marginalized occupants, is crucial for achieving meaningful energy savings and addressing inequities in energy access and cost.

Increase access to home retrofit and weatherization programs. States should improve and scale up home retrofit programs to address leaky windows, inadequate insulation, inefficient heating and cooling systems, and outdated appliances, which disproportionately impact low-income households. Through expanding funding and by simplifying application processes, states can ensure more residents have access to these critical improvements.

Leveraging building codes beyond new constructions and renovations to include energy performance standards can enhance tenant health, safety, and comfort. By integrating energy efficiency into health and safety codes, states can strengthen the impact of incentive programs, ensuring broader adoption of clean heating and weatherization measures across all building types. Many lower-income homes require structural repairs, mold remediation, or electrical upgrades, and by codifying these improvements in buildings codes, we can allow more households to be integrated into these health and safety upgrades.

For more information:
https://acadiacenter.org/resource/accelerating-energy-justice-in-building-decarbonization/
https://acadiacenter.org/energy-affordability-rate-increases-and-regulatory-solutions-in-connecticut/
https://acadiacenter.org/resource/acadia-centers-comments-on-energy-burden-and-affordability-in-dpu-docket-24-15/

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