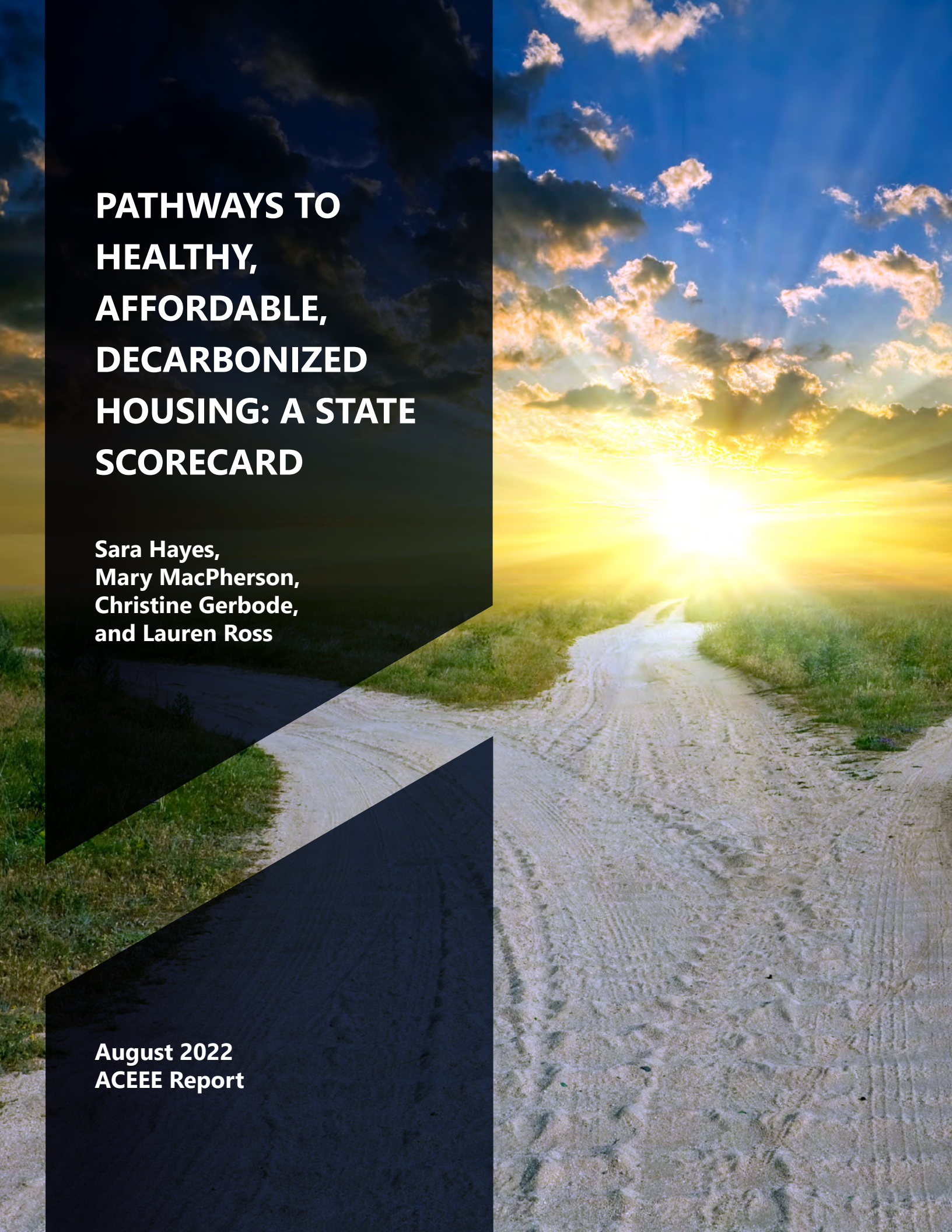

PATHWAYS TO HEALTHY, AFFORDABLE, DECARBONIZED HOUSING: A STATE SCORECARD

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Mary MacPherson,
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and Lauren Ross

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ACEEE Report

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About ACEEE

The **American Council for an Energy-Efficient Economy** (ACEEE), a nonprofit research organization, develops policies to reduce energy waste and combat climate change. Its independent analysis advances investments, programs, and behaviors that use energy more effectively and help build an equitable clean energy future.

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Executive Summary

KEY FINDINGS

This *Scorecard* documents emerging and innovative program models and policies that bring multiple state agencies together to cooperatively solve housing challenges and braid funding across sectors to ensure healthy, affordable housing for all. Our metrics focus on reducing pollution and improving a building's healthfulness through energy efficiency, electrification, and renewable energy.

- All states can take advantage of untapped policy, investment, and program opportunities to improve the lives of their most vulnerable families by making healthy, affordable housing more accessible. Only three states scored more than half of the 100 points available. Many of the lowest-scoring states are in the Southeast and also have the highest poverty rates in the country.
- Maryland, a national leader in efforts to provide healthy housing, narrowly outscored Rhode Island to obtain the top spot in the rankings.
- Rounding out the top 10 are California, Vermont, New York, Washington, Massachusetts, the District of Columbia, and Oregon. Minnesota and Pennsylvania tied for the 10th spot.
- As the list of leading states illustrates, a state can be a national leader in providing healthy, affordable housing regardless of population and geographic size. Whether big or small, a state can provide healthier, more affordable housing to its residents.
- Expanded state efforts in the areas identified in this assessment could be particularly impactful for U.S. states on or near the southern border. Of these states, only California placed in the top 15 of the rankings.
- Many states have made significant progress in one or two policy areas but scored very low in others. Florida, for example, has the second highest score in the nation in the Affordable Housing chapter, but no more than 3 out of 20 possible points in any other area. This shows that while Florida and other states may have taken progressive action in some areas, significant opportunity remains to have a bigger impact by taking a more holistic approach to meeting healthy, affordable housing needs.

Safe, affordable housing, as well as the equipment and appliances that keep residents healthy, fed, and connected, can significantly impact the well-being of families. Systemic racism in our housing policies has denied many Black people, Indigenous people, and other

communities of color access to healthy and affordable housing.[1] Black families in the United States are more likely than white families to be living with inadequate housing conditions.[2]

These disparities in housing quality and affordability elevate household energy consumption and costs—a problem worsened by the COVID-19 pandemic and rising inflation. While one in three U.S. households report difficulty in paying their energy bills, this issue is compounded for Black people, Indigenous people, and other communities of color, who experience the highest energy burdens compared to more affluent or white households.[3]

As climate change brings hotter, longer heat waves and more frequent extreme weather events—including severe cold—families are stressed further by severe fluctuations in energy needs and costs that could lead to unhealthy conditions at home. Black, Indigenous, and other communities of color already suffer higher rates of health harms—including asthma, heart attack, stroke, and high blood pressure—compared to white communities, and poor housing conditions worsen these health harms.[4]

State efforts to provide healthy,[5] affordable housing are still evolving, and competing goals are sometimes seen as tradeoffs (e.g., the belief that healthy, high-efficiency, renewable-powered homes cannot also be affordable). Policymakers who assume tradeoffs are required will miss opportunities to pursue holistic solutions that can benefit vulnerable populations. Pursuing mutually reinforcing policies across housing, energy, and health investments will help states maximize the impact of limited resources, provide the greatest benefits to the most people, and minimize the unintended consequences that policies in one area can have on the goals of another.

Producing healthy, affordable housing is a multifaceted challenge that requires coordination among state agencies. Similarly, scaling clean energy investments in this sector will require a comprehensive approach among the housing, health, and energy sectors. The information in this report is intended to facilitate peer learning and identify opportunities for

[1] NLIHC 2021; Flourney 2021; Wiecek 2011; Collin, Beatley, and Harris 1995

[2] Hayes and Denson 2019; CDC 2021

[3] EIA 2018; Kontokosta, Reina, and Bonczak 2019; Drehobl, Ross, and Ayala 2020; Hernández et al. 2016

[4] Akinbami et al. 2012; Go et al. 2013; CDC 2016; Oates et al. 2017; Benevolenza and DeRigne 2019; Watson et al. 2020

[5] According to the Building Performance Institute, “healthy housing” describes residences that are “clean, dry, pest-free, contaminant-free, safe, ventilated, comfortable, and maintained" (BPI n.d.).

states to make better use of limited resources to more effectively meet housing, health, and environmental goals.

We evaluated states on their actions to support the availability of healthy, affordable housing in the following five policy areas, each of which is the focus of a chapter in this report:

- Energy utilities
- Weatherization and bill assistance
- Affordable housing
- Healthy homes and communities
- Cross-agency coordination and statewide standards

For each of the five policy areas, a state could receive up to 20 points, for a total of 100 points. We allocated the 100 possible points across 33 metrics using a weighted approach intended to reflect the potential magnitude of a policy or program's impact. The 33 metrics and the points allocated to each were developed by our research team and an advisory group of subject matter experts. The sum of points across all metrics produced total scores used to rank the states relative to each other.

Our assessment's most significant finding is that *all states* can take advantage of untapped policy, investment, and program opportunities to improve the lives of their most vulnerable families. Only three states earned more than half of the 100 points available, with the top-ranking state earning 54.5 points. As this implies, every state has tremendous room for improvement. Our *Scorecard* report identifies specific areas in which each state can grow.

Maryland narrowly leads Rhode Island as the top state in the rankings, scoring 16 of 20 possible points for healthy homes and communities. It is a national leader in this area.

Rhode Island's strongest performance is on cross-agency coordination and statewide standards, where it scored 15 out of 20 points. Rhode Island is a national leader in this area, second only to the District of Columbia, which scored 17 out of 20 points for cross-agency coordination and statewide efforts— higher than any state's score in any single chapter.

California, which has received national attention for its affordable housing crisis, is the third-ranked state. Table ES1 lists the top 10 highest-ranking states and their overall scores out of 100 possible points. Figure ES1 shows a map of states by rank.

Table ES1. The 10 highest-ranking states

State	Rank	Total score (out of 100 pts.)
Maryland	1	54.5
Rhode Island	2	54
California	3	52
Vermont	4	50
New York	5	48.5
Washington	6	46.5
Massachusetts	7	45
District of Columbia	8	42.5
Oregon	9	40.5
Minnesota	10	38.5
Pennsylvania	10	38.5

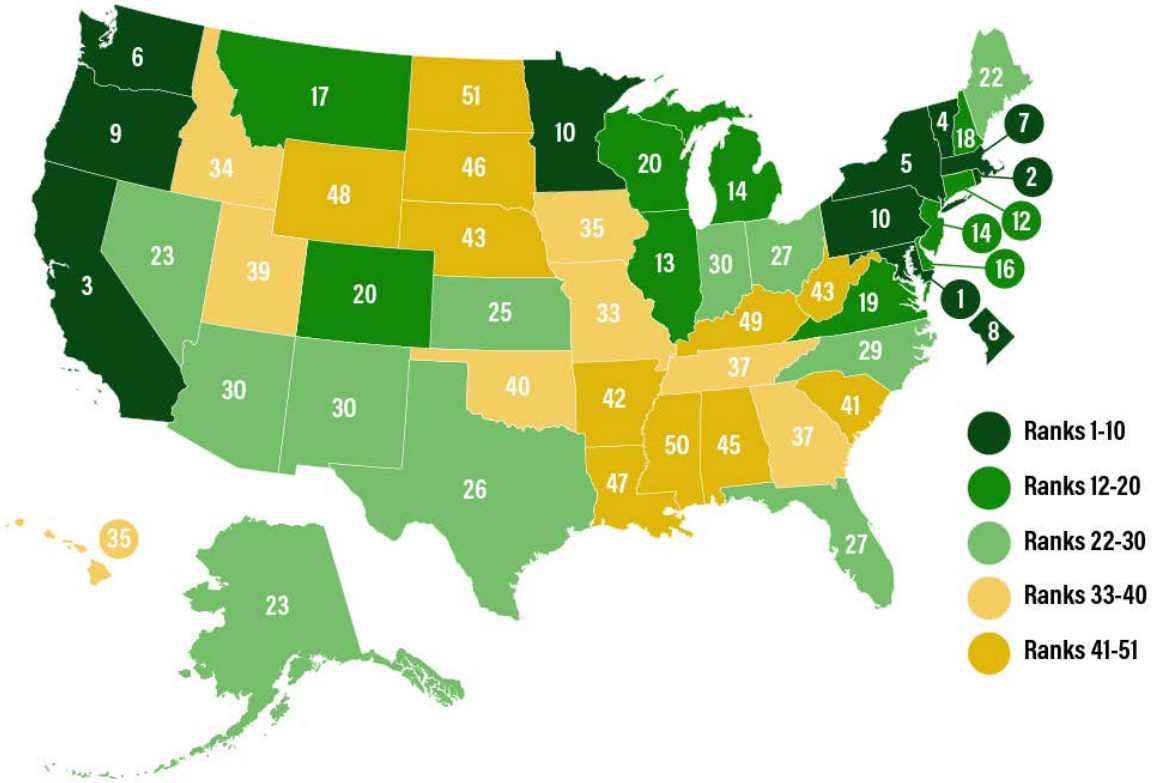

Figure ES1. Map of states by ranking

Many states have made significant progress in one or two policy areas but scored very low in others. For example, Florida scored 13 out of 20 points in the affordable housing area, earning the second highest score in that area of any state, yet it earned no more than 3 points in any other area. So, while Florida is a national leader in its affordable housing policy efforts, significant opportunity remains for the state to have a bigger impact by treating healthy, affordable housing more holistically.

Similarly, Wisconsin is notable for being among the top states for healthy housing and communities efforts, yet it scored 2 points or less in both affordable housing and cross-agency coordination and statewide standards. Wisconsin's efforts to promote health through housing are promising and could be bolstered by improved coordination across agencies and affordable housing policies and programs.

Expanded efforts could be particularly impactful for states on or near the southern U.S. border. With the exception of California, none of these states made it into the top 15 of the rankings. Among the lowest scoring group are states where poverty rates are high. Mississippi and Louisiana have the highest and second highest poverty rates in the nation, respectively, and both scored in the bottom five in our assessment of state efforts to provide healthy, affordable housing. Similarly, West Virginia, Arkansas, Alabama, and Kentucky all rank in the top 10 for most impoverished populations and in the bottom 10 for efforts to provide those families with healthy, affordable housing.

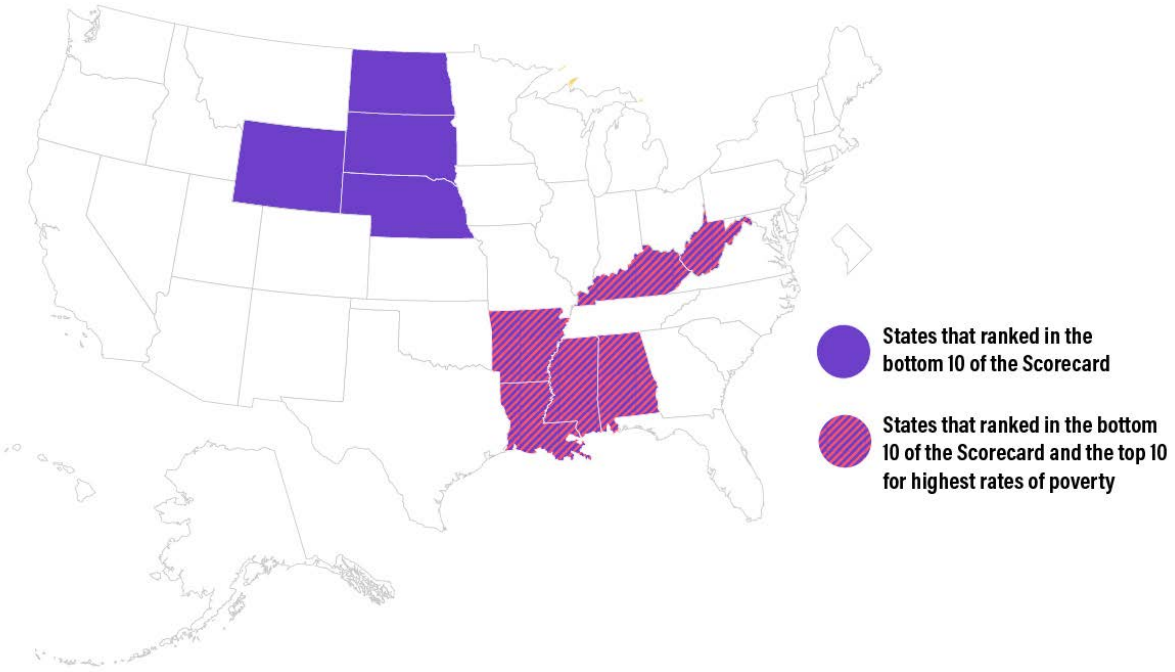

Figure ES2. Map of bottom ranked states and highest rates of poverty

The COVID pandemic, rising rents, and increasing inflation have hurt lower- and middle-income families the most. American families are vulnerable, and state governments have ample opportunity to help. We recommend that state leaders and affordable housing stakeholders and advocates use this *Scorecard* to identify areas in which other states have taken effective actions so that they can adopt similar actions to benefit their own citizens.

Chapter 1. Introduction, Methodology, and Results

Safe, affordable housing, as well as the equipment and appliances that keep residents heathy, fed, and connected, impact the well-being of families. Historically, Black people, Indigenous people, and other communities of color have been denied access to healthy, sustainable, and affordable housing; today, this threat is worsening due to increasing housing costs and a rapidly declining quantity of affordable housing (NLIHC 2021; Flourney 2021; Wiecek 2011; Collin, Beatley, and Harris 1995).

In the face of climate change, access to clean and affordable energy is about more than just keeping the lights on. As climate change brings hotter, longer heat waves and more frequent extreme weather events—including severe cold—families are stressed further by severe fluctuations in energy needs and costs that could lead to unhealthy conditions at home. Black, Indigenous, and other communities of color already suffer from higher rates of health harms that are worsened by poor housing conditions; these include asthma, heart attack, stroke, and high blood pressure (Davis 2012; Akinbami et al. 2012; Go et al. 2013; CDC 2016; Oates et al. 2017). For example, Black families are 60% more likely than white families to be living with inadequate housing conditions that can trigger asthma, such as insufficient heating and cooling and mold, and Black children are more than twice as likely as white children to suffer from asthma (Hayes and Denson 2019; CDC 2021). Researchers predict that climate change's escalating consequences will continue placing the highest burden on Black, Indigenous, and other communities of color (Benevolenza and DeRigne 2019; Watson et al. 2020).

Disparities in housing quality and affordability elevate household energy consumption and costs—a problem worsened by the COVID-19 pandemic, inflation, and recent economic downturns (Kontokosta, Reina, and Bonczak 2019). While one in three U.S. households reports difficulty in paying their energy bills, the challenge is compounded for Black people, Indigenous people, and other people in communities of color who have also been subjected to other systemic racial and environmental injustices and experience the highest energy burdens compared to more affluent or white households (EIA 2018; Kontokosta, Reina, and Bonczak 2019; Drehobl, Ross, and Ayala 2020; Hernández et al. 2016).

IMPACT OF CLEAN ENERGY ON AFFORDABLE, HEALTHY HOUSING

As states increasingly recognize the interconnectedness of housing and public health, making clean energy investments in their affordable housing stock is emerging as a valuable tool. Some states are increasing investments in residential energy efficiency, weatherization, electrification, and renewable energy resources. These investments lead to building upgrades such as insulation, air sealing, heating and cooling systems, appliances, and lighting; these investments, in turn, offer a long-term solution to improving how energy is used in homes, reducing carbon emissions, and improving health outcomes. In addition to these structural solutions, many states also offer utility bill assistance, which serves as an

important resource for keeping the power on when families face sudden (or chronic) economic hardship.

In their efforts to make low- and moderate-income homes more energy efficient, all states offer weatherization programs, which typically address the efficiency of the building envelope and building systems (such as unit heating, cooling, lighting, windows, and water heating). The most well-established and widespread effort is the Weatherization Assistance Program (WAP). Most energy utilities, many of which are state regulated, offer low-income energy efficiency programs that may include weatherization and other measures such as appliance replacements, efficient lighting, and health and safety measures.[6] Some of these programs, including California's Low-Income Weatherization Program, combine renewable energy installation and energy efficiency upgrades to further reduce energy consumption, utility bills, and associated carbon emissions (California CSD 2020).

Energy efficiency helps to improve the condition of affordable housing, expand the benefits of clean energy, and improve public health. Reducing energy use through efficiency lowers demand for electricity, which reduces fossil fuel pollution and the need for greater generation capacity. This reduced demand for capacity reduces the cost of switching to renewable energy by reducing the number of solar panels or wind turbines that need to be built (Specian and Gold 2021; Gold, Ungar, and Berg 2021). Renewable energy access can help stabilize housing costs by reducing exposure to price volatility due to the rising costs of fuels. All of these changes will provide disproportionate health benefits to low-income communities and communities of color, which have historically been exposed to higher pollution levels generated by fossil fuels (Hoerner and Robinson 2008; Mikati et al. 2018). Energy efficiency programs also provide substantial benefits in readiness for and resilience to climate change by reducing exposure to thermal stress (both heat and cold); making homes safer places to shelter in place from storms, blackouts, and wildfire smoke; and reducing pollutants and allergens that trigger asthma and other respiratory illness. Finally, efficiency upgrades can reduce the size and cost of energy-efficient technologies (such as heat pumps) and renewable options (such as solar panels) needed to serve a home.

Efforts to employ policies and investments to prioritize and achieve these multiple outcomes are still evolving, and competing goals are sometimes seen as tradeoffs (e.g., the belief that healthy, high-efficiency, renewable-powered homes cannot also be affordable). However, policymakers who assume tradeoffs are required will miss opportunities to pursue holistic solutions that can benefit vulnerable populations. Pursuing mutually reinforcing policies

[6] Because most state public utility commissions regulate investor-owned utilities (IOUs) and not municipal (munis) or cooperative utilities (co-ops), most of the policies and programs we evaluate in chapter 2 ("Energy Utilities") apply only to IOUs.

across housing, energy, and health sectors will help states maximize the impact of limited resources, provide the greatest benefits to the most people, and minimize the unintended consequences that policies in one area can have on the goals of another.

A MULTISECTORAL APPROACH TO FURTHERING HEALTHY, SUSTAINABLE, AND AFFORDABLE HOUSING

Producing healthy, sustainable, and affordable housing is a multifaceted challenge that requires coordination among state agencies. Similarly, scaling clean energy investments in this sector will require a comprehensive approach among the housing, health, and energy sectors. We found that most of the funding and programs that support affordable housing, address indoor health hazards, or promote access to clean energy remain siloed in individual agencies. This lack of coordination leaves families to navigate a complex, disjointed web of services. Further, without better coordinating the deployment of housing and clean energy resources, the affordable housing sector risks being left behind as climate investments increase in other sectors.

Our research describes policies, programs, and investments that states have made to advance a comprehensive, multisectoral approach to healthy, affordable housing, which we define as follows:

Healthy. According to the Building Performance Institute, healthy housing residences are "clean, dry, pest-free, contaminant-free, safe, ventilated, comfortable, and maintained" (BPI 2021). Healthy housing relates to the "green buildings" concept, which the World Green Building Council defines as "a building that, in its design, construction or operation, reduces or eliminates negative impacts, and can create positive impacts, on our climate and natural environment" (World Green Building Council 2022). In this *Scorecard*, our metrics focus mostly on reducing pollution and improving a building's healthfulness through improvements to energy efficiency and a transition to renewable energy.

Affordable. According to the U.S. Department of Housing and Urban Development (HUD), affordable housing refers to housing in which residents spend no more than 30% of their income on housing costs (HUD User 2017). This includes regulated housing that is supported by federal housing assistance as well as naturally occurring, market-priced housing that meets a similar affordability threshold.

This *Scorecard* evaluates every U.S. state and the District of Columbia.[7] Our goal is to document emerging and innovative program models and policies that bring multiple agencies together to cooperatively solve housing challenges, braid funding across energy

[7] The *Scorecard* omits the five U.S. territories due to a lack of complete data and comparable program activity.

and health sectors to support affordable housing, and so on. As the "Scoring Methodology" section describes, we gathered an inventory of policies, programs, and spending data to create a scoring system that serves as a common standard for comparing states.

Chapters 2–6 of this report represent the five categories of metrics that we identified. Those categories are energy utilities, weatherization and energy bill assistance, state housing policies, healthy homes and communities, and cross-agency coordination and statewide standards. In each of the five categories, a state can receive up to 20 points, for a total of 100 possible points. We allocated these possible points across 33 metrics using a weighted approach intended to reflect the potential magnitude of a policy or program's impact. Every state receives a score for each metric. The sum of scores across all metrics produces the total score that we use to rank states relative to each other (see our "Scoring Methodology" section for more details).

We worked with an advisory group of subject matter experts to create our methodology, identify the metrics to score, allocate the possible points for each metric, and score the states. These experts provided written and verbal feedback on research questions, scoring methodology, and weighting for the individual metrics. Appendix A lists the organizations and specific participants who contributed to this process.

The information in this *Scorecard* is intended to facilitate peer learning and identify opportunities for states to improve policy and investment in ways that simultaneously serve housing, health, and environmental needs. Our work focuses on enabling policy and programmatic actions around these efforts; it therefore does not capture the magnitude of the unmet needs in families and communities. Further, the approaches that will produce the greatest benefits in a state are influenced by a range of factors, including the condition of the existing housing stock, how homes were constructed (e.g., the presence of lead pipes or paint), the outdoor climate (e.g., outdoor air quality, extreme heat, humidity), and the needs of the population (e.g., high asthma rates, high elderly populations). These factors are crucial in determining the best path forward for a given state.

SCORING METHODOLOGY

We reviewed both primary and secondary data for this research. We searched more than two dozen online databases to collect information on policies, programs, standards, and associated spending. We also sent a questionnaire to representatives at every state housing finance agency (HFA) to gather information on state housing policies and programs. We used the data to identify metrics across five different categories and then developed a scoring system to quantify each state's efforts.

We evaluated states on their actions to support the availability of healthy, affordable housing in the following policy areas:

- Energy utilities
- Weatherization and bill assistance

- Affordable housing
- Healthy homes and communities
- Cross-agency coordination and statewide standards

Policies and programs included here address both single family and multifamily housing. We also include state efforts to reach multiple actors in the affordable housing sector, such as homeowners, renters, multifamily building owners, and affordable housing developers.

We awarded points based on data collected from publicly available data sources; surveys of HFA staff; feedback from subject matter experts and in-state contacts; formal actions taken by a governor, agency, state legislature, or public utility commission; and ongoing state planning activities. Much of our research—and particularly the HFA surveys—took place during summer 2021. As a result, more ambitious energy and housing policies passed by states in late 2021 and early 2022 may not be reflected in the final scores.

Although we grouped the metrics in chapters according to category, the cross-sectoral focus of our research means that some topics overlap across chapters. For this reason, focusing on individual metrics and overall rankings is more informative. Individual metrics identify specific opportunities for states to take action and provide examples that state policymakers and advocates can follow. Overall rankings provide an indication of the state's level of commitment and progress toward addressing healthy, affordable housing needs in a holistic way.

This report does not assess city-led or federal actions to drive healthy, affordable housing, although state-led efforts build from and support these efforts. Data availability played a significant role in the metrics we chose.

Table 1. Metrics by chapter and available points

	Points
Chapter 2: Energy Utilities	20
Statewide spending on energy efficiency for low-income households	8
Saving or spending requirements for low-income energy efficiency programs	4
Utility incentives for solar in low-income households	4
Utility cost test exemptions for low-income energy efficiency programs	2
Use of energy efficiency in arrears management	2

Chapter 3: Weatherization and Bill Assistance	20
Supplemental funding for the Weatherization Assistance Program (WAP)	6
Coordinated eligibility for WAP, Low Income Home Energy Assistance Program (LIHEAP), and other federally funded programs	4
Energy burden policies and programs	3
Tracking of WAP deferrals	3
LIHEAP funds for home modifications	2
WAP and/or LIHEAP funds for solar	2

Chapter 4: Affordable Housing	20
Qualified allocation plan (QAP) tax credits for energy efficiency and renewable energy in low-income housing	7
Housing Trust Fund grants for energy efficiency and renewable energy	3
Energy performance standards in housing finance agency (HFA) projects	2
HFA programs supporting energy efficiency in affordable housing	3
HFA programs supporting electrification of affordable housing	3
HFA programs supporting solar in affordable housing	2

Chapter 5: Healthy Homes and Communities	20
Remediation of in-home health and safety threats	4
WAP spending on health and safety services	3
Medicaid funding to provide home-based modifications	3
Children's Health Insurance Program (CHIP) to provide in-home modifications	3
Utility shut-off moratoria to protect health	3
Accounting for health and environmental benefits in utility cost tests	2

Health criteria for new construction	2
Chapter 6: Cross-Agency Coordination and Statewide Standards	20
Building energy performance standards in multifamily buildings	4
Cross-agency organization focused on providing healthy, green, affordable housing	3
Accountability for impacts of energy, sustainability, and climate action planning on marginalized groups	3
Community engagement to inform energy, sustainability, and climate action planning	2
State policies supporting renewable energy in low-income communities	2
Cross-referral platforms for health, energy, and affordable housing services	2
Cross-agency data sharing	2
State building energy codes	1
State appliance standards	1

RESULTS

The map below shows the overall rankings for every U.S. state. Figure 1 is a map showing all states in order of rankings, while table 2 shows their individual chapter scores and composite total scores out of 100.

Maryland had the highest score, followed closely by Rhode Island. California, Vermont, and New York. The sixth spot goes to Washington State, followed by Massachusetts, the District of Columbia, and Oregon. Minnesota and Pennsylvania tied for the 10th spot.

States along the West Coast and in the Northeast have made greater investments overall both in programs and policies than states in the Midwest and South. However, even the leading states have considerable room to improve; of all the states, only three achieved more than half of the available *Scorecard* points.

The list of leading states includes both Rhode Island and California, which shows that a state can be a national leader in providing healthy, affordable housing regardless of population and geographic size.

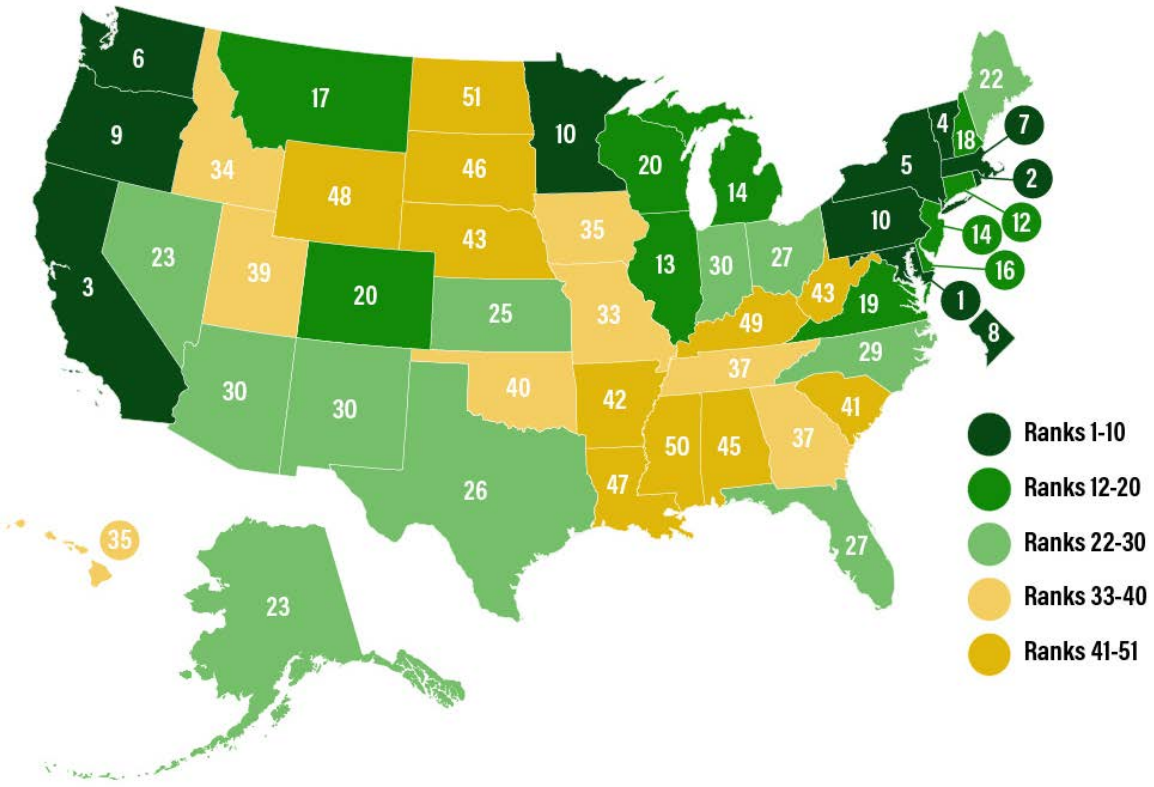

Figure 1. Map of states by ranking

Table 2. Summary of state scores across all categories

State	Rank	Energy utilities (20 pts.)	Weatherization and bill assistance (20 pts.)	Affordable housing (20 pts.)	Healthy homes and communities (20 pts.)	Cross-agency coordination and statewide standards (20 pts.)	Total score (100 pts.)
Maryland	1	7	8	12.5	16	11	54.5
Rhode Island	2	11	5	11	12	15	54
California	3	13	4	15	12	8	52
Vermont	4	14	6	11	9	10	50
New York	5	10	4	16.5	11	7	48.5
Washington	6	4	9	8.5	13	12	46.5
Massachusetts	7	14	10	4	9	8	45

State	Rank	Energy utilities (20 pts.)	Weatherization and bill assistance (20 pts.)	Affordable housing (20 pts.)	Healthy homes and communities (20 pts.)	Cross-agency coordination and statewide standards (20 pts.)	Total score (100 pts.)
District of Columbia	8	8	4	4.5	9	17	42.5
Oregon	9	9	8	6.5	9	8	40.5
Minnesota	10	8	4	7.5	13	6	38.5
Pennsylvania	10	11	6	8.5	7	6	38.5
Connecticut	12	13	1	10	6	7	37
Illinois	13	10	6	5.5	6	9	36.5
Michigan	14	7	5	9	9	5	35
New Jersey	14	4	3	9	10	9	35
Delaware	16	7	4	7.5	12	4	34.5
Montana	17	7	10	7.5	5	4	33.5
New Hampshire	18	11	0	2.5	11	7	31.5
Virginia	19	7	3	7	9	3	29
Colorado	20	3	6	6.5	5	8	28.5
Wisconsin	20	5	8	1.5	12	2	28.5
Maine	22	7	4	6	9	2	28
Alaska	23	4	6	7.5	9	1	27.5
Nevada	23	5	0	7.5	10	5	27.5
Kansas	25	2	5	6.5	10	1	24.5
Texas	26	5	1	2	10	6	24
Florida	27	2	2	13	3	2	22
Ohio	27	2	6	1	11	2	22
North Carolina	29	2	1	6.5	9	3	21.5
Arizona	30	2	3	10	5	1	21

State	Rank	Energy utilities (20 pts.)	Weatherization and bill assistance (20 pts.)	Affordable housing (20 pts.)	Healthy homes and communities (20 pts.)	Cross-agency coordination and statewide standards (20 pts.)	Total score (100 pts.)
Indiana	30	2	1	8	10	0	21
New Mexico	30	5	3	5	6	2	21
Missouri	33	2	2	8	6	2	20
Idaho	34	2	6	3.5	5	3	19.5
Hawaii	35	6	2	4	3	4	19
Iowa	35	2	6	5	6	0	19
Georgia	37	2	2	7	4	2	17
Tennessee	37	2	1	4	9	1	17
Utah	39	2	2	4	7	1	16
Oklahoma	40	5	2	1.5	5	0	13.5
South Carolina	41	2	1	5	3	1	12
Arkansas	42	2	2	1.5	6	0	11.5
Nebraska	43	0	1	1	5	4	11
West Virginia	43	0	5	2	3	1	11
Alabama	45	0	1	2.5	5	1	9.5
South Dakota	46	0	1	6	2	0	9
Louisiana	47	0	1	2.5	5	0	8.5
Wyoming	48	0	2	5.5	0	0	7.5
Kentucky	49	2	2	1	2	0	7
Mississippi	50	2	1	2.5	0	1	6.5
North Dakota	51	0	0	0.5	1	0	1.5

Looking at the areas of strongest performance in the 10 highest-ranked states, we see one or more examples of successful efforts in most of the target policy areas. Looking at the lowest performance scores in these same top states, we can identify opportunities for growth. Of all the policy areas analyzed, weatherization and bill assistance hold the largest opportunities for improvement. Eight of the top 10 states scored lower in this area than in the other four areas.

Table 3. Strongest and weakest areas for top 10 ranked states

	Energy utilities	Weatherization and bill assistance	Affordable housing	Healthy homes and communities	Cross agency coordination and statewide standards
1. MARYLAND	▼	▼		▲	
2. RHODE ISLAND		▼			▲
3. CALIFORNIA		▼	▲		
4. VERMONT	▲	▼			
5. NEW YORK		▼	▲		
6. WASHINGTON	▼			▲	
7. MASSACHUSETTS	▲		▼		
8. DISTRICT OF COLUMBIA		▼			▲
9. OREGON	▲		▼	▲	
10. MINNESOTA		▼	▲		
10. PENNSYLVANIA	▲	▼			▼

▲ AREAS OF STRONGEST PERFORMANCE ▼ OPPORTUNITIES FOR GROWTH

Examining the ranking of state efforts to support healthy, affordable housing alongside state poverty rates, we find that of the 10 lowest-ranked states, 6 lead the nation for the percentage of their populations living in poverty. Mississippi and Louisiana have the highest and second highest poverty rates in the nation, respectively, and both scored in the bottom five in our assessment of state efforts to provide healthy, affordable housing. In addition to these two states, West Virginia, Arkansas, Alabama, and Kentucky all rank in the top 10 for most impoverished populations and in the bottom 10 for efforts to provide those families with healthy, affordable housing. This combination of high poverty rates and early stages of policy adoption mean that efforts by these states to implement the approaches outlined in the *Scorecard* could be particularly impactful.

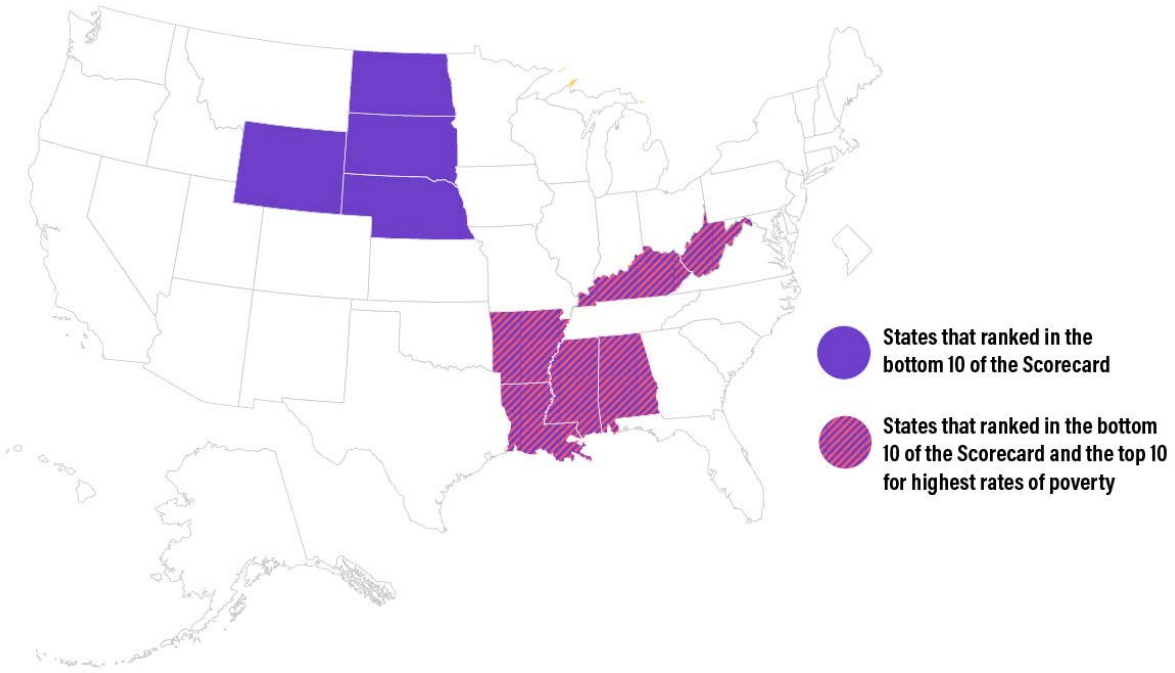

Figure 2. Map of bottom ranked states and highest rates of poverty (USDA 2022)

The following five chapters describe the 33 metrics that we have developed to measure state efforts to provide healthy, affordable housing. Chapters 2–6 assess state efforts through a quantitative analysis; they also provide a roadmap for improvement. As the scores show, there is still much to be done. Stakeholders, policymakers, and advocates can use the information in these chapters to identify specific actions to take as well as places in which such actions have already been successfully implemented.

Chapter 2. Energy Utilities

INTRODUCTION

Energy utilities play a critical role in furthering both energy efficiency and renewable generation. Customers of energy utilities typically fund energy efficiency programs through a surcharge on their utility bills. Energy efficiency programs—implemented by electric and gas utilities or through statewide independent program administrators—deliver energy and cost savings to residential, commercial, and industrial customers (Nowak, Kushler, and Witte 2019). Investments in these programs have increased steadily over the past decade, reaching $8.4 billion annually in 2019 (Berg et al. 2020).

Utility programs are a critical source of funding for energy efficiency programs aimed at low-income households. Through these efforts, utilities help address high energy use and energy affordability for these customers. Low-income, Black, Hispanic, and Native American households face disproportionately high energy burdens, which means that these families pay a higher portion of their monthly income in utility costs compared to other income groups (Drehobl, Ross, and Ayala 2020). Energy efficiency programs can reduce these costs. Although these households often lack access to solar generation due to financial constraints and lower home ownership rates, solar incentives and financing can effectively overcome these barriers (O'Shaughnessy et al. 2021). Utility shutoffs due to unaffordable bills particularly affect Black and Hispanic/Latino households. Nationally, more than twice as many Black households compared to white households reported losing heat or cooling due to needed repairs or unaffordable bills (Kowanko and Harak 2021). Similarly, Hispanic/Latino households experience higher rates of heating or cooling shutoff than non-Hispanic/Latino households.[8]

This chapter highlights state efforts and opportunities to achieve healthy, affordable housing through regulation of energy utilities and through utility efforts to support energy efficiency and solar investments among residents. In addition to providing electricity, natural gas, and other heating fuels, utilities fund and deliver services to improve the energy efficiency of homes and make renewable energy more accessible. However, customers with lower incomes face numerous barriers to participation in these programs; those barriers include lack of capital, lack of credit, and housing conditions that may require upfront repairs to correct health and safety issues before they can be made more efficient. Programs designed

[8] The National Consumer Law Center (NCLC) data collection and tabulation using data from the U.S. Department of Energy, Energy Information Administration 2015 Residential Energy Consumption Survey Microdata. For the purpose of this report, we defer to the demographic terminology used by data sources. The NCLC uses *Latinx* in their reporting to refer to people described as Hispanic or Latino.

for low-income customers can help overcome these barriers and achieve more equitable outcomes.

In this chapter, we identify and rank utility investments in energy efficiency and renewable energy services for low-income households, state regulations that require or incentivize those investments, and state efforts to better serve low-income households. Table 4 describes the metrics included in this chapter.

Table 4. Energy utility metrics

Metric	Description	Score
Statewide spending on energy efficiency for low-income households	Combined state and utility spending on low-income energy efficiency programs	8
Saving or spending requirements for low-income energy efficiency programs	Requirements for a minimum level of natural gas and electric spending or savings in state or utility low-income energy efficiency programs	4
Utility incentives for solar in low-income households	Utility financial incentives to help low-income households gain access to solar technologies	4
Utility cost test exemptions for low-income energy efficiency programs	Special cost-effectiveness screening provisions or exceptions for low-income energy efficiency programs	2
Energy efficiency in arrears management	State utility commission policies that protect customers in utility arrears from shutoffs if they have applied for, or participate in, energy efficiency programs	2

RESULTS AND KEY TAKEAWAYS

Massachusetts and Vermont tied for first place, scoring 14 out of 20 points, followed closely by California and Connecticut with 13 points each. All four of these states received full points for adjusting cost-effectiveness testing for low-income programs, which is a common practice across the country. In spite of being national leaders, none of these states incorporated energy efficiency requirements into their utility shutoff protections. Of all U.S. states, only Washington State has done this.

Four of the top five states are from the Northeast: Massachusetts, Vermont, New Hampshire, and Connecticut. California leads in the West. Pennsylvania leads in the mid-Atlantic, Illinois in the Midwest, and Virginia and Nevada lead in the Southeast and Southwest, respectively. Table 5 shows each state's scores for this chapter.

Table 5. Energy utility scores by state

State	Statewide low-income (LI) spending (8 pts.)	LI program requirements (4 pts.)	Incentives for solar (4 pts.)	LI cost effectiveness (2 pts.)	Arrears management (2 pts.)	Total score (20 pts.)
Massachusetts	8	3	1	2	0	14
Vermont	8	3	1	2	0	14
California	6	3	2	2	0	13
Connecticut	6	4	1	2	0	13
New Hampshire	6	3	0	2	0	11
Pennsylvania	4	4	1	2	0	11
Rhode Island	8	0	1	2	0	11
Illinois	4	3	1	2	0	10
New York	2	3	3	2	0	10
Oregon	2	3	2	2	0	9
District of Columbia	2	4	0	2	0	8
Minnesota	2	3	1	2	0	8
Delaware	2	3	0	2	0	7
Maine	2	3	0	2	0	7
Maryland	4	0	1	2	0	7
Michigan	2	3	0	2	0	7
Montana	2	3	0	2	0	7
Virginia	0	3	2	2	0	7
Hawaii	6	0	0	0	0	6
Nevada	0	3	0	2	0	5
New Mexico	0	3	0	2	0	5

State	Statewide low-income (LI) spending (8 pts.)	LI program requirements (4 pts.)	Incentives for solar (4 pts.)	LI cost effectiveness (2 pts.)	Arrears management (2 pts.)	Total score (20 pts.)
Oklahoma	0	3	0	2	0	5
Texas	0	3	0	2	0	5
Wisconsin	0	3	0	2	0	5
Alaska	4	0	0	0	0	4
New Jersey	2	0	0	2	0	4
Washington	0	0	0	2	2	4
Colorado	0	0	1	2	0	3
Arizona	0	0	0	2	0	2
Arkansas	0	0	0	2	0	2
Florida	0	0	0	2	0	2
Georgia	0	0	0	2	0	2
Idaho	0	0	0	2	0	2
Indiana	0	0	0	2	0	2
Iowa	0	0	0	2	0	2
Kansas	0	0	0	2	0	2
Kentucky	0	0	0	2	0	2
Mississippi	0	0	0	2	0	2
Missouri	0	0	0	2	0	2
North Carolina	0	0	0	2	0	2
Ohio	0	0	0	2	0	2
South Carolina	0	0	0	2	0	2
Tennessee	0	0	0	2	0	2
Utah	0	0	0	2	0	2
All other states						0

Statewide Spending on Energy Efficiency for Low-Income Households

Utilities and state agencies can offer energy efficiency programs tailored for low-income residents. This metric awards up to 8 points based on combined state and utility spending on low-income energy efficiency programs. As table 6 shows, we awarded credit based on the average state and utility dollars spent per income-qualified resident (i.e., below 200% of the federal poverty level).[9] This represents spending of state and ratepayer funds on low-income energy efficiency programs distinct from federal funds such as WAP.

Table 6. Scoring methodology for state and utility spending on low-income energy efficiency programs

Spending (average $ per income-qualified resident)	Points
$40 or more	8
$30–39.99	6
$20–29.99	4
$10–19.99	2
Less than $9.99	0

Massachusetts currently leads in per-capita low-income energy efficiency spending. In Massachusetts, the 2008 Green Community Act requires that 10% of electric utility budgets and 20% of gas utility budgets serve income-qualified residents.

Table 7. State and utility spending on low-income energy efficiency programs

State	2019 state spending on low-income programs per income-qualified resident*	Score
Massachusetts	$90.49	8
Rhode Island	$75.98	8

[9] We use this definition based on eligibility requirements for WAP, which serves households at or below 200% of the federal poverty level. DOE determines eligibility by considering household income and size: $25,760 for a household with one person, $34,840 for a household with two people, $43,920 for a household with three people, etc. (Benefits.gov 2022).

State	2019 state spending on low-income programs per income-qualified resident*	Score
Vermont	$72.54	8
Connecticut	$38.93	6
California	$34.64	6
New Hampshire	$32.54	6
Hawaii	$30.10	6
Pennsylvania	$27.78	4
Illinois	$26.95	4
Alaska	$23.04	4
Maryland	$21.09	4
District of Columbia	$19.99	2
Montana	$16.87	2
Maine	$15.69	2
New Jersey	$15.29	2
Michigan	$14.39	2
Minnesota	$14.31	2
Oregon	$13.09	2
Delaware	$11.62	2
New York	$11.09	2
Missouri	$8.91	0
Colorado	$8.84	0
Oklahoma	$7.41	0
Iowa	$6.23	0
Idaho	$6.08	0
Utah	$5.77	0
Nevada	$5.15	0
Washington	$4.50	0
Tennessee	$4.48	0
New Mexico	$3.15	0

State	2019 state spending on low-income programs per income-qualified resident*	Score
North Carolina	$1.97	0
West Virginia	$1.14	0
Florida	$1.05	0
Georgia	$0.82	0
Nebraska	$0.72	0
Louisiana	$0.63	0
Wyoming	$0.10	0
All other states		0

Source: Berg et al. 2020

Saving or Spending Requirements for Low-Income Energy Efficiency Programs

This metric awards points to states with requirements for utility support of low-income energy efficiency programs. Minimum spending and savings requirements can ensure that utilities prioritize energy efficiency programs for low-income customers. Energy savings targets in particular hold utilities to specific performance targets that ensure their programs achieve the intended results. For this metric, we awarded 4 points for state legislative or regulatory policies that establish savings targets for low-income efficiency programs.[10] We gave 3 points for state policies that set minimum spending or customer participation levels for these programs.

Leading with energy savings targets for low-income efficiency programs are Connecticut, the District of Columbia, and Pennsylvania.[11] For example, Pennsylvania requires that utilities meet at least 5.5% of their energy savings target from programs serving low-income households (Berg et al. 2020). Among the 19 states that have spending targets is Virginia, which requires that at least 15% of energy efficiency programs benefit low-income, disabled, and elderly individuals (Berg et al. 2020). The District of Columbia has both savings and

[10] See Appendix M in Berg et al. 2020 for a complete list of state efficiency spending and savings targets for low-income customers.

[11] Connecticut, the District of Columbia, and Pennsylvania also have low-income customer participation targets. Additionally, Connecticut and the District of Columbia have spending targets for low-income efficiency programs.

spending mandates, including that 20% of expenditures must go to low-income efficiency programs (Berg et al. 2020). Similarly, in 2020, Virginia set a goal for utilities to spend 15% of energy efficiency program funds on veterans, low-income, disabled, and elderly individuals (Berg et al. 2020).

Table 8. Requirements for spending or savings in low-income energy efficiency programs by state

State	Requirement for minimum level of savings	Requirement for minimum spending or customer participation levels	Score
Connecticut	Yes	Yes[a,b,c]	4
Pennsylvania	Yes	Yes[b,c]	4
District of Columbia	Yes	Yes[a,b]	4
California	Yes	Yes[c]	3
Delaware	Yes	Yes[a]	3
Illinois	Yes	Yes[a]	3
Maine	Yes	Yes[a]	3
Massachusetts	Yes	Yes[a]	3
Michigan	Yes	Yes[a]	3
Minnesota	Yes	Yes[a]	3
Montana	Yes	Yes[a]	3
Nevada	Yes	Yes[a]	3
New Hampshire	Yes	Yes[a]	3

State	Requirement for minimum level of savings	Requirement for minimum spending or customer participation levels	Score
New Mexico	Yes	Yes[a]	3
New York	Yes	Yes[a]	3
Oklahoma	Yes	Yes[a]	3
Oregon	Yes	Yes[a]	3
Texas	Yes	Yes[a]	3
Vermont	Yes	Yes[a]	3
Virginia	Yes	Yes[a]	3
Wisconsin	Yes	Yes[a]	3
All other states			0

[a] A required level of spending on low-income energy efficiency has been established. [b] A required savings goal for low-income energy efficiency has been established. [c] A customer participation goal has been established. Source: Berg et al. 2020.

Utility Incentives for Solar in Low-Income Households

This metric is worth up to 4 points and considers utility spending to help low-income households access solar technologies. Such spending includes grants, rebates, performance-based incentives, and financing programs approved by state regulators to help low-income households access rooftop photovoltaic (PV); solar power and solar heating and cooling technologies; and community solar.[12] To receive points, an investor-owned utility (IOU) or statewide clean energy program implementer must have an active program that offers low-income customers higher incentives than other customers to help those low-income customers overcome higher barriers to solar access. We awarded 1 point for each active

[12] *Community solar* refers to local solar facilities shared by multiple community subscribers who receive credit on their electricity bills for their share of the power produced.

incentive and financing program, capped at 4 points total. Due to a lack of data, we were unable to evaluate low-income solar budgets, the number of households served, or the solar capacity installed in each state.

Only 12 states offered some sort of financial incentive for low-income solar. As a high-scoring state in this category, Virginia is showing how solar regulations can help low-income customers. In late 2020, the Virginia State Corporation Commission adopted shared solar program regulations, reserving 30% of capacity for low-income customers (Proudlove, Lips, and Sarkisian 2021). As a result, Dominion Energy Virginia now runs the Shared Solar Program and co-administers the Multifamily Shared Solar Program with Old Dominion Power (Virginia SCC 2021.). Energy Trust of Oregon (ETO) delivers energy efficiency and renewable energy programs on behalf of several Oregon electric and gas utilities. Through its Solar Within Reach program, ETO helps income-qualified residents install rooftop solar. ETO not only connects customers with qualified contractors, it also helps customers apply for incentives to reduce how much they pay those contractors (Energy Trust of Oregon 2021).

Table 9. Utility incentives for solar in low-income households by state

State	Program names	Score
New York	NY-Sun and Affordable Solar; New York Affordable Solar Predevelopment and Technical Assistance; Solar for All	3
California	Disadvantaged Communities—Single-Family Affordable Solar Housing Program (DAC-SASH); Solar on Multifamily Affordable Housing Program (SOMAH)	2
Oregon	Solar Within Reach	2
Virginia	Shared Solar Program (Dominion Energy Virginia); Multifamily Shared Solar Program (Dominion Energy Virginia and Old Dominion Power)	2
Colorado	Xcel Energy—Solar*Rewards Community Program	1
Connecticut	Shared Clean Energy Facilities Program	1
Illinois	Illinois Solar for All Low-Income Community Solar Program	1
Maryland	Community Solar Pilot Program	1
Massachusetts	SMART Program	1
Minnesota	Xcel Energy—Solar*Rewards Program	1
Pennsylvania	Duquesne Light Company—Residential Energy Efficiency Program	1
Rhode Island	Community Renewables	1
Vermont	Home Energy Loan	1

Source: DSIRE 2021; CESA 2022

Utility Cost Test Exemptions for Low-Income Energy Efficiency Programs

State public utility commissions weigh program costs against their benefits (e.g., energy savings) to ensure that utilities spend ratepayer dollars responsibly (Billingsley et al. 2014; Molina and Relf 2018). Low-income programs typically cover total program costs for participants, which can make it more expensive for utilities and program administrators to provide services to low-income households. If the services provided do not meet the state's cost–benefit test, the utility will likely be discouraged or even prohibited from providing these services, particularly when there are alternatives that achieve energy savings at a lower cost. This means that policies intended to hold utilities accountable to the public can have the unintended consequence of keeping low-income households from receiving services, despite the fact that these households contribute to funding these services through their utility bills. To ensure that low-income households can benefit from ratepayer-funded energy efficiency programs, state regulators can adjust or waive cost-effectiveness tests for low-income programs. For this metric, we awarded up to 2 points to states using any of the following approaches[13]:

- Including nonenergy benefits (NEBs)—such as participant health and safety benefits, environmental benefits, and reduced operation and maintenance costs—in cost-effectiveness tests.
- Programs do not have to pass or are exempted from meeting the cost-effectiveness tests.
- The low-income efficiency programs are allowed to have higher costs relative to benefits compared to efficiency programs for other customers.
- An "adder" is applied to program benefits to approximate the higher level of nonenergy benefits that accrue to low-income customers.

Four states include nonenergy benefits in their cost-effectiveness testing, and 29 states either have waived cost-effectiveness testing for low-income programs or have waived the need for these programs to pass the required cost-effectiveness tests. California and Oklahoma are the only two states that impose a lower threshold for low-income cost-effectiveness testing. Five states and the District of Columbia use a multiplicative "adder" in their cost-effectiveness tests to give greater weight to nonenergy benefits for low-income

[13] See Appendix N in Berg et al. 2020 for more detailed state cost-effectiveness rules for utility low-income efficiency programs.

customers. New Jersey is the only state that combines the adder with a lower testing threshold.

States take a variety of approaches to weighing the costs and benefits for low-income energy efficiency programs. For example, in its cost-effectiveness evaluation for low-income programs, Massachusetts includes the following nonenergy benefits: enhanced productivity due to improved sleep and fewer missed workdays; asthma reductions; thermal stress reductions; and reduced reliance on high-interest, predatory loans. Other states, including Michigan, exempt low-income programs from cost-effectiveness requirements.

Table 10. Special cost-effectiveness screening provisions and exceptions for low-income energy efficiency programs

State	Policy type	Score
Arizona	Not required to pass or exempt from tests	2
Arkansas	Not required to pass or exempt from tests	2
California	Threshold lowered	2
Colorado	Multiplicative adder used to estimate NEBs	2
Connecticut	Not required to pass or exempt from tests	2
Delaware	Includes nonenergy benefits	2
District of Columbia	Multiplicative adder used to estimate NEBs	2
Florida	Not required to pass or exempt from tests	2
Georgia	Not required to pass or exempt from tests	2
Idaho	Multiplicative adder used to estimate NEBs	2
Illinois	Not required to pass or exempt from tests	2
Indiana	Not required to pass or exempt from tests	2
Iowa	Not required to pass or exempt from tests	2
Kansas	Not required to pass or exempt from tests	2
Kentucky	Not required to pass or exempt from tests	2
Maine	Includes nonenergy benefits	2
Maryland	Not required to pass or exempt from tests	2
Massachusetts	Includes nonenergy benefits	2
Michigan	Not required to pass or exempt from tests	2
Minnesota	Not required to pass or exempt from tests	2
Mississippi	Not required to pass or exempt from tests	2

State	Policy type	Score
Missouri	Not required to pass or exempt from tests	2
Montana	Not required to pass or exempt from tests	2
Nevada	Not required to pass or exempt from tests	2
New Hampshire	Not required to pass or exempt from tests	2
New Jersey	Not required to pass or exempt from tests; multiplicative adder used to estimate NEBs	2
New Mexico	Multiplicative adder used to estimate NEBs	2
New York	Not required to pass or exempt from tests	2
North Carolina	Not required to pass or exempt from tests	2
Ohio	Not required to pass or exempt from tests	2
Oklahoma	Threshold lowered	2
Oregon	Not required to pass or exempt from tests	2
Pennsylvania	Not required to pass or exempt from tests	2
Rhode Island	Includes nonenergy benefits	2
South Carolina	Not required to pass or exempt from tests	2
Tennessee	Not required to pass or exempt from tests	2
Texas	Not required to pass or exempt from tests	2
Utah	Multiplicative adder used to estimate NEBs	2
Vermont	Multiplicative adder used to estimate NEBs	2
Virginia	Not required to pass or exempt from tests	2
Washington	Not required to pass or exempt from tests	2
Wisconsin	Not required to pass or exempt from tests	2
All remaining states		0

*** New Jersey calculates cost-effectiveness for informational and policymaking purposes, but it does not require low-income programs to meet a particular cost-effectiveness threshold.**
Source: Berg et al. 2020.

Energy Efficiency in Arrears Management

This metric, worth 2 points, considers state utility commission policies that protect customers in utility arrears from shutoffs if they have applied for, or participate in, energy efficiency programs. Incorporating energy efficiency opportunities into arrears management and related shutoff protections can help ensure that economically disadvantaged customers

struggling to pay utility bills will access programs and resources that can help lower these bills, reducing future challenges with bill payment.

Washington received the full 2 points and is the only state to incorporate energy efficiency requirements into its shutoff protections. Washington prohibits shutoffs between November 15 and March 15 for space-heating customers who inform the utility of their inability to pay, certify their income, apply for low-income weatherization and home energy assistance, and pay all bills owed by the following October 15 (Washington State Legislature 2022). While several state utility commissions—including those in North Carolina and New Jersey—require utilities to provide new customers with "information promoting energy conservation," Washington is the only state using energy efficiency as a tool for arrears management.

Chapter 3. Weatherization and Energy Cost Assistance

INTRODUCTION

Two federally funded programs—WAP and the Department of Health and Human Service (HHS) Low Income Home Energy Assistance Program (LIHEAP)—lower the energy costs of low-income households through weatherization services and bill assistance, respectively. These funds are allocated to all 50 states, the District of Columbia, and the five U.S. territories. States have significant discretion in how they administer WAP and LIHEAP, and some states are working to bolster these programs with additional funding and coordination to reduce energy costs and support better health outcomes for low-income households. The metrics in this chapter reflect how states are using WAP and LIHEAP funds to provide access to energy efficiency, renewable energy, and other expanded services such as weatherization-enabling health and safety repairs. The metrics in this chapter also identify whether a state is taking action to make the programs more accessible through coordinated qualification and eligibility processes for applicants, and whether the state is tracking instances in which households are refused.

Table 11. Weatherization and energy cost assistance metrics

Metric	Description	Score
Supplemental funding for WAP	State supplementation of WAP programs as a percentage of federal funding	6
Coordinated eligibility for WAP, LIHEAP, and other federally funded programs	Program eligibility is coordinated between LIHEAP, WAP, and other federally funded, state-administered programs serving low-income households	4
Energy burden policies and programs	Goals, programs, and/or policies are in place to address high energy burdens	3
Tracking of WAP deferrals	The state has a centralized system for tracking deferrals by WAP service providers	3
LIHEAP funds for home modifications	LIHEAP funds are used to support weatherization and residential health and safety repairs	2
WAP and/or LIHEAP funds for solar	WAP and/or LIHEAP funds are used to provide solar technologies to low-income households	2

These metrics capture a variety of approaches states can take to improve how they provide weatherization services and energy cost assistance to low-income customers. Overall, these metrics demonstrate how states can leverage WAP and LIHEAP funds to support housing affordability through coordinated efforts that can reduce energy burden and improve health

and safety in homes. These metrics do not, however, tell us how effectively these efforts are meeting the needs of low-income populations. Approximately 92,396,500 people—representing 29% of U.S. households—are eligible for WAP.[14] However, the National Association for State Community Service Partnership reports that, in 2019, WAP funding and other leveraged sources reached only 85,244 homes (NASCSP 2019). Although many states are adopting approaches to expand the reach of WAP and other low-income weatherization services, nationwide, such needs remain largely unmet.

RESULTS AND KEY TAKEAWAYS

Massachusetts leads this category and received all 6 available points in state funding to supplement WAP; the state has taken multiple steps to supplement funding to WAP that is equal to 70% or more of the state's federally allocated WAP budget. Montana also led here, scoring 10 out of 20 possible points, followed by Washington which earned 9 out of 20. New York received maximum credit for energy burden policies and programs, pulling ahead of other states in this category by enacting an energy affordability policy that sets an energy burden cap for low-income households. Colorado is the only U.S. state to integrate a solar pilot project for low-income households by leveraging WAP funds.

Regionally, Montana in the West, Colorado in the Southwest, Massachusetts in the Northeast, and Wisconsin in the Midwest are all leaders in this category. Table 12 includes the scores for each state across weatherization and bill assistance policies.

[14] Under the DOE income guidelines, households at or below 200% of the federal poverty level are eligible for weatherization services (DOE 2022). When calculating the number of people living 200% below the federal poverty level, the Kaiser Family Foundation used a poverty threshold of $20,578 for a family of three (KFF 2022).

Table 12. Weatherization and cost assistance scores by state

State	State funding for WAP (6 pts.)	Coordinated income eligibility (4 pts.)	Energy burden policies and programs (3 pts.)	WAP deferral tracking (3 pts.)	LIHEAP funds for home modifications (2 pts.)	WAP and LIHEAP for solar (2 pts.)	Total score (20 pts.)
Massachusetts	6	1	0	3	0	0	10
Montana	3	2	0	3	2	0	10
Washington	4	1	2	0	2	0	9
Maryland	5	0	0	3	0	0	8
Oregon	5	2	1	0	0	0	8
Wisconsin	5	0	0	3	0	0	8
Alaska	5	1	0	0	0	0	6
Colorado	1	0	3	0	0	2	6
Idaho	3	1	0	0	2	0	6
Illinois	1	2	0	3	0	0	6
Iowa	2	1	0	3	0	0	6
Ohio	3	1	0	0	2	0	6
Pennsylvania	2	1	3	0	0	0	6
Vermont	5	1	0	0	0	0	6
Kansas	1	1	0	3	0	0	5
Michigan	0	2	0	3	0	0	5
Rhode Island	5	0	0	0	0	0	5
West Virginia	1	2	0	0	2	0	5
California	2	0	0	0	2	0	4
Delaware	3	1	0	0	0	0	4
District of Columbia	2	2	0	0	0	0	4
Maine	0	1	0	3	0	0	4
Minnesota	1	0	0	3	0	0	4
New York	0	1	3	0	0	0	4

State	State funding for WAP (6 pts.)	Coordinated income eligibility (4 pts.)	Energy burden policies and programs (3 pts.)	WAP deferral tracking (3 pts.)	LIHEAP funds for home modifications (2 pts.)	WAP and LIHEAP for solar (2 pts.)	Total score (20 pts.)
Arizona	1	2	0	0	0	0	3
New Jersey	0	1	2	0	0	0	3
New Mexico	2	1	0	0	0	0	3
Virginia	3	0	0	0	0	0	3
Arkansas	0	2	0	0	0	0	2
Florida	0	2	0	0	0	0	2
Georgia	0	2	0	0	0	0	2
Hawaii	0	2	0	0	0	0	2
Kentucky	0	2	0	0	0	0	2
Missouri	1	1	0	0	0	0	2
Oklahoma	0	2	0	0	0	0	2
Utah	2	0	0	0	0	0	2
Wyoming	0	0	0	0	2	0	2
All other states							1 or 0

Supplemental Funding for WAP

The "Energy Utilities" chapter includes a metric assessing total dollars of state and utility funding invested in low-income weatherization. This metric focuses on how much a state supplements funds provided by the federal government for WAP in particular. It examines how some states leverage local or regional funding sources—including DOE, LIHEAP, and philanthropic organizations—to increase their WAP budget. Points are awarded based on the ratio of supplemental funds provided relative to federally allocated budgets.

Supplementary funding in states ranges from zero additional dollars to as much as 86% of the state's federal WAP funding allocation. The national average across all states for supplementary funding is 17%. We awarded 6 points to states that provide supplemental funding equal to 70% or more of their federally allocated WAP budget. We allocated the remaining points to states with 5% or more of supplementary funding (see table 13). Table 14 lists the state scores.

Table 13. Points awarded for state funding to supplement WAP funding

Supplementary funding as a % of total WAP budget	Score
>70	6
>55	5
>40	4
>25	3
>15	2
>5	1

Table 14. Percentage of supplemental funding for WAP by state

State	State supplementation of WAP programs as a % of federal funding	Score
Massachusetts	86	6
Maryland	66	5
Wisconsin	66	5
Rhode Island	64	5
Vermont	62	5
Alaska	61	5

State	State supplementation of WAP programs as a % of federal funding	Score
Oregon	56	5
Washington	52	4
Virginia	40	3
Delaware	39	3
Montana	31	3
Ohio	29	3
Idaho	26	3
New Mexico	24	2
California	23	2
Pennsylvania	22	2
Utah	21	2
Iowa	20	2
District of Columbia	17	2
Minnesota	14	1
Colorado	12	1
Illinois	11	1
West Virginia	11	1
Missouri	10	1
Arizona	6	1
Kansas	5	1
All other states		0

Source: Data from the NASCSP 2019 WAP Funding Survey Report (NASCSP 2021)

Coordinated Eligibility for WAP, LIHEAP, and Other Federally Funded Programs

This metric awards up to 4 points to states that coordinate eligibility for LIHEAP, WAP, and other federally funded, state-administered programs serving low-income households. Expanding these linkages can help to ensure that vulnerable households access and benefit from these services by ensuring that families know about which services are available and by reducing the bureaucratic burdens when they seek to access them.

States are awarded 1 point for aligning income eligibility thresholds for LIHEAP-funded weatherization with WAP eligibility thresholds (200% FPL). We awarded another point to states that facilitate cross-enrollment between LIHEAP and WAP.

Under federal statues, states are allowed to provide LIHEAP services to recipients who receive the following four types of federally funded, state-administered programs:

- Supplemental Security Income Program (SSI)
- Temporary Assistance for Needy Families Program (TANF)
- Supplemental Nutrition Assistance Programs (SNAP)
- Veterans' disability compensation[15]

This "categorical eligibility" enables LIHEAP grantees to provide services to customers who receive one or more of these four programs. We awarded 1 point to states that use categorical eligibility in administering LIHEAP, and 1 point to states that automate WAP eligibility for participants of other federally funded programs.

Table 15. Allocation of points for coordination of eligibility among WAP, LIHEAP, and other federally funded programs

Criteria	Points awarded
LIHEAP-funded weatherization services eligibility aligned with WAP guidelines	1
Automatic or simplified cross-enrollment between WAP and LIHEAP	1
LIHEAP categorical eligibility based on up to four other federally funded programs	1
WAP eligibility coordination with other federally funded benefits programs	1

[15] The HHS website describes "certain needs-tested veteran benefits" as eligible for LIHEAP, but the LIHEAP eligibility checker on benefits.gov shows that only recipients of veterans' disability compensation are eligible (ACF 2012; Benefits.gov 2022.).

Table 16. Coordination of eligibility between WAP, LIHEAP, and other weatherization programs by state

State	LIHEAP eligibility aligned with WAP (Y/N)	Cross-enrollment between LIHEAP and WAP (Y/N)	LIHEAP categorical eligibility (Y/N)	WAP categorical eligibility (Y/N)	Score
Arizona	Y	N	Y	N	2
Arkansas	Y	N	Y	N	2
District of Columbia	N	Y	Y	N	2
Florida	Y	N	Y	N	2
Georgia	Y	N	Y	N	2
Hawaii	Y	N	Y	N	2
Illinois	Y	N	Y	N	2
Kentucky	Y	N	Y	N	2
Michigan	Y	N	N	Y	2
Montana	N	Y	Y	N	2
Oklahoma	Y	N	Y	N	2
Oregon	Y	N	Y	N	2
West Virginia	Y	N	Y	N	2
Alabama	Y	N	N	N	1
Alaska	N	N	Y	N	1
Connecticut	N	N	Y	N	1
Delaware	Y	N	N	N	1
Idaho	Y	N	N	N	1
Indiana	Y	N	N	N	1
Iowa	Y	N	N	N	1
Kansas	Y	N	N	N	1
Louisiana	Y	N	N	N	1
Maine	Y	N	N	N	1
Massachusetts	N	N	Y	N	1

State	LIHEAP eligibility aligned with WAP (Y/N)	Cross-enrollment between LIHEAP and WAP (Y/N)	LIHEAP categorical eligibility (Y/N)	WAP categorical eligibility (Y/N)	Score
Mississippi	Y	N	N	N	1
Missouri	Y	N	N	N	1
Nebraska	Y	N	N	N	1
New Jersey	N	N	N	Y	1
New Mexico	Y	N	N	N	1
New York	N	N	Y	N	1
North Carolina	Y	N	N	N	1
Ohio	Y	N	N	N	1
Pennsylvania	Y	N	N	N	1
South Carolina	Y	N	N	N	1
South Dakota	N	N	Y	N	1
Tennessee	Y	N	N	N	1
Texas	N	N	Y	N	1
Vermont	N	N	Y	N	1
Washington	N	N	Y	N	1
All other states					0

Source: Data from ACF 2021

While 28 states have aligned LIHEAP and WAP income eligibility thresholds, only two states—the District of Columbia and Montana—allow cross-enrollment between LIHEAP and WAP. Twenty states use LIHEAP's categorical eligibility feature to serve participants who are already enrolled in one of the federally funded, state-administered programs. Michigan and New Jersey are the only states that make WAP eligibility automatic for participants who receive assistance from other federal programs.

Energy Burden Policies and Programs

A household's energy burden is the percentage of income spent on home energy bills, often including electricity, natural gas, and other home heating fuels. Low-income, Black, Hispanic/Latino, Native American, renters, and older adult households all experience disproportionally high energy burdens compared to other households (Drehobl, Ross, and Ayala 2020). High energy burdens impact households by compromising occupant safety and

comfort when they forego energy use to reduce energy bills. High energy burdens can also have mental health impacts—such as stress, anxiety, and depression—associated with fear around access to affordable energy (Drehobl, Ross, and Ayala 2020). Leveraging funding to deliver energy efficiency and weatherization services to households with the highest burdens can maximize benefits for these residents, including reduced energy burdens and healthier housing.

For this metric, we awarded 3 points to state efforts to address high energy burdens through statewide goals, programs, or policies. We identified three primary approaches that governors and public utility commissioners use to lower high energy burdens. Some states set goals that no residents spend more than 6–10% of their income on energy bills.[16] Other states have launched programs to reduce energy burdens through energy efficiency investments for low-income households. In addition, several states have conducted assessments to estimate energy burdens and identify solutions for alleviating them. We awarded 3 points to states with a statewide program setting energy burden caps or goals and active programs to achieve those goals. We awarded 2 points to states with goals and/or targets to reduce energy burdens. We awarded 1 point to states that have conducted an energy burden assessment and developed an official plan for addressing those burdens. As table 17 describes, we identified six states with energy burden caps, programs, and plans.

Table 17. Energy burden policies and programs

State	Approach	Policy or program description	Score
Colorado	Program	In 2015, the Colorado Energy Office awarded a $1.2 million grant to GRID Alternatives, a solar installer, for a demonstration project to reduce energy burdens. The program goals were to reduce energy burdens for at least 300 low-income households and understand how to design community solar programs to maximize benefits for both participants and utilities. Through this program, households saved from 15% to more than 50% on their utility bills, with an average annual savings of $382.	3

[16] Researchers estimate that housing costs should be no more than 30% of income, and household energy costs should be no more than 20% of housing costs. Therefore, for housing to have affordable energy costs, occupants should spend no more than 6% of total household income on their energy bills.

State	Approach	Policy or program description	Score
New York	Program	New York's 2016 Energy Affordability Policy set a 6% energy burden cap for low-income households and, in 2017, it increased the policy's bill assistance and energy efficiency funding from $248 million to $260 million.	3
Pennsylvania	Program	In 2019, the Pennsylvania Public Utility Commission expanded programs for low-income customers and adopted a 6–10% cap on energy burdens for these customers.	3
New Jersey	Goals/targets	The NJ Clean Energy Equity Act (S. 2484) sets a goal to reduce energy burdens in 35% of low-income households.	2
Washington	Goals/targets	The 2019 Clean Energy Transformation Act, requires utilities to prioritize program services for households with high energy burdens.	2
Oregon	Assessment and plan	Following Executive Order 17-20, Oregon agencies and the Public Utility Commission conducted an assessment to estimate energy burdens for low-income Oregonians and adopted a 10-year plan for reducing energy burdens.	1
All other states	N/A	0	N/A

Source: Drehobl, Ross, and Ayala 2020; Cook and Shah 2018; NYOG 2016; NYOG 2017; PA PUC 2019a; PA PUC 2019b; Oregon DOE, PUC, and HCS 2019; OROG 2017; Washington State Department of Commerce 2021

Tracking of WAP Deferrals

This metric captures whether a state is using a centralized system to track deferrals by WAP service providers. Deferrals are the temporary or permanent delay of services to a would-be weatherization recipient due to various issues related to the predicted efficacy of weatherization, weatherization worker safety, and/or household occupant safety. States can use data on the common causes and frequency of deferrals to develop solutions that target and remediate issues that commonly prevent weatherization, such as issues related to a home's structural, mechanical, plumbing, or electrical systems; and health and safety issues such as mold/mildew, asbestos, lead, and severe sanitary issues.

DOE encourages WAP grantees to track deferrals using uniform terminology and data collection practices, and it has issued a template for this purpose.[17] Most states require that local WAP providers communicate reasons for deferrals to clients and document these reasons in a client or case file. Here, we awarded 3 points to states that go a step further and track these deferral causes in a central, statewide system.

Table 18. Tracking of WAP deferrals by state

State	Statewide tracking requirements for deferrals	Score
Illinois	Yes	3
Iowa	Yes	3
Kansas	Yes	3
Maine	Yes	3
Maryland	Yes	3
Massachusetts	Yes	3
Michigan	Yes	3
Minnesota	Yes	3
Montana	Yes	3
Wisconsin	Yes	3
All other states	No tracking protocol identified	0

Source: ACEEE review of state WAP plans

Ten states have implemented a state-level deferral tracking system. Maryland, for example, requires that local weatherization providers document their decision to defer a home in an online software system. These service providers must submit a description of the home's needed repairs, upload photographs as evidence of the needed repairs, and estimate costs for the repairs. In Iowa, service providers must track and upload their reasons for deferrals in a statewide database.

LIHEAP Funds for Home Modifications

While the majority of LIHEAP funds are used for bill assistance, federal regulations allow states to use 15% of LIHEAP funds to provide weatherization services and repairs that

[17] See template here: www.energy.gov/eere/wap/downloads/deferrals-classification-guide-and-tracker-template.

protect health and safety. LIHEAP serves as a major funding source for WAP. In 2019, LIHEAP funds comprised 38% of total WAP funds reported by grantees (NASCSP 2021). States can apply for an HHS waiver that lets them allocate a greater percentage of LIHEAP funds to provide these services.

Increased use of LIHEAP funds for weatherization and repairs can reduce a state's persistent energy burdens, which in turn reduces the need for energy bills assistance over time. However, investing LIHEAP funds in home upgrades means less money is available for LIHEAP bill assistance, which meets a critical near-term need for under-resourced households and can literally mean life or death for a home's vulnerable occupants—particularly during periods of extreme cold or heat. Given the importance of both goals, our scoring for this metric is based on whether a state has obtained a waiver that allows it to flexibly deploy LIHEAP funds where they are most needed. States with such a waiver can use more of their funds for a long-view purpose, while also being able to respond as needed to circumstances—such as extreme weather or unpredictable events like the stay-at-home orders related to COVID-19—that might make bill assistance the more immediately critical need. In reviewing LIHEAP spending on weatherization, we identified seven states that have this waiver in place and thus have this additional flexibility; we awarded these seven states 2 points.

Table 19. LIHEAP spending waiver to provide expanded services

State	Has the state received an approved LIHEAP waiver?	Score
California	Yes	2
Idaho	Yes	2
Montana	Yes	2
Ohio	Yes	2
Washington	Yes	2
West Virginia	Yes	2
Wyoming	Yes	2
All other states	No waiver identified	0

Source: HHS 2021

WAP AND/OR LIHEAP FUNDS FOR SOLAR

This metric awards up to 2 points to states that both operate a program to provide solar technologies to low-income households using WAP or LIHEAP funds and have an evaluation process in place to assess program outcomes. States are eligible for 1 point if they have a program that leverages WAP or LIHEAP funds to provide solar technologies, but either have not conducted an evaluation or have no data to demonstrate program impacts. States must seek DOE approval to use these funds in this way.[18]

In 2016, Colorado became the first state to integrate solar work into its WAP services and is the only state to receive credit in this category (DOE 2016). California previously had a pilot program supporting low-income solar with LIHEAP funds, but it is no longer active (VoteSolar 2020). Other states are in the process of pursuing initiatives to use LIHEAP or WAP funds to support solar; Oregon's Community Action Partnership (CAP), for example, is developing a pilot program (VoteSolar 2020). While states other than Colorado did not receive points for this metric, table 20 provides information on the California and Oregon initiatives as a resource.

Table 20. Ongoing, past, and proposed use of WAP/LIHEAP funds to support solar installations

State	Status of use of WAP/LIHEAP funds toward solar installation	Additional details	Score
Colorado	Pilot	The Colorado Energy Office awarded $1.2 million dollars to GRID Alternatives to pilot a solar program leveraging WAP funding and matching incentives from Xcel Energy Colorado to offer weatherization services and solar for 300 low-income households.	2
California	Past pilot (ended 2012)	The California Department of Community Services & Development (CSD) set aside a portion of LIHEAP funds to support installation of solar systems for 1,482 low-income households.	0

Sources: Low-Income Solar Policy Guide 2018; Energy Office 2022; Azubuike 2020

[18] www.nrel.gov/docs/fy18osti/70965.pdf

Chapter 4. State Housing Policies

INTRODUCTION

This chapter focuses primarily on policies and programs under the purview of state HFAs. According to the National Council of State Housing Agencies, state HFAs have delivered more than $500 billion in financing to facilitate the purchase, development, and rehabilitation of more than 7.5 million affordable homes and rental apartments for low- and middle-income households (NCSHA 2021). While a state HFA's primary mission is to provide and preserve affordable housing, it also has various tools at its disposal to support healthy, sustainable, clean energy homes.

In this chapter, our metrics focus on how HFAs can support healthy, affordable housing, such as through housing agency programs and investments to provide energy efficiency upgrades, electrification, and renewables. We awarded most of the points in this chapter to states that are integrating efficiency, occupant health, and other green building practices while administering the federal Low-Income Housing Tax Credit (LIHTC) using a state-developed scoring rubric commonly known as a qualified allocation plan (QAP). Such states also typically consider minimum energy efficiency standards for new construction. A combination of these policies indicates whether a state's HFA is taking a comprehensive, mutually beneficial approach to housing, health, and clean energy.

We also consider the role of housing trust funds (HTFs) in supporting energy efficiency and renewable energy in affordable housing through grants and loans; HTFs are often administered by HFAs, and their funds are often leveraged to incentivize other public and private spending. Subsequent metrics seek to highlight other ways that state HFAs support low-income access to the benefits of efficiency, beneficial electrification, and solar power, either through dedicated programs or by coordinating with other state entities and programs.

Taken together, these policies, practices, and programs indicate whether a state's housing finance systems are taking a comprehensive approach to housing. Such an approach incorporates goals related to health and clean energy, and seeks to give low-income residents access to housing with affordable energy performance. The criteria enumerated in this chapter represent a collection of options that states can consider as part of a thoughtful approach to healthy, affordable housing. Table 21 lists the metrics we include in this chapter.

Table 21. State housing policy metrics

Metric	Description	Score
Qualified Allocation Plan (QAP) tax credits for energy efficiency and renewable energy in low-income housing	As part of the Low-Income Housing Tax Credit (LIHTC) program, the state awards QAP tax credits for low-income housing that promotes energy efficiency, renewable energy, and other sustainable provisions.	7
Housing Trust Fund (HTF) grants for energy efficiency and renewable energy	A state's HTF supports investments in energy efficiency, renewable energy, and water conservation measures.	3
Energy performance standards in housing finance agency (HFA) projects	A state's HFA has energy performance standards for the projects it funds.	2
HFA programs supporting energy efficiency in affordable housing	A state's HFA offers energy efficiency incentives for affordable housing developers, owners, and residents.	2
HFA programs supporting electrification of affordable housing	A state's HFA runs a program that supports electrification measures in affordable housing.	2
HFA programs supporting solar in affordable housing	A state's HFA offers solar incentives to affordable housing residents.	2

RESULTS AND KEY TAKEAWAYS

New York ranked first here, scoring 14.5 out of 20 points. The state's HFA offers an energy efficiency incentive for its affordable housing residents, as well as housing trust fund grants supporting energy efficiency and/or renewable energy. New York is followed closely by California. Both states have HFA programs that support electrification and energy efficiency,

as well as providing energy performance standards for affordable housing projects. California also scored higher than most states due to its broad inclusion of QAP criteria for the LIHTC program. Arizona and Georgia are also leaders in the QAP metric.

Regionally, California in the West, Arizona in the Southwest, New York in the Northeast, Florida in the Southeast, and Indiana and Missouri in the Midwest are all leaders across this chapter's metrics. Table 22 shows each state's housing policy scores.

Table 22. State housing policy scores by state

State	Qualified allocation plan (QAP) criteria (7 pts.)	Grants for EE/RE (3 pts.)	Energy performance standards (2 pts.)	EE programs (3 pts.)	Electrification funding (3 pts.)	Solar programs (2 pts.)	Total score (20 pts.)
New York	5.5	3	2	2	2	0	14.5
California	7	0	2	2	2	0	13
Florida	5	3	2	2	0	0	12
Maryland	6.5	1	2	2	0	2	11.5
Arizona	7	1	2	0	0	0	10
Connecticut	6	3	0	0	1	0	10
Vermont	5	0	2	2	1	0	10
New Jersey	6	0	2	1	0	1	9
Rhode Island	3	0	2	2	2	2	9
Pennsylvania	5.5	1	2	0	0	0	8.5
Indiana	5	3	0	0	0	0	8
Missouri	5	3	0	0	0	0	8
Delaware	3.5	3	0	1	0	0	7.5
Nevada	5.5	2	0	0	0	0	7.5
Washington	3.5	0	2	2	0	0	7.5
Georgia	7	0	0	0	0	0	7
Alaska	2.5	0	2	2	0	0	6.5

State	Qualified allocation plan (QAP) criteria (7 pts.)	Grants for EE/RE (3 pts.)	Energy performance standards (2 pts.)	EE programs (3 pts.)	Electrification funding (3 pts.)	Solar programs (2 pts.)	Total score (20 pts.)
Colorado	3.5	3	0	0	0	0	6.5
Kansas	5.5	1	0	0	0	0	6.5
Minnesota	2.5	0	2	2	0	2	6.5
Montana	4.5	0	0	2	0	0	6.5
Michigan	4	0	2	2	0	0	8
South Dakota	3	3	0	0	0	0	6
Virginia	4	0	0	2	0	0	6
Illinois	3.5	0	2	0	0	0	5.5
North Carolina	1.5	0	2	2	0	0	5.5
Oregon	2.5	1	0	2	0	0	5.5
Iowa	5	0	0	0	0	0	5
Maine	2	1	0	0	2	2	5
New Mexico	3	0	2	0	0	0	5
South Carolina	4	1	0	0	0	0	5
District of Columbia	4.5	0	0	0	0	0	4.5
Wyoming	2.5	0	0	2	0	0	4.5
Hawaii	1	3	0	0	0	0	4
Massachusetts	4	0	0	0	0	0	4

State	Qualified allocation plan (QAP) criteria (7 pts.)	Grants for EE/RE (3 pts.)	Energy performance standards (2 pts.)	EE programs (3 pts.)	Electrification funding (3 pts.)	Solar programs (2 pts.)	Total score (20 pts.)
Tennessee	3	1	0	0	0	0	4
Utah	2	2	0	0	0	0	4
Idaho	3.5	0	0	0	0	0	3.5
Alabama	1.5	0	1	0	0	0	2.5
Louisiana	2.5	0	0	0	0	0	2.5
Mississippi	2.5	0	0	0	0	0	2.5
New Hampshire	2.5	0	0	0	0	0	2.5
Texas	2	0	0	0	0	0	2
West Virginia	1	1	0	0	0	0	2
Arkansas	1.5	0	0	0	0	0	1.5
Oklahoma	1.5	0	0	0	0	0	1.5
Wisconsin	1.5	0	0	0	0	0	1.5
Kentucky	0	0	1	0	0	0	1
Nebraska	1	0	0	0	0	0	1
Ohio	1	0	0	0	0	0	1
North Dakota	0.5	0	0	0	0	0	0.5

Qualified Allocation Plan (QAP) Tax Credits for Energy Efficiency and Renewable Energy in Low-Income Housing

While state HFAs are structured, funded, and operated in diverse ways, many federal programs and tools are used across HFAs in the 50 states and the District of Columbia. In particular, the LIHTC program (launched in 1986) incentivizes modernization and new construction of affordable housing by providing equity to affordable housing developers through the syndication of tax credits. LIHTC is a federal tax credit program, administered by states, to support the development of affordable housing. A 9% tax credit[19] is available to affordable housing developers for a limited number of projects. This credit is awarded through a competitive process according to the state's QAP. Each state's HFA has the discretion to develop a plan to award points to projects competing for this credit. Such plans may contain a mixture of mandatory minimum requirements and voluntary design and implementation measures. Proposed new construction or redevelopment projects are scored on the basis of whether they incorporate QAP criteria.

The 9% credit may be awarded only to a specific number of affordable housing projects each year. The allocation process for this capped pool of credits is highly competitive, and the evaluation criteria set forth in the state's QAP carry significant leverage for shaping the design of projects seeking these credits (Bartolomei 2021). The QAP is therefore a state HFA's most direct and powerful tool to ensure that the new and rehabilitated affordable housing stocks are healthy, while also integrating low-income households in the broader clean energy transition.

The Energy Efficiency for All project assessed QAP documentation across all 50 states and the District of Columbia to identify how states incentivize developers to incorporate energy efficiency, renewables, and sustainable practices into projects seeking competitive tax credits through the LIHTC program (Bartolomei 2021). The project identified a suite of 10 common mechanisms used in QAPs to accomplish this, including adhering to sustainability standards that go above and beyond state building codes; planning and coordinating measures intended to ensure that developers take advantage of diverse available resources to improve their properties' efficiency; and using measures to assess, compare, and track building performance and energy savings opportunities, including indirect energy expenses such as water use.

[19] Both 4% and 9% tax credits are available for states to distribute under the LIHTC. Demand for the 9% credit is competitive, with credit requests outweighing total funds. There is no cap on the 4% credit, and projects can secure it if at least 50% of their funding comes from tax-exempt bond financing (Scally, Gold, and DuBois 2018).

Our main data source here was the 2021 update of the Energy Efficiency for All report *State Strategies to Increase Energy Efficiency in Low Income Housing Tax Credit Properties*, which was originally published in 2017. We awarded 1 point for mandatory requirements with a rural focus; incorporation of distance-to-transit; and use of the 10 QAP criteria to make housing more energy or water efficient. We also awarded 0.5 points for each of the above elements that were used voluntarily, but capped this metric at 9 points, and no state earned more than 8 points. The total possible points here were 12, aligning with the following 12 criteria:

- Addition of energy evaluation into capital needs or physical needs assessments (i.e., including energy audits into standard evaluations of building conditions and needs to identify opportunities for operational efficiency)
- Energy and water audits or modeling (i.e., assessing or modeling proposed energy or water efficiency measures to evaluate their cost effectiveness)
- Performance-based requirements and incentives (i.e., requirements to reduce energy consumption by a predetermined amount relative to a baseline)
- Third-party building standards (i.e., incentivizing third-party sustainability certifications such as LEED and Enterprise Green Communities)[20]
- Required energy professional (i.e., including an energy consultant throughout the planning and construction of a project)
- Energy and water benchmarking (i.e., tracking a project's energy and water consumption to compare to the performance of other properties)
- Coordination with utility energy efficiency programs (i.e., pursuing utility funding for a project or coordinating HFAs and utilities to provide/design energy efficiency programs)
- Project-specific utility allowances (i.e., tailoring utility allowances based on project-specific energy modeling or consumption data)
- Renewable energy incentives (i.e., incorporating solar, wind, or geothermal generation onsite)

[20] Per July 2021 correspondence with Massachusetts Clean Energy Center and Onion Flats Architecture, 17 states include measures related to passive house design in their QAPs. This is an interesting trend, as described here. However, including passive house design elements often takes the form of incentives or support for third-party building standards, for which we have already rewarded points, so we do not award additional points for these measures at this time.

- Water conservation (i.e., installing water-efficient devices or equipment often labeled by the U.S. Environmental Protection Agency WaterSense program or through other third-party standards requiring water conservation measures)
- Rural incentives (i.e., minimum set-asides or points for rural projects)
- Incorporation of transit considerations (i.e., distance and frequency)

Arizona and California are leading states here, each scoring the maximum of 7 points. Arizona took approaches to make housing more energy and water efficient, including requiring energy audits to identify cost-effective energy opportunities. Almost every state has taken some of the metric's steps. The metric includes many potential actions, and we found a wide disparity between states—with some having adopted all or most of these requirements, while others having adopted few or none. Table 23 shows the overall scores and a detail breakdown of them; ● indicates that a state received 1 point for the measure, while ○ indicates that a state received 0.5 points.

Table 23. Energy efficiency and renewable energy strategies in the QAP for low-income housing tax credits

State	Green capital needs assessment	Energy audits or modeling	Performance-based requirements or incentives	Third-party green building standards	Required energy professional	Energy and water benchmarking	Utility coordination	Utility allowances	Renewable energy	Water conservation	Transit	Rural set-aside	Score
Arizona	●	●	●		●			●		●	●	●	7
California		●	●	○	●			●	○	●	●	●	7
Georgia	●	●	●	●						●	○	●	7
Maryland		●	●	○	●		○		○	●	●		6.5
Connecticut	●	●	○	○	●		●		○		○		6
New Jersey			●	○		●	○			●	○	●	6
Kansas		●	●		●					●		●	5.5
Nevada		●	●						○	●	○	●	5.5
New York	○		●	○	●	●	●				○		5.5
Pennsylvania	●	●	○	●		●	●				○		5.5
Florida	●			●						●	●	●	5
Indiana				●	●					●	○	●	5
Iowa		●	○		●					●		●	5
Missouri	●	●		●	●		○				●		5
Vermont	●	○	●		●		●		○				5
District of Columbia			○	●	●		○		●		○		4.5
Montana				○	●				○	●		●	4.5
Massachusetts				○		○	○		○	●	○		4

State	Green capital needs assessment	Energy audits or modeling	Performance-based requirements or incentives	Third-party green building standards	Required energy professional	Energy and water benchmarking	Utility coordination	Utility allowances	Renewable energy	Water conservation	Transit	Rural set-aside	Score
Michigan				●						●	●	●	4
South Carolina			●	○		●				●			4
Virginia			●	○	●					●	○		4
Colorado				●	●	●					○		3.5
Delaware		●	○	○		●					○		3.5
Idaho			○	○						●		●	3.5
Illinois	●			○			○				●	●	3.5
Washington	●	○		●			●				○		3.5
Rhode Island			●	○		○	○		○				3
South Dakota			○					●		●			3
Tennessee	●			○						●			3
Alaska				○		○			○			●	2.5
Louisiana				●							○	●	2.5
Minnesota				●			●				●		2.5
Mississippi				●						●			2.5
New Hampshire				○			○			●			2.5
Oregon				●			○		●				2.5
Wyoming			○	○						●	○		2.5
Maine										●	●		2
Texas				○						●	○		2

State	Green capital needs assessment	Energy audits or modeling	Performance-based requirements or incentives	Third-party green building standards	Required energy professional	Energy and water benchmarking	Utility coordination	Utility allowances	Renewable energy	Water conservation	Transit	Rural set-aside	Score
Utah			●	○			○				○		2
Alabama										●			1.5
Arkansas										●			1.5
North Carolina										●			1.5
Oklahoma										●			1.5
Wisconsin				○								●	1.5
Hawaii				○							●		1
Nebraska	●												1
Ohio				●									1
West Virginia					●								1
North Dakota				○									0.5
Kentucky													0

● = 1 point; ○ = 0.5 points

Sources: Bartolomei 2021; Nishawala, Lowe, and Nelson 2014; ACEEE research

Housing Trust Fund Grants for Energy Efficiency and Renewable Energy

Most states have established an HTF—that is, a dedicated source of public funds providing grants, loans, or both to support the preservation, construction, and removal of access barriers to affordable housing (HTFP 2016). Local models to support these funds are diverse,[21] and HTFs are often supported by a combination of legislative appropriations, real estate transfer taxes, and various document processing fees and interest collections related to real estate processes.

HTFs are often administered by state HFAs, and typically provide loans and grants to support affordable housing projects. Twenty states have designated activities that align affordable housing with energy goals as "eligible" for HTF support, opening a path to funding for sustainable and clean energy options for affordable housing residents. For states in which an HTF offers grants or loans to support investments in any of three categories—energy efficiency, renewable energy, and water conservation measures—we awarded 1 point for each supported category, for up to 3 points total.

South Dakota received full points. South Dakota Housing Development (SDHD) encourages innovative approaches to providing affordable housing under HTF. It supports innovation in energy-related repairs and improvements, for example, including by encouraging applicants to support investments in ENERGY-STAR-qualified appliances or projects scoring at least 60 on the Home Energy Rating System (HERS) index.[22] As another example in this category, Florida weighs grant applications based on project features that adhere to energy efficiency and other sustainability standards.

Table 24. Housing trust fund grants for energy efficiency, renewable energy, and water conservation

State	Energy efficiency	Renewable energy	Water conservation	Score
Colorado	Yes	Yes	Yes	3
Connecticut	Yes	Yes	Yes	3
Delaware	Yes	Yes	Yes	3
Florida	Yes	Yes	Yes	3

[21] As of 2016, several states had yet to provide a dedicated source of public funding to their HTFs.

[22] www.sdhda.org/images/docu/housing-development/2020-21-HTF-Allocation-Plan-Final.pdf

State	Energy efficiency	Renewable energy	Water conservation	Score
Hawaii	Yes	Yes	Yes	3
Indiana	Yes	Yes	Yes	3
Missouri	Yes	Yes	Yes	3
New York	Yes	Yes	Yes	3
South Dakota	Yes	Yes	Yes	3
Nevada	Yes	No	Yes	2
Utah	Yes	No	Yes	2
Arizona	Yes	No	No	1
Kansas	Yes	No	No	1
Maine	Yes	No	No	1
Maryland	Yes	No	No	1
Oregon	Yes	No	No	1
Pennsylvania	Yes	No	No	1
South Carolina	Yes	No	No	1
Tennessee	Yes	No	No	1
West Virginia	Yes	No	No	1
All other states				0

Source: HTF Project survey data (unpublished data from HTFP 2016)

Energy Performance Standards in HFA Projects

This metric identifies states in which HFAs have energy efficiency standards for the projects they fund. We awarded up to 2 points to state HFAs with minimum energy performance standards for new construction and rehabilitation projects. Examples here include having a minimum HERS score threshold,[23] requiring other performance-based certification (e.g.,

[23] The Home Energy Rating System (HERS) Index is an energy performance scoring framework developed by Residential Energy Services Network (RESNET). It has been in use since 2006 and is a common comparison measure for residential energy performance, including by the Department of Energy for certain certification purposes (RESNET 2021).

ENERGY STAR standards for whole-building performance or green building rating system/systems), or other similar state-specific standards. We awarded 1 point for standards that do not significantly exceed IECC 2012.

We awarded 10 states full points for standards that are not related to HERS or ENERGY STAR. Minnesota requires all properties to meet a modified version of the Enterprise Green Communities Certification, while Vermont requires adherence to one of the efficiency standards set forth by the state's energy efficiency utility. Alaska Housing and Finance Corporation requires adherence to its Building Energy Efficiency Standard, which is equivalent to IECC 2018. Other states require an energy efficiency performance improvement for rehab projects. An example here is Maryland, which requires a 15% improvement of the HERS score and thus received 2 points. Alabama and Kentucky require projects to meet the performance threshold in the 2012 IECC. Given the closeness of this requirements to the 2009 IECC standard, we awarded these two states 1 point each.

Table 25. Minimum energy efficiency standards for state housing agency

State	HERS score requirements	ENERGY STAR whole-building performance requirements	Threshold IECC code year	Other minimum requirements	% improvement required for rehabilitation	Score
Alaska			IECC 2018	AFHC Building Energy Efficiency Standard		2
Arizona	65 HERS score				15% HERS score reduction for rehab projects	2
California				CALGreen Codes (ref. California Energy Commission 2019 standards)		2
Florida		Appliance standards and ENERGY STAR construction practices				2
Illinois			IECC 2018			2
Maryland		ENERGY START New Homes or ENERGY STAR Multifamily New Construction			15% reduction for rehab projects	2
Michigan						2
Minnesota				Enterprise Green Communities certification with MN overlay		2
New Jersey		ENERGY STAR certification for new construction			ASHRAE Level 2 Audit with targeted 15% savings	2

State	HERS score requirements	ENERGY STAR whole-building performance requirements	Threshold IECC code year	Other minimum requirements	% improvement required for rehabilitation	Score
New Mexico	65 HERS (rehab), 55 HERS for new construction					2
New York		ENERGY STAR Certified Homes, Multifamily High Rise program, or Multifamily New Construction		Projects must participate in one of the following: state programs, ENERGY STAR programs, Enterprise Green Communities Criteria, or other strategies for rehabilitation projects		2
North Carolina		ENERGY STAR Multifamily New Construction Program certification				2
Pennsylvania				Must pursue one of several certifications with EE requirements		2
Rhode Island				Tier I Standard	15–25% reduction for Tier I Standard	2
Vermont				Efficiency Vermont's High Performance Track standard		2
Washington				Evergreen Sustainable Development Standard		2

State	HERS score requirements	ENERGY STAR whole-building performance requirements	Threshold IECC code year	Other minimum requirements	% improvement required for rehabilitation	Score
Alabama			2009/2012 IECC			1
Kentucky			2012 IECC			1
All other states						0

Source: Data from survey of state housing finance agencies and ACEEE research

HFA Programs Supporting Energy Efficiency in Affordable Housing

This metric, worth up to 3 points, considers energy efficiency incentives offered by state HFAs for affordable housing residents, owners, and developers. We awarded 2 points for a grant, loan, or pilot program—funded or co-administered by the HFA—that incentivizes investments in energy efficiency in affordable housing. We awarded 1 point for HFAs that do not fund or administer programs, but that do refer building owners and developers to specific programs that incentivize energy efficiency and are administered by other state agencies or utilities.

The HFA programs credited under this metric are different from the state and utility energy efficiency programs included in the chapter 2 metrics. We also do not include WAP here, as state WAP support and administration is covered in chapter 3.[24]

Several of the HFA energy efficiency programs identified here also fund solar and/or electrification measures; those that do are credited again in the two metrics that follow (that is, state HFA support for electrification and for solar, respectively).

Table 26. Energy efficiency programs funded or administered by state HFAs and states where HFAs refer developers to other available programs

State	HFA programs	Referrals to other available programs	Score
Alaska	Energy Efficiency Interest Rate Reduction (EEIRR)		2
California	Affordable Housing and Sustainable Communities Program (AHSC)		2
Florida	Finance Corporation (Florida Housing) administers the State Housing Initiatives Partnerships (SHIP) program		2
Maryland	Limited Income Energy Efficiency Program (LIEEP), Multifamily Energy Efficiency and Housing Affordability (MEEHA) program		2
Michigan	Property Improvement Program (PIP)		2

[24] In some states, the state HFA is also the state WAP grantee and administrator.

State	HFA programs	Referrals to other available programs	Score
Minnesota	Requires developers to include in their funding application an Energy Rebate Analysis that outlines utility efficiency incentive type, availability, and amount		2
Montana	Montana Housing Trust Fund (HTF) Program		2
New York	Clean Energy Initiative		2
North Carolina	SystemVision™, Essential Single Family Rehabilitation Program		2
Oregon	Oregon Multifamily Energy Program (OR-MEP)		2
Rhode Island	Zero Energy for the Ocean State (ZEOS) program, which promotes efficiency programs from the Rhode Island Office of Energy Resources (RIOER) and National Grid (an IOU)		2
Vermont	VEIC High Performance Track Standards	Referral to Efficiency Vermont, which administers efficiency and electrification programs	2
Virginia	Housing Innovations in Energy Efficiency (HIEE) Program		2
Washington	Sustainable Energy Trust (SET), Energy Spark Program		2
Wyoming	Spruce Up Program		2
Delaware		Works with Sustainable Energy Utility annually to promote its energy efficiency programs	1
New Jersey		Encourages projects to identify utility solar incentives on the New Jersey Board of Public Utilities' Office of Clean Energy website	1
All other states			0

Source: Data from state housing finance agencies and ACEEE research

HFA Programs Supporting Electrification of Affordable Housing

This metric considers HFA support of electrification measures in affordable housing. We awarded 3 points for a program—funded by or co-administered by the HFA—that incentivizes electrification. We allocated 1 point for HFAs that refer building owners and developers to specific electrification programs administered by other state agencies or utilities.

Some states have been leaders in this area. For example, Maine Housing dedicates a portion of its federal LIHEAP funds for heat pump installations in support of the state's new 100,000 heat pump goal. Rhode Island has a program that promotes the use of electric air source heat pumps in affordable, energy efficiency housing. California's Affordable and Sustainable Communities program awards applicants project credits for affordable housing developments or mixed-use developments that are electric-powered and do not have any connections to natural gas infrastructure.

Table 27. Electrification programs for affordable housing in state housing finance agencies

State	Program name	Efforts to promote other programs	Score
California	Affordable Housing and Sustainable Communities program		2
Maine	Maine Housing Heat Pump program		2
New York	Resilient Retrofit program		2
Rhode Island	Zero Energy for the Ocean State (ZEOS) program		2
Connecticut		Encourages building owners and developers to engage with local utilities around available incentives	1
Vermont		Policies direct owners and developers to Efficiency Vermont, which administers a heating electrification program	1
All other states			0

Source: Data from state housing finance agencies and ACEEE research

HFA Programs Supporting Solar in Affordable Housing

This metric, worth up to 2 points, considers HFA programs that offer solar incentives to affordable housing residents.[25] We awarded 2 points for an active program that helps affordable housing residents install on-site solar photovoltaic (PV) or access community solar. We awarded 1 point for HFAs that refer building owners and developers to specific solar programs administered by other state agencies or utilities. Several of these solar programs also fund energy efficiency and/or electrification measures and received credit in the preceding two metrics as well.

Maryland has been a leader here; it offers the Net Zero Loan program, which provides low-interest construction loans to fund energy-efficient housing. This program also supports renewable energy measures that work to offset all or a portion of the expected energy use. The Minnesota HFA's Fix-Up Loan program also provides low-interest financing to cover the cost of energy conservation and home improvements. Eligible renewable technology under the Fix-Up Loan program includes solar photovoltaics, solar thermal electric technologies, and other distributed generation technologies.

Table 28. Solar programs for affordable housing in state housing finance agencies

State	Program names	Efforts to promote other programs	Score
Maine	Passive House Pilot		2
Maryland	Net Zero program		2
Minnesota	Fix-Up Loan program		2
Rhode Island	Zero Energy for the Ocean State (ZEOS) program		2
New Jersey		The New Jersey Housing and Mortgage Finance Agency encourages projects to identify utility solar incentives on the New Jersey Board of Public Utilities' Office of Clean Energy website; it partners with the New Jersey Office of Clean Energy to locate portfolio projects that could	1

[25] Most of the programs that we credit under metrics 3, 4, and 5 in this chapter serve low-income residents and affordable housing residents, but we primarily refer to affordable housing residents to avoid redundancy in these metrics.

State	Program names	Efforts to promote other programs	Score
		take advantage of the Community Solar Program.	
All other states			0

Source: Data from state housing finance agencies and ACEEE research

Chapter 5. Healthy Homes and Communities

INTRODUCTION

The buildings people work and live in can dramatically influence their health. Poorly sealed building envelopes allow pests, moisture, and air pollution to enter interior spaces; all of these can harm respiratory health by introducing allergens, mold, and disease. Leaky windows and poor insulation can lead to drafts and extreme temperatures in homes during summer and winter months. These temperature variations can trigger asthma attacks and exacerbate other respiratory illnesses. Inefficient and malfunctioning appliances can degrade air quality through incomplete combustion or improper venting. Together, poor air quality and inadequate housing conditions contribute to some of the leading causes of death in the United States: cancer, chronic lower respiratory diseases, heart disease, and stroke.

Energy efficiency and electrification programs can make homes safer and healthier while directly benefiting vulnerable families financially. Efficiency-related building upgrades can improve housing conditions, reduce exposure to air pollution, and strengthen the financial security of families by lowering energy bills (and health care costs). Energy efficiency programs may also address other basic building safety measures by providing handrails and smoke, radon, and carbon monoxide detectors. By improving living conditions in overburdened communities, we can begin to mitigate the underlying causes of death and disease.

The metrics in this chapter cut across multiple state authorities to examine efforts to remediate health and safety threats in homes through funding and programs. They also consider regulatory mechanisms that enable utilities and WAP implementers to make health and safety repairs to homes during weatherization programs. Some states have adopted protections such as moratoria on utility shutoffs and health standards for new affordable housing construction. Table 29 lists the metrics in this chapter.

Table 29. Healthy homes and communities metrics

Metric	Description	Score
Remediation of in-home health and safety threats	A state supports a healthy homes program that addresses health and safety issues that can lead to weatherization deferral	4
WAP spending on health and safety services	Amount of allowable WAP spending on health and safety services	3
Medicaid funding to provide in-home modifications	Funding for health services and upgrades in homes from Medicaid	3

Metric	Description	Score
CHIP program to provide in-home modifications	CHIP funding for health services and upgrades in homes	3
Utility shutoff moratoria to protect health	Shutoff moratorium protections for health-related reasons	3
Accounting for health and environmental benefits in utility cost tests	A state has included environmental and health benefits in utility cost-effectiveness testing	2
Health requirements for new construction	Incorporation of healthy homes priorities in new construction projects	2

RESULTS AND KEY TAKEAWAYS

Maryland earned first place here with a score of 16 points. The state's notable accomplishments include allowing 20% spending for WAP health and safety services and using CHIP to fund multiple home remediation programs. Minnesota and Washington tied for second place with 13 points each. Although many high-ranking states specified health requirements in new construction guidelines for affordable housing, this practice was not common nationwide.

Regionally, Washington in the West, Nevada in the Southwest, Maryland in the Mid-Atlantic, Texas in the Southeast, and Ohio and Wisconsin in the Midwest are all leaders in this category. Table 30 shows the scores that each state earned in this chapter.

Table 30. Healthy homes and communities scores by state

State	Remediation of in-home threats (4 pts.)	WAP health and safety spending (3 pts.)	In-home Medicaid funding (3 pts.)	In-home CHIP funding (3 pts.)	Health-related shutoff protections (2 pts.)	Health in cost testing (3 pts.)	Health priorities in new construction (2 pts.)	Total score
Maryland	4	3	2	3	0	2	2	16
Minnesota	1	3	2	3	0	2	2	13
Washington	1	2	3	2	0	3	2	13
California	0	3	3	2	0	2	2	12
Delaware	4	2	3	0	0	3	0	12
Rhode Island	4	1	2	0	0	3	2	12
Wisconsin	4	3	0	3	0	2	0	12
Ohio	4	2	2	3	0	0	0	11
New York	1	2	2	2	0	2	2	11
New Hampshire	4	0	2	0	2	3	0	11
Indiana	4	3	0	3	0	0	0	10
Kansas	4	3	3	0	0	0	0	10
New Jersey	4	1	3	2	0	0	0	10
Texas	4	3	3	0	0	0	0	10
Nevada	4	2	2	0	0	2	0	10
Michigan	1	3	2	3	0	0	0	9
Alaska	4	3	2	0	0	0	0	9
Maine	4	2	0	3	0	0	0	9
Massachusetts	0	0	3	2	1	3	0	9
North Carolina	4	3	2	0	0	0	0	9
Oregon	0	2	3	2	0	2	0	9
Tennessee	4	2	3	0	0	0	0	9
Vermont	0	3	3	0	0	3	0	9

State	Remediation of in-home threats (4 pts.)	WAP health and safety spending (3 pts.)	In-home Medicaid funding (3 pts.)	In-home CHIP funding (3 pts.)	Health-related shutoff protections (2 pts.)	Health in cost testing (3 pts.)	Health priorities in new construction (2 pts.)	Total score
Virginia	4	2	3	0	0	0	0	9
District of Columbia	4	0	2	0	0	3	0	9
Pennsylvania	4	3	0	0	0	0	0	7
Utah	0	2	3	0	0	2	0	7
Arkansas	0	2	2	2	0	0	0	6
Connecticut	0	3	3	0	0	0	0	6
Missouri	1	0	2	3	0	0	0	6
New Mexico	0	3	3	0	0	0	0	6
Iowa	0	0	2	2	0	2	0	6
Illinois	1	3	0	0	0	2	0	6
Alabama	0	3	2	0	0	0	0	5
Arizona	0	2	3	0	0	0	0	5
Louisiana	1	2	0	0	0	0	2	5
Montana	0	3	0	0	0	0	2	5
Nebraska	0	3	0	2	0	0	0	5
Oklahoma	1	2	2	0	0	0	0	5
Colorado	0	2	0	0	0	3	0	5
Idaho	0	1	0	0	1	3	0	5
Georgia	0	2	2	0	0	0	0	4
Florida	0	3	0	0	0	0	0	3
Hawaii	0	0	3	0	0	0	0	3
South Carolina	0	3	0	0	0	0	0	3
West Virginia	0	3	0	0	0	0	0	3
Kentucky	0	2	0	0	0	0	0	2

State	Remediation of in-home threats (4 pts.)	WAP health and safety spending (3 pts.)	In-home Medicaid funding (3 pts.)	In-home CHIP funding (3 pts.)	Health-related shutoff protections (2 pts.)	Health in cost testing (3 pts.)	Health priorities in new construction (2 pts.)	Total score
South Dakota	0	0	2	0	0	0	0	2
North Dakota	0	1	0	0	0	0	0	1
Mississippi	0	0	0	0	0	0	0	0
Wyoming	0	0	0	0	0	0	0	0

Remediation of In-Home Health and Safety Threats

This metric, worth up to 4 points, assesses whether a state supports a healthy homes program that addresses health and safety issues that can lead to weatherization deferral. Such programs, sometimes called "pre-WAP" programs, provide in-home repairs and modifications targeting health and safety threats that cause families to be deferred from weatherization programs. These programs can help ensure that the households that could most benefit from weatherization can receive it, while also improving the health of low-income families.

States operating a program that provides health and safety repairs and built-environment modifications received 4 points. In states that lack such a program, HFAs that refer to or otherwise coordinate with other state programs providing healthy homes services received 1 point.

As table 31 shows, 18 states have or are developing a designated program to address residential health and safety repairs; seven other states have alternative programs that provide in-home health services.

Table 31. State programs and investments to remediate health and safety barriers to weatherization in low-income households

State	Brief description	Score
Alaska	Tribal Air and Healthy Homes Program	4
Delaware	Lead-Free Healthy Homes Program (HFA, Division of Public Health); pre-WAP program (DESEU, state WAP office)	4
District of Columbia	Single Family Residential Rehabilitation Program (roof repairs and accessibility); Safe At Home program (trip-and-fall and	4

State	Brief description	Score
	preventative adaptations); other DHCD-funded community benefit organizations	
Indiana	Pre-WAP (state WAP office)	4
Kansas	Residential Lead Hazard Prevention Program; Kansas Healthy Homes Program	4
Maine	Home Repair Program	4
Maryland	Maryland Housing Rehabilitation Program; Indoor Plumbing Program; Accessible Homes for Seniors Program; both of the Health Services Initiative (HIS) programs (Lead Hazard Reduction and Healthy Homes for Healthy Kids)	4
Nevada	Nevada Healthy Homes Program	4
New Hampshire	Lead and Healthy Homes Program	4
New Jersey	Hospital Partnership Subsidy Program	4
North Carolina	Essential Single-Family Rehabilitation Program	4
Ohio	Pre-WAP funded by LIHEAP	4
Pennsylvania	Pre-WAP funded by LIHEAP	4
Rhode Island	RI Housing's Lead Safe Homes Program	4
Tennessee	TVA Home Uplift	4
Texas	Amy Young Barrier Removal Program (grant to remove hazardous conditions and increase accessibility)	4
Virginia	Emergency Home and Accessibility Repair Program; Indoor Plumbing Rehabilitation	4
Wisconsin	Section 504 Home Repair program; Weatherization Deferral Project	4
Illinois	Climate and Equitable Jobs Act requires utilities to invest in health and safety improvements for weatherization	1
Louisiana	Lead Hazard Control & Healthy Homes Program	1
Michigan	Lead-related HSI	1
Minnesota	Lead-related HSI; Healthy AIR (Asbestos Insulation Removal) account and pre-weatherization funding set up by the Eco Act	1

State	Brief description	Score
Missouri	Lead-related HSI	1
New York	NYSERDA Value-Based Payment Healthy Homes Pilot	1
Oklahoma	Childhood Lead Poisoning Prevention Program (state health dept.)	1
Washington	Wx + Health Initiative	1
All other states		0

Source: Data from survey of state housing finance agencies and ACEEE research

WAP Spending on Health and Safety Services

Homes with preexisting health and safety issues may be deferred from receiving weatherization. This metric, worth up to 3 points, considers the amount of spending a state's WAP plan allows for health- and safety-related services. Higher levels of allowable spending or flexibility on program health- and safety-related spending can help ensure that families without the financial resources to make needed health and safety repairs can still participate in WAP.

While there is no federal limit on health and safety spending of WAP dollars, states file annual plans that set such limits. These spending limits are typically a percentage of total program spending or a specific dollar amount. Such limits may apply either to a whole program budget or on a per-household basis. For states that employ a fixed dollar amount cap, we use the national average per-unit cost of weatherization to approximate the percentage of spending that these dollar amounts represent. If specific per-unit limits were not available, we instead used the program's average health and safety spending limit (if available).

West Virginia's state WAP plan, for example, sets no explicit limit on health and safety spending per unit, but instead notes that the WAP administrator oversees the plan's spending. This may allow increased flexibility for the state's WAP subgrantees to repair homes that would otherwise be deferred. Florida had the highest explicitly stated percentage of allowable spending (46%), while Illinois allows a maximum of $1,750 per unit (although the average cost on a program-wide basis must be lower). More than one-third of states allow a normalized spending limit over 15%.

Table 32. WAP funds used for health and safety services

State	Allowable spending for state health and safety (H&S) plan	Percentage for normalization purposes	Score
West Virginia	No set limit, but WV Development Office has "constant oversight"	No limit	3
Florida	46%	46%	3
Illinois	$1,000 per unit average, not to exceed $1,750	37%	3
California	Program average	32%	3
Connecticut	Up to $1,500	32%	3
New Mexico	Under $1,500	32%	3
Wisconsin	$1,500 per unit cost cap, excluding ventilation, gas line testing, and worst-case draft testing	32%	3
South Carolina		22%	3
Alabama	Will not exceed 20% of total program operations	20%	3
Alaska	20% of the average cost per unit	20%	3
Indiana	20%	20%	3
Maryland	20% across all units	20%	3
Vermont	20%	20%	3
Michigan	1) up to 50% of total job cost; 2) 20% per unit (state budget/operations)	20%	3
Pennsylvania	18% per-unit average	18%	3
North Carolina	18%	18%	3
Texas	18% of requested program budget	18%	3
Montana	18%	18%	3
Kansas	17% per unit; $1,122 (average cost per unit)	17%	3
Minnesota	17% per unit	17%	3
Nebraska	16%	16%	3

State	Allowable spending for state health and safety (H&S) plan	Percentage for normalization purposes	Score
Arizona	Under 15%	15%	2
Arkansas	Up to 15%	15%	2
Georgia	15% of DOE funds	15%	2
Kentucky	Up to 15% on average, but a unit cannot exceed $3,000	15%	2
Louisiana	Up to 15%	15%	2
Maine	Up to 15%, $1,200 per unit	15%	2
Nevada	15%	15%	2
New York	10–15% depending on the area	15%	2
Oklahoma	15% of budget	15%	2
Oregon	Up to 15%	15%	2
Tennessee	15% per-unit average	15%	2
Virginia	15% of allowable funds, 15% per unit	15%	2
Delaware	5% of its DOE program operations budget category	15%	2
Ohio	15% of budget	15%	2
Utah	15%	15%	2
Washington	15%	15%	2
Colorado	15%; discussion required if limit exceeded by subgrantee	15%	2
Idaho	Up to 14%	14%	1
New Jersey	14% averaged across all units	14%	1
North Dakota	14%	14%	1
Rhode Island	12% per unit	12%	1
New Hampshire	4% of requested program budget, but expecting higher utility H&S spending	4%	0
Hawaii	3.6% per-unit average	4%	0
District of Columbia	$125 per unit on average	3%	0

State	Allowable spending for state health and safety (H&S) plan	Percentage for normalization purposes	Score
All other states			0

Source: ACEEE review of state WAP plans

Medicaid Funding to Provide In-Home Modifications

States can invest Medicaid funds in health services and upgrades provided in the home. They can do this by submitting a request to CMS for a State Plan Amendment or a Section 1115 Demonstration Program. For this metric, we awarded 3 points to states that have successfully employed one of these approaches to allow Medicaid dollars to fund physical modifications to a home, such as lead remediation or appliance installation. States earned 2 points if they use these types of Medicaid mechanisms to support other types of home-based health and safety services, such as in-home education and environmental assessments.[26] Table 33 summarizes the results.

States such as Connecticut and California received full credit for enabling reimbursement for a range of accessibility adaptations; for example, Connecticut's SPA enables the Community First Choice State Plan Option, which includes potential for services such as installing ramps/grab bars, widening of doorways, and installing specialized electric and plumbing systems. States such as Tennessee and Texas also enable environmental modifications, but they specify that the scale and scope of adaptations and repairs must be minor. States receiving credit for in-home services include Missouri, which supports in-home asthma education and environmental risk assessments twice a year for patients with uncontrolled asthma.

By enabling broader payment reform and rule changes, these same Medicaid mechanisms can enable use of a state's Medicaid funds to support in-home work of the type credited in this metric. For example, New York's innovative Healthy Homes Pilot, which combines energy efficiency upgrades with services related to asthma and injury prevention, is enabled by changes set forth in the state's Value-Based Payment 1115 waiver. A comprehensive survey of all Medicaid programs enabled by finance-related 1115 waivers or SPAs was beyond our

[26] We do not address the class of waivers available to support in-home care through Section 1915 of the Social Security Act; while these waivers target the provision of in-home services, they appear to be focused on providing more traditional medical services in non-institutional settings and on helping certain populations transition out of institutional care and back into traditional homes and communities.

project's scope, though it would be a valuable area for future investigation. For this report, we credited only states with waivers or SPAs with an explicit link to built-environment modification or in-home health and safety services in the text of the relevant waiver or amendment.

Table 33. State use of Medicaid SPAs or 1115 Demonstration waivers to support health services and upgrades in homes

State	Summary of relevant services from SPAs or 1115 waivers	Score
Arizona	In-home care and medical equipment, home modifications, home- and community-based services	3
California	Environmental accessibility adaptations	3
Connecticut	Environmental accessibility adaptations	3
Delaware	Home modifications for older/ill populations	3
Hawaii	Environmental modifications	3
Kansas	Environmental risk factor assessment, home- and community-based services	3
Massachusetts	Asthma home-visits, environmental assessment, and modifications	3
New Jersey	In-home services depending on plan of care, home modifications, and services	3
New Mexico	Community-based services, home visits, environmental/home modifications	3
Oregon	Environmental modifications, environmental hazard assessment, home modifications, environmental adaptations, in-home case management	3
Tennessee	In-home care, minor home modifications	3
Texas	In-home lead investigation, minor (accessibility) modifications, environmental adaptations, home health aide	3
Utah	In-home health aide services, home appliances and medical supplies, environmental modifications	3
Vermont	Home modifications/assistive devices, in-home services	3
Virginia	Expands home health service ordering abilities, home visits, in-home assessments, home accessibility adaptations	3

State	Summary of relevant services from SPAs or 1115 waivers	Score
Washington	Expands home health service ordering abilities, home services, home safety evaluations, minor home modifications	3
Alabama	Home environmental assessment, in-home nursing and equipment	2
Alaska	Community-based outpatient services	2
Arkansas	In-home environmental risk assessment, home-based care	2
District of Columbia	Comprehensive care mgt. and community/social support services	2
Georgia	Home visits for babies and caretakers	2
Iowa	Physical and social environmental assessments	2
Maryland	Home lead investigations for children with high blood lead levels, home-based visits	2
Michigan	In-home health aide services, home lead investigation, home visits	2
Minnesota	Environmental accessibility adaptations, home visits	2
Missouri	Asthma education, home environmental assessments	2
Nevada	Intensive in-home services	2
New Hampshire	Living environment assessment, in-home services	2
New York	Healthy home services (coordinated care), in-home services, home visits, home evaluations	2
North Carolina	Community and social support services, focusing on social/environmental factors, home visits, and environmental risk screenings	2
Ohio	Assessment of physical and social services needs	2
Oklahoma	In-home services	2
Rhode Island	Environmental risk assessment and in-home intervention strategy development, environmental modifications/home accessibility adaptations (excluding remodeling/construction)	2
South Dakota	Home visits and referrals to community-based resources	2
All other states		0

CHIP Program to Provide In-Home Modifications

Three points are awarded to states with a CHIP Health Services Initiative (HSI) providing physical modifications to the built environment, such as lead abatement services. HSIs are programs that can be funded using a state's CHIP funds.

States with active HSI programs that fund built-environment modification receive full credit for this metric. We awarded 3 points for states that have developed an HSI allowing in-home services to modify the built environment. We awarded 2 points for states with an HSI that funds additional services related to in-home health, including in-home risk assessments.

Of the eight states that received full points for this metric, all have used an HSI to fund work related to lead hazard abatement in homes. For example, Michigan has developed several lead-related HSIs, including one that funds in-home lead testing and abatement. Maryland has a pair of HSI-funded programs related to healthy homes work—one addresses lead hazards and the other provides broader environmental health assessments of homes coupled with case management. We awarded 2 points to nine states using HSIs to fund poison control centers with offerings that include in-home assessments of risk or exposure.

Table 34. Funding for health services and upgrades in homes from the Children's Health Insurance Plan (CHIP)

State	Relevant service type summary	Score
Indiana	Lead abatement/testing/prevention; poison control center (home assistance possible)	3
Maine	Lead abatement	3
Maryland	Lead abatement/testing/prevention; environmental case management; poison control center (home assistance possible)	3
Michigan	Home alterations to reduce hazards; poison control center (home assistance possible)	3
Minnesota	Lead abatement/testing/prevention; home visits for high-risk families with newborns	3
Missouri	Lead abatement/testing/prevention; home visits for high-risk families with newborns	3
Ohio	Lead abatement/prevention/testing	3
Wisconsin	Lead abatement; poison control center (home assistance possible)	3
Arkansas	Poison control center; in-home services for maltreated children	2
California	Poison control center (home assistance possible)	2
Iowa	Poison control center (home assistance possible)	2
Massachusetts	In-home services for special needs children; home visits for low-income new mothers	2
Nebraska	Poison control center (home assistance possible)	2
New Jersey	In-home services for children; poison control center (home assistance possible)	2
New York	In-home services for children; poison control center (home assistance possible)	2
Oregon	Poison control center (home assistance possible)	2
Washington	Poison control center (home assistance possible)	2
All other states	No relevant HSIs identified	0

Source: ACEEE database of Health Service Initiatives, based on searching the Medicaid CHIP State Program Information

Utility Shutoff Moratoria to Protect Health

This metric, worth 2 points, considers state utility shutoff protections for customers whose health would be at risk in the event of a shutoff. Those protections typically prohibit utility service termination if a health care professional certifies that an individual has a serious illness (Wein and Harak 2021). See table 35 for desirable principles of shutoff protections for serious illnesses, recommended by the National Consumer Law Center.

Table 35. Shutoff protection principles for serious illnesses

Principle	Description
Broad scope	The state's definition of "serious illness" should include a wide range of emotional, mental, and physical conditions for customers unable to afford their utility bills.
Diversity of certifiers	Customers should be able to use a range of health care providers to attest to their health status, including a nurse practitioner, physical assistant, psychologist, local board of health staff, or medical doctor.
Prompt initiation and adequate duration of protection	Rules should allow a customer to quickly obtain medical protection by phone. The initial protection should delay disconnection by at least 30 days and should be renewable for as long as the customer's medical condition lasts.
Adequate notice and easily accessible process	State rules should require utilities to notify customers of the serious illness protection rules and the application process to pursue them.
Affirmative outreach	Utilities should proactively identify medically fragile customers and avoid disconnecting their services.
Monitoring and enforcement	State rules should require utilities to collect, evaluate, and report granular data to monitor the implementation of these protections.

Source: Summarized from Wein and Harak 2021

We gave full credit (2 points) to states with protections that reflect at least three of the six principles in table 35, and we gave 1 point to states with policies that reflect at least two of the principles. States received no points if they fulfill only one or none of these principles, or if they allow utilities to decide if a customer can renew their disconnection protection.

New Hampshire's policy was the most comprehensive; its rules broadly define conditions to which protections apply, as diagnosed by a diversity of health care providers. Further, in New Hampshire, protections can be initiated with a phone call, with no limit on recertification and a recertification period of well over 30 days. Massachusetts' protections are similarly flexible in terms of the diagnosing provider and the potential to recertify as needed, as well as in the

ability to initiate protections with a phone call. However, the Massachusetts rule defines qualifying health conditions more narrowly. Idaho's protections cover a broad range of conditions and diagnosing providers, but they allow only one recertification and do not allow phone initiation of protection. No state's policies fulfilled the three last principles described above in table 35.

Table 36. Shutoff moratoria for serious illnesses

State	Principles fulfilled	Score
New Hampshire	1, 2, and 3	2
Massachusetts	2 and 3	1
Idaho	1 and 2	1
Wisconsin	Prohibition too short	0
Wyoming	Prohibition too short	0
All other states		0

Source: NCLC 2011

Accounting for Health and Environmental Benefits in Utility Cost Tests

This metric, worth 2 points, addresses whether states have included environmental and health benefits in their utility cost-effectiveness testing. Such testing sets limits that ensure that utilities spend ratepayer dollars responsibly. Valuing health and environmental benefits in utility cost-effectiveness tests can give utilities greater latitude to offer health-related services and may increase their program spending.

Nineteen states have incorporated health or environmental benefits in their cost-effectiveness tests in various ways. Some states monetize the value of health and environmental benefits based on studies that estimate specific values using program-specific information, while others borrow values from other utilities or jurisdictions. Some states use proxies to assign values to health and environmental benefits. These proxies might be based on a percentage of total benefits (e.g., total quantifiable benefits are increased by 10%), a fixed multiplier (e.g., $/MWh), a customer-based adder (e.g., $/customer or $/household), or a services-based multiplier (e.g., $/energy efficiency measure). We awarded a state 1 point for incorporating either health or environmental benefits into cost-effectiveness testing, for a possible total of 2 points.

Several states stand out in this category. Colorado and Vermont both have policies that enable inclusion of a broad range of health and environmental benefits. Each state includes monetized values for avoided compliance costs related to several types of avoided

air pollution, as well as percentage-based adders to represent environmental, societal health, and participant health benefits.

Table 37. Environmental and health benefits in utility cost-effectiveness tests

State	Environmental benefits	Health benefits	Score
Colorado	Yes	Yes	3
Delaware	Yes	Yes	3
District of Columbia	Yes	Yes	3
Idaho	Yes	Yes	3
Massachusetts	Yes	Yes	3
New Hampshire	Yes	Yes	3
Rhode Island	Yes	Yes	3
Vermont	Yes	Yes	3
Washington	Yes	Yes	3
California	Yes	No	2
Illinois	Yes	No	2
Iowa	Yes	No	2
Maryland	Yes	No	2
Minnesota	Yes	No	2
Nevada	Yes	No	2
New York	Yes	No	2
Oregon	Yes	No	2
Utah	Yes	No	2
Wisconsin	Yes	No	2
All other states			0

Source: ACEEE 2018

Health in New Construction

For this metric, we awarded up to 2 points to states with HFAs that support or require practices that protect occupant health in new construction projects. As we noted earlier, healthy homes are residences that are clean, safe, well ventilated, and free of pests and contaminants (BPI 2021). Relevant HFA requirements include design guidelines promoting

healthy homes and lead-safety principles, siting considerations, incentives for health-related occupant services by developers, and energy code provisions. We did not award points for meeting required federal design standards, such as accessibility standards that are already required under the Americans with Disabilities Act.

We awarded 2 points to states with mandates for incorporating healthy homes principles into new construction, and 1 point for financial investment through an incentive or other voluntary measure.[27]

The seven states that received full credit in this category have taken a range of approaches. Both Minnesota and Washington require new construction to meet a modified version of the Enterprise Green Communities Standard, which incorporates a range of healthy homes measures. Rhode Island Housing's minimum design standards for its buildings also include healthy homes measures.

Table 38. Healthy homes principles in new construction

State		Score
California	Minimum design standards across many programs	2
Louisiana	Minimum design standards (including focus on climate resiliency)	2
Maryland	Multifamily Rental Housing Program (healthy home requirements for all projects); indoor air quality and ventilation requirements in Energy Efficient Homes Construction Loan Program	2
Minnesota	Enterprise Green Communities Standard (with Minnesota-specific overlay) required for all projects	2
Montana	HOME program criteria promoting low-VOC materials; environmental review process ensuring siting safety	2
New York	New construction projects must participate in one of the following programs: NYSERDA Low-Rise Residential New Construction Program, NYSERDA Multifamily New Construction Program, NYSERDA New Construction Housing Program, ENERGY STAR Multifamily New Construction Program, or Enterprise Green Communities	2

[27] For this metric, we awarded credit for healthy home incentives and policies that were not already included in the QAP metric in chapter 4.

State		Score
Rhode Island	Healthy homes requirements in RIHousing Design Guidelines	2
Washington	Evergreen Sustainable Development Standard (based on Enterprise Green Communities Standard) required for all funded projects	2
All other states		0

Source: Data from survey of state housing finance agencies and ACEEE research

Chapter 6. Cross-Agency Coordination, Community Engagement, and Statewide Standards

INTRODUCTION

This chapter's metrics seek to capture whether a state is coordinating policy and resources to best achieve the multiple goals of healthy, affordable housing. The metrics assess a state's cross-agency coordination by looking at cooperative efforts that span multiple agencies. These metrics examine whether state agencies share information, support cross-service referrals, and provide other support to effectively serve the public through coordinated services. The metrics also consider state efforts to foster community engagement and accountability as well as broad-reaching statewide standards that have a beneficial effect on the quality or availability of affordable housing. These efforts include building performance standards, building energy codes, appliance efficiency standards, and state policies supporting solar power in affordable housing. Table 39 lists the metrics included in this chapter.

Table 39. Cross-agency coordination, community engagement, and statewide standards metrics

Metric	Description	Score
Building energy performance standards in multifamily buildings	A state has building energy performance standards for multifamily buildings.	3
Cross-agency organization focused on providing healthy, green, affordable housing	A state has a cross-agency organization focused on providing healthy, green, affordable housing.	2
Accountability for impacts of energy, sustainability, and climate action plans on marginalized groups	A state has policies or procedures that promote accountability for impacts of energy, sustainability, and climate action plans on marginalized groups.	3
Community engagement to inform energy, sustainability, and climate action planning	A state has an expanded process to engage affected communities on the creation of state energy, sustainability, or climate action plans.	2
State policies supporting renewable energy in low-income communities	Legislation or regulation requires utilities to help low-income households access the benefits of renewable energy systems.	2

Metric	Description	Score
Cross-referral platforms for health, energy, and affordable housing services	A state runs a cross-referral platform for health, energy, and affordable housing services.	2
Cross-agency data sharing	Cross-agency data sharing occurs between state agencies to provide healthy, green, affordable housing.	2
State building energy codes	A state's building energy codes are more stringent than federal standards.	2
State appliance standards	A state has energy standards for at least five kinds of appliances.	2

RESULTS AND KEY TAKEAWAYS

The District of Columbia earned the most points here—16 out of 20—and is a leader in adopting building energy performance standards (BEPS). Rhode Island, in second place, is one of the few states to implement policies to support community engagement.

In the West, Washington and California lead the region and score high nationally. In the Northeast, Rhode Island and Vermont are leaders, while the District of Columbia and Maryland lead the Mid-Atlantic. The southern states have considerable room for improvement. Texas leads in the South, and Minnesota leads in the Midwest. Table 40 shows each state's scores.

Table 40. Cross-agency coordination, community engagement, and statewide standards scores by state

State	Building energy performance standards (3 pts.)	Cross-agency organization (2 pts.)	Accountability (3 pts.)	Community engagement (2 pts.)	State building energy codes (2 pts.)	Appliance standards (2 pts.)	State policies supporting LI renewable energy (2 pts.)	Cross-referral platforms (2 pts.)	Cross-agency data sharing (2 pts.)	Total score
District of Columbia	3	2	3	0	2	0	2	2	2	16
Rhode Island	0	2	3	2	2	1	2	1	2	15
Washington	1	2	3	0	0	0	2	2	2	12
Maryland	0	1	3	0	2	0	2	2	1	11
Vermont	0	2	0	0	0	2	2	2	2	10
California	1	1	0	0	2	0	0	2	2	8
Colorado	3	0	0	0	2	0	0	0	2	7
Connecticut	0	2	3	0	0	0	0	1	1	7
Massachusetts	0	0	0	2	0	2	0	2	2	8
Oregon	0	0	0	0	2	0	2	2	2	8
Minnesota	0	2	0	0	2	1	0	1	0	6
New Hampshire	0	1	0	0	2	2	0	1	1	7
Illinois	0	1	3	0	2	0	2	1	0	9
Pennsylvania	0	0	3	2	0	0	0	1	0	6
Texas	0	1	0	0	0	0	2	2	1	6
Nevada	0	0	0	0	2	0	0	1	2	5
Delaware	0	0	0	0	0	0	2	2	0	4

State	Building energy performance standards (3 pts.)	Cross-agency organization (2 pts.)	Accountability (3 pts.)	Community engagement (2 pts.)	State building energy codes (2 pts.)	Appliance standards (2 pts.)	State policies supporting LI renewable energy (2 pts.)	Cross-referral platforms (2 pts.)	Cross-agency data sharing (2 pts.)	Total score
Hawaii	0	0	3	0	0	0	0	0	1	4
Michigan	1	1	0	0	0	0	0	1	0	3
Montana	0	1	0	0	0	0	2	1	0	4
Nebraska	0	1	0	0	0	1	0	2	0	4
New Jersey	0	2	0	0	2	0	2	1	2	9
New York	0	1	3	0	0	0	0	2	1	7
Idaho	0	0	0	0	0	0	2	1	0	3
North Carolina	0	0	0	0	0	0	2	1	0	3
Virginia	0	0	0	0	2	0	0	1	0	3
Florida	0	1	0	0	0	0	0	1	0	2
Georgia	0	0	0	0	0	0	0	1	1	2
Maine	0	0	0	2	0	0	0	0	0	2
Missouri	0	0	0	2	0	0	0	0	0	2
New Mexico	0	1	0	0	0	0	0	1	0	2
Ohio	0	1	0	0	0	0	0	1	0	2
Wisconsin	0	1	0	0	0	0	0	1	0	2
All other states										1 or 0

Building Energy Performance Standards in Multifamily Buildings

This metric, worth up to 4 points, credits BEPS for multifamily buildings, with partial credit (1 point) given to statewide benchmarking programs or requirements for multifamily buildings. Mandatory BEPS require existing buildings to meet specific performance targets (e.g., performance rating, carbon or energy intensity).[28] Moreover, BEPS policies usually prioritize whole-building approaches rather than energy upgrades to individual units in those buildings (Nadel and Hinge 2020). As a result, BEPS policies can deliver energy efficiency measures on a greater scale than programs targeting individual units.

BEPS policies are a key strategy for reducing energy use in existing buildings, which can be hard to reach with energy efficiency programs due to factors such as a lack of capital and technical barriers or misaligned incentives between owners and tenants. However, special considerations for affordable housing can help to avoid unintended consequences such as increased housing costs. Affordable housing faces unique challenges to meeting BEPS policies, such as insufficient upfront capital and split incentives between property owners and tenants. States can help affordable housing owners overcome these obstacles and comply with BEPS policies by providing them with incentives, financing, and extra time for compliance (Nedwick and Ross 2020).

An important step leading to BEPS can be adopting building benchmarking policies, which require building owners or managers to collect energy usage data and compare their data against those of peer buildings (Nadel and Hinge 2020). In the United States, BEPS policies are still rare at the state level, particularly for multifamily buildings. For these reasons, we awarded a partial credit of 2 points to states with voluntary or mandatory statewide benchmarking of multifamily buildings. We did not credit state benchmarking requirements that apply only to buildings awarded LIHTC.[29]

The District of Columbia and Colorado both received full points here; each provide support to maintain housing affordability of multifamily buildings subject to their BEPS policies. The District of Columbia has appropriated millions of dollars to specifically aid affordable housing properties in complying, while Colorado's 2021 Energy Performance for Buildings law provides outreach, technical assistance, and grants to support building owners seeking to comply. Washington State offers base financial incentives for early adopters of the state's

[28] BEPS policies for multifamily buildings apply to existing buildings, while chapter 4's energy performance metric applies to new construction and rehabilitation projects.

[29] For example, Delaware requires utility benchmarking for all LIHTC awards and allows developers and building owners to include associated software costs in their operations budget, per the state's response to ACEEE survey questions.

Clean Buildings Performance Standard, which has compliance deadlines ranging from 2026 to 2028 (Washington State Department of Commerce 2022; NHT 2021).

Table 41. Building energy performance management standards for multifamily buildings[30]

State	BEPS policy (Y/N)	Benchmarking (Y/N)	Special considerations for affordable housing compliance in BEPS	Score
District of Columbia	Y	Y	Appropriated funds to support affordable housing compliance	4
Colorado	Y	N	Dedicated program to support building owners with technical assistance and grants to help with compliance	4
California	N	Y	—	1
Michigan	N	Y	—	1
Washington*	Y	N	Voluntary standard; "early adopter" incentives	1
All other states			—	0

***We awarded partial points to Washington State because its building energy performance standard is voluntary for multifamily buildings. Sources: Nadel and Hinge 2020; ACEEE 2021; Michigan Battle of the Buildings 2021; CEC 2018; Colorado General Assembly 2021.**

Cross-Agency Organization Focused on Providing Healthy, Green, Affordable Housing

This category, worth up to 3 points, assesses whether the state has a cross-agency working group or taskforce dedicated to developing priorities and policy recommendations at the nexus of healthy, green, and affordable housing. We elicited this information through HFA surveys, specifically those that asked about formal activities in this space. We awarded a state the full 3 points if it has a single designated body—such as a task force, council, or advisory board—that simultaneously addresses housing, health, and energy. We awarded 1 point if a state has a group that addresses at least two of these topics.

Diverse interagency coordination mechanisms were reported across the country, ranging from monthly or annual meetings to dedicated coordination staffers (e.g., the District of Columbia's Green Building & Affordable Housing Analyst). While few states have developed

[30] In 2022, Maryland enacted a BPS and Washington expanded its BPS to include multifamily buildings, but those new policy changes are not reflected in their scores.

an organization to address housing, health, and energy explicitly, 11 states have formal meeting and coordination processes between agencies meant to address two of these topics together.

Table 42. Cross-agency organization on healthy, green, affordable housing

State	Name of organization	Score
District of Columbia	Housing Preservation Strike Force; DC BEPS Task Force	3
Minnesota	Governor's Climate Change SubCabinet	3
New Jersey	NJDEP's Resilient NJ; Rutgers University initiatives; Sustainable Jersey	3
Rhode Island	Energy Efficiency and Resource Management Council (EERMC)	3
Vermont	Health in All Policies Task Force	3
Washington	Environmental Justice Task Force*	3
Illinois	Illinois Housing Task Force	1
Iowa	Iowa Housing Partnership	1
Maryland	Maryland Commission on Climate Change	1
Michigan	Michigan Statewide Housing Plan Partner Advisory Council	1
Montana	Intergovernmental Housing Integration Project	1
New Mexico	Housing First Task Force	1
South Carolina	Rural Health Action Plan Task Force	1
Tennessee	Energy efficiency and weatherization advisory board	1
Texas	Housing and Health Services Coordination Council	1
All other states	None identified	0

Source: Data from survey of state housing finance agencies and ACEEE research

Accountability for Impacts of Energy, Sustainability, and Climate Action Plans on Marginalized Groups

For this metric, we awarded 3 points if states have structures in place that provide accountability for how energy, sustainability, or climate action initiatives are affecting

marginalized groups.[31] Setting goals or metric-based targets is a tangible commitment to ensuring that spending and benefits serve the communities intended and can help avoid inequitable outcomes. We awarded the 3 points based on evidence of specific goals, targets, and metrics in place to assess how marginalized communities are impacted by energy, sustainability, or climate action initiatives; we collected this information as part of a data request to state energy offices and public utility commissions.

States vary in the approaches credited under this metric, which includes a broad landscape of efforts to promote accountability for impacts. Hawaii's public utility commission uses several performance targets related to accessibility and affordability, and implements protocols to ensure that investments reach low-income customers equitably across zip codes and islands; an Americorps volunteer group has also been tasked by Hawaii's Climate Commission to evaluate how energy, sustainability, and climate action initiatives within the state are affecting local low- to moderate-income and marginalized groups through the development of an "equity playbook." Rhode Island's Office of Energy Resources created an energy justice program manager position to recommend and implement equitable protocols in community engagement, as well as to update data on energy burden across the state. The Maryland Office of People's Counsel has completed an energy affordability baseline analysis, benchmarking data on issues such as energy burden.

A number of states, including Delaware, Massachusetts, Oklahoma, Tennessee, and Wisconsin, reported under-development goals, metrics, or protocols to assess equity or impacts to marginalized groups. Because these measures were not yet in place at the time of reporting, they are not credited in this report, but the number of states moving to implement such measures represents a positive trend.

[31] Marginalized communities (also known as disadvantaged or underserved communities) are groups of people who are most affected by community decision-making and systemic injustices. These groups are often people of color and/or low-income residents. Marginalized communities can also be characterized by age, immigration status, disability, language proficiency, and homelessness (Ayala, Drehobl, and Dewey 2021).

Table 43. Accountability for impacts of energy and sustainability planning on marginalized groups

State	Details	Score
Connecticut	Data are collected on impacts on and participation by hardship customers as part of key performance indicator metrics within State Performance Management Incentives.	3
District of Columbia	DCSEU's annual energy goals and minimum spending requirements; metrics on interventions to LI households.	3
Hawaii	Geographic targeting among zip codes and between islands promote equitable distribution of programs; accessibility and affordability targets.	3
Illinois	The Climate and Equitable Jobs Act requires utilities to spend a minimum amount of money for low-income energy efficiency efforts.	3
Maryland	An energy affordability baseline analysis was completed on behalf of the Maryland Office of People's Counsel.	3
New Jersey	The Board of Public Utilities will create enhanced incentives for low- and moderate-income communities as part of the state's Energy Master Plan.	3
New York	The Climate Leadership and Community Protection Act mandates that disadvantaged communities receive 40% of all benefits from achieving climate goals.	3
Pennsylvania	The PUC collects and tracks data for communities in environmental justice areas participating in Climate Action Plan educational sessions.	3
Rhode Island	The Office of Energy Resources hired an energy justice program manager to implement equitable protocols across office programs and initiatives, and to collect data on energy burden; equity metrics developed with community organizations to track and monitor progress.	3
Washington	The Clean Energy Transformation Act (CETA) requires utilities to submit a biennial assessment report that analyzes programs' effectiveness (short-term and sustained) to reduce energy burden, as well as the outreach strategies (including tribal consultation and language access) and funding levels needed to meet specific goals for increasing energy assistance needs for specific groups.	3
All other states		0

Source: ACEEE research

Community Engagement to Inform Energy, Sustainability, and Climate Action Planning

For this metric, we awarded 2 points if the state has an expanded process to engage targeted communities around these topics while creating state energy, sustainability, or climate action plans. Low-income communities and communities of color are disproportionately exposed to pollution from fossil-fuel generation and to the health and housing-related effects of climate change (Benevolenza and DeRigne 2019; Watson et al. 2020). This metric highlights states that have created processes intended to ensure that these communities have a voice in local energy sustainability and climate action.

The initiatives credited in this metric are diverse, ranging from working groups to establish equitable mechanisms for community engagement and feedback (Rhode Island and Massachusetts) to regionally specific planning processes intended to give local concerns a greater voice (Missouri). As with the preceding accountability metric, several states reported that they are currently developing innovative processes to address engagement and empowerment of marginalized groups. For example, Hawaii's state energy office is seeking to procure a community outreach and engagement program, which aims to ensure that marginalized communities have the necessary tools to help guide clean energy and climate goal setting. Because these initiatives are not yet implemented, we have not credited them in this report.

Table 44. Community engagement processes to inform planning for energy and sustainability

State	Details	Score
Maine	Efficiency Maine Trust holds quarterly meetings with organizations representing low-income communities and priorities.	2
Massachusetts	The Energy Efficiency Advisory Council is developing equitable engagement protocols through an Equity Working Group.	2
Michigan	The Energy Affordability and Accessibility Collaborative seeks broad, diverse input from residents, nonprofits, utilities, and state agencies to address energy affordability, low-income energy assistance access, customer protections, and low-income energy waste reduction services.	2
Missouri	The regional "MoSEP" process allows greater granularity of participation by local communities; the Missouri Energy Efficiency for All initiative leads a Low-Income Workgroup to bring together housing advocates, utilities, and regulators; and the Missouri Energy Efficiency Advisory Collaborative stakeholder group guides the state in how it pursues utility-sponsored energy efficiency programs.	2
Pennsylvania	The state has a bilingual outreach on CAP development and RGGI, and a training series and workshops to capture Climate Action Plan feedback.	2

State	Details	Score
Rhode Island	National Grid and Office of Energy Resources are co-developing an Equity Working group to give impacted communities and the organizations that serve them an ongoing, structured opportunity to provide input and feedback on the planning, design, and delivery of energy efficiency programs.	2
All other states		0

Source: ACEEE research

State Policies Supporting Renewable Energy in Low-Income Communities

For this metric, we awarded 2 points to states with legislation or regulation that requires utilities to help low-income households access the benefits of renewable energy systems. Examples here include state legislative and regulatory minimum capacity and funding targets for low-income households; utility-administered programs[32] that deliver rooftop and community solar to low-income residents; policies that earmark a portion of shared renewable energy systems for low-income customers; and policies that allocate renewable portfolio standard (RPS) proceeds to renewable energy systems for low-income households.

Currently, 12 states have policies that require low-income renewable energy distribution. Under its RPS, New Hampshire uses compliance payments from electric service providers to fund its Renewable Energy Fund. Through this fund, the state offers incentives for thermal and renewable energy programs, including a community solar program for low- and moderate-income households (New Hampshire PUC 2021). New Hampshire is the only state we identified with such a policy mechanism. While only 12 states earned points in this category, most states include special considerations in their solar policies to encourage participation by low-income customers.

Table 45. State policies supporting renewable energy in low-income communities

State	Policy name	Score
California	Multifamily Affordable Housing Solar Roofs Program	2
Colorado	Community solar law (Colo. Rev. Stat. § 40-2-127), Community Solar Gardens	2

[32] We did not credit the utility financial incentives for solar that were captured in the "Energy Utilities" chapter.

State	Policy name	Score
District of Columbia	Solar for All	2
Illinois	Illinois Solar for All	2
Maryland	Community Solar Pilot Program	2
Minnesota	Community Solar Garden Initiative	2
Nevada	Expanded Solar Access Program	2
New Hampshire	Renewable Energy Fund (funded by New Hampshire's Renewable Portfolio Standard)	2
New Jersey	Community Solar Energy Pilot	2
Oregon	Oregon Community Solar Program	2
Rhode Island	Community Renewables Program	2
Virginia	Shared Solar	2

Source: Shields 2021 and ACEEE research

Cross-Referral Platforms for Health, Energy, and Affordable Housing Services

For this metric, we awarded up to 2 points for state efforts to refer low-income community members to home-based services that improve the health or energy performance of their housing. We awarded 2 points for the existence of a statewide platform to track and coordinate such referrals, and 1 point for state-funded regional or pilot initiatives.

Cross-referral platforms help enable households in need of a range of services to access more of the resources available to them, while potentially reducing both the involved transaction costs to program participants and the duplication of effort among organizations providing services. While many state organizations and agencies regularly refer people to other services or agencies that might benefit them, this metric focuses on tangible platforms that serve as dedicated infrastructure to centralize and coordinate this process. Information used to score this metric came from surveys of HFAs; the George Washington University Funders Forum on Accountable Health (FFAH) Inventory of Accountable Communities for

Health; and supplementary desktop research, including a review of the OneTouch platform's online materials.[33]

OneTouch is a digital platform that enables both a centralized assessment of household needs and cross-referrals among participating service providers. New Hampshire and Vermont, along with substate regions in Minnesota and Nebraska, have adopted a version of the OneTouch platform to coordinate a range of home health and safety services. Other states, such as Massachusetts and Maine, have developed their own dedicated cross-referral systems. In some states, referral systems are partially funded by the state public health agency (RI), while in other states, the systems are spearheaded by the state's housing or energy agencies. It is worth noting that many of these types of cross-referral initiatives are local and are therefore supported and operated at the local rather than state level. Because our focus here is on state-level actions, this metric does not capture or score these valuable local initiatives.

Table 46. States with cross-referral platforms for healthy, affordable housing services

State	Referral platform	Score
Massachusetts	MA Home Energy Assessment Program	2
New Hampshire	OneTouch (state-level)	2
Vermont	OneTouch (state-level, local)	2
Minnesota	OneTouch (local)	1
Nebraska	OneTouch (local)	1
Rhode Island	Pawtucket and Central Falls Health Equity Zone (local)	1
All other states		0

Source: Bourguet and Faesy 2020; GW Public Health 2022; data from survey of state housing finance agencies and ACEEE research

[33] Accountable Communities for Health (ACH) is one of several terms used to describe "community-based strategies for integrating the health care and social needs of individuals" (GW Public Health: accountablehealth.gwu.edu/ACHInventory) The Foundation for Affordable Housing maintains an inventory of these initiatives, searchable by the range of coordinated service types they include. We searched this inventory for initiatives related to housing; we included initiatives backed by a state-level agency in the scoring, but we assigned only partial credit if the service area was regional or local rather than statewide.

Cross-Agency Data Sharing

This metric awards up to 2 points to states in which agencies are coordinating and sharing information to provide healthy, green, affordable housing. We awarded 2 points if the state maintains a data platform to share demographic data on housing across agencies. We identified these platforms through a direct survey of HFAs and through supplementary desktop research; the platforms are typically specific data-sharing software and often include data-sharing agreements among agencies that address health, energy, and housing.

Thirteen states practice some form of cross-agency data sharing. For example, Illinois maintains a data platform that merges demographic and disability data to support households earning no more than 30% area median income that have a head of household with a disability or illness. Per the Illinois Housing and Development Agency's (IHDA) description, the platform allows IHDA to share data and coordinate with service providers and HHS. The goal is to place individuals in units that have accessibility and supportive features to address issues related to conditions including physical, developmental, or mental limitations, substance abuse disorders, HIV/AIDS, or other risk of homelessness.

Table 47. Cross-agency data sharing in states

State	Score
Delaware	2
District of Columbia	2
Idaho	2
Illinois	2
Maryland	2
Montana	2
New Jersey	2
North Carolina	2
Oregon	2
Rhode Island	2
Texas	2
Vermont	2
Washington	2
All other states	0

Source: Data from survey of state housing finance agencies and ACEEE research

State Building Energy Codes

HUD and the U.S. Department of Agriculture (USDA) adopt minimum building energy codes for new construction and major modernization that must be met if projects are to be eligible to receive support from these agencies. This metric, worth 2 points, captures whether a state has implemented building energy codes more stringent than HUD and USDA requirements. We awarded 1 point each for state residential and commercial building codes if the state's adopted standards are equivalent to codes more recent than the 2009 IECC[34]/ASHRAE[35] 90.1-2007 standards adopted by HUD and USDA in 2015.[36]

To assess building stringency relative to HUD and USDA's minimum requirements for funded projects, we draw from the New Buildings Institute's Zero-Energy Performance Index (zEPI) Jurisdictional Scores for each state's codes. Table 47 summarizes our scoring methodology for code stringency. Lower zEPI scores indicate lower projected energy use intensity owing to more stringent building energy codes. Residential zEPI scores of 66.0 and below correspond with states that have adopted codes aligned with the 2012 IECC; we awarded those states 1 point.

Although building energy codes benefit everyone, they particularly benefit occupants of affordable housing by ensuring them access to a minimum standard of building performance and/or technology. Standards lock in energy savings for the duration of a building's working life and can lower occupants' energy costs. Because multifamily buildings may be subject to commercial rather than residential codes, we include both in our scoring.

A majority of states have residential standards that either approximate or exceed the standards set by HUD/USDA, while a handful of states do not have a statewide energy code (or a set of equivalent standards comparable enough to have been assessed).[37] Eleven states have residential energy codes that functionally exceed the HUD/USDA standard, while 32 states functionally exceed the same standard for commercial buildings.

[34] International Energy Conservation Code

[35] American Society of Heating, Refrigerating and Air-Conditioning Engineers

[36] www.federalregister.gov/documents/2015/05/06/2015-10380/final-affordability-determination-energy-efficiency-standards

[37] EERE notes that it may not quantitatively assess codes or rule changes that are not reasonably comparable to national model rules due to resource limitations.

Table 48. Building energy codes exceeding the HUD/USDA minimum standards (2009 IECC/ASHRAE 90.1-2007)

State	Exceeds HUD/USDA standards for residential and commercial buildings?	Score
Alabama	Yes	2
Arizona	Yes	2
California	Yes	2
Colorado	Yes	2
Connecticut	Yes	2
Delaware	Yes	2
District of Columbia	Yes	2
Florida	Yes	2
Georgia	Yes	2
Hawaii	Yes	2
Idaho	Yes	2
Illinois	Yes	2
Iowa	Yes	2
Maine	Yes	2
Maryland	Yes	2
Massachusetts	Yes	2
Michigan	Yes	2
Minnesota	Yes	2
Montana	Yes	2
Nebraska	Yes	2
Nevada	Yes	2
New Hampshire	Yes	2
New Jersey	Yes	2
New Mexico	Yes	2
New York	Yes	2
North Carolina	Yes	2
North Dakota	Yes	2

State	Exceeds HUD/USDA standards for residential and commercial buildings?	Score
Ohio	Yes	2
Oregon	Yes	2
Pennsylvania	Yes	2
South Dakota	Yes	2
Texas	Yes	2
Utah	Yes	2
Vermont	Yes	2
Virginia	Yes	2
Washington	Yes	2
Alaska	Residential only	1
Indiana	Residential only	1
Kentucky	Commercial only	1
Rhode Island	Commercial only	1
Tennessee	Commercial only	1
West Virginia	Commercial only	1
Wisconsin	Commercial only	1
All other states		0

Source: ACEEE research and analysis

State Appliance Standards

For this metric, we awarded 2 points to states that have adopted five or more appliance energy standards. These standards are initially passed through state legislation and regulation; further rulemaking may or may not be conducted to codify a statute into specific regulations. States can set standards for products that are not covered by federal standards as well as set standards that are more stringent than existing federal standards. In both cases, states can enforce these standards at the state level until such time as they are preempted by federal standards.

Appliance standards impact all appliances sold in a state, including those installed in new or renovated affordable housing units. Such standards ensure that low-income households have access to devices that conserve energy and water, and thus can save money on their utility bills.

We awarded 1 point to any state with more than five appliance energy standards. This does not include any standards passed at the state level that were subsequently adopted or surpassed federally. As of July 2021, 17 states had unique standards or standards that were more stringent than federal requirements; while only states with more than five of these standards received credit, all of these states are included in the Table 49 below. California leads the nation with 20 standards, followed by Colorado, Washington, Massachusetts, and Vermont.

Table 48. Appliance standards[38]

State	Number of state-enforced standards	Score
California	20	2
Colorado	17	2
Washington	17	2
Massachusetts	17	2
Vermont	16	2
District of Columbia	16	2
New Jersey	16	2
Oregon	16	2
Rhode Island	15	2
Nevada	14	2
Connecticut	6	1
Hawaii	5	1
New York	4	0
Maryland	2	0
New Hampshire	2	0
Texas	2	0
Arizona	1	0
Georgia	1	0
All other states		0

[38] Recent updates by states in 2022 did not make it into this edition of the scorecard

Source: ASAP 2021

CONCLUSION

As our assessment shows, states are in the early stages of integrating previously untapped policy, investment, and program opportunities to improve the lives of their most vulnerable families through healthy, affordable housing. Only a few states have implemented efforts amounting to even half of the opportunities we have identified here. Further, the communities that need these solutions the most—that is, those that have the highest poverty rates—are found in states that have done the least to provide healthy, affordable housing.

The COVID pandemic, rising rents, and increasing inflation have hurt lower- and middle-income families the most. American families are vulnerable, and state governments have ample opportunity to help. The opportunities we have identified in this analysis are broad and cross-cutting. The solutions do not rest in the hands of one decision maker. Rather, multiple state agencies, leaders, utilities, legislators, and governors all have roles to play in shaping communities so that healthy, affordable housing is available to, and attainable by, all.

We recommend that state leaders and affordable housing stakeholders and advocates use this *Scorecard* to identify areas in which other states have taken actions that they can adopt for the benefit of their citizens. It can also be used to formulate action plans. Each area in which a state has a low score is an opportunity for action. Indeed, this *Scorecard* is not just a ranking—its greater value is as a map to guide states toward healthy, affordable housing for all. There is an urgent need for states to act in this area and much more work to be done.

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