

## ENERGY INSECURITY - WHAT IS IT, AND WHY DOES IT MATTER?

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**Editor’s Note:** The ideas presented in their essay were first shared by the co-authors during a panel presentation titled “Understanding Energy Insecurity” moderated by Virginia State Corporation Commission Chairman Jehmal T. Hudson at the National Association of Regulatory Utility Commissioners (NARUC) 2023 Annual Meeting and Education Conference in La Quinta, California on November 14, 2023.

We and the authors have described their piece as an essay and not an article because it is not intended as a comprehensive approach to addressing energy insecurity but as an introduction to the subject intended to highlight select issues. Their perspectives, their hope – and ours – is that their essay will prompt in depth contributions from authors addressing energy insecurity issues in future editions of the Journal.

**Synopsis:** Energy insecurity is a pervasive issue affecting millions of households in the United States. As elaborated in Part I of this essay, energy insecurity is a framework for understanding the challenge of unmet household energy needs and its adverse consequences. Defined as the inability to adequately meet energy needs, energy insecurity encompasses economic, physical, and coping dimensions.<sup>1</sup> Rooted in poverty, the economic dimension reflects financial hardships in paying for utility bills. Its association with inadequate housing in the physical component refers to housing and energy infrastructure that may encumber the achievement of affordable comfort in the home environment. Meanwhile, people take coping actions in the form of restricting energy use to save on the bill, using alternatives such as space heaters or a stove or oven for heat or seeking help from government sources or social networks to make ends. Part I highlights the different use cases of this framework for regulators and other NARUC attendees. Based on

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1. Diana Hernández, *Understanding ‘Energy Insecurity’ and Why it Matters to Health*, 167 SOC. SCI. & MED. 1-10, (Oct. 2016); Diana Hernández, *Health Policy Brief: Energy Insecurity and Health*, HEALTH AFFS. (Jun. 29, 2023), <https://www.healthaffairs.org/content/forefront/energy-insecurity-and-health-america-s-hidden-hardship#:~:text=As%20Hernandez%20explains%2C%20the%20three,by%20not%20running%20an%20air>.

comments made by the panelist, each author herein provides insights into specific manifestations of energy insecurity and mechanisms to address this pressing issue. In Part II, Dr. Hernández summarized a report on the Low-Income Home Energy Assistance Program (LIHEAP) and described the signals of unmet needs and shortcomings that must be overcome for LIHEAP to achieve higher impact towards alleviating the burdens of energy insecurity.<sup>2</sup> In Part III, Emma Hand builds on pioneering work on the social distribution of disconnections due to non-payment<sup>3</sup> to examine the role of disconnection policies in affecting the frequency of this occurrence and the populations most at risk of facing a disconnection crisis. In Part IV, Mosby Perrow shares the origin story of the Energy Insecurity Initiative, a unique collaboration between the Energy Bar Association and academic partners at Columbia University that is meant to raise awareness among legal professionals so that they play a more central role in addressing energy insecurity issues in the United States and Canada. In Part V, Robert Fleishman beckons our moral conscience based on truths bestowed upon him over a long career as a legal professional in the energy field. Anchored in the wisdom of the philosophical and spiritual greats, Mr. Fleishman’s comments remind us that fundamental change is happening and that during a vast and necessary energy transition, we must focus on technologies and just practices that protect the planet as well as approaches that solve an existential threat to people—energy insecurity.

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## I. INTRODUCTION

What is energy insecurity? It is defined as “an inability to adequately meet basic household energy needs.”<sup>4</sup> It is a multi-dimensional construct that describes

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2. Andrea Nishi et al., *Energy Insecurity Mitigation: The Low Income Home Energy Assistance Program and Other Low-Income Relief Programs in the U.S.*, CTR. ON GLOB. ENERGY POL’Y (Nov. 15, 2023), [https://www.energypolicy.columbia.edu/wp-content/uploads/2023/11/LIHEAP-CGEP\\_Infoguide\\_111523-1.pdf](https://www.energypolicy.columbia.edu/wp-content/uploads/2023/11/LIHEAP-CGEP_Infoguide_111523-1.pdf). With the CGEP’s permission, the CGEP LIHEAP report is included as an appendix to this essay.

3. Diana Hernández & Jennifer Laird, *Surviving a Shut-off: US Households at Greatest Risk of Utility Disconnections and How They Cope*, AM. BEHAV. SCI. (2022).

4. Diana Hernández, *Understanding ‘Energy Insecurity’ and Why it Matters to Health*, NAT’L LIBR. MED. (2016), <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5114037/>.

the interplay between physical conditions of housing, household energy expenditures and energy-related coping strategies.<sup>5</sup> Energy insecurity is a broad framework that includes energy burden as one of many factors in a household's ability to meet energy needs.<sup>6</sup>

Energy insecurity is an issue at the intersection of social inequity and public health<sup>7</sup> and is of great concern in the United States and Canada. For example, many communities in the United States struggle to pay their energy bills and avoid being disconnected from their energy services.<sup>8</sup> The U.S. Energy Information Administration uses the following measures to assess energy insecurity in the United States: reducing or forgoing necessities, such as food or medical care “to pay an energy bill, keeping the home at unhealthy or unsafe temperatures in order to reduce energy bills, or receiving a disconnection notice for bill nonpayment.”<sup>9</sup>

Energy insecurity can arise and adversely impact communities due to outside causes that are beyond their control.<sup>10</sup> For example, the Coronavirus Disease 2019 (COVID-19) pandemic intensified energy insecurity in households already struggling or likely to struggle paying energy bills.<sup>11</sup> The COVID-19 pandemic raised interest in electric utility disconnections when customers lost their power when they did not pay their bills.<sup>12</sup>

State public service/utility commissions in the U.S. are mandated to ensure reliable services at fair, just, and reasonable rates.<sup>13</sup> Inherent in that mandate is the responsibility to serve the public interest.<sup>14</sup> One core principle of serving the public interest is promoting and protecting the public's health, welfare, and

5. *Id.*

6. There are a myriad of different dimensions relating to energy issues that tend to overlap with one another. Concepts like “energy poverty,” “energy access,” “energy equity,” and “energy burden” are separate constructs from energy insecurity and operate in different contexts. See Ann M. Eisenberg & Elizabeth Kronk Warner, *The Precipice of Justice: Equity, Energy, and the Environment in Indian Country and Rural Communities*, 42 ENERGY L.J. 282, 290 (2021); see also Diana Hernández et al., *Basing “Energy Justice” on Clear Terms: Assessing Key Terminology in Pursuit of Energy Justice*, 15 ENV'T JUST., 127 (2022).

7. Maricopa County, AZ, *Addressing Energy Insecurity Through Cross-Sector Collaboration*, MARICOPA.GOV, <https://www.maricopa.gov/5723/Energy-Insecurity#:~:text=Energy%20insecurity%20is%20an%20issue,a%20prerequisite%20for%20good%20health> (last accessed Mar. 24, 2024).

8. Sanya Carley, *Energy Insecurity During the Rime of COVID*, KLEINMAN CTR. FOR ENERGY POL'Y (Apr. 5, 2023), <https://kleinmanenergy.upenn.edu/research/publications/energy-insecurity-during-the-time-of-covid/>.

9. Ashley J. Lawson & Claire Mills, *Electric Utility Disconnections*, CONG. RSCH. SERV. 2 (Jan. 31, 2023), <https://crsreports.congress.gov/product/pdf/R/R47417#:~:text=If%20customers%20are%20unable%20to,utility%20may%20disconnect%20the%20customer>.

10. Diana Hernández, *Energy Insecurity and Health: America's Hidden Hardship*, HEALTH AFFS. (Jun. 29, 2023), <https://www.healthaffairs.org/doi/10.1377/hpb20230518.472953/>.

11. Emily Schmidt, *Feeling the Heat: Energy Insecurity in the Nation's Hottest States*, APM RSCH. LAB (May 5, 2022), <https://www.apmresearchlab.org/10x-energy-insecurity#:~:text=According%20to%20the%20ACEEE%2C%20residents,have%20a%20high%20energy%20burden>.

12. Lawson & Mills, *supra* note 9.

13. NAT'L ASSOC. OF REGUL. UTIL. COMM'RS, *THE MISSION OF YOUR STATE COMMISSION: TO SERVE THE PUBLIC INTEREST* (2024), <https://www.naruc.org/serving-the-public-interest/about/mission/>.

14. *Id.*

safety.<sup>15</sup> The pandemic highlighted how utility service and its effective regulation is closely related to public health and the overall public welfare.<sup>16</sup> Many states placed a moratorium on service disconnections during the pandemic.<sup>17</sup>

The National Association of Regulatory Utility Commissioners (NARUC) is the national association representing the U.S. state public service commissioners who regulate essential utility services.<sup>18</sup> NARUC understands energy insecurity and the challenges and financial hardships households face when meeting basic household energy needs.<sup>19</sup> During its annual summer policy summits, NARUC has regularly held a poverty simulation which allowed interested participants the opportunity understand the challenges facing low-income and vulnerable communities.<sup>20</sup> During the poverty simulation, participants: encountered obstacles they faced trying to pay bills and deal with routine responsibilities; explored factors impacting consumer decisions related to utility payments; increased understanding on the challenges and dueling priorities facing low-income and vulnerable communities; and identified specific ways state public service commissions, utilities, and consumer advocates could collaborate to address utility affordability challenges.<sup>21</sup>

The energy insecurity framework includes identifying causes and obstacles to address factors that lead to or worsen adverse health issues.<sup>22</sup> The term may be classified by the “strategies used to cope, improvise, and counteract the impacts” that reflect the financial hardship associated with making ends meet on limited budgets and the consequences of high utility bills.<sup>23</sup> Similarly, energy insecurity is identified as “deficiencies in the physical infrastructure of the home environment that impact thermal comfort, induce harmful exposures and increase energy costs.”<sup>24</sup> This framework helps us to understand energy insecurity and its consequences.<sup>25</sup> Energy insecurity is a framework for understanding the relationship regarding unmet household energy needs can draw connections between the direct

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15. *Id.*

16. NAT'L ASSOC. OF REGUL. UTIL. COMM'RS, NARUC STATEMENT ON COVID19 (2024), <https://www.naruc.org/about-naruc/press-releases/naruc-statement-on-covid19/>.

17. *Id.*

18. NAT'L ASSOC. OF REGUL. UTIL. COMM'RS, <https://www.naruc.org> (last visited Mar. 24, 2024).

19. William McCurry, *State Energy Justice Roundtable Series: Customer Affordability and Arrearages*, NAT'L ASSOC. OF REGUL. UTIL. COMM'RS 4 (2023), <https://pubs.naruc.org/pub/2B1596E2-1866-DAAC-99FB-37A81B4AFEF7>.

20. NAT'L ASSOC. OF REGUL. UTIL. COMM'RS, NARUC SUMMER POLICY SUMMIT AGENDA (July 2019), [https://pubs.naruc.org/pub/C285DE8A-9063-2966-2B77-4A99CE207C1E?\\_gl=1\\*bvryy2\\*\\_ga\\*MjEzNzA5NDA1Ni4xNzEwMTg0MjMy\\*\\_ga\\_QLH1N3Q1NF\\*MTcxMDE5MzY2Mi4zLjEuMTcxMDE5NDAwMS4wLjAuMA](https://pubs.naruc.org/pub/C285DE8A-9063-2966-2B77-4A99CE207C1E?_gl=1*bvryy2*_ga*MjEzNzA5NDA1Ni4xNzEwMTg0MjMy*_ga_QLH1N3Q1NF*MTcxMDE5MzY2Mi4zLjEuMTcxMDE5NDAwMS4wLjAuMA).

21. *Id.*; NAT'L ASSOC. OF REGUL. UTIL. COMM'RS, POVERTY SIMULATION DATA SNAPSHOT (July 2019) <https://pubs.naruc.org/pub/3408714E-1866-DAAC-99FB-10EC67C75483>.

22. Sonal Jessel et al., *Energy, Poverty, and Health in Climate Change: A Comprehensive Review of an Emerging Literature*, 7 FRONTIERS IN PUB. HEALTH 357, 2 (2019).

23. Hernández, *supra* note 4, at 5-6.

24. *Id.* at 4, 6.

25. Jessel et al., *supra* note 22, at 8.

effects of inadequate household energy and how vulnerabilities and hardships contribute to the problem.<sup>26</sup>

This Essay examines the causes of energy insecurity and preliminarily identifies a few policy frameworks that have addressed these obstacles. The Essay is not intended as a comprehensive approach to solving energy insecurity issues. Rather, it aims to improve the public's understanding of energy insecurity and highlight these issues to prompt in-depth contributions from authors in future editions of the Journal. It also provides "a broader perspective that encompasses a wide range of factors that influence energy affordability and access as well as the long-term impacts on utility customers."<sup>27</sup>

Part II of the Essay examines the federal Low Income Home Energy Assistance Program (LIHEAP) and other low-income relief programs in the U.S. to reduce energy burden and their impacts on energy insecurity. Part III examines the impact of disconnection policies on the incidence of energy insecurity. Part IV describes the genesis of the Energy Insecurity Initiative, and Part V explains why the authors view reducing energy insecurity as a moral imperative and how the Energy Insecurity Initiative plans to address a range of key issues.

## II. ENERGY INSECURITY AND THE LOW-INCOME HOME ENERGY ASSISTANCE PROGRAM IN THE UNITED STATES

Dr. Hernández spoke first at the NARUC Panel. She stated that energy insecurity is a pervasive issue affecting millions of households in the United States. Defined as the "inability to adequately meet energy needs," energy insecurity encompasses economic, physical, and coping dimensions.<sup>28</sup> The economic dimension reflects financial hardships in paying for utility bills, while the physical component refers to housing and energy infrastructure that may encumber the achievement of affordable comfort in the home environment. Meanwhile, people take coping actions in the form of restricting energy use to save on the bill, using alternatives such as space heaters or a stove or oven for heat or seeking help for outside sources.

LIHEAP is a federal program designed to alleviate the burden of energy insecurity by aiding vulnerable households primarily through bill assistance. While LIHEAP remains a crucial tool in mitigating energy insecurity, there are clear signals that suggest it may be falling short of meeting the growing and persistently unmet needs of energy insecure populations.

Initially introduced in response to the oil crisis of the 1970s, LIHEAP evolved from a weatherization service to become a comprehensive program with a mission of aiding low-income households in managing their home energy expenses and intervening in financial crisis situations that would jeopardize access to household

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26. *Id.*

27. Maggie Kelley Riggins, *What is energy insecurity versus energy burden?*, SE. ENERGY EFFICIENCY ALL. (Mar. 15, 2021), <https://www.seealliance.org/what-is-energy-insecurity-versus-energy-burden/>.

28. Diana Hernández, *Energy Insecurity And Health: America's Hidden Hardship*, HEALTH AFFS. (June 29, 2023), <https://www.healthaffairs.org/doi/10.1377/hpb20230518.472953/>.

energy. Presently, LIHEAP functions primarily (though not exclusively) as a heating subsidy, guided by funding formulas created in 1981 or 1984, which at once symbolize its origins and demonstrates a need to revisit this crucial lifeline for energy affordability in the US.<sup>29</sup>

A recent report published through the Center on Global Energy Policy at Columbia University, the Energy Opportunity Lab, the Sabin Center for Climate Change Law (Sabin Center), and the Mailman School of Public Health (set forth in Appendix A to this Essay) offers a comprehensive overview of the LIHEAP program.<sup>30</sup>

To analyze LIHEAP, this rigorous report reviewed Detailed Model Plans submitted by the fifty states and Washington D.C., which outline how energy assistance programs are to be administered at the federal and state level annually. In doing so, the report revealed clear signals indicating challenges and gaps in the types of assistance offered by the LIHEAP program and other issues that are hindering its efficacy and impact. Below, we provide a summary of the most salient issues raised in the report that point to the signals of unmet needs and shortcomings that must be overcome for LIHEAP to achieve higher impact towards alleviating the burdens of energy insecurity.

#### A. *Budgetary Limitations and Enrollment Gaps*

The Department of Health and Human Services distributes over 99% of regular LIHEAP block grant funding to participating states. These funds predominantly contribute to direct program costs, with strict limits on administrative spending, capped at 10%. However, only a few states supplement LIHEAP funds beyond federal allocations, which restricts the program's reach. It is noteworthy that the program overwhelmingly supports colder weather states and those with greater proportions of the populations living at or near the federal poverty level as per the 1981 formula.<sup>31</sup> When the LIHEAP budget surpasses a specified threshold, activating the "new" 1984 formula, more funding is directed to warmer weather states because the higher threshold provides more support for cooling assistance by equalizing heating and cooling degree days. Unfortunately, this approach often leaves residents in the South and Southeast regions who lack sufficient assistance to combat rising temperatures, with higher energy rates and homes that may not be as efficient (i.e. mobile homes).

Admittedly, this is an oversimplification of a complex funding formula, but the takeaway is twofold: 1) that the program still operates under very dated formulas that have not been revised to reflect modern times; and 2) the overarching emphasis on providing heating assistance, which is a relic of the program's origin in the oil crisis, negates the reality of greater cooling needs.

A mere 16% of eligible households in the US receive LIHEAP assistance, highlighting a substantial under-enrollment gap in the program. By comparison,

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29. Nishi et al., *supra* note 2.

30. *Id.*

31. Mark J. Kaiser & Allan G. Pulsipher, *Science and politics: The 1981 and 1984 LIHEAP distribution formulas*, 40 SOCIO-ECONOMIC PLANNING SCIENCE 15 (2006); for an expanded 1984 explanation, see Nishi et al., *supra* note 2.

over 80% of eligible households receive Supplemental Nutritional Assistance Program (SNAP, formerly food stamps) benefits. Further, LIHEAP funding is significantly less than SNAP, Temporary Assistance for Needy Families (TANF, formerly welfare benefits) and housing subsidies. Even with augmented budgets during the housing crisis of the late 2000s and the COVID-19 period, LIHEAP receives fewer dollars and remains significantly lower-funded than comparable federal needs-based programs such as SNAP and TANF.

Increases in program budgets are short-lived and out of pace with the rising cost of energy and increased demand. In effect, this means that most low-income households are unable to access assistance to offset their energy costs. And those that do receive already insufficient benefits levels, often delay seeking that limited assistance until the point of crisis because of the administratively burdensome application process.<sup>32</sup> Finally, inadequate federal funding may prompt states to impose more restrictive eligibility requirements, further lowering program participation and increasing administrative burdens. The consequence of insufficient funding at the federal level reverberates at the state level, ultimately hindering the program's ability to effectively assist a broader range of vulnerable households experiencing energy insecurity.

The LIHEAP eligibility criteria, designed to aid the most vulnerable, may unintentionally overlook significant subgroups grappling with energy insecurity. This encompasses households with medical vulnerabilities, as well as those positioned just above the income thresholds. Even if slightly beyond the eligibility criteria, such households may contend with elevated medical, housing, and general living expenses, leaving minimal flexibility in their household budgets to allocate funds towards utilities and other essential needs. Consequently, this leads to limited support for households that stand to benefit substantially from LIHEAP relief.

### *B. Heating Prioritization, Crisis Emphasis and Cooling Gaps*

There are four programmatic components of LIHEAP: 1) heating; 2) cooling; 3) crisis support; and 4) weatherization. Of these, heating is the most common form of assistance, followed by crisis support then cooling aid. Over the years, crisis aid, which is activated when households are at risk of or actively experiencing a utility service disconnection due to non-payment, has been increasing overall and especially in the summer months. This may be partly explained by the fact that assistance provided for heating, cooling, and crisis situations are falling short of covering household energy costs, resulting in large affordability gaps. The average LIHEAP benefit of \$400 per year represents a fraction of overall household energy expenditures compared to the average bill of over just over \$100 per month and often more during peak cold and warm-weather months.

LIHEAP benefits are insufficient to relieve energy burdens, especially for the lowest income groups, particularly those facing elevated bills due to rising rates and increased energy demands. Although both cold and heat can pose health risks,

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32. Miranda Simes et al., *Vigilant conservation: How energy insecure households navigate cumulative and administrative burdens*, 101 ENERGY RSCH. & SOC. SCI. 103092, 6 (2023).

LIHEAP assistance treats the two risks differently. All states offer heating assistance, but fewer than half utilize LIHEAP funds for cooling assistance, creating a notable gap in addressing energy needs during warmer weather. There is limited allocation of LIHEAP funding towards residential cooling costs, even in regions with higher year-round temperatures where the demand for cooling assistance is substantial. Notably, the Southeast region, characterized by elevated energy insecurity, receives disproportionately low LIHEAP funding, accentuating disparities in the program's support across different regions. Additionally, the steady increase in year-round and summer crisis disbursements suggests that households are at a heightened risk of experiencing shut-offs, further underscoring the fact that LIHEAP is a critical source of support and that vulnerable households are in greater need of more substantial financial intervention.

Other factors impacting LIHEAP include the absence of recent and thorough evaluations assessing the program's effectiveness and impact. There is also a need for crisis prevention efforts and better coordination with energy efficiency and other safety net programs. To address energy insecurity, measures beyond LIHEAP include utility rate designs and discount programs such as the Percentage of Income Payment Plans,<sup>33</sup> fixed percentage discounts, and arrearage forgiveness. Unique challenges in rural and Native American communities, where factors such as electricity availability and home energy efficiency present additional obstacles, underscore the importance of tailored solutions for addressing energy insecurity in these specific contexts.<sup>34</sup>

Eliminating energy insecurity requires a nuanced approach that not only recognizes LIHEAP's strengths but critically evaluates its limitations. LIHEAP remains a vital tool, but these signals of growing and unmet needs underscore the urgency for recalibration and modernization in the program's design to ensure it effectively serves the diverse and evolving energy needs of vulnerable households across the United States.

### III. UTILITY DISCONNECTIONS

Emma Hand spoke next at the NARUC Panel. She stated that utility disconnections are one indicia of energy insecurity. "The U.S. Energy Information Administration (EIA) uses the following measures to assess energy insecurity in the United States: reducing or forgoing basic necessities (e.g. medical care, food) to pay an energy bill, keeping the home at unhealthy or unsafe temperatures in order to reduce energy bills, or receiving a disconnection notice for bill nonpayment."<sup>35</sup> "According to the EIA, thirty-four million households (27% of US households) reported at least one of these forms of energy insecurity in 2020."<sup>36</sup> In January

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33. Nishi et al., *supra* note 2.

34. Emily Wild, *Lighting Up Navajo Nation*, NATIVE NEWS ONLINE, <https://nativenewsonline.net/lighting-up-navajo-nation> (last visited Apr. 22, 2024).

35. Lawson & Mills, *supra* note 9, at 2.

36. *Id.* (citing U.S. ENERGY INFO. ADMIN., TODAY IN ENERGY (Apr. 11, 2022), <https://www.eia.gov/todayinenergy/detail.php?id=51979> ("In 2020, 27% of US Households Had Difficulty Meeting Their Energy Needs...")).



2024, the National Energy Assistance Directors Association (NEADA), representing the state directors of the LIHEAP, issued a press release reporting that the program served 7.1 million households in FY 23 with heating and cooling assistance, the highest number on record.<sup>37</sup> NEADA also reported that utility arrearages also reached record levels in 2023 with 21.2 million households (16% -- “more than one out of six households”) being behind on their energy bills.<sup>38</sup>

While no federal agency tracked arrearages in a comprehensive way at the national level, some states did and NEADA “estimated that nationwide arrearages for electricity and heating bills combined increased from \$8.1 billion at the end of December 2019 to \$16.1 billion as of August 2022,”<sup>39</sup> and further “to \$20.3 billion in December 2023.”<sup>40</sup> Under current laws, state and local utility regulators will have to address these arrearages, and cannot require the utilities to absorb the costs. The regulators’ options include requiring the utilities to write off the debt and increase rates to all customers to cover the cost, collect the debt from the customers who owe it, or shift costs to the federal government through financial assistance programs.<sup>41</sup>

Energy burden, energy insecurity, and utility disconnections affect some racial and ethnic groups more than others.<sup>42</sup> The share of Black households experiencing energy insecurity is about twice as high as that for White households (52% compared to 27% in 2020).<sup>43</sup> Similarly, the share of Hispanic or Latino households experiencing energy insecurity is about twice as high as that for households that are not Hispanic or Latino (47% compared to 25% in 2020).<sup>44</sup>

The U.S. Congressional Research Service found that the available data on disconnections suggests that the scale of the issue is not precisely known, but millions of Americans are disconnected each year, potentially up to 1% or so of households and that low-income households are at a higher risk for disconnections. Even more worrisome: Black and Hispanic households are disconnected from their utilities at a higher rate than non-Hispanic White households, even after account-

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37. Press Release, Mark Wolfe, States Call for Cong. to Restore Funding for LIHEAP About 1.4 Million Households Could be Cut from the Program, Nat’l Energy Assistance Dir. Ass’n (Jan. 23, 2024), <https://neada.org/wp-content/uploads/2024/01/pr-recordhhbehind.pdf>.

38. *Id.* at 3.

39. Lawson & Mills, *supra* note 9, at 6-7 (citing Mark Wolfe, *Families Drowning in Utility Debt – Families Owe More than \$16 Billion*, NAT’L ENERGY ASSISTANCE DIR. ASS’N 1 (Nov. 7, 2022), <https://neada.org/wp-content/uploads/2022/11/20millionbehindPR.pdf>).

40. Nat’l Energy Assistance Dir. Ass’n, *supra* note 37, at 3.

41. Lawson & Mills, *supra* note 9, at 6-7 (citing Herman K. Trabish, *Utility Customers Owe Up to \$40B in COVID-19 Debt, But Who Will Pay It?*, UTIL. DIVE 7-8 (Dec. 3, 2020), <https://www.utilitydive.com/news/customers-owe-billions-in-covid-debt-to-their-utilities-and-somebody-has-to/589525/>).

42. Lawson & Mills, *supra* note 9, at 10.

43. *Id.* In previous years, 11.3% of Black households at or below 150% of the federal poverty level were disconnected, compared to 5.5% of White households at or below the same level. Mark Franklin, *Lights Out in the Cold: Reforming Utility Shut-Off Policies as If Human Rights Matter*, NAT’L ASS’N FOR THE ADVANCEMENT OF COLORED PEOPLE, 14 (Mar. 2017).

44. Lawson & Mills, *supra* note 9, at 10.

ing for levels of energy insecurity, suggesting an element of racial discrimination.<sup>45</sup> A study conducted by the Indiana University O’Neill School of Public and Environmental Affairs and the Cleveland State University Maxine Goodman Levin School of Urban Affairs (IU/CSU Study) suggested that even when controlling for key economic indicators, vulnerable households – specifically Black households, Hispanic households, and households with children under 5 years old – were more likely to have their electricity disconnected by their utility for non-payment.<sup>46</sup>

When customers fail to pay their utility bills in full and on time, they become at risk of a utility disconnection. There are many steps along the way to a disconnection and many programs in place to assist customers in avoiding disconnections. For most utilities, disconnecting the customer is the last resort – utilities benefit more from a customer being able to return to paying bills in full than they do from disconnecting a customer.

Federal law identifies preferred utility policies under the Public Utility Regulatory Policies Act of 1978 (PURPA), which encourages utilities: (1) not to disconnect customers without giving “reasonable prior notice” and allowing customers “a reasonable opportunity to dispute the reasons for such termination”; (2) not disconnect customers who are unable to pay for electricity service during any period of time when termination of service would be “especially dangerous to health”; and (3) to have disconnection procedures that take into account “reasonable provisions for elderly and handicapped consumers.”<sup>47</sup> However, the details of the disconnection process are determined by state and local regulations. As a result, these processes vary from jurisdiction to jurisdiction, though there are many commonalities generally consistent with the principles laid out in PURPA. Typically, the utility contacts the customer, usually several times over a period of up to several months to attempt to receive payment. Unpaid amounts accrue during this time as an arrearage and the utilities may also assess late fees. Customers may be able to enter into a payment plan with the utility or they may qualify for financial assistance from a utility and/or state-administered program, which can help the customer avoid disconnection and pay their outstanding balances. However, if the customer continues to be unable to pay their bill, the utility may disconnect the customer. Generally, utilities will reconnect a customer after receiving payment of the outstanding balances and, in some cases, a reconnection fee.<sup>48</sup>

There are differences in disconnection policies, however, with states trying different means of protecting customers. Over forty states have statutory-based utility disconnection protections that aim to limit shut-offs during specific times of the year and/or for vulnerable populations. These may take the form of seasonal protections, temperature protections, and population-based protections. Some states require certification of the population-based protections (such as a medical

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45. *Id.* at 11.

46. Memmott et al., *Utility disconnections protections and the incidence of energy insecurity in the United States*, iSCIENCE, 6 (Mar. 17, 2023), <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC10025124/pdf/main.pdf>.

47. 16 U.S.C. § 2625(g) (2005).

48. Lawson & Mills, *supra* note 9, at 4.

condition),<sup>49</sup> while some states limit the application of seasonal moratoria to certain customers, such as low-income customers,<sup>50</sup> and so forth.

While the topic of utility disconnections has been around for as long as there have been utilities, and most jurisdictions have well-established practices in place, recent experiences and forces in play are increasing pressure on customers and creating a need for a re-examination of disconnection practices and customer assistance programs designed to prevent disconnection. During the COVID pandemic, for example, most jurisdictions recognized the severe economic distress that could occur for families disconnected from utility service during the pandemic. In many ways, this was a logical extension of provisions that exist in many jurisdictions prohibiting disconnections during extreme weather conditions. “In the early part of the pandemic, approximately 88% of residential electricity customers were protected temporarily from disconnection by state-issued disconnection moratoria or voluntary utility practices.”<sup>51</sup> Specifically, thirty-four states and the District of Columbia implemented moratoria to protect residents from utility disconnections.<sup>52</sup> “Most states had lifted their pandemic-related moratoria by the end of 2021, [and] anecdotal evidence suggests that disconnections increased after the end of pandemic-related moratoria, at least in some parts of the country.”<sup>53</sup>

Importantly, while some state moratoria prohibited the assessment of late fees and other charges related to nonpayment, other states did not, and in general, the moratoria were not bill forgiveness programs – although customers could not be disconnected, their outstanding balances continued to accrue over the months of nonpayment.<sup>54</sup> This meant both that customers who were unable to pay their electric bills saw their outstanding balances continue to increase and that utilities had to provide electric service for extended periods of time without receiving payment from those customers. NARUC noted:

There is a growing consensus among state PUCs [public utility commissions], the private utility sector, and key advocates that the blanket moratoria policies enacted early on in the pandemic response could have been more strategically implemented. Moratoria policies could be more exclusive to low- and moderate-income customers with caveats that customers in arrears need to work with their

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49. Memmott et al., *supra* note 46, at 8.

50. *Id.* at 1.

51. Lawson & Mills, *supra* note 9, at 1, 5.

52. Memmott et al., *supra* note 46, at 1.

53. Lawson & Mills, *supra* note 9, at 5 (citing Richard J. Campbell & Ashley J. Lawson, *COVID-19 Electric Disconnections*, CONG. RSCH. SERV., 5 (June 9, 2020); Will Wade & Mark Chediak, *‘Tsunami of Shutoffs’ Looms With 1 in 6 Late on US Energy Bills*, BLOOMBERG L. (Aug. 23, 2022), <https://news.bloomberglaw.com/environment-and-energy/tsunami-of-shutoffs-looms-with-1-in-6-late-on-us-energy-bills-1>; Jake Zuckerman, *AEP Cut 164,000 Ohioans’ Power for Nonpayment Last Year, More Than Any Other Utility*, OHIO CAP. J. 1 (July 7, 2022), <https://ohiocapitaljournal.com/2022/07/07/aep-cut-164000-ohioans-power-for-nonpayment-last-year-more-than-any-other-utility/>; Hannah LaClaire, *As energy prices rise, thousands of Mainers at risk of losing power*, PORTLAND PRESS HERALD 1 (May 22, 2022), <https://www.pressherald.com/2022/05/22/as-energy-prices-rise-thousands-of-mainers-at-risk-of-losing-power/>; Alicia Inez Guzman & Lician Perez Uribe Guinassi, *The Other Energy Crisis*, SEARCHLIGHT N.M. 6 (Mar. 30, 2022), <https://searchlightnm.org/the-other-energy-crisis/>).

54. Lawson & Mills, *supra* note 9, at 6.

utility on repayment plans to qualify. Customers and utilities alike were unprepared for the massive arrearage burden stemming from blanket moratoria policies prohibiting disconnections.<sup>55</sup>

Nonpayment of bills and the resulting disconnection is not only a problem for the customer that is disconnected, it also creates problems for utilities, regulators and other utility customers. Nonpayment creates a cost for utilities unable to collect revenues for the services they provide, and regulators must develop policies to address nonpayment, arrearages, and disconnections regarding how those costs are distributed.<sup>56</sup>

The lack of data around disconnection protection policies makes it difficult to determine which policies “substantially reduce disconnections or provide households meaningful relief from” energy insecurity.<sup>57</sup> It is difficult to obtain a comprehensive view of disconnection policies and practices and their success or lack of success. However, the IU/CSU Study suggests “that the utility disconnection moratoria that states implemented during the COVID-19 pandemic” did have a “substantial impact on disconnections”<sup>58</sup> and also “decreased the likelihood that a household had to forego basic household expenses, such as food or medical care, to pay an energy bill and avoid the threat of disconnection.”<sup>59</sup>

The plethora of different approaches taken by states to disconnections during the COVID-19 pandemic offer a somewhat unique opportunity to study the impact of utility disconnection policies. With energy prices continuing to rise with rising fuel costs and as America seeks to replace and improve upon aging infrastructure, accommodate new demand from electrification, and transition to cleaner energy sources,<sup>60</sup> it is increasingly important to determine what best practices in utility disconnection policies can most effectively alleviate energy insecurity.

#### IV. THE ENERGY INSECURITY INITIATIVE

Mosby Perrow spoke next at the NARUC Panel.

My three children had seen snow before, but never enough in Houston to build a snowman or have a real snowball fight. The first day of Winter Storm Uri was magical in that sense. It reminded me of winters in the Northeast with packs of kids roaming the neighborhood streets and piles of soggy clothes beside the front door signaling hot-chocolate breaks. But the Northeast has insulation and

55. William McCurry, *Lessons Learned from the Ongoing Response to the COVID-19 Crisis*, NAT'L ASS'N REG. UTIL. COMM'RS 20 (Oct. 2021), <https://pubs.naruc.org/pub/99B5206E-1866-DAAC-99FB-E08F3EAF718C>.

56. Lawson & Mills, *supra* note 9, at 15.

57. Memmott, et. al., *supra* note 46, at 1.

58. *Id.* at 8.

59. *Id.* at 9.

60. U.S. ENERGY INFO. ASS'N, *US RESIDENTIAL ELECTRICITY BILLS INCREASED 5% IN 2022, AFTER ADJUSTING FOR INFLATION* (May 31, 2023), <https://www.eia.gov/todayinenergy/detail.php?id=56660>; Adam A. Millsap, *High Elec. Prices Will Go Even Higher Unless We Change Course*, FORBES (Mar. 9, 2023), <https://www.forbes.com/sites/adammillsap/2023/03/09/high-electricity-prices-will-go-even-higher-unless-we-change-course/?sh=42bbb53916a8>; Irina Ivanova, *Inflation Is Falling, But Not Your Elec. Bill. Here's Why*, CBS NEWS (May 30, 2023), <https://www.cbsnews.com/news/inflation-electricity-bills-higher-summer-2023/>.

winterized facilities. As temperatures plunged in Texas, my in-laws lost power, so I brought them over to spend the night with us. Then I lost power, too. We huddled under blankets around a natural gas fireplace talking by candlelight, and it felt like an adventure. But after thirty-six hours of no power, no heat, no running water, and temperatures in single digits, the adventure turned critical. Others had it worse.

By the time Texas thawed, over 240 people had died from the storm,<sup>61</sup> over 9.9 million people went without electricity,<sup>62</sup> and the country lost between \$195 to \$295 billion in damages.<sup>63</sup> There was ultimately little that was magical about Winter Storm Uri. Almost immediately, natural gas advocates pointed to wind turbines in West Texas, and wind energy advocates pointed to shut-in wells and the loss of dispatchable generation. The conversation devolved from there with about as much light as the storm's darkest and coldest night.

As noted above, Energy Insecurity is the inability to obtain, loss, or threatened loss of energy required for our modern lives and has physical, economic, and coping dimensions.<sup>64</sup> It can be acute, as what happened during Winter Storm Uri, and it can be chronic, as is the case for a quarter to one-third of US households, or more than thirty-three million households.<sup>65</sup> According to national data analyzed by Dr. Diana Hernández, almost “twenty-five million households reduced or went without food or medicine to pay for energy.”<sup>66</sup> “That is twice the number of those having received a disconnection notice and four times as many as lacked working heating or cooling equipment,” Dr. Hernández reported.<sup>67</sup>

The Energy Bar Association celebrated its 75<sup>th</sup> Anniversary in the midst of the COVID-19 pandemic, and the celebration that had been planned for the occasion was converted into a call to action. The members of the EBA Board wanted to do something important to mark the occasion. A “Tiger Team” was assembled, tapping the broad diversity of EBA's membership and its deep expertise in energy regulation and policy. Winter Storm Uri crystallized the challenge that the Tiger Team narrowed on. As an organization devoted to advancing the professional excellence, facilitating robust dialogue and debate, and growing an inclusive community that connects and engages a vast and diverse community,<sup>68</sup> the challenge of addressing Energy Insecurity in the wake of a pandemic, a devastating winter

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61. Patrick Svitek, *Texas Puts Final Estimate of Winter Storm Death Toll at 246*, TEX. TRIBUNE (Jan. 2, 2022), <https://www.texastribune.org/2022/01/02/texas-winter-storm-final-death-toll-246/>.

62. Joshua W. Busby et al., *Cascading Risks: Understanding the 2021 Winter Blackout in Texas*, ENERGY RSCH. & SOC. SCI. 1 (June 2, 2021), <https://www.sciencedirect.com/science/article/pii/S2214629621001997>.

63. Irina Ivanova, *Texas Winter Storm Costs Could Top \$200 Billion – More Than Hurricanes Harvey and Ike*, CBS NEWS (Feb. 25, 2021), <https://www.cbsnews.com/news/texas-winter-storm-uri-costs/>.

64. Diana Hernández, *Energy Insecurity and Health: America's Hidden Hardship*, HEALTH AFFS. (June 29, 2023), <https://www.healthaffairs.org/doi/10.1377/hpb20230518.472953/>.

65. *Id.*

66. Diana Hernández et al., *Energy Insecurity in the United States*, CTR. ON GLOBAL ENERGY POL'Y AT COLUMBIA (Oct. 2023), <https://www.energypolicy.columbia.edu/publications/energy-insecurity-in-the-united-states/>.

67. Hernández, *supra* note 64.

68. EBA, EBA MISSION AND CORE VALUES, <https://www.eba-net.org/home/eba-about/> (last visited Apr. 22, 2024).

storm, and a call to action triggered by seventy-five CGEP years of work in energy policy and regulation seemed worthy, important, and achievable.

EBA quickly found fellow travelers familiar with these issues and looking to collaborate. Dr. Hernández introduced members of the Tiger Team to others at Columbia University initiating a conversation with representatives from the Sabin Center and the School of International and Public Affairs' Center on Global Energy Policy (CGEP). The Energy Insecurity Initiative included attorneys and energy professionals from large and small law firms, a myriad of energy trade associations, organizations involved in public power and investor-owned utilities, federal regulators, those who regulated energy for states, and many others. Ultimately, EBA, the Sabin Center, the Mailman School of Public Health, and CGEP entered into an Memorandum of Understanding with the stated objectives to improve uptake of existing programs that can reduce Energy Insecurity in the United States and Canada, to demonstrate the importance of energy and the crisis of Energy Insecurity, to diagnose the causes of Energy Insecurity and to identify policy frameworks that can address the obstacles identified, to build stronger awareness around a just and equitable energy transition, and to improve public understanding of the issues underlying Energy Insecurity.

The Energy Insecurity Initiative was designed to underscore and support EBA's mission to advance the professional excellence of those engaged in energy law, regulation and policy through professional education, exploration of diverse viewpoints, and building connections within the energy community. Since initiating the Energy Insecurity Initiative, the EBA has featured Energy Insecurity at several national meetings, hosting panels to highlight issues within the broader Energy Insecurity challenge and to discuss potential solutions. The Energy Exchange podcast produced a deep dive into the elements of Energy Insecurity during a long-form conversation with Dr. Hernández. The Texas Chapter of the Energy Bar Association started the Annual Texas Symposium with the inaugural meeting focused on Winter Storm Uri that provided an evidenced-based, constructive conversation about what went wrong and how to prevent such acute episodes of Energy Insecurity in the future.

Columbia University, for its part, has provided an initial seed investment through the use of various facilities and in-kind support from Sabin Center Fellows that has helped launch and sustain the initiative through leadership from its senior members and support from sister institutions. In 2023, the Energy Insecurity Initiative kicked off the first phase of research conducted by volunteers from across the U.S. and Canada. The Initiative sought to leverage the EBA's expertise in energy regulations, law, and policy, and Columbia's world class research and academic resources. This round of research is focused on four topic areas: (1) Utility Disconnections and Shutoffs; (2) Low-Income Home Energy Assistance Programs and Other Low-Income Relief; (3) Energy Efficiency and Weatherization; and (4) Access to Clean Energy and Electrification. The response from volunteers has been robust, vindicating the Board's decision to start down this road many years ago.

Despite the efforts to date from volunteers and leaders who are members of the Energy Bar Association, the Energy Insecurity Initiative is really just at its beginning stages and much of the exciting and impactful work is yet to be done.

## V. REDUCING ENERGY INSECURITY IS A MORAL IMPERATIVE

Bob Fleishman spoke last at the NARUC Panel.

He began by declaring, “I believe reducing energy insecurity in the United States in Canada is a moral imperative.” But what is a moral imperative?

In pondering this question, I was drawn to the teachings of great leaders: Abraham Lincoln, Martin Luther King, and Mahatma Gandhi. I came across the following inspiring Albert Einstein statement about Gandhi: “Generations to come, it may well be, will scarce believe that such a one as this ever in flesh and blood walked on this earth.”<sup>69</sup>

That compelled me to focus intensely on Gandhi for help answering the question. Among the vital messages of Gandhi’s leadership were: even one person can make a difference; strength comes not from physical capacity but from an indomitable will; given a just cause, nonviolence and capacity for self-suffering, and fearlessness, victory is certain; leadership by example is the one most effective. To Gandhi the spirit of service and sacrifice was the key to leadership. For the spirit of service to materialize we must lay stress on our responsibilities and duties and not on rights. “The commitment to service, however demands a strong sense of conscience (moral imperative), courage (fearlessness, bravery, initiative), and character (integrity).”<sup>70</sup>

What I draw from this is that a strong sense of conscience – doing the right thing - is the essence of a moral imperative.

I turn seventy next month and have spent more than forty years in the energy industry in government, with an energy company/utility, as a lobbyist in Congress and Maryland, and at three Big Law firms. I also have served EBA in multiple capacities and as president of two community-based non-profit organizations. I’ve been reflecting lately on lessons learned, what’s really important (and is not), and what how I should spend my time in the autumn of my life.

Besides for his leadership on the Energy Insecurity Initiative, Mosby Perrow developed the terrific idea of doing podcasts for EBA in which he interviewed energy industry leaders as part of “Energy Exchange” series. I was the first person he interviewed – kind of a guinea pig. Mosby asked me, among other things, “what do you know to be true?”<sup>71</sup>

69. ALICE CALAPRICE, *THE ULTIMATE QUOTABLE EINSTEIN* 124 (Princeton Univ. Press, 2011) (citing Statement on the occasion of Gandhi’s seventy-fifth birthday, 1939, In *Einstein on Humanism*, 94 (2000)). Here is Einstein’s full statement: Gandhi is a “leader of his people, unsupported by any outward authority a politician whose success rests not upon craft or the mastery of technical devices, but simply on the convincing power of his personality; a victorious fighter who always scorned the use of force, a man of wisdom and humility, armed with resolve and inflexible consistency, who has devoted all his strength to the uplifting of his people and the betterment of their lot; a man who has confronted the brutality of Europe with the dignity of the simple human being, and thus at all times risen superior. Generations to come, it may well be, will scarce believe that such a one as this ever in flesh and blood walked on this earth.” *Id.* at 123-24.

70. Y.P. Anand, *Mahatma Gandhi’s Leadership - Moral & Spiritual Foundations*, <https://www.mkgandhi.org/articles/sept081.htm> (last visited Mar. 31, 2024).

71. The Energy Exchange Podcast, *Season 1, Episode 1: Bob Fleishman, Partner Kirkland & Ellis, Former Gen. Couns. Balt. Gas and Elec., Former Editor-in-Chief of Energy L.J., Past President of EBA*, ENERGY BAR ASS’N (March 18, 2021), <https://www.eba-net.org/home/energy-exchange/>.

Let me tell you how I would answer that question if asked today.

- The energy transition is in full swing; it will be neither quick nor easy.<sup>72</sup> If you do not believe me, read *The State of the Transition* - just published by Bill Gates - which states that we are in the beginning stages of a major “Clean Industrial Revolution.”<sup>73</sup>
- Energy, environmental, and climate issues now, and for the foreseeable future, are inextricably intertwined.
- Energy insecurity is real, it exists in the U.S., Canada and elsewhere, and it is a significant problem.
- Steps must be taken to ensure the energy transition progresses in a just and equitable fashion.
- Reducing energy insecurity in the U.S. and Canada is a moral imperative, and we all have a role to play in addressing this moral imperative.

Major and interrelated trends in the U.S. and Canada are the movement toward decarbonization, access to cleaner forms of energy, and electrification. We will research the impact of these trends and related transitional developments on low-income households and communities as they relate to buildings and transportation. We don’t have the answers yet; we’re just in the beginning stages.

One set of issues to research is that “low-income households have been slower to adopt clean energy because they often lack sufficient savings or have low credit scores, which can impede their ability to finance projects.”<sup>74</sup> With respect to buildings, we will focus on solar panels, community solar, net metering, demand response, distributed energy resources, microgrids, virtual net metering, smart technologies and metering, electric natural gas, appliances, and credit scores. In the transportation sector, we will focus on electric vehicles and charging stations.

Multifaceted and multidimensional problems require attention by a range of stakeholders. Because energy insecurity is a multifaceted problem with multiple dimensions, reducing it will require coordinated and extensive action by many stakeholders, including governments, regulators, companies, community organizations, academia, law firms, market participants, and others.

Reducing energy insecurity is a moral imperative. We need your help. Please join us in addressing this issue.

## VI. APPENDIX

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72. McKinsey puts it this way: “The energy transition is well underway, but how it will unfold in the decades ahead is difficult to predict. Decision makers in government and business face a challenging time planning for a future energy mix that remains unclear.” MCKINSEY & CO., *GLOBAL ENERGY PERSPECTIVE 2023 – EXECUTIVE SUMMARY* (Nov. 21, 2023), <https://www.mckinsey.com/industries/oil-and-gas/our-insights/global-energy-perspective-2023>.

73. Bill Gates, *Breakthrough Energy Founder Bill Gates on the State of the Energy Transition*, *BREAKTHROUGH ENERGY* (Nov. 13, 2023), <https://breakthroughenergy.org/news/bill-gates-annual-report/>.

74. Madeleine Ngo & Ivan Penn, *As Util. Bills Rise, Low-Income Americans Struggle for Access to Clean Energy*, *N.Y. TIMES* (Jan. 11, 2024), <https://www.nytimes.com/2024/01/11/us/politics/utility-bills-clean-energy.html>.





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**INFOGUIDE**

# **Energy Insecurity Mitigation: The Low Income Home Energy Assistance Program and Other Low-Income Relief Programs in the US**

By **Andrea Nishi, Dr. Diana Hernández, and Michael B. Gerrard**  
November 2023

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## About the Energy, Equity, Housing and Health Program

The Energy, Equity, Housing and Health (E2H2) Program established by Dr. Diana Hernández is housed in the Department of Sociomedical Sciences at Columbia University's Mailman School of Public Health. The E2H2 Program brings together students, staff, junior scientists, academic collaborators and community partners to advance research, practice and equity-focused policy related to housing and household energy as social and environmental determinants of health.

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## Acronyms

**DHHS** – US Department of Health and Human Services

**DMP** – Detailed Model Plan

**FPG** – Federal poverty guideline

**LIHEAP** – Low Income Home Energy Assistance Program

**SMI** – State’s median income

**TANF** – Temporary Assistance for Needy Families

**WAP** – Weatherization Assistance Program

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**Michael B. Gerrard** is Andrew Sabin Professor of Professional Practice at Columbia Law School, where he teaches courses on environmental and energy law and founded and directs the Sabin Center for Climate Change Law. He is also a former Chair of the Faculty of Columbia's Earth Institute and holds a joint appointment to the faculty of its successor, the Columbia Climate School. Before joining the Columbia faculty in January 2009, he was partner in charge of the New York office of the Arnold & Porter law firm; he is now Senior Counsel to the firm. He practiced environmental law in New York City full time from 1979 to 2008. His practice involved trying numerous cases and arguing many appeals in federal and state courts and administrative tribunals; handling the environmental aspects of numerous transactions and development projects; and providing regulatory compliance advice to a wide variety of clients in the private and public sectors.



Gerrard was the 2004–2005 chair of the American Bar Association’s 10,000–member section of environment, energy, and resources. He also chaired the New York City Bar Association’s executive committee and the New York State Bar Association’s environmental law section. He has served on the executive committees of the boards of the Environmental Law Institute and the American College of Environmental Lawyers. Several independent rating services ranked Gerrard as the leading environmental lawyer in New York and one of the leading environmental lawyers in the world.

Since 1986, Gerrard has written an environmental law column for the New York Law Journal. He is author or editor of fourteen books, two of which were named Best Law Book of the Year by the Association of American Publishers: Environmental Law Practice Guide (twelve volumes, 1992) and Brownfields Law and Practice (four volumes, 1998). Among his other books are Global Climate Change and U.S. Law (with Jody Freeman and Michael Burger) (3rd ed. 2023); The Law of Environmental Justice (with Sheila Foster) (2nd ed. 2008) The Law of Clean Energy: Efficiency and Renewables (2011); Climate Engineering and the Law: Regulation and Liability for Solar Radiation Management and Carbon Dioxide Removal (with Tracy Hester 2018); and Legal Pathways to Deep Decarbonization in the United States (with John Dernbach, 2019).

He received his B.A. from Columbia University and his J.D. from NYU Law School, where he was a Root Tilden Scholar.



# Energy Insecurity Mitigation: The Low Income Home Energy Assistance Program and Other Low-Income Relief Programs in the US

## Introduction

Energy insecurity, defined as the “inability to meet basic household energy needs,”<sup>1</sup> can be both a chronic and an acute problem.<sup>2</sup> Chronic energy insecurity manifests as an inability to access or afford adequate supplies of energy, while acute energy insecurity arises when infrastructural, maintenance, environmental, or other external sources disrupt or impede access to energy.<sup>3</sup> A substantial number of individuals and families across the United States experience energy insecurity, which can lead to a variety of adverse consequences including residential instability and poor health outcomes.<sup>4</sup>

Reliable access to home energy is necessary for lighting, heating, and cooling the home, as well as other essential functions like refrigerating and preparing food, heating water, and using electronic or medical devices. In the past several decades, both home energy costs and usage have increased, placing greater financial burdens on low-income households.<sup>5</sup> Variation in energy usage and prices throughout the year can make utility bills unpredictable, making it more difficult for low-income households to stay current with payments. Overdue accounts are subject to disconnection from utility service until any arrears are paid, creating significant hardship for affected households. In order to lower utility costs or avoid a shut-off, a family may keep their home at an unsafe or unhealthy temperature, apply for assistance programs, or forgo other necessities like food or medicine.<sup>6</sup>

The Low Income Home Energy Assistance Program (LIHEAP) is a federal program administered by the Department of Health and Human Services (DHHS) that aims to assist low-income households in meeting their home energy needs. Funds appropriated by Congress are distributed to states, territories, and tribal governments to implement energy affordability programs for low-income households struggling with high energy burdens. In addition to or in combination with LIHEAP, many low-income households are also eligible to participate in utility-run affordability programs or rate discounts that are funded in part by other ratepayers. This paper explores both federal and state administration of LIHEAP, common ratepayer-funded affordability programs, and unique energy access and affordability concerns that arise in rural areas and Native American communities.





# LIHEAP

## Federal Administration of LIHEAP

LIHEAP is administered as a block grant, allowing states, the District of Columbia, federally recognized tribes, and territories (grantees) to apply for LIHEAP funds and then direct those funds toward eligible households in their jurisdictions. Each grantee has its own energy assistance program funded through LIHEAP, and each jurisdiction is given significant flexibility in how it designs and administers its program.

The amount of funding each grantee receives through LIHEAP every year is determined by the LIHEAP formula, a complex allocation system established by federal statute.<sup>7</sup> Under the current formula, the percentage of funding available to each state is adjusted annually by DHHS to account for changes in energy costs and consumption.<sup>8</sup> The share of LIHEAP funding allocated to each state is based in part on its portion of nationwide low-income household energy expenditures and in part on historical grant amounts.<sup>9</sup>

Each year, states, territories, and tribal governments must apply for LIHEAP funding and submit a Detailed Model Plan (DMP) outlining how the grantee’s heating, cooling, crisis, and weatherization assistance programs are administered. Under the LIHEAP statute, the DMP must include 16 specific certifications that govern how the grantee’s energy assistance program will operate.<sup>10</sup> These certifications, or “assurances,” serve as guardrails for the design and administration of each grantee’s energy assistance program, allowing the federal government to impose some uniform requirements for all LIHEAP-funded programs. According to 42 U.S.C. § 8624, grantees must certify, among other things, that they will:

- Use the funds they receive to “provide assistance to low income households in meeting their home energy costs” and “intervene in energy crisis situations”;
- Make payments only to households meeting certain criteria laid out in the statute;
- Conduct outreach to eligible households, “especially households with elderly individuals or disabled individuals, or both, and households with high home energy burdens”;
- Coordinate their LIHEAP activities with other federal and state assistance programs;
- Provide the highest levels of assistance to households with “the lowest incomes and the highest energy costs or needs in relation to income”;
- Not exclude recipients of other government assistance programs from receiving benefits, and will treat owners and renters equitably;



- Use no more than 10 percent of their federal funding for planning and administration; and
- Provide an opportunity for an administrative hearing for applicants whose claims are denied.

Outside of these assurances, states have significant flexibility in designing their programs.<sup>11</sup> For example, grantees can set more restrictive eligibility criteria, determine the level of benefits to be provided, identify agencies to administer the program, and decide whether to disburse benefits through utilities or directly to program participants.<sup>12</sup> However, LIHEAP grantees must certify as part of their annual application that they will “provide a method for public participation in the state plan’s development.”<sup>13</sup>

### Appropriations

LIHEAP is funded by annual appropriations to DHHS, which are then distributed to grantees for the provision of energy assistance through locally administered programs.<sup>14</sup> Because of this funding structure, the amount of money available for grantees can vary year to year, and no level of funding is guaranteed.<sup>15</sup> In fact, the Trump administration proposed a complete elimination of LIHEAP funding for fiscal year (FY) 2018 and 2019 on the grounds that states and utility companies provided sufficient low-income assistance and protection from disconnection.<sup>16</sup> Table 1 illustrates how funding levels have fluctuated in recent years.

**Table 1:** Annual LIHEAP funding

Fiscal year	Total funding	Block grant appropriation	Additional funding
2017	\$3.4 billion	\$3.4 billion	N/A
2018	\$3.6 billion	\$3.6 billion	N/A
2019	\$3.7 billion	\$3.7 billion	N/A
2020	\$4.6 billion	\$3.7 billion	\$900 million (CARES Act)
2021	\$8.2 billion	\$3.7 billion	\$4.5 billion (American Rescue Plan Act, available through fiscal year 2022)
2022	\$3.9 billion	\$3.8 billion	\$100 million (Infrastructure Investment and Jobs Act)
2023	\$6.1 billion	\$4.0 billion	\$1 billion (Continuing Appropriations Act); \$1 billion (Consolidated Appropriations Act); \$100 million (Infrastructure Investment and Jobs Act)

Source: LIHEAP and WAP funding, <https://liheapch.acf.hhs.gov/Funding/funding.htm>.



The most recent year of complete data on the LIHEAP funding breakdown is from FY 2017, when Congress appropriated \$3.4 billion for the program and an additional \$160 million was carried over from the previous year's unused funds, bringing the year's full funding to \$3.5 billion.<sup>17</sup> Since 2017, LIHEAP funding has increased, in part due to federal pandemic assistance programs. Modest funding increases raised the total funding for both 2018 and 2019. LIHEAP received approximately \$900 million in supplemental funding through the Coronavirus Aid, Relief, and Economic Security (CARES) Act in 2020, bringing the year's total to roughly \$4.7 billion, and a further \$4.5 billion in supplemental funding from the American Rescue Plan Act brought the 2021 total to \$8.5 billion.<sup>18</sup> Funding returned to pre-pandemic levels in 2022,<sup>19</sup> but rose again in 2023 with \$1 billion in supplemental funding that brought the year's total to more than \$6 billion.<sup>20</sup>

In general, the vast majority of appropriated funds go directly to program costs. Each year, DHHS distributes more than 99 percent of the regular LIHEAP block grant funding among the states and other jurisdictions that have applied to participate in LIHEAP,<sup>21</sup> reserving the remainder until later in the year.<sup>22</sup> Once these funds have been allocated, grantees are permitted to spend no more than 10 percent of their allocation on administrative costs.<sup>23</sup> Similarly, the LIHEAP statute strongly encourages grantees to maximize the use of their allocations each year. Grantees may request to carry over no more than 10 percent of their allocation from one federal fiscal year to the next,<sup>24</sup> although few states have carryover funds approaching this threshold each year.<sup>25</sup> In the event that a grantee has more than 10 percent of their allocation remaining at the end of the fiscal year, the remaining funds are forfeited to DHHS to be reallocated among all grantees the following year.<sup>26</sup> In 2019, only two states—Ohio and Utah—had funding in excess of the 10 percent they were permitted to carry over to the following year.<sup>27</sup>

## State Administration of LIHEAP

Each state runs a low-income energy assistance program that is funded in whole or in part through its LIHEAP allocation.<sup>28</sup> A few states use their LIHEAP allocations to fund multiple energy assistance programs. For example, Florida operates a general LIHEAP program, but also uses its LIHEAP funds for a second program that is exclusively open to elderly people in a small number of counties.<sup>29</sup>

Some states and localities contribute additional funding to these programs. Although comprehensive nationwide data on supplemental state funding is not available for recent years, 23 states provided a total of approximately \$250 million in supplementary funding in 2010, with nearly half of this amount coming from New York.<sup>30</sup> Maryland and Michigan each provided more than \$40 million in supplemental funding the same year, and Alaska contributed an additional \$23 million.<sup>31</sup>

All but five states provide payment directly to utilities for heating assistance, rather than disbursing funds to participant households.<sup>32</sup> While these utility payments are the default in most states, many



jurisdictions have established processes to allow for payment to participant households under certain circumstances, such as when the household makes utility payments to its landlord under a rental agreement or when the household uses wood pellets as its main source of home energy.<sup>33</sup>

### Data Source and Analytical Approach

As mentioned above, each LIHEAP grantee submits a *Detailed Model Plan* to DHHS each year to provide a detailed account of how the grantee's LIHEAP funds will be used and how its assistance program will be administered. The DMP must, among other things, describe the eligibility requirements for each type of assistance offered, explain the benefit levels available for each type of assistance, and provide data on the "number and income levels of households which apply and the number which are assisted with funds."<sup>34</sup> Each grantee's 2023 DMP is available through the LIHEAP Clearinghouse.<sup>35</sup>

The sections below explore the wide variations in state administrative approaches, including the different ways in which states determine eligibility and benefit levels for eligible households, as well as barriers to participation that applicants may face. These sections include descriptive statistics obtained via a compilation and summary of the 2023 DMP submitted to DHHS. The summary review examines the DMPs of all 50 states, plus the District of Columbia,<sup>36</sup> to understand the variety of LIHEAP administration models and the prevalence of different program features.

Grantees' responses in the following sections of the DMPs are explored in more detail throughout this paper. Specifically, the authors analyzed:

- **Categorical eligibility (Section 1.4):** This section requires grantees to report whether they consider households categorically eligible for LIHEAP benefits based on at least one member of the household receiving benefits through Temporary Assistance for Needy Families (TANF), Supplemental Security Income (SSI), Supplemental Nutrition Assistance Program (SNAP), or a means-tested veterans program. Grantees that recognize this type of categorical eligibility must also report which benefits programs qualify a household for heating, cooling, crisis, and weatherization assistance.
- **Gross vs. net income (Section 1.8):** This section asks whether the grantee uses gross or net household income for income-based eligibility requirements.
- **Income eligibility (Sections 2.1, 3.1, and 4.1):** These sections cover the grantee's income eligibility thresholds for households of different sizes.
- **Additional eligibility requirements (Sections 2.2, 2.3, 3.2, and 3.3):** These sections address any additional eligibility requirements that grantees may have for heating and cooling assistance,



including whether the grantee uses an asset test or gives priority to households with elderly, disabled, or young residents.

- **Benefit level determination (Sections 2.5 and 3.5):** These sections record the variables that grantees use to determine benefit levels for heating and cooling assistance, including income, household size, and home energy cost or need.
- **Benefit levels (Sections 2.6, 3.6, 4.12, 5.9, and 5.10):** These sections cover the grantee’s minimum and maximum benefit levels for heating, cooling, crisis, and weatherization assistance.
- **Payment distribution (Section 9.1):** This section addresses whether the grantee makes payments directly to home energy suppliers for heating, cooling, and crisis assistance.
- **Documentation requirements (Sections 17.2, 17.4, 17.5, and 17.8):** These sections cover the documentation that is required to apply for LIHEAP benefits, including identification, citizenship documentation, income verification, proof of residency, and utility bills.

Many of the descriptive statistics cited throughout this paper are based on jurisdictions’ answers to questions that required only binary responses, but some statistics also reflect the authors’ interpretation of jurisdictions’ responses to questions that required or permitted text-based responses.

## Eligibility

In order to receive LIHEAP benefits, a household must meet the eligibility criteria established by the federal LIHEAP statute,<sup>37</sup> as well as any more restrictive criteria established by their grantee jurisdiction.<sup>38</sup> The LIHEAP statute sets out eligibility criteria that all recipient households must meet, which can be broken down into what are known as the “categorical” eligibility criteria and the “income” eligibility criteria.<sup>39</sup> The categorical eligibility criteria permit households in which at least one person receives income from specified state and federal assistance programs, including SNAP, SSI, and TANF, to also receive funding through LIHEAP. Separately, the income eligibility criteria provide that households with incomes at or below 150 percent of the state poverty level or 60 percent of the state median income (with exceptions) may receive LIHEAP benefits. Other criteria, such as asset tests or additional requirements for renters, may also apply.

These federal eligibility criteria establish a ceiling for eligibility, and states are permitted under the LIHEAP statute to set more restrictive criteria. Kansas, for example, limits participation in its heating and cooling assistance program to households at or below 130 percent of the federal poverty level, a lower income threshold than that set by the federal eligibility criteria.<sup>40</sup> However, state income-based criteria cannot exclude households with incomes falling below 110 percent of the federal poverty line solely on the basis of income.<sup>41</sup> Outside of these parameters, states have significant



freedom to establish their own eligibility criteria, including setting different criteria for each type of LIHEAP assistance that they provide. For example, in 2021, “Virginia set its eligibility for heating, cooling, and crisis assistance all at 130% FPL, while setting its eligibility for weatherization at 60% of state median income.”<sup>42</sup> This case is somewhat anomalous, though, as most states use the same income criteria for all types of assistance.<sup>43</sup>

The sections below explore state-level eligibility criteria in more detail, breaking these criteria down along the federal lines of categorical and income-based criteria, as well as additional criteria.

### Categorical Eligibility

In their DMPs for FY 2023, 45 percent of states identified at least one form of categorical eligibility for LIHEAP assistance.<sup>44</sup> The states that utilize at least one form of categorical eligibility incorporate TANF, SSI, SNAP, or veteran-related benefits at different rates (Table 2).

**Table 2:** Percentage of states using participation in various benefits programs as categorical eligibility criteria

		Benefit program			
		TANF	SSI	SNAP	Veteran-related
LIHEAP assistance type	Heating	43%	35%	48%	9%
	Cooling	61%	48%	61%	13%
	Crisis	61%	48%	61%	13%

Source: Summary review of 2023 DMPs of all states and Washington, DC.

While categorical eligibility can reduce administrative burdens for both LIHEAP applicants and the government agencies that process applications,<sup>45</sup> a small minority of states that use categorical eligibility criteria allows households to automatically enroll in LIHEAP based on their participation in another assistance program.<sup>46</sup> Only eight states (Kansas, Massachusetts, Michigan, Montana, New York, Oklahoma, South Dakota, and Vermont) provide any type of automatic enrollment based on categorical eligibility, and still most of these states require more than enrollment in another benefits program for automatic enrollment in LIHEAP.<sup>47</sup> While Vermont allows SNAP applicants to automatically enroll in LIHEAP and recertify their eligibility on the same schedule as their SNAP certification, the other seven states impose additional requirements for automatic enrollment. For example, a state may recognize the categorical eligibility of a household only if someone in the household meets an additional requirement, such as a separate age requirement.<sup>48</sup>



## Income Eligibility

As mentioned above, in addition to setting categorical eligibility criteria for LIHEAP benefits, the LIHEAP statute also establishes income-based eligibility criteria that grantees may make more restrictive. For the purposes of these criteria, income may be measured in relation to the state's median income (SMI) or the federal poverty guideline (FPG) established by the Department of Health and Human Services. Table 3 breaks down the percentage of states that use each income measure, as well as the threshold that their program sets for income-based eligibility.

**Table 3:** Percentage of states using various income-based eligibility criteria

		Income threshold for a four-person household				
		< 60% SMI	60% SMI	< 150% FPG	150% FPG	> 150% FPG
LIHEAP assistance type	Heating	2%	59%	8%	24%	6%
	Cooling	0%	62%	6%	28%	3%
	Crisis	2%	59%	4%	27%	8%

Source: Summary review of 2023 DMPs of all states and Washington, DC.

Not only may grantees set thresholds for the level of household income that qualifies for LIHEAP assistance, they also have discretion in how they define and measure income. Overwhelmingly, states use a gross income measurement, although a small number of grantees base eligibility on net income.<sup>49</sup>

There is also significant variation in what grantees count as sources of income for the purposes of LIHEAP eligibility. While all grantees count wages, self-employment income, retirement benefits, and alimony as income, grantees are fairly evenly divided over whether some other sources, such as cash gifts, legal settlements, and insurance payments, count toward a household's income.<sup>50</sup> A minority of grantees consider income tax refunds, work study funding, and income earned by children as part of a household's income.<sup>51</sup> Table 4 breaks down the percentage of states that count different potential streams of income for the purposes of LIHEAP income-based eligibility.

**Table 4:** Percentage of states counting types of income sources for LIHEAP eligibility

<b>Wages</b>	100%	<b>Legal settlements</b>	51%
<b>Self-employment income</b>	100%	<b>Jury duty compensation</b>	49%
<b>Retirement benefits</b>	100%	<b>One-time lump-sum payments</b>	47%
<b>Alimony</b>	100%	<b>Insurance payments made directly</b>	45%
<b>Contract income</b>	98%	<b>Income from employment through the Workforce Investment Act</b>	41%
<b>SSA benefits</b>	98%	<b>Funds received for foster children</b>	37%
<b>Rental Income</b>	98%	<b>Work study</b>	29%
<b>Unemployment Insurance</b>	96%	<b>Stipends from companion programs</b>	14%
<b>SSI</b>	96%	<b>Ameri-Corp</b>	12%
<b>Veterans Administration benefits</b>	94%	<b>Income of child under 18</b>	10%
<b>Child support</b>	92%	<b>Certain other insurance payments</b>	8%
<b>Strike pay</b>	90%	<b>Income tax refunds</b>	8%
<b>Interest, dividends, or royalties</b>	90%	<b>Savings account</b>	6%
<b>Commissions</b>	88%	<b>Reimbursement</b>	4%
<b>TANF</b>	76%	<b>SNAP</b>	2%
<b>General assistance benefits</b>	65%	<b>Loans</b>	2%
<b>Payments from mortgage contracts</b>	59%	<b>Balance of retirement account</b>	2%
<b>Cash gifts</b>	59%	<b>Women, Infants, and Children Supplemental Nutrition Program benefits</b>	0%

Source: Summary review of 2023 DMPs of all states and Washington, DC.

### Additional Criteria

While the LIHEAP statute only lays out eligibility criteria based on household income or participation in another benefits program, grantees have the ability to further restrict eligibility based on criteria that fall outside these two categories. A majority of states imposes at least one additional requirement for eligibility.<sup>52</sup>





For heating assistance, 59 percent of states use additional criteria to determine eligibility.<sup>53</sup>

Of those jurisdictions:

- 10 percent use an asset test. For example, households in Arkansas can qualify for heating assistance only if they have \$2,250 or less in assets, unless they have at least one member over the age of 60, in which case the threshold is \$3,250.<sup>54</sup>
- 53 percent have additional requirements for renters in subsidized housing. For example, Maryland requires these renters to provide evidence that they are responsible for their own heating costs in order to receive heating assistance.<sup>55</sup>
- 53 percent have additional requirements for renters with utilities included in the rent. For example, in Illinois these renters are eligible for heating assistance only if their rent is greater than 30 percent of their income for at least 30 days prior to their application for benefits.<sup>56</sup>

Of the states that provide cooling assistance, 40 percent use additional eligibility criteria.<sup>57</sup>

Of those jurisdictions:

- 25 percent use an asset test.
- 33 percent have additional requirements for renters in subsidized housing.
- 42 percent have additional requirements for renters with utilities included in the rent.

Additionally, many grantees expressly prioritize certain groups in their eligibility determinations.<sup>58</sup> Households with elderly or disabled members are prioritized by the most states: the elderly receive priority for heating assistance in 71 percent of states and for cooling assistance in 83 percent of states, and households with at least one disabled member are prioritized for heating assistance in 71 percent of states and for cooling assistance in 73 percent of states.<sup>59</sup> Households with young children are also commonly prioritized, with 59 percent of states prioritizing them for heating benefits and 73 percent of states prioritizing them for cooling benefits.<sup>60</sup> Finally, 37 percent of states prioritize households with high energy burdens for heating assistance, and 46 percent prioritize such households for cooling assistance.<sup>61</sup>

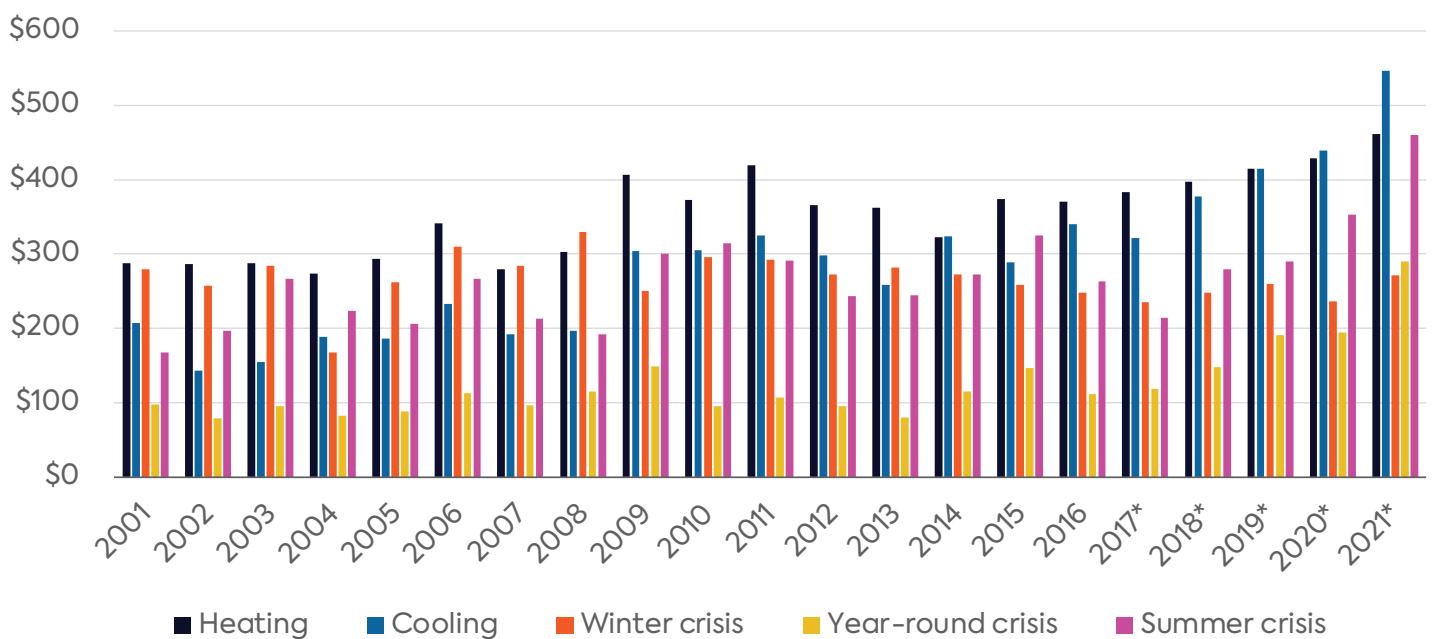
## Benefit Levels

There are four categories of LIHEAP assistance: heating, cooling, weatherization, and crisis assistance, which can itself be distributed in the form of heating, cooling, or other assistance (see Figure 1 and “Types of Assistance” below). Each grantee sets its own eligibility criteria and minimum and maximum benefit levels for each category of assistance. For FY 2023, grantees’ median minimum amount of heating assistance was approximately \$200, while the median maximum for



heating assistance was about \$1,200.<sup>62</sup> For cooling assistance, the median minimum was roughly \$200 and the median maximum was approximately \$800.<sup>63</sup> For crisis assistance, the median maximum benefit was \$750.<sup>64</sup> Most states do not set a maximum weatherization benefit, but for the 17 states that do, the median maximum was \$10,000.<sup>65</sup> These benefit levels are dependent on federal appropriations, which vary from year to year. Of the \$3.5 billion appropriated for LIHEAP in FY 2017, approximately 50.6 percent (\$1.8 billion) was used for heating assistance, 6.7 percent (\$233 million) for cooling assistance, and 16.5 percent (\$575 million) for crisis assistance.<sup>66</sup>

**Figure 1:** Average household benefits, 2001–21



Note: Data for years marked with an asterisk are preliminary pending final data validation.

Source: LIHEAP Performance Measurement website, <https://liheappm.acf.hhs.gov>.

Separate from establishing their own LIHEAP eligibility requirements, grantees can set unique criteria for determining the level of benefits that an eligible household receives. States determine how to distribute funds among households that qualify,<sup>67</sup> although the LIHEAP statute requires states to prioritize households with the lowest incomes and the highest energy burdens in their outreach and distribution of funds.<sup>68</sup> For heating benefits, all states take income and household size into account, while 96 percent also consider home energy cost or need.<sup>69</sup> Similarly, every state that offers cooling assistance considers income and household size when setting a recipient’s benefit levels, and 93 percent consider home energy cost or need.<sup>70</sup> Table 5 breaks down how different states assess energy cost or need.



**Table 5:** Percentage of states considering various factors when assessing energy cost or need for heating and cooling assistance

Factor	Percentage of states considering factor for heating assistance	Percentage of states considering factor for cooling assistance
Fuel Type	80%	43%
Energy Burden	49%	43%
Dwelling Type	45%	20%
Individual Bill	40%	53%
Climate/Region	29%	7%
Energy Need <sup>71</sup>	22%	37%

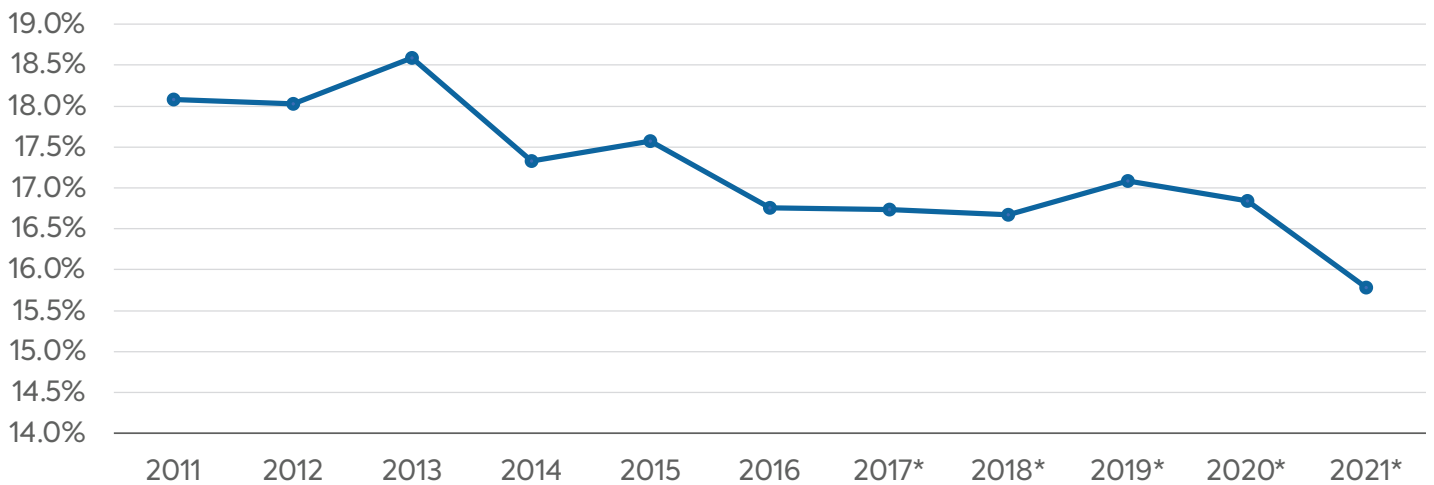
Note: “Energy need” is defined in the LIHEAP statute to “tak[e] into account both the energy burden of such household and the unique situation of such household that results from having members of vulnerable populations, including very young children, individuals with disabilities, and frail older individuals.” 42 U.S.C. § 8622.

Source: Summary review of 2023 DMPs of all states and Washington, DC.

## Barriers to Participation

Between 2011 and 2021, only about 15–20 percent of households meeting federal eligibility criteria received LIHEAP funding (Figure 2).<sup>72</sup> This rate is down significantly from when LIHEAP began in 1981 and the participation rate was about 36 percent.<sup>73</sup> However, even a participation rate of 36 percent is extremely low compared to other federal benefits programs like SNAP, which has an average participation rate above 80 percent.<sup>74</sup>



**Figure 2:** Percentage of income-eligible households served by LIHEAP, 2011–21

Note: Data for years marked with an asterisk are preliminary pending final data validation.

Source: LIHEAP Performance Measurement website, <https://liheappm.acf.hhs.gov>.

Given the block-grant nature of LIHEAP, there is substantial variation between grantees in their application processes, as well as the processes they use for determining eligibility and benefit levels, making it difficult to identify the precise cause of the program’s low participation rate on a national level. The low levels of participation are likely based on a combination of factors operating at both the state and federal levels.

One partial explanation for low participation rates may be that some grantees have imposed application processes or requirements that discourage or prevent eligible households from receiving funding. Although the LIHEAP statute requires grantees to provide applicants with the opportunity to appeal the denial of their application, the statute provides limited safeguards against burdensome application processes that may prevent an otherwise eligible household from successfully submitting an application at all.<sup>75</sup> The application process in some jurisdictions includes in-person filing or meeting requirements, which can be challenging for people living in remote or sparsely populated areas. For example, Maine’s LIHEAP program requires applicants to attend an in-person meeting before they can apply, meaning that applicants from Maine’s island communities must make a ferry trip to the mainland in order to apply for benefits.<sup>76</sup> Similarly, grantees may require applicants to provide various forms of identification (Table 6), proof of immigration and residency status (Table 7), specific income-related documentation (Table 8), and other documents (Table 9) before their application can be reviewed. As providing these documents could be burdensome or impossible for some households, categorical eligibility criteria could help reduce some of the administrative burden for both applicants and administrators.<sup>77</sup>



**Table 6:** Percentage of states requiring various forms of identification

	Applicant only	All adults in household	All household members
Social Security Card photocopy & retention	14%	14%	20%
Social Security number (without actual card)	24%	25%	53%
Government-issued identification card	45%	14%	10%

Source: Summary review of 2023 DMPs of all states and Washington, DC.

**Table 7:** Percentage of states requiring documentation of citizenship or legal residency

Noncitizens must provide documentation of immigration status	78%
Applicants' submission of Social Security cards accepted as proof of legal residency	59%
Applicants' signed attestation of citizenship or legal residency	45%
Citizens provide birth certificate, naturalization papers, or passport	22%

Source: Summary review of 2023 DMPs of all states and Washington, DC.

**Table 8:** Percentage of states requiring specific documents for income verification

Documentation of income for all adult household members	100%
Pay stubs	100%
Social Security award letters	100%
Unemployment insurance letters	100%
Social Security award letters	90%
Zero-income statements	90%
Bank statements	69%

Source: Summary review of 2023 DMPs of all states and Washington, DC.



**Table 9:** Percentage of states requiring other eligibility documentation

<b>Current utility bill</b>	90%
<b>Proof of physical residency</b>	73%

Source: Summary review of 2023 DMPs of all states and Washington, DC.

LIHEAP funding levels may inhibit access to the program’s benefits because those funding levels could limit the number of eligible cases grantees can support or encourage grantees to implement more restrictive eligibility requirements. Because grantees are not required to provide funding to all households that meet their eligibility criteria, “simply being eligible for LIHEAP does not entitle a household to LIHEAP benefits.”<sup>78</sup>

First, there may simply not be enough funding available for states to provide benefits to all eligible households. As DHHS explains on its website, “Being qualified for LIHEAP does not guarantee that you will receive help. ... Quite often, states, tribes, and territories run out of LIHEAP money before they have served everyone that is eligible.”<sup>79</sup> As energy costs rise and extreme weather increases household energy usage, some grantees are encountering earlier and more severe funding shortages.<sup>80</sup> When grantees run out of funding before the close of their annual application cycle, they are forced to stop accepting new applications and turn away otherwise eligible households.<sup>81</sup>

Second, insufficient funding at the federal level can also lower the overall program participation rate by placing pressure on grantees to impose more restrictive eligibility requirements. As grantees are permitted to restrict eligibility beyond the minimum eligibility standards set by the federal LIHEAP statute, the participation rate of households meeting the federal eligibility criteria will never be 100 percent.<sup>82</sup> Because the formula for allocating funds between grantees does not take account of participation rates, grantees are not incentivized to ensure that funding reaches all federally eligible households or even all households eligible under their own more restrictive criteria.<sup>83</sup> In light of the federal funding shortfall, grantees face a policy tradeoff between maximizing the number of households that receive funding and maximizing the level of benefits that each participating household receives, with many states opting to provide a higher level of benefits to a smaller number of households.<sup>84</sup> This dilemma is discussed in more detail below, in the section entitled LIHEAP Efficacy and Impact.

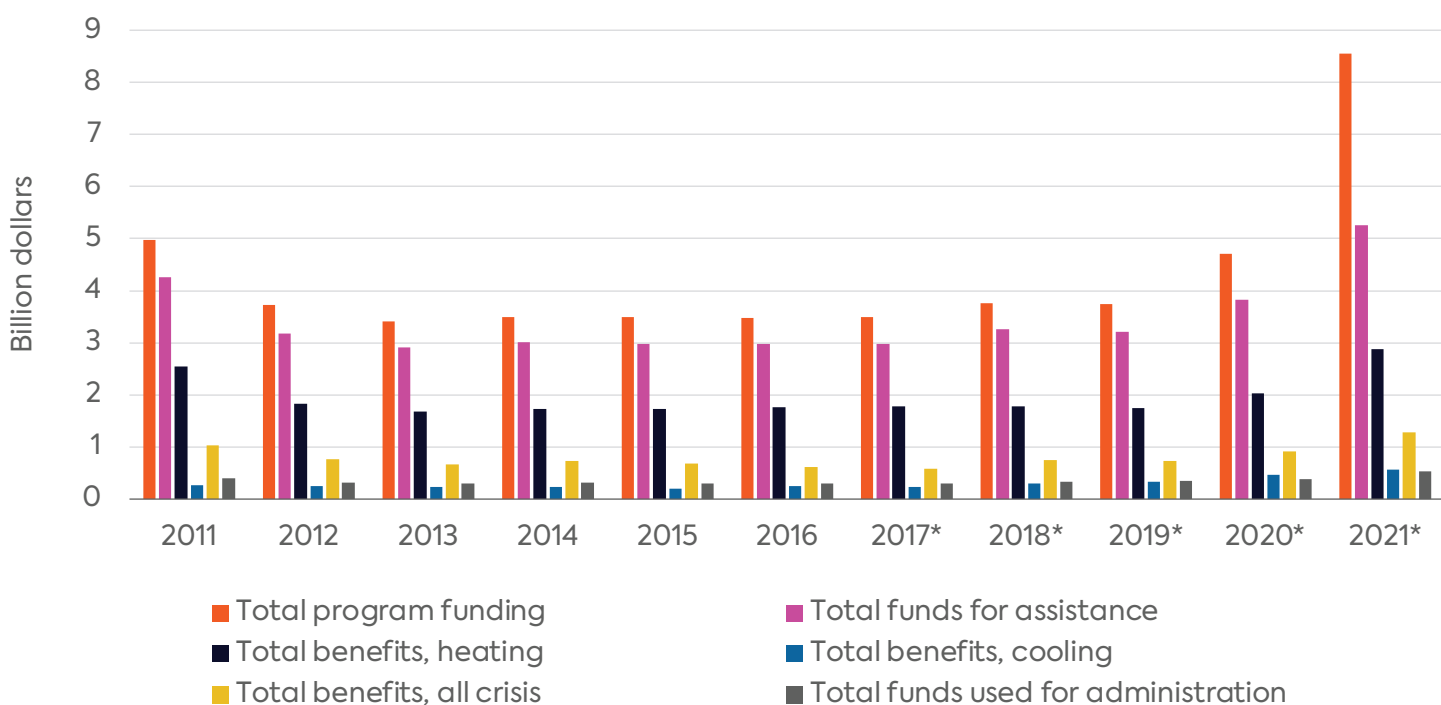


## Types of Assistance

LIHEAP funds must be used to “provide assistance to low income households in meeting their home energy costs,” “intervene in energy crisis situations,” and “provide low-cost residential weatherization and other cost-effective energy-related home repair,” in addition to conducting outreach and other administrative activities.<sup>85</sup> As a result, funding provided through LIHEAP can generally be broken into four categories: weatherization assistance, crisis assistance, and home energy assistance, which is defined as “a source of heating or cooling in residential dwellings”<sup>86</sup> and further broken down into heating and cooling assistance. The statute’s broad definition of “home energy” means that a wide variety of residential heating and cooling fuels are eligible for LIHEAP funding, including electricity, natural gas, heating oil, kerosene, propane, and wood.<sup>87</sup>

While the majority of LIHEAP is used to provide heating assistance (Figure 3), unique issues related to crisis assistance and cooling assistance are explored below; weatherization assistance falls largely beyond the scope of this paper.

**Figure 3:** Allocation of LIHEAP funding, 2011–21



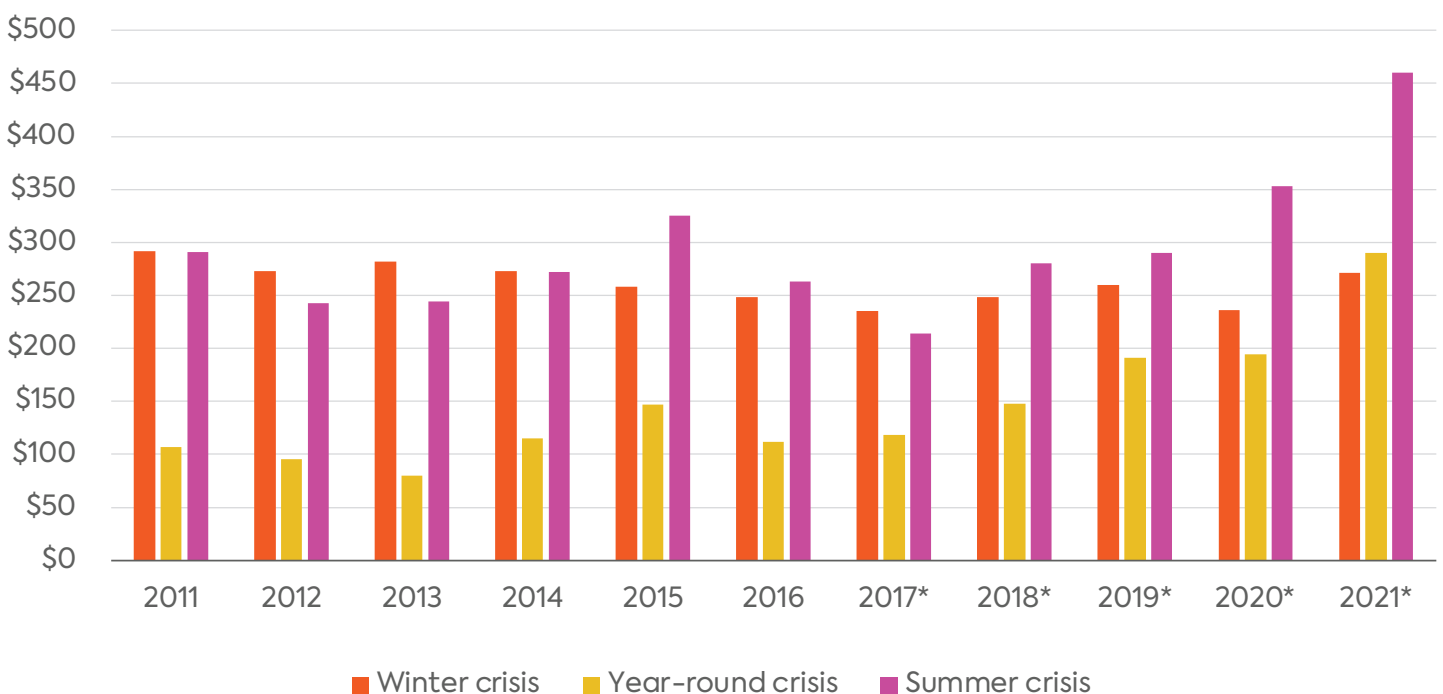
Note: Data for years marked with an asterisk are preliminary pending final data validation.

Source: LIHEAP Performance Measurement website, <https://liheappm.acf.hhs.gov>.

## Crisis Assistance

In addition to the home energy assistance that grantees are required to provide, the LIHEAP statute requires grantees to reserve a “reasonable amount” of their funding through March 15 each year for an “energy crisis intervention” program.<sup>88</sup> This program must provide assistance to eligible households to resolve an energy crisis within 48 hours of the household’s application, or within 18 hours in the case of a life-threatening situation, though these requirements are relaxed in the case of a natural disaster.<sup>89</sup> While the statute does not define what constitutes a “reasonable amount” of funding for a grantee to reserve for crisis assistance, approximately 21 percent of LIHEAP funding distributed each year falls under this category, and is distributed in the form of summer, winter, and year-round crisis assistance (Figure 4).<sup>90</sup>

**Figure 4:** Average household crisis benefits, 2011–21



Note: Data for years marked with an asterisk are preliminary pending final data validation.

Source: LIHEAP Performance Measurement website, <https://liheappm.acf.hhs.gov>.

The statute defines “energy crisis” as “weather-related and supply shortage emergencies and other household energy-related emergencies.”<sup>91</sup> Because this definition is very broad, grantees have significant flexibility in determining what constitutes an energy crisis or life-threatening situation.





Each grantee must provide its definition of these terms as part of its DMP each year, giving DHHS some oversight of the way these terms are defined.

Many states' energy crisis definitions include situations in which households are imminently at risk of losing energy access as a result of non-payment, equipment failure, or limited fuel supply.<sup>92</sup> A selection of "energy crisis" (Table 10) and "life-threatening situation" (Table 11) definitions is available below.

**Table 10:** Selection of energy crisis definitions

<b>Arizona</b>	<p>"A crisis exists when a household faces an energy burden that depletes or threatens to deplete financial resources, or which poses potential health and/or safety threat to the well-being of the household." This includes when any of the following occur:</p> <ul style="list-style-type: none"> <li>• "The household has received a shutoff or eviction notice (when included in the rent) and/or is pending loss of energy"</li> <li>• "The Standard LIHEAP benefit does not pay the full amount of the Applicant's bill"</li> <li>• "The Household utilizes portable fuel or pre-pay utility service and has 7 days or less of energy available"</li> </ul>
<b>Georgia</b>	<p>"A crisis is determined when a low-income household is facing imminent disconnection within 7 calendar days and/or needs restoration of their heating or cooling fuel source. A crisis may also result from a weather related emergency, which affects all, or a specific area of the state."</p>
<b>New Jersey</b>	<p>"Crisis Assistance is deemed necessary when a household is in danger of running out of fuel or where a client receives a shutoff notice from their utility company. This crisis must be resolved within 48 hours."</p>
<b>Virginia</b>	<p>"The Crisis Assistance component is designed to help households meet energy emergencies that cannot be met by other resources. The emergency may result from a weather related or supply shortage emergency such as: no source of heat; the only heating equipment in the home is inoperable or unsafe; or there is a potential no heat situation. Crisis Assistance will be provided when the conditions for providing assistance are met and the assistance will ensure heat for the household. Crisis Assistance intervention must resolve the energy crisis of eligible applicants within 48 hours, or 18 hours if in a life threatening situation. Assistance with the purchase of primary fuel and the payment of the primary utility bills is provided to households who did not receive Heating Assistance or who have exhausted their heating benefit."</p>

Source: Authors' analysis of Arizona, Georgia, New Jersey, and Virginia 2023 DMPs.<sup>93</sup>

**Table 11:** Selection of life-threatening situation definitions

<b>Arizona</b>	“A client is considered to be in a life-threatening crisis when one of the following situations exists: The termination of power or exposure to heat or cold would be dangerous to the health of a household member, as evidenced by a statement from a licensed medical physician; Life supporting equipment used in the home is dependent on utility service for the operation of such apparatus.”
<b>Georgia</b>	“A life-threatening situation is one where by there is a life threatening medical condition that exists that could be intensified if a crisis energy assistance applicant is without energy service. It must be validated by a medical professional such as a physician, public health official, licensed practitioner of the healing arts, or a county health director.”
<b>New Jersey</b>	“A life threatening crisis exists when a household has no fuel and/or has been shut off by their utility company. This type of crisis must be addressed within 18 hours.”
<b>Virginia</b>	“A crisis situation is considered life-threatening if 1) the temperature is projected to be 32 degrees or less and 2) the household includes at least one vulnerable person (an individual who is under age six, age 60 or over, or disabled). Temperatures of 32 degrees or less for the current and following day are established by verifying the projected temperature through a weather service (The Weather Channel etc).”

Source: Authors’ analysis of Arizona, Georgia, New Jersey, and Virginia 2023 DMPs.<sup>94</sup>

## Cooling Assistance

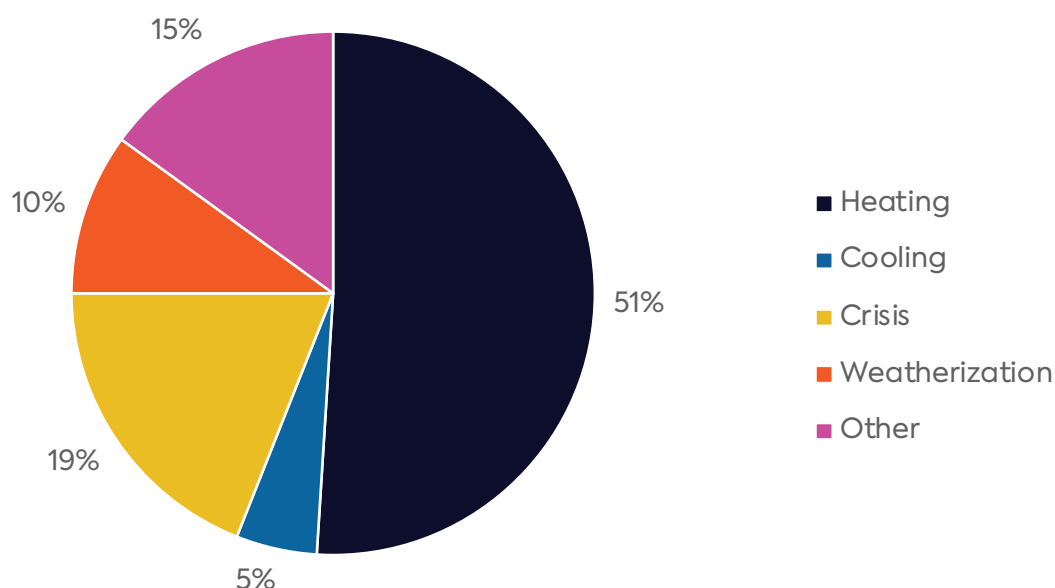
Extreme heat kills hundreds of people in the United States each year,<sup>95</sup> and average temperatures nationwide are expected to rise by as much as 8 degrees Fahrenheit in some areas by 2100.<sup>96</sup> Before the end of this century, most Americans will experience more than 25 days of temperatures exceeding 90 degrees Fahrenheit each year.<sup>97</sup> The availability of cooling assistance under LIHEAP will likely increase in importance as global temperatures have been rising—the past eight years have been the warmest eight years in recorded history.<sup>98</sup>

During periods of high heat, access to air-conditioning can be a matter of life or death: a survey of heat-related deaths in Maricopa County, Arizona, found that approximately 20 percent of indoor heat-related deaths occurred in residences with no air-conditioning unit.<sup>99</sup> In cases where an air conditioner was present, the units were nonfunctioning more than 50 percent of the time.<sup>100</sup> While these statistics highlight the need for affordable access to air-conditioning units and maintenance, the study also found that approximately 13 percent of residences with air-conditioning units had been disconnected from their electricity service, and 34 percent of homes had not been running their air-conditioning when the death occurred, possibly out of a need to save money.<sup>101</sup>



Although the LIHEAP statute allows grantees to use their funds for home heating and cooling assistance, grantees are not required to cover both.<sup>102</sup> As noted above, all 50 states and the District of Columbia provide heating assistance with their LIHEAP funds, but fewer than half of these jurisdictions also use their funding to provide cooling assistance.<sup>103</sup> As of 2020, 23 states provided cooling assistance,<sup>104</sup> a figure that has risen from only 16 states in 2007.<sup>105</sup> Even with more states offering cooling assistance, only a small portion of LIHEAP funding actually goes toward residential cooling costs (Figure 5). Even in the Southeast, where temperatures are generally higher year round, 14 percent of funding has gone toward cooling while 38 percent went toward heating.<sup>106</sup>

**Figure 5:** Percentage of LIHEAP funds used by assistance type, 2001–19



Source: Scott Bechler, “How a Decades-Old Federal Energy Assistance Program Functions in Practice: A Deep Dive into LIHEAP” (2021), <https://nicholasinstitute.duke.edu/sites/default/files/publications/How-a-Decades-Old-Federal-Energy-Assistance-Program-Functions-in-Practice-A-Deep-Dive-into-LIHEAP.pdf>.

This disparity is partially explained by the history of the LIHEAP formula.<sup>107</sup> When LIHEAP first began in the early 1980s, the original formula heavily favored cold-weather states due to the heating oil crisis from which the program emerged.<sup>108</sup> This context contributed to a formula that limited the funding available for states where the affordability of cooling is a greater concern. In 1984, Congress introduced a new formula to address this issue by allocating funding based on “the ratio of energy expenditures of the state’s low-income households to the energy expenditures of all low-income households in the country.”<sup>109</sup> These changes are codified in the LIHEAP statute, and the formula can be altered only through further congressional action.

This formula, which is still referred to as the “new” LIHEAP formula nearly 40 years after its introduction, is intended to distribute funds more equitably between warm- and cold-weather states, and weighs state cooling and heating programs equally.<sup>110</sup> However, the “new” formula also includes provisions to ensure that states do not lose significant funding as a result of the formula change, so the “old” formula still applies to roughly the first \$2 billion in LIHEAP funding allocated each year.<sup>111</sup> As a result, cold-weather states are still favored in the distribution of a significant portion of LIHEAP funding, leading to a continued underprovision of cooling assistance.

In addition to the general disparity in funding for cooling assistance compared to heating assistance, the current structure and administration of LIHEAP does not account for the more recent and growing need for air-conditioning in the context of rising temperatures. First, many northern states provide no cooling assistance under LIHEAP, and many of their residents lack air conditioners.<sup>112</sup> As of 2020, fewer than 70 percent of households in Washington, Vermont, and Montana had air-conditioning.<sup>113</sup> As northern states face increasing numbers of high heat days,<sup>114</sup> more households will need to obtain and regularly use air conditioners, both of which can be unaffordable for low-income households.

A number of states, including Mississippi and Nebraska, use LIHEAP funding to cover expenses related to both purchasing and running air conditioners.<sup>115</sup> However, some states, including New York, provide LIHEAP funding for the purchase of air-conditioning units but provide no assistance in covering the cost of running them.<sup>116</sup> Even for households that can afford to purchase an air conditioner, the operating costs can be prohibitively expensive, with the National Energy Assistance Directors Association estimating that households running air conditioners would spend an average of \$540 on summer cooling in 2022.<sup>117</sup> In Nebraska, a state that provides assistance both for the purchase of an air conditioner and for the costs of running the air conditioner, receipt of a LIHEAP-funded air conditioner within the past four years is one of the additional criteria that can help a household qualify for cooling assistance.<sup>118</sup> States may also provide crisis assistance funding to households at risk of losing access to cooling “due to problems with equipment, receipt of a utility shutoff notice, or exhaustion of a fuel supply.”<sup>119</sup>

## LIHEAP Efficacy and Impact

Due to the block-grant nature of LIHEAP, assessing the efficacy of the program on a national scale is difficult,<sup>120</sup> and few detailed studies have been undertaken to evaluate its efficacy.<sup>121</sup> As the LIHEAP statute gives flexibility to each grantee in structuring its program, program design varies significantly from state to state.<sup>122</sup> Moreover, data collection and any necessary waivers for that collection are also handled by states, so performance measurement is not always uniform across all grantees.<sup>123</sup> This level of variation across programs means that nationwide statistics may obscure



nuance and noteworthy information related to the performance of programs in different states.

To combat this evaluation problem, the federal government has increased its efforts to collect standardized data on the program from grantees.<sup>124</sup> In 2014, DHHS began collecting and reporting on four performance metrics:<sup>125</sup>

- Benefit Targeting Index, which “demonstrates whether your state is giving higher benefits to higher burden households”;<sup>126</sup>
- Burden Reduction Targeting Index, which “shows how burden reduction for your high burden households compares to the burden reduction for the average recipient”;<sup>127</sup>
- Service Restoration, which reflects “how many clients had service restored by LIHEAP”;<sup>128</sup> and
- Service Loss Prevention, which “shows the number of clients who would have lost service if not for your intervention with LIHEAP funds.”<sup>129</sup>

Grantees report these performance metrics in their annual DMP submissions, along with information on their data collection practices and plans.<sup>130</sup>

### Distributing Funds to Energy Insecure Households

One metric for assessing the efficacy of LIHEAP is the extent to which appropriated funds actually reach energy insecure households across the country. Several aspects of the LIHEAP statute encourage grantees to distribute funding efficiently, even if they are not able to reach all federally eligible households. The LIHEAP statute prohibits states from spending more than a small percentage of their grant on administrative costs,<sup>131</sup> so the vast majority of funds appropriated for LIHEAP go toward direct benefits for program participants. At the same time, the LIHEAP statute’s limitations on carryover funding encourage grantees to use as much of their allocation as possible each year. For example, in FY 2017, only \$160 million of the total \$3.5 billion LIHEAP allocation was carried over from the previous year,<sup>132</sup> suggesting that grantees used nearly all of the funds they received.

### Reducing Energy Burdens

Another metric for assessing LIHEAP’s efficacy is the impact it has on reducing energy burdens for eligible households. The most recent report to Congress on LIHEAP, in 2017, stated that “[t]he percentage of household heating expenditures offset by LIHEAP benefits decreased from 79.6 percent in FY 2016 to 73.7 percent in FY 2017.” However, this nationwide statistic obscures many variations in the ways that grantees distribute benefits. The LIHEAP statute does not require grantees to provide a specific level of benefits to any eligible household, or even to provide benefits to all eligible households. As a result, the portion of total utility expenses covered by LIHEAP varies



from state to state, as well as within states that provide tiered benefits to different households.

When determining the level of benefits to provide to eligible households, grantees are faced with a choice between giving greater funding to a smaller pool of recipients or distributing less funding to a larger number of households.<sup>133</sup> States that provide a higher amount to fewer eligible households include Florida, Mississippi, and South Carolina,<sup>134</sup> while Arkansas, Kentucky, North Carolina, and West Virginia<sup>135</sup> generally provide a lower level of funding to more recipients.

The different approaches taken by Florida and North Carolina capture the two sides of this policy choice. In 2019, both states received roughly \$100 million in LIHEAP funding, although it is worth noting that the population of Florida is roughly twice that of North Carolina. The two states received similar allocations, but Florida provided its LIHEAP participants with an average benefit of \$944, while North Carolina provided an average benefit of \$254.<sup>136</sup> While Florida's average benefit was more than three times higher than North Carolina's, it served only 6.3 percent of its 1,684,340 eligible households, compared to North Carolina, which served 16.8 percent of its 754,753 eligible households.<sup>137</sup> This funding reduced the average Florida participant's energy burden from 15.50 percent to 11.27 percent, whereas the average North Carolina participant's energy burden decreased from 12.81 percent to 10.46 percent as a result of LIHEAP funding.<sup>138</sup>

### Targeting Energy Burdened Households

A further metric for evaluating LIHEAP's efficacy is the extent to which program funding flows to the households with the lowest incomes and the highest energy burdens. While studies have found that participation in LIHEAP reduces household energy insecurity, researchers have noted that the program would be more successful with better targeting of and more focused outreach to low-income households.<sup>139</sup> One study also found that LIHEAP tends to benefit "marginally energy-insecure households more than the severely energy insecure."<sup>140</sup> This finding runs contrary to the LIHEAP statute's requirement that grantees "ensure that households with the lowest incomes, together with the highest home energy need in relation to income, receive the highest level of assistance."<sup>141</sup> Despite this directive, households with greater resources may inevitably be better able to navigate the administrative aspects of applying because of those resources.<sup>142</sup>

Federally determined funding that does not keep pace with energy costs is a limitation on the efficacy of LIHEAP: energy costs are generally rising around the globe, increasing energy burdens on many low-income households.<sup>143</sup> Many grantees receive insufficient funds to serve all eligible households, and as energy costs rise, grantees will need increased funding in order to maintain even the current reach of their programs.<sup>144</sup> Although President Biden's proposed FY 2024 LIHEAP budget includes a \$111 million increase in LIHEAP funding over FY 2023, this increase is intended to help



provide water bill assistance to low-income households following the expiration of the Low Income Household Water Assistance Program.<sup>145</sup>

As the foregoing discussion illustrates, LIHEAP provides meaningful energy assistance to low-income households across the country, but its reach and efficacy are limited due in large part to funding. While the variation in program design among states makes it difficult to draw universal conclusions about LIHEAP's efficacy, the flexibility afforded to LIHEAP grantees allows each jurisdiction to tailor its program to meet its unique needs and policy objectives. Without increased funding at the federal level, though, LIHEAP will not be able to fully alleviate energy insecurity for all low-income households in the US. The following section discusses ratepayer-funded affordability programs administered by utilities, which often work with or alongside LIHEAP to provide additional energy assistance.



# Utility Rate Designs and Discount Programs to Promote Energy Affordability

## Overview of Programs

In addition to LIHEAP and other assistance programs administered at the state or federal level, ratepayer-funded affordability programs administered by utilities make up a significant portion of energy affordability programs in the United States. Currently, utilities in at least 30 states operate at least one ratepayer-funded bill assistance program.<sup>146</sup> These programs include an enormous variety of designs and structures, including different funding models, eligibility criteria, target populations, and benefits.<sup>147</sup> Especially when combined with LIHEAP participation, ratepayer-funded utility assistance programs can significantly lower household energy burdens. The most common ratepayer-funded structures are percentage of income payment plans (PIPPs), flat percentage discounts, and tiered discounts.<sup>148</sup> These and other common structures are explored in Table 12, with example programs noted in the footnotes; PIPPs and prepaid metering will be discussed in greater detail below.

**Table 12:** Common Ratepayer-Funded Energy Affordability Program Structures

<b>Percentage of Income Payment Plan (PIPP)</b>	Payments are capped at predetermined percentage of household income, <sup>149</sup> which may be a flat percentage for all participants or tiered based on income level or other factors.
<b>Set percentage discounts</b>	Bills are reduced by a set percentage, which may be universal across program participants <sup>150</sup> or tiered based on income level or other factors. <sup>151</sup>
<b>Set bill credits</b>	Bills are offset by a set credit amount, which may be universal across program participants <sup>152</sup> or tiered based on income level or other factors. <sup>153</sup>
<b>Usage-based programs</b>	Programs can include: <ul style="list-style-type: none"> <li>• Monthly payments based on average usage;<sup>154</sup></li> <li>• Tiered discounts based on usage;<sup>155</sup></li> <li>• Discounted rates applied to consumption.<sup>156</sup></li> </ul>
<b>Arrearage forgiveness</b>	Existing customer debt is erased through participation. <sup>157</sup> Programs can operate as gradual forgiveness based on timely bill payments or one-time full forgiveness. <sup>158</sup> Forgiveness may occur gradually over the course of program participation. <sup>159</sup> In addition to arrearage forgiveness that is built into a utility's low-income assistance program, many states offered one-time utility debt forgiveness during the COVID-19 pandemic. <sup>160</sup>

*continued on next page*





<b>Waiver or reduction in fees</b>	Can include reduction or waiver of service charges <sup>161</sup> or reduced minimum bills. <sup>162</sup>
<b>Round-up programs</b>	Utilities may allow customers to “round up” their monthly bill to the next whole dollar, with the additional money being added to a program fund to provide assistance to households that are struggling to pay their bills. <sup>163</sup>
<b>Prepaid metering</b>	Customers pay in advance for service, which typically is disconnected when prepaid balance reaches zero. <sup>164</sup>

Source: Authors' analysis.

Some programs combine multiple features from the common structures outlined above, and some utilities also offer multiple programs. For example, many utilities in California offer both the California Alternate Rates for Energy (CARE) program, which provides a 20 percent discount on gas and electricity for households that meet certain income requirements or are enrolled in specific benefits programs, and the Family Electric Rate Assistance program, which gives households of three or more residents an 18 percent discount on electricity if they meet certain income requirements.<sup>165</sup>

The enrollment criteria for ratepayer-funded affordability programs differ greatly across programs, but may be based on income, energy burden, participation in government benefits programs, age, disability, household size, medical necessity, or other factors. Programs that allow applicants to self-certify for enrollment, like California's CARE program, can reduce administrative burdens.<sup>166</sup> Similarly, some states, like New Jersey, automatically enroll households that participate in other benefits programs.<sup>167</sup> Programs that use “categorical” eligibility criteria such as participation in specific government assistance programs like TANF, SSI, or LIHEAP generally pose a lower administrative burden for both applicants and administrators, which can increase participation. Although the use of categorical eligibility in utility-run affordability programs can allow utilities to avoid undertaking burdensome income verification, participation in TANF, SSI, LIHEAP, or another assistance program is not always a reliable stand-in for income level, particularly in light of the low levels of participation in LIHEAP.

On top of any eligibility criteria, utility-run affordability programs often have additional limits on participation, which can include restricting program participation to a set number of customers, allowing households to participate only for a certain number of months,<sup>168</sup> or applying reduced rates to only a certain amount of usage.<sup>169</sup> Some utilities will also make program participation contingent on the customer making on-time monthly payments,<sup>170</sup> which can be a major barrier to participation for low-income households, even when the program reduces their monthly payment



requirements. Households may similarly struggle to enroll or maintain their participation due to limited enrollment periods,<sup>171</sup> existing arrearages,<sup>172</sup> limitations on re-enrollment for previous participants,<sup>173</sup> or limits on the duration of benefit periods.

### State Laws and Affordability Programs

Many states have established laws, either by legislation or regulation through the public utility commission, mandating that regulated utilities establish affordability programs.

Some examples include:

- Pennsylvania’s Public Utility Commission requires utility companies to run a variety of programs that help low-income customers maintain their service.<sup>174</sup> These programs include budget billing to stabilize monthly bill amounts, customer assistance programs to lower monthly bills based on household size and income, energy conservation assistance, and hardship funding for customers whose needs are not met by other assistance programs.
- Minnesota’s Cold Weather Rule requires utilities to set up reasonable payment plans for low-income customers struggling to pay their bills during the winter.<sup>175</sup> This rule applies to both gas and electric utilities, which are required to work with customers to establish a payment plan that is reasonable in light of the household’s unique financial circumstances.
- Connecticut law establishes a utility-run arrearage forgiveness program.<sup>176</sup> This program allows income-eligible gas and electric customers to have the amount of their monthly payment, including any assistance they receive from the state’s energy assistance program, deducted from the arrearage of their account pursuant to an amortization agreement with the utility.
- Nevada state law establishes a statewide ratepayer-funded utility discount program to reduce energy burdens through the imposition of a universal energy charge.<sup>177</sup> Eligible households receive assistance calculated to reduce their energy expenditures to “the median percentage of household income spent on natural gas and electricity statewide.”
- Maine state law set an early example by explicitly authorizing the development of affordability programs in 1990 after the Maine Public Utility Commission rejected Central Maine Power Co.’s program proposal due to a perceived lack of jurisdiction.<sup>178</sup> In response, the 1990 legislation required the commission to order utilities to develop plans for special rates or bill assistance programs for low-income customers. Legislative changes in 1997 required the commission to establish a statewide assistance program that would apply to a larger group of electric utilities.



## Common and Noteworthy Program Types

### Percent of Income Payment Plans

Percentage of income payment plans (PIPPs) are payment programs designed to reduce household energy costs by capping utility bills at a set percentage of household income. Energy costs that exceed the established percentage of the consumer's income are typically covered by LIHEAP funds to the extent possible, then by other ratepayers.<sup>179</sup> In addition to keeping utility costs down for low-income consumers, PIPPs protect consumers from increases in utility rates by tying the consumer's financial obligation to income rather than to usage.

Although PIPPs are typically administered by utilities as ratepayer-funded affordability programs, the development of these programs is often influenced by state law. In some instances, states have incorporated a PIPP-like structure directly into their own energy assistance programs rather than relying on utilities to implement these programs, although this strategy is uncommon. In Nevada, for example, the state-run energy assistance program includes a credit of up to \$240 per household that is intended to reduce the household's energy burden to a uniform percentage.<sup>180</sup>

Many researchers see PIPPs as a promising model for reducing home energy burdens, particularly in the face of rising energy costs,<sup>181</sup> and efforts are underway in several states to pass legislation mandating that utilities develop and implement PIPPs for low-income households. For example, the George Wiley Center in Rhode Island is advocating for the adoption of a state law that would allow the state's largest utilities to develop PIPPs capping energy expenses at approximately 3–6 percent for low-income households;<sup>182</sup> although the state legislature failed to pass the bill in 2022, advocacy efforts are ongoing.<sup>183</sup> While PIPPs have widespread support, some experts have noted that they are administratively more complicated than other energy affordability programs.<sup>184</sup> They may also provide lower levels of benefits for some households when compared to affordability programs that would reduce a household's energy burden below the threshold that is used for the PIPP.<sup>185</sup>

Utilities in several states,<sup>186</sup> including Colorado, Illinois, Maine, Nevada, New Jersey, Ohio, and Pennsylvania, have established PIPPs,<sup>187</sup> while the development of new PIPPs is underway in others, including New York.<sup>188</sup> These programs are often created pursuant to state requirements, but utilities may also establish PIPPs independent of any requirement in state law. Table 13 explores PIPPs in several states and provides information on the percentage of household income that each program uses as a cap on the responsibility of plan participants, explains any basis the program has in state law, and highlights other noteworthy aspects of the PIPP.



**Table 13:** PIPP examples

State	Maximum percentage of income that customer must pay	Relation to state law and other notes
CA	4% <sup>189</sup>	California’s PUC has mandated that investor-owned utilities establish four-year pilot PIPPs. <sup>190</sup> These pilot programs are limited to customers who have experienced two or more disconnections in one year prior to the state’s disconnection moratorium, or who reside in one of the zip codes with the highest rates of recurring disconnections. Participants must also be enrolled in the California Alternate Rates for Energy program, which provides discounted rates for low-income utility customers.
IL	6%	Utilities required to participate under state law if they serve more than 100,000 retail customers. <sup>191</sup> Participating utilities are required to “bring participants’ gas and electric bills into the range of affordability,” while seeking to maximize program participation. On-time PIPP payment qualifies a participating household for credit on past bills to reduce arrearages by up to \$1,000 per year. <sup>192</sup>
ND	Tiered between 1–3%	PIPP is integrated with North Dakota’s LIHEAP program, so that LIHEAP benefits are distributed based on a formula that reduces household energy burdens to tiered percentages based on household income. <sup>193</sup> The program operates with three income tiers. Households with the lowest incomes receive LIHEAP benefits to reduce their energy burden to 1% of the household’s income, while the middle tier’s energy burden is adjusted to 2% of household income, and the final tier is responsible for paying 3% of household income.
NV	Based on statewide median energy burden	Nevada’s statewide Energy Assistance Program, which is based in state statute, <sup>194</sup> provides annual credits to reduce household energy costs based on statewide energy burdens. <sup>195</sup> Households with income levels below 150% of the federal poverty guideline are eligible to receive credits that reduce their energy burden to the level of the state’s median energy burden, which is calculated annually.
OH	Up to 10%	The nation’s oldest PIPP, which has served as a model for other jurisdictions, was originally developed through the state’s utility commission, but is now codified in statute. <sup>196</sup> Under the program, participants who heat their homes with gas are required to pay up to 5% of their household income toward their gas bill and up to an additional 5% toward their electric bill. Households that are heated with electricity are simply responsible for up to 10% of their household income for their electric bill. The program also includes arrearage reduction, which eliminates a participating household’s outstanding utility debt after two years of on-time, in-full monthly payments.

Source: Authors’ analysis.



## Prepaid Metering

The majority of US electricity consumers purchase energy on a postpaid basis, but prepaid utility service has become more common in recent years.<sup>197</sup> Prepaid metering programs have been around since the early 20th century, and have been particularly common in Great Britain over the past 100 years.<sup>198</sup> More recently, these programs have evolved significantly with the availability of advanced metering infrastructure (AMI) technology, which can provide utility companies with remote access to customer usage, balance, and account data.<sup>199</sup> Whereas early prepay meters accepted coins and had to be periodically emptied, modern meters can be paid electronically and provide accurate, to-the-minute balance information. At their most basic, these programs are often compared to filling up a car with gas, in that customers access service by loading funds into their account but then are unable to use any energy beyond what they have paid for in advance.<sup>200</sup>

Following increased investment in smart grid research as part of the 2009 American Recovery and Reinvestment Act, prepaid metering programs have become more widespread in the United States.<sup>201</sup> Because these programs no longer require the installation or removal of special equipment, the costs for utility companies to administer prepaid metering and for customers to participate have made these programs more viable.<sup>202</sup> Some experts have also suggested that prepaid metering has become more popular due to pressures on utilities to reduce consumer debt.<sup>203</sup>

As of 2012, at least 53 utilities in 19 states offered prepayment programs for energy customers.<sup>204</sup> Prepaid service is more common in southern states and among unregulated utilities such as cooperatives.<sup>205</sup> An independent study of Arizona utility Salt River Project's M-Power program, one of the largest prepaid metering programs in the United States, found the following trends among program participants: "M-Power customers tend to be relatively young and have low-incomes, have families, use relatively low amounts of electricity, make an average of seven payments per month during peak spring and summer seasons, and experience disconnection from service an average of one time per month throughout the year."<sup>206</sup>

Compared to postpaid service, some prepaid metering programs provide significant benefits for low-income households, since they often do not require a deposit to sign up for service<sup>207</sup> and customers may not be required to pay off existing arrears before enrolling.<sup>208</sup> However, some programs require a portion of each payment to go toward paying past-due balances.<sup>209</sup> Service that is disconnected under a prepaid metering program can typically be reconnected more quickly than postpaid service, and usually does not require payment of a reconnection fee, though this is not the case for all prepaid metering programs.<sup>210</sup>

At the same time, customers participating in prepaid metering programs often report higher levels of satisfaction with their service than traditional postpaid customers.<sup>211</sup> Prepaid consumers have



more control over the amount and frequency of their payments,<sup>212</sup> along with greater certainty and predictability when it comes to their energy expenses.<sup>213</sup> Prepaid consumers are also at lower risk of accruing unpaid utility debt, and may reduce their energy consumption by monitoring their usage using the real-time information offered by prepaid metering technology.<sup>214</sup>

However, prepaid metering programs are heavily criticized by consumer advocates, who find that these programs have the potential to harm low-income customers unless implemented thoughtfully.<sup>215</sup> Prepaid metering programs often result in higher rates of disconnection for consumers and evade the legal protections that exist for low-income consumers facing disconnection from postpaid plans.<sup>216</sup> Under prepaid metering programs, utilities may consider disconnections for lack of funds to be voluntary disconnections that are not subject to traditional legal protections. In many states, prepaid metering is not expressly subject to the legal protections that exist for utility customers facing shut-offs, which can include notice requirements and special protections for consumers who rely on electricity for lifesaving medical devices.<sup>217</sup>

Some states have remedied this by clarifying that existing protections apply to these prepaid programs as well, or by passing new laws to create specific protections for prepaid metering customers. In an early example, when Otter Tail Power Company proposed a prepaid metering pilot project in 1990, the Minnesota Public Utilities Commission determined that the program violated state rules surrounding disconnection notices.<sup>218</sup> Pennsylvania's regulation of prepaid metering programs is particularly rigorous.<sup>219</sup> Low-income customers are not eligible to participate, and the utility must agree to give consumers an emergency backup card covering five days.<sup>220</sup> In addition to Pennsylvania, several states including Oregon,<sup>221</sup> Iowa,<sup>222</sup> Oklahoma,<sup>223</sup> and Texas<sup>224</sup> have laws regulating prepaid metering programs. The National Association of State Utility Consumer Advocates has also assembled a set of model protections for implementing prepaid metering programs.<sup>225</sup>

In the absence of state law clarifying or extending the reach of these protections to prepaid metering programs, utilities have relatively free rein in establishing disconnection protections and procedures for their prepaid customers. In states that provide legal protections against disconnection of prepaid service, utilities have identified other ways of restricting service when a prepaid customer's balance runs out, such as "load limiting or periodic load interruption when the customer balance falls below zero."<sup>226</sup>

In addition to the concern about the potential for prepaid metering programs to evade traditional disconnection protections, advocates raise a number of other concerns about treating prepaid metering as an energy affordability program for low-income households. First, prepaid metering can be difficult to pair with assistance programs, making it difficult for low-income households to access the benefits that they are entitled to receive.<sup>227</sup> Prepaid metering programs also provide



no option for budget billing, which allows the customer to spread the cost of their utility bill evenly across the year to increase the predictability of billing and reduce seasonally high bills.<sup>228</sup> Some research also suggests that even though prepaid customers typically use less energy than postpaid customers, they can end up paying more due to the potentially higher rates imposed for this service<sup>229</sup> or an increased number of payment processing fees or fees for rejected payments.<sup>230</sup> For example, a study of M-Power, the prepayment program run by the Salt River Project in Arizona, revealed that the utility charged higher rates to prepaid customers on the grounds that it cost more to serve these households due to special services required for the program to operate, like payment and monitoring infrastructure.<sup>231</sup> Some states, including Iowa<sup>232</sup> and Oklahoma,<sup>233</sup> prohibit the imposition of higher rates for prepaid service without approval of the state.

Ultimately, prepaid metering programs reduce public scrutiny of energy insecurity<sup>234</sup> and may do more to mask the problem of energy affordability than to solve it.<sup>235</sup> Some studies have shown that low-income households on prepaid meters use less electricity,<sup>236</sup> but advocates are divided on whether this is because prepaid metering encourages consumers to use energy more thoughtfully or because these programs “encourage householders experiencing severe hardship to take extreme measures when restricting their energy use” and deprive themselves of the energy that they need to live comfortably.<sup>237</sup> A study analyzing one prepaid metering program found that prepaid customers who were able to retain service when their balance fell below zero still reduced their consumption, although not to the same extent as prepaid customers who lacked this protection.<sup>238</sup> This finding suggests that improved legal protections around disconnections may help prepaid service households avoid significant deprivations, while still allowing them to benefit from the payment flexibility and predictability that prepaid metering can provide.



## Unique Challenges in Rural and Native American Communities

While the preceding sections discuss several affordability programs in place to assist low-income households with their energy bills, this section highlights unique factors that contribute to energy insecurity in rural and Native American communities. Energy affordability remains an issue in these communities, but other factors, such as the availability of electricity and the energy efficiency of homes and appliances, create additional obstacles for low-income households on the path to energy security.

### Rural Areas

Households in rural areas often face disproportionately high energy burdens. On average, rural households face energy burdens 33 percent higher than the national average, a disparity that is even more pronounced among low-income rural households.<sup>239</sup> The high energy burdens seen in rural areas are due in part to low income levels in these communities, with more than 40 percent of rural households earning less than 200 percent of the federal poverty level.<sup>240</sup>

Several factors besides income contribute to high energy burdens for rural households, including the quality of housing stock and the resources of local utilities. Low-income residents of rural areas are more likely to live in low-quality housing that falls short of contemporary weatherization and energy efficiency standards. At the same time, it can be difficult for rural households to access or afford energy efficiency and weatherization upgrades that can help lower their energy burdens.<sup>241</sup> Rural utilities may have limited resources, making them less likely to fund efficiency programs that are more common in urban areas.<sup>242</sup> Even when cost is less of a concern, there may be few local workers in rural areas with the training necessary to perform energy efficiency and weatherization upgrades.<sup>243</sup>

Proposed programs intended to combat energy insecurity in rural areas focus primarily on regional initiatives to improve energy efficiency.<sup>244</sup> One paper proposes local workforce development and reimbursement programs, which would train rural residents to perform energy efficiency upgrades and provide funding for them to travel to other remote areas to increase access to these services.<sup>245</sup> Other proposals include improving standards for manufactured housing, which makes up a disproportionate share of housing stock in rural areas and can be harder to retrofit than traditional site-built homes.<sup>246</sup> Acknowledging these challenges, the Department of Energy is in the process of rolling out new energy efficiency standards for manufactured housing.<sup>247</sup>

Rural households are also more likely to rely on propane or fuel oil to heat their homes, which leaves them exposed to higher heating costs and unpredictable cost fluctuations and ineligible for energy efficiency funding provided by utilities.<sup>248</sup> However, these households are eligible for LIHEAP funding that can help cover the cost of propane or fuel oil, and some states even provide higher levels of





LIHEAP benefits to propane users.<sup>249</sup> Many states also cover propane as part of their emergency assistance programs, allowing customers to apply for immediate funding when their propane tanks are low.

## Tribal Reservations

Native Americans are the racial group most likely to live in rural areas, so Native American communities face many of the issues that contribute to energy insecurity in rural areas.<sup>250</sup> In addition to these challenges, however, the legal and social history of tribal reservations has given rise to unique energy insecurity obstacles in these communities.

Collecting detailed data on energy insecurity in Native American households can be difficult,<sup>251</sup> but an estimated 36 percent<sup>252</sup> to 50 percent<sup>253</sup> of Native American households experience a high energy burden. Tribal governments may opt into one of two LIHEAP funding allocations: receiving their own allocation directly from DHHS, or receiving a portion of the allocation for the state(s) in which their land is located.<sup>254</sup> When receiving a portion of the state allocation, the tribe's grant is based on the proportion of the state's low-income households that are located on the tribe's reservation or trust land.<sup>255</sup> Alternatively, the tribe may enter into a negotiated agreement with the state to receive a different level of funding.<sup>256</sup> No matter how the funding is allocated, tribal governments face the same constraints and challenges in disbursing LIHEAP funds to their residents as other grantees, namely the level of federal funding.<sup>257</sup>

On many tribal reservations, LIHEAP and other energy affordability measures fail to address a compounding and prevalent cause of energy insecurity: limited access to the electrical grid.<sup>258</sup> For example, on the Navajo Reservation, which is the largest reservation in the United States, 37 percent of households lack electricity.<sup>259</sup> Nationwide, 14.2 percent of Native American households lack electricity, compared to about 1.4 percent of the general population.<sup>260,261</sup> Because of the relative lack of grid access in these areas, LIHEAP and other federal programs focused on individual assistance overlook significant structural and infrastructural obstacles that many Native American households face in accessing adequate home energy supplies.<sup>262</sup> Even where electricity is available, high energy costs and low per capita income contribute to high rates of energy insecurity in Native American communities.<sup>263</sup>

The lack of grid connectivity presents unique concerns for many Native American communities. Households that cannot receive electricity must rely on alternative sources of fuel for light and heating, such as kerosene lamps or wood-burning heaters.<sup>264</sup> As a result, members of these households face increased asthma rates “linked to indoor air pollution, such as the combustion created from burning wood, coal, or kerosene to heat or light the home.”<sup>265</sup> Lack of consistent lighting and internet access at home can also limit educational attainment. Even for households



that have access to a generator, which is necessary for off-grid households to cool their homes, operate a phone or computer, refrigerate food, or power life-saving medical devices, fuel is often more expensive than grid electricity, contributing to high poverty rates in these communities.<sup>266</sup>

The low levels of grid connectivity on Native American reservations can be traced back to a number of historical policies—importantly, restrictions on the Rural Electrification Administration—that limited infrastructure development on tribal land. Although much of the rural US lacked access to electricity until the 1930s, the Rural Electrification Administration was established in 1935 to “make loans to local governments, nonprofits, and farming cooperatives for purposes of developing electricity infrastructure” in rural areas to close this urban-rural electrification gap.<sup>267</sup> Local governments used these loans to significantly expand grid access, but tribal governments were not eligible to receive Rural Electrification Administration grants, meaning many Native American reservations missed out on this infrastructure boom.<sup>268</sup>

The legacy of this programmatic exclusion is that grid extension is now prohibitively expensive on many reservations. By one estimate, extending transmission lines can cost up to \$40,000 per mile on some reservations.<sup>269</sup> On the Navajo Reservation, where more than a third of households lack electricity, it would cost an estimated \$27,000 per mile to extend power lines to many homes due to the area’s low population density.<sup>270</sup> While these infrastructure costs could typically be shared across several homes benefitting from a single line extension, the dispersed nature of the Navajo Reservation means that the “cost often cannot be split over a sufficient number of customers to make it economically viable.”<sup>271</sup> Even when federal subsidies are available, some require matching funds that tribal governments are not able to provide,<sup>272</sup> and many homes require costly upgrades to reach service-ready status.<sup>273</sup>

Although public utilities are often subject to a state law duty to serve, including a duty to provide service to households that are not already connected to service,<sup>274</sup> this duty is cabined in ways that limit its applicability to homes on Native American reservations. Utilities are typically subject to this duty only within the geographic boundaries of their existing service territories,<sup>275</sup> which may not extend to reservation land or other remote or rural areas. Furthermore, even if a proposed extension falls within the utility’s service area, the duty may be limited to reasonable extensions, which may not include developing several miles of transmission to provide service to a single home. Often, the reasonableness of extension hinges on an assessment of several factors, including need, cost, revenue potential, and the public interest.<sup>276</sup>

The legal status of tribal land also poses a significant obstacle to grid extension for many Native American communities. Under the General Allotment Act of 1887, reservation land was divided for assignment to members of the tribe or sale to other individuals, creating a checkerboard of



tribal land and land owned by non-members.<sup>277</sup> Parcels that were owned by the tribal government or tribal members became subject to complex inheritance laws that led to some pieces of land having dozens or even hundreds of fractional owners.<sup>278</sup> When allotted land was sold outside of the tribe, the parcel's reservation status was terminated and the tribe's ability to condemn the land for infrastructure development was extinguished.<sup>279</sup> This mosaic of ownership interests is even further complicated by the requirement that the Department of the Interior grant permission for any easements or rights-of-way on tribal land.<sup>280</sup> As a result, tribes may struggle to secure the necessary rights and approvals to extend grid access even when they have the funds to do so.<sup>281</sup>

In some instances, resistance from community members has prevented tribes from developing energy infrastructure.<sup>282</sup> A case study focusing on the Hopi Reservation found that “[a]s grid power was introduced to the Hopi Reservation, eight villages chose to allow the power lines, but not without conflict among residents. Often traditional elders objected for religious, economic, or aesthetic reasons. Many villagers believed the electrical grid’s attendant poles and lines infringed on village rights-of-way. When all of the discussions were consummated, four villages refused grid power altogether.”<sup>283</sup>

This resistance recalls efforts on the part of Native American groups to halt the development of oil and natural gas pipelines, including the Dakota Access Pipeline. In these instances, advocates resisting the development of new fossil fuel infrastructure have been criticized for stalling projects that would purportedly help lower energy costs.<sup>284</sup> Although Native American resistance to the development of fossil fuel infrastructure is more widely reported, the reluctance of some communities to pursue development of electric transmission underscores that the concerns of many tribal members and organizations are rooted in indigenous rights, culture, and values, rather than solely energy access and affordability.<sup>285</sup>

In light of these challenges, a number of tribal governments have established programs to develop off-grid solar systems that can provide electricity to households outside of the electrical grid.<sup>286</sup> On the Navajo Reservation, the Navajo Tribal Utility Authority (NTAU) has been working since 1999 to subsidize access to small-scale solar power.<sup>287</sup> During that time, “NTAU has rented over 260 [renewable energy generating units] (consisting of an 880-watt solar array, 400-watt turbine, and battery bank) to tribal members at a cost of \$75 per month, which pays for NTUA maintenance and installation training.”<sup>288</sup>

Federal funding has helped to bolster tribes’ efforts to provide off-grid energy across their reservations. In 2020, NTAU received funding through the CARES Act to purchase and install 300 additional off-grid solar units for homes that were not already connected to the grid.<sup>289</sup>

Other tribes have secured federal funding to build microgrids through grant programs for energy



efficiency projects in energy burdened communities.<sup>290</sup> In Nevada, the Moapa Band of Paiute Indians received \$2.38 million in federal funding to develop a solar project that could power the tribe's roadside businesses, which was less than the cost of connecting the shopping center to the grid.<sup>291</sup> At the time the microgrid project was completed, it was expected to save the tribe \$700,000 each year, which would have otherwise been spent on diesel to power the businesses.<sup>292</sup>

Without federal or state subsidies, such microgrid projects can be prohibitively expensive. For example, "a family in Wyoming would have had to pay \$80,000 to their local utility company to bring electricity to their home. While the cost of installing solar panels was cheaper, it still would have cost the family about \$50,000 for the panels and batteries."<sup>293</sup> In similar instances, federal or state funding to improve access to solar or other small-scale renewables may go further in reducing energy insecurity than bill assistance programs.<sup>294</sup>

Not all reservations are well suited to small-scale renewable projects, though. The Yurok Reservation in Northern California, for example, is largely forested with poor wind resources.<sup>295</sup> Drought conditions and upstream dams limit the potential for developing hydropower on the reservation.<sup>296</sup> In such conditions, subsidized grid extension may be the only way to bring electricity to these households.

Fortunately, the Inflation Reduction Act (IRA) contains funding for transmission development and the electrification of tribal homes.<sup>297</sup> Section 80003 of the IRA appropriates more than \$145 million to provide electricity to unelectrified tribal homes, help electrified tribal homes transition to zero-emissions energy systems, and conduct related home repairs and retrofitting.<sup>298</sup> Section 50152 of the IRA provides additional funding for the Department of Energy to make grants to state, local, and tribal governments for transmission development.<sup>299</sup>



## Conclusion

While the federal LIHEAP program has been shown to reduce the energy burdens of the households it affects, its effectiveness at reducing energy insecurity is hampered by its limited reach. The program's block grant structure leads to major variations in administrative approaches among states, making it difficult to assess the efficacy of the program at a national level. However, LIHEAP reaches a significantly smaller percentage of federally eligible households than other federal benefits programs, and applicants are regularly turned away as each year's funding is allocated. Without significant funding increases at the federal level, LIHEAP will remain unable to serve as a comprehensive solution to energy insecurity nationwide.

Ratepayer-funded assistance programs operated by utilities provide another, often complementary, source of relief for low-income households struggling to afford their energy bills. Utilities are often required under state law to develop and administer relief programs for low-income households, although the applicable law may leave utilities with flexibility in how they design and structure their programs. The percentage of income payment plan appears to offer an option for effective relief for low-income households, as it caps their financial responsibility at a set percentage of household income. However, the efficacy of any utility-run program is still dependent on how the program is designed and implemented, including the program's eligibility criteria and application requirements.

When considering the structure of assistance programs intended to alleviate energy insecurity, it is important to tailor solutions to the unique causes of energy insecurity in the target community. In the case of rural communities, low-quality and aged housing stock, combined with lower average household incomes, mean that energy efficiency improvements could have a major impact on reducing energy consumption, and therefore energy burdens. Consequently, programs that provide funding for or support access to these improvements may be warranted alongside bill assistance programs. In Native American communities and other areas with limited grid access, improving access through subsidized microgrid development or transmission line extension may be a necessary first step in addressing communities' energy insecurity.



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